

## The nature of modern money as 'ideational money' that diversifies as private money such as community currencies and cryptocurrencies - in view of evolutionary perspective\* -

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**Keywords** Money, Evolution, Ideational money, Gresham's law, Community currency, Cryptocurrency

### ABSTRACT:

The tree diagram of evolution of money shows that material money (commodity money) and credit money (debt money) independently emerged and evolved in parallel as external money, and that there was diversity of money and exchange according to the counterpart and the sphere of circulation. Modern fiat money without redemption obligations has still been recorded as debt on the balance sheet of the central bank after the introduction of the floating exchange rate system in 1973, however, it can no longer be conceived as credit money as a debt instrument. Given this reality, it is appropriate to regard them as securities or utility tokens and record them as equity/ capital on the balance sheet. Doing so is expected to have the effect of reducing the risk of insolvency of the central bank and promoting a change in the cognitive and behavioural rules (internal institutions) of economic agents so that it can provide more stability with a global financial system. The fundamental problem is that modern legal tender is neither material money nor credit money, but a third type of money, i.e. 'ideational money' or 'symbolic money', which is established and maintained as the self-realisation of two ideas, 'past customs' and 'future expectations', and this is the common nature of modern money, including community currencies and cryptocurrencies. Currently, communities (including nations and regions) that share different ideas and symbols are diversifying due to digitalisation and online access. The emergence of a situation of multiple belonging of individuals to communities has led to the diversification of private currencies such as cryptocurrencies and community currencies, which have different names, different standards of exchange and different spheres of circulation with non-fixed exchange rates, promoting what Hayek calls the 'denationalisation of money'. There, instead of quantitative competition based on Gresham's Law ('bad money drives out good'), qualitative competition based on the principle of choice in currency ('good money drives out bad') operates, and the characteristics of 'good money' other than stable monetary value are created and discovered through monopolistic competition for money.

**The relevant theme of RAMICS2022:** I. Dialectics of CCS and/or money

\* This paper was funded by a Senshu University research grant in 2018 and is part of the results of a project entitled "The significance and possibility of virtual community currencies as integration of cryptocurrencies and community currencies".

## 0. Introduction

The central question for understanding and envisioning modern money in the 21st century is the enigma of what fiat central bank notes that exist at the core of the modern myth of finance 'one nation, one money' are and what they are worth. To dispel the myth and solve the enigma, we should reconsider the real nature of modern legal tender as inconvertible central banknotes under the floating rate system operating since 1973. Although the Bank of Japan's balance sheet still shows outstanding banknotes as liabilities, fiat central banknotes are not material money, nor are they credit money with repayment obligations like convertibles. They are purely informational money, completely independent of physical use values and debt-credit relationships. In other words, they should be regarded as a third type of money, what we call "ideational money" or "symbolic money. This characteristic is shared not only by modern national currencies, but also by increasingly diverse private currencies, including cryptocurrencies and community currencies. If we rethink Bank of Japan notes as equity securities or utility tokens and conduct a thought experiment on what might happen if they are listed as net capital on the balance sheet, we can begin to see the possibilities of a future in which currencies are diversified.

How such new 'currencies' survive through users' choice in money and what the criteria of such decision are crucial points to be considered. In such diversity of money where it is possible to seek the kinds of money to be desired, we must realize the true meaning of Hayek's principle of choice in currency in terms of 'quality', which is 'good money drives out bad', instead of the Gresham's law only regarding 'quantity', which is 'bad money drives out good'. For the principle of 'choice in currency' to function well, 1) different denominations for distinction of money in quality, and 2) the non-fixed exchange rates are necessary. Since cryptocurrencies met these conditions, the principle of choice in money began to work. They satisfied the forementioned two conditions for users' choice in money to begin to work and simultaneously took the test for good money through users' search for it. However, cryptocurrencies failed to pass the criteria of 'a stable value of money' that Hayek attached importance to for good money.

For cryptocurrencies and other digital money to become 'good money,' it is at least indispensable to have 'a stable value of money' that enables for currency to be more accepted and smoothly circulating. Whether a community-based or local consumer market can be formed, and workers' salaries can be paid by it are also other important factors for good money. In this respect, DCC with the connotation of local area and community could be a strong candidate for good money. Two DCCs in Japan, Sarubobo coin and Aqua coin are now challenging towards realization of good money. Finally, we will introduce Good Money Lab, an industry-academia-government-private consortium to foster DCCs as good money.

## 1. Dematerialization of Money: "Dematerialization of Monetary Substance" and "Demonetization of Monetary Media"

The digitalization of money and the shift to cashless transactions, which are currently underway, became possible only on the premise of the dematerialization of money, which was made possible by the emergence and spread of fiat money. This is because the value embodied in fiat money has been completely separated from the physical use value of the specie (gold coin or bullion) used to secure it. By switching from traditional physical value representation media composed of materials such as ink, paper, and printing presses, which are used for printing fiat money, to other physical value representation media composed of hardware such as computers, smart phones, smart cards, as well as software such as operating systems and applications, in addition to infrastructure such as power plants, power lines, optical fibers, radio towers, and artificial satellites, we can replace all the analog information of money with digital information. This has enabled smoother, more efficient, remote, global, and automatic monetary transactions even without human intervention.

The current "dematerialization of money" means the dilution of things as substance that embody and represent value, rather than things as media that express and transmit value. In other words, the "dematerialization of money" means the "dematerialization of monetary substance" and not necessarily the "dematerialization of monetary media". In the ongoing digitalization of money and cashless society, out of the genuine money consisting of "cash" and "deposits," we are trying to reduce the tangible things

expressing analog information called "cash" as much as possible by substituting the digital information of "value" of electronic money and digital coins (cashless society), and integrate as much genuine money as possible into intangible figures of digital information called "deposits".

In this case, we notice that there are important intangible industrial products such as electricity, electromagnetic waves, light, and sound as well as many tangible industrial products such as electric wires, optical fibers, computers, and smartphones, the latter of which we can only see and touch, and that those intangible and tangible industrial products for enabling digital monetary media have rather increased in volumes. In other words, we can see that the "dematerialization of monetary substance" has currently progressed, but the "dematerialization of monetary media" has not progressed much.

In the white paper by Satoshi Nakamoto, Bitcoin was intended to be a "P2P digital cash system" that would use blockchain (Distributed Ledger Technology) to completely digitize "cash" through distributed ledger and distributed issuance (Nakamoto 2017). Thereafter, the core idea had been forgotten, and Dr. Craig Wright, who I assume to be considered as one of the members stood for Satoshi Nakamoto, has been struggling to reinstate it as Satoshi's original vision and has established the true Bitcoin as Bitcoin SV incorporating Satoshi's Vision (Wright 2019). On the other hand, the idea of Central Bank Digital Currencies (CBDCs), which would allow the state and central bank to turn cash into digital cash while maintaining the traditional central bank centralized issuance, is being promoted mainly in China and is one step closer to reality. CBDCs can be either wholesale, which is used only for settlement among financial institutions and businesses without changing the existing coexistence of analog "central bank notes (cash)" and digital "current accounts (deposits)" in the existing central bank currency, or general-purpose, which changes the existing structure of cash and deposits by completely digitizing cash and is used by all entities, including citizens. In any case, if we can completely eliminate analog central bank notes, we will be able to settle funds more efficiently, but even in that case, we will need to answer the fundamental question of whether Bank of Japan notes as 'cash' are certificates of obligation or something else.

## **2. A Tree Diagram of money with four stages: primitive money, material and credit money, cash and deposit money, and various non-national moneys**

Central banknotes have a long history as the legal tender of the nation-state and have a solid institutional foundation, so their value may appear to be unassailable. However, if you recollect it, it has only been about 280 years since Peel's Bank Act of 1844, which practically established the monopoly of the Bank of England, the first central bank in history to issue notes. In terms of human history, that's just a blink of an eye, and it's an event that could change at any time. We are not trying to say that the value of Bitcoin is much more stable or solid than legal tender. If we look at the evolution of money from a very long-term perspective of thousands of years, both legal tender with its 280 years of history, and Bitcoin with its only 10 years of history, are not that different in terms of the length of time they have been around. In addition, they both share the common characteristics of modern money.

The value of modern money, such as fiat legal tender, cryptocurrencies, and community currencies, is not supported by intrinsic value such as the use value of the physical goods that make up the currencies, nor by the credit-debt guaranteed by the currencies, nor by expected future earnings such as interest and dividends. In other words, modern money is neither material money (commodity money) nor credit money, and it is not securities such as bonds and stocks that pay interests and dividends, either. Then, what exactly are these modern money?

According to the theory of the origin of material money (commodity money), it emerges spontaneously as a means of exchange to mediate indirect exchange because direct exchange (barter) becomes more difficult as the number of goods increases. This leads to another assertion that thus emerging material money such as gold coin or bullion is the principal money, and credit money is derived as an IOU that proves the credit-debt relationship of material money. In contrast, the theory of the origin of credit money argues that the credit settlement system is the money because the ledger, which is a record of transactions written by numbers and letters, plays the role of money even if there is no physical object as in material money in the first place. In other words, credit money can be established on its own without the existence of real entity such as use value of material money if there was some acknowledged ledger

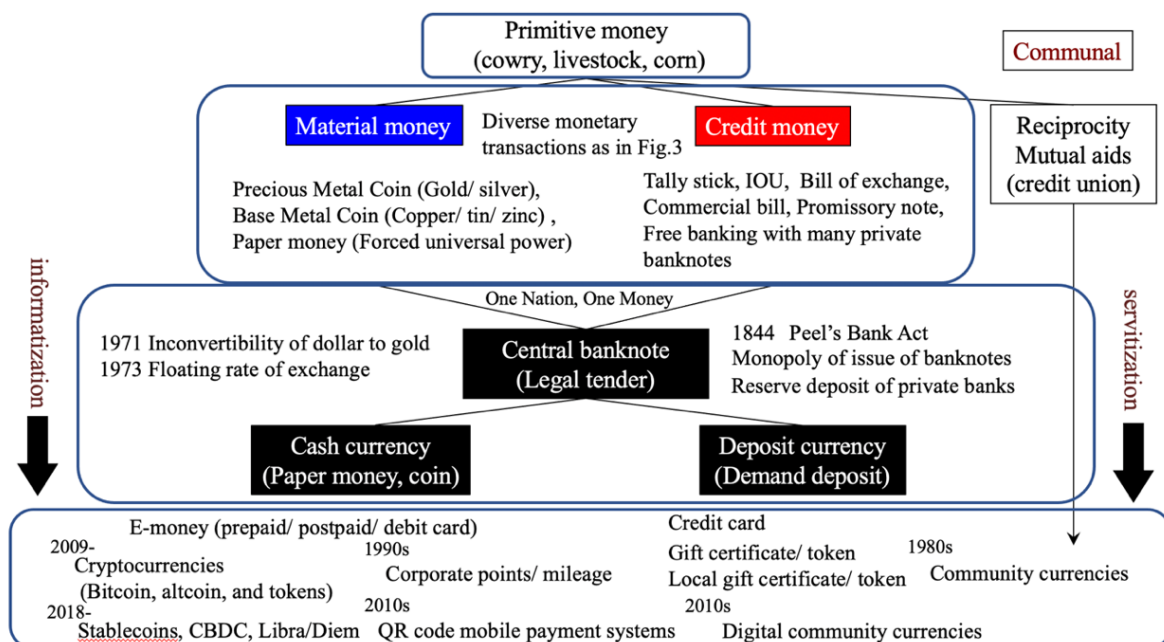
form using written language. According to this view, money is not a thing as a means of exchange, but a transferable credit or debt. It is a transaction clearing system consisting of three basic elements: 1) a unit of value, 2) an accounting system, and 3) transferability.

Perhaps because cryptocurrencies like Bitcoin and Ethereum use a distributed ledger technology called Blockchain, the latter idea is growing in power. Thus, credit money is now becoming to be believed to be not necessarily a derived representation of material money nor emerged in capitalist economy but to have already existed in the ancient world. In medieval Europe, wooden-made split tally sticks were widely used, in which the creditor and debtor recorded their debt information, which was then split in two and kept by both parties as a certificate. Single tallies, in which debt information was recorded on animal bones, can be traced back to the Paleolithic period. This type of credit money was used not only by private merchants and artisans, but also between them and the official state. Thus, it has become increasingly clear that credit money has a history as long as that of material money.

As a result, the view that the essence of money is not material money but credit money, and that modern money is an IOU that circulates on the basis of credit relationships, has gradually gained strength. Randall Wray, one of the founders of Modern Monetary Theory (MMT), developed a theory of money whose origin is credit money. It combines nominalism, which holds that money is merely a unit of nominal value, and chartalism, which holds that money is created as a means of direct economic activity of the state, such as fiscal spending, with its compulsory right to collect taxes. In Wray's view, modern central banknotes do not represent real value as in the case of material money but are negotiable instruments of indebtedness (IOUs) that represent a unit of account and are issued on the basis of the state's ability to collect taxes. Whether this view of MMT is correct or not will be discussed later.

Here the problem is if it is appropriate to ask which expresses the essence of money, material money or credit money, and which is the historically prior origin? For the question itself may be wrong. The reason why we think that the money that forms the market economy is *either* material money *or* credit money is because we unconsciously assume that money has developed on a straight path in history. This is probably because the modern money that we daily get used to under the current "one nation, one money" system is only one type of national currency. However, if the evolution of money branches into multi-track rather than just single-track, and if the ways of monetary exchange have been always diverse in history, it should not be possible to explain the actual history using only a single theory or position.

Fig.2 A Tree Diagram of Money (prepared by the author)





The tree diagram depicts the evolution of money in four stages: 1) the emergence of primitive money as a medium for gift-giving and reciprocity in primitive communities; 2) the parallel development and growth of "material money" represented by gold, and "credit money" represented by IOUs (I Owe You), as media for equivalent exchange in the market economy since ancient times; and 3) the coexistence of two currencies, cash currency and deposit currency, with the core of central banknotes integrating material money and credit money in the period of establishment of capitalism; and (4) the ongoing diversification of private currencies, such as cryptocurrencies, corporate currencies, gift certificate/tokens, and community currencies.

The salient feature of such primitive money is that it was used to realize ritual and customary bilateral gift-giving and return within a certain community, or multilateral reciprocal relation as a chain of gift-giving among three or more parties. In addition, primitive money contained both economic and commercial purposes as well as social and cultural purposes, the latter often being more important. When money emerged from primitive money in the community used for reciprocity as well as redistribution eventually to provide the principle of equivalent exchange in the market, it branched into two types of money, material money and credit money, and evolved in parallel while influencing each other. In the history of mankind, primitive money, which is internal money and special-purpose money for community reciprocity and redistribution, has been the forerunner, and material money and credit money, which are external money and all-purpose money for the development of market economies outside and among communities, have continued to expand in parallel (Polanyi, K. 1957).

### **3. Plurality of Monetary Exchanges in History and the Evolution of Money through Self-organization, Replication, Variation, and Selection**

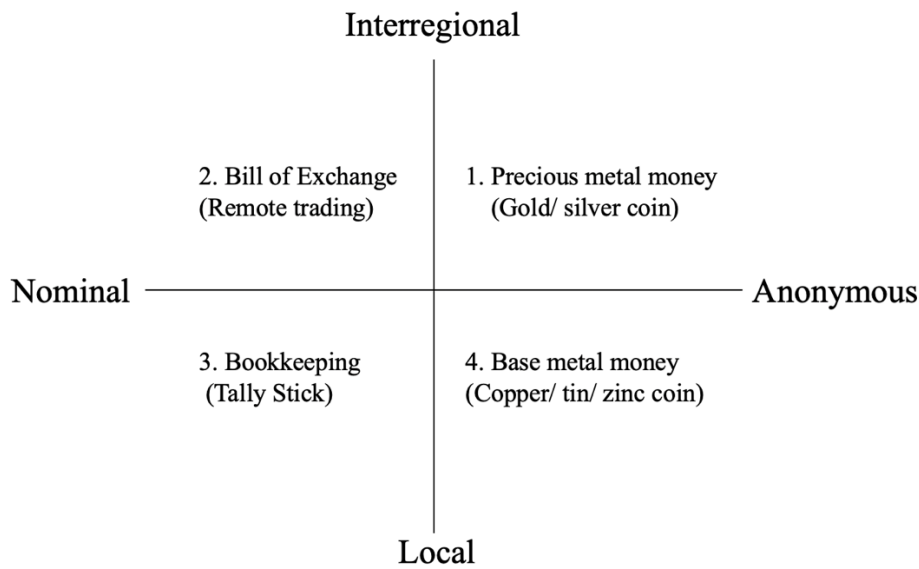
From a global historical perspective, it is known that there were a variety of ways of monetary exchange, not a single way (Kuroda 2020). In Fig.3, the horizontal axis indicates whether transactions are anonymous or nominal (named), and the vertical axis indicates whether they are interregional or local. According to these two axes, monetary exchange can be classified into four different areas. First, let's look at the first quadrant, which is anonymous and interregional. In the international marketplace, where traders who are strangers to each other engage in high-value transactions, they are paid in precious metals (gold and silver coins), which are material money. Next, in the second quadrant, which is both nominal and local, remote trade could be conducted using bills of exchange, which are credit money mediated by a trustworthy third party, because it is possible to trust a partner with whom one has had a long-term face-to-face business relationship. Furthermore, the third quadrant, which is manifestly nominal and localized, corresponds to the case where consumers shop at neighborhood stores or artisan workshops. Since small transactions were carried out by acquaintances who knew each other, bookkeeping transactions were carried out using credit money such as tallies to describe credit-debt relations. Finally, the fourth quadrant, which is anonymous and localized, refers to transactions in non-permanent markets such as regular markets and bazaars around cities. In small transactions between strangers at fish and vegetable markets, where the buyers and sellers were strangers, payment was made with base metal currency, which is material money.

In this way, material money is used in anonymous business relationships and credit money is used in nominal (named) business relationships, and the specific form of money is determined according to whether the transaction is interregional or local. However, from the 19th century onward, with the development of capitalist market economies and the establishment of central banks, the "one nation, one money" system was established, and the diversity of monetary exchange was lost, and material money with physical use value became cash money and credit money in commercial banks became deposit money. As a result, the plurality of monetary exchanges was lost. The diversity of currencies, which had once disappeared, is now emerging again as the diversity of non-national, private currencies, taking the form of e-money.

Money, like language, was not originally invented or deliberately created by anyone, but was naturally created through the repeated interaction of people. In addition, the rules differ slightly from region to region, and as the rules change little by little over the long period, the system that is accepted by the people of each region and era is inherited, and the system that is not is discontinued and no longer used.

Money is thus self-organized, propagated, and spread, and new types and characteristics are created through innovations in which people intentionally change the rules regarding new materials, technologies, and the scope of distribution. Those that adapt well to the sometimes rapidly changing environment survive, and those that do not perish. In other words, the evolution of money is a dynamic and complex phenomenon that consists of four different processes: 1) self-organization (emergence), 2) replication (propagation and diffusion), 3) variation (innovation as artificial mutation), and 4) selection (survival and extinction)<sup>1</sup>

Fig.3 Plurality of monetary exchange  
(Source: Kuroda 2020, amended by the author )



#### 4. Reconsidering the nature of legal tender as national currency

Let us now reconsider the controversial issue of central banknotes, which make up the bulk of legal tender and underpin the national monetary system at large. What exactly is a central banknote? Is it a liability or an asset? Why do they circulate from person to person? Let's take Japan's central bank, the Bank of Japan as an example.

If Bank of Japan notes are held by all economic entities other than the Bank of Japan, including the Japanese government, private financial institutions, corporations, and citizens, they are recorded as "cash" in the assets section of their balance sheets. However, in the Bank of Japan's own balance sheet, the balance of outstanding Bank of Japan notes (the total amount of Bank of Japan notes held by all entities other than the Bank of Japan at a given point in time) is recorded as "banknotes issued" in the liabilities section of the balance sheet. Bank of Japan's "current accounts" in the same liabilities section are deposits made with the Bank of Japan by all private financial institutions.

When the Bank of Japan engages in "buying operations" to purchase previously issued bonds from financial institutions, it transfers the proceeds to the BOJ current accounts of the counterpart financial institutions, thereby increasing the BOJ current accounts. The Bank of Japan issues Bank of Japan notes and supplies them to the market when private financial institutions withdraw Bank of Japan notes as cash from the Bank of Japan current account. When this happens, the number of Bank of Japan notes issued increases and the Bank of Japan current account decreases by the same amount.

<sup>1</sup> For more information on the basic concepts and framework of evolutionary economics, please refer to the following literature and papers: Aruka (2015), Dopfer, Potts (2008, 2009), Nishibe (2006, 2012).

Conversely, if financial institutions do not need cash, they will deposit it in the Bank of Japan's current account, which will reduce the amount of banknotes issued and increase the Bank of Japan's current account by the same amount. This return is called the 'reflux' of Bank of Japan notes. On the other hand, 'cash' is recorded in the assets section of the balance sheet. This portion is recorded as "cash" because it is issued when the Mint, an independent administrative agency, manufactures coins on behalf of the government and delivers them to the Bank of Japan. In other words, 'cash' does not refer to Bank of Japan notes but to the supplementary currency issued by the government and held by the Bank of Japan, different from daily usage of the term 'cash'.

Thus, central banknotes issued by the central bank are certificates of indebtedness and represent liabilities of the Bank of Japan to other entities, and only government money (supplementary currency as coin) held by the Bank of Japan itself is considered to be an asset as "cash". According to the Bank of Japan's financial statements as of March 31 shown in Fig. 4, total assets were 604,484.6 billion yen, total liabilities were 599,937.2 billion yen, and net assets were 4,547.3 billion yen. The balance of banknotes issued by the Bank of Japan is 109,616.5 billion yen. At present, cash as asset accounts for only 0.19% of banknotes issued as a liability.

Fig. 4 Balance Sheet of Bank of Japan (March 31, 2020) Source: Financial Statements for the 135th Fiscal Year/Fiscal 2019 (<https://www.boj.or.jp/en/about/account/zai2005a.pdf>)

Item	yen
<b>ASSETS</b>	
Gold	441,253,409,037
Cash	205,061,074,044
Japanese government securities	485,918,129,988,422
Commercial paper	2,551,889,033,716
Corporate bonds	3,220,825,190,968
Pecuniary trusts (stocks held as trust property)	727,714,519,973
Pecuniary trusts (index-linked exchange-traded funds held as trust property)	29,718,938,645,617
Pecuniary trusts (Japan real estate investment trusts held as trust property)	575,305,889,680
Loans and bills discounted	54,328,648,000,000
Electronic loans	54,328,648,000,000
Foreign currency assets	25,966,256,288,216
Foreign currency deposits	1,732,262,396,986
Foreign currency securities	2,355,224,668,143
Foreign currency mutual funds	60,613,713,087
Foreign currency loans	21,818,155,510,000
Deposits with agents	23,994,220,003
Other assets	590,051,545,382
Bills and checks in process of collection Capital subscription to the Deposit Insurance Corporation, and the	6,356,685
Agricultural and Fishery Cooperative Savings Insurance Corporation	225,000,000
Capital subscription to an international financial institution	15,278,374,364
Withdrawn cash to be returned to the government	38,707,429,941
Refund on accrued tax	52,621,989,719
Accrued interest receivable	470,183,576,216
Others	13,028,818,457
Tangible fixed assets	216,444,108,401
Buildings	105,726,690,246
Land	84,124,182,999
Lease assets	7,598,665,055
Construction in progress	7,458,248,538
Other tangible fixed assets	11,536,321,563
Intangible fixed assets	129,890,768
Utility rights	129,890,768
<b>Total assets</b>	<b>604,484,641,804,227</b>

LIABILITIES	
Banknotes	109,616,575,483,650
Deposits (excluding those of the government)	447,076,239,363,367
Current deposits	395,256,035,035,254
Other deposits	51,820,204,328,113
Deposits of the government	12,633,850,593,434
Treasury deposit	150,001,026,112
Domestic designated deposit	12,239,860,364,524
Other government deposits	243,989,202,798
Payables under repurchase agreements	24,116,347,566,200
Other liabilities	84,086,119,657
Remittances payable	14,760,764,172
Taxes payable	28,031,000,000
Lease liabilities	7,988,759,130
Others	33,305,596,355
Provision for retirement benefits	203,316,793,791
Provision for possible losses on bonds transactions	4,799,292,993,013
Provision for possible losses on foreign exchange transactions	1,407,536,000,000
<b>Total liabilities</b>	<b>599,937,244,913,112</b>
NET ASSETS	
Capital	100,000,000
Legal reserve	3,252,007,626,093
Special reserve	13,196,452
Net income	1,295,276,068,570
<b>Total net assets</b>	<b>4,547,396,891,115</b>
<b>Total liabilities and net assets</b>	<b>604,484,641,804,227</b>

Here, the following points should be noted. If the government manufactures 200 billion yen in coins at a cost of 40 billion yen and delivers them to the Bank of Japan, 200 billion yen in "cash" will be recorded in the assets section of the Bank of Japan, but no liabilities will be incurred by the government. Therefore, the difference between the two, 160 billion yen, becomes revenue. This gain on money issuance is called seigniorage. In the Middle Ages, seigniorage referred to the privileges of feudal lords, and especially to the profits from the issuance of gold and silver coins. If seigniorage occurs in coins, does it also occur in Bank of Japan notes? It is tempting to think that if 100 trillion yen of Bank of Japan notes are printed and issued at a cost of 20 trillion yen, the difference of 80 trillion yen would be seigniorage, but the general view is that seigniorage does not occur because Bank of Japan notes are recorded as liabilities, not assets. We will discuss whether this is true or not later.

The Bank of Japan used to issue convertible banknotes that had to be exchanged on demand for the nation's standard currency, specie (gold or silver coin). A convertible banknote is a check of deposit of specie, a certificate of debt obligation guaranteeing that the bank will hand the specie over to the person who brings it to the bank. Under the gold standard and/or silver standard, specie is a coin that contains a certain amount of precious metal based on par value and whose real value does not differ from its marked face value, i.e., gold/ silver coin or bullion. In Japan, the New Currency Ordinance of 1871 set the gold parity at '1 yen = 1.5 grams of pure gold', but the Coinage Law of 1897 halved the gold parity to '1 yen = 0.75 grams of pure gold'.

When the Bank of Japan issued convertible banknotes, it entered the gold or silver bullion or coins for specie reserve as assets on its balance sheet and the banknotes issued as liabilities. The Bank of Japan convertible notes were negotiable certificates of obligation (IOUs) and were credit money. However, since Nixon's cancellation of direct convertibility of US dollar into gold in 1971 and the transition to a floating exchange rate system in 1973, all national currencies, including the US dollar, are no longer guaranteed to be convertible to gold. The central banks of each country now issue inconvertible banknotes that are not guaranteed to be convertible into specie. That is fiat money, legal tender, or cash, and there is no longer specie. The exchange rates that fluctuate daily in the foreign exchange market merely indicate relative exchange ratios between national currencies, and do not represent any absolute real value. From a postmodern philosophical point of view, modern money is just information that displays only 'differences'.



However, the Bank of Japan kept on making an entry of the balance of central banknotes issued as "banknotes issued" in the liabilities section of its balance sheet, just as it did when it issued convertible banknotes. Included in the assets section are not gold or silver coins or bullion for specie reserve, but government bonds, loans, Exchange Traded Funds (ETFs), Real Estate Investment Trusts (REITs), and stocks paid with BOJ banknotes and current deposits.

According to the financial statements for FY2019, Japanese government bonds (JGBs, Japanese government securities in Fig.4) account for the largest portion of total assets at 485,918.1 billion yen, followed by loans and bills discounted at 54,328.6 billion yen, ETFs at 29,718.9 billion yen, foreign currency assets at 25,966.2 billion yen, equities at 727.7 billion yen, REITs at 575.3 billion yen, gold bullion: 441.3 billion yen cash: 205.1 billion yen etc. It should be noted that JGBs, ETFs and REITs have grown significantly. On the other hand, in the liabilities section, banknotes issued, and deposit increased up to 109,616.5 billion yen and 447,076.2 billion yen, respectively, while government deposits decreased to 12,633.8 billion yen, which is probably due to an increase in extraordinary spending for corona virus countermeasures.

ETFs and REITs, which are assets other than JGB, have been rapidly growing among assets since 2010, when the Bank of Japan began buying them to help the Japanese economy escape the Subprime financial crisis and promote stable growth after it. They are not stocks of specific industries or companies, or specific buildings or land, but rather indices that represent the weighted average of the market value of Japanese stocks and Japanese real estate listed and traded on the stock market, so the Bank of Japan is, so to speak, an anonymous holder of stocks and real estate for all of Japan. If you closely look into the ETFs owned by the Bank of Japan and add up the shares that make up the ETFs, you will find that there are more than 200 companies in which the Bank of Japan owns 5% or more of the shares, and about 50 companies in which it owns 10% or more. The Bank of Japan not only influences the stock market, but also has a great deal of influence over these private companies as an indirect major shareholder, although it is the asset management companies that exercise the voting rights.

Why is the balance of central banknotes issued listed as a liability on the balance sheet? In the Bank of Japan's view, this is because the stability of the value of Bank of Japan notes is due to the Bank's appropriate monetary policy, which makes them "like" certificates of obligation. It is also claimed that such a dealing of central banknotes issued is the same as major central banks of foreign countries. However, we do not understand the logic behind the Bank of Japan notes' "debt-like" status<sup>2</sup>. For, whether inconvertible central banknotes are debt instruments or not is irrelevant to the appropriateness of the BOJ's monetary policy and public confidence in the BOJ. Since fiat money has no obligation to be redeemed in the first place, the question of debt repayment does not arise whatever happens. If this is the case, then there should be no need to correlate the amount of banknotes issued that are recorded in the liabilities section of the BOJ's balance sheet, with the amount of government bonds, stocks, and real estate purchased with banknotes that are recorded in the assets section.

If the plunge in JGBs, stocks, and real estate were somehow attributable to the Bank of Japan's monetary policy failures rather than to exogenous natural disasters or the global financial crisis, the Bank of Japan would be held accountable and would lose the confidence of the public, corporations, and investors. In such an event, if the outstanding Bank of Japan notes would remain as liabilities, the Bank would be at risk of becoming insolvent as its liabilities exceeded its assets as the value of its assets declined. However, in the case of the central bank, even though it becomes insolvent, the government would certainly provide capital injections and other bailouts, so it is unlikely that the bank will go bankrupt anytime soon.

Such risks, even if they are the result of monetary policy failures and a loss of confidence, are independent of the fact that Bank of Japan notes are certificates of obligation. Rather, by maintaining such an interpretation, the risk of insolvency has seemingly increased. What the BOJ is doing now to support the private sector in the fight against the new coronary infection is unlimited purchases of JGBs and increased purchases of CP, corporate bonds, etc. Accordingly, the BOJ's issuance of

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<sup>2</sup> <https://www.boj.or.jp/announcements/education/oshiete/outline/a23.htm/>

banknotes and its balance sheet are expanding further. Therefore, the insistence that identification of Bank of Japan notes as debt certificates can work as a break against excessive issuance causing hyperinflation may be incorrect.

There is no small possibility that the Bank of Japan's ultra-easy monetary policy stance will create significant risks in the future. What would be more consistent with such monetary policy would be to gracefully recognize "banknotes in issue" as capital and record them in net assets. If the government changes this conventional practice retained from the age of convertible banknotes and declares that it will change the items listed in its financial statements from now on, the banknotes it issues, which account for nearly 20% of liabilities, will disappear in an instant, and its net assets will increase by that amount, which should prevent it from falling into insolvency even if the value of its assets, including JGBs, is severely damaged.

## 5. Bank of Japan Notes are not "Certificates of Obligation" but "Equity Securities"

First, we must deeply consider what exactly is a "debt" without obligation to repay. Modern fiat central banknotes are not issued as negotiable certificates of debt obligation to be redeemed in specie when it is refunded to the central bank after circulating among economic agents other than themselves as asset "cash", as was the case with earlier convertible banknotes. Therefore, we must admit that it is no longer credit money. Of course, it is also not material money that retains its intrinsic use value. Then, what exactly is a "debt" that does not have to be repaid? In fact, the expression "debt" without obligation to repay is a literal contradiction. There is no such thing as a debt without an obligation to repay it. What it simply means is a situation where there is no more debt and no more repayment.

The Bank of Japan was established with a capital of 100 million yen, but it has now issued more than 100 trillion yen in Bank of Japan notes, a million times that amount, which continue to circulate as fiat money with no obligation to repay. To understand this curious reality, we only need to reconceptualize Bank of Japan notes not as certificates of debt obligation or IOUs but as equity securities, a means of raising funds on a massive scale. The modern central banknote is conceivable as an equity security issued by the central bank in the name of "cash." We thus reinterpret it as a quasi-security or utility coupon without voting rights nor dividends, not as IOUs.

ICO (Initial Coin Offering) is a popular way to raise funds by 'presale' of new tokens to investors in exchange for contributions in-kind of such cryptocurrency as Bitcoin or Ether before they are listed on an exchange. There are two types of tokens issued through ICO: security tokens that come with revenue sharing rights, and utility tokens that are a means of payment like service vouchers or gift certificates. Since Bank of Japan notes do not hold any rights for interest or revenue, they provide such services of 'money' as payment and purchasing power to buy anything. So, it can be considered as a utility token. In recent years, financial regulators around the world have been trying to regulate crypto-asset tokens by regarding them as the latter. But what if the central bank notes can be also regarded as utility tokens? It surprisingly resembles the way in which fiat central banknotes are issued as equity for financial institutions' contribution in kind of government bonds as we have just seen even if it has no risk of rip-off as in ICO.

Then, what changes if we understand fiat central banknotes as securities of contribution? First, it changes the meaning of central banknotes as money: fiat central banknotes are neither material money nor credit money, but a third kind of money: ideational or symbolic money, in other words, utility token. By recognizing this, it can be clarified that modern money, including national currency as well as non-national private currency such as cryptocurrency and community currency, shares such unique characteristics that were not present in earlier material money and credit money.

Second, in the balance sheet, capital/ equity is distinguished from liabilities and is entered as net assets in the same credits of a balance sheet. If the Bank of Japan reinterprets "banknotes issued" as capital/ equity, then "banknotes issued" will disappear from liabilities and be recorded as net assets/ shareholders equity, eliminating almost all fears of insolvency even if the value of current holdings such as government bonds, real estate, and stocks were to collapse significantly.

It is self-evident from the outset that the principle of self-responsibility does not apply to central banks which are certain to be bailed out by the government even if they become insolvent. Rather, it may be more appropriate to clarify beforehand in principle that central banks are capitalized by the banknotes they issue because they play a public role in finance, and therefore the risk of their failure becomes extremely small compared to that of private entities. When Japan's bubble economy collapsed in 1990s and the U.S. fell into a financial crisis after the Lehman Shock, the government broke the universal principle of self-responsibility by bailing out major financial institutions with capital injections using taxpayers' money as a stopgap measure. However, if such an event took place to central banks, it would be much better to fundamentally solve the problem by changing the monetary and financial principles rather than executing ad hoc bail-out with public funds.

If we assume that a financial institution receives Bank of Japan notes as equity securities, how can we understand trading in JGBs for "cash"? The financial institution would be seen as making contributions in-kind of the JGBs, rather than monetary contributions, and receiving the Bank of Japan notes as capital contribution securities. In other words, it is not a sale of a commodity for money, but an investment in kind in the form of JGBs for the delivery of investment securities. In such a case, the entities contributed in-kind are not goods and services, but rather securities such as government bonds, corporate bonds, CPs, bills, corporate bonds, ETFs, and REITs, which are exchanged mainly by the Bank of Japan and financial institutions as assets. Since modern capitalism has reached the ultimate stage of free investment, then considering central bank notes as equity securities is not particularly strange, as it places the principle of investment at its core. If the Bank of Japan were to actually record "banknotes issued" as capital/ equity rather than liabilities on its balance sheet and make such information widely available, the perceptions and actions of the government, financial institutions, corporations, and the public would not remain the same, but would change dramatically.

First, how would the government view it? The government's budget deficit has been increasing, with the outstanding amount of government bonds issued at the end of FY2019 (end of March 2020) reaching a record high of 997.9 trillion yen, and the outstanding amount of long-term debt for the national and local governments combined standing at 1,125 trillion yen, or 197% of GDP. The Bank of Japan's JGB holdings at the end of the same period were also 486 trillion yen, so almost half of all JGBs held by the Bank. If Bank of Japan notes are recorded in net assets as capital instead of liabilities, the risk of the Bank of Japan becoming insolvent would be significantly reduced and it would be able to hold even more government bonds even if long-term interest rates were to rise sharply and government bond prices were to plummet accordingly. The central bank's underwriting of new government bonds is currently prohibited by Article 5 of the Fiscal Law. But the situation is that the nation eventually contributes new government bonds in kind and provides capital/ equity to the central bank, in exchange for receiving 'legal tender' as security of investment from the Bank of Japan. Eventually, it would be the exchange of debt certificates as JGBs and equity securities as Bank of Japan notes. Then the central bank should not be specifically prohibited from doing so, since the risk is ultimately borne by the government as the investor.

This may sound similar to MMT's argument that unlimited issuance of government bonds is possible. MMT sees the government and the central bank as a single integrated entity and argues that no matter how much government bonds are issued, there will be no problem because the central bank can finance all of them, because fiat central bank notes are guaranteed to be valid by the state's authority to levy taxes. This arises from the incorrect notion of money that modern fiat central bank notes are a form of credit money based on 'chartalism'. It is completely different from our claim that modern money is no longer material money nor credit money, but ideational or symbolic money. We consider that MMT' concept of modern money is outdated and its policy implication is mistaken.

The relationship between the central bank and financial institutions has long been thought of as a one-way hierarchical relationship, with the central bank assisting and bailing out financial institutions and supervising and regulating them, as seen in the "bank of banks," the "lender of last resort," and the reserve deposit system. If, however, Bank of Japan notes are explicitly stated to be equity securities for capital contributions by private financial institutions to the Bank of Japan, then the opposite effect of financial institutions jointly supporting and assisting the central bank is clarified, and this would create a more interactive and equal relationship between the two. If financial institutions are investors in the Bank of Japan, there will be risks associated with investments in kind rather than trading in money. However,

even if the value of assets such as government bonds, stocks, and real estate were to be severely damaged, the risk of the Bank of Japan becoming insolvent would be significantly reduced, which would simultaneously reduce the risk to financial institutions of investing in the Bank of Japan.

Financial institutions that hold current accounts with the Bank of Japan would not only view the cash, Bank of Japan notes as certificates of contribution in the Bank, but would also view their current accounts as the same securities they receive on withdrawal of their deposits. For the Bank of Japan, the current account is a liability, but the Bank of Japan only have to repay the financial institutions for the securities for their investment under the name of 'legal tender.' So, theoretically, issuing an unlimited number of such securities will not cause the Bank of Japan to become unable to repay its debts. Although the author does not agree with it, the unlimited supply of monetary base, which the Bank of Japan has already implemented as QQE (Quantitative-Qualitative Easing), should be more consistent with this logic. This is also true of MTT.

However, this is subject to the condition that there is no possibility of the other party refusing to accept the note due to the side effect of hyperinflation. Even though Article 46, Paragraph 2 of the Bank of Japan Act stipulates that "banknotes issued by the Bank of Japan shall be accepted without restriction as legal tender," it does not necessarily mean that the other party can be 'forced' to accept the banknotes because physical commodities of necessary use value such as rice and eggs become material money with a much higher purchasing power in such a hyperinflationary situation, as was seen in Germany after the defeat of WWI. It is not always possible to force the other party to accept paper money.

The value of modern money is spontaneously formed and automatically maintained by the inertia and conventions from the past and the expectations and anticipations for the future that people unconsciously or consciously rely on in their daily receipts. In other words, the value of modern money is formed and grown by self-fulfilling notions. In this sense, the modern money since the 1970s is neither material money nor credit money, but rather purely informational money that should be called 'ideational money' or 'symbolic money.'

If individuals and companies recognize that cash and deposits are also risk involving investment securities, the traditional monetary mindset that holding money is secure and that money has no risk will change<sup>3</sup>. We will be forced to realize that we are investors who choose portfolios of various assets on our own initiative and responsibility, while constantly being aware of such risks, and the nature of free investment capitalism will be strengthened<sup>4</sup>. However, 'investment' is not just quantitative 'speculation' aimed at increasing the volume of one type of national currency. As private currencies other than legal tender become more diverse, individuals and companies will become to consider their main objective more comprehensively and, by selecting multiple currencies to match their own values and lifestyles while taking various risks into consideration, eventually aim at not only quantitative expansion but also qualitative improvement of their possibilities and world in the future by utilizing these currencies.

## **6. What is good money? Hayek's principle of choice in currency in terms of 'quality' realizes that 'good money drives out bad'**

### **6.1 Gresham' law: Bad money drives out good**

In this era of diversification and evolution of money, we can no longer see money as given, ready-made, and top-down. We should regard it as being bottom-up created and selected by users. Therefore, in the creation and selection of money, the question of what kind of money becomes "good money" is crucial. It's not just convenient, efficient, and stable. What exactly is "good money"? It is the most fundamental question. The answer is not something anyone can give, but something we have to find by ourselves.

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<sup>3</sup> The "liquidity preference" that Keynes introduced in his *The General Theory* (Keynes 1936) assumes that the interest rate of money is zero compared to positive interest rate of bonds, but the reason why he assumes so is because the risk of holding money is zero unless there is no accelerating inflation. This may have reflected the normal monetary attitudes of the British rather than the Germans, who experienced hyperinflation after World War I.

<sup>4</sup> In my view, it is "free investment" rather than "free trade" that characterizes modern global capitalism. For more on this, see Nishibe (2020).



Let us first check 'Gresham's law' that is one of the famous monetary principles in economics claiming that "bad money drives out good".<sup>5</sup> The 19th-century Scottish money and credit theorist Henry Dunning McLeod had given the name after the 16th century Tudor Treasury Secretary Sir Thomas Gresham. However, there are many precedents for the law since the Ancient Greek era (Mundell 1998; Selgin 1996, 2003). Nicolaus Copernicus, who is famous for advancing the theory of heliocentric system, is one of such precedents who accurately acknowledge the law (Ziffer 1957)<sup>6</sup>. Accordingly, this law is currently sometimes called 'Gresham- Copernicus' law.'

The meaning of this law is as follows. Let's assume that there are two gold coins (silver coins make no difference). The face value of a gold coin is the denomination of the unit of measure, e.g., Pound, and the real value of a gold coin is its content of gold. When the real value of one gold coin is lower than the face value of the other due to debasement, including the issuing body's mixture of base metals and users' clipping or scraping, which one will you use to pay first? Assuming users behave selfishly, they are supposed to use "bad money" with low content of gold first and try to keep "good money" with a high content of gold. Then bad money will be circulated, and good money will be hoarded. Thus, Gresham's law originally meant "Gresham's law of coinage" in the case of the debasement of minting coins. In general, in the case of any material money (commodity money) in which the material has an intrinsic value, good money with the small difference between the face value and real value will be preserved as an appropriate asset, and, as a result, bad money will gradually prevail in the market.

However, if we expand its substantial meaning of the law to bimetallism where both gold and silver are adopted as a standard of value with the fixed exchange rate, the relatively lower evaluated one will circulate among users. Gresham's law is also valid for the case where gold coins with the same unit of denomination (e.g. yen) and convertible paper money that can be converted into gold coins coexist. For people would tend to keep on hand the gold coins with higher real value and try to use the convertible paper money with lower real value first. Furthermore, even in the case of inconvertible paper currency, Gresham's law still holds. If there are two inconvertible paper currencies with different inflation rates due to the difference in the amount of currency issued, bad money with a low real value caused by high inflation rate drives out good money with a low inflation rate.

Gresham's law tells us that it is a very convenient law for minters and issuers of money. If the issuer reduces the gold content of gold coins and reduces the casting cost, the difference between the face value and the commodity value can be obtained as Seigniorage (profit from minting) while bad money continues to circulate. Besides, as a result, if the real value of money decreases and the inflationary trend progresses, inflation has the actual effect of substantially reducing the nation's fiscal deficit. Because of these dual benefits, the government tends to mint and issue bad money that incessantly causes inflation. And if there is no legitimate choice for users but to use a coin bearing the king's seal, such bad money will be forced to circulate within the nation, which will be a big nuisance for users.

Next, let's apply this to the present day. Today, neither standard money such as gold or silver coins nor convertible paper money is in circulation. Inconvertible banknotes issued by the central bank and subsidiary coins minted by the Mint Bureau of the Ministry of Finance are legally designated as legal tender. The production cost of a 500 yen coin is only about 20 yen at most. Then, the seigniorage for the central bank on minting a 500 yen subsidiary coin would be 480 yen. Its real value is only 4%, negligibly small compared to a gold coin. Similarly, the production cost of a 10,000 yen note is only about 10 yen at most. Its real value is now only 0.1%. Then, we would like to say that the seigniorage for the central bank on issuing a 10,000 yen central banknote would be 9,990 yen. But be careful. It is a controversial point. As we have just seen above, in the current institutional setting of accounting, the central banknotes are not regarded as asset but liability on its own balance sheet. So, they say it cannot be seigniorage. But, as we discussed earlier, if the central banknotes are to be shifted from liabilities to

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<sup>5</sup> The full survey article on history of precedents and transition of theoretical meanings of Gresham's law is found in Verde (2008). The author explained three refinements of Gresham's law in history, but he mentioned Akerlof's discussion on the lemon's market of the asymmetric information, but he doesn't mention the theoretical implication of Gresham's law for diversifying modern money including community currencies and cryptocurrencies as well as modern monetary policies.

<sup>6</sup> Copernicus's *Monete cudende ratio (On the Coinage of Money)* is his third version of his treatise on money and coinage written in Latin in 1526 (). Nicholas Oresme's *On the origin, Mature, La, and Alteration of Money* is found more than century earlier works (Mundel 1998)



capital in net assets, we may say once again that 9,990 yen is the seigniorage. Inconvertible legal tender potentially become a real 'bad money'.

From some time after WWII in Japan, the yen could be exchanged for dollars at a fixed rate of '1 dollar = 360 yen', and dollars could be exchanged for gold at a rate of '1 ounce of gold = 35 dollars'. Therefore, we could say that the yen was indirectly convertible into gold. However, President Nixon stopped the conversion of dollars to gold in 1971 due to the shortage of gold reserves, and all developed countries shifted to floating exchange rates in 1973. Since then, the legal currencies of each country have lost their anchor based on the value of physical commodities such as precious metals and commodity baskets. The floating exchange rate system merely indicates the relative exchange rate between legal currencies and doesn't show the absolute value as in the gold standard system. Therefore, it often fluctuates greatly depending on the speculation of investors in the foreign exchange market.

In the Asian currency crisis in 1997, investors who expected the asset bubble to end flowed out of the country from Asian countries such as Malaysia, Thailand, and Korea. As a result, in these countries, the real economy fell into a recession by the collapse of currency and assets, and people's living conditions deteriorated rapidly. Modern money is not only a means of circulation and a measure of value for buying and selling goods but also a store of value and liquidity as a shelter from volatility for investment. In the case of FX (foreign exchange margin trading), money itself is the subject of speculation to make profits from trading. Thus, modern money suffers not only quantitative deterioration due to a tendential decline of real value but also qualitative deterioration due to large value fluctuation accompanied by the nullification of real value.

The Bank of Japan, under its Abenomics policy, has continued QQE, or an unlimited supply of cash currency with negative interest rates, in an attempt to achieve an inflation target of 2%. The weaker yen improved the performance of exporting companies and boosted stock prices. However, inflation has not occurred as expected because banks do not increase their lending to supply deposit money to the market. This situation occurs because banks consider that they do not have borrowers considering the risks involved. The government's inflation targeting policy aims to improve the economy by raising nominal prices through an increase in money stock despite the lack of favourable investment opportunities. It assumes the extreme assumption that people's expectations of inflation based on the illusion of money will continue. In reality, the rise in wages has been slow, and households whose real purchasing power has declined have tightened their purse strings. The Bank of Japan governor, Kuroda, has now stopped short of mentioning a deadline for achieving a 2% inflation rate and seemingly has given up on that goal. Centralized issuance of cash by the central bank under the national managed currency system has made such unsound economic policies possible.

Modern legal tender as an inconvertible currency is bad money not only in the quantitative sense that its real value is tremendously smaller than its face value in contrast to gold coins, but also in the qualitative sense that it has become an object of the speculation as a financial asset like a stock and a derivative commodity so that it shows an extraordinarily high degree of capital function and that it also serves an instrument of current arbitrary and risky monetary policy by central banks. We could say here was the culmination of evil. In such a pathological situation of the modern money system, it was significantly expected that Bitcoin, which differed from the centralized issuing legal tender, would potentially become a new original currency based on the decentralized issuing by utilizing blockchain or DLT. However, once cryptocurrencies began to be exchanged with legal tender on the exchanges, Bitcoin and other cryptocurrencies rapidly became speculative. They rose in prices sharply, especially in 2017, as their public recognition of names increased, but made a sudden plunge in 2018. The price fluctuation was tremendously huge, compared with legal tenders such as the dollar and euro. It seemed that cryptocurrencies had become financial instruments with high risks and high returns, just like FX with quite high leverage by a factor of 10, rather than 'money' that transacts goods and services. Disappointingly, cryptocurrencies have become indeed 'bad money'.

## 6.2 Hayek 's Denationalization of Money and the the Principle of "Choice in Currency"

The Austrian School economist Hayek, in his book "The Denationalization of Money" (1976b), stated that a desirable currency can be found as a "good money" only when multiple currencies of different quality mutually compete. For that purpose, the principle of 'choice in currency' for "Good money drives

out bad" should work instead of Gresham's law stating, "Bad money drives out good". If only monopoly currencies and their simulacrum exist, that is, currencies can be differentiated only by the quantity of real value, amount of issue, and interest rate when they have the same face value or the fixed exchange rate, the Gresham's law will come into effect.

For example, in Scotland and Hong Kong, several private banknotes with the same standard of measure circulate alongside the legal tender, which is the central banknote. Private banknotes are different from legal tender, but they use the same name and unit of measure, i.e., "pound sterling" or "Hong Kong dollar". This creates the possibility that such private banknotes will be refused by some stores, but in most cases, they will be circulated as having the same value as central banknotes. Thus, they will be substitutive currencies of legal tender. In this case, legal tender and substitutive currency are apparently different currencies, but they can be used as money with the same name and unit of measure.

Even if the central bank properly adjusts the amount of legal tender issued so as not to impair its real value, i.e., so as not to cause inflation, if private banks, which issue private substitutive currency with the same name and unit of measure, issue too much of it, the supply of such substitutive currency will increase, its real value will decline, and inflation will occur. In this way, the legal tender with the same real value as before will be hoarded as "good money" because people will try to use the "bad money" that has the same nominal value but has a lower real value first. In other words, even if legal tender and substitutive currencies are outwardly distinguished, if the exchange ratio between them remains fixed at one to one, the substitutive bad currencies will drive out the legal tender good currency. This is the result of what Gresham's law works.

In order for a competitive relationship between multiple currencies of different quality to be established, a situation must be created in which this Gresham's law does not hold, and Hayek's principle of 'choice in currency,' "good money drives out the bad" must come into play (Hayek 1976a). This is the case when multiple currencies of different quality enter a competitive relationship of "monopolistic competition". The following two conditions are necessary for it, 1) multiple currencies should have different denominations (names) of the unit of measure, the types of reserve assets and reserve instruments so that they can be distinguished not only in such quantities but also in qualities such as users' trust on the stability of value of money, and 2) the exchange rates between currencies must not be fixed entirely, but they must be somewhat changeable reflecting users' evaluation of the differences in quality.

In a capitalist economy, as a result of such monopolistic competition, the principle of commodity selection, "good commodity drive out bad commodity," is at work. This is the merit and strength of the capitalist market economy. Monopolistic competition, which is applied to heterogeneous goods and services with slightly different quality and design, rather than perfect competition, which is applied to completely homogeneous and perfectly substitutive goods and services, is the reality of competition in a market economy. Monopolistic competition is by no means an exceptional situation, but represents a universal situation. The principle of commodity selection brought about by such monopolistic competition is the outstanding characteristic of a market economy, which does not exist in a planned economy. In other words, markets are better appreciated because they make goods not only cheaper, but also better, not because they realize efficient allocation of scarce resources.

Monopolistic competition thus generally refers to an oligopolistic situation in which there are incompletely substitutive commodities supplied by heterogeneous firms and they differ in quality and design, even though they form a market for roughly the same kind of commodities, and in which both price and non-price competition among firms occur simultaneously. Hayek tried to apply the concept of monopolistic competition that is usually used in terms of commodity differentiation to the differentiation of money. He thought that money differentiation through monopolistic competition bring about 'better money' that have better quality of money. The principle of "good money drives out bad money" is a principle that begins to operate only when the issuer of money innovates its currency service to enable competition in quality. The "denationalization of money," as Hayek called it, was a dynamic process in which multiple private currencies of differentiating quality would create this complex and intricate process of "monopolistic competition" or, in other words, "rivalry". It does not mean perfect competition that is a condition for Pareto efficiency of resource allocation as in neoclassical microeconomics. It is important to note that other economists' criticisms of these ideas of Hayek often do not fully understand this point.

The principle of choice in currency does not work under the current situation where currencies are monopolized by the state and legal tender is dominant. This is because the "one nation, one money" institution of modern money must be changed for it to be applicable. However, if multiple currencies of the same quality are issued freely, as is the case in Scotland and Hong Kong as free banking theorists insist, the Gresham Law, which states that "bad money drives out good money," will come into play.

Since cryptocurrencies obviously met these two conditions, the principle of choice in money began to function. The next problem was whether cryptocurrencies could pass the test of users' choice in money in search for good money. Hayek defined the currency with 'a stable value of money' to mitigate uncertainty as "good money" (Hayek 1976b, Ch.13). The prices of the current cryptocurrencies to legal tenders are so volatile that they are by no means good money from the viewpoint of Hayek. However, it is not clear whether the condition of good money should be based only on the stability of currency value. If the result of the selection made through inter-currency competition is seen as "good money", the criteria should be continuously discovered and innovated through evolution. For cryptocurrencies to escape from the present state in which they seem just objects of speculation and to become "good money" usable in actual transactions, the stability of currency value with the formation of consumer goods market for them is at least indispensable.

Currency stability usually means that hyperinflation, causing a sharp decline in value of money, never take place. But Bitcoin is programmed to continually increase its scarcity and value over time by mimicking the 'mining' of gold with limited reserves. In that sense, speculation in bitcoin is inevitable. Still, the critical issue of unstable currency value arises because cryptocurrencies have been in sale for legal tender at real-time floating rates on hundreds of exchanges all over the world. The floating exchange rate system similar to FX quickly enabled speculation aiming at a trading margin by using value fluctuation. In fact, without this factor, bitcoin would not have been as globally popular as currently. However, it is the very factor which prevents bitcoin from becoming good money.

Currently, bitcoin is only available for a small portion of all merchandizes, and altcoin and tokens have to be converted into bitcoin to use them for purchase of goods and services. Even at shops where bitcoin is available, users have to pay by converting the list price in legal tender into bitcoin. If you expect the price of bitcoin to go up, you better to hold it than to pay it for taking appreciation profit. On the contrary, if the price is expected to drop, it will be better to use it than to keep it, but the seller may refuse to accept it. Because of violent price fluctuation of bitcoin, such speculation depending on expectation is always easy to occur, and the factor of speculative investment always mixes in the consumption. It is mainly international hedge funds, investment banks, and corporate and individual speculators who buy and sell these cryptocurrencies globally. Since cryptocurrencies are convenient tools for foreign remittance, illegal transactions such as money laundering, tax evasion, and drug dealings are inevitably involved. It is a world far from the vast majority of ordinary people.

### **6.3 The precondition of good money: ordinary people in an actual socioeconomy**

To reconsider what criteria of good money are, we should return to the right image of the human nature of ordinary people who daily use good money in an actual socioeconomy. It must be the real precondition for the criteria of good money.

We live by consuming the basic goods and services necessary for food, clothing and housing with the income obtained by working, and decide the lifestyle based on our sense of values, carry out hobbies and activities depending on our interests, and acquire knowledge and information. Because of emotional and psychological biases, we cannot make the best choice. Nor can all options be known in advance. Not only is there a limit to rationality, but there is also a limit to ability in all aspects such as information gathering, decision-making, and action-taking.

Therefore, the place that ordinary people buy consumer goods by money is not a vast global market but a common local market which spreads in the vicinity of one's own life. In addition to blood relation, regional ties, and neighbourhoods, the communities as the active fields of life, labour, and hobby as well as the community as the sharing field of language, value, and interest are considerably related to the local market. A human being is not a rational fool who can make globally optimum decisions all the time, which is actually the image of rational agents assumed in orthodox economics. Instead, it is a decent

but emotional animal that judges based on the bounded knowledge and information that are framed by its own value and interests in the local region, and lives belonging to various communities. Thus, we should consider that good money is the money that ordinary people need to live their daily lives.

There is an inevitable impression that cryptocurrencies have become far from ordinary people because only speculative capital functions have become independent. To convert such cryptocurrency into good money that enriches people's lives, a strategy to positively introduce such multi-layered sets of territorial locality and virtual community will be effective. Here we need to learn from the present situations of DCCs that are in practice in local communities, seeking a good hint for criteria of good money.

In order for such DCCs to become a good currency, it is essential to create a market for consumer goods. In addition, it is important for merchants to use it to pay for purchases and wages. As a result, if the circulation of the currency can cover not only the market for consumer goods but also the market for production goods and investment goods, the local economy will be revitalized through local production for local consumption. To achieve this, DCCs need to form a new local currency market that fuses two seemingly incompatible areas: the "volunteer" area, such as mutual help and sharing within the community, and the "business" area, such as shopping in shopping malls and business-to-business transactions. To do this, we need the support of the local government, but we also need to bring together the various groups, organizations, and citizens who are currently scattered and disparate, such as local governments, economic organizations, shopping malls, schools, welfare councils, and hospitals, to reestablish the community itself.

In Japan, DCCs are spreading in local communities, such as Sarubo Coin in Hida Takayama City and Aqua Coin in Kisarazu City. The question is whether they will be able to create a local virtual currency market rooted in the local community and achieve regional development. We should also pay attention to whether any good money would emerge out of such new waves as CBDCs and citycoins as well as web3 and metaverse accompanied by Defi, DAO and NFT with smart contracts on various types of blockchain (DLT). That is the issue for the future.

## 7. Conclusion

This paper depicted the outlook of diversity and evolution of money from the past to the present and then gave an answer to the central question for understanding modern money under the myth of "one nation, one money," which is the enigma of what fiat central banknotes are.

Differently from the view of MMT, they are neither material money nor credit money, but purely informational "ideational money" or "symbolic money" regardless its present status as "liability" on the balance sheets of central banks. To correctly understand such real nature of modern money is crucial. It is because both national money as legal tender and non-national money as crypto currencies and community currencies share the property as the root, on which other derivative forms of money as stablecoins and tokens depend.

We must release ourselves from the stereotype of a single national currency to seek a new way of adequately understanding the diversity and evolution of modern monetary systems and find a new bottom-up approach for evolutionary theory and policy with a diversity of money, different from conventional top-down approaches found in micro theory without money as well as a macro policy with single money<sup>7</sup>.

Besides, we cannot merely be satisfied with describing such ongoing events of the plurality of money. We should be concerned with theoretically explaining how money diversifies and maintains itself; in other words, monetary systems dynamically change with its diversity kept. To the end, we need to consider how participants or users select from many alternatives of currencies so that some of them can only survive in the evolution of money. It is also necessary to focus on diverse monetary and social exchange systems, such as schemes that contribute to economic diversity, social cohesion, democratic participation, and environmental sustainability, as in community currencies and

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<sup>7</sup> On plurality and diversity of money, see Gomez (2018), and on the diversity of community currencies, see Nishibe (2018).

cryptocurrencies<sup>8</sup>.

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<sup>8</sup> We have constructed the theoretical model of institutional ecosystems to explain and describe the evolutionary dynamics of currently observed diversified money (Hashimoto and Nishibe 2017). In the model, an institution such as money is a game constrained by given game rules, and a variety of institutions such as diversified money constitute a complex institutional ecosystem subject to a meta-rules composed by players' value consciousness as criteria to evaluate multi-games. Refer to the article if interested in such theoretical aspects of this topic.