



8. THE FUTURE OF MONEY

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8.1. ABSTRACT

Governments in industrial countries will fight tooth and nail to preserve their traditional sovereign prerogatives in the monetary domain and prevent the emergence of any private outside or fiat money - like Libra - not redeemable into a single traditional sovereign currency (like the US dollar or the euro): even if initially pegged to an underlying basket of currencies, as soon as Libra's brand name and practical convenience become familiar to users across the world, global demand will increase and gradually stabilize even if the private currency is unmoored from its initial anchor.

Cryptocurrencies, like Bitcoin and others, will remain essentially speculative assets for a limited segment of investors. They will lack the broad users' base required to create the network externalities necessary to displace well entrenched sovereign standards of value; and by being volatile with respect to the established standards of value they will lack stable demand as a means of payments.

At the same time, some countries may do away with cash and create a general Central Bank Digital Currency (CBDC). But retail CBDC tokens, held directly by the general public, will substitute for cash and are unlikely to reduce the role of bank deposits and private e-money, as this might wreak havoc in existing bank-based financial and credit systems. Besides, central banks will prefer to preserve their "wholesale" nature and will shy away from anti-money laundering (AML)/know your customer (KYC) responsibilities.

Financial inclusion for the poor and cheaper cross-border payments are good arguments in support of domestic e-money - like Kenya's M-Pesa - or new low-cost systems for cross-border transfers, but not for the creation of a new global digital private currency

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with billions of potential users across the world, with the Hayekian ambition to become a “parallel currency” even in leading industrial countries and a significant potential to destabilize existing financial and monetary systems.

Keywords: Stablecoins, Cryptocurrencies, Central bank money, Denationalization of money, Network externalities, Central Bank Digital Currencies (CBDC)

8.2. INTRODUCTION

Any discussion on the future of money - including whether new technology-based digital currencies, private or public, may substitute for traditional bank deposits or cash - must start from a key insight: “money” is a concept which conflates two separate attributes, the standard of value and the means of payment functions.² The two attributes frequently combine in some objects - very much like wings and feathers in most birds - and, hence, make it practical to describe such objects as “money”. “Money” is thus one of those categories which, as linguists explain, “tend to become defined in terms of prototypes or prototypical instances that contain the attributes most representative of items inside and least representative of items outside the category”.³

However, to discuss the future of “money” we need to unbundle its two attributes -i.e. standard of value and general means of payment-, since they are different, respond to different needs and may dissociate, even if they exert on each other a “gravitational pull” which explains why they appear so frequently combined.

Besides being attracted to each other, standards of value and means of payment share a common feature: they are subject to “network externalities”, i.e. the more people use them, the more useful they become.

Finally, any reflection on the future of money will inevitably have to address the role and comparative advantages of governments and private firms in performing money’s two separate functions.

In this paper, then, I will start with a preliminary discussions of those four issues -i.e. the distinction between the standard of value and the means of payments; the spontaneous attraction between these two functions; the network externalities they enjoy; and the role of governments and private companies in creating objects which perform these functions. I will then analyze the structure of modern monetary systems and some recent changes and innovations - like the diminishing role or even disappearance of cash, the emergence of private digital currencies, including Facebook’s Libra - and the issuance of central bank digital currencies (CBDC). And I will conclude with some educated guesses on how monetary systems could evolve in the near future.

² I leave out the third traditional function attributed to money, “store of value”, as it is not specific of money, but shared by many other financial or even real assets (e.g. securities, gold, real estate, etc.).

³ Eleanor Rosch, “Principles of Categorization”, Chapter 8 of “Concepts. Core Readings”, edited by Eric Margolis and Stephen Laurence, MIT Press, 1999, p.191.



8.3. STANDARD OF VALUE VS MEANS OF PAYMENT

Saint Patrick, the patron saint of Ireland, describes in his *Confession* some payments -probably bribes- he had to make for his safe conduct when, still as a Christian missionary in the late 5th century, he visited Western Ireland:⁴

“You know by experience how much I have paid out to those who were judges in all the regions which I have often visited; for I think that I have given away to them not less than the price of fifteen humans” (i.e. kumal or slave girls).

Paul Einzig hastens to explain away the Saint’s surprising reference to slave girls:

“This may mean that he actually surrendered fifteen slaves or slave girls, or merely that he made payment of some form to an amount equal to their price. As he was strongly opposed to slavery, the latter explanation, according to which he used slaves merely as standard of value and not as a means of payment, seems much more likely to be right (...) The Hibernian Synod, which sat under him in the 5th century, decreed that he who sheds the blood of a bishop or a high prince or a scribe ‘shall be crucified or pay seven ancillee’. The text adds that if paid in specie, one-third of the fine must be paid in silver. This clearly indicates that the unit of slave girl merely served, on that occasion at any rate, as a standard of value. (...) It is believed that the kumal became an abstract unit of account by the 2nd century A.D. (...) Seven kumals appear to be the popular unit, and there are also references to payments of half of seven kumals, which conclusively proves that kumal was during that period a standard of value, not a medium of exchange”.

I bring up this historical episode not to highlight the barbaric customs of ancient Ireland, but to illustrate the difference between two monetary institutions or functions which facilitate transactions:

1. The expression of the prices of all goods, services, financial assets and debts in a common “unit of account” or “standard of value”.⁵
2. The acceptance by creditors of a commonly-accepted means to settle payments.

⁴ The quote is taken from Paul Einzig, “Primitive Money”, Second Edition, Pergamon Press, 1966, p.239.

⁵ Throughout this article I will use these two terms as equivalent, even if many authors make a distinction between the unit of account and the standard of value (or standard of “deferred payments”).



8.4. THE STABILITY OF THE STANDARD OF VALUE

The use of a common unit of account or standard of value makes price comparisons easier, with the standard of value playing the same role as other measurement units or standards (e.g. metric length units or weight measures).

Expressing the prices of N goods in the same unit allows the reduction of $N(N-1)/2$ bilateral price relations into $N-1$ prices (assuming one of them serves as the standard), as eloquently described by American economist Charles Kindleberger when explaining the traditional role of gold in the international monetary system:⁶

“Assume ten commodities: wheat, tin, cloth...shoes. Without money, the price of any commodity can be quoted in terms of the nine others. To have a system of prices, however, it is convenient and economical to pick one as numéraire and to quote the price of each of the other in it. Since it is convenient and economical, it is done. The numéraire is not exactly chosen, or rather it is chosen by an evolutionary process rather than by a deliberate decision. If wheat were chosen as numéraire, a pound of tin might be worth three-quarters a bushel of wheat, a yard of cotton, one-eighth a bushel, a so on. For ten commodities there are nine prices. If N is 10, $N-1$ is 9, and the n th commodity becomes numéraire”.

At a single moment in time, this useful role could be played by any unit, even an abstract one, to the extent that all prices were expressed in such unit. But what if the particular standard of value used was unstable and volatile, so that prices of individual commodities or services could not be forecasted in advance, even in the short term, with any modicum of certainty?

The answer to this question makes it obvious that although any unit of account can help simplify the expression of relative prices, only a standard with a sufficient degree of stability vis-à-vis most commodities will be useful as a standard for deferred payments.

This simple conclusion explains why currencies suffering high inflation are frequently displaced by foreign stable currencies - as is the case in “dollarized” economies and illustrates the phenomenon of “parallel currencies” - or why a number of new digital private “currencies”, while originally labelled “cryptocurrencies”, now aim at becoming “stablecoins” and having a relatively stable value vis-à-vis existing currencies: otherwise they will not stand a chance of becoming an appealing store of value and means of payment.

⁶ Charles P. Kindleberger, “The Price of Gold and the $N-1$ Problem”, in “International Money. A Collection of Essays”, George Allen & Unwin, 1981, p.76.



8.5. THE CONVENIENCE OF THE MEANS OF PAYMENT

While stability is the key attribute of an attractive standard of value, convenience (i.e. user-friendliness and low transaction costs) plays the fundamental role in the selection of a means of payment.

For this reason, once an object - say gold, or a US dollar banknote - has become a generally accepted means of payment, competitive pressures and the ingenuity of private entrepreneurs will unleash a process in search of substitutes which, while claiming to bear a fixed 1 to 1 relation to the underlying means of payment, will be designed to be more useful or attractive.

Many years ago, the great American economist and Nobel Prize Milton Friedman described this process with respect to monetary commodities (like gold):⁷

“Private promises to pay the monetary commodity are as good as the monetary commodity itself -so long as they command confidence that they will be fulfilled- and far cheaper to produce, since the issuers can meet possible demands for redemption by keeping on hand an amount of the monetary commodity equal to only a fraction of their outstanding promises. A pure commodity standard therefore tends to break down”.

But this substitution process - which we could call “monetary piggybacking” and Hayek described, in more derogatory terms, as “parasitic” - may apply not only to monetary commodities, but also to fiduciary means of payment. Monetary history, from the distant past until today, is full of examples of the emergence of new financial claims which, while convertible or redeemable into the established means of payment, offered more convenient features. A similar process is discernible in the transfer of monetary value between distant places.

Thus, for instance:

- Letters of credit, promissory notes and bills of exchange, drawn in hard currencies, were popular means of payment among merchants, travelers or governments sending armies marching into distant territories, and were extensively used in Medieval fairs. When endorsable, they circulated among merchants as actual means of payment.⁸
- “Hawala” and similar informal fund transfer systems - like China’s “fei-ch’ien” (“flying money”) - emerged years ago in several countries and regions around the world (India, Pakistan, the Philippines, the Middle East, etc.) as a way to transfer

⁷ Milton Friedman, “A Program for Monetary Stability”, Fordham University Press, New York, 1960, p.6.

⁸ For a detailed study, see Benjamin Geva, “The Payment Order of Antiquity and the Middle Ages. A Legal History”, Hart Monographs in Transnational and International Law, Volume 6, Hart Publishing, 2011



money to distant places, with payments being made by a network of *hawaladars* operating in local currency. In the wake of the 9/11 terrorist attacks this primitive but efficient cross-border transfer system elicited the interest of agencies fighting terrorism, as it was used to finance illegal and terrorist activities.⁹

- Private banks issued convertible private banknotes - until legislation, like the 1844 Bank Charter Act in England, restricted this privilege to one single, government-supported bank, the “central bank”-; and, subsequently, they accepted deposits. Both notes and deposits were most of the time convertible or redeemable into gold bullion or notes, which led to occasional bank runs and financial crises when holders feared that such convertibility would not be honored. But the key insight was that, even if convertible, they had become effective means of payments or “money”, as the English Banking School rightly claimed during its famous controversy with the Bullion School.

While the process of “monetary piggybacking” or creation of “inside money”¹⁰ provided more convenient means of payments, it was not without drawbacks, as American economist James Tobin put it:¹¹

“It is important to provide economic agents a convenient substitute for currency, usable in payments and riskless as a store of value in the unit of account. It is important to protect the society’s payments system from interruptions and breakdowns due to bank failures. The problem is that this provision and this protection cannot be accomplished by unregulated competition for checkable demand deposits and loans. (...) The accident of history that made the principal medium of exchange (i.e. bank deposits) inside money also made it vulnerable to events that impair the value and liquidity of the assets backing the money. Striking a balance between competitive efficiency and the protection of depositors seems to be increasingly difficult and costly”.

The recent emergence of technology-based new digital currencies and payments applications operated through smartphones, to be mentioned later on, can be seen as part of this long-standing process of monetary innovation aimed at providing users with more convenient means of payment.

⁹ Mohammed El Qorchi, Samuel Munzele Maimbo, and John F. Wilson, “Informal Funds Transfer Systems. An Analysis of the Informal Hawala System”, IMF-World Bank, 2003, available at https://www.elibrary.imf.org/doc/IMF084/03590-9781589062269/03590-9781589062269/Other_formats/Source_PDF/03590-9781452791388.pdf

¹⁰ The distinction between “inside” (or redeemable) money and “outside” (or fiduciary) money was first made by in 1960 by John G. Gurley and Edward S. Shaw in their “Money in a Theory of Finance”. For a recent explanation, see Ricardo Lagos, “Inside and Outside Money”, Federal Reserve Bank of Minneapolis, Research Department Staff Report 374, May 2006, available at <https://www.minneapolisfed.org/research/sr/sr374.pdf>

¹¹ James Tobin, op.cit., p.25.



Note, however, that the mere creation of a user-friendly digital payment system, while reducing transaction costs, will not help users escape the problem of hyperinflation or the depreciation of the standard of value in which the digital balances are denominated.

This was borne out recently in Zimbabwe, a country currently suffering a new bout of hyperinflation, but this time in an “almost digitalized monetary economy” due to the proliferation of mobile payments in the country. As described recently by the Financial Times’ journalist Izabella Kaminska:¹²

EcoCash, Zimbabwe’s equivalent of Kenya’s better-known M-Pesa system, counts as much as 90 per cent of the adult population as customers. (...) As it was growing in popularity and serving the unbanked, EcoCash’s nationwide network of agents sucked dollars out of the hands of the population, turning them into digital balances. This amounted to the transfer of foreign cash stock from citizens to the banking system, with the money ending up in the control of the central bank”. The Government subsequently introduced a new local currency, the RTGS dollar, declared it legal tender and redenominated in the new currency all Government contracts. While the original exchange rate was set at 8-to-1 to the US dollar, the free-market rate has since reached 21-to-1, which led many people to offer EcoCash agents premiums and additional commissions in exchange for hard cash (in US dollars). Outages and glitches became more common and in September 2019 the Government took action to prevent “illegal activities abusing the cash-in, cash-out and cash-back facilities” and the “buying and selling of cash through mobile agents at high rates above approved charges, and suspended all of EcoCash’s cash-in and cash-out activities. But the move was highly unpopular, leading the government to reinstate in October 2019 a limited cash-out option with a \$100 per transaction cap”.

8.6. MONETARY GRAVITATION LAWS

If the standard of value and the means of payment functions are so conceptually different, then why is their degree of correlation such that the prototypical exemplar of “money” or “currency” - e.g. a euro banknote - combines both?

In my view, there are two reciprocal “gravitational forces” which pull together the two functions:

¹² Izabella Kaminska, “Mobile money is not helping Zimbabwe’s hyperinflation”, Financial Times, October 31, 2019.



- The practical advantages when the value of the means of payment is expressed in units of the standard of value (e.g. when we settle a €10 debt - the euro being the standard of value - by offering a €10 banknote as the means of payment). This tendency for means of payment to be denominated in the standard of value could be described as the “monetization of the standard of value”; and, reciprocally
- The natural tendency for the units of the established means of payment, when stable, to become the unit in which prices and debts are set, i.e. to become the “standard of value” (e.g. if oil deliveries are customarily invoiced and paid by bank transfers in US dollars, over time oil prices will naturally be expressed in that currency). While this process could be considered an illustration of the “money illusion”, for the reasons to be explained below I will describe it as the “*Cheshirization*” of convertible means of payment.

8.6.1. THE MONETIZATION OF THE STANDARD OF VALUE

We have already seen the practical advantages, in terms of lower transaction costs, of using as a means of payment an object whose value bears a fixed relation with the units of the debt to be settled. In the case of precious metals, this is the reason for the emergence of a reliable coinage system which guaranteed the exact metallic content of a piece and allowed cumbersome payments by weighing to be replaced by payments made “by tale”.

The inconvenience of such reliable, user-friendly means of payment can be inferred from French historian Pierre Villar’s description of how in 1529, King Francis I of France and the Spanish Emperor, Charles V, carried out the agreement for the Emperor to free the French King’s sons -who he had kept in Spain as hostages to guarantee Francis’ compliance with the Madrid Treaty- in exchange for the payment of a cash ransom in gold. The exchange finally took place on the waters of the Bidasoa (the river serving as border between the two countries) but only after the emperor’s agents checked, one by one, over a 4-month period, the gold content of the 1.2 million ecus delivered by king Francis!¹³

Thus, there are significant practical advantages in the standard of value becoming “monetized” through the emergence of means of payments with a value expressed in standard units. This was, according to mainstream economists, the main historical reason for the involvement of governments in monetary affairs:¹⁴

“From time immemorial, government has played a role in the monetary system. One element of that role has been to seek to monopolize the coining of money. The objective was partly to standardize the money. The sovereign’s seal on a coined piece of metal was intended to certify its weight and fineness and thus enable such coins

¹³ Pierre Vilar, “Or et monnai dans l’histoire”, Flammarion, Paris, 1974, p.213.

¹⁴ Milton Friedman, “Money Mischief. Episodes in Monetary History”, Harcourt Brace Jovanovich Publishers, 1992, p. 42.



to be used in transactions by tale, or number, rather than by weight, thereby reducing the costs of transactions”.

This law of the “monetization of the standard of value”, meant to reduce transaction costs by doing away with the need to apply a fluctuating price or exchange rate between the value of the object being used as the means of payment and the value to be settled, probably explains why precious metals were so frequently coined. This led to a very long period in financial history of “specie” or full-bodied coins becoming the prototype of “money”, both representing the standard of value - i.e. the precious metal - and serving also as means of payment.

This may have contributed to entrenching the misguided view of “money” as a unitary concept performing two functions, as opposed to the existence of two separate monetary functions -the standard of value and the means of payment- occasionally combining in a single object.

8.6.2. THE CHESHIRIZATION OF THE MEANS OF PAYMENT

But experience shows that the gravitational force between the standard of value and the means of payment (*rectius*, the unit in which the value of the means of payment is expressed) also runs in the opposite direction: when a means of payment is widely used, its units often become at some point the *de facto* standard of value, provided it has a stable value that the public can trust.

Probably the modern US dollar is one of the best illustrations of this process.

US dollar banknotes and bank balances in the Federal Reserve remained convertible or redeemable into gold until well into the XX century, at a fixed price, with the ultimate standard of value being gold, with US dollar notes and US dollar-denominated bank deposits being just a means of payment expressed in units bearing a fixed relation to gold. More specifically, the Gold Standard Act of 1900 fixed the value of the dollar as 1.5046 grams of pure gold.

The dollar’s emancipation from gold took place in two major stages:

- First, when on April 5, 1933, president Roosevelt required all US citizens to deliver all gold coin, gold bullion and gold certificates owned by them to the Federal Reserve by May 1 and, shortly thereafter a Joint Resolution of Congress abrogated the gold clauses in contracts requiring debtors to repay creditors in gold dollars of the same weight and fineness as those borrowed; and
- Second, when on August 15, 1971 president Nixon suspended the convertibility into gold of foreign official holdings of US dollars.

Nixon’s decision severed the remaining link between foreign official dollar balances and the old international standard of value, gold. This had consequences for the international monetary system and for the fixed exchange rate system administered by the International Monetary Fund under the Bretton Woods agreement. It also paved the



way for a bout of inflation in the United States, as president Nixon put pressure on the president of the Federal Reserve, Arthur Burns, to lead an expansionary monetary policy which would help him win his second term.¹⁵

But the key aspect to underline here is that the unmooring of the US dollar from its gold “anchor”, i.e. its transformation into a pure fiduciary currency, had very little effect on its domestic and international use: the prevalence of the dollar as the international means of payment had already entrenched it as the *de facto* standard of value, such that the *de facto* fiduciary “dollar standard” smoothly replaced the “gold exchange standard” officially enshrined in the Bretton Woods agreement.

Milton Friedman described this move from a commodity standard, based indirectly on gold, to a purely fiduciary or fiat money with this pithy Carollian metaphor:

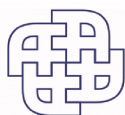
“The commodity Cheshire cat has completely disappeared, and only the fiat grin remains”.

I find Friedman’s metaphor so bright that in its honor I would label “*Cheshirization*” the process by which the units of a convertible or redeemable means of payment - e.g. any claim, like a bank deposit or money balance, which is legally or contractually convertible at a fixed exchange rate into a different standard of value - becomes the new fiduciary standard of value after severing its convertibility link with the original one.

This process of *Cheshirization* has been at work constantly throughout financial history, not only in cases of transformation of a formerly convertible currency into a fiduciary one, but also in the smooth emergence of two separate currencies out of a previous, common one. This can be illustrated with the case of Australia, which under the Australian Coinage Act of 1909 issued Australian coins on the basis of the same standard of weight and fineness laid down in the British Coinage Act of 1870 and declared them to be legal tender throughout the Commonwealth, on a par with British coins. In 1910 a new law created the “Australian pound”, but it remained on a 1-to-1 relation with the British pound, until 1929, when Australia left the gold standard two years before the United Kingdom (it would only be in the 1960s that the Australian pound would adopt a decimal division system and, subsequently, be replaced by the current “Australian dollar”).

In conclusion, once a means of payment has become entrenched, its unit of account will remain the standard of value (i.e. the unit in which prices and debts are expressed) even if it breaks its former link or peg with the commodity or asset which made it originally acceptable.

¹⁵ See Burton A. Abrams, “How Richard Nixon Pressured Arthur Burns: Evidence from the Nixon Tapes”, *Journal of Economic Perspectives*, Volume 20, Number 4, Fall 2006, available at <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.20.4.177>



8.7. NETWORK EXTERNALITIES

Charles Kindleberger, one of the most insightful writers on international finance and monetary affairs, once drew an apt comparison between the dollar and the English language and explained that the international dominance of both was based on a similar principle: world efficiency is achieved when all countries learn the same second language (namely, English) as *lingua franca* and when all foreign transactions are carried on “in the vehicle currency of a common second language, the dollar (...) It is not nationalism which spreads the use of the dollar and the use of English; it is the ordinary search of the world for short cuts in getting things done”.¹⁶

In another famous article on standards as public goods, Kindleberger explained that both the unit of account and the medium of exchange are among those standards that serve as public goods and, by being extensively used, help reduce transaction costs. Public goods have “economies of scale”, so that “the more producers use a given standard, the more each gains from use by others through gains in comparability and interchangeability”.¹⁷

Another great economist, James Tobin, shared Kindleberger’s view:¹⁸

“The use of a common monetary unit of account and the adoption of generally acceptable media of exchange in this numeraire carry important positive externalities. Free market competition by itself cannot achieve and protect these social benefits (...) A payment system, like any other communications network, derives efficiency from universality, standardization, and predictability. It is not efficient to have competing currencies with varying rates of exchange between them”.

In modern parlance, we would describe Kindleberger’s “economies of scale” more precisely as “network externalities”, which are defined as the increasing utility that any user derives from a product as the global number of users increases. This concept applies indeed to public standards, as those mentioned by Kindleberger (e.g. official time, weight measures, etc.), but also to private goods and services which connect a network of interdependent users, like telephones, credit card or computers. The term “network externalities” is more specific than “economies of scale”, since the latter seems to point to the scale of production -the greater the production, the lower the average cost-, while the former refers to the benefits from a bigger consumers’ or users’ network.

¹⁶ Charles Kindleberger, “The Politics of International Money and World Language”, chapter 2 of “International Money. A Collection of Essays”, George Allen & Unwin, 1981, p.32.

¹⁷ Charles Kindleberger, “Standards as Public, Collective and Private Goods”, *Kyklos*, Volume 36, 1983, Fasc. 3, p.377.

¹⁸ James Tobin, “Financial Innovation and Deregulation in Perspective”, Keynote Paper Presented at The Second International Conference of the Institute for Monetary and Economic Studies, Bank of Japan, Tokyo, May 29-31, 1985, available at <http://www.imes.boj.or.jp/english/publication/mes/1985/me3-2-3.pdf>, p. 20 and 22.



Network externalities apply both to the standard of value (the wider the use of a standard, the more convenient it becomes to set prices or define debts) and to the means of payment (the wider the number of people who accept a specific means of payment, the more convenient it will become).

The existence of such monetary network externalities entails several practical consequences:

- Until they reach a minimum or critical level of users, standards of value and means of payment will be of little practical use; but
- Once they become established, their use will enjoy significant inertia and they will be difficult to replace, particularly if there are switching costs, if only because enough users will need to make a simultaneous move to the new standard or means of payment if they are to become useful.

As discussed below, Facebook might be among the few private entities which could reap, for the benefit of Libra, the huge network externalities stemming from its enormous customer base. This is why governments' previous benign neglect of Bitcoin and other digital currencies has given way to their outright hostility to Facebook's project.

8.8. THE ROLE OF GOVERNMENTS

While there has been little disagreement among economists and scholars on the spontaneous emergence of a monetary "standard of value" as a way of expressing prices and debts in a common unit, there is a wide discrepancy between two schools of thought - the "Metallist theory" and the "credit theory" - on how a generally accepted means of payments historically emerged.

8.8.1. THE METALLIST-COMMODITY THEORY

The "Metallist theory" is the standard textbook explanation and goes back to Aristotle and Adam Smith. As described recently by Robert Skidelsky:¹⁹

"Before money -it is claimed-, there was barter -direct exchange of goods for goods. But barter requires a 'double-coincidence' of wants. Both partners need to want what the other has, at the same time. So, money was invented to enable one of the parties to pay the other in something which the other could use to buy something else. Adam Smith conjectured that the 'something' which became the 'medium of exchange' must have been 'some commodity... [which] few people would be likely to refuse in exchange for the

¹⁹ Robert Skidelsky, "Money and Government. A Challenge to Mainstream Economics", Penguin Books, 2018, p. 23-24.



produce of their industry'. Though cattle, salt, shells and the like were used, metals, and especially the precious metals gold and silver, came to be preferred, for their divisibility, but even more for their durability and scarcity. It was these qualities which fitted them to be the measure of perishable things.

At first 'rude bars' of iron, copper, gold and silver sufficed, because of their great relative stability of value. To avoid having to weigh a lump of metal for each transaction, it became customary to affix a public stamp upon certain quantities of metals, certifying their weight and quality. 'Hence the origin of coined money, and of those public offices called mints'".

The Metallist theory is essentially the same as the "commodity theory" advocated in the XIX century by Stanley Jevons, and by Carl Menger and his followers of the Austrian School, who saw in the "marketability" of a good - initially probably cattle, subsequently precious metals - the main reason why it spontaneously evolved into the generally accepted means of exchange.

It is not by chance that Stanley Jevons, who had spent five years as assayer in the Sydney Mint, begins his book on "Money and the Mechanism of Exchange" (1875), with a celebrated story about the drawbacks of barter. He refers to the French opera singer Mademoiselle Zélie, who gave a concert in the Society Islands during a world tour and received as her fee one-third of the proceeds. "Her share consisted of three pigs, twenty-three turkeys, forty-four chickens, five thousand coconuts and considerable quantities of bananas, lemons and oranges. Unfortunately, the opera singer could consume only a small part of this total and found it necessary before she left to feed the pigs and poultry with the fruit".²⁰

Under this Metallist view, money emerged as a market-driven, spontaneous institution to avoid the practical inconvenience of barter, without any essential role being played by governments or public authorities. In Menger's words:²¹

"Since there is no better way in which men can become enlightened about their economic interests than by observation of the economic success of those who employ the correct means of achieving their ends, it is evident that nothing favored the rise of money so much as the long-practiced, and economically profitable, acceptable of eminently saleable commodities in exchange for all others by the most discerning and most capable economizing individuals. In this way, custom and practice contributed in no small degree to converting the commodities that were most saleable at a given time into com-

²⁰ Glyn Davies, "A History of Money. From Ancient Times to the Present Day", University of Wales Press, 1994, p.13.

²¹ Carl Menger, "Principles of Economics", translated by James Dingwall and Bert F. Hoselitz, introduction by F.A. Hayek, New York University Press, 1976, p. 261.



modities that came to be accepted, not merely by many, but by all economizing individuals in exchange for their own commodities”.

From this view that money was born as a market-driven creature without any essential role for governments, it is only a small step to argue, as Friedrich Hayek subsequently did, that the public monopoly on money should be challenged and the issuance of money be “privatized”:

“When the genuineness of metallic money could be ascertained only by a difficult process of assaying, for which the ordinary person had neither the skill nor the equipment, a strong case could be made for guaranteeing the fineness of the coins by the stamp of some generally recognized authority which, outside the great commercial centers, could only be the government. But today these initial advantages, which might have served as an excuse for governments to appropriate the exclusive right of issuing metallic money, certainly do not outweigh the disadvantages of this system”. “Since the function of government in issuing money is no longer one of merely certifying the weight and fineness of a certain piece of metal, but involves a deliberate determination of the quantity of money to be issued, governments have become wholly inadequate for the task and, it can be said without qualifications, have incessantly and everywhere abused their trust to defraud the people”.²²

As will be explained later, Facebook’s announcement in June 2019 of its intention to launch an international new digital means of payment – Libra - with its standard of value bearing no fixed relation to any established national currency, can be regarded as a modern illustration of Hayek’s approach.

8.8.2. THE DEBT-CREDIT THEORY

But the mainstream theory about the historical origin of money has been challenged by a number of anthropologists and economists who argue that no real primitive barter economy ever existed, with debts and credits playing from time immemorial an essential role as means of payment.

Among the first questioning the “myth of barter” was British diplomat Alfred Mitchell-Innes, who wrote that in the Newfoundland fisheries where Adam Smith had claimed that dried cod served as money, fishers and traders sold each other regularly dried fish and fishing supplies all priced in pounds, shillings and pence, with reciprocal payments being settled through credit in the traders’ books and “balances due by the traders [being] paid for by drafts on England or France”.²³

²² *Id.*, p.26.

²³ A Mitchell Innes, “What is money”, *Banking Law Journal*, May 1913, p.378.



More recently, British economist Felix Martin has used the famous example of the “stone money” (or *fei*) in the Pacific island of Yap, in the Caroline Islands, to illustrate the role of credit. The island’s peculiar monetary system was described by the young American adventurer William Henry Furness II, after a two-month visit to the island in 1903.²⁴ It consisted of *fei*—“large, solid thick stone wheels ranging in diameter from a foot to twelve feet, having in the center a hole varying in size with the diameter of the stone, wherein a pole may be inserted sufficiently large and strong to bear the weight and facilitate transportation”. But the key thing was that *fei* did not move: physical transportation of *fei* from one house to another was in fact rare. Numerous transactions took place—but the debts incurred were typically just offset against each other, with any outstanding balance carried forward in expectation of some future exchange. Even when open balances were felt to require settlement, it was not usual for *fei* to be physically exchanged. “After concluding a bargain which involves the price of a *fei* too large to be conveniently moved, its new owner is quite content to accept the bare acknowledgement of ownership and without so much as a mark to indicate the exchange, the coin remains undisturbed on the former owner’s premises”.

And here comes Martin’s key conclusion:²⁵

“Yap’s money was not the *fei*, but the underlying system of credit accounts and clearing of which they helped to keep track. The *fei* were just tokens by which these accounts were kept. As in Newfoundland, the inhabitants of Yap would accumulate credits and debts in the course of their trading in fish, coconut, pigs and sea cucumber. These would be offset against one another to settle payments (...). Money is the system of credit accounts and their clearing that currency represents”.

In a similar vein, a modern anthropologist, David Graeber, argues that Mesopotamian cuneiform documents attest that credit was already widely used *circa* 3500 BC, so that credit systems preceded the invention of coinage by a thousand years:²⁶

“Temple bureaucrats used the system to calculate debts (rents, fees, loans, etc.) in silver. Silver was, effectively, money. And it did indeed circulate in the form of unworked chunks, ‘rude bars’ as Smith had put it. In this he was right. But it was almost the only part of his account that was right. For one thing, silver did not circulate very much. Most of it just sat around in Temple and Palace treasuries, some of which remained, carefully guarded, in the same place for literally thousand years. It would have been easy enough to standardize the ingots, stamp them, create some authoritative system

²⁴ William Henry Furness, “The Island of Stone Money, Uap of the Carolines”, J.B. Lippincott Company, 1910, available at <https://archive.org/details/islandofstonemon009573mbp>

²⁵ Felix Martin, “Money. The Unauthorized Biography”, Alfred A. Know, 2013.

²⁶ David Graeber, “Debt. The First 5,000 Years”, Melville House, 2014, p.39.



to guarantee their purity. The technology existed. Yet no one saw any particular need to do so. One reason was that while debts were calculated in silver, they did not have to be ‘paid’ in silver -in fact, they could be paid in more or less anything one had around. Peasants who owed money to the Temple or Palace, or to some Temple or Palace official, seem to have settled their debts mostly in barley, which is why fixing the ratio of silver to barley was so important. But it was perfectly acceptable to show up with goats, or furniture, or lapis lazuli. Temples and Palaces were huge industrial operations -they could find a use for almost anything”.

He adds a comment very relevant for our discussion on the future of money:²⁷

“We did not begin with barter, discover money, and then eventually develop credit systems. It happened precisely the other way around. What we now call ‘virtual money’ came first. Coins came much later, and their use spread only unevenly, never completely replacing credit systems”.

These authors explain that, besides bilateral or centralized credit arrangements, the circulation of debt instruments payable by reputable debtors in good credit standing was for centuries a popular means of settlement among merchants.

In spite of this recognized role for issuers of private debt instruments, I do not think it a stretch to argue that the debt theory of money is closely aligned with a school of thought, “Chartalism”, which runs counter to the Metallist view and considers money a “creature of the State”. This is so because governments have always played a key role:

- In the definition of the standard of value to be used as the unit of account for prices and debts;
- The enforcement of creditors’ legal rights resulting from private money debts, expressed in units of the standard of value;
- The issuance of circulating instruments expressed in units of the standard of value.

The most famous exponent of the Chartalist theory was the German historian G.F. Knapp, author of the “State Theory of Money”, originally published in German in 1905²⁸. He claimed that only chattels issued by the legal authority of the State could acquire the character of ‘money’, and that the value attributed thereto is fixed by law, rather than by reference to the value of the materials employed in the process of production.

Knapp’s views, while leading to withering criticism by Ludwig von Mises in “The Theory of Money and Credit”, were endorsed by many legal scholars, including the German-born British jurist Frederick Alexander Mann in “The Legal Aspects of Money”

²⁷ *Id.*, p.40.

²⁸ Georg Friedrich Knapp, “Staatliche Theorie des Geldes”, Dunder& Humblot, Leipzig, 1905, available at <https://archive.org/details/staatlichetheor00knappgoog/page/n8>



(1938). For F.A. Mann, Knapp's State Theory of Money is supported by the universal acceptance of the principle of nominalism (i.e. the doctrine that money debts can be discharged by paying the nominal number of monetary units in which they were expressed, irrespective of changes in their purchasing power). Mann stated:²⁹

“The State theory of money is the necessary consequence of the sovereign power or the monopoly over currency which states have assumed over a long period and which is almost invariably established by modern constitutional law”.

This view about monetary powers being an essential part of political sovereignty is currently shared by all legal experts, as illustrated by the initial rotund statement by Spanish scholar Rosa María Lastra in her manual on international monetary law:³⁰

“The power to issue currency is a sovereign power, one of the attributes of sovereignty as classically defined”.

While the legal discussion on the two competing approaches to money seems settled in favor of Knapp, the divergent economic approaches on the origin of money survived and led in more recent times to new debates on the possibility of “denationalizing money” and creating “private currencies”.

8.8.3. THE DENATIONALIZATION OF MONEY

In 1976 Austrian economist Friedrich Hayek challenged the “universally but tacitly accepted creed that a country must be supplied by its government with its own distinctive and exclusive currency” and advocated the “denationalization of money”.³¹

“For more than 2,000 years the government prerogative or exclusive right of supplying money amounted in practice merely to the monopoly of minting coins of gold, silver or copper. It was during this period that this prerogative came to be accepted without question as an essential attribute of sovereignty-clothed with all the mystery which the sacred powers of the prince used to inspire.

The task the government was understood to assume was of course initially not so much to make money as to certify the weight and fineness of the materials that universally served as money, which af-

²⁹ As quoted by Charles Proctor in “Mann on the Legal Aspects of Money”, 7th edition, Oxford, 2012, p. 16.

³⁰ Rosa María Lastra, “International Financial and Monetary Law”, Oxford University Press, 2015, p.3.

³¹ F.A. Hayek, “Denationalization of Money. The Argument Refined”, Hobart Special Paper 70, The Institute of Economic Affairs, available at <https://nakamotoinstitute.org/static/docs/denationalisation.pdf>



ter the earliest times were only the three metals, gold, silver, and copper. It was supposed to be a task rather like that of establishing and certifying uniform weights and measures. There is no reason to doubt that private enterprise would, if permitted, have been capable of providing as good and at least as trustworthy coins. Yet so long as the technical task of providing uniform and recognizable coins still presented major difficulties, it was at least a useful task which government performed. Unfortunately, governments soon discovered that it was not only useful but could also be made very profitable, at least so long as people had no alternative but to use the money they provided. The seigniorage, the fee charged to cover the cost of minting, proved a very attractive source of revenue, and was soon increased far beyond the cost of manufacturing the coin. And from retaining an excessive part of the metal brought to the government mint to be struck into new coins, it was only a step to the practice, increasingly common during the Middle Ages, of recalling the circulating coins in order to recoin the various denominations with a lower gold or silver content. But since the function of government in issuing money is no longer one of merely certifying the weight and fineness of a certain piece of metal, but involves a deliberate determination of the quantity of money to be issued, governments have become wholly inadequate for the task and, it can be said without qualifications, have incessantly and everywhere abused their trust to defraud the people”.

Hayek described how he would organize the issuance of a new private currency -which he called “ducat”-:

“I would announce the issue of non-interest-bearing certificates or notes, and the readiness to open current cheque accounts, in terms of a unit with a distinct registered trade name such as ‘ducat’. The only legal obligation I would assume would be to redeem these notes and deposits on demand with, at the option of the holder, either 5 Swiss francs or 5 D-marks or 2 dollars per ducat. This redemption value would however be intended only as a floor below which the value of the unit could not fall because I would announce at the same time my intention to regulate the quantity of the ducats so as to keep their (precisely defined) purchasing power as nearly as possible constant. I would also explain to the public that I was fully aware I could hope to keep these ducats in circulation only if I fulfilled the expectation that their real value would be kept approximately constant. And I would announce that I proposed from time to time to state the precise commodity equivalent in terms of which I intended to keep the value of the ducat constant, but that I reserved the right, after announcement, to alter the composition of



the commodity standard as experience and the revealed preferences of the public suggested”.

Hayek considered the possibility of several private currencies, each with its own brand name, competing with each other. This competition would force issuing institutions to keep the value of their currencies constant (in terms of a stated collection of commodities), so as to preserve their attractiveness for savers, without the need for any obligation to redeem the currency in those commodities or in gold.

He expressed some concern about the likely emergence of what he described as “parasitic currencies”, i.e., the creation by banks and financial intermediaries of deposits and other financial instruments denominated in the currency of the original issuer (say, in “ducats”, to use his own example), to the extent that this could expand the supply of the new currency. His solution to the problem was the following:

“What the original issuer of such a currency could do and would have to do is not to repeat the mistakes governments have made, as a result of which control of these secondary or parasitic issues has slipped from their hands. It must make clear that it would not be prepared to bail out secondary issuers by supplying the ‘cash’ (i.e. the original notes) they will need to redeem their obligations”.

Writing in the mid-70s, at a time of a very weak dollar and rising inflation, Hayek saw the attraction of a new private currency in the stability of its purchasing power (in terms of a representative and adjustable basket of commodities) and the protection it would provide against inflation, not so much in its convenience as a means of payments, like the most recent batch of digital currencies.

8.8.4. THE MIRAGE OF PRIVATE MONEY

But other economist, like James Tobin, took issue with Hayek’s view and claimed an essential role for governments in the definition of money, especially in a *fiat* world in which any gold or commodity standard has been abandoned. He considered pure “private money” (i.e. outside money, not convertible into a different standard of value) a mirage:³²

“Currency is the physical embodiment of the monetary unit of account defined by the sovereign. Currency is the sure and perfectly liquid store of value in units of account. It is legal tender, for the payment of taxes and for the discharge of private obligations enforceable in courts of law for payments in units of account. Consequently, it is generally acceptable in payments.

I find it difficult to imagine a system in which there is no governmentally issued store of value in the unit of account. Some discus-

³² James Tobin, *op.cit.*, p. 21-22.



sions of ‘private money’ in the literature seem to suggest that the government can define the ‘dollar’ as the unit of account without printing and issuing any dollars. Private agents could issue promises to pay dollars, and these would circulate. But what are they promising to pay? Of course, if the governments sanctified the issues of a particular bank or private firm or individual by agreeing to accept them in payment of taxes and by granting them legal tender status, those issues would be currency. The sovereign would be delegating its fiat to the favored private institution. History suggests that such an institution would eventually be nationalized and made politically responsible, like the Bank of England. The idea of a disembodied fiat unit of account, with embodiments of it freely and competitively supplied by private agents, seems to me to be a fairy tale. Private monetary issue makes more sense for commodity money. The government can define a dollar in terms of gold or silver, or plywood or wheat, or some combination of goods. The commodity itself can circulate, especially if coinage by the State or by any other credible government or agency puts it in a form of readily ascertainable weight and quality. Experience suggests that societies will also find it convenient to handle transactions with promises to pay the numeraire commodity. Whose promises? Just those of competing private agents? Of unregulated private agents? Once again, the government cannot escape the question of what IOUs it will accept from citizens in payment of taxes and other obligations, or avoid deciding whose IOUs will be regarded as discharging private debts. Neither can a government take a *laissez-faire* attitude toward the ability of private issuers of such IOUs to redeem their promises, especially if the government gives them the cachets of acceptability and legal tender (...) I conclude that there must be store-of-value embodiments of a monetary unit of account, and that basically these will be and should be designated and supplied by the central government”.

As explained below, the traditional rivalry between those libertarian and free-marketeters distrusting the role of governments in monetary affairs and those seeing money creation and regulation as an essential public or sovereign prerogative have emerged anew as a result of the emergence of private digital currencies.

8.9. A TAXONOMY OF MODERN MEANS OF PAYMENT

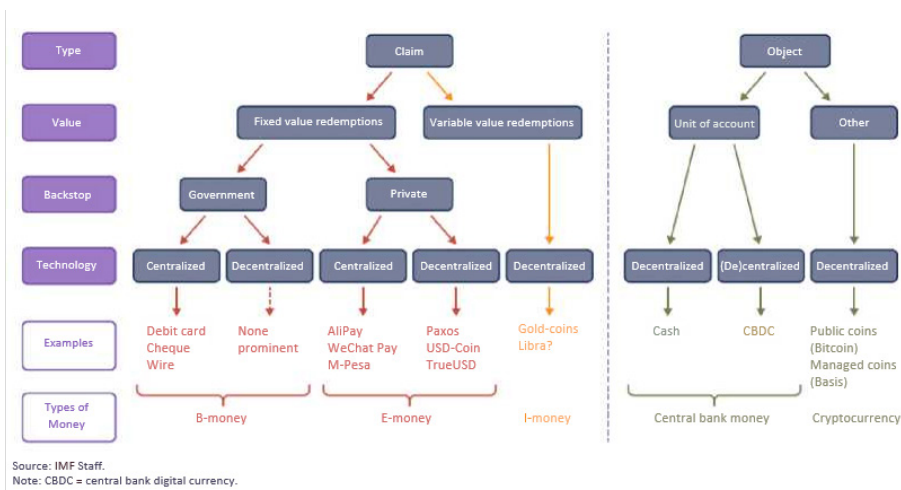
As a result of the historic trends and innovations described above, monetary systems include a variety of means of payments.

From a legal standpoint, a Spanish former legal counsel of the European Central Bank, Antonio Sáinz de Vicuña, coined the term “institutional theory of money” to de-

scribe the fact that currently money consists primarily of a claim against the issuing central bank (i.e. cash), but also the credit balance of sight deposits held by the public in commercial banks.³³

Going forward, however, we should take a broader perspective and classify existing and potentially new means of payment according to several features, thereby arranging them in a “money flower”, as originally done by Morten Bech and Rodney Garrat³⁴, or a “money tree”, as presented by Tobias Adrian and Tommaso Mancini-Griffoli.³⁵

In Adrian and Mancini-Griffoli’s “money tree”, four separate attributes of means of payments are considered (see graph).



The first one is whether they are “claims” on something (e.g. bank deposits, redeemable in cash) or just “objects” (like modern banknotes or reserve deposits in the central bank).

They argue that claim-based payments simplify transactions, but require a complex infrastructure. “With the advent of claim-based systems in the Renaissance, merchants could conveniently travel with letters of credit from their banks and exchange them for goods abroad instead of carrying heavy and risky gold coins in their purse. Today, most payments are claim-based. These require that payers be recognized as the rightful owners of the claim they offer, that sufficient funds be identified to back the claim, and that the transfer be registered by all the relevant parties”.³⁶

³³ Antonio Sáinz de Vicuña, “An Institutional Theory of Money”, in Mario Giovanoli et al. (eds.), “International Monetary and Financial Law: The Global Crisis, Oxford 2010, para. 25.18. Quoted as well in Charles Proctor, op.cit., para.1.34.

³⁴ Morten Bech and Rodney Garrat, “Central Bank cryptocurrencies”, BIS Quarterly Review, September 2017.

³⁵ Tobias Adrian and Tommaso Mancini-Griffoli, “The Rise of Digital Money”, International Monetary Fund, July 2019.

³⁶ *Id.*, p.2.



The second attribute is their “value”. In the case of claims, the relevant question is whether the redemption of the claim into the asset which backs its value is at a fixed or variable rate. “For instance, a claim on a bank in the form of deposits for, say, €10 can be exchanged for €10 worth of bills and notes. These claims resemble debt instruments (which may or may not pay interest) that can be redeemed upon demand at face value”. In the case of objects (e.g. banknotes or gold ingots), the relevant question is the unit of account or standard of value in which they are denominated.³

The third attributes applies only to fixed-value claims and is whether the redemption guarantee is “backstopped” by the government, or just relies on the private trustworthiness of the issuer.

The fourth and final attribute is the “technology” - centralized or decentralized - underpinning transfers of the means of payment. It happens to be centralized in the case of bank deposits, credit cards, or certain non-bank digital assets - like M-Pesa in Kenya or WeChat Pay in China - and fully decentralized in the case of cash or blockchain-based cryptocurrencies - like Bitcoin.

Let us now consider some specific combinations of these attributes.

8.9.1. CENTRAL BANK MONEY

In all countries, there are two object-type means of payments produced by the local central bank: central bank notes and central bank balances (i.e. reserves) held by banks and other authorized account-holders (e.g. domestic Treasury, foreign central banks...). These balances are currently excluded from monetary aggregates since they are not held by the public at large, but have a “wholesale” nature. Both assets are not “claims”, but “objects”, since at present they are “fiduciary” and cannot be exchanged into anything else.³⁷

8.9.2. BANK DEPOSITS (“B-MONEY”)

In most countries, the other predominant means of payments are deposits in commercial banks – “b-money” in Adrian and Mancini-Grifolli’s terminology -, which are claims convertible into official banknotes. They can be transferred and used for payments through a number of centralized technologies, like traditional bank transfer orders or credit and debit cards. The emergence of digital transfer systems carried out through smartphones and specific applications does not detract from the essential fact that the asset being transferred remains a bank deposit.

³⁷ Obviously, central bank reserves can be converted into notes. But this is not an essential feature and does not transform those balances into “claims”, as they would no longer be convertible into anything if the central bank were to stop issuing physical banknotes, as currently discussed as part of the discussions on “Central Bank Digital Currencies” (CBDC).



For Adrian and Mancini-Griffolli, “the key distinguishing feature of b-money is that its redemption guarantee is backstopped by the government. Of course, a prudent business model helps meet potential redemption requests. But public policy also plays a role. Banks are regulated and closely supervised. Where regulation is effective, banks cannot take excessive risks and must keep ample liquidity. In addition, if banks run out of liquid assets to honor requests for withdrawals, central banks may provide liquidity via overnight loans or emergency facilities in times of systemic stress. Finally, deposits are insured in many countries up to a certain limit.”³⁸

8.9.3. “E-MONEY”

But in a number of countries with a low density of traditional bank branches -like Africa or Asia-, balances stored not in traditional bank accounts but in digital accounts or “wallets” held in mobile cell-phones operated by telecom companies have become a very popular means of payment.

A good representative illustration is Kenya’s M-Pesa (“pesa” being Swahili for “money”), a mobile phone-based money transfer system launched by Vodafone in 2008 and operated by Safaricom, Kenya’s largest mobile network operator. It allows users to transfer money and pay for goods and services with just a mobile device. M-Pesa is not an “object”, but a “claim”, as it is, in Vodafone’s words³⁹, “a digital representation of cash which Vodafone stores safely in a ring-fenced bank account (a “trust” account). The mobile money account of each customer is linked to their mobile phone account. The central platform securely keeps tracks of the value in case a phone or SIM card is lost. M-Pesa is specifically designed to benefit customers who have no access to banks - either because they do not have a bank account or because they live too far away from a bank branch. Each transaction is made with a mobile handset, enabling our customers to send money from any location”. “M-Pesa agents pre-buy mobile money so that they can sell it to customers in exchange for cash (so the customer can ‘cash-in’); they also do the reverse, selling cash in exchange for mobile money (so the customer can ‘cash out’). The cash and M-Pesa balances that agents manage and store are always their own”.

M-Pesa is, thus, an easily transferable “claim” on a bank deposit, not an “object”.

Within the European Union, e-money was regulated in the “Electronic Money Directive” (2008/110/EC), which was aimed at facilitating the emergence of new, innovative and secure e-money services. It required e-money institutions to get a license and meet minimum requirements of own funds.

Under article 7 (“Safeguarding requirements”), electronic money institutions should safeguard received funds in “low-risk assets” (i.e. mostly public debt instruments, but also “units in an undertaking for collective investment in transferable securities (UCITS), which invests solely in low-risk assets).

³⁸ Id., p.4.

³⁹ Available at <https://www.vodafone.com/what-we-do/services/m-pesa>



Article 11 requires that “electronic money issuers issue electronic money at par value on the receipt of funds” and that “upon request by the electronic money holder, electronic money issuers redeem, at any moment and at par value, the monetary value of the electronic money held”.

Interestingly, article 12 prohibits “the granting of interest or any other benefit related to the length of time during which an electronic money holder holds the electronic money”.

8.9.4. “I-MONEY”?

Adrian and Mancini-Griffoli also consider a potential new means of payment: claims on a portfolio of investment assets, such as gold or financial assets (e.g. shares). This “i-money” (short for “investment fund money”) would be similar to e-money, except that it would not have a variable redemption rate in terms of currency, but a variable one, depending on the market price of the underlying assets. In their view, “shares in private investment funds could become i-money. They can be tokenized, meaning they can be represented by a coin of any amount on a digital ledger. The coin can then be traded directly, at low cost, and constitutes a payment denominated in the underlying portfolio’s going worth in any currency. For instance, if B owes A €10, B could transfer €10 worth of a money market fund to A. To the extent that the fund is liquid, its market price should be known at any point in time. And to the extent the fund comprises very safe assets, A may agree to hold these with the expectation of using these to pay for future goods and services at approximately the same exchange rate with local currency. In other words, i-money could be sufficiently stable to serve as a widespread means of payment”.⁴⁰

8.10. RECENT INNOVATIONS

Recent international discussions on domestic monetary systems have been prompted by some new interrelated changes:

- The emergence of new digital private “currencies” (like Bitcoin, Ether and many others).
- The spontaneous decline of the use of cash in some advanced economies -like Sweden- and the deliberate attempt by the authorities in some other countries -like India- to phase out large denomination banknotes, to fight tax evasion and the underground economy.
- The discussion by central banks and monetary experts of the issuance by central banks of their own “central bank digital currencies” (CBDC), to compensate for the decline in the use of cash and to keep a significant role in the provision of means of payment.

⁴⁰ Id. p.5.



- The launch in June 2019 by one of the leading Big Techs, Facebook, its “Libra Project”.

I will discuss briefly these changes before presenting in the final section my own guesses or hunches on the future of money.

8.10.1. PRIVATE DIGITAL CURRENCIES

“Virtual currencies” have been defined as “digital representations of value, issued by private developers and denominated in their own unit of account, that can be obtained, stored, accessed, and transacted electronically, and can be used for a variety of purposes, as long as the transacting parties agree to use them”⁴¹. “The concept of virtual currencies covers a wide array of ‘currencies’, ranging from simple IOUs of issuers (such as Internet or mobile coupons and airline miles), virtual currencies backed by assets such as gold, and “cryptocurrencies” such as Bitcoin. However, they differ from other digital currencies, such as e-money, which is a digital payment mechanism for (and denominated in) fiat currency. Virtual currencies are not denominated in fiat currency and have their own unit of account”.⁴²

Since the launch of Bitcoin in 2009, new virtual currencies utilizing a “distributed ledger technology” (DLT), particularly ‘blockchain’ data structures, mushroomed, especially after Bitcoin’s price briefly rose to nearly US \$20,000 per bitcoin. This growth has been propelled by an unprecedented amount of early venture capital raised in “initial coin offerings (ICOs) outside the regulated financial services industry. As argued by Rosa María Lastra and Jason Grant Allen, “the development of the virtual currency market to date has largely been a matter of private initiative, often motivated by a techno-libertarian ideological outlook that stresses the private creation of money and adopts a skeptical position towards state interference in economic arrangements generally, which translates into a skeptical position towards central banks in particular”.⁴³

Irrespective of their success as speculative financial assets, none of them seem to have gotten even close to becoming a general means of payment, probably as a result of two factors:

- The lack of a sufficient broad base of users which could generate the necessary network externalities for a new currency to compete with established ones.
- The volatility of the value of these cryptocurrencies in terms of the established official currencies, which has limited their attraction as a new standard of value.

⁴¹ Dong He et alia, “Virtual Currencies and Beyond; Initial Considerations”, IMF Staff Discussion Notes 16/3, 2016, p.7.

⁴² Id.

⁴³ Rosa María Lastra and Jason Grant Allen, “Virtual Currencies in the Eurosystem: Challenges Ahead”, European Parliament, Monetary Dialogue, July 2018, available at http://www.europarl.europa.eu/cmsdata/150541/DIW_FINAL%20publication.pdf



The analysis of these cryptocurrencies would not thus belong in an article on the future of “money”, but the situation changed dramatically with Facebook’s announcement in June 2019 that it intended to launch its own digital stablecoin, “Libra”, an initiative which is discussed below.

8.10.2. THE CURSE OF CASH

In 2016, Kenneth Rogoff, a former chief economist of the International Monetary Fund (IMF), called again for advanced-economy governments to phase out paper currency over a 10- to 15-year period, except perhaps for small denominations notes and coins.⁴⁴ He gave two main reasons:

- To prevent high-value anonymous payments and thereby discourage tax evasion and crime –like the drug trade, human trafficking and exploitation of migrants-. He had already invoked this argument back in 1998, when he criticized the expected issuance by the newly created European Central Bank (ECB) of a €500 note. In Rogoff’s view, the potential gains from reducing tax evasion would offset, at least partially, the forgone benefits from seigniorage. Furthermore, central banks would get more than enough revenues from electronic money to cover their operating costs in most scenarios.
- To allow central banks, when required to stimulate demand and avoid the “liquidity trap”, to overcome the “zero lower bound” for interest rates and apply unfettered negative interest rates, without people being able to take refuge in big denomination bank notes, which can be seen as an anonymous bearer zero-interest-rate bond.

Rogoff’s idea was severely criticized, most famously by former ECB board member and chief economist Otmar Issing, who described paper currency as “coined liberty”⁴⁵. Other German economists came out also in support of cash, claiming that its abolition would have major drawbacks and entail undesirable consequences.⁴⁶ Furthermore, they argued that if doing away with cash were to make it impossible to convert deposits at commercial bank into central bank money, there would be mounting pressure to consider one of the following alternatives:

- Bank deposits wholly covered by central bank money (“narrow banking”);
- Deposits in central bank accounts available to everyone, or

⁴⁴ Kenneth S. Rogoff, “The Curse of Cash”, Princeton University Press, 2016.

⁴⁵ The expression is from Fyodor Dostoyevsky’s “The House of the Dead”: “Money is coined liberty, and so it is ten times dearer to the man who is deprived of freedom. If money is jingling in his pocket, he is half consoled, even though he cannot spend it. But money can always and everywhere be spent, and, moreover, forbidden fruit is sweetest of all”.

⁴⁶ Franz Seitz and Malte Krueger, “The Blessing of Cash”, International Cash Conference 2017 – War on Cash: Is there a Future for Cash? 25 - 27 April 2017, Mainau Island, Germany, Deutsche Bundesbank.



- Digital central bank money (e-euro).

In the case of a narrow banking solution, certain bank deposits would have to be wholly covered by central bank money, with the banking system divided into “deposit-taking or payment transaction banks” and “investment or commercial banks”.

As a matter of fact, Nordic countries, like Norway, Sweden and Denmark, have taken the lead in the promotion of a cash-less society and in phasing out the largest notes in circulation, like Sweden did in 2013 with the 1,000-krona note. Not surprisingly, they have also been at the forefront in the discussions about the creation of central bank digital currency (CBDC).

8.10.3. CENTRAL BANK DIGITAL CURRENCIES

As early as 1985, James Tobin argued that “one way to provide [means of payment like currency, but without its disadvantages] would be to allow individuals to hold deposit accounts in the central bank, or in branches of it established for the purpose and perhaps located in post offices”.⁴⁷ But he himself considered this alternative unlikely, given the then current sentiment in favor of privatization.

Recently, however, the idea of providing greater access to digital forms of central bank liabilities has resurfaced, as a result, according to banking experts from the Committee on Payments and Markets Infrastructures and Markets Committee of the Basel Committee of Bank Supervisors, of several factors:⁴⁸

- Interest in technological innovations for the financial sector;
- The emergence of new entrants into payment services and intermediation;
- Declining use of cash in a few countries; and
- Increasing attention to so-called private digital tokens.

This has led to the concept of “central bank digital currency” (CBDC), originally defined as “a digital form of central bank money that is different from balances in traditional reserve or settlement accounts”. Within this broad concept, at least three different types of CBDC can be considered, depending on who has access (i.e. general purposes vs. restricted or wholesale) and what technology is used (i.e. tokens vs. accounts):⁴⁹

- Digital tokens that can only be used by financial institutions, for “wholesale transactions” (e.g. for interbank and securities settlement);
- Accounts at the central bank for the general public; and
- Digital “cash” tokens that could be used by the general public for retail payments.

⁴⁷ James Tobin, op.cit., p.25.

⁴⁸ Committee on Payments and Market Infrastructures and Markets Committee, “Central Bank Digital Currencies”, Bank for International Settlements, March 2018, p.3.

⁴⁹ G-7 Working Group on Stablecoins, “Investigating the impact of global stablecoins”, Annex C on Central bank digital currencies (CBDC), October 2019.



Their main differences in terms of availability, anonymity (vis-à-vis the central bank), and possibility of peer-to-peer transfer are summarized in the following table:⁵⁰

	Existing central bank money-		Central bank digital currencies		
	Cash	Reserves and settlement balances	General purpose		Wholesale only token
			token	accounts	
24/7 availability	✓	×	✓	(✓)	(✓)
Anonymity vis-à-vis central bank	✓	×	(✓)	×	(✓)
Peer-to-peer transfer	✓	×	(✓)	×	(✓)
Interest bearing	×	(✓)	(✓)	(✓)	(✓)
Limits or caps	×	×	(✓)	(✓)	(✓)

✓ = existing or likely feature, (✓) = possible feature, × = not typical or possible feature.

The distinction between token- and account-based money bears on the form of verification needed when it is exchanged: while token-based money relies on the ability of the payee to verify the validity of the payment object -with the main concern being “electronic counterfeiting”-, account-based money depends on the ability to verify the identity of the account holder -the main concern being identity theft-.

In their 2018 report, BIS experts concluded that:

- Traditionally, central banks have tended to limit access to account-based forms of central bank money mostly to banks, while making banknotes widely accessible. “This approach has, in general, served the public and the financial system well, setting a high bar for changing the current monetary and financial structure”.
- The benefits of a widely accessible CBDC may be limited if fast (even instant) and efficient private retail payment products are already in place or in development. A central bank introducing such a CBDC would have to ensure the fulfilment of anti-money laundering and counter terrorism financing (AML/CFT) requirements, as well as satisfy the public policy requirements of other supervisory and tax regimes. An anonymous general purpose CBDC would raise further concerns and challenges. On the contrary, a non-anonymous CBDC could allow for digital records and traces, which could improve the application of rules aimed at AML/CFT.
- If flows into CBDC were to become large and not associated with offsetting declines in physical banknotes, as could be the case in times of financial stress, challenges could arise (such as a need to broaden the assets that the central bank can hold or take on as collateral).

⁵⁰ “Central bank digital currencies”, op.cit., Table 1, p. 6.



- On the positive side, a general purpose CBDC could enrich the options offered by the central bank's monetary policy toolkit, by allowing for a strengthening of pass-through of policy rate changes to other interest rates or addressing the zero lower bound on interest rates (provided high denomination banknotes were retired)
- As a liquid and creditworthy asset, a wholesale variant available to institutional investors that would be akin to interest-bearing central bank reserves or reverse repo facilities, yet widely tradeable, could function as a safe asset comparable in nature to short maturity government bills.
- A general purpose CBDC could compete with guaranteed bank deposits, with implications for the pricing and composition of banks' funding. It could give rise to higher instability of commercial bank deposit funding and facilitate, at times of stress, a fast and large flight towards central bank money, challenging commercial banks and the central bank to manage such situations.
- For international currencies, the above considerations would apply with added force, especially during market waves of flight to safety. Hence, the introduction of a CBDC in one jurisdiction could adversely affect others and, consequently, central banks seeking to introduce a CBDC should consider cross-border issues.
- In conclusion, any steps towards the possible launch of a CBDC should be subject to careful and thorough consideration.

Uruguay's Central Bank ran a pilot test from November 2017 to April 2018, in cooperation with a telecoms company, of a digital version of the Uruguayan peso, called "e-peso". It issued the equivalent of some €0.5 million, for digital wallets of some 10,000 mobile phone users, chosen on a first-come-first-served basis, who could use them for payment transactions in registered stores and businesses as well as for peer-to-peer transfers among registered users. The pilot system provided for instantaneous settlement, relied merely on a working mobile phone line, not requiring an internet connection, and the users' wallets and the encrypted e-note manager were designed to render transactions anonymous yet traceable. According to Uruguay's central bank, "the overall experience with the pilot was positive". The Central Bank highlighted the many advantages of CBDC, including lower costs, financial inclusion, prevention of crime and tax evasion, and customer protection, and has called for central banks to embrace new technologies and promote further financial innovation in cooperation with the private sector and start-ups.⁵¹

In Sweden, the Riksbank has proposed to Parliament that a technical committee perform a review of the concept of "legal tender" and study the legal amendments necessary to facilitate the issuance of e-krona and the phasing out of cash. The second report on the e-krona included this statement:⁵²

⁵¹ "Do We Need Central Bank Digital Currency? Economics, Technology and Institutions", edited by Ernest Gnan and Donato Masciandaro, SUERF Conference Proceedings 2018/2, p.18 and 82-90.

⁵² The Riksbank's e-krona project, Report 2, October 2018, available at <https://www.riksbank.se/en-gb/payments-cash/e-krona/>



“Cash use continues to decline in Sweden. In future, cash may be so marginalized that it becomes difficult to use as a means of payment. For 350 years, the Riksbank has provided the general public with money but going forwards, the technical development and digitalization of payments will bring the issue of the State’s role to a head. If the marginalization of cash continues a digital krona, an e-krona, could ensure that the general public still has access to a State-guaranteed means of payment. Alternatively, not to act in the face of current developments and completely leave the payment market to private agents, will ultimately leave the general public entirely dependent on private payment solutions, which may make it more difficult for the Riksbank to promote a safe and efficient payment system”.

While the general discussion among BIS experts on the availability of a CBDC has centered on whether it is to be limited to financial institutions or be extended to the public at large, a separate question is whether, while access remains restricted, it should be opened to telecom and fintech companies offering e-money wallets.

In this spirit, Adrian and Mancini-Griffoli under the heading “What if E-money Providers Could Hold Central Bank Reserves?” argued that “the ability to hold central bank reserves would fill the sails of e-money providers by allowing them to overcome market and liquidity risk, and would transform these into narrow banks. Fractional banks would feel greater pressure. For one, they would no longer benefit from wholesale funding from e-money providers. [Furthermore] while banks should be able to hold their ground in normal times, a question mark arises in crisis times. Would there be massive runs from bank deposits into e-money in times of crises? If client funds backing e-money were held as wholesale funding for banks, the run could be in reverse, from e-money to b-money as clients seek the protection of banks’ deposit insurance. But if client funds were held as reserves at the central bank, then run risks cannot be discounted. Certainly, uninsured deposits might migrate from banks to e-money providers”.⁵³

By way of conclusion, Adrian and Mancini-Griffoli suggest that central banks, rather than creating CBDC tokens available for the general public, limit themselves to allowing e-money providers to hold traditional central bank reserves, in bankruptcy-remote trusts which issue e-money 1-to-1 for reserves. They describe such e-money as “Synthetic Central Bank Digital Currency” (or sCBDC, for short), which they characterize as a public-private partnership in which e-money providers would be responsible for performing customer due diligence, offering or vetting wallets, developing or selecting the underlying technology, managing customer data, and interacting with customers’ requests, complaints and questions. “Each of these raises risks of glitches and cyberattacks, entails significant costs, and puts the central banks’ reputation at risk”.⁵⁴

⁵³ Adrian and Mancini-Griffoli, *op.cit.*, p. 12.

⁵⁴ *Id.* p.14.



8.10.4. THE LIBRA PROJECT

On June 18, 2019, Facebook publicly announced its intention to launch in the first half of 2020 a new global digital currency, “Libra”.⁵⁵

According to the project’s White Paper, Libra would have the following features:

- The unit of account or standard of value of the users’ balances would be a new unit, “Libra”, meant to become a “new global currency”.
- Libra would be “fully backed by a reserve of real assets. A basket of bank deposits and short-term government securities will be held in the Libra Reserve for every Libra that is created, building trust in its intrinsic value. The Libra reserve will be administered with the objective of preserving the value of Libra over time”. “The assets in the Libra Reserve will be held by a geographically distributed network of custodians with investment grade credit rating to provide both security and decentralization of the assets”.
- Libra users would not “receive a return from the reserve”, i.e. Libra balances would earn no interest. Financial returns from the Libra Reserve would be used “to cover the costs of the system, ensure low transaction fees, pay dividends to investors who provided capital to jumpstart the ecosystem, and support further growth and adoption”.
- Libra would be established as a “permissioned blockchain”, so that only certain number of “validators nodes” would be authorized. It would use the Move programming language, specifically “designed to prevent assets from being cloned”. This would lend Libra digital assets “the same properties as physical assets: a resource has a single owner, it can only be spent once, and the creation of new resources is restricted”. “The Libra Blockchain is pseudonymous and allows users to hold one or more addresses that are not linked to their real-world identity”.
- Libra would be backed by a “competitive network of exchanges buying and selling Libra. That means anyone with Libra has a high degree of assurance they can convert digital currency into local fiat currency based on an exchange rate, just like exchanging one currency for another when travelling”.
- A “Libra Association”, an independent, not-for-profit organization headquartered in Geneva (Switzerland), would be the governing entity of Libra. Specifically, it would be “the only party able to create (mint) and destroy (burn) Libra. “Coins are only minted when authorized resellers have purchased those coins from the association with fiat assets to fully back the new coins. Coins are only burned when the authorized resellers sell Libra coin to the association in exchange for the underlying assets. Since authorized resellers will always be able to sell Libra coins to the reserve at a price equal to the value of the basket, the Libra Reserve acts as a ‘buyer of last resort”.

⁵⁵ Information retrieved from https://libra.org/en-US/wp-content/uploads/sites/23/2019/06/LibraWhitePaper_en_US.pdf



Its governing body would be its Council, comprised of one representative per validator node, with major decisions requiring a two-thirds majority.

As a consequence, Libra would be a “global, digitally native currency that brings together the attributes of the world’s best currencies: stability, low inflation, wide global acceptance and fungibility”. Libra is a cryptocurrency and “by virtue of that, it inherits several attractive properties of these new digital currencies: the ability to send money quickly, the security of cryptography, and the freedom to easily transmit funds across borders. Just as people can use their phones to message friends anywhere in the world today, with Libra, the same can be done with money -instantly, securely, and at a low cost.”

The White Paper makes a reference to the process which I described above as “monetary piggy backing” when it states that its approach “is similar to how other currencies were introduced in the past: to help instill trust in a new currency and gain widespread adoption during its infancy, it was guaranteed that a country’s notes could be traded in for real assets, such as gold. Instead of backing Libra with gold, it will be backed by a collection of low-volatility assets, such as bank deposits and short-term government securities in currencies from stable and reputable central banks. It is important to highlight that this means that one Libra will not always be able to convert into the same amount of a given local currency (i.e. Libra is not a ‘peg’ to a single currency). Rather, as the value of the underlying assets moves, the value of one Libra in any local currency may fluctuate”.

8.10.5. G-7 REACTION

Shortly after Facebook’s announcement, the G-7 countries set up a working group to report on the initiative and, more broadly, on “stablecoins”, i.e. private digital currencies that, unlike Bitcoin, seek to stabilize the price of the “coin” by linking its value to that of a pool of assets. The working group, chaired by Benoît Cœuré -in his capacity as chairman of the BIS Committee on Payments and Market Infrastructure (CPMI)-, released publicly its report in October 2019.⁵⁶

The report starts by recognizing that cross-border payments remain slow, expensive and opaque, especially for retail payments such as remittances. Moreover, there are 1.7 billion people globally who are unbanked or underserved with respect to financial services. Given the innovative potential of the underlying technology, crypto-assets were originally envisioned to address some of these challenges. However, to date, they have suffered from a number of limitations, not least severe price volatility. Thus, crypto-assets have served as a highly speculative asset class for certain investors and those engaged in illicit activities, rather than as a means to make payments. Stablecoins have many of the features of crypto-assets but seek to stabilize the price of the “coin” by linking its value to that of a pool of assets. Therefore, stablecoins might be more capable of serving as a

⁵⁶ G-7 Working Group on Stablecoins, “Investigating the impact of stablecoins”, October 2019, available at <https://www.bis.org/cpmi/publ/d187.pdf>



means of payment and store of value, and they could potentially contribute to the development of global payment arrangements that are faster, cheaper and more inclusive than present arrangements”.

However, stablecoins, “regardless of size, pose legal, regulatory and oversight challenges and risks related to legal certainty; sound governance, including the investment rules of the stability mechanism; money laundering, terrorist financing and other forms of illicit finance; safety, efficiency and integrity of payment systems; cyber security and operational resilience; market integrity; data privacy, protection and portability; consumer/investor protection; [and] tax compliance”.

Moreover, stablecoins that reach global scale (“global stablecoins” or GSCs) “could have significant adverse effects, both domestically and internationally, on the transmission of monetary policy, as well as financial stability, in addition to cross-jurisdictional efforts to combat money laundering and terrorist financing. They could also have implications for the international monetary system more generally, including currency substitution, and could therefore pose challenges to monetary sovereignty. GSCs also raise concerns around fair competition and antitrust policy, including in relation to payments data”.

The report concluded that “no global stablecoin project should begin operation until the legal, regulatory and oversight challenges and risks outlined above are adequately addressed, through appropriate designs and by adhering to regulation that is clear and proportionate to the risks”. At the same time, it welcomed the Financial Stability Board’s plan to submit in April and July of 2020 a consultative report to the G-20 Finance Ministers and central bank Governors”.

Finally, as part of the public authorities’ efforts to promote faster, more reliable and less costly payment systems for both domestic and cross-border purposes, the G-7 report recommends that “central banks, individually and collectively, assess the relevance of issuing central bank digital currencies (CBDCs) in view of the costs and benefits in their respective jurisdictions”.

The reaction of ministers to the Libra initiative was probably even more hostile than their experts’, due probably to sovereignty concerns.

This became particularly clear during the July 2019 ministerial G-7 summit in Chantilly (France), where its rotating chairman, French finance minister Bruno Le Maire, considered that, given that Facebook has hundreds of millions of customers around the world, Libra could jeopardize the monetary sovereignty of nations and have a destabilizing effect on the global financial system. “We cannot accept private companies issuing their own currencies without democratic control,” he declared. On October 17, 2019, he penned an article in the Financial Times with the eloquent title “Facebook’s Libra is a threat to national sovereignty”, where he argued that “the project would mean a private company controlling a common good and taking over tasks normally discharged by States. This is unacceptable for both economic and political reasons”.⁵⁷

⁵⁷ Bruno Le Maire, “Facebook’s Libra is a threat to national sovereignty”, Financial Times, October 17, 2019.



Such political hostility of the G-7 finance ministers has been mirrored in similar attitudes of the US Government and US Congress and in the European Union's Ecofin Council. More specifically, European ministers have reserved the right to "impede" the emergence of global stablecoins, like Libra, which may jeopardize governments' sovereignty on monetary issues.

8.10.6. LIBRA RESPONSE

On October 17, 2019, in its response to concerns expressed in the G-7 Report ("Investigating the Impact of Global Stablecoins"), the Libra Association argued that:⁵⁸

- It will set appropriate standards for its members to maintain anti-money laundering (AML)/know your customer (KYC) standards, cooperate with law enforcement investigations and be able to analyze prior transactions on the Libra Blockchain and share indications of potentially suspicious activity with law enforcement.
- Individuals and entities who hold Libra coin will be responsible for filing their taxes in accordance with local laws. Wallets and financial services built on the Libra Blockchain will be expected to provide consumers with tools to help manage their tax filings.
- While Libra coins will not give people the legal right to buy and sell coins from or to the Libra Association, authorized resellers will have such a contractual right.
- The Libra payment system and Libra coin are not designed to replace the U.S. dollar or any other currency, but to extend the functionality of those currencies by enabling cheap and fast payments. Libra will not diminish the sovereignty of governments to conduct monetary policy. Libra is not intended to change the role and influence of central bankers in the global financial system.
- Wallets and other financial services operating on the Libra Network (including exchanges and other on and off ramps) will have to comply with regulations, such as local capital controls, which can be tailored to prevent large scale flights from local currency to Libra coins in emerging markets.
- Every Libra coin will be fully backed by fiat held in bank deposits and cash equivalents in the form of very short-term government securities. This mitigates the risk of a "run on the bank" because Libra coins are fully backed one-to-one by cash and other liquid assets rather than by a fractional reserve the way bank deposits are.
- The Libra Association will also establish robust cybersecurity requirements for node operators and implement protocols designed to function correctly even if some validator nodes are compromised to ensure the resilience of the payment network.

⁵⁸ "Libra Association Response to the G-7 Report", available at <https://libra.org/wp-content/uploads/2019/10/Libra-Association-Response-to-G7-The-Regulatory-Regime-for-Stablecoins.pdf?sf221718478=1>



- The Libra Association is committed to protecting users' data privacy and will ensure the application of data protection laws. The Libra Association members, acting as node validators, will not be able to access, use, or share personal data regarding end-users of the Libra Blockchain. Companies that interact directly with customers like wallet services and exchanges will be expected to comply with data protection laws, including data portability.

Furthermore, in his testimony in Congress Facebook's president, Mr. Zuckerberg has argued that "blocking Libra will be a boon to China tech".

8.10.7. THE FUTURE OF MONEY: SOME GUESSES

The time has come to bring all the threads together and make some educated guesses on the future of "money" (or, more accurately, standards of value and means of payments).

These are my guesses:

1. Any discussion about the future of "money" makes it imperative to distinguish or unbundle two separate monetary functions - standard of value and means of payments - which, while occasionally combined in a single object (e.g. full-bodied gold coins or modern banknotes), follow different dynamics.
2. The mainstream Metallist view about the origin of money obscures the fact that debts, clearing arrangements and book-entry systems played a significant role in many monetary and payment systems from time immemorial, with modern digital currencies being less innovative than frequently thought.
3. As a matter of fact, irrespective of the potential merits of any new Hayekian private currency, governments in industrial countries will fight tooth and nail to preserve their traditional sovereign prerogatives in the monetary domain, which are legally recognized in almost all countries' constitutions, laws and statutes. Monetary standards of value (i.e. "currencies") will thus remain sovereign ones, based on national laws (like the dollar, the yen, the pound and most other currencies) or international Treaties (like the euro), with limited circulation of "parallel currencies", except in border areas, international places or dollarized economies, where the inability of the local sovereign to provide a stable currency makes rational for people to trust only a foreign one.
4. Consequently, G-7 governments will prevent the emergence of any private outside or *fiat* money -like Libra- not redeemable into a single traditional sovereign currency (like the US dollar or the euro), even if designed as an SDR-like or currency board-type stablecoin (i.e. backed by a basket of stable international currencies).

It has been argued that the way to allay fears about Libra would be "to require Libra to operate as a currency board, issuing one Libra against one unit of a pre-defined basket of currencies. This way, Libra might add a useful tool to secure,



accelerate and make cheaper the exchange of goods and services around the world, without creating any liquidity or solvency risks and without chipping at the seigniorage collected by central banks. (..) If all concerns about money laundering, tax evasion and terrorism financing are addressed in an effective way, and if Libra is allowed to proceed under the rules of a strict currency board, then its usefulness to world trade would be enhanced by having it backed by a basket of currencies with weights representing the weights of the respective currencies in international trade”.⁵⁹

I do not think this will convince G-7 governments and allay their fears about stablecoins, and especially global stablecoins (GSCs), because of the risk of *Cheshirization*: even if initially pegged, however tightly, to an underlying basket of currencies, as soon as Libra’s or any other private currency’s brand name and practical convenience become familiar to users across the world, global demand will increase and gradually stabilize even if the private currency is unmoored from its initial anchor. As explained above, this was the case with the US dollar in July 1971, when President Nixon severed its link with gold and made it a full fiduciary, *fiat* currency: over the years, the “gold-exchange standard” had gradually become a *de facto* dollar standard and, except for the demise of the Bretton Woods system and the dollar’s subsequent runaway inflation, the dollar remained the main international currency despite only its fiduciary grin remaining. As Rogoff has argued, “being able to control the unit of account is an extremely important safety valve [allowing governments to draw on large pools of liquidity in the event of a war, pandemic, or other crisis that creates unexpected short-term funding needs]. It is especially useful if a country’s debt is denominated in its own currency, giving the government the option of partial default through inflation. On top of dealing with outright catastrophes, a country that does not control its own currency is unable to use modern monetary stabilization policy. Multiple units of account may coexist, and one can find many small economies where both the local currency and the dollar (or euro) are widely accepted. But, in general, the unit of account is a natural monopoly, which a well-run government with strong legal and fiscal institutions is uniquely well poised to control”.⁶⁰

In other words, G-7 governments will make sure, with the support of international institutions, that no private standards of monetary value emerge and Hayek’s wish for a “denationalized money” remains a dream or a “fairy tale”, to use Tobin’s expression.

5. Cryptocurrencies, like Bitcoin and others, will remain essentially speculative assets for a limited segment of investors. Even if left unbothered by governments, they will lack the broad users’ base required to create the network externalities necessary to displace well entrenched sovereign standards of value; and by being

⁵⁹ Rokia Moalla-Fetini, Financial Times, October 29, 2019.

⁶⁰ Rogoff, op.cit. p. 209-210.



- volatile with respect to the established standards of value (e.g. US dollar, euro...), they will lack stable demand as a means of payment, even if potentially attractive as financial speculative assets.
6. Even if governments remain more tolerant with non-Libra private virtual currencies, they will fight to prevent any new digital or technology-based means of payment allowing users to bypass anti-money laundering (AML)/know your customer (KYC) regulations and escape the purview of regulatory authorities.
 7. For all the hype about technology and new digital currencies, most governments will not allow the introduction of free capital movements by stealth either. Hence, authorities will strive for e-money providers to be subject to similar exchange control regulations as traditional bank deposits, as illustrated by the case of Zimbabwe's Eco Cash discussed above. Back in the summer of 1997, when members of the IMF were on the brink of amending the Articles of Agreement to embrace the freedom of capital movements as a general obligation over time, the East Asia crisis made them recoil, as they suddenly realized that cheap cross-border currency flows may occasionally be more of a curse than a blessing. A Tobin tax has regularly been discussed as a way to "throw sand in the wheels" of financial transactions and to prevent excessive short-term financial flows. This suggests that low transaction costs for new digital means of payments should not always be seen as an overriding priority.
 8. Many jurisdictions - led by Sweden, Uruguay, China, India and others - are likely to do away with cash (except, maybe, for the smallest denominations) and create a general token CBDC for retail payments. But this is unlikely to be the case in the US and the eurozone, given the psychological attachment to cash in some leading countries (including Germany) and the seigniorage accruing to central banks issuing internationally-used banknotes (like US dollar and euro banknotes).
 9. It is an open question whether retail CBDC tokens, held directly by the general public, could become in the future a significant chunk of monetary aggregates and reduce the role of intermediated means of payments (i.e. traditional bank deposits and private e-money). Central banks will tread carefully here, since, as indicated by BIS experts, a significant and fast substitution of CBDC balances for traditional retail bank deposits might wreak havoc in existing bank-based financial and credit systems. There is a good chance that central banks might in the end opt for the "synthetic CBDC" approach (i.e. private e-money with 100% central bank money backing) suggested by Adrian and Mancini-Griffoli and stay away from retail clients, as this would allow traditional commercial banks to adapt and compete in this field and would also preserve the "wholesale" nature of central banks, with AML/KYC daily chores remaining the responsibility of private financial intermediaries.
 10. The case for Libra, as made in its White Paper, is not consistent: financial inclusion for the poor is a good argument in support of domestic e-money - like M-Pe-



sa or any other low cost system for retail cross-border remittances -, but not for the creation of a global digital currency with billions of potential users across the world, including affluent countries, and with the Hayekian ambition to become a “parallel currency” even in leading industrial countries.⁶¹ Most industrial countries will never accept the concept of a parallel currency (*Parallelwährung*, for Germans!) circulating, even in digital form, within their borders. Like Hayek’s “ducat”, Libra will remain in all likelihood a pipedream, unless its ambitions are fundamentally scaled down.

11. As of today, while standard of values are all public ones, money supply (i.e. the overall amount of liquid balances held by the public) is a combination of a small amount of public means of exchange (cash) and a huge number of private ones (bank deposits). Some have called for the issuance of CBDC open to the public with a view to “renationalizing” the money supply and, probably as a result of Libra’s threat, even the most reticent central banks, like the European Central Bank or the Federal Reserve, have been dragged into exploring the potential merits of CBDC. Disruptive changes are unlikely in the immediate future, but if in the end CBDC makes the overall money supply more “nationalized” and less private, I wonder whether Hayek might turn in his grave?

⁶¹ Facebook’s case for Libra is a good example of what I have described elsewhere as the “synecdoche trick”, i.e. using a narrow, unrepresentative case which commands public support to advocate a policy whose practical effects will be much broader. See Manuel Conthe, “El truco de la sinécdoque”, available at <https://www.expansion.com/blogs/conthe/2018/09/25/el-truco-de-la-sinecdoque.html>