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**Article**

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# Developing a fair currency system

Fair currency  
system

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## Abstract

**Purpose** – This study aims to evaluate the role of the prevailing currency systems in achieving (or departing from) the socio-economic objectives of a progressive and just society; i.e. featuring stability and equitable distribution of wealth.

**Design/methodology/approach** – After documenting historical developments in currency systems, the study reviews the Islamic perspective on the matter. Features of an ideal currency system are listed and then a critical evaluation of existing currency systems – fiat, banking and cryptocurrency – is undertaken.

**Findings** – It is found that existing currency systems – fiat, banking and cryptocurrency – are not compatible with the socio-economic objectives of a forward-looking, progressive society, which upholds transparency and justice as its core values. The study documents that Shari'ah norms have no preference or dislike for any of the existing currency systems. Any prudent currency system compatible with the objectives of the Islamic financial system (i.e. stability and equitable distribution of wealth) is acceptable. A single international reserve currency (with country-specific legal tendering) is subject to the risk of destabilisation across global markets.

**Practical implications** – This paper recommends autonomy of central banking, the spending of seigniorage for the welfare of community members, development of asset-backed currencies (following *sukuk* structures), as well as multiple international reserve currencies and joining of hands by professionals and Shari'ah scholars to design a currency system compatible with the Islamic financial system. This paper's recommendation is against the adoption of cryptocurrency that lacks the backing of real assets.

**Originality/value** – The study contributes to the literature by evaluating the compatibility of existing currency systems in the achievement of socio-economic objectives of a welfare state which seeks to uphold justice and equitable resource distribution as core values in the financial system.

**Keywords** Cryptocurrency, Fiat currency, International currency, Islamic currency

**Paper type** Research paper

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## Introduction

Economic matters of human beings occupy an essential place in the short span of life. A significant productive time of an average human being is spent on the generation of resources to meet the demand for goods and services – essential for survival, as well as quality living. Generally, economic theories revolve around the classical concept of scarcity of resources, with alternative uses and choices by consumers with unlimited wants [1]. Hence, the economic issue is efficiency, i.e. maximisation of utility by prudent utilisation of limited resources. The utility is maximised through consumption of goods and services. Hence, under Western economic settings, rational behaviour would be to increase command



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over goods and services to improve the quality of life and happiness – an essential goal of life (Chapra, 1992).

The Islamic worldview differs from Western economic theories, primarily on the front of the objective of life. Under the Islamic worldview, the goal of life is to be successful here and in the hereafter (see Qur'ān, 59:18, 20). How is such success achieved? The answer lies in being more humane and compassionate and taking care of oneself and others too. To be modest in the consumption of resources is preferred over increased command over goods and services in pursuit of material happiness. Therefore, under the Islamic way of life, wants are filtered through the specific code of Islamic ethics. As regard the scarcity of resources, the Islamic worldview is again different from Western economic theories. Resources are in abundance, created by Allah (SWT) and sufficient to meet the needs and wants of humanity and other creatures (Qur'ān, 11:6, 53:3).

In spite of an agreement with the underlying philosophy of prudent utilisation of resources, the economic issue under the Islamic financial system is not about limited resources versus unlimited wants. Exploitation (of resources) and equitable distribution of resources is an economic issue, which needs due consideration of scholars and practitioners alike. Differences between Western and Islamic economic theories/systems are documented in the literature (Zaman, 2010, 2015). For instance, Zaman (2015) mentions explicitly 10 dimensions of contrast between Islamic and conventional economics methodologies.

However, unlike the Islamic economic system, Western economic theories have been practised in the modern era. Hence, we have results, which facilitate an evaluation of the suitability and achievements of such theories. Although the Islamic economic system is yet to be tested in modern institutional settings, support for such an experiment exists. For example, Selim and Hassan (2019) compare the results of interest-free and interest-based monetary policies in 23 developed countries and conclude that the group of countries with interest-free monetary policy performed better on the misery index (sum of the unemployment rate and inflation rate). Moreover, resource exploitation is on the rise in the form of scientific discoveries in different aspects of science. Every next discovery contributes to wealth creation and uplifting living standards. However, at the same time, billions of people live under the poverty line. Published data provide evidence about the inequitable distribution of wealth. According to an estimate, out of the total global wealth of US\$360.6tn, the top 1% of the adult population owns 45% (US\$162.27tn) of global wealth, the richest 10% own 82% and the bottom half (50%) of adults own less than 1% of global wealth (Shorrocks *et al.*, 2018). These empirics justify the urgent response of scholars and people in power to contribute to solving the real economic problem of the masses globally, i. e. the inequitable distribution of wealth.

Justice is a cherished feature of society in all spheres of life, and the political economy is no exception. Islam advocates fairness, justice and transparency in society. The Qur'ān states “surely! Allah does not wrong anyone by as much as the weight of a speck of dust [ . . . ]” (4:40) (also, see 4:58, 5:8, 6:152 and 7:29). At another place, it is stated “you who believe, uphold justice and bear witness to Allah, even if it is against yourselves, your parents or your close relatives or the rich or the poor [ . . . ]” (4:135). Compatibility with justice is a key Islamic criterion for designing systems and building institutions, and for evaluating them.

Money management has a central place in the daily activities of individuals and societies. Modern economic systems and institutions have been developed under capitalistic principles. The underlying philosophy of modern institutions and instruments contradicts Islamic law in many areas (Zaman, 2010). One of these systems is monetary policy, which impacts the lives of every person, irrespective of class (poor/rich, Muslim/non-Muslim, etc.). Movements in the money supply have broader implications for stability in prices and

purchasing power of holders of the currency. Wealth transfer and storage take place in currency, and earnings and spending are also measured in currency. Another dimension of currency is international trade and payments. Over the centuries, the currency system has passed through multiple stages of bimetallism, gold standard and fiat currency. An emerging concept of the 21st century is that of decentralised cryptocurrencies, which has begun taking root in the financial system. In an era of paper money lacking inherent value, quantitative management of money becomes very crucial and leads to multiple implications for the economic conditions (prosperity/poverty) of a nation. Mismatch in the quantity of money and output has implications for an economy in the areas of inflation, gross domestic product (GDP) growth and employment.

This study is an attempt to evaluate existing money supply systems developed under capitalism and their contribution towards the achievement of or departure from, economic objectives of a just and progressive economy, featuring stability, protection of wealth and equitable distribution of wealth. It is important on account of multiple reasons:

- Firstly, after a long span of slavery and ignorance, Muslim communities have started a movement towards the implementation of Islamic code of life, primarily in the area of the financial system. The modern Islamic banking and finance industry has completed about 40 years of its experience, and an increasing number of institutions are found globally, with an enhanced interest of the masses in the Islamic financial system. Hence, it is important to assess the compatibility of the prevailing monetary system with the Islamic financial system.
- Secondly, the gap between “haves and have-nots” is on the rise, signifying the insufficiency of the prevailing system and the need to overhaul or replace it.
- Thirdly, there are voices amongst financial experts to re-switch the currency system to the gold standard for the sake of stability in markets (IFA, 2000; Meera, 2002; Meera and Larbani, 2004; Yaacob, 2012; Santoso, 2012).
- Finally, a new decentralised currency system is emerging in the form of cryptocurrencies. There are about 3,000 different cryptocurrencies, with a market capitalisation of US\$273.56bn (Investing.com, 2020).

Certain significant efforts (Khan and Mirakhor, 1994; Chapra, 1996; Meera and Larbani, 2006, 2009; Hassan, 2007; and Werner, 2014) have been made to elaborate on the issue and offer recommendations. However, the debate is yet to be settled, especially in the presence of economic ills and the emergence of this new cryptocurrency system.

The study proceeds in the following order. The next section presents a brief historical overview of the currency systems, covering progress from bimetallism to the gold standard and the paper currency regime, followed by a discussion on whether there is any Islamic currency (with a focus on whether Islamic teachings favour or oppose any currency system). Desired features of a currency system are summarised in the following section, and an account of the existing money management system (including power currency and banking currency), encompassing related issues and problems, is then presented. The next section presents an introductory note on cryptocurrencies with a focus on Bitcoin (including testing it on desired currency features). The conclusion is offered in the last section.

## Historical overview

Humanity has progressed through multiple currency systems during the course of history. We do not have much information about the prehistoric era. However, in ancient Egypt, Babylon, Greece, Israel and Rome, multiple items including gold, silver, grains, copper,

brass, steel, iron and tin have been used as money (Xinwei, 1993). At the times of Prophet Muhammad (peace be upon him) (570–632), two types of currencies were in circulation, notably dinars and dirhams. The prevailing exchange ratio was 1:10, during the period of the Rashidun caliphate (632–661 CE) (Chapra, 1996). Neither dinars nor dirhams were minted in Arabian Peninsula at the time of Prophet Muhammad (peace be upon him). The “denarius”, known to the Arabs as the dinar, was the gold coin used as currency by the Roman-Byzantine empire, while the “drachma” (dirham), a silver coin, was the currency of the Persian empire (Meera and Larbani, 2006). The quantity theory of money postulates that expansion in economic activities dictates an increase in currency. Hence, multiple items have served as currency over the period in recorded human history. For example, Caliph Umar (may Allah be pleased with him) has been quoted as suggesting that camel skin might be used as currency (Chapra, 1996). However, the idea was dropped on account of uncontrollability and the expected scarcity of camels (Chapra, 1996). The first coin minted under Muslim rule was issued by Caliph Abd al-Malik in 696–97 CE (Pamuk, 2000). In the Ottoman Empire (1299–1922/1923), coins of gold (*sikke*), silver (*akce*), copper (*mangir*) and the paper currency remained in circulation (Pamuk, 2000; Hurriyet Daily News, 2012). During the 19<sup>th</sup> century, the Ottoman Empire initially adopted a bimetallic standard (gold *lira* and silver *kurus*) but later (1880) shifted to the gold standard (Pamuk, 2000). Paper currency (*kaime*) was introduced in 1862 in the Ottoman Empire. In Muslim India, *dam* (copper coin), *mohur* (gold coin) and *rupiya* (silver coin) remained in circulation during the rule of Sher Shah Suri (1538–1545) and onward during the Mughal empire (RBI, 2008). In pre-Ottoman Egypt (1517), three types of currency, including dinars, dirhams (silver) and *fulus* (copper) remained in circulation (Abdullah, 2016). Silver and gold have served as a measure of value in England’s monetary history. In Anglo-Saxon England (775 CE), the pound was a unit of currency equal to a one-pound weight of silver. Sterling’s value was defined in terms of gold in 1717, with an equation of one ounce of gold priced at 4.25 sterling (World Economic Forum, 2016). In China, multiple items including cowry, gold, silver, copper, grains, clothes, iron and paper performed the function of money (Xinwei, 1993).

The paper currency became popular in the 19<sup>th</sup> century; however, initially, it was backed by gold, i.e. the gold standard. The US dollar was declared as the international reserve currency, fully convertible to gold and other currencies were pegged to the US dollar’s value under a monetary agreement known as the Bretton Woods agreement (1944). In addition, the World Bank and International Monetary Fund (IMF) were established. However, in 1973, the Bretton Woods agreement ended and a floating system (free and managed) dominated the international arena. Nowadays, nations are free to issue as much currency as they wish and the volume of international trade, GDP and money supply determines the exchange rate between two currencies, i.e. a pure mechanism of demand and supply.

### Islamic currency

Is there any currency system that we can term as Islamic currency? To answer the question, we have to look into the sources of Islamic law and the history of monetary management in Muslim states. Original sources of Islamic law (i.e. Qur’ān and Sunnah) do not specify any currency system. During the period of Prophet Muhammad (peace be upon him), the gold and silver coins that were circulating in Arabia were not even minted domestically. Dinars were coming from the Roman Empire and dirhams were minted in the Persian Empire. Prophet Muhammad (peace be upon him) did not object to the use of these metals as currency. The use of gold and silver as a currency is mentioned in the Qur’ān neutrally (i.e. without showing any reservation or persuasion for these metals) (3:75; 12:20; 18:19). A mention of the dinar is found in the Qur’ān:

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There are People of the Book who, if you [Prophet] entrust them with a heap of gold, will return it to you intact, but there are others of them who, if you entrust them with a single dinar, will not return it to you unless you keep standing over them (Qur'ān, 3:75).

At another place, the word dirham is mentioned, while expression of the story of Prophet Yusuf (peace and blessings be upon him) has been made:

[. . .] and they sold him for a small price, for a few pieces of silver (dirhams): so little did they value him (Qur'ān, 12:20).

In the story of the People of the Cave, it is mentioned that after awakening from a long deep sleep they said:

[. . .] So send one of you with this silver coin (*wariq*) of yours to the town, and let him find out which is the good lawful food and bring some of that to you [. . .] (Qur'ān, 18:19).

Chapra (1996) and Meera and Larbani (2006) mention that the dinar was made of gold and the dirham was a silver coin. Mention of gold and silver (as a source of wealth) is found in the Qur'ān at various places (e.g. 3:14; 3:91; 4:20; 9:34; 7:93; 18:31; 22:23; 35:33; 43:33 and 35; 43:53; 43:71; 76:15,16 and 21) (Searchtruth.com, 2018). During later Islamic history, Muslim Governments have used at least four types of currency officially, including gold, silver, copper and paper money (Pamuk, 2000; RBI, 2008; Hurriyet Daily News, 2012).

The prevailing monetary system globally is based on fiat money, i.e. currency is issued by the central bank (government), which mandates its use in that country. This money supply is further increased by the credit creation process of commercial banks. No real goods and services back these instruments of money, unlike in the gold standard (Werner, 2014). Meera and Larbani (2009) reject the prevailing monetary system (fiat money) and declare the creation of money – currency and bank money – *ḥarām* (unlawful). Their basic argument for declaring the system *ḥarām* revolves around the creation of purchasing power out of thin air by the central bank (government) and commercial banks. They further question the legitimacy of the Islamic financial system operating under the prevalent monetary system. In another article, Meera and Larbani (2006) document the incompatibility of the fiat currency system with the establishment of Islamic socio-economic and political order in society. The authors argue that under the fiat monetary system wealth is transferred to money creators, resulting in socio-economic problems including inflation, fall in real incomes, increased property prices and inequitable distribution of wealth, amongst others. All of these results conflict with the objectives of the Sharī'ah regarding wealth. On the transnational front, the monopoly of one nation's currency as the international reserve currency is a threat to other nations' sovereignty. Loss of sovereignty would affect the achievement of other objectives of Sharī'ah including faith, life, intellect and lineage (Meera and Larbani, 2006). Santoso (2012) argues for the bimetallic system being preferable on the grounds of fairness and stability. However, he suggests a step-by-step approach towards switching to the bimetallic system, as opposed to an abrupt change, taking into account international agreements and the adequacy of gold reserves. Yaacob (2012) documents the currency system in place during the Muslim rule and concludes that re-switching to gold dinar is not a baseless proposal; however, implementation needs due diligence.

Nevertheless, as opposed to the position of rejecters of the fiat currency system, support for the system with certain modifications/reforms is found in the literature. Chapra (1996) highlights that there are no specific instructions for Muslims to stick to gold and silver as currency (prevailing at the time of Prophet Muhammad (peace be upon him)). Apparently, it seems that there is no alternative to the managed money system for Muslim countries. However, its management should be consistent with the socio-economic goals of the Islamic

financial system, and such an objective might be achieved through monetary intermediation based on profit-and-loss sharing. The idea of fiduciary money (other than gold and silver) has remained under consideration from the period of Caliph Umar (may Allah be pleased with him). Chapra (1996) argues that a currency system other than gold and silver was supported by Ahmad ibn Hanbal (d. 241/855), Ibn Hazm (d. 456/1064) and Ibn Taymiyyah (d. 505/1328). Al-Ghazali (1058–1111 CE) endorsed the use of silver and gold coins mixed with other metals as money if they are issued by the state (Islahi, 2001). Hassan (2007) builds convincing arguments against the use of gold currency for Muslim countries under prevailing circumstances and cites the example of China for the achievement of growth and development. He further argues that price stability and exchange rate stability is attainable under a fiat money system through proper economic management. Mohamad and Sifat (2017) argue against metallic money because of stated reasons including lack of juristic support for metallic money only, price of metallic money (more than fiat), debasement of metallic money, volatility in metallic prices, limited supply of gold in traditional Muslim communities and the issue of *gharar* (uncertainty). On the status of fiat currency, the Islamic Fiqh Academy (IFA) (1986) resolves that “paper money is real money, possessing all characteristics of value and subject to Shari’a rules governing gold and silver *vis-à-vis* usury, zakat, *salam* and all other transactions” (Resolution no. 21). However, the IFA (2000) recognises the problem of inflation under the fiat monetary system and recommends multiple measures to deal with it. These include proper checks on the quantity of money, reduction in budgetary deficits and discouragement of inflationary (usurious) financing by governments, development of an inflation accounting standard and independence of central banks in monetary management. It also recommends a feasibility study regarding a gold standard.

Hence, it can be concluded that no currency could be termed as Islamic currency. Any prudent currency system would be acceptable in an Islamic economy. However, a currency system must be able to meet the specific criterion of the Islamic socio-economic system and contribute to the enhancement of the welfare agenda as envisaged by the Islamic financial system. In the next section, the features of an ideal currency system are elaborated.

### Desired features of a currency

A currency system suitable to a modern Islamic economy (welfare economy) is expected to meet the following requirements:

- *Acceptability*: The currency should be generally acceptable by the masses. Anything that is considered *haram* (non-permissible) and which Muslim masses would not like to keep or use is not recommended to be used as currency (e.g. currency made from the skin of pork or any other material which is *haram* for utilisation by Muslims). Acceptability comes through either the intrinsic value of the product used as currency (e.g. goods which are used for satisfying needs) or by the legal process (currencies are legal tender within the jurisdiction of issuing states). In the case of inherent value (like gold and silver), acceptability is free from any legal compulsion and geographical boundaries; hence, ideally, a currency should have inherent value.
- *Measure and store of value*: Money is expected to serve as the measuring rod for the value of goods and services, as well as the store of value. Al-Ghazali (1058-1111 CE) has depicted the feature of the storability of money in a very convincing manner: “when one owns the money, one owns about everything, not like the one who owns cloth, as he owns cloth and nothing else” (quoted by Islahi, 2001).

- *Durability*: Another feature of a sound currency is its ability to be storable and long-lasting. Anything with a lesser amount of life and that requires huge space and expenses for storage is not recommended to be used as currency (e.g. perishable items such as fruits and vegetables cannot be used as currency).
- *Divisibility*: A currency should carry the feature of divisibility to the minimum level for the exchange of daily consumption of goods and services. Nothing can be used as currency which cannot be divided into smaller denominations (e.g. horses, cars, buildings, etc.).
- *Stability*: Stability in the prices of an item which is used as currency is a necessary feature. It is crucial because money is a source of wealth transfer and an unstable currency with frequent fluctuations in price will not serve the purpose (e.g. equity shares of the companies traded on stock exchanges cannot be used as currency because of extended variation in prices).
- *Transferability*: Another essential feature of a sound currency is easy transferability from person to person and place to place. Hence, immovable goods such as buildings and lands cannot be used as currency. This feature of money is required due to the mobility of people for business, education, health, tourism, a pilgrimage to sacred places and international trade.
- *Flexibility*: A sound currency system needs to be flexible enough to cater to seasonal needs and the currency supply required for the desired output level in the economy. Currency can be increased/decreased as per the demand of macroeconomics of a nation. When there is more production of goods and services, there should be more currency available to measure the output and facilitate payments. Likewise, when economic activities are slow, the quantity of currency may be reduced. Otherwise, based on the established theory of money quantity, prices of output will increase and decrease merely due to the supply of money.
- *Security*: An added feature of a currency system is built-in security, given the threats of losses due to theft, fire, floods and accidents, etc., and available resources to secure the money.

Additionally, an ideal currency system should be capable of enhancing (or at least not undermining) the agenda of socio-economic reforms and the achievement of cherished objectives of financial stability and equitable distribution of wealth.

## Existing currency systems

### *Fiat currency*

At present, the global money supply is based on paper currency, i.e. the fiat currency system. Under the fiat currency system, the central bank of a nation determines the need for currency in circulation within the economy based on the national output (goods and services). A certain amount of currency notes with different denominations is floated in circulation to be used by the residents for measuring the output and settlement of payments. Unlike the gold standard, such a currency is not backed by any real asset. Its legitimacy and general acceptability come by the declaration of a currency as legal tender. Hence, it is a tool for wealth creation by central banks. It is a system under which the central bank issues billions of currency by spending a paltry amount on the printing of paper notes. These paper notes carry wealth/purchasing power and are used in the purchase of real assets (goods and services). Here lies the issue that a central bank (effectively government in most cases) becomes wealthy without doing the required amount of work or exchanging wealth to earn



such purchasing power. One entity with the entrusted power of note printing has got the position of wealth creator out of thin air. Meera and Larbani (2006) rightly categorise it as seigniorage (difference in par value of a currency note and its cost).

This point needs deliberation by scholars, taking into account a holistic view of the modern economic system: whether such a power can be entrusted to an institution, effectively the government of a country, to create wealth out of nothing and to control resources? A probable answer can be yes, given the requirement of currency in the financial system. It is preferable to entrust the job to a central institution instead of any private sector player, however, with certain terms and conditions. For example, such wealth may be spent for the general welfare by categorising the needs of the society in the area of education, health and poverty alleviation instead of spending on the lavish lifestyle of government functionaries. It is the wealth of all residents. Hence, spending for the benefit of all, especially the destitute, would justify the system. Such a justification is based on the principle that the poor have a right in the wealth of a nation and taking into account socio-economic objectives of the Islamic economy including equitable distribution of wealth. The Qur'ān commands for the distribution of wealth to less privileged segments of the society in many verses (e.g. 2:43; 2:83; 2:110; 2:177; 2:184; 2:271; 2:273; 2:277; and numerous other verses) (Searchtruth.com, 2018).

The fiat currency system meets many of the desirable features of a currency system including divisibility, storability, transferability and flexibility. However, its flexibility poses a challenge for stability. Any mismatch in currency and output can pose the problem of inflation or deflation, neither of which is desirable. Also, on the front of acceptability, it is legal tender within the economy. However, it cannot make the global appeal of acceptability as it is not backed by real assets. One way to address the issue of “backing currency by real assets” is to use government properties as security in issuing currencies; and holders may be given the right to recourse in case of a crisis, similar to the *shukūk* (Islamic investment certificates) structure under the Islamic financial system. *Shukūk* (asset-backed) currency may help in maintaining the stability of currency value and pose a hurdle in the way of irresponsible money management including deficit financing by issuing new currency notes.

#### *Banking currency*

Three theories explain modern banking functions including credit creation theory, financial intermediation theory and fractional reserve banking theory. Credit creation theory contends that banks create money and increase the money supply in the economy by issuing loans. McLeay *et al.* (2014) document that banks create money by extending loans. When a bank makes a loan to a customer, the bank credits his (customer's) bank account with a bank deposit of the size of the loan. That is the moment of new money creation. Werner (2014) proves empirically that each bank has the power to create money, individually, out of thin air. “Thus, it can now be said with confidence for the first time – possibly in the 5,000 years” history of banking – that it has been empirically demonstrated that each individual bank creates credit and money out of nothing when it extends what is called a “bank loan”. The bank does not loan any existing money but instead creates new money. The money supply is created as “fairy dust” produced by the banks out of thin air’ (p. 16).

Proponents of fractional reserve banking do not accept the credit creation theory entirely; however, they agree on the power of credit creation by the banking system as a whole. Intermediation theorists, on the other hand, believe that a bank acts as an intermediate between savers and users of funds. Bank credit and plastic money is another important

source of purchasing power creation in the operations of the modern banking system. Money stock in an economy is classified as follows:

- $M_0$  includes currency (notes and coins) plus bank reserves;
- $M_1$  comprises currency (coins and notes) in circulation plus other money equivalents, readily convertible into cash (demand deposits);
- $M_2$  includes  $M_1$  plus short-term time deposits in banks and 24-h money market funds;
- $M_3$  includes  $M_2$  plus long-term time deposits and money market funds with more than 24-h maturity; and
- $M_4$  includes  $M_3$  plus other deposits (McCandless Jr. and Weber, 1995; Yu, 1997; Financial Times, 2018).

Under the prevailing financial system, money ( $M_1$ ,  $M_2$ ,  $M_3$  and  $M_4$ ) is created by banks in addition to currency notes and coins ( $M_0$ ) issued by the central bank of a country out of thin air (A basic credit creation exercise is given in the [Appendix](#)). Empirical data supports this fact. For instance, at the end of 2019, the monetary base to broad money ratio (approx.) was 5% in New Zealand, 4% in Norway, 9% in Malaysia, 18% in the USA, 19% in India, 20% in Indonesia, 23% in Turkey, 29% in the United Arab Emirates (UAE), 37% in Pakistan and Japan and 75% in Sudan, [while China and UK 18% and 17%, respectively, for 2017] (IMF, 2020). The practice of creating purchasing power by private businesses (commercial banks) out of thin air has broader implications from socio-economic objectives' considerations. The next sub-section discusses some of the issues in the prevailing financial system.

#### *Issues in the existing financial system*

The prevailing monetary management system has resulted in specific problems, as described below.

#### *Inequitable distribution of wealth*

A particular segment of the society has got the power to create money (backed by nothing, through the mere application of accounting entries) which is being used to buy goods and services, leading to the enrichment of people attached to that sector. It results in the unequal distribution of wealth amongst the various agents of the economy. For example, in 2018 the spread ratio (Net Markup (interest) income/Markup (interest) earned) in the banking sector was close to 47% (ROE 13%) while the gross margin (gross profit/sales) in the non-financial sector was close to 15% (ROE 15%) (SBP, 2018, 2018a). Likewise, the top 1% of the adult population owns 45% (US\$162.27tn) of global wealth while the bottom half (50%) of adults own less than 1% (Shorrocks *et al.*, 2018). Zaman (2010) states that at present the share of producers of goods and services in total output is about 10%, while the rest (90% of total output) goes to bankers and financiers. Islam prefers the transfer of money/wealth from rich to poor classes by encouraging the payment of zakat (alms) and charity. Circulation of wealth amongst the masses, especially poor segments, is an important feature of the Islamic financial system. The Qur'an states:

Whatever gains God has turned over to His Messenger from the inhabitants of the villages belong to Allah, the Messenger, kinsfolk, orphans, the needy and the traveller in need – this is so that they do not just circulate amongst those of you who are rich (59:7).

It may be argued that the issuer does not buy any asset by using the bonus purchasing power; however, it receives interest by lending. Still, an amount of unearned money goes to

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the issuer in the form of interest by lending purchasing power. However, impact in the form of rising prices is still valid, resulting in a decrease in the wealth of fixed earners.

#### *Inflationary pressures*

Inflation is a phenomenon, which leads to an increase in the general price level and a reduction in the purchasing power of money. Fixed income individuals (usually low to middle-income groups) suffer due to uncontrolled inflation in the economy, although businesses make money. According to the quantity theory of money, any increase in money supply coupled with stasis or a less-than-corresponding increase in output (goods and services) leads to a rise in the prices of products. At present, in addition to a central agency, commercial banks also have the power to control the money supply through credit creation. In the case of fiat currency, the restoration of purchasing power is a significant issue. Inflation – resulting primarily from an increase in the quantity of money by issuing authorities to meet budgetary deficits, coupled with banking money – adversely impacts the purchasing power of money. It is a hidden tax that results in the loss of wealth by individuals (Meera and Larbani, 2006).

#### *Default in repayments*

There is a high rate of default in repayment of loans under the prevailing system. Non-Performing Loans (NPLs) comprise one of the major issues of modern commercial banking globally. In Pakistan, for example, during the period 2014–2018, NPLs ranged between 7% and 12% of total gross advances (SBP, 2018). Meera and Larbani (2009) document, after a detailed analysis of fractional reserve banking, that under the prevailing system default in repayments is unavoidable.

#### *International payments*

International trade is primarily done by using the global reserve currency, i.e. US dollars. Even for an exchange of agricultural products (by country A) with petroleum products (by country B), US dollars are required to settle the payments, while the US dollar is neither the currency of country A nor of country B. So, when there is a demand for US dollars internationally, the issuer of US dollars prints paper notes in US\$billions by spending a few thousand dollars. The issuer of US dollars gets purchasing power of billions, which can be used to buy any real asset (goods and services) out of thin air. Unlike gold or any other item of wealth, the US dollar itself is not something of value, but still, the issuer possesses (bonus) purchasing power. Wealth is transferred to the issuer without any due labour or sacrifice of an alternative asset. Before 1973, the dollar used to be convertible into gold. However, after 1973 (revocation of Bretton Woods agreement), the convertibility of the dollar is not guaranteed. It may be argued that the issuer does not buy any asset by using purchasing power; instead, it lends it. Still, an amount of unearned money goes to the issuer in the form of interest by lending purchasing power. The practice has broader implications for global communities, Muslims and non-Muslims alike. There are specific issues with this international monetary system, elaborated as hereunder.

First is the issue of seigniorage (creation of purchasing power without exchanging equivalent labour or real assets). For a domestic currency, it can be argued that the government spends any benefit arising out of bonus purchasing power on projects and services meant for the general welfare of community members. However, in the case of international currencies, even this argument is invalid. Any benefit of bonus purchasing power spent in country X (issuer of international currency) will not benefit other countries. Hence, wealth (real goods and services) transfers from other countries to the issuer of the

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international currency (country X), without an equal exchange of wealth (goods and services). In the case of people with a different worldview/civilisation, it is further damaging to strengthen the capitalistic institutions, which they want to be modified and reformed as per their worldview.

Second is the issue of stability in the international financial system and markets. Under the fiat monetary system, using a single reserve currency in international payments poses severe threats to the world economic order. Paper currency is by its nature a piece of paper that gets credibility by the government of a country declaring it as legal tender. The acceptability of the currency lies in the mandating of its use by the residents of a jurisdiction. If a crisis emerges in the country that issues the currency that serves as the world's reserve currency, it will affect the whole global financial system (as is evidenced from the 2007–2008 global financial crisis). It is imperative to have multiple international reserve currencies or a representative international currency of nations (as suggested by Zhou Xiaochuan, ex-governor of Chinese central bank) to reduce the chances of destabilisation of the international financial system emerging from the use of a single country's currency as the reserve currency. The European Monetary Union and the euro represent a right step in this regard. Reserve currencies for various regions and cooperating communities (including Asia, Africa and the Organisation of Islamic Cooperation (OIC) countries) are due to contribute to strengthening the global financial system.

Third is the issue of enforceability of any currency, including the international reserve currency. The holders of currency X can force its acceptance by law only within the geographical borders of Country X. If the general acceptability of the sole international reserve currency reduces, the holder of currency X can still buy goods and services from Country X and enforce acceptance of payments within that jurisdiction. Under the prevailing economic settings, the USA is the largest economy – having trade relations with multiple countries – however, as per 2018 data, the share of the USA in international trade (in goods) is less than 20% (17% of imports and 11.2% of exports) (Eurostat, 2019). Practically, communities are engaged in international trade in multiple jurisdictions. Hence, in the presence of inherent value limitation under the fiat currency system, legal tendering legitimacy for the international payment system is required from multiple jurisdictions. That is the critical reason to have numerous reserve currencies with increased legitimacy in multiple economies.

### **Cryptocurrencies**

The virtual currency system, in the form of cryptocurrencies, is a recent phenomenon. It is a decentralised system of money creation. It is not even legal tender, i.e. it is not backed by any central bank or government of a country. Fiat currency is, at least, legal tender within the jurisdiction of a state, i.e. residents of that jurisdiction cannot refuse to accept it as payment for goods and services. However, in the case of virtual currencies, there is no backing at all. Hence, its acceptance as a payment for the delivery of goods and services depends entirely upon the sweet will of the seller. None can enforce its acceptance. Furthermore, in the case of fiat currency, any benefit attached to issuing a currency accrues to the central bank, effectively the government of a country, but in the case of cryptocurrency, that benefit goes to the issuer. Accruing a benefit to the government is more feasible than to a private party, as it is expected that the government will spend such a benefit for the collective welfare of the society.

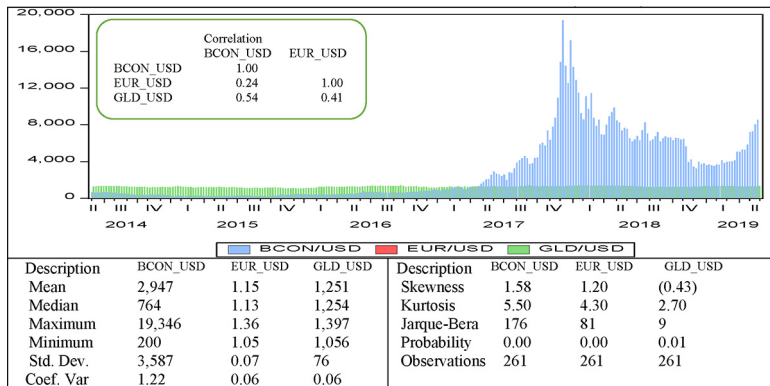
There are multiple cryptocurrencies being traded and available; however, Bitcoin is leading as far as market capitalisation is concerned. As of 12 July 2020, Fusion Media Limited lists about 3,000 cryptocurrencies with a market capitalisation of US\$273.56bn.

Bitcoin alone carries market capitalisation close to US\$171bn (62% share), with a daily volume of about US\$13bn (Investing.com, 2020). Historic facts relating to Bitcoin’s pricing in comparison with US\$/EUR exchange rate and gold futures are presented in Figure 1. The figure presents weekly pricing trends in Bitcoins trading, US\$/EUR and gold futures for five years (June 2014 to May 2019). Variations in the pricing of Bitcoins are very high. Descriptive statistics are presented in Panel-B. The maximum price (US\$19,345) was recorded on 10 December 2017, while the minimum price (US\$200) was on 11 January 2015. The coefficient of variation in Bitcoin’s pricing (1.2) is also very high as compared to US \$/EUR exchange rate and gold futures (0.06), respectively. However, correlation in the pricing of Bitcoins with gold futures is better (0.54) than gold futures and US\$/EUR exchange rate (0.41), as well as, better than Bitcoins pricing and US\$/EUR exchange rate (0.24).

*Bitcoin: history and developments*

Satoshi Nakamoto invented the Bitcoin currency system in 2008. By the second quarter of 2020, the quantity of Bitcoin in circulation is close to 18.42 million (Statista, 2020) and it is said that its number is fixed to top out at 21 million (Greenberg, 2011; and Bitcoin.org, 2018). Bitcoins are acquired either by purchasing or by mining. The system works like a bank account, however with certain differences. There is no facility for cash withdrawal, as bitcoins are accounting numbers without physical presence. Transfer of coins takes place through online networks of computers. Unlike a bank where employees work to facilitate transfers by following a set of protocols – including recognition of customer and availability of funds – under the blockchain system, miners perform the job (Scott, 2016). The reward for miners comes in two ways including transaction fees and finding new coins. Nakamoto (2008) states “once a predetermined number of coins have entered circulation, the incentive can transition entirely to transaction fees and be completely inflation free” (p. 4).

Finding a new bitcoin is like mining for gold. New bitcoins are earned, at a decreasing rate, through doing labour by transaction processing (Bitcoin.org, 2018). Abraham et al. (2016) mention some inherent issues in the smooth working of the system including long confirmation time, low transaction throughput and lack of incentives at certain steps of the protocol, leading to specific implications. However, it is expensive to search for new bitcoins due to the depreciation of expensive computing machines and the cost of electricity.



**Figure 1.**  
Historic pricing trends of bitcoins in US\$ (2014–2019)

**Data source:** investing.com; constructed by author

The average consumption of electricity per day in mining operations globally is sufficient to power 31,000 homes in the USA (Gayomali, 2013). Iceland is a popular destination for bitcoin mining due to its location and renewable energy resources. The low cost of electricity, coupled with cold weather, reduces the need for air-conditioning the server rooms, resulting in overall cost reduction in mining for bitcoins. Still, according to an estimate, the energy consumption of the entire mining network is equal to the consumption of the Republic of Ireland (The Guardian, 2018). Hayes (2015) documents the significance of the cost of production of bitcoins in pricing and concludes that reduction in cost (through mining hardware efficiency, lower electricity prices and lower mining difficulties, etc.) will have a negative influence on the value. A brief description of Bitcoin currency in light of the features of ideal money is presented in Table 1.

The legal status of bitcoins as the currency has not yet been finalised in multiple jurisdictions. Bitcoin is treated as property (not money) under USA tax laws (Rushe, 2014). The status of bitcoins (cryptocurrencies) under Islamic law is yet to be determined. Individual/random opinions show inconclusiveness (Abubakar *et al.*, 2018; Oziev and Yandiev, 2018; Windiastuti and Athief, 2019; Rabbani *et al.*, 2020; Siswanto, 2020); however, fatwas (juristic opinions) from Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) and Islamic Fiqh Academy (IFA) are yet to be announced. Abubakar *et al.* (2017) classify bitcoin in the *gharar* (higher uncertainty) category – a feature of void contracts under the Islamic financial system. Muedini (2018, p. 6) states “Bitcoin and other digital currencies seem to be much more aligned with principles of justice and social fairness, characteristics valued in Islamic jurisprudence”. Although there are certain question marks on the legality of fiat currency (Meera and Larbani, 2009), from the Shari’ah point of view, it has approval from IFA (1986). The case for Shari’ah approval of bitcoins or any other virtual currency is weaker than that of fiat currency for two reasons:

- (1) Firstly, although fiat currency lacks inherent value, it gets credibility through the legal process from the country of issue.

Features	Description
<i>Acceptability</i>	A bitcoin does not carry any inherent value and is also not guaranteed/ issued by any legal jurisdiction, hence there is no legal tendering
<i>Storability and durability</i>	Depending upon acceptability, bitcoin may work as a measure and store of value. However, both features of acceptability – inherent value and legal tendering – are missing. Bitcoin is durable – preserved in computer disks at a very low cost, given the multiple uses of computers, for a longer duration without perishing
<i>Divisibility</i>	Bitcoin is divisible to a minimal value. There are 1,000,000 bits in one bitcoin ( <a href="http://bitcoin.org">bitcoin.org</a> )
<i>Stability</i>	Stability comes through the quantity. More than the required currency in circulation creates inflation and vice versa. The quantity of bitcoins is fixed by design; hence, the danger of deflation is more than inflation
<i>Transferability</i>	Bitcoins can be transferred very easily to any geographical location through online computer networks. It cannot work at places, which are not connected with online networks. It does not exist physically
<i>Flexibility</i>	The quantity of bitcoins is fixed at 21 million by design. At this point, we can say it is less flexible than fiat money
<i>Security</i>	Bitcoins do not exist physically, hence are protected from theft. However, network security and hacking threats are present

Source: Author’s own

**Table 1.**  
Desired currency features and bitcoin

- (2) Secondly, in a sense, it is backed by goods and services (GDP) produced in a particular country, and the holder can claim its value, at least, in that jurisdiction.

Bitcoin lacks both of these currency features – legal tendering and inherent value.

Scott (2016) evaluates the potential of cryptocurrencies in facilitating remittances, financial inclusion and cooperative structures; however, structural developments are required for realisation. Li and Wang (2017) conduct an empirical study and document that the long-run Bitcoin exchange rate is more sensitive to economic fundamentals; hence, it can be considered for portfolio diversification.

Bitcoin currency system poses threats in certain areas, discussed as follows:

- Certain concerns about the Bitcoin payment system related to the anonymity of users. Law *et al.* (1997) highlight that an increased level of anonymity creates the potential for counterfeit money, money laundering and tax evasion; hence, privacy is recommended but not anonymity.
- Security is another issue. Although physical non-existence makes it more secure than paper currency or metallic money, hacking threats are present. In 2011, through hacking, 25,000 Bitcoins were stolen from 478 accounts. The loss estimate was close to US\$9mn (Stophel, 2013).
- The most critical concern relates to general acceptability. The acceptability issue in a currency system is very crucial and vital. Fundamental factors of acceptability include the inherent value of a currency and legal tendering, in addition to allied features of convenience. The fiat monetary system lacks the inherent value feature; however, it gets credibility by fiat, i.e. the government of a country binds its residents to accept the currency. In the case of Bitcoin or any other virtual currency system, such legitimacy is absent. If tomorrow, the international financial system refuses the acceptance of payments in the US dollar, it will still be acceptable in the USA and holders can buy goods and services in that jurisdiction at least. However, in the case of cryptocurrency, in addition to inherent value limitation, even this legitimacy is not available. Hence, the holder of bitcoins (or other cryptocurrencies), who were once considered wealthy, will end up carrying nothing more than accounting numbers generated by blockchain ledgers in case the international financial system refuses to accept them.
- Another problem is flexibility and stability. A currency system, which is not flexible to the changing demands of trade and exchange poses a serious threat to the stability of value. The quantity theory of money states that inflation/deflation results if there is a mismatch between the quantity of money and output. The number of bitcoins is fixed at 21 million, which might result in a mismatch of demand and supply of currency. It is argued that Bitcoin is divisible to the minimum (each coin has 1,000,000 bits); hence, prices will be adjusted accordingly. However, it would result in a serious economic issue. Any rational person is not willing to accept a lesser amount of currency than what he has spent on the production of a commodity because of the overall shortage of money. The motivation of higher purchasing power in the successive unit of currency will positively contribute to the satisfaction; however, the psychological issue will remain there.
- Another significant concern about Bitcoin (or any other virtual currency) is its intended use for trading illegal drugs and the provision of financing for banned activities (Hasbi and Mahzam, 2018). How to implement controls on virtual

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transactions intended for financing illegal activities poses serious challenges for law enforcement agencies (Raeesi, 2015).

Unless certain developments take place to address these concerns, it would be appropriate to wait and see before making any conclusion about cryptocurrencies. However, the conceptualisation of Shari'ah-compliant precious-metal-backed cryptocurrency (PMBC) by Ajouz *et al.* (2020) needs consideration by money management authorities in Muslim societies, on account of achieving efficiency through information technology (IT) applications. The concept of PMBC may be further extended to asset-backed cryptocurrency (ABC) following *shukūk* structures in cases where metals are not sufficient to match the currency demand of an economy. ABC following *shukūk* structures has the potential to address the questions (e.g. shortage of gold and higher cost of metallic money) raised about the adoption of the gold standard.

### Conclusion

In this research, an evaluation of prevailing currency systems has been made, covering multiple aspects including domestic and international. The findings lead to a "reappraisal of existing money management system" and call for a new/reformed currency system development, as argued by Abdullah (2016) and others. There are some specific expectations from a just financial system including financial stability and equitability in wealth distribution (Chapra, 2008). Furthermore, social, economic, political and financial goals (inter-related goals) are to be achieved jointly, as concluded by Choudhury and Hussain (2005) after examining the precepts of Shari'ah in the financial field (including social security, property rights and the rights of progeny). The findings indicate numerous hurdles in the achievement of these goals under the prevailing monetary management system. The existing monetary system has failed in achieving the desired objectives (equitable distribution of resources, stability in the financial system and protection of wealth, etc.). Hence, reconsideration and development of a fair currency system is the need of the time. The following important points are reiterated:

Firstly, there is no liking or disliking for any currency system under the Islamic financial system. Hence, any prudent currency system, taking into account the socio-economic objectives of the Islamic financial system, is acceptable. It puts the bar of designing such a fair and transparent currency system on Muslim finance professionals and Shari'ah scholars. Given the knowledge gap (lack of Shari'ah expertise amongst finance professionals and vice versa) between the two groups (Ahmad, 2016; Shahar *et al.*, 2018), significant joint efforts are required. It is imperative that Muslim economists and finance professionals join hands with Shari'ah scholars and come up with a currency system suitable for achieving the socio-economic goals of the Islamic financial system. Consideration may be given to bimetalism, gold coins, the gold standard, fiat currency, cryptocurrency and proposed asset-backed currency systems.

Secondly, under prevailing settings, seigniorage is a major issue. It is not justified even for the government, let alone the private sector (commercial banks). It is suggested that unless a new system comes into operation, the benefit of such a bonus purchasing power may be spent on the general welfare of members of the society with a focus on poverty alleviation, education and health sectors. Government spending may be restricted to tax collection or financing through an open financial market, ideally based on profit-and-loss sharing modes of financing. A formula may be developed for the determination and collection of seigniorage from commercial banks, generated in the process of credit creation.



Thirdly, fractional reserve banking contributes directly to enhancing the quantity of money supply, resulting in inflation. Furthermore, the issue of new notes to finance budgetary deficits of governments plays a similar role. Generation of inflation through an undue increase in money supply is a hidden tax (Meera and Larbani, 2006), resulting in loss of purchasing power and wealth of holders of such currency. It is tantamount to theft, clearly violating the objective of the Sharī'ah regarding the protection of wealth. Capacity building and independence of central banks in carrying out a monetary policy may reduce this problem. Multiple tools of monetary management including cash reserve ratio are at the disposal of the central banks under conventional wisdom. It is suggested that real assets owned by the government may back fiat currency, following the *sukūk* structure developed under Islamic finance.

Fourthly, having a single international reserve currency without the backing of any real asset poses threats to the stability of the global financial system. Such a single currency is legal tender within the jurisdiction of the issuing country. Hence, trouble in the issuing country will lead to trouble internationally (e.g. the US financial crisis of 2007–2008). Zhou Xiaochuan, ex-governor of the Chinese central bank suggested an international reserve currency under the International Monetary Fund (IMF) that is disconnected from any individual nation, ensuring long-term stability (Financial Times, 2009). It is prudent to have more reserve currencies available for international transactions. The European zone has managed the issue to an extent. Multiple reserve currencies for other regions and economic cooperation unions would contribute to stability in the global financial system (given the GDP volume, share in international trade and population). Although OIC countries have the platform of the Islamic Development Bank for the issuance of a reserve currency to be used in international payments (at least within the OIC-region), the potential is yet to be realised.

Finally, the cryptocurrency system (Bitcoin) lacks features of acceptability and flexibility. It neither carries inherent value nor is legitimised by legal tendering. Hence, this system poses severe threats in the area of loss of wealth on account of acceptability, in addition to the in-built limitation of flexibility and stability. It is prudent to wait and see before jumping to a conclusion.

A just and transparent currency system is expected to contribute to stability and equitable distribution of wealth. Hence, it is the prime duty of the actors (government, economists and Sharī'ah scholars) to join hands for the development of such a system. Such a system would further help in reducing crime, alleviating poverty and achieving harmony within the geographical borders of society, as well as internationally. Future research agenda includes evaluation of the fractional reserve banking regarding fairness (or its opposite) in resource allocations, poverty alleviation and achievement of other socio-economic objectives.

#### Note

1. Robins (1932) states “economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses” (p. 15).

#### References

- Abdullah, A. (2016), “An Islamic monetary theory of value and equation of exchange: evidence from Egypt (696-1517)”, *Humanomics*, Vol. 32 No. 2, pp. 121-150.
- Abraham, I., Malkhi, D., Nayak, K., Ren, L. and Spiegelman, A. (2016), “Solidus: an incentive-compatible cryptocurrency based on permissionless byzantine consensus”, Cornell University Library, available at: <https://128.84.21.199/abs/1612.02916v1> (accessed 2 December 2018).

- Abubakar, Y.S., Ogunbado, A.F. and Saidi, M.A. (2018), "Bitcoin and its legality from Shariah point of view", *SEISENSE Journal of Management*, Vol. 1 No. 4, pp. 13-21.
- Abubakar, N., Rosbi, S. and Uzaki, K. (2017), "Cryptocurrency framework diagnostics from Islamic finance perspective: a new insight of bitcoin system transaction", *International Journal of Management Science and Business Administration*, Vol. 4 No. 1, pp. 19-28.
- Ahmad, I. (2016), "Operational challenges in the Shari'ah governance of Islamic financial institutions (IFIs) in Nigeria: issues and solutions", *Journal of Islamic Economics Banking and Finance*, Vol. 12 No. 3, pp. 216-235.
- Ajouz, M., Abdullah, A. and Kassim, S. (2020), "Developing a Shari'ah-compliant precious metal backed cryptocurrency", *JKAU: Islamic Economics*, Vol. 33 No. 1, pp. 3-20.
- Bitcoin.org (2018), "Frequently asked questions", available at: <https://bitcoin.org/en/faq#general> (accessed 6 December 2018).
- Chapra, M.U. (2008), "Innovation and authenticity in Islamic finance", paper presented at the Eighth Harvard University Forum on Islamic Finance on Innovation and Authenticity, 19-20 April, Harvard Law School, Islamic Legal Studies Program Islamic Finance Project.
- Chapra, M.U. (1992), "Islam and the economic challenges", *The Islamic Foundation*, Leicester.
- Chapra, M.U. (1996), "Monetary management in an Islamic economy", *Islamic Economic Studies*, Vol. 4 No. 1, pp. 1-35.
- Choudhury, M.A. and Hussain, M.M. (2005), "A paradigm of Islamic money and banking", *International Journal of Social Economics*, Vol. 32 No. 3, pp. 203-217.
- Eurostat (2019), "EU and main world traders", available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php/EU\\_and\\_main\\_world\\_traders](https://ec.europa.eu/eurostat/statistics-explained/index.php/EU_and_main_world_traders) (accessed 12 July 2020).
- Financial Times (2009), "China calls for new reserve currency", available at: [www.ft.com/content/7851925a-17a2-11de-8c9d-0000779fd2ac](http://www.ft.com/content/7851925a-17a2-11de-8c9d-0000779fd2ac) (accessed 19 January 2019).
- Financial Times (2018), "Definition of M0, M1, M2, M3, M4", available at: <http://lexicon.ft.com/Term?term=m0,m1,m2,m3,m4> (accessed 27 November 2018).
- Gayomali, C. (2013), "Want to make money off bitcoin mining? Hint: don't mine", available at: <https://theweek.com/articles/465541/want-make-money-bitcoin-mining-hint-dont-mine> (accessed 28 November 2018).
- Greenberg, A. (2011), "Crypto currency", available at: [www.forbes.com/forbes/2011/0509/technology-psilocybin-bitcoins-gavin-andresen-crypto-currency.html#20448248353e](http://www.forbes.com/forbes/2011/0509/technology-psilocybin-bitcoins-gavin-andresen-crypto-currency.html#20448248353e) (accessed 28 November 2018).
- Hasbi, A.H. and Mahzam, R. (2018), "Cryptocurrencies: potential for terror financing?", *RSIS Commentaries No. 075*, Nanyang Technological University, Singapore.
- Hassan, Z. (2007), "Ensuring exchange rate stability: is return to gold (dinar) possible?", available at: <https://mpr.aub.uni-muenchen.de/8134/> (accessed 24 November 2018).
- Hayes, A. (2015), "Cryptocurrency value formation: an empirical analysis leading to a cost of production model for valuing bitcoin", available at: <http://aisel.laisnet.org/mcis2015/4> (accessed 5 May 2019).
- Hurriyet Daily News (2012), "Money in ottoman empire", available at: [www.hurriyetdailynews.com/money-in-the-ottoman-empire-30163](http://www.hurriyetdailynews.com/money-in-the-ottoman-empire-30163) (accessed 24 November 2018).
- IFA (1986), "Shari'ah rules governing paper money", *Resolution #21*, Third Session (11-16 October), Islamic Fiqh Academy, Jeddah.
- IFA (2000), "On inflation and change of currency value", *Resolution #115*, Twelfth Session (23-28 September), Islamic Fiqh Academy, Jeddah.
- IMF (2020), "Monetary and financial statistics: monetary base to broad money ratio", available at: <https://data.imf.org/regular.aspx?key=61545868> (accessed 12 July 2020).
- Investing.com (2020), "All cryptocurrencies", available at: [www.investing.com/crypto/currencies](http://www.investing.com/crypto/currencies) (accessed 12 July 2020).

- Islahi, A.A. (2001), "An analytical study of al-Ghazali's thought on money and interest", available at: <http://mpr.aub.uni-muenchen.de/41438/> (accessed 15 December 2018).
- Khan, M. and Mirakhor, A. (1994), "Monetary management in an Islamic economy", *Journal of King Abdulaziz University-Islamic Economics*, Vol. 6 No. 1, pp. 3-21.
- Law, L., Sabett, S. and Solinas, J. (1997), "How to make a mint: the cryptography of anonymous electronic cash", *The American University Law Review*, Vol. 46, pp. 1131-1162.
- Li, X. and Wang, C.A. (2017), "The technology and economic determinants of cryptocurrency exchange rates: the case of bitcoin", *Decision Support Systems*, Vol. 95, pp. 49-60.
- McCandless, G.T. and Weber, W.E. (1995), "Some monetary facts", *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 19 No. 3, pp. 2-11.
- McLeay, M., Radia, A. and Thomas, R. (2014), "Money creation in the modern economy", *Bank of England Quarterly Bulletin*, available at: [www.bankofengland.co.uk/publications/Pages/quarterlybulletin/2014/qb14q1.aspx](http://www.bankofengland.co.uk/publications/Pages/quarterlybulletin/2014/qb14q1.aspx) (accessed 15 August 2020).
- Meera, A.K.M. (2002), *The Islamic Gold Dinar*, Pelanduk Publications, Petaling Jaya.
- Meera, A.K.M. and Larbani, M. (2004), "The gold dinar: the next component in Islamic economics, banking and finance", *Review of Islamic Economics*, Vol. 8 No. 1, pp. 5-34.
- Meera, A.K.M. and Larbani, M. (2006), "Part I: seigniorage of fiat money and the *maqasid al-Shari'ah*: the unattainableness of the *maqasid*", *Humanomics*, Vol. 22 No. 1, pp. 17-33.
- Meera, A.K.M. and Larbani, M. (2009), "Ownership effects of fractional reserve banking: an Islamic perspective", *Humanomics*, Vol. 25 No. 2, pp. 101-116.
- Mohamad, A. and Sifat, I.M. (2017), "Gold vis-à-vis money in Islam: the case against dinarist movement", *International Journal of Law and Management*, Vol. 59 No. 6, pp. 977-992.
- Muedini, F. (2018), "The compatibility of cryptocurrencies and Islamic finance", *European Journal of Islamic Finance*, Vol. 10, pp. 1-10.
- Nakamoto, S. (2008), "Bitcoin: a peer-to-peer electronic cash system", available at: <https://bitcoin.org/bitcoin.pdf> (accessed 6 December 2018).
- Oziev, G. and Yandiev, M. (2018), "Cryptocurrency from Shari'ah perspective", available at: [10.2139/ssrn.3101981](https://ssrn.com/abstract=3101981) (accessed 9 January 2019).
- Pamuk, S. (2000), *A Monetary History of the Ottoman Empire*, Cambridge University Press, Cambridge.
- Rabbani, M.R., Khan, S. and Thalassinou, E.I. (2020), "FinTech, blockchain and Islamic finance: an extensive literature review", *International Journal of Economics and Business Administration*, Vol. 8 No. 2, pp. 65-86.
- Raeesi, R. (2015), "The silk road, bitcoins and the global prohibition regime on the international trade in illicit drugs: can this storm be weathered?", *Glendon Journal of International Studies*, Vol. 8 Nos 1/2.
- RBI (2008), "Mughal coinage", available at: <https://web.archive.org/web/20080516085855/www.rbi.org.in/currency/museum/c-mogul.html> (accessed 24 November 2018).
- Robins, L. (1932), *An Essay on the Nature and Significance of Economic Science*, Macmillan and Co. Limited, London.
- Rushe, D. (2014), "Bitcoin to be treated as property instead of currency by IRS", *The Guardian*.
- Santoso, B. (2012), "Money in Islam: the *Siyasah Shar'iyah*' perspective and implementation strategy", *Tazkia Islamic Finance and Business Review*, Vol. 7 No. 2, pp. 200-233.
- SBP (2018), "Financial statements analysis of financial sector", available at: [www.sbp.org.pk/departments/stats/FSA-2014-18.pdf](http://www.sbp.org.pk/departments/stats/FSA-2014-18.pdf) (accessed 13 July 2019).
- SBP (2018a), "Financial statements analysis of companies (non-financial) listed on Karachi stock exchange 2013-18", available at: [www.sbp.org.pk/departments/stats/FSA\(Non\).pdf](http://www.sbp.org.pk/departments/stats/FSA(Non).pdf) (accessed 13 July 2020).

- Scott, B. (2016), "How can cryptocurrency and blockchain technology play a role in building social and solidarity finance?", Working Paper 2016-1, United Nations' Research Institute for Social Development.
- Searchtruth.com (2018), "Search in Qur'an", available at: [www.searchtruth.com/search.php](http://www.searchtruth.com/search.php) (accessed 1 December 2018).
- Selim, M. and Hassan, M.K. (2019), "Interest-free monetary policy and its impact on inflation and unemployment rates", *ISRA International Journal of Islamic Finance*, Vol. 11 No. 1, pp. 46-61.
- Shahar, W., Hassin, W. and Zan, U. (2018), "Shariah audit for Islamic financial institutions (IFTs): issues and challenges", *Reports on Economics and Finance*, Vol. 4 No. 4, pp. 151-158.
- Shorrocks, A. Davies, J. and Lluberas, R. (2018), "Credit Suisse global wealth report 2018", available at: <http://publications.credit-suisse.com/index.cfm/publikationen-shop/research-institute/global-wealth-report-2018-en/> (accessed 1 December 2018).
- Siswanto, D., Handika, R. and Mita, A.F. (2020), "The requirements of cryptocurrency for money: an Islamic view", *Hekiyon*, Vol. 6 No. 1, pp. 1-9.
- Statista (2020), "Number of bitcoins in circulation worldwide from 4th quarter 2012 to 2nd quarter 2020 (in millions)", available at: [www.statista.com/statistics/247280/number-of-bitcoins-in-circulation/](http://www.statista.com/statistics/247280/number-of-bitcoins-in-circulation/) (accessed 12 July 2020).
- Stophel, S.K. (2013), "Bitcoin 101: How to get started with the new trend in virtual currencies", White Paper, Thomson Reuters.
- The Guardian (2018), "How Iceland became the miners' paradise", available at: [www.theguardian.com/world/2018/feb/13/how-iceland-became-the-bitcoin-miners-paradise](http://www.theguardian.com/world/2018/feb/13/how-iceland-became-the-bitcoin-miners-paradise) (accessed 28 November 2018).
- Werner, R.A. (2014), "Can banks individually create money out of nothing? – The theories and the empirical evidence", *International Review of Financial Analysis*, Vol. 36, pp. 1-19.
- Windiastruti, F.C. and Athief, F.H.N. (2019), "Inacoin cryptocurrency analysis: an Islamic law perspective", *Journal of Islamic Economic Laws*, Vol. 2 No. 2, pp. 152-177.
- World Economic Forum (2016), "A short history of the British pound", available at: [www.weforum.org/agenda/2016/06/a-short-history-of-the-british-pound/](http://www.weforum.org/agenda/2016/06/a-short-history-of-the-british-pound/) (accessed 5 June 2019).
- Xinwei, P. (1993), *A Monetary History of China*, Western Washington, DC University, Bellingham WA.
- Yaacob, S.E. (2012), "Superiority of the gold dinar as currency: study based on the history of Islamic civilization", *Islamiyyat*, Vol. 34, pp. 119-129.
- Yu, Q. (1997), "Economic fluctuation, macro control, and monetary policy in the transitional Chinese economy", *Journal of Comparative Economics*, Vol. 25 No. 2, pp. 180-195.
- Zaman, A. (2010), "On islamic economics", *The Express Tribune*, available at: <https://tribune.com.pk/story/19985/on-islamic-economics/> (accessed 5 June 2019).
- Zaman, A. (2015), "Re-Defining Islamic economics", in Egri, T. and Kizilkaya, N. (Eds), *Islamic Economics: Basic Concepts, New Thinking and Future Directions*, Cambridge Scholars Publishing, Newcastle Upon Tyne, pp. 58-76.

# Transactions	Deposit	Reserve	Loan	Interest paid	Interest earned
1	1,000,000.00	150,000.00	850,000.00	30,000.00	51,000.00
2	850,000.00	127,500.00	722,500.00	25,500.00	43,350.00
3	722,500.00	108,375.00	614,125.00	21,675.00	36,847.50
4	614,125.00	92,118.75	522,006.25	18,423.75	31,320.38
5	522,006.25	78,300.94	443,705.31	15,660.19	26,622.32
6	443,705.31	66,555.80	377,149.52	13,311.16	22,628.97
7	377,149.52	56,572.43	320,577.09	11,314.49	19,234.63
8	320,577.09	48,086.56	272,490.53	9,617.31	16,349.43
9	272,490.53	40,873.58	231,616.95	8,174.72	13,897.02
10	231,616.95	34,742.54	196,874.40	6,948.51	11,812.46
11	196,874.40	29,531.16	167,343.24	5,906.23	10,040.59
12	167,343.24	25,101.49	142,241.76	5,020.30	8,534.51
13	142,241.76	21,336.26	120,905.49	4,267.25	7,254.33
14	120,905.49	18,135.82	102,769.67	3,627.16	6,166.18
15	102,769.67	15,415.45	87,354.22	3,083.09	5,241.25
16	87,354.22	13,103.13	74,251.09	2,620.63	4,455.07
17	74,251.09	11,137.66	63,113.42	2,227.53	3,786.81
18	63,113.42	9,467.01	53,646.41	1,893.40	3,218.78
19	53,646.41	8,046.96	45,599.45	1,609.39	2,735.97
20	45,599.45	6,839.92	38,759.53	1,367.98	2,325.57
21	38,759.53	5,813.93	32,945.60	1,162.79	1,976.74
22	32,945.60	4,941.84	28,003.76	988.37	1,680.23
23	28,003.76	4,200.56	23,803.20	840.11	1,428.19
24	23,803.20	3,570.48	20,232.72	714.10	1,213.96
25	20,232.72	3,034.91	17,197.81	606.98	1,031.87
26	17,197.81	2,579.67	14,618.14	515.93	877.09
27	14,618.14	2,192.72	12,425.42	438.54	745.53
28	12,425.42	1,863.81	10,561.60	372.76	633.70
29	10,561.60	1,584.24	8,977.36	316.85	538.64
30	8,977.36	1,346.60	7,630.76	269.32	457.85
31	7,630.76	1,144.61	6,486.15	228.92	389.17
32	6,486.15	972.92	5,513.22	194.58	330.79
33	5,513.22	826.98	4,686.24	165.40	281.17
34	4,686.24	702.94	3,983.30	140.59	239.00
35	3,983.30	597.50	3,385.81	119.50	203.15
36	3,385.81	507.87	2,877.94	101.57	172.68
37	2,877.94	431.69	2,446.25	86.34	146.77
38	2,446.25	366.94	2,079.31	73.39	124.76
39	2,079.31	311.90	1,767.41	62.38	106.04
40	1,767.41	265.11	1,502.30	53.02	90.14
41	1,502.30	225.35	1,276.96	45.07	76.62
42	1,276.96	191.54	1,085.41	38.31	65.12
43	1,085.41	162.81	922.60	32.56	55.36
44	922.60	138.39	784.21	27.68	47.05
45	784.21	117.63	666.58	23.53	39.99

**Table A1.**  
Credit creation  
process

(continued)

# Transactions	Deposit	Reserve	Loan	Interest paid	Interest earned
46	666.58	99.99	566.59	20.00	34.00
47	566.59	84.99	481.60	17.00	28.90
48	481.60	72.24	409.36	14.45	24.56
49	409.36	61.40	347.96	12.28	20.88
50	347.96	52.19	295.76	10.44	17.75
Sum	6,664,695	999,704	5,664,991	199,941	339,899
Capital			566,499	0	33,990
Net interest income					173,949
Return on equity					0.31

**Notes:** This table presents the credit creation process of the modern fractional reserve banking system. A deposit of 1 million is converted into a loan of above 5 million, assuming a 15% cash reserve ratio and a 10% capital adequacy ratio. Finally, the bank earns a 31% return on equity, which is 6% otherwise (lending interest rate). However, this can happen to this degree only if none withdraws cash

Table A1.

### About the author

Muhammad Hanif, PhD, holds the Noor professorship in Islamic banking and finance at College of Business Administration, Ajman University, United Arab Emirates. He has delivered seminars, conference presentations and conducted training and workshops across the world including the USA, the UK, the UAE, the Netherlands and Pakistan. His articles have been published in multiple international refereed journals. His research areas include international trade, financial markets, asset valuation and Islamic financing. Muhammad Hanif can be contacted at: [hanifacma@gmail.com](mailto:hanifacma@gmail.com)

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