บทความวิจัย

The History of Value Systems and the Modern Concept of Money

ประวัติศาสตร์เกี่ยวกับระบบค่านิยมและแนวคิดเรื่องเงิน

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Abstract:

The source of the information for this article was based on the research undertaken by both authors. Most of the literature used covered a wide range of academic research articles and contemporary financial reports, together with relevant news articles in both Japanese and English language. The Japanese literature was translated into English language by Masayo Nakamura, the principle author of the paper. An English language dictionary was also used to define some specific terminology. Other relevant literature was included, in order to analyze and critically assess the history of human currency systems.

The process of establishing the significance of the material and relevant information to be the foundation of a credible academic research article started with reading relevant literature covering the modern day concept of cryptocurrency and the Bitcoin. The path then moved backwards to find information to clarify the origin of what became the modern-day money of notes and coins. Before the invention of money (coins or paper) there was barter trading, a form of exchange without the use of monetary tokens (Taskinsoy, 2019). It can be noted that the history of money started from the barter exchange, which led to a more modern understanding, as we are now witnessing many countries trying to be a master of CBDC (Central Bank Digital Currency). This article presents an analysis of how the money system has been changing its forms and suggests what the future directions of the money system will offer.

Keywords: *Money*; *Cryptocurrency*; *CBDC (Central Bank Digital Currency)*; *Stablecoin*; *History of Currency*.

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Introduction

This article will assess how the concept of money originated in the form of exchanging items such animals and vegetables for what was considered equal value in seafood or wood, as an example, which then developed into becoming a similar value system based on paper notes and coins (Nakata, 2019). Originally, the designated notes represented a contract to be exchanged with gold bars of that same value. This exchange system changed fairly recently in the early 1970s, when the previous American President Richard Nixon almost demanded moving away from that specific system, because the entire country was in deep debt, following the extended years of war in Vietnam (Nakata, 2019).

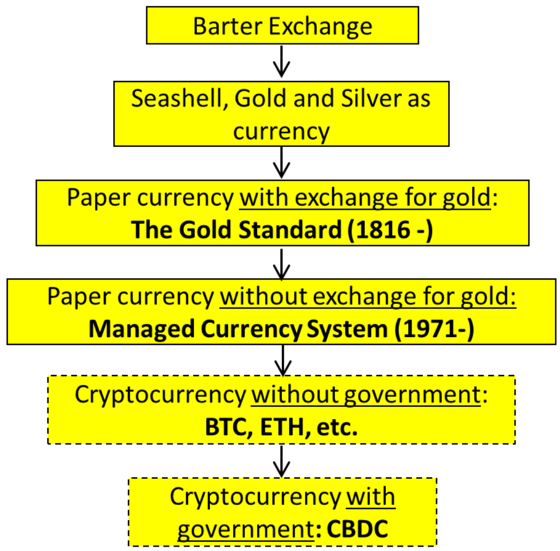

Fig. 1 The information in Figure 1 is from Nakata, 2019, apart from the last line on CBDC, which was added by Masayo Nakamura, the principle author of this article.

Objective of the Research

The aim of this research paper is to introduce the origin, history, and development of how humans established modern day economy. The main focus is to reinforce the fact that the currency system is not static and eternal, as it is often believed to be solid and secure. Therefore, it was important to emphasize how the concept of cryptocurrency and digital currency has emerged, but it could be argued that governments still want to maintain the security of currency values and not leave it to be a free-for-all currency system.

Research methods

Both authors used a wide range of academic research articles in both Japanese and English language, relevant newspaper articles, a dictionary for defining specific terminology, and other relevant literature in order to analyze and critically assess the history of human currency systems.

History of currency

Figure 1 shows how the money system has gradually developed.

1st step – The system started from the barter exchange as a primitive form of exchanging a value, which had one main flaw: The item that one person had is not always the specific object that the other person wants to exchange for.

2nd step – Therefore, gold was chosen as a form of the common value to exchange for something else due to gold being a universal material that everyone gives a significant value to. However, using gold as a currency to exchange as a value indicator also had a major flaw: The lack of, or limitation to mobility because of it's heaviness as a natural metal (Nakata, 2019).

3rd step – Paper sheets started to be used as a "ticket" or "token" to be exchanged for gold. This event is known as the Gold Standard which started in 1816. Who guarantees that you can use the "ticket" to exchange for its equivalent in gold? The answer is: A national government (Taskinsoy, 2019)

4th step – In 1971, the US President Nixon made a motion of using the paper itself without exchanging it as a ticket for gold. At that time, America was no longer able to maintain the system that the national government would be able to exchange it for gold, due to mainly the serious economic damage that came from the war in Vietnam that had lasted for approximately twenty years and had increased the national debt to a significant level (Nakata, 2019). This new system that was introduced was called the Managed Currency System, that allows paper notes with a designated value to be used on their own, without exchanging it for gold or anything else in a barter system. Although this event was a drastic change, it was possible to succeed because using a paper note to represent a national currency was already deep rooted as a payment system (Nakata, 2019). The Managed Currency System is being used in the modern world. All countries are in this system, where a government controls the economy of a country by issuing relevant currency bills. It could be argued that many ordinary members of any population tend to misunderstand the banking system, in the belief that the modern current currency system being used is something solid and therefore, secure. However, the history of money value and currencies is the history of a changing monetary system. The last drastic change from Gold Standard to Managed Currency System was quite recent. Even the current currency system may be changed soon, as assessing the value system is an on-going process.

Roles of currency

Roles of currency
1. Measure of value
- To judge the value by currency
2. Storage of value
- To keep the value even if you leave it alone
3. Means of payment
- To use for value transaction

Fig. 2 shows the main roles of currency (Nakata, 2019)

The Measure of value – It plays a role to judge the value by currency. For example, if there is a fish with a price tag of 3 US dollars and a fish with a price tag of 10 US dollars, people would regard that the one with a price tag of 10 dollars has more value than the one of 3 dollars.

Storage of value – A role to keep the value for enough long. Imagine what would happen if one decided to use fish as a currency. The user would not be able to use it after one day because fish does not last long and would rot and perish. Obviously, a currency needs to be able to be stored as a valued item for the long-term.

Means of payment – A role to use a currency for a value transaction. To play a part as the means of payment for many things, 'it' needs to be widely accepted to make a payment. When 'it' meets these three roles, a large amount of people starts to use 'it' as a currency (Tsuboi, 2019).

How cryptocurrency started

In recent years, particularly after the financial crisis and banks collapsing in 2007-2008 (Sarra & Wade, 2020), some people started to feel that countries and central banks are the only main players to gain a huge profit from the current Managed Currency System. Of course, although it provides safety and a level of security for a person to save their wages however, in order to do this, people pay a huge cost as a procedure fee, from which countries and central banks are running their own for-profit business system. In 2008, Satoshi Nakamoto released a thesis to address this issue: "Bitcoin: A peer to peer Electronic Cash System." This is a summary based on his philosophy:

- *Economy is not all about what only governments/banks can control*
- *If we have an economy system that can be confirmed to guarantee the value with everyone, not by the government, we will no longer be exploited by the central power*

- *With blockchain technology, we can change the economy from a centralized administrative framework to a more fully equal-distributed system*
- *If we can confirm the value of that by technology to connect everyone, it can be a currency*. (Tsuboi, 2019).

The term 'blockchain' is: "a structure used for a distributed or shared database consisting of discrete blocks of data, with each new block secured and connected to earlier ones by cryptography: used to create digital ledgers for cryptocurrency systems, among other things." (Online dictionary).

In 2009, one year after Nakamoto's publication, a new system that used Nakamoto's idea was released that used the term Bitcoin. It was the first cryptocurrency that has been acknowledged as a value first by a few tech people, then by many people in other fields, then finally by nations at government level. For example, in Japan, the "Revised Payment Services Act Japan" was officially adopted in 2017. Now, many other cryptocurrencies have been released, and many tech people are supporting this concept, to update the on-going system (Nakata, 2019).

Current definition of cryptocurrency

After 2009 when the first cryptocurrency known as Bitcoin, using the currency code of BTC, came onto the international stage, several thousand forms of cryptocurrencies have been released. However, most of them have not been used as means of payment, therefore it has remained as a vehicle for speculation, as it is considered to be far more volatile rather than a stable system. There are three main accepted reasons that create the volatility of Bitcoin: 1) The limited amount; 2) Monopoly status; and 3) Risks of hacking. Below is a brief description of each reason of the volatility.

<u>1) Limited amount</u> – BTC has a limited amount of newly issued Bitcoin, which means that it would keep gaining its value until some point near the end of the "mining," which is just the same phenomenon as of real gold, where 200k tons out of all 250K tons on the earth has been mined, would show. That inevitable end is called the "Last Day" which, although it is not known when it will occur, that day is sure to come (Tsuboi, 2019).

<u>Monopoly Status</u> – About 90% of the issued Bitcoin is said to be owned by the top 1% of users, which happen to be located mainly in China. At the moment, if that the top 1% starts to sell their Bitcoin, its inherent value will start to come tumbling down (Tsuboi, 2019).

<u>Risks of Hacking</u> – No matter how the blockchain process is safe and secure, when the trading market is not secure and left vulnerable, it can be hacked, especially when the field of trading market is still young. For example, although the American dollar is not a bad system, if the bank counter is not secure, robbery can happen. One news story of any hacking can make the value of the cryptocurrency drop immediately, through fear of users and any future users losing their bitcoin currency value.

Added to that, as cryptocurrency such as BTC is not based on the liability of anyone, issuers can gain seigniorage if there is someone who receives it as a counter value of something. The term “seigniorage” refers to the profit made, normally by a government, by providing a currency, and making the difference between the face value of coins and their production costs (Online dictionary). Although that looks like an ideal manner of making easy money, such currencies have a tendency of experiencing some excessive issue. This is one reason why several thousand types of separate cryptocurrencies have been issued so far. A currency that has such a tendency is hard to be used.

The second reason is that cryptocurrency did not receive a wide network, which is a significant factor as the means of any payment. All channels of payment have “network externality” that increases more effectiveness as more people use and accept it. If very few shops accept cryptocurrency as a legitimate form of payment, then this will lead to far less benefit in carrying cryptocurrency around in a modern smartphone (Humony, 2022).

Therefore, now cryptocurrency is no longer regarded as a “currency” since it does not have a function to keep the value stable, unlike real national bank currencies of notes and coins that have a central administrative function. Although the “Revised Payment Services Act Japan” clearly showed that cryptocurrency has a certain value, the definition centers on this point: cryptocurrency has propriety value. That means that cryptocurrency is more for investment, than a physical currency. The phrase *crypto assets* has been used recently instead of cryptocurrency (Nakata, 2019).

Stable coin and failure of *libra*

Trying to overcome these unstable volatile issues of cryptocurrency, the idea of “Stablecoin” came into focus. What if a central administrative function was given the authority to guarantee the value to cryptocurrency? This situation is explained succinctly here:

> “Stablecoins are kinds of cryptocurrency whose value is pegged to a fiat currency like the U.S. dollar, other cryptocurrencies, or a commodity like oil or gold. They provide users with the benefit of the security and immediate payment processing that digital currencies offer, without the price volatility of traditional cryptocurrencies.” (Seeking Alpha, 2021)

A “fiat currency” refers to: “paper currency made legal tender by a fiat of the government, but not based on or convertible into coin.” (Online dictionary). In June 2019, the plan of Stablecoin, referred to as *libra*, was released at the initiative of Facebook (Meta), which caught huge attention from the international financial community. Fig. 3 is the basic structure of *libra* (Yamaoka, 2020).

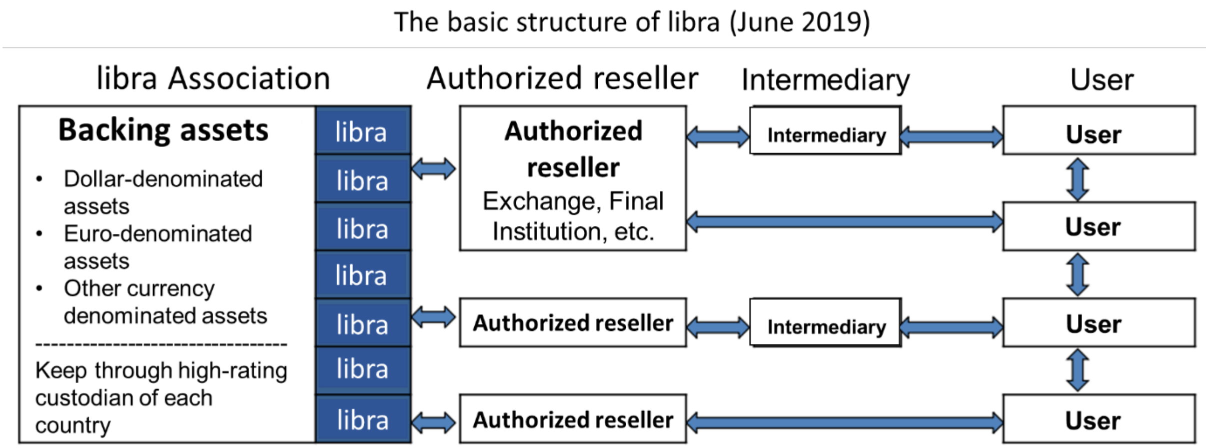

Fig. 3 (Yamaoka, 2020). The original source material is in Japanese language And was translated by Masayo Nakamura, the principle author of this article.

The two main characteristics of *libra* are described here by Humony (2022):

First, it tries to achieve the stable value in a currency basket by being backed with safe assets that are denominated by a multiple number of developed countries. Providing stability in the value was planned with multiple safe assets such as dollar-denominated or Euro-denominated assets, i.e., a short-term national bond that earns high trust as 100 backing. It was intended to provide a financial structure support for people living in a large area, including developing countries, who could use *libra* as a cheap means of money transferring (Humony, 2022).

Second, as it was the initiative introduced by Facebook (Meta) that held over 2 billion users, then there was a high possibility of achieving a wide network from the very beginning. In addition, the *libra* Association was created by Facebook plus more than 30 large companies, including financial professional firms such as VISA, MasterCard, PayPal, ebay. Therefore, fast payment with cheap procedure fees could also become easily achievable. Thereby, *libra* was intended to be a global currency that could be used for transaction, even by immigrants who had difficulty in having a bank account, or no ability to open a bank account (Humony, 2022).

However, in a counter reaction, the authorities of many countries made alarm bells ring against the plan of *libra*. In international conferences such as G20 and G7, the rather negative response to *libra* became a major focus-point theme. As courses for alarm against *libra*, the authorities of many countries used various reasons such as arguing that the possibility of money laundering existed, as their loophole. The top concerns were, however, a point that *libra* gets backed and supported with multiple assets that were denominated in currencies of developed countries, and the point that Facebook was “too big” as an individual company (Yamaoka, 2020) .

It was argued that if *libra* had denominated with assets of multiple currencies as a backing to be used for domestic transactions, then the financial outflow from the home currency to currency of other countries can occur through *libra*. Facebook has many users also in developing countries, in which there are some currencies that do not achieve enough trust in the world market. Another attack against *libra* was especially strong for the developing countries where *libra* can be a significant concern because, it was argued, that there would be a higher possibility in those countries that people would prefer to use *libra* instead of their domestic local currency. In effect, the financial outflow from developing countries to developed countries would happen. Even for the U.S.A, this can be a large cause of concern. It was believed that if many people in America changed the regular currency use from the US dollar to *libra*, a huge part of outstanding balance of that would outflow to the currencies of other countries.

In fact, a toughening stance that strengthens the surveillance on *libra* was indicated in debates and discussions of the G20, calling stablecoin, as represented by *libra*, as a "Global Stablecoin" when distinguished from other stablecoins (Humony, 2022), However, this attempt of creating *libra* by Mark Zuckerberg via Facebook (Meta), that had been prepared as perfectly as possible for one huge international firm, did not work out too well. The idea of *libra* was severely slammed by central banks of many countries because it was consistently regarded that it violates each independent country's authority and benefit of the domestic national currency. Academically, to issue and/or control a currency is placed in a rather gray area. The specific case study of *libra* can be viewed as a power game between an independent large individual firm and the government of several powerful countries; or the fight between David and Goliath where, in this context, Facebook as David lost the fight to obtain any credible recognition or achieve any legitimacy in the international financial world.

How the CBDC (Central Bank Digital Currency) started.

CBDC	
1.	A digital currency
2.	Denominates as a legal currency such as USD, JPY.
3.	Issued currency as liabilities of central bank.

Fig. 4 (Bank of Japan, n.d.) The original source is in Japanese language and was translated by Masayo Nakamura, the principle author of this article.

If the concept of a stablecoin such as *libra* was doomed for failure, then the obvious question became this: “Then, who can do what Mark Zuckerberg could not?” For stablecoin to become accepted by the traditional system, then the obvious answer is simple and obvious: A country.

In this context, CBDC (Central Bank Digital Currency) was born. It can be said that, in the context of a strategy against a “Global Stablecoin” such as *libra*, individual countries have launched a plan of issuing CBDC. Moreover, to achieve safe and low-cost cross-border payments (international payments), to create a system of exchanging CBDCs that countries issue in the future is also presently being considered (Kiuchi, 2022a). According to Nihon Ginko (Bank of Japan n.d.), it is generally said that CBDC meets three main points, as indicated above in Fig. 4 (Bank of Japan, n.d.).

E-CNY, China

E-CNY (Digital Renminbi, or digital RMB) is a central bank digital currency issued by China's central bank, the People’s Bank of China. It was the first digital currency to be issued by a major economy, undergoing public testing in April 2021 (Areddy, 2021; Popper, & Li, 2021). E-CNY is a legal tender (Xinhuanet, 2021) and has equivalent value with other forms of Renminbi, also known as the Chinese yuan (CNY), such as bills and coins (Areddy, 2021).

The first occasion that occurred for foreigners to use E-CNY was given at the Beijing Olympics in 2022 (Kiuchi, 2022c). Undoubtedly, it can be said that it was China’s unveiling ceremony of the first CBDC system that was being used in a country. As well as the Beijing Olympics, that event also achieved the aim of enhancing the national prestige of China as a dominant country.

The American government seems to be observing vigilantly at China making a public appeal of the E-CNY by using the international stage of the Beijing Olympics. A senator of the U.S. Republican Party, Pat Toomey, expressed their concern that: “The government of China may have an aim to establish a standard of measure for cross-border payment, proceeding internationalization of E-CNY by using Beijing Olympics” in a message sent to the US Secretary of the Treasury, Janet Yellen and US Secretary of State, Antony Blinken (Kiuchi, 2022c). Including the U.S.A, there are quite a few other developed countries that are showing a cautious stance against any oversea usage of E-CNY and its status of being the global standard of cross-border payment. In fact, after the Beijing Olympics, other developed countries seem to proceed into the more detailed discussions of actually introducing CBDC, than had ever happened before.

Digital Rupee, India

In February 2022, the government of India announced unexpectedly that the Reserve Bank of India (Central Bank) was planning to introduce CBDC as “Digital Rupee” in 2023 (Kiuchi, 2022b).

From 2021, India had shown a willingness of issuing CBDC, having stated that: “We are under investigation of problems such as fundamental technologies and means of issuing” however, they also noted that: “In order to issue, a circumspect control and a subtle approach are needed” (Kiuchi, 2022b). The government explained whether it would be used mainly as a retail or a wholesale had not yet been decided. Moreover, a spokesperson stated in November 2021 that whether the CBDC would be issued directly to individuals and companies, or indirectly from intermediators such as banks, or whether it would be decentralized or half-centralized were still under consideration (Kiuchi, 2022b).

In other words, any concrete design of their CBDC had not been fully decided in any complete form by November 2021. It is rather surprising that they had announced the issuing plan just a few months after that. In fact, it seems to be an unmeasured plan and there is a high possibility that it would need to start from a limited level of usage, such as making a test-run stage after the initial installation.

If a “digital Rupee” started to be formally issued in 2023, it will become second behind China among the major influential countries that have a large economy. The issue of “Digital Rupee” will have a particular impact on many developed countries, such as the members of the European Union, but also the U.S.A. and Japan (Kiuchi, 2022b).

Other main countries

New Zealand: On 8 February, 2022, New Zealand announced that the Reserve Bank of New Zealand (Central Bank) would start an operation for designing a CBDC, which would be a multiple-stage and multi-year project (Kiuchi, 2022c).

U.S.A: On 9 February, 2022, the US President Biden directed relevant bodies to verify specific tasks for issuing CBDC as a “Digital Dollar” (Kiuchi, 2022d). This does not mean that the American government has decided to formally issue a “Digital Dollar” but this would confirm that they have now started considering implementing CBDC in a far more active and serious level than has ever occurred before.

Sweden: The discussion of CBDC as “e-Krona” initially started in 2016. After a great deal of consideration, the government officialised a report for “Phase 1” that focuses on the separate stages of consideration. The central bank of Sweden declared that they will prepare to deepen the discussion for the next validation phase, or “Phase 2,” with the Swedish private banking systems (Yamaoka, 2021).

Japan: In 2021, the Digital Currency Forum was created by 74 companies and organizations that included mega-banks, companies related to blockchain, the Bank of Japan, the Financial Services Agency, the Ministry of Internal Affairs and Communications, the Finance Ministry, together with the Ministry of Economics, and Trade and Industry (Kikutake, 2021). They released a white paper and progress report of CBDC, referred to as “DCJPY” in 2021 (Sanda, 2021).

Discussion: Future Use of Currency

With the invasion of Russia into Ukraine starting on 24 February 2022, this started to make the local ruble currency become weak. This, together with a post-Trump America, the whole country of the USA has become divided and both politically and economically weakened which, one could argue, will strengthen the position of Xi Jing Ping and increase the global power of China to potentially dominate the global CBDC currency value system. Therefore, this situation suggests that there is very little, or no chance at all, that there will be any return to a Cold War scenario of USA vs. China, as the latter has the agenda of taking sole control of the international economy.

Discussions about CBDC have recently started to become very active in many countries. This seems to include the expressions of strong vigilance of other countries against the large influence on the world economy system and cross-border payments; and particularly of the E-CNY that was unveiled at the Beijing Olympics. If China started using E-CNY for cross-border payments on a full-scale level, there is a high possibility that vigilance around developed countries will become far more increased and it could well lead into the stage of advancing any plan of issuing their own national-based CBDC financial system.

In the wake of the development of the E-CNY, there is also a real possibility that competition for dominance in the basic standard of the international world economies, finance systems and cross-border payments will also increase in earnest.

At any time of market uncertainty, it can be seen that traditional investors will often sell what they see as riskier assets – such as digital currency – and move their money into safer investments (BBC News, 2022). It is interesting to note that in the last twelve months, Bitcoin has become the official legal tender in two countries: El Salvador and the CAR (Central African Republic). Since El Salvador indicated that it would allow consumers to use the cryptocurrency in all transactions, simultaneously alongside the US dollar, the IMF (International Monetary Fund) has urged it to reverse this decision (BBC News, 2022).

Added to that, there is a strong argument that would predict that the recent conflict of Russia invading Ukraine in February 2022, with both the direct and indirect effects this will have on local and world currencies, then this may well cause – yet again – another change in the interpretation and understandings of using some form of cryptocurrency as a legitimate alternative option of an active currency to be potentially implemented the very near future, if it is not already in active use (Worrachaddejchai, 2022).

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