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# **Integrating Gold-Backed Cryptocurrency for Blockchain Net Settlement to Achieve Future Economic Stability**

## **Mengintegrasikan Matawang Kripto Bersandarkan Emas untuk Penyelesaian Bersih menggunakan *Blockchain* Demi Mencapai Kestabilan Ekonomi di Masa Hadapan**

Irma Naddiya\*, Ashurov Sharofiddin\*\* and Aznan Hassan\*\*\*

### **Abstract**

The purpose of this research is to study the possibility of Gold-backed cryptocurrency for net settlement through blockchain technology and its implications on the economy globally. The paper attempts to explore the challenges in expanding cryptocurrency backed by gold and to develop a new framework on cryptocurrency backed by gold model for net settlement through blockchain technology to achieve economic stability. To achieve the objective of the study qualitative method has been used, such as content analysis and semi-structured interviews. The study expected that implementing a gold-backed cryptocurrency will boost intra-country trade. This effect would be more robust than those generated by the existing economic model. An Islamic monetary system in the modern digital era would modify international monetary relations in the direction of establishing a stable and just global monetary system by merging the Gold-backed cryptocurrency model for blockchain net settlement with an Islamic fiscal policy. The implementation of gold-backed cryptocurrency through blockchain would solve many economic problems such as inflation, change the value of money, and bring stability and sustainability to our financial obligations and transactions.

**Keywords:** Gold, Gold Standard, Cryptocurrency, Net Settlement, Blockchain, Financial Stability.

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### **Abstrak**

Tujuan penyelidikan ini adalah untuk mengkaji kemungkinan mata wang kripto bersandarkan Emas untuk penyelesaian bersih melalui teknologi *blockchain* dan implikasinya terhadap ekonomi secara global. Kertas kajian ini cuba meneroka cabaran dalam mengembangkan mata wang kripto yang disokong oleh emas dan untuk membangunkan rangka kerja baharu mengenai mata wang kripto yang disokong oleh model kripto emas untuk penyelesaian bersih melalui teknologi *blockchain* untuk mencapai kestabilan ekonomi. Bagi mencapai objektif kajian kaedah kualitatif telah digunakan seperti analisis kandungan dan temu bual separa berstruktur. Kajian itu dijangka bahawa dengan melaksanakan mata wang kripto yang disokong emas akan meningkatkan perdagangan dalam negara. Kesan ini akan menjadi lebih kukuh daripada yang dijana oleh model ekonomi sedia ada. Sistem kewangan Islam dalam era digital moden, akan mengubah suai hubungan kewangan antarabangsa ke arah mewujudkan sistem kewangan global yang stabil dan adil dengan menggabungkan model mata wang kripto bersandarkan Emas untuk penyelesaian bersih *blockchain* dengan dasar fiskal Islam. Pelaksanaan mata wang kripto bersandarkan emas melalui teknologi *blockchain* akan menyelesaikan banyak masalah ekonomi seperti inflasi, mengubah nilai wang, membawa kestabilan dan kemampuan kepada obligasi dan transaksi kewangan kita.

**Kata Kunci:** Emas, Sistem Kewangan Emas, Mata Wang Kripto, Penyelesaian Bersih, *Blockchain*, Kestabilan Kewangan.

### **Introduction**

As the amount of paper-money in circulation has reached its height in the last decades, side by side, taxation, unemployment, poverty and crime have increased to the same degree. Now, the dollar been circulated around the world without been pegged by gold. In fact, the value of dollar is illogical. During financial downturn the US Dollar is still strong due to exchange rate system. The volatility in the currency markets still persist today, and the developing countries are perhaps amongst those that are most affected. World commodity prices including crude oil, natural gas, palm oil, natural rubber, rice and tea are quoted on the commodity and futures exchanges in the US dollar. Not surprisingly, many of the Muslim currencies including the Malaysian ringgit, the Saudi riyal, the Kuwaiti dinar, the UAE dirham, have traditionally been pegged to the US dollar. Malaysia was forced to go down this route in 1999, following the Asian crisis which saw the US dollar and other international currencies such as the Japanese yen and sterling sharply

appreciate against the ringgit. However, pegging the currency to a strong international currency such as the US dollar has its upside and downside (Mahathir Mohamad, 2000).

According to el-Diwany (2003), it is not impossible to abolish pegging our currency to US Dollar in financial system, but we have to work for it step-by-step to create our own model to protect ourselves by having our own trading currency, our own fair market or Islamic financial system. Now we are living under capitalism. We can't Islamize the capitalist in order to have Islamic financial system. Imagine that conventional financial tree been seed by interest, so how come we can have Islamic financial fruit even though under Islamic banking. (Tarek El-Diwany, 2003). The nature of gold itself is constant, in fact increasing in value regardless of mother nature, financial tsunami, irresponsible government or leadership crisis. The attribute of gold is to store value.

As for the timing great monetary reset, which other central banks have already quietly hinted at themselves amid massive repatriation of physical gold from the New York Fed to various European central banks such as Germany and Austria, we are confident that central banks and IMF will be kind enough to provide notice to the world citizen to exchange their paper money into cryptocurrency (W Middelkoop, 2016).

Although the desire for more Know-Your-Customer transparency is an increasing global trend, the astounding feature of this most recent onslaught against cryptocurrencies, which many perceive as a modern, the fact that invasive regulations and restrictions by central banks can be considered as an additional method of stockpiling precious assets makes them a more effective type of "gold" (S Madhavan, S Sreejith, 2022).

With the fall of US Dollar, the entire financial system is collapsing. According to Judy Shelton (1994) when the money melts down, the entire fraudulent financial system may collapse. Thus, some may suggest utilizing cryptocurrency backed by gold on net settlement through blockchain technology.

Besides, payment settlement or known as net settlement is an area of intense and increasing interest both to practitioners, economist, politics and academicians. Even, the field of net settlement has grown

exponentially nowadays such as Target 2, the Eurosystem's real-time gross settlement (RTGS), since more countries like China and Russia are engaged in serious efforts to integrate gold bullion for net settlement due to its positive impact on economic sustainability (S.A Yussof, AMH Al-Harthy, 2018). At the same time, economist and researcher has shown interest in using gold for net settlement also has grown spectacularly for the same reason. Cryptocurrency back by gold are argued in this paper to be a potential solution compared to fiat currencies for net settlement through blockchain since it provides more compatibility. Furthermore, blockchain also can transform Islamic financial system particularly in terms net settlement to be more developed, efficient and transparent (E Mnif, B Salhi, L Trabelsi & A Jarboui, 2022).

Over the past twenty years after financial crisis that hit southeast Asia in 2008, gold has bloomed as a money to be settle as a clearance in net settlement which government should deploy in order to affect economy in a positive and productive manner. The inefficiency of current net settlement transactions and its costs are one of the significant issues in today's economic which calls for more research on better alternative regarding these types of issues. Furthermore, the outgrowth of fintech, cryptocurrency, blockchain, artificial intelligence, big data, machine learning and quantum computing in financial services is seen as a human right approach to adopt this technology into the economy are examples of impacts that can be seen (F Ali, E Bouri, N Naifar & SJH Shahzad, 2022).

The concern over gold for net settlement is also significant to Islamic finance. In fact, the majority developed countries worldwide are sensitive to use gold for net settlement, and this is parallel with the research objective which is to explore the perspective of cryptocurrency back by gold for net settlement using blockchain technology which may give rise to determine the benefit, challenges and obstacle that lead to implementation in term of monetary policy and Islamic finance aspect. Therefore, the objectives of this research are: 1) To explore the challenges in expanding cryptocurrency back by gold for net settlement through blockchain technology to achieve economic stability. 2) To develop the new framework on cryptocurrency backed by gold for net settlement through blockchain technology to achieve economic stability.

To the best of the researcher's knowledge, no thorough study has been done to date to further develop cryptocurrency that is backed by gold as a method for net settlement, particularly in Malaysia. Hence, this study is justified in attempting to fill this research gap by examining critically problem of current net settlement and subsequently developing cryptocurrency back by gold model through blockchain as a practicable alternative for net settlement in order to achieve sustainable economic development globally. It is expected that the elaboration of cryptocurrency back by gold as a resilient money for net settlement using blockchain will tackle some of shortcomings in Islamic finance issues as well as economic literature.

### **The Differences Between Gold-Backed Cryptocurrency and Other Cryptocurrencies**

#### **Intrinsic Value of Cryptocurrency Backed by Gold**

As highlighted by some modern Muslim scholars, cryptocurrency backed by gold is considered a currency because it is backed by gold and serves the functions of currency that included being a measure of value, medium of exchange, and means of discharge. It stores its value as well because of the gold linked to it. By examining cryptocurrency back by gold, it will be assumed to achieve the objective of preserving wealth since its creation is not based on debt or a fractional reserve system which will protect it from losing its value especially if it is linked to a stable physical commodity such as Gold (Alzubaidi, 2017).

Besides intrinsic value, the other difference between gold-backed cryptos and mainstream cryptocurrencies is their entry-level costs. Most of the investors who were quick to buy mainstream cryptocurrencies in their early days only had to invest pennies. However, for a gold-backed cryptocurrency, the minimum investment has to be equal to the current price of gold. Another difference between these two cryptocurrency groups is their price swings. While the price of mainstream digital coins such as Bitcoin and Ethereum can rise and fall to any level, gold-backed cryptocurrencies have a built-in stop loss. It is because the value of a gold-backed cryptocurrency cannot fall below the value of gold. Should such a coin gain massive popularity, its price can rise way above that of gold. But



if the gold-backed crypto doesn't do well, its value will remain at the rate of gold.

The value of the gold-backed token will, at any given time, be equal to the prevailing rate of gold. This means that should the token fail to take off, it will still be valued at the current price of gold. On the other hand, if the token gains popularity, its value can rise above that of gold.

### **The Bitcoin Specialities**

- 1) First of all, bitcoin is not simply a currency. Instead, it is a native currency attached to a peer-to-peer payment network.
- 2) Secondly, bitcoin and its payment network became valuable through real-time trading in uncontrolled market environment.
- 3) Therefore, like other historical monies, bitcoin's viability was established because of its marketability.
- 4) Lastly, just like gold, the free market-accepted bitcoin and its network since it is portable, fungible, scarce, durable and divisible.
- 5) Bitcoin is brand new to mankind in that it is both a currency and a payment network simultaneously. This is where Bitcoin get value.

These points prove that although bitcoin's technical features entail innovation, yet its ascendancy as a medium of exchange confirms Mises theory of money, albeit with a bit of alteration. It is therefore, safe to say that these economists would have marvelled at its disruptive emergence. Bitcoin is not the first cryptocurrency in existence; e-cash was a cryptographic electronic transfer system that was completely anonymous to trace, and this was developed in 1990. In 1998, another electronic anonymous system called b-money was released along with bit gold (Bitcoinwiki, 2015). Bit gold was probably the early precursor to Bitcoin because it also used a proofing mathematical function to verify the transaction.

The Bitcoin's advantages include:

- 1) Payment freedom: able to send and receive bitcoins anywhere in the world at any time, irrespective of bank holidays.

- 2) Fee choice : there is not a fee to receive Bitcoins, while most wallets let you control how large a fee to pay when spending. In general, transactions fees are substantially lower than fees charged by traditional payment network operators, and fees are not based on the amount transferred, but generally on the transaction size measured in bytes. This means that a multi-million dollar transaction can be processed for the same fee as a single dollar.
- 3) Fewer risks for merchants: merchants can expand to new markets where credit cards are not available and fraud rates are high, while they are protected from losses due to fraud as Bitcoin transactions are secure and do not contain customers' sensitive information.
- 4) Security and control: As they are based in Blockchain, Bitcoins are very difficult to hack. Users are in control of their transactions, with merchants unable to force unwanted or unnoticed charges as can happen with other payment methods. Transparent and neutral: Bitcoin is neutral, transparent and predictable as all the information regarding the Bitcoin money supply is publicly available, usable and verifiable in real time on the Blockchain.

### **Money, Digital Currency and Cryptocurrency from Syariah Perspective**

The concept of money in Islam is utterly different from the conventional economics as its principles are based on *Shari'ah*. Allah is the exclusive and supreme Owner of everything [Qura'n 57:10]. In Islam, money (or wealth) is considered to be property that humans hold on behalf of the Allah. It should be used and invested wisely and in accordance with the principles of *Shari'ah*. According to Islam, money plays a "social role" and should be used to advance socio-economic justice for the good of the entire society.

Gold is a well-known valued element and a precious metal, according to AAOIFI (2016). Because it is a precious metal, gold was once used as commodity of money. It is also used to make jewellery, coins, medals, and electrical components, among other things. According to Ibn Khaldun, there are two types of metals—gold and silver— that could be used as a measure of value. It has been discovered that these metals are acknowledged by everyone as a form of money, and their values are not vulnerable to fictitious fluctuations (Boulakia, 1971). He added that a nation's wealth is not determined by the amount of money it has, but rather by the level of its production of products and services and its balance of payments.

According to Boulakia, although Ibn Khaldun did not view money as a reliable measure of a nation's wealth, but there are specific ways in which the economic measurement of products and services is expressed. Ibn Khaldun used silver and gold as a measure of value. Further, only the ruler has the authority to issue money, and once coins have been issued, the amount of gold or silver in them should not be changed. To keep the standard of the money, this must continue.

Moreover, he is deeply opposed to any policies that aim to manipulate the value of currency and the falsification of money since he believes that doing so will undermine public faith in the currency. Gold and silver are viewed as money that can be used as a store of value as well as a medium of exchange because their prices are thought to be reasonably constant and not subject to significant market fluctuations. Numerous studies have attempted to figure out whether the gold standard is better than paper money because it offers long-term price stability and lower levels of inflation. Bordo et al. are among them (2007). Despite the popularity of these arguments, we could not deny that paper money had several advantages over gold money, like the functionality of paper money and the lower resource cost of production.

Except for his disagreement with currency debasement, the majority of Ibn Khaldun's thoughts on the issue of monetary policy are still relevant today. The reality we live in today diverges significantly from what he foresaw in his works. Paper money has given governments excessive authority to utilize monetary tools to indirectly affect the market value of their national currencies. Ibn Khaldun asserts that the

value of gold and silver is fixed, but ignores the fact that this value is also influenced by supply and demand. Ibn Khaldun acknowledges that money serves the three main functions namely standard of value, a medium of exchange, and a preservation of value. (Dieter Weiss, 1995).

*"Gold and silver are free from market fluctuations while all other commodities are. They serve as the basis of profit, property, and treasure " (2:313).*

In one of the most recent research on the *Shari'ah* compliance of cryptocurrencies, Zulkhibri (2019; p. 43) notes that, generally, *Shari'ah* scholars permit anything used by people as money, including paper currencies and coins, electronic money, and cryptocurrencies. This includes gold, silver, wheat, barley, salt, dates, and other commodities. No type of money is permitted to be used as a commodity or an item that might be leased for a rent, according to the Islamic jurisprudence that should be followed when exchanging currencies. However, all jurists agreed, as noted by Zulkhibri (2019), that money should be a means of exchange, as supported by scholars such as Imam Ghazali (A-Ghazali, 1993) and Ibn Taymiyyah (Ibn Taymiyyah, 1995).

According to Billah, M.M. (2018), cryptocurrency is a "non-typical legal tender" that may alter any government's tripartite manipulation, control, and influence. Regarding this, there is still active debate among central banks and regulatory authorities of currencies around the world. Some nations, such as Malaysia and Japan, only legally recognise it as a crypto asset, rather than accepting it as legal tender (Sherin & Muneeza, 2020; Wright, 2020).

Zulkhibri (2019) also highlights two types of money that are allowed in Islamic jurisprudence; the first is Al-Thaman-ul-Khilqi' or Al-Nuqood-ul-Khilqiyyah, a type of currency designed to serve as a medium of exchange in contracts and trades, is the first type of money that Zulkhibri (2019) explains as being legal under Islamic jurisprudence. Silver and gold belong to this class since its value is natural rather than based on custom, agreement, or tradition. On the other hand, the second is Al-Thaman-ul-Istilahi or Al-Nuqood-ul-Istilahiyya, its value is established through common agreement, tradition, or custom, making it artificial or token, and whose validity is subject to government

discretion. Cryptocurrencies and all fiat currencies, whether they be in paper form or digital version, fall under this category.

According to Oziev and Yandiev (2017), a cryptocurrency must meet the following eleven requirements in order to be considered *Shari'ah* compliant (Bedoui & Robbana, 2019; p.271):

*“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”*

Due to their vulnerability to exchange rate changes, which can lead to speculation similar to the fiat standard of money, it has recently been realised that cryptocurrency have also failed to provide stability in the financial systems. With cryptocurrencies backed by gold, though, that is not the case. According to Abd Rahman (2017), the value of gold is constant in contrast to the value of bitcoin, which shows instability up to seven times greater.

Furthermore, former chairman of Al-Jazeera Bank's *Shari'ah* Supervisory Board Sheikh Dr. Adnan Al-Zahrani says:

*“Crypto currency is one of the types of currencies / money that emerged as a result of the process of*

*creating and developing money. In other words, at first it was an ordinary barter, then gold and silver coins, and then paper money and now virtual money, which are crypto- currencies. And this is normal".*

According to Dr. Monzer Kahf, a professor and expert in Islamic economics and finance at the Qatar Faculty of Islamic Studies, bitcoin is money within its community just like any other currency, and exchanging it for other currencies is undoubtedly subject to the same conditions as exchanging currencies, namely: 1) exchange should be on the spot without leverages and futures; 2) no speculations on currencies, i.e. exchange must have a real cause to buy or to sell other than the idea of currency for currency. Moreover, Mufti Abdul Qadir Barakatullah, a member of the *Shari'ah* Committee at Al-Ryan Bank, previously the Islamic Bank of Great Britain, says: "I am convinced that cryptocurrencies can be an effective tool for the further development of Islamic finance." Additionally, he recalls the rule among Muslim scholars that any commodity that society perceives as a tool that might serve as a means of payment must also be regarded as money.

Many classical Muslim scholars have written in-depth analyses of the role and significance of money, but due to space constraints, the researchers were only able to choose a small number since we felt they best represented the majority.

According to Imam Al-Ghazali:

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

To Ibn Taymiyah: *"Whenever currencies are sold one for another on differed basis, it opposes the purpose of Thamaniyyah (measure of value) of money"* (Adam Abdullah, 2018).

Referring to Sheikh Saleh Al-Fauzan, any "measure of value" that is commonly recognized by people should be considered as currency upon

which the rules of Riba are applicable. The two perspectives above have one thing in common: money should not be viewed as an ordinary commodity that can be traded on different basis, but rather as a measure of value or a unit of account. (Ozиеv and Yandiev, 2017).

Blockchain technology is *Shari'ah* compliant, according to Muneeza and Mustapha (2019; p. 72), who also noted that many people are mistakenly believe that blockchain technology is only useful for cryptocurrencies like Bitcoin, when in fact its range of potential applications is far broader. They have come to the conclusion that, in general, Islam encourages innovation and creativity, provided it complies with *Shari'ah* criteria and does not violate any of *Shari'ah*'s rules. Therefore, they believe blockchain technology is in line with *Shari'ah* since it makes it possible for Islamic financial transactions to be carried out in a transparent manner while also fostering a sense of mutual trust and reliability between the parties and eliminating any opportunity for fraud or other unethical business practises. (Muneeza and Mustapha, 2019; p.99). Therefore, gold-backed cryptocurrency embedded with blockchain technology is perceive as a stable type of currency for net settlement as it leverages on the underlying asset. The market for cryptocurrency is expected to continue expanding in the future, so research into this area is very important.

#### **Cryptocurrency Backed by Gold To Facilitate Net Settlement**

In the beginning, Russian President Vladimir Putin condemned Bitcoin and called for a ban in October 2017, saying that it created the “opportunity to launder funds acquired through criminal activities, tax evasion, even terrorism financing, as well as the spread of fraud schemes.” (RT.com, 2017) Likewise, the Russian Central Bank called cryptocurrency a pyramid scheme. Since then, however, Putin has changed his tone, and a growing number of international crypto exchanges are increasing their presence in Russia. In May 23, 2019 at 10.30 pm, Russian Central Bank announced to consider Gold-backed Cryptocurrency to facilitate international settlement. Not only that, in September 26,2017 at 1.11 am, another country China also announced to bring back gold in international settlement with new oil futures to circumvent US dollar settlement.

Although it is still developing its own crypto legislation and has not yet fully embraced the industry, Russia may ultimately view cryptocurrency as a strategic means by which to avoid existing and future sanctions (Zuckerman, 2018). The press reports are underscored by comments in January 2018 from Putin's executive advisor, Sergei Glazyev, who said that a government-created "CryptoRuble" would be able to alleviate financial pressure caused by USA sanctions.

Cryptocurrency could effectively cut out intermediaries like banks, thus opening up a new avenue for commerce. The definition of cryptocurrency back by gold is a cryptocurrency backed by intrinsic value and future proof finances is that backed by gold. Asset-backed cryptocurrencies are digital currencies that are attached to the value of physical assets such as real estate, oil, commodities, minerals and even precious metals such as gold.

On the other hand, conventional cryptocurrencies such as Bitcoin is lack of physical backing and reliance on peer-to-peer computer transfers. Since no one can see the money, critiques have long questioned the credibility of cryptocurrencies. As a solution, the concept of asset-backed cryptocurrencies emerged.

The definition of gold-backed cryptocurrencies are digital currencies that are tied to the value of gold. This means that although the crypto coins are on a distributed ledger and therefore easy to trade, they also have intrinsic value which something that traditional cryptocurrencies lack. The concept of tying the value of a digital coin to that real, tangible gold is not new. The first gold-backed digital currency, E-gold, was launched in 1999. The founder of E-gold, Doung Jackson figured that because unlike fiat currency, E-Gold was able to withstand the highs and lows, it would be the ideal solution to the ills that faced the monetary system.

E-Gold gained massive popularity and was used by millions of people around the world. Privacy-conscious institutions such as Netizens were impressed by its privacy levels and used the coin to open anonymous accounts. The coin also gained popularity among overseas sellers who used it to make cross border transactions. Unfortunately, E-Gold later faced by several issues that led to its shutdown. Some of the



factors that led to this downfall were increased competition, a massive growth of traffic that led to lagging transactions, and the rise of cybercrime that threatened the coin's security.

Several other attempts were made at launching a gold-backed digital currency, but the craze was short-lived. For instance, in 2015, a new gold-backed cryptocurrency named Xaurum was launched, but it did not go far. It is only after Bitcoin and Blockchain became popular that the gold-backed digital currency craze returned. Numerous gold-backed cryptocurrencies have been launched or relaunched. Even government mints such as the UK mint have launched their own gold-backed cryptocurrencies.

The basic concept of gold-backed cryptocurrencies is compelling. A digital token is launched that represents a certain value of gold. For example, one coin of token X represents the value of one gram of gold. The gold that the token is hinged to is stored by a trusted third party. The gold can be traded by other token holders. If cryptocurrencies become the dominant mode of global payment, they may constrain central banks' power to establish monetary policy through control of the money supply, particularly in smaller nations.

### **The Application and Importance of Blockchain**

Blockchain is particularly suited for process management in a collaborative environment where more organisations perform business transactions and also need to have secure shared access to the same information. The strength of blockchain is to connect partners who work in a network and share data in an effective way. Thus, companies are able to rely on transparency, have the same version of the truth and unlock a huge potential for synergies and generation of value. Think only how much time and effort is needed to send emails, check information, save different versions of files, and so on. In the age of the information, there is simply no other alternative to blockchain as a synchronising protocol in data exchange on a global level.

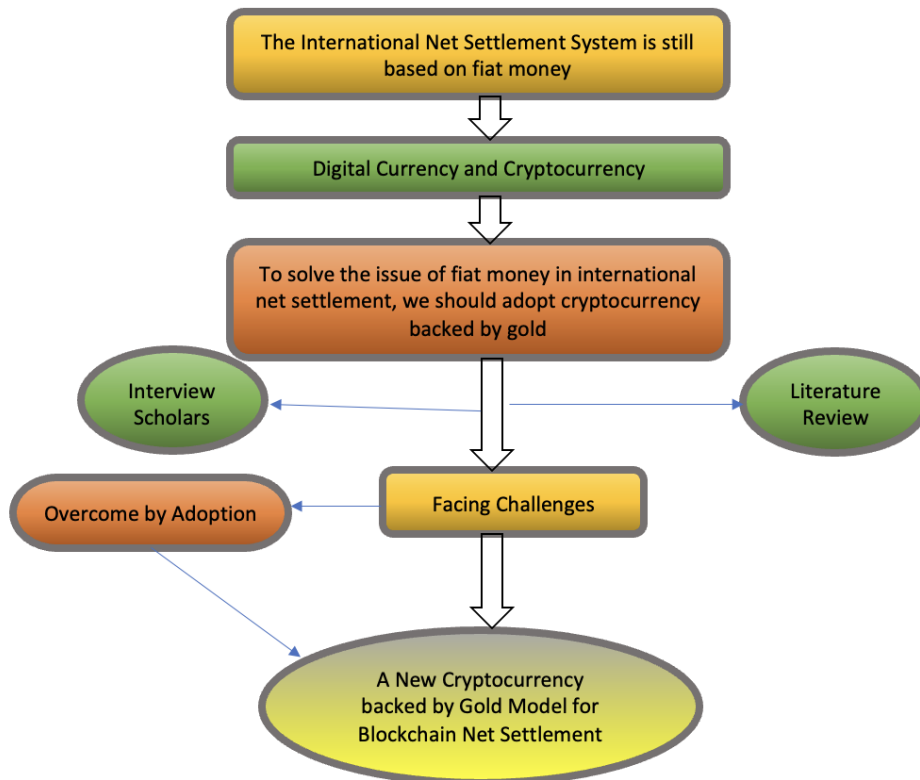
People can think about how to use the technology to increase the level of information security in their organisation or protect sensitive data. Blockchain allows the registration of the so-called hash, a unique

cryptographic identity of files with date, time, and authoring of the record. This way users can have a guarantee for authenticity and immutability of their digital certificates or PDF of a notary deed, for example.

Blockchain-based monetary systems hold the potential to impact the macroeconomy, as the new payment systems challenge the traditional roles that banks have always played. Cryptocurrencies may be viable competition for fiat currencies during periods when a central bank is perceived as weak or untrustworthy. However, the technology behind cryptocurrencies has the potential to improve central banks' operations and can serve as a platform to launch their own cryptocurrencies (Raskin and Yermack, 2016). Furthermore, cryptocurrencies are an intriguing financial innovation and offer many possible research avenues. As with many new technologies, considerable confusion exists about both the underlying concept of cryptocurrencies and the approaches for valuing them. Cryptocurrencies vary, however, and can be tokens representing shares of traditional assets, provide direct utility such as computational power, and even replacing a fiat currency. Cryptocurrencies may also increase financial inclusion and fuel economic activity in emerging markets, The possibility of using this technology for inclusion of the unbanked could allow billions to join the modern world of Internet commerce and spur the creation of new businesses.

### Conceptual Framework

Figure 1: Propose Framework of Cryptocurrency Backed by Gold Model for Net Settlement using Blockchain



The study chooses this approach in order to develop a framework of gold-backed cryptocurrency for net settlement through blockchain technology. Moreover, it is important to understand the reason of finding alternative payment method that will impact to the implementation of cryptocurrency backed by gold. The proposed framework can be seen as above at Figure 1.

The current international net settlement system is still based on fiat money. Since we are living in 21<sup>st</sup> century of digital transformation era, the features of money have evolved to become digital currency and

cryptocurrency. So, in order to solve the issue of fiat money in international net settlement, this study propose to use cryptocurrency backed by gold. The researcher has studied the literature review about that field and obtained the opinion of the scholars from the interview. Prior its implementation, there will be issues with regulations and political will. The following section will explain the details of the analysis and findings. Thus, it hopes by using cryptocurrency backed by gold model for blockchain net settlement would solve the problems inflation, change the value of money, and support to enhance financial sustainability and stability.

The 1997 Asian financial crisis and current world economic crises as the latest examples have spurred enormous interest among economists and policymakers on the subject of monetary standards, especially the Gold standard and the current fiat standard. It is argued that the Gold standard, i.e. using gold as a medium of exchange or pegging a nation's currency to the fixed price of gold, provides a stable nominal anchor and, thus, ensures price stability. Meanwhile, the current fiat system tends to breed persistent inflation. Various studies have provided support for this argument. For instance, Bordo (1998), Peter L. Bernstein (2000), Nathan Lewis (2007), Judy Shelton (1994), notes lower and less variable rate of inflation during the classical gold standard (1881-1913) as compared to the floating period (1971-1989). Kydland and Wynne (2002) reaffirm the long-run price stability during the classical gold standard. Thus, it is not surprising that there is a mention of gold and the Gold Standard every time nations face crises. Yet, despite this benefit of gold, whether gold will make a return as the standard for monetary payment system remains controversial (Bernstein, 2000).

Among especially Muslim economists, a view to return back to Gold has re-emerged and become a topic of debate for returning to Gold. At least the researcher can provide three justifications for the prospect of gold-backed cryptocurrency.

The first justification lies in money is not desired for its reason, according to Imam al-Ghazali. Many Islamic legal scholars, including Ibn Taymiyyah, concurred with him in saying that money is merely a means of payment for transactions and not a desire in and of itself. (M. Asrorun Niam Sholeh, M.Fauzinudin Faiz & Moh.Muhlis Anwar, 2022).

Cryptocurrencies commonly compared to gold because they share the same hedging characteristics against financial and economic instability as precious metals. A cryptocurrency known as a "gold-backed cryptocurrency" (GBC) is one in which the value of the underlying real asset determines the currency's worth (gold). This implies that, in addition to being decentralised and simple to trade, gold-backed cryptocurrencies also have intrinsic value, making them far more advantageous than conventional cryptocurrencies. (Shaen Corbet, Brian Lucey & Larisa Yarovaya, 2018).

Accordingly, the development of science and technology serves as a constant reminder that we live in a society that is becoming more advanced. A cornerstone of that evolution is cryptocurrency that is backed by gold. The second reason highlight the importance of reducing dependence on the US dollar as an international currency. Namely, gold-backed cryptocurrency can provide a viable alternative to the current and dominant US currency.

The final justification finds fault with current fiat and fractional reserve banking system. It is argued that, with the practice of interest rate, the current system is unjust and inherently unstable. For example, there is evidence that key factors contributing to financial imbalances, such as credit, liquidity, and risk taking, interact closely with the standard monetary policy framework. Policymakers are unlikely to affectively prevent financial crises, because there is a risk that the central bank's reputation will be tarnished, which could undermine its overall independence and credibility. In a broader sense, a need for financial stability could result in so-called financial dominance (F Smets, 2014).

Hence, the recurring currency and financial turbulence experienced in recent past is just a manifestation of the major weakness of the system. The foundation to this instability stems from the ability of banks to create money, which allows money supply to grow by default. Then, through the equation of exchange and given potential output, the growing money supply can generate instability in the economy (Douglas Arner, Ross Buckley, Dirk Zetzsche, and Artem Sergeev (2022)). Thus, gold-backed cryptocurrency, as it is argued, is free from these weaknesses.

Among these justifications, the last seems to provide grounds for testable implications. The acceptance of the first reason suggests no debate or evaluation of the viability of cryptocurrency back by gold. However, whether Gold is part of the Islamic faith is inconclusive. Haneef and Barakat (2002) review the *fiqhi* opinion on the use of gold and silver as money. According to them, there are at least two opinions. One opinion views gold and silver as money obligatory, while the other allows flexibility. That is, the latter admits other forms of money. While there is a need to reduce dependence on the US dollar, returning to Gold is not imperative since there are many other international currencies such as the euro that can play that function. However, according to the third justification, the root cause of economic problems is the continuing increase in money supply facilitated by fiat and fractionally reserve banking system. Money supply is the cause of inflation, asset price bubbles and instability in the economy. In other words, money is a forcing or a causal variable. If true, then the justification for the use of cryptocurrency back by gold may have some validity. However, if money supply reacts to accommodate expansion in real activities, then cryptocurrency backed by gold may not be a viable form of money. The reason is that, unlike paper money, money supply cannot be simply increased as needed under the gold standard and it depends crucially on the gold reserves (Bernstein, 1981, Mishkin and Eakins, 2003). Accordingly, it would seem that discussing cryptocurrency backed by gold as a potential replacement payment method for the net settlement as a monetary arrangement demands a thorough understanding of the monetary dynamics of an economy.

On the other side, though for a big proportion of people, blockchain may seem fancy, but the blockchain technology holds enormous potential in making an impact overall the sectors in this global economy. Another way to look at blockchain is as an independent arbitrator that provides full transparency and traceability. We live in a global and connected world where we can do business with people everywhere around the world. But how do we trust those we don't know when buying from them or start a business venture together? Blockchain allows us to exclude confidence from the equation and instead rely on verifying proven facts recorded on a decentralised network. The technology provides a secure environment for building a reputation system where your business history and reviews from satisfied

customers are registered and can be verified by other potential business partners (Chris Skinner,2016).

Banks and institutions will incline blockchain implementation in a huge way, as they decrease settlement latency, enhance data management, unplug paper dependent workflows, optimize the KYC process, and eliminate human errors. Blockchain networks will take a massive leap towards reducing counter-party risk and fraud, allowing companies to proactively manage risk rather than just reactively responding to risk (Wei Tek Tsai,2018).

Blockchain will directly impact the 'future of work', not just what jobs are available, but how value will be exchanged through a decentralized, peer-to-peer workforce. Further, looking over the progress made so far by the introduction of blockchain in developing nations, we may say that very soon a whole new world is coming in which people will live more comfortably. It is because blockchain technology is paving the way for a financial revolution that eliminate a lot of economic waste (Emmanuelle Ganne, 2018).

Only time will tell whether cryptocurrency is here to stay ultimately, or it is here to replace fiat currency but as it proliferates beyond borders, regulators will continue to take notice and apply existing rules to this new field. Market participants would be wise to align compliance procedures now to avoid repellent of regulators down the line (Paul Vigna and Michael J. Casey, 2016).

### **Results Overview and Discussion**

From the earlier disclosures pertaining to the financial institution's role and the condition of embracing gold-backed cryptocurrencies, we could observe several trends and themes related to the regulatory restriction, political will and infrastructure that potentially might inhibit it from effectively achieve economic stability through blockchain net settlement. Therefore, this section is dedicated to analysing and discussing the challenges from the regulatory perspective and political will.

### **Political Willingness and Stability Challenges for a Gold-backed Cryptocurrency**

The requirement for a stable political environment, as mentioned by Ibnu Khaldun, is essential for economic development—another statement that has been adequately supported in recent years. A few of the key duties namely defense, diplomacy, and public finance that should be the concentration of an administration with a simple structure (2:6-7). Its fundamental duties should include market supervision, enforcing regular financial transactions, and inspection of buildings for inhabitant protection (1:292, 462 - 463).(Dieter Weiss,1995). Ibnu Khaldun explains the characteristics of an effective leader:

*“An eager desire for goodness and good qualities such as generosity, the forgiveness of error, tolerance toward the weak, hospitality toward guests, the support of dependents, maintenance of the indigent, patience in adverse circumstances, faithful fulfillment of obligations, liberality with money for the preservation of honor, respect for the religious law and for the scholars . . . , belief in and veneration for men of religion . . . , great respect for old men and teachers, acceptance of the truth in response to those who call to it, fairness to and care for those who are too weak to take care for themselves, humility towards the poor, attentiveness to the complaints of supplicants, fulfillment of the duties of the religious law and divine worship in all details, avoidance of fraud, cunning, deceit, and of not fulfilling obligations, and similar things. Thus, we know that these are the qualities of leadership” (1:292- 293).*

According to the former Prime Minister of Malaysia Tun Dr. Mahathir Muhammad in 2002, the vulnerability of the exchange rate between local currencies and major currencies USD, Pound Sterling, Euro and Yen, has resulted in the economic instability of the countries of the Middle East and Asia.

*“The gold Dinar could be an important facilitating mechanism to help the smaller countries of the world move away from an inherently unstable and ultimately unjust global monetary system” (Minews, 2002).*

Moreover, it is undeniable that it is crucially essential for us to look at every aspect before implementing something that people have abandoned for so long. In the case of gold-backed cryptocurrency, we



need to look at not only in the economic, but also in the political point of view as well as the ability of the countries in providing infrastructure facilities, that have significant impacts on the overall achievements of a country.

There is quite a number of countries seem to have difficulties or constraints in adopting the gold-backed cryptocurrency. Palestine, for instance, is unstable politically and economically. This is because it has been invaded by Israel since 1967. The Palestinians put more of their effort to defend their own country rather than to consider about adopting gold-backed cryptocurrency to strengthen their economy. Afghanistan since last few decades has been struggling to build up their country that has been affected from civil war, Soviet invasion and also the invasion of United States of America in the name of 'war against the terrorists'.

A decade ago, the United States of America and its affiliates also in the name of 'war against the terrorism have bombarded Iraq to topple its ruler. The reason of the invasion was derived from the accusation of Saddam's government of having "mass destruction weapon". In the case for Iraq, promoting the implementation of gold-backed cryptocurrency would not be the main agenda. Instead providing humanitarian assistance would probably be the first agenda that the Muslim and developing countries should look into.

Apart from the developing countries with terrorism issues, Somalia is afflicted with poverty for years. Thus, taking into consideration of these current states, it might be impossible for them to adopt gold-backed cryptocurrency while their problems remained unsolved.

On the other hand, with the advent of information technology such as blockchain and artificial intelligence, the implementation of gold-backed cryptocurrency is rather easier for other developed countries. As this study proposed gold-backed cryptocurrency to be implement for blockchain net settlement, the clearing and settlement could be done without physically transferring the gold to the transacting parties. Ample transactions could successfully be done by clicks of a mouse or pressing of the keyboards.

Even though there is yet empirical evidence to conclude on the overall acceptance of gold-backed cryptocurrency for net settlement by any country, several salient factors might need to be considered. These factors can be further segregated into economic, political as well as infrastructure facilities development. Despite the fact that this may be a more effective method of netting, however, could all the countries afford to have such a high technology requirement that might cause them billions of dollars whilst some of them could not even provide basic necessities to their inhabitants? As mentioned by Informant 2:

*“Malaysia may take the initiative. It should start within Asian countries first prior to becoming internationally then it could be expanded globally. The most important thing before implementation is the political willingness to carry out this idea. That is the most crucial factor. It’s wonderful idea anyway and should be supported”.*

#### **Regulatory Challenge for Gold-backed Cryptocurrency**

The participants; who are mainly Islamic finance researcher, advisor and scholars, were asked during the interviews questions that aim to underlie the challenges in expanding gold-backed cryptocurrency. One of the challenges faced by gold-backed cryptocurrency is in term of legal and regulatory. Financial institutions will face tremendous hardship operating gold-backed cryptocurrency under current laws. As Informant 3 expressed it:

*“The major challenge is to operate within the existing laws.”*

This means that before using a gold-backed cryptocurrency for blockchain net settlement, a financial institution must have approval from the central bank and government. It must be officially regulated. However, the necessity to find an alternative for net settlement process, as rather than relying solely on the current one, is critical.

According to W.A. Allen & G. Wood (2006) in *Defining and achieving financial stability*, the financial history of the last 30 years or more according to a critic, provides strong support for this case. During this time, there have been massive problems in banking and finance as well as other areas of the financial industry all over the world. These

problems are largely attributable from poor risk management on the part of financial institutions and other parties during a period when financial markets were deregulated. The negative effects were frequently stopped by discretionary official action. It is acceptable to assert that this experience demonstrates the need for constant supervision by strong regulators in order for the banking and financial sector to remain stable.

Through the efforts of bodies like the Basel Committee on Banking Supervision, the financial regulation industry has expanded rapidly over the past 30 years, and international co-operation in financial regulation, which hardly existed in the early 1970s, has risen concurrently. It would be absurd to refute the fact that these official activities have made a decisive contribution to the standard for management in banking and financial institutions (W.A. Allen & G. Wood, 2006).

Due to the fact that blockchain technology and cryptocurrencies are still relatively new, there is a lack of understanding among regulators regarding how to implement a regulatory-friendly approach that will benefit both the Islamic finance industry and its financial institutions. It is important to thoroughly address their concerns, scepticism about blockchain technology and gold-backed cryptocurrency so that they fully comprehend how the idea will work for net settlement. Therefore, financial institutions like the central bank, ministry of trade, ministry of finance, and securities commissions are struggling to satisfy the demands of the fourth industrial revolution for cutting-edge net settlement processes.

### **Gold-Backed Cryptocurrency Model for Blockchain Net Settlement Challenges**

The respondents were asked about the challenges that would arise in transforming Gold-Backed Cryptocurrency Model for blockchain net settlement into reality. Among the challenges addressed by the respondents concerning Gold-Backed Cryptocurrency Model were political will and regulation by the central bank. The followings are the respondents' opinions based on the interviews:

*“Malaysia may take the initiative. It should start within Asian countries first prior to becoming internationally then it could be expanded globally. The most important thing before implementation is the political willingness to carry out this idea. That is the most crucial factor. So, political stability is very important in order to boost this gold-backed cryptocurrency. It’s wonderful idea and should be supported” (I 1).*

*“It just that I am anticipating resistant from USA because that will affect their power of USD. Hahaha....the gold is the competitor whether in normal currency or cryptocurrency. It’s a big threat to USD, a big threat to the dollar. So whether America will allow it? I doubt they will allow it. Because it will really set aside the dollar. I think they would not allow it. Is like waging a war against USA if you do that. But we have to try!” (I 2).*

*“The major challenge is to operate within the existing laws, apart from infrastructure. From the political side, it would be very difficult whenever there is other mechanism that threaten their currency, they will surely take action. That is among the hindrance. When Dr. Mahathir initiated the idea of gold dinar to avoid reliance on US dollar, even to use barter system as long as commodity payment, but the idea has facing strong resistance by many major powers. So, this is among the challenges that need to address also from the political side. I strongly believe that, if there is strong political will particularly from certain economic block. For example, in Southeast Asian we have ASEAN Economic Block, in the gulf there is GCC. If they come together as a block and support the idea, then at least within member countries they can trade and settle using cryptocurrency backed by gold, that will provide very huge impact” (I 3).*

*“What we need is a credible party, basically a credible issuer for this kind of gold-backed cryptocurrency who can ensure the good governance. If we get this, then we can trust this token like gold-backed cryptocurrency or any name. If we can ensure like if we buy this gold-backed cryptocurrency, there is definitely gold-backed and I can transact with it freely and effectively between countries. That is the first condition. The second condition is efficiency. So, what is needed is basically someone to push this idea of gold-backed cryptocurrency” (I 4).*

*“Should be more stable because it is backed by something precious. The gold itself has stable value in the long run. Only that, once you are crossing the line to be currency. Then would be a challenge. How the central bank going to regulate this gold-backed cryptocurrency. Another obstacle would be the genuity of the gold-backed cryptocurrency. Whether the gold is there commons rate to the holding people or not. Means that, when you are issuing gold or currency will be equivalent to one thousands grams of gold. How do you make sure the same issuer will issue another one thousand gold and the gold is there? Kept in the vault? To me, that is the biggest challenge” (I 5).*

*“An awareness is the main obstacle to convince the public about the cryptocurrency and the blockchain. Until now, people still do not differentiate between cryptocurrency and blockchain. So, the first step we have to educate and spread the awareness among the public (the blockchain functions and cryptocurrency nature). How do you want to implement something at international level, but the public have zero knowledge about it? Secondly, are regulatory challenges. It must be regulated, otherwise it will subject to speculations and manipulations. That is the function of law, to control” (I 6).*

*“Only the percent of gold right now it’s been used for industrial purposes. There is research on that. Ninety percent of the gold is being used for decoration, for jewellery, for just keeping it as holy. Ninety percent of the gold is for non-productive purposes. So my argument is that, you are giving the commodity which can be used for industrial purposes to have gold which you can’t, you will not use it for industrial purposes. Then, you are decreasing your industrial power, your productivity. You will give your most beneficial resources to other people just to have one resource which is not super beneficial in term of industry production or other production. They want to have muslim countries as their slaves! That is my dilemma”. (I 7)*

*“I think, since the technology is new, we need to make sure that there is no technical problem. Before implementation, we must ensure the foundation, infrastructure, human capital is well equipped with knowledge. It is common that economic agenda always parallel with political. So, in this case, political willingness to carry the agenda is crucial” (I 8).*

*“Small country, third world country, should not miss out on this one. If this is happen with or without us, we should not miss out on it. Even, let say it is so bad. They still need to develop with our capacity to be able to do not miss out, with their capability and ability also. We don’t want to miss out like industrialization, like Ottoman empire. The biggest mistake, we did not automated when Europe was automated. The industrial revolution we miss it out. Technology, internet also we miss out to some extent. Not many country benefits. Now, what you are trying to do is new payment model. Even we hate it, we still have to diversify our risk, resources, that all countries should invest even though we hate it. Just try to be not to miss out from Facebook advantage” (I 9).*

Based on the output from the respondents, political will and regulatory is crucial to support the model. As stated by I 1, the gold backed cryptocurrency model needs to play a role in building credibility by portraying some assurance of how it work in new payment system, eventually it will improve economic sustainability. Meanwhile, I 3 suggested that in order for regulators and politicians to fully understand the idea of a gold-backed cryptocurrency, their concerns and confusion about it should be thoroughly addressed and answered. Once they gained a better understanding, hopefully they would enact a law and make wise decisions that would support the model and strengthen the economy.

According to Informant 5, the political willingness and regulatory are essential to boost forward the idea of gold-backed cryptocurrency to be implement using blockchain for net settlement when reputation has not been established yet. The respondents (I 2, I 4 and I 5) suggested that political will is vital before the model could be implemented at international level. To help an idea become a reality, more application framework success stories and visibility must be promoted.

Meanwhile, in terms of regulatory, the respondents opined that Gold-Backed Cryptocurrency Model needs to be regulated to generate awareness, public confidence and trust before it is implemented. Regulation is a proper management that supports the expansion of gold-backed cryptocurrency by fostering integrity and stability. In Malaysia, everything regarding to cryptocurrency are governed by and regulated by the Malaysia Central Bank (BNM). Once it regulated, slowly it leading to cryptocurrency growth. The responses summary is tabulated in Table 1.

Table 1: Gold-Backed Cryptocurrency Model Challenges

	<b>Expert Opinion</b>	<b>I 1</b>	<b>I 1</b>	<b>I 3</b>	<b>I 1</b>	<b>I 1</b>	<b>I 6</b>	<b>I 1</b>	<b>I 8</b>	<b>I 1</b>	<b>Total</b>
a) Political challenge		√	√	√	√	√	√	√	√	√	9/9
b) Trust		√	√	n.a	√	√	n.a	√	n.a	√	6/9
c) Legal		√	√	√	√	√	√	√	√	√	9/9
d) Awareness		n.a	√	√	√	√	√	√	n.a	√	7/9
e) Transparency		√	√	n.a	√	√	n.a	√	n.a	√	6/9

**Challenges and Obstacles**

With the realisation of the requirement for digital transformation, cryptocurrencies have become a major part of touchless financial transactions. It is essential to address these economic advantages and challenges in order for people, financial institutions, and the government to be ready for it.

In KL summit which was held on December 20,2019 at 25<sup>th</sup> International Conference on Future of Asia or known as Nikkei Conference, Kuala Lumpur. Dr. Mahathir was a prime minister at that time proposing a new gold backed digital currency for net settlement for East Asian country. This would help protect economies of East Asian country from manipulation caused by Forex Traders. Dr.Mahathir’s previous dream of utilising the Islamic dinar for trade can come true with digital coin. Former President of Iran, Hassan Rouhani made a statement:

*“In the past,Dr.Mahathir had wanted to introduce the Islamic dinar. With new blockchain technology, we would be able to introduce a united cryptocurrency to Muslim states with the cooperation of our central banks. The benefit of cryptocurrency is that it can cut through bureaucratic and market fluctuations”*

He added that utilising cryptocurrency or national currency for trade among Muslim nations can allow these countries to further independent from over-reliance on the U.S.

The findings showed that the biggest obstacle is a lack of political will. The second challenge for adopting and implementing a gold-backed cryptocurrency for net settlement is regulatory issue. The research focusing on cryptocurrency for the purpose of net settlement is limited. Therefore, this findings evidence that most cryptocurrency that is not backed by asset or commodity are volatile with the economic conditions (M.S.M Noh & M.S Abu Bakar (2019). Therefore, the issue of net settlement has remained unchanged. However, because gold-backed cryptocurrency is resilient to inflation, this is not the case with it. To that sense, alternative payment methods that are more efficient and have the potential to reduce financial turbulence are required for net settlement.

Referring to David K.C.Lee & Ernie G.S Teo (2018), there are still many challenges for international law and governments to define cryptography, computational networks, and code, despite China's beginning regulation on cryptography and software that may turn codes into legal entities. Consequently, it is challenging to reach a global consensus on cryptocurrency regulation. It seems likely that cryptocurrencies would destabilise the fiat system in the near future because they make up a very small composition of the monetary system. They strongly claimed the non-fiat stable coin will pose a more direct threat to the fiat currency system, and in particular the USD reserve system. If regulation does not keep up with technological advancement, stable coins issued by non-governmental organisations, like as technology giants, may have a fair possibility of destabilising the USD-based monetary system. On top of this, nations with limited resources can use the technology made available by these private entities (like the Libra project) to develop digital versions of their national currencies. With widespread adoption, a country or a collection of countries with large trade and capital accounts may put pressure on the USD-reserved based system in a short period of time. That situation is one that we might see soon.



Ajouz (2019) notes that the largest barrier in this regard is a lack of political will. This is true because changing or implementing a new currency is difficult without the substantial political will and support. Governments must recognize a currency as legal tender before it can be used. So, if gold-backed cryptocurrency is to be utilised in Islamic finance or for net settlement, government approval would be a necessary. M.K Hassan, A. Muneeza, M. Abubakar and M.A. Haruna (2021) affirm that lack of governmental support and desire to establish and recognise gold-backed cryptocurrency is a second challenge brought on by the lack of infrastructure required to execute it out. This includes lacking the proper legal, regulatory, and uniform governance standards that should be adhered to when adopting a gold-backed cryptocurrency in the hopes of bolstering the trust of its users and stakeholders. They further explained it is not enough to just apply a *Shari'ah* standard on gold; rather, mechanisms to create a transparent system that promptly discloses all relevant material information must be put in place in order to foster systemic trust. Regulating bodies must allow for the development of gold-backed cryptocurrencies under regulatory sandbox initiatives or in any other method that would allow for their sustainable development.

According to Billah (2018) suggestion, a properly designed *Shari'ah* compliant cryptocurrency shall be led by ethical principles of its operation at all levels and stakeholders, including market players (advisors, operators, and facilitators) and regulators (decision makers). Honesty, transparency, and respect for rights and obligations are a few examples of such principles. In addition, according to Billah (2018), *Shari'ah*-compliant cryptocurrency operations demand that participants have real-valued assets and producing real-valued goods and services. This is to ensure that adhering to *Shari'ah* compliance is more than just a stamp on a documentation; rather, it has a significant impact on the transaction, especially in cases like net settlement when the highest ethical standards are enforced.

### **A New Framework of Cryptocurrency Backed by Gold**

The respondents were the asked about the idea and their opinion about the new framework of gold-backed cryptocurrency to be implement for net settlement using blockchain. Among the feedback spoken by the respondents concerning Gold-Backed Cryptocurrency

Model were stability because it is backed by real value and it is depended on the reserve too. The followings are the respondents' opinions based on the interviews:

*"Of course, by using gold-backed cryptocurrency, it will affect the trade and net settlement positively. It is better than fiat money and better than the initial idea of gold dinar from my understanding. It will be less risky compared to the current practise. Yes, it can provide stability because gold-backed cryptocurrency is more stable compared to bitcoin it is not stable, subject to volatility. Stability is the main factor" (I 1).*

*"Such cryptocurrency backed by gold is highly demanded. If you want cryptocurrency backed by gold to be succeed, it must be flexible. Flexible in the sense that if the other party's option want to redeem cryptocurrency either in cash or in gold or to retained as cryptocurrency just as representation of gold. Only that, it could be attractive at international level for net settlement. In the end, it depend on the reserve. If the cryptocurrency backed by gold need to be issue, it must be backed by actual gold in reserve" (I 2).*

*"If it backed by the real value, yes, I think that is wonderful idea. I think the model that you are bringing is not that much issue with it, except issue of infrastructure because if it is backed by gold. It could resolve the problem of inflation. We will have stable economic system. This will help the economy of the country to develop, then it will really help the people. There are certain syariah restriction need to be abided when it comes to gold-backed crypto but those restriction is easier to be address through the technology that we have now" (I 3).*

*"In Islam from syariah, Islam does not impose one type of currency. It is argued that gold has intrinsic value in it. Since the currency that have intrinsic value, that could be the best form of currency for some economist. I think gold-backed cryptocurrency is great for medium of exchange. So what the cryptocurrency backed by gold can offer in this context is it offer better security in term of ensuring transparency and governance. Better governance framework in this digital currency, let put it in this way" (I 4).*

*“Of course, that will be great. Because of the blockchain, you can slice it to the smaller grammage. We are blessed with the blockchain. It is practical now to be applied to be used compared to previous idea of gold dinar. Gold-backed cryptocurrency is not subject for speculation like fiat money. Of course, they need to study, they need to do research, to do regulation, to have law act. It’s not an easy job. Cannot be tomorrow. When reach the time, they need to react properly” (I 5).*

*“It would be good options other than fiat money. Because we can override the exchange rate system. If not, we still trap at the same place. Even China propose to use Renminbi right, so why not use something else that is backed by commodity. To me, I don’t see any issue with this idea of cryptocurrency backed by gold to be use for muqassah. Later on, what happen is it will minimize the crisis in economy which occurred because of speculations. The implementation of it, is different issue. We should tackle it wisely” (I 6).*

*“Under the Bretton Wood system, our fiat money is attached with gold. After the demolition of Bretton Wood system, the fiat money became free from everything. Not attached with any tangible asset. Gold backed cryptocurrency is almost stable. You will have more advance feature of blockchain, more innovation and more flexibility in tokenization process. So, when you are talking about specifically gold-backed tokenize currency then you need to have pure gold. I think it is doable if we have regional economic block or OIC” (I 7).*

*“Gold-backed cryptocurrency is different from general cryptocurrency. The different is term of intrinsic value in that crypto. That’s make Gold-backed crypto so valuable. At least it is backed by gold, and it secure the value of money. When the value of money secure, it secure the wealth of our nation. And the idea is to be implemented, that would superb because we can avoid on relying on other currency which is more superior than our currency. I think gold-backed cryptocurrency is more fair compared to fiat money. It will be better system” (I 8).*

*“I think from my view, it is good not to have one system, its better to have multiple system as a model for diversification of risk. Regarding the specific model, for new entrance in multiple system, the trust is matter. I think it would give momentum. There is of course the reservation about the gold*

*that it will create rigidity in the monetary system because sometime you now, because government have expansionary policy” (I 9).*

Table 2: The New Framework of Gold-Backed Cryptocurrency

<b>Expert Opinion</b>	<b>I1</b>	<b>I2</b>	<b>I3</b>	<b>I4</b>	<b>I5</b>	<b>I6</b>	<b>I7</b>	<b>I8</b>	<b>I9</b>	<b>Total</b>
a) Stability	√	√	√	√	√	√	√	√	√	9/9
b) Depend on the Reserve	√	√	n.a	√	√	n.a	√	n.a	n.a	5/9
c) Ensuring Transparency	√	√	√	√	√	√	√	√	√	9/9
d) Need regulators attention	n.a	√	√	√	√	√	√	√	√	8/9
e) Trust	√	√	√	√	√	n.a	√	n.a	√	7/9

After providing comprehensive review of the related literature, this paper develops a framework on cryptocurrency backed by gold for net settlement through blockchain technology to enhance financial stability by analysing in-depth interviews with experts. The findings show that because blockchain technology is cutting edge, smart governance (also known as electronic governance) is required in order to execute the model in order to monitor and validate the net settlement process. Second, before the idea could become a reality, the government and financial institutions must first have trust in the system. They should comprehend the concept of gold-backed cryptocurrencies and why using blockchain technology to carry out for net settlement makes sense. Therefore, this findings evidence that the current practise for net settlement is not feasible because clearing house has its own databases but currently it does not store all the trade records. A clearing house is often connected to multiple banks, and banks are highly regulated. Additionally, a clearing may also be connected to multiple exchanges

because different currencies have different values in different places. First, it needs to be converted to US dollars, and then it needs to be converted back to local currency. To enable the transfer of money from one account to another account, maybe in another bank, each exchange maintains its own databases and reports all trades to SCH (Securities Clearing House). (Wei-Tek Tsai, 2016).

Since we are living in 21<sup>st</sup> century of digital transformation era, the features of money have evolved to become digital currency and cryptocurrency. So, in order to solve the issue of fiat money in international net settlement, this study propose to use cryptocurrency backed by gold. The researcher has studied the literature review about that field and obtained the opinion of the scholars from the interview. Prior its implementation, there will be issues with regulations and political will. The following section will explain the details of the analysis and findings. Thus, it hopes by using cryptocurrency backed by gold model for blockchain net settlement would solve the problems inflation, change the value of money, and support to enhance financial sustainability and stability.

However, the proposed framework might surpass all the hassles because gold-backed cryptocurrency offers the benefits of both gold and digital assets without the restrictions of possessing the precious metal physically. Because gold is a fully fungible asset and a widely accepted store of value, it is an excellent option for tokenization. Scarcity, a lack of counterparty risk, and a non-inflationary nature are all features that gold and blockchain technology have in common. (Nafis Alam, Lokesh Gupta and Abdolhossein Zamani, 2019). Besides, data sent is more secure messages with private and public key in-between exchanges, clearing house and banks. (Wei-Tek Tsai, 2016). As a matter of fact, the Singapore Exchange has already built such system and "paved the path for real implementation". Similar to Hong Kong Exchanges and Clearing Limited, the Australian Securities Exchange is moving toward a blockchain-based settlement system. While Hong Kong Exchanges and Clearing Limited is adopting smart contracts to simplify its post-trade workflows. (Luke Colle, 2022).

As explain above, this study has achieved its research objective number two by developing a framework on cryptocurrency backed by

gold for net settlement through blockchain technology to achieve economic stability.

### Recommendations For Action

Recommendations suggested for policymakers, economist, regulator, Islamic finance, central bank and information technology firm.

No.	Issues	Recommendations
1	Awareness and regulation	<p><b><u>Policymaker and Regulatory</u></b></p> <ul style="list-style-type: none"> <li>• When inventing a cryptocurrency, it's important to think about what will best serve its intended use.</li> <li>• Central Bank of Malaysia and Securities Commission need to embark on the enlightenment campaigns that will improve the regulators and Financial Institution awareness on the role of gold-backed cryptocurrency and embrace it for blockchain net settlement.</li> <li>• Involvement of more authorities and law-maker on gold-backed cryptocurrency issue hopefully would alert them on how importance it is and enhance more regulatory-friendly approach. Future researcher might have to</li> </ul>

		investigate into this regulatory challenge.
2	To determine gold-backed cryptocurrency actual status as an asset	<p><b><u>Islamic Finance</u></b></p> <ul style="list-style-type: none"> <li>• Islamic finance academician, advisor, scholars and institutions should collaborate to encourage the information as well as to support of gold-backed cryptocurrency.</li> <li>• Future researcher should engage in conversation with <i>muftis</i>, Shariah advisory council, Muslim authorities and experts of Islamic finance to raise the status of gold-backed cryptocurrency.</li> </ul>
3	Trustworthiness in the financial system	<p><b><u>Central Banks</u></b></p> <ul style="list-style-type: none"> <li>• The 2008 Global Financial Crisis' impact on the demise of Letter of Credit services among banks is obviously still fresh in the minds of central bankers.</li> <li>• When the trust in the existing financial system is low, the demand for cryptocurrencies increases. Future researchers might need to investigate on this relevant issue.</li> </ul>

4	Technology's capability in terms of competencies, skills, knowledge concepts, tools and applications for financial services	<p><b><u>Technology Firm and Start-up Company</u></b></p> <ul style="list-style-type: none"> <li>• Government, central bank, financial institutions, Ministry of Science, Technology and Innovation should partner with IT firms such as IBM or Start-up to promote the ideas and develop on the model.</li> <li>• Considering that the innovation is still in its infancy, by pooling/collaborating with their resources and talent, information about gold-backed cryptocurrency for blockchain net settlement might reach them. This could help them grasp and comprehend the concept.</li> <li>• The knowledge technology should not be limited to blockchain only, but it should also incorporate with Artificial Intelligence, Python, 5G, Biga Data, Machine Learning, Metaverse and Computer Computing for financial services.</li> <li>• As an action-wise recommendation, future researchers may want to explore into this issue in</li> </ul>
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		order to conduct highly-impactful research for the Fintech sector.
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**Conclusion**

This research was conducted to overcome payment settlement problem by developing gold-backed cryptocurrency model using blockchain technology which has the potential to improve economic stability and sustainability. The gold-backed cryptocurrency model was developed after pre-assessing the gold-backed cryptocurrency challenges, perception and acceptance factors. This model was then further evaluated by experts on its suitability as the alternative mechanism from paper money to be implement for net settlement. The findings of the study suggested that the proposed model has potential to enhance financial competence in net settlement.

Overall, the research findings do address the issue in the problem statement as detailed in the previous sections. Moreover, this study is valuable to provide a better understanding of how Islamic finance could tackle cryptocurrency issue and provide robust mechanism for net settlement. Indeed, a serious commitment between the regulatory, government, the private sector, the technology firm and politician is crucial. It ensures the proposed model can be implemented and achieve the target of improving net settlement problem. Furthermore, if it is properly designed blockchain can more efficiently integrate the net settlement and improve the centralized control of gold-backed cryptocurrency. As a result of blockchain technology's capacity to make transactions more convenient, safe, transparent, and effective, eventually gold-backed cryptocurrencies will soon become more widely accepted worldwide. This discovery leads the researcher to the hadith of the Prophet where Abu Bakr ibn Abi Maryam reported that he heard the Messenger of Allah, may Allah bless him and grant him peace says:

*“A time is certainly coming over mankind in which there will be nothing left which will be of use save a dinar and a dirham”* (The Musnad of Imam Ahmad ibn Hanbal).

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