

PEER-REVIEWED

Application of precious metal-backed cryptocurrency in Islamic finance

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Abstract

Finance industry has become an essential part of the digital transformation in the perspective of Industry 4.0. The objective of this research is to find out the prospects of applying precious metal-backed cryptocurrency (PMBC) to Islamic finance by exploring its application to the different Islamic finance contracts for structuring Islamic finance products. A qualitative methodology is employed in conducting this research where relevant literature on the subject matter was reviewed. By using doctrinal approach, the paper presents Shari'ah compatibility of and issues in application of PMBC to Islamic finance contracts. The outcome of the research reveals that there is scope to use PMBC backed by gold to replace the function of fiat currency in Islamic finance contracts. However, there are specific Shari'ah rules applicable to each of the contract as derived from AAOIFI's Shari'ah standard No. 57 published in 2016. For the sustainable development and practical implementation of PMBC in Islamic finance, it is observed that there are certain inhibitions that need to be eliminated such as lack of political will in acknowledging it as a legal tender and development of an adequate and effective infrastructure with legal, regulatory and governance frameworks. It is anticipated that the outcome of this research will assist the policymakers and stakeholders of Islamic finance to prepare themselves to utilize PMBC in Islamic finance industry and to conduct further research in resolving the issues identified for adoption of PMBC backed by gold in a Shari'ah compliant way.

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1.0 Introduction

The failure of riba-based fractional reserve monetary system to withstand the turmoil of the past financial crises in providing stability in the global and domestic economic systems has forced to find alternatives to the system (Ahmed, et.al., 2018). The recent development of cryptocurrency,

currently used with fiat currencies, is predicted to be replaced in future provided that it is accepted as a legal tender. The fiat money today is no longer backed by gold or any real assets, it is rather backed by debts. It is described as a system of money where a government in a specific jurisdiction has announced to be a legal tender without backing of any physical commodity (Ajouz, et.al., 2019; p.4).

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In 2008, just after the financial crisis, the first form of cryptocurrency, Bitcoin was invented (Abubakar, et.al., 2019) by mysterious Satoshi Nakamoto. He believed that decentralized currency control on a distributed-ledger technology or blockchain technology would be the solution for the economic instability caused by the fiat money creating an air bubble that could burst any moment. The supply of Bitcoins was limited due to a specific way of coin mining. More cryptocurrencies, thereafter, entered the market.

Billah, M.M. (2018) has described cryptocurrency as a “non-typical legal tender” which may remove the tripartite manipulation, control and influence of any government. But the reality is that cryptocurrency is still not accepted as a legal tender like fiat money. There is still on-going debate with regard to this among the central banks and the regulatory authorities of currencies in different parts of the world. Instead of accepting it as a legal tender, some jurisdictions like Malaysia and Japan have legally recognized it as a crypto asset only (Sherin & Muneeza, 2020; Wright, 2020).

It is difficult to provide a precise definition for cryptocurrency (Zulkhibri, 2019), while digital currency is also a term used to describe it, as digital cryptographic algorithms are used for its minting (Dwyer, 2015; Zulkhibri, 2019). There are four key features of cryptocurrencies as identified by Baur, et.al., (2015): (i) absence of external regulatory barriers; (ii) establishment of peer-to-peer functions; (iii) usage of public Internet infrastructures; and (iv) implementation of private-public-key cryptography for secure transactions (Zulkhibri, 2019; p.36).

The blockchain technology ensures the operation of cryptocurrencies on a distributed ledger across numerous computers network thereby eliminating the need for a central authority. In addition to the significant mitigation of risks, another useful mechanism is elimination of intermediation costs, especially the processing and transaction activities. In the midst of this astonishing feature of cryptocurrencies came about an upsurge in the volume of its transactions. As of 9 June 2020, it was found that the total market capitalization for cryptocurrency stood at USD\$275,796,316,996 while there were 5,563 types of cryptocurrencies with 22,688 markets (coinmarketcap, 2020). It is anticipated that the cryptocurrency market will further grow and as such it is relevant to study this market.

Lately, it has been realized that cryptocurrencies also have failed in providing stability in the financial systems as they are susceptible to exchange rate fluctuations resulting in speculation akin to the fiat standard of money. According to Abd Rahman, (2017), gold value is stable compared to value of bitcoin that displays instability as

much as seven times. Hassan, et.al. (2021; p.16-17) indicated the unreasonable price fluctuations in the cryptocurrency market by referring to the market capitalization of all active cryptocurrencies between January 6 2017 which stood at USD 18.188 billion and January 18 2018 which stood at USD 583.16 billion showing that within the span of a year, there had been an approximate growth of 3106% creating greatest bubble in the history of modern economy. Therefore, precious metal-backed cryptocurrency (PMBC) with valued coins and tokens have been developed and perceived as a stable type of currency as it leverages on the underlying asset.

The objective of this research is to find out the prospect of applying PMBC to Islamic finance by exploring its application to the different Islamic finance contracts and products. A qualitative methodology is employed in conducting this research where relevant literature on the subject matter was reviewed. Via doctrinal approach, the paper presents Shari’ah compatibility and issues in application of PMBC to Islamic finance contracts.

This paper is divided into five sections. Followed by this introduction, section two presents the literature review on the subject and section three presents feasible areas of application of PMBC and the key issue of PMBC applications in Islamic finance contracts. Section four discusses the issues in the implementation of PMBC as a hedge to currency depreciation in any form of economic slowdown followed by conclusion.

2.0 Literature review

According to AAOIFI (2016), gold is a widely known valued element as a precious metal. Gold being a precious metal had previously served as commodity money and is used in the production of jewellery, coins, medals, and as electronic component among other uses. Ibn Khaldun believes that gold and silver are two kinds of metals that could be used as a measure of value and it is found that these metals are accepted by all as forms of money and its value is not subject to conjured fluctuations (Boulakia, 1971). A fundamental difference between gold and cryptocurrencies is that while gold enjoys less volatility with better liquidity in markets, cryptocurrencies are known for the reverse of this.

One of the most recent research conducted on the Shari’ah compliance of cryptocurrency is made by Zulkhibri (2019; p.43) where he observes that from a general perspective, Shari’ah scholars allow anything used by people as money which are gold, silver, wheat, barley, salt, dates etc.; paper currencies and coins; and electronic money and cryptocurrencies. However, he observed that when the money exchanges occur, the Islamic rules of Bai al sarf will be applicable. If the rule of sarf is breached in this case, Riba will trigger affecting the

validity of the transaction from Islamic perspective (Zulkhibri, 2019). The rule of Islamic jurisprudence that ought to be followed in exchange of currencies is that no form of currency is allowed to be used as a commodity or a good that could be leased for a rent. However, all jurists unanimously agree, as observed by Zulkhibri (2019), that money ought to be a medium of exchange as supported by scholars like Imam Ghazali (A-Ghazali, 1993) and Ibn Taymiyyah (Ibn Taymiyyah, 1995).

Zulkhibri (2019) also explains two types of money acceptable in Islamic jurisprudence; the first is Al-Thaman-ul-Khilqi' or Al-Nuqood-ul-Khilqiyah: it is a type of currency which is created to work as a medium of exchange in contracts and trades. Their value is natural not based on tradition or agreement, as well as custom; gold and silver are in this class. The second is Al-Thaman-ul-Istilahi or Al-Nuqood-ul-Istilahiyah: its value is established through common agreement, tradition or custom, hence artificial or token and its validity is not constant as the validity is subject to the government's decision. All fiat monies in physical paper or electronic form, as well as cryptocurrencies, fall into this category.

Ozиеv and Yandiev (2017) have stated eleven requirements for a cryptocurrency to be Shari'ah compliant and they are: "the process of money emission, its supply, and withdrawal from the market should be free from Riba; money can be made of any material (metal, wood, plastic, etc.); the money emitter and the monetary regulator may be two different entities/organizations; the money emitter is a risk-free institution; the money emitter should not enter into transactions with financial institutions aimed at obtaining income; it is not forbidden to use the currency/money of other countries; money does not necessarily have to be backed by real assets; money must be emitted in a sufficient quantity to serve the needs of the economy; no prohibitions and or restrictions on monetary transactions, as well as for exchange and transfer of money (not clear); money and monetary circulation should facilitate the life of the people; and ownership right of a person over money should be transparent" (Bedoui & Robbana, 2019; p. 271).

Muneeza and Mustapha (2019; p.72) indicated the Shari'ah compliance of blockchain technology and observed that many people get confused about use of blockchain technology for cryptocurrencies such as Bitcoin whereas in reality the scope of its application is much wider than that. They have concluded that generally Islam welcomes innovation and creativity as long as it complies with Shari'ah requirements and does not breach any of Shari'ah rules. As such, they believe that blockchain technology aligns with Shari'ah as it allows transaction in Islamic finance to be performed in a transparent manner by creating trust and reliability

between the parties by dispelling room for fraud or any unethical business behaviours (Muneeza and Mustapha, 2019; p.99).

Hassan, et.al., (2021) presented a Shari'ah analysis of Bitcoin and cryptocurrencies whereby they observed that the main features of Bitcoin include: it has no intrinsic value, it has only a digital but not a physical form; its supply is not determined by a central bank; it is neither issued nor controlled by a company, an individual, an organization; and it has no central point to address failure and when compared with fiat money, it does not qualify the functions of wide acceptability as a medium of exchange. According to Hassan, et.al., (2021), there are total six features found in fiat money: money should be scarce to obtain; money should be widely acceptable as a medium of exchange; money can be divided into small parts to facilitate small transactions; transactions using a specific form of money should be less expensive; money's value should remain reasonably stable over time; and money is issued by a trusted central authority. Out of these six features, only two functions are fulfilled by Bitcoin and cryptocurrencies: which is scarce to obtain feature and feature of it being able to be divided into small parts to facilitate small transactions only (Hassan, et.al., 2021).

As mentioned earlier, PMBC is simply designed as an electronic reflection of a physical precious metal secured in a vault across the globe. As in the case of the gold standard, the encrypted electronic units would continue to exchange for goods and services, as well as store value. Another characteristic of the cryptocurrencies is the blockchain distributed ledger technology that keeps an open record of every consummated transaction across the network. The technology enables tracking the currency's pathways right from its mining point through its multiple exchanges with absolute transparency and security.

The extent of the authenticity of the blockchain technology is embedded in its real time and published products, as detailed as capturing the serial numbers. This attribute makes blockchain consistent with the architecture of mining and refining of precious metals, as well as the distribution. To buttress this fact, James (2020) reported that currently there are not less than 62 companies that are promoting gold-backed cryptocurrency. The first firm to receive Shari'ah compliant certification for gold backed cryptocurrency is the Malaysia-based firm HelloGold who received it in February 2018 for their product GOLDX (Vizcaino, 2018A). This was followed by Dubai based OneGram listing Islamic cryptocurrency on its own virtual exchange in September 2018 claiming that "its cryptocurrency adheres to shariah directives as each OneGram unit is backed by physical gold stored in a vault, a

feature that aims to address speculation and price volatility” and that their tokens are paired now for trading against Bitcoin (Vizcaino, 2018B). GOLDX of HelloGold is different from other metal-backed cryptocurrencies in that it “involves the issuance of a token backed by physical gold stored in a Singapore vault, and transactions must be completed within a defined time period” (Vizcaino, 2018A).

HelloGold is certified Shari’ah compliant by Amanie Advisors whereby it is stated that the operation of HelloGold is in compliance with Shari’ah standard on gold which is the AAOIFI Shari’ah standard No. 57 on Gold and its Trading, as developed by AAOIFI, the World Gold Council and Amanie Advisors (HelloGold, n.d.). It is stated that since gold is a Ribawi commodity, to ensure that riba does not trigger in the transaction, there are certain conditions that ought to be fulfilled and these conditions are: HelloGold PMBC shall be backed by physical gold that is fully allocated and the process of buying and selling physical gold is completed in the time allowed by the standard (HelloGold, n.d.). Paragraph 3/4 of AAOIFI Shari’ah standard No. 57 on Gold and its trading states about sale of gold ingots for currencies:

When gold ingots are sold for currencies, the counter values must be exchanged during the contracting session. Possession of the ingot by the buyer, or his agent, is realized either physically or constructively. Constructive possession is realized by allocation of the ingot and by enabling the buyer to dispose of, or by holding a certificate that represents ownership of a specified ingot that is distinguishable (an allocated ingot) from others, by serial numbers or other distinct marks from other ingots, provided the certificate is issued the day the contract is concluded (Trade Date “T+0), by officially or customarily recognized agencies, enabling the buyer to take physical possession of the purchased ingot at his request. Hence, it is not permissible to sell an unspecified ingot (technically known in the market as unallocated ingot) without physical possession.

The fatwa for permissibility of HelloGold application offered in Malaysia was issued by Amanie Advisors on 6th December 2016 (Amanie Advisors, 2016). This fatwa was issued for the application where the customer in Malaysia is allowed to purchase physical gold stored at Singapore vault on spot and customer purchases and sells gold via the application from HelloGold (Amanie Advisors, 2016). However, there is no fatwa found for their cryptocurrency, GOLDX found in the website. IFN Fintech (2018) reported that GOLDX is also given Shari’ah compliance endorsement by Amanie Advisors and GOLDX is an Ethereum ERC20 token backed by 99.99% investment-grade gold, where this type of distinction is made in the first time in the world. It is essential to observe that in GOLDX, tokens are issued only to the amount of gold physically held where the access to this information is given publicly and it is confirmed and verified independently from its vaulting partner (IFN Fintech, 2018).

As for OneGram, it has been given Shari’ah endorsement by Dubai-based advisory firm Al Maali Consulting; and to limit speculation in OneGram, “each OneGram cryptocurrency unit is backed by at least a gram of physical gold stored in a vault” (Torchia & Vizcaino, 2018). The similarities and differences between OneGram and Bitcoin have been described by Ullah (2018; p.49) as both OneGram and Bitcoin are digital currencies; but if any of them crashes, the value of Bitcoin will be zero while OneGram backed by gold would leverage on the value of the underlying asset which is gold.

Asif (2018) belongs to the group of proponents of the permissibility of cryptocurrency where he states that cryptocurrencies and tokens in itself are Shari’ah compliant, but due to the nature of the underlying commodities used or due to the modus operandi of them, further research might be needed to find out whether it is shari’ah compliant or not. PMBC could be described as an asset backed token which is similar to sukuk that “represents claim on an underlying asset, and to claim the underlying asset, one sends the token to the issuer” (Shariyah,



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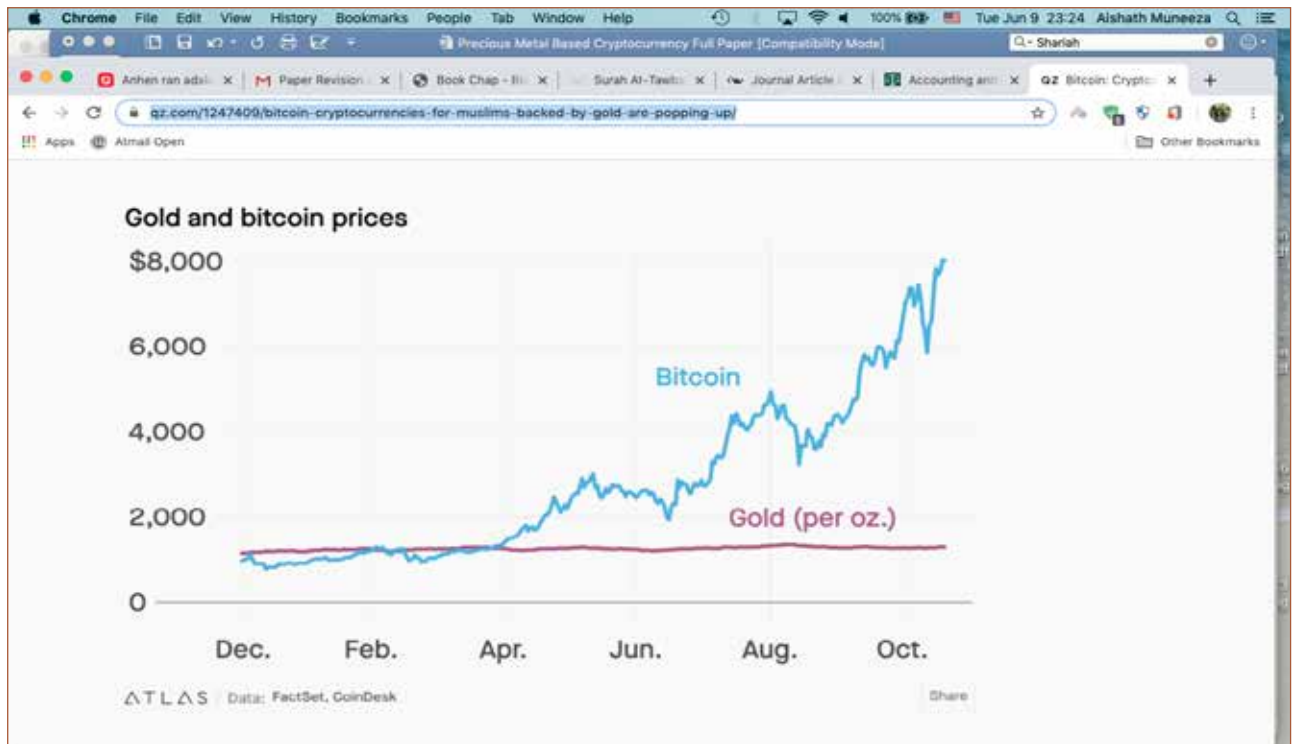


Figure 1: Fluctuation in Gold and Bitcoin Prices. (Source: King "2018")

Review Bureau, 2018; p.11). In the past, money has been used in different forms where precious metals to stones, shells, furs, animal skins, and tobacco have been used as a medium of exchange (Sanusi, 2002). As such, gold backed PMBC has no issue to be used unlike the cryptocurrency without underlying assets of which the "prices soaring and plummeting on a weekly basis, there is a fast buck to be made, but also a lot to lose—and quickly" (King, 2018). Figure 1 below illustrates the price stability of gold compared to bitcoin.

It is evident from figure 1 (above) that the price of gold is relatively stable compared to bitcoins which is not backed by any asset. The price of gold in the past year kept fluctuating between USD\$1,200 and USD\$1,350 while the price of bitcoin has been fluctuating continuously throughout the year without any control. This evidence proves that from a Shari'ah perspective, gold backed PMBC is Shari'ah compliant unlike bitcoin. The asset backed tokens have assets to back with intrinsic value. Instead of using the hard gold, the reason why it is important to go through the tokenization process in PMBC is to improve liquidity "facilitating fast, secure, and low-fee trading of real-world assets on the blockchain" (ICOMALTA, n.d.). Improving liquidity here simply refers to how quick and easy it is for an asset to be bought or sold, and liquidity has a direct strong correlation with the asset's trading volume. In this regard ICOMALTA (n.d.) states that "liquidity enhances the value of the underlying asset because it mitigates the risk attached to not being able to exit quickly. A

24/7/365 token trading market improves price discovery, minimizes price volatility, and reduces "flash crash" risk."

3.0 The prospective use of PMBC in Islamic finance contracts

The following discussion focuses on the use of PMBC backed by gold in different Islamic finance contracts followed by the discussion on the findings of the analysis made in this regard.

3.1 Use of PMBC backed by gold in Islamic finance contracts

3.1.1 PMBC backed by gold in Wadi'ah contract

Wadi'ah is a safekeeping contract that is used in Islamic finance to structure deposit products without a fixed return. It is equivalent to a conventional bank's current account type of a product. There are two types of Wadi'ah contracts in Shari'ah: Wadi'ah yad Amanah (safekeeping as a trust) and Wadi'ah yad Dhamanah (safekeeping with guarantee). In this contract, the person who intends to keep the money safe will deposit the money with the trustee and then the trustee keeps it until the former comes and takes it. The difference between Wadi'ah yad Amanah and Wadi'ah yad Dhamanah is that in the first type money kept is not guaranteed even if it is lost while in possession of trustee without his negligence and the money kept in trust cannot be used by the trustee during the time it is kept with the trustee. In the latter type, money kept as trust

can be used by the trustee, as in that case it becomes a loan, it shall be guaranteed to be returned the exact amount one deposited. In relation to PMBC backed by gold, the question here is whether a deposit could be made using PMBC backed by gold. The answer to this is yes, as provided in the AAOIFI Shari'ah standard no. 57. Further, there is no Shari'ah prohibition to do so.

According to paragraph 5/4 of the said AAOIFI Shari'ah standard, the gold kept as a deposit by the trustee shall be managed as a trust without comingling it with trustee's own gold. However, if the depositor allows the trustee to use the deposited gold with him and in this case, the co-mingling of gold of depositor with the trustee's gold have to be made in accordance with what has been stated in paragraph 3/5 of the said Shari'ah standard that deals with Shari'ah ruling for joint ownership of gold, where it is explicitly stated inter alia that in case of loss or damage, each co-owner shall bear loss/damage on pro rate basis. This simply indicates that in this case Shari'ah rule of Wadi'ah yad Dhamanah is applicable as explained above. In case the physical gold has been deposited, the trustee is allowed to charge a fee as safekeeping cost of the gold that could be a lump sum amount or as a percentage of value of the deposited gold. However, if the gold is kept as a rahn (collateral) to secure a loan given, then the fee charged for safekeeping of the gold kept as collateral shall not exceed the actual cost incurred in safekeeping the gold in a particular case. There is no specific formula provided in the Shari'ah standard on how to calculate the actual cost incurred in this case and as such, it is up to the trustee to use a reasonable standard to do so. According to paragraph 5/4/3 of the standard, if the gold deposited is "damaged or defected due to misconduct, negligence, or violation of the contractual terms and conditions by the depositary, the depositary shall be liable to indemnify the depositor with equivalent gold amount of the same kind, if possible. Otherwise the indemnification shall be of the value of the damaged or defected gold at the time of occurrence of the damage or defect."

An issue that needs to be discussed here is whether the fee paid for the safekeeping cost by the depositor to the trustee could be paid in gold backed PMBC. A direct answer for this is not provided in the discussed Shari'ah standard. However, it is common sense that in this case where gold backed PMBC is being taken as a currency to replace the fee paid in fiat money, there is no Shari'ah issue in this case. This is why, the Shari'ah standard might not have dealt it under the designated paragraph, due to being obvious.

3.1.2 PMBC backed by gold in Ijarah contract

Ijarah is a leasing contract of a known, Shari'ah

compliant asset or service for a defined and agreed rent/wage between the lessor and lessee. There are two types of Ijarah based on the subject matter of the contract: Ijarah of an asset and Ijarah of a service.

From a conventional point of view, leasing of an asset can be divided into operating lease and financial lease. Operating lease is where the ownership of the asset from the beginning of the lease contract and after it ends, remain with the lessor. There is no expectation nor agreement between the lessor and lessee to transfer the ownership of the leased asset. However, in case of financial lease, the lessor and lessee agree to transfer the ownership of the leased asset at the end of the last rental payment. From the Shari'ah perspective, operational lease is the only type of valid lease as Shari'ah does not allow to combine a lease and sale contract in one and even the end result of both contracts is different and contradictory. Therefore, AAOIFI has issue the standard on Ijarah munthiah bil Tamleek meaning that the lease and the ownership aspects need to be kept separate and independent. As such, it is a hybrid Shari'ah compliant product by combining Ijarah and bai' (sale) or hibah (gift). In a lease or ijarah contract, what is transferred is not the ownership of the asset from the lessor to lessee during the lease period; but it is only the usufruct or the right to use that is transferred. Therefore, consumables cannot be leased as the moment the same are used, the subject matter is destroyed.

In both types of Ijarah, Ijarah of an asset and Ijarah of a service, PMBC backed by gold can be used. Hence, the rental or the wage could be determined and paid using PMBC backed by gold. However, in both of these cases, the lessor and lessee/ hirer and hiree shall determine the amount without ambiguity and shall agree on a proper period of lease. Provided that all other Shari'ah rules applicable to a lease contract are adhered to, there is no Shari'ah issue in replacing the fiat money used in Ijarah contract with PMBC backed by gold. This is as provided in the AAOIFI Shari'ah standard no. 57.

According to paragraph 5/3 of the said AAOIFI Shari'ah standard, there is no Shari'ah issue in leasing gold as jewelry or ingots provided that the leased gold during the lease period would not be converted into cash or Dinar. In this case the rent could be paid in advance or in arrears whether the lease is a normal lease or a forward lease. In the case of Ijarah Muntahia bil Tamleek, at the end of the lease contract, the price of ownership transfer could be made using gold on spot to buy the asset under the independent sale contract. It is also expressly stated that there is no Shari'ah issue in the payment of rent or the wage in the form of gold.

3.1.3 PMBC backed by gold in Musharakah, Mudharabah and Wakalah contracts

Musharakah and Mudharabah contracts are equity contracts, while Wakalah is a service based contract used in Islamic finance. In a Musharakah contract, all parties contribute capital or/and labor or/and both as equity towards conducting a profitable Shari'ah compliant activity where the parties pre-agree to a profit sharing ratio, while loss, if any, has to be borne by the parties according to capital contributions. In a Mudharabah contract which is also known as a money management partnership contract, one party contributes the capital and the other party agree to manage the Shari'ah compliant business activity and they pre-agree to a profit sharing ratio. In case of loss, except in case of negligence on the part of mudarib, all the business loss has to be borne by the capital provider while the managing partner loses in terms of unpaid services during the period. One important rule in both of these equity contracts is that no profit can be guaranteed to any other partner(s), and a fixed amount cannot be agreed between the parties to be paid as profit. In case of Wakalah, one party who is the principal appoints another party as his agent to perform a Shari'ah compliant activity on his / her behalf for a fee, or for free. If the service is agreed to be performed for free, then the contract is non-binding.

According to paragraph 4 of the AAOIFI Shari'ah standard on gold, in equity based contracts: Musharakah and Mudharabah; and investment Wakalah, gold can be used as capital on the condition that at the time of the contract, the parties participating in the contract shall determine value of the gold contributed as capital and its monetary value in currency shall be determined. If valuation of gold in this case is impossible, then it is prohibited to use gold as capital for the said contracts. The parties to the contract are permitted in Shari'ah to distribute the profit in gold at the market value of gold as decided at the time of profit distribution. If not, it is not allowed. In case of liquidation, the parties also can redeem their capital in gold at the market value of gold at the time of redemption. It is also permitted to buy shares of a company that deals with extraction of gold as long as the relevant Shari'ah parameters that ought to be followed in this regard are adhered to such as AAOIFI Shari'ah standard no. 21 on financial papers.

3.1.4 PMBC backed by gold in the contracts of Salam and Istisna'

Salam and Istisna' are exceptional contracts under Shari'ah as in these contracts a sale contract can be executed without the existence of the subject matter at the time of entering into the contract. Salam is a forward sale contract where homogeneous goods are suitable to be used as the subject matter with the exception of gold, silver, precious rocks and animals. At the time of the contract, the forward buyer and the seller agree to the quantity, quality, price, the

delivery time, and the buyer pays the full price of the commodity to be delivered in future, at the time of the contract in a lump sum. Istisna' on the other hand is entered only to manufacture any items where the person who requests to manufacture gives the specification and agrees to the price, the payment terms, delivery time. Unlike in Salam contract, in Istisna' contract it is not mandatory to pay the price on spot in a lump sum. The way the payment could be made in an Istisna' contract can be agreed between the parties in any manner they like as long as both parties consent.

According to paragraph 4 of the AAOIFI Shari'ah standard on gold, if the subject matter of Salam is not gold, silver or currencies, then gold is allowed to be used as capital of salam. In case of Istisna', it is allowed to enter into an Istisna' contract in gold as long as the price of the contract is not in gold, silver or currencies. This is to oust Riba from the transactions.

3.2 Analysis

From the foregoing discussion, it is clear that PMBC backed by gold is compatible to be used in Islamic finance contracts to replace the fiat currency that is used today. However, there are certain rules that ought to be observed in this regard depending on the type of the contracts and the specific Shari'ah rules applicable to them. This is illustrated in Table 1.

As illustrated in the table 1 the Shari'ah contracts discussed are compatible to be used with PMBC backed by gold. However, there are some rules ought to be observed in this regard. One may question about the purpose of using PMBC backed by gold in the Shari'ah contracts in a quest to understand the advantage of using it. The answer is simple. Fiat money has no underlying asset except debt and in case of a financial crisis or any situation that devalues the currency, the value of it falls as it has no intrinsic value in it. However, if PMBC backed by gold is used, the value of gold in the market will determine its value and it is not created out of thin air or in vacuum (Ajouz, et.al., 2019). Ajouz, et.al., (2019) refer to the Quranic verse 9:34 which states: "O you who have believed, indeed many of the scholars and the monks devour the wealth of people unjustly and avert [them] from the way of Allah. And those who hoard gold and silver and spend it not in the way of Allah - give them tidings of a painful punishment." By referring to this verse they intended to prove that gold and silver had been used as money in Islamic framework. As such, since PMBC backed by gold would have intrinsic value in it, it is more appropriate from a Shari'ah perspective to acknowledge as money than the current fiat money that is used. The advantage gold backed PMBC has could be explained based on their intrinsic value in gold.

Type of Contract	Is it Compatible with PMBC backed by Gold?	Rules
Wadi'ah	Yes	- It is permissible to deposit gold.
Ijarah	Yes	- Leasing of gold as jewelry or ingots is allowed as long as it is not converted into cash or Dinars during the lease period. - In Ijarah Muntahia bil Tamleek, the asset could be purchased via gold on spot. - Rent and wage can be paid in gold.
Salam	Yes	- As capital of Salam: if the subject matter of Salam is not gold, silver or currencies, then gold is allowed to be used. - As subject matter of salam: It is also allowed to purchase gold via Salam contract provided that the capital of Salam is not gold, silver or currencies.
Istisna'	Yes	- It is allowed to enter into an Istisna' contract in gold as long as the price of the contract is not in gold, silver or currencies.
Musharakah, Mudharabah & Investment Wakalah	Yes	- Gold can be used as capital on the condition that at the time of the contract, the parties to the contract shall determine value of the gold contributed as capital and its monetary value in currency shall be determined. - The parties to the contract are permitted in Shari'ah to distribute the profit in gold at the market value of gold as decided at the time of profit distribution. - In case of liquidation, the parties also can redeem their capital in gold at the market value of gold at the time of redemption. - It is also permitted to buy shares of a company that deals with extraction of gold as long as the relevant Shari'ah parameters are accomplished.

Table 1: Compatibility of Using PMBC Backed by Gold with Islamic Finance Contracts in the light of Shari'ah Standard No. 57 on Gold and Its Trading Controls of AAOIFI (Source: Author's own)

4.0 Issues in the implementation of PMBC backed by gold

In the practical implementation of PMBC, there are various challenges facing it. In this regard, Ajouz (2019) observes that the biggest obstacle is lack of political will. This is true as without the required political will and support, replacing or adopting a new currency is impossible. A currency is required to be recognized as a legal tender by the governments. As such, if PMBC backed by gold is to be used in Islamic finance, recognition by the government(s) would be a mandatory requirement. The lack of political will and support to introduce and recognize PMBC backed gold leads to another issue of lacking infrastructure required to implement gold backed PMBC. This includes not having the proper legal, regulatory and uniform governance standards that ought to be followed in implementing PMBC backed by gold with the hope of boosting the confidence of its users and stakeholders. It is not sufficient merely to have a Shari'ah standard being enacted on gold; but rather the mechanisms to establish a transparent system disclosing in a timely manner all the material

information related to it need to be put in place to build trust in the system.

The mechanisms to ensure Shari'ah compliance need to be publicly disclosed rather than having an opaque system where only a news publishing the name of the Shari'ah advisory firm is revealed. The modus operandi of a transaction and the reasons why it is considered as Shari'ah compliant must be published in a way that the public would be aware of the reasons why they should use it. In this regard, the industry needs to learn from the experience of the existing players in the market and the regulatory authorities need to enact standards by learning from the experience. For instance, the efforts taken by GOLDX tokens to publicly make aware that they adhere to the rule of issuing only to the amount of gold physically held is commendable as they publicly make this information available and this information is confirmed and verified by independently from its vaulting partner (IFN Fintech, 2018). Mullan (2016) observes that it is difficult for some companies to offer PMBC under the existing financial regulations. The reason for this most probably could be due to the fact that the existing regulations are not enacted in

contemplation of PMBC and as a result, the existing regulation might not have provisions to facilitate the developments of PMBC. As such, regulatory authorities need to give room for PMBC to be developed under regulatory sandbox initiatives or in any way they could be sustainably developed.

There are some operational inhibitions that could be contemplated as an issue in developing PMBC backed by gold. As discussed by Muedini (2018), it is observed that storing large quantity of gold could be an issue not only in terms of high cost; but finding adequate space and even transportation of it could be problematic. Furthermore, there might be a situation where gold is not backed properly with PMBC as required by Shari'ah, due to lack of management of physical gold. It could trigger a Shari'ah risk of non-compliance leading to breach of the trust of all those who believed and dealt with the system.

Muneeza, et. al., (2018) observe that development of digital financial technologies like blockchain is viewed as a new way to reach out to economically vulnerable groups including poor. However, the challenge in relation to PMBC is that when it comes to financially excluded population, access to technology and required gadgets to use PMBC could be an issue that might not be resolved easily making PMBC something that is not compatible with financial inclusion.

As proposed by Billah (2018), a properly planned Shari'ah compliant cryptocurrency shall be guided by ethical principles of its management at all levels and stakeholders – market players (advisors, operators, and facilitators) and regulators (decision makers). Such principles include honesty, transparency and taking care of rights and obligations. Billah (2018) also mentions that Shari'ah compliant cryptocurrency operations require participants with real-valued assets and producing real-valued goods and services. As such, it is imperative to develop a professional code of ethics for all stakeholders involved in PMBC backed by gold to ensure that Shari'ah compliance is not merely a stamp used; but rather it has a deep

effect in the transaction where highest standards of ethical principles are followed.

5.0 Conclusion

With increase in use of technology in finance, a pertinent question is: how compatible is technology with Islamic finance? One aspect that is emerging in this regard is the use of cryptocurrency in financial transactions that could be replacing the fiat money being used today. Since all Islamic finance transactions ought to be compliant with Shari'ah, there was need for the Shari'ah scholars to deliberate and declare the Shari'ah compliance status of financing by using cryptocurrencies. Since, there is no clear-cut answer to this issue in the primary sources of Shari'ah, using the secondary sources of Shari'ah has become necessary to decide about the issues involved in cryptocurrencies. Though Shari'ah scholars have divergent views on the permissibility of it as a currency, there is a much tolerant view on using it as a crypto asset provided that the underlying assets and the operation of it adheres to the rules of Shari'ah.

However, the undeniable truth is that the cryptocurrencies are here to stay and there is need to conduct research to find out the prospects of using PMBC in Islamic finance especially in relation to the different kinds of Shari'ah contracts used to structure Islamic finance products without breaching the Shari'ah rules. This research has explored its potential, while the discussion covers merging of PMBC with major types of Islamic finance contracts with special emphasis on the Shari'ah rules applicable to such transactions. There are also some issues highlighted in this paper which are required to be resolved for the sustainable development of PMBC backed by gold. It is anticipated that it will pave way to conduct further research on resolving the issues identified to fuse PMBC with Islamic finance contracts. Indeed, via innovation and forward thinking, there is nothing that could not be achieved and Islamic finance has the flexibility in enhancing it using technology with Shari'ah parameters.

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