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Money in Shadow Banking and the Crypto Economy: A Chartalist Perspective

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ABSTRACT

As instructors of Money and Banking, we regularly confront enduring questions: What is money? Is gold money? More recently, students ask whether shadow money, Bitcoin, or stablecoins qualify as money. These inquiries reflect a deeper puzzle: why do rational agents exchange valuable goods and services for seemingly intrinsically useless tokens? How do paper notes, bank deposits, and digital instruments retain value without commodity backing? Such questions have gained renewed urgency amid financial innovation, shadow banking expansion, and the rise of decentralized finance.

This paper revisits these foundational issues and extends the analysis to blockchain-based tokens and shadow banking liabilities. Rather than defining money by its functions, we adopt a Chartalist perspective that conceptualizes money as a negotiable financial instrument whose value rests on an issuer's promise to redeem it at par. These characteristics establish criteria for evaluating monetary status. Once identified, instruments are assessed according to their degree of general acceptance and exposure to credit risk, which depend on issuer authority, issuance and redemption mechanisms, regulatory structure, and the nature of underlying assets.

Methodologically and pedagogically, the paper emphasizes schematic balance sheets as a tool for determining whether an instrument qualifies as money and for clarifying the credit risks it entails. Overall, the analysis underscores a central Chartalist insight: whether physical, electronic, or tokenized, the authority, credibility, and commitment of the issuer remain the cornerstone of any effective monetary instrument—and of any durable monetary system.

KEYWORDS: Chartalism; Monetary Systems; Nature of Money

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INTRODUCTION

As instructors who teach Money and Banking courses each year, we are repeatedly confronted with a set of fundamental yet persistently relevant questions: What is money? and is gold money? More recently, these have been joined by new inquiries such as what is shadow money? Is bitcoin money? and is stablecoin money? Closely related are broader conceptual puzzles: why would rational agents exchange inherently useful goods and services for what appear to be intrinsically useless tokens? (Shackle 1974 in Ganssmann 2002; Menger 1892). How can paper notes, coins, bank deposits, and emerging digital instruments retain value in the absence of intrinsic commodity backing? Although these questions are longstanding, they have taken on renewed urgency amid rapid financial innovations, the expansion of shadow banking, and the rise of digital and decentralized finance.

This paper revisits these enduring questions and extends the inquiry to include blockchain-based digital tokens and financial instruments operating within shadow banking systems. To address them meaningfully, we begin with a theoretical understanding of what money is. Rather than focusing on what money does, this paper adopts a Chartalist perspective. From this viewpoint, money is best understood not as a material object but as a financial instrument with specific characteristics. These defining characteristics provide the criteria by which instruments are evaluated as money. Once monetary instruments are identified, the paper examines their degree of general acceptance and exposure to credit risk, reflecting their differences in issuer's authority, issuance and redemption mechanisms, state backing and regulation, and the nature of the assets that underpin them.

Methodologically and pedagogically, this paper emphasizes the use of schematic balance sheets as a powerful tool for assessing whether a given instrument qualifies as money and for identifying the types of credit risk to which it is exposed. This approach highlights a key teaching insight: the "money" chapter in a Money and Banking course is most effectively taught when introduced only after students have acquired a solid understanding of balance sheet mechanics and basic financial logic (Tymoigne 2023). By integrating this framework, the paper aims to provide deeper insights into the nature of money and its evolving forms in contemporary

financial systems. The first part of the paper outlines the conceptual framework for analyzing monetary systems; the remainder applies this framework to assess the monetary nature of various instruments.

WHAT IS MONEY? A CHARTALIST PERSPECTIVE

A monetary system is composed of three distinct elements, a unit of account, monetary instruments (coins, notes, accounts, etc.) denominated in a unit of account and a payment system on which monetary instruments circulate.[1] A first premise of Chartalism is that units of account are abstract means of measurement that must exist before monetary instruments can be created. Units of account and payment systems emerged in the Ancient Near East and Egypt, long before coins (Hudson and Wunsch 2004; Henry 2004). A second core premise of Chartalism is that all monetary instruments are conceptualized as tokens. Tokens contain a promise made by their issuers, tokens are put in circulation and redeemed by issuers, and each issuer puts a specific sign on its tokens so bearers know on whom they have a claim. As such, the valuation logic of monetary instruments differs from that of commodities; in line with other financial instruments, the valuation of monetary instruments is inherently forward-looking and based on the perceived willingness and ability of the issuer to fulfill whatever was promised.

$$P_t = \sum_{n=1}^{N} \frac{E_t(Y_n)}{(1+d_t)^n} + \frac{E_t(FV_N)}{(1+d_t)^N}$$

Where the subscript t indicates the present time, P_t is the current fair price (the nominal price at which the instrument ought to circulate among bearers), Y_n is the nominal income promised at a future time n, FV_N is the face value at maturity (usually it is equal to the face value at issuance, which itself is usually equal to the official value at issuance), E_t indicates current expectations of

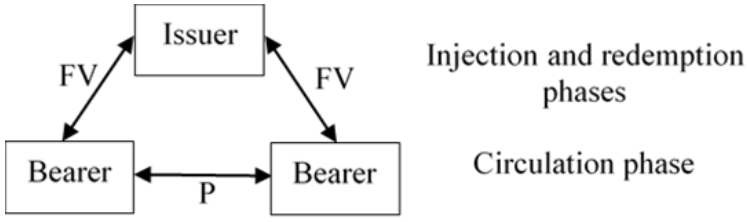
[1] The word "money" refers either to the unit of account or monetary instruments depending on the author, with some shunning the word because of its lack of precision (Olivecrona 1957). In this paper, the word "money" refers to monetary instruments.

bearers about income payments and face value, d_t is the current discount rate set by bearers during circulation, and N is the time lapse until maturity ($n = 0$ is the issuance time). N can vary from 0 (financial instrument can be fully redeemed at any time at the bearers' request, i.e. on demand) to infinity (financial instrument is only redeemed at the issuer's will, i.e. it is irredeemable from the bearer's perspective).

The face value may not be inscribed on monetary instruments, may change between the time of issuance and maturity, and may differ from the official value of the instruments.[2] For example the guinea coin had an official value of 20s, but the Exchequer redeemed them at a higher value, so the face/redemption value was higher than the official value. The typical financial characteristics of a monetary instrument is that it does not pay any predetermined income (zero-coupon) and that the issuer promises to redeem them on demand (zero term-to-maturity). Given such characteristics, the fair price of a monetary instrument equals face value ($P = FV$); money ought to circulate at par at all times. Beside specific income and term to maturity, monetary instruments are also negotiable/transferable and sometimes they are also collateralized.

Graphically, the valuation logic of monetary instruments can be illustrated with three economic agents, an issuer and two bearers:

Figure 1. The Financial Logic Behind the Valuation of Monetary Instruments



[2] Two additional complications may arise: a monetary instrument may accrue compound interest, or it may periodically depreciate by a fixed nominal amount (demurrage) during circulation.

Transactions between the issuer and bearers involve the injection and redemption of monetary instruments at face value. Like all financial instruments, redemption (or reflux—the return of a monetary instrument to its issuer) is fundamentally a relation between bearers and the issuer; bearers do not redeem a monetary instrument when they buy goods and services from each other, they circulate it. While channels of redemption vary over time and space, there are two broad means of redeeming a monetary instrument, conversion by the issuer and payments to the issuer. Redemption via conversion involves returning a monetary instrument to its issuer in exchange for something. That something may be an asset of the issuer (gold coins, paper notes, etc.) or another liability of the issuer (e.g., a bank converts its banknotes into a bank account). Redemption via payments involves settling dues owed to an issuer—e.g., debt services, rents or taxes. The reward from such payments is legal because debtors avoid prison, bankruptcy, foreclosure or worse by reducing what they owe to the issuer by a monetary amount equal to the face value of monetary instruments they redeemed. For example, Tooke (1848, 185) and Fullarton (1844, 66) identify three channels through which banknotes are "returnable to their issuers": conversion into bank deposits, conversion into coin, and the settlement of debts owed to banks. Other scholars, starting with Roman and Chinese jurists in Antiquity, focus on government monetary instruments and note the role of taxation.[3]

In the functional approach, the issuer is absent or superfluous. The inquiry focuses on the circulation phase by asking how something is used. By contrast, the Chartalist approach does not determine the monetary nature of a thing by its functions, but by its financial characteristics. Accordingly, the assessment focuses on the issuer. The implications are quite profound as this leads to a sharp distinction between commodities and monetary instruments, a clear separation between in-kind payments and monetary payments, and a recognition that units of account are an abstract prerequisite that logically precede the existence of monetary instruments (Tymoigne 2026a, 2026b). An analysis of the functions performed by something remains relevant, but only

[3] It is sometimes argued that money is irredeemable because the money stock grows overtime. For example, Turner (2015) argues that "monetary base is an asset for the private sector, but for the government it is a purely notional liability (with NPV equal to Zero) since it is irredeemable and non-interest-bearing." The monetary base is redeemable (and is constantly redeemed) because it can be used to service debts owed to the central bank (the issuer of the monetary base). More broadly, if one includes the Treasury and Central Bank into a single entity called the government, the monetary base returns to the government via tax payment and debt services owed to the government. However, the net injection (issuance minus redemption) is usually positive to accommodate growing financial needs within the economy.

insofar as it illuminates how a monetary instrument is used in practice. Such analysis helps understand how bearers react to the introduction of a new monetary instrument or change the way they use existing instruments. For example, the early penny coins and the colonial bills of credit were cut in quarters to facilitate small transactions. Issuers initially tolerated these practices before eventually adapting by minting farthings or printing quarter of values on the corner of bills. Thus, Chartalism allows for a study of the dynamic interactions between bearers and issuers and their impact on monetary innovations and the valuation of monetary instruments. The issuer, however, sets the tone and is the one who decide to monetize or demonetize an instrument by stopping its issuance and redemption (usually bearers are given a grace period before conversion into a new instrument is no longer possible, at which point all promise of redemption is removed and an instrument is demonetized).

The emphasis on chartality/tokeness over materiality means that the "real" element in a monetary instrument is not its physical composition, but, rather, the incorporeal financial bind it creates between its issuer and its current and potential bearers. What makes a monetary instrument "real" is the (explicit or implicit as Innes (1914, 160) notes) promise made by the issuer to bearers. This was recognized long ago by jurists with Francois Hotman being the most explicit when analyzing legal issuers surrounding precious-metal coins:

> It is clear, then, that Coins follow the same principles as Promissory Notes, for a promissory note is not valued based on its material, that is, boards, wax, membranes, etc., it is valued by law and power when a promissory note is delivered to the pledgee […] or when it is returned to the debtor. […] And for this reason, it was argued most eloquently by the Jurists that, in money, one should not look to the body but to the power; that coins should not be reckoned among corporeal things, but instead among incorporeal things. (Hotman 1598, 97)

Hotman posits that the issuer of coin—whether a king, a lord, or any authority identifiable by its distinctive mark—makes a promise. That promise concerns the ability to return coins to their issuer ("the debtor"), thereby introducing the relevance of the notion of redemption/reflux. Bearers, in turn, continuously test, judge, and revise their confidence that face value will be stable between injection and redemption to determine at what price they accept a monetary instrument from each other. Network effects and conventions among bearers—forms of societal trust operating horizontally—further promote the circulation of an instrument by complementing

the vertical foundations established by the issuer, namely trust in the issuer's credibility and capacity to honor its commitments.

The core implication is that money behaves, and must be managed and analyzed, like any other negotiable financial instruments. Money contains credit risk and its issuance and redemption (as well as the setup of the entire monetary system) must not be left to the laws of nature, but rather should be consistent with the principles of finance. While we are accustomed to the fact that money always circulates at official/face value because governments have successfully quelled the credit risk embedded in money, this was not always the case. Charles du Moulin recognizes the centrality of the creditworthiness of the issuer for the circulation at par of money. He is especially concerned about cases where the sovereign issues a coin and lowers its official value before tax collection:

> The English, via an edict they published in June 1420 […] set the écu at 60 sols tournois, the mouton d'or at 40 sols tournois and the English nobles at 7 livres tournois. In 1421, after having employed the coins at such a high price that was advantageous to them, the English revalued them to take them back at a viler price; so much so that the Gros tournois that was worth 16 dernier tournois in 1420, was worth 4, a fourth of its previous value, and the écu worth 30 sols tournois, and the mouton d'or at 20 sols tournois, which was half as much: Hate and contempt for the English followed. (Du Moulin 1547 (1681), 393)

Confidence in the coinage weakened because, in line with Nominalism[4], the tax dues were not lowered to account for the abatement of the coinage. The position that coins (and inconvertible notes) do not contain any credit risk is not only incoherent with Chartalism, but also runs counter to the past frustrations and worries of the population and monetary scholars (Tymoigne 2024).

To manage credit risk and enforce circulation at par, an issuer cannot merely declare an official value by fiat. An issuer must convince bearers of the relevance of such official value by making the market for its monetary instrument(s) via proper issuance and redemption channels that incentivize circulation at par. Such channels must be accommodative to the needs of the economy and must be reliable, continuous, and stable. The closure (or weakening) of some

[4] Nominalism is a legal doctrine that emphasizes that payments on any dues are nominal payments that cannot be adjusted for any types of appreciation or depreciation of the unit of account (such as output-price inflation, foreign-exchange-rate appreciation, or mutations of the coinage).

channels does not necessarily prevent an instrument from circulating at par, so long as at least one robust channel remains to sustain confidence in the issuer's creditworthiness and issuance remains sufficiently elastic. If several monetary instruments are involved in the issuance and redemption channels, the issuer must guarantee par exchange among them by issuing and redeeming them indiscriminately according to bearers' preferences. Failure to do so undermines par circulation and may generate discounts or premia across instruments. Historical examples of issuance and redemption arrangements that do not promote par circulation include a mint not supplying enough small changes because it is unprofitable, inability to convert base-metal coins into precious-metal coins, corruption in tax and debt collections, and tax collection that involved discriminating among coins based on weight and purity, among many others.

Finally, while the liquidity of a financial instrument increases with the rise in the creditworthiness of its issuer, the shortening of the term to maturity, and a higher negotiability (transferability), liquidity also depends on the structure of the payment system in which a financial instrument circulates. If information about the face value is difficult to obtain (as was the case at times in the Middle Ages), or if the implementation of redemption is hindered by delays, costs, or inconsistencies, circulation at face value may not occur. Importantly, although such frictions may hinder par circulation, they do not undermine the instrument's status as money as long as the issuer remains committed to redeeming it on demand at par (in the same way the nature of a bond is not influenced by technical problems in financial markets).

If the promise to issue and redeem at face value on demand is enforced properly, this promotes "general acceptance", that is, circulation at face value within the area of influence of the issuer. The area of influence of an issuer varies from a neighborhood to local to regional to national to international depending on, among other things, the creditworthiness of the issuer. As such, the notion of "general acceptability" is not absolute, as even gold coins were not accepted everywhere at all times; for example, Bloch (1955, 83) notes that there was a lack of confidence in gold coins in France and people preferred silver coins. In addition, when gold coins were used in international trade, they circulated according to weight and fineness not according to the creditworthiness of their issuer. International payment involved in-kind payments, not monetary payments. As Steuart, among others going back to Roman Antiquity (Tymoigne 2026b), put it:

“While gold and silver, therefore, pass by *denomination*, they are *money*, when they are valued by their *weight*, they are *bullion*. They are merchandise, but not money.” (Steuart 1772, 6). The same applies to tobacco leaves in the North American colonies and many other commodities used in barter or in-kind payments (Tymoigne 2026a).

The success of a monetary instrument must be judged by its ability to circulate at face value over an area of influence defined by the economic and/or political influence of its issuer. This can be represented by concentric circles that represent the area of influence of different issuers (see figure 2). The smallest area of circulation involves tokens issued by private businesses and persons that circulate in the immediate area of presence of the issuer. Tens of thousands of monetary instruments have been issued by localities, ecclesiastic domains, local seigneurs, taverns and other private agents in many periods of monetary history, worldwide, up to the present (Fletcher 2003; Burn 1853; Von Glahn 1996; Blanc 2017; Labrot 1989): “Méreaux are metallic signs that represent a sum to pay or a sum to receive. In the latter case, méreaux very often circulated locally at a fiduciary value” (Engel et Serrure 1891, xxx). Private bank monetary instruments (notes and accounts) were initially all distinct and each potentially circulated at par in the business area of the issuing bank. The area of general acceptance of monetary instruments in the inner circles can be extended if they are supported by a more creditworthy issuer and/or integrated into the payment system of such issuer (Knapp 1905, 135, 155). Beyond that, a national currency usually circulates at par on the national area and international currencies circulate even more broadly when well designed.

Figure 2. Area of General Acceptance of Different Monetary Instruments

Put differently, there is a hierarchy among monetary instruments but that "hierarchy of money" (Bell 2001), "debt pyramid" (Olivecrona 1957), or "scale of credit" (Wilson 1811, 11) only includes negotiable financial instruments. The monetary hierarchy excludes non-negotiable financial instruments (such as personal debts on the ledger of a merchant) that are part of a broader hierarchy of claims. Commodities (such as gold bars, or grains of salt) are also excluded from the realm of monetary instruments. As such, a significant part of any analysis of monetary systems ought to be about identifying who the issuers are; examining what they promise to do (or fail to promise to do given their intent to create monetary instruments); assessing how their creditworthiness is established, maintained, and contested; evaluating how negotiability is promoted and challenged; analyzing the channels of injection and redemption they establish, particularly with respect to their effectiveness in sustaining circulation at face (official) value within the issuer's sphere of influence.

In summary, monetary instruments have the following key characteristics:

1. **They are financial instruments with a clear issuer**, meaning they represent someone's liability.

2. **They are redeemable on demand:** the issuer must accept them at the bearer's request.
3. **They are redeemable at par**, meaning they are accepted at their face value in redemption.
4. **Redemption is not restricted to a named beneficiary**, as such, they are freely and infinitely transferable among holders within the area of its influence.
5. **They contain credit risk** (and are exposed to payment system risk) that comes from a variety of sources, depending on the issuer's redemption commitments and the prevailing economic and political conditions. When such credit risk materializes, circulation at par may fail.

Given these characteristics, money usually circulates at par. However, par circulation does not define a monetary instrument per se. Rather, money is defined by what it is, a financial instrument with the previous characteristics; Par circulation emerges from these characteristics when the issuer fulfills its commitments, and the payment system works properly.

Table 1 below presents an assessment of instruments commonly regarded as money, based on the monetary characteristics outlined above and their potential sources of credit risk.

Table 1. Assessment of Potential Monetary Instruments Against Monetary Criteria

	1.Liabilities	2.Redeemable on demand	3.Redeemable at par	4.Redemption not restricted to a named beneficiary	5.Potential sources of credit risk	**Result**
Unconvertible (Fiat) Government note, coin, CBDC	O	O	O	O	Political	**Money**
Convertible Government note, coin, CBDC	O	O	O	O	Political and Conversion	**Money**
Bank deposit	O	O	O	O	Minimum Conversion and Solvency (due to regulations and Gov's supports)	**Money**
Bank deposit under Free Banking Era	O	O	O	O	High Conversion and Solvency (due to lack of regulations and Gov's supports)	**Money**
E-money	O	O	O	O	Limited Conversion and Solvency (due to regulations)	**Money**
Repo	O	X	O	X	Limited Conversion and Solvency (due to de facto Fed support)	**Not Money**
MMF	O	O	O	X	Limited Conversion and Solvency (due to de facto Fed support)	**Not Money**
Bitcoin	X	X	X	O	None	**Commodity**
Stablecoin	O	O	O	O	High Conversion, Solvency (due to lack of regulations and Gov's supports)	**Money**
Stablecoin under the GENIUS Act	O	O	O	O	Limited Conversion and Solvency (due to regulations)	**Money**

Are State-Issued Note, Coin, and Reserve Under Fiat Money System Considered Money?

Treasury under Fiat money system

Assets	Liabilities
	Coins
	United States Notes

Central Bank under Fiat money system

Assets	Liabilities
	Federal Reserve Notes
	Reserves

Notes and coins—often regarded as the paradigmatic forms of "money"—clearly have identifiable issuers: the central bank or the Treasury. They are recorded on the liability side of the respective balance sheets, not because they promise redemption into a higher-order financial instrument (which they do not), but because the government stands ready to accept them on demand at par in settlement of obligations owed to it or by converting them into another liability (reserve balances). Moreover, these instruments can be freely transferred among holders within their area of influence—typically the issuing government's territory.[5] In this respect, notes and coins fully satisfy the five core conditions of monetary instruments. Reserves function in a similar way, but they are held and used exclusively by commercial banks with master accounts at the central bank. In practice, notes and coins serve as the monetary instruments of the public—households and firms—while reserves serve as the monetary instruments of commercial banks. Taken together, all three—notes, coins, and reserves—constitute state-issued monetary instruments.

Unconvertible state-issued monetary instruments—shown as having no corresponding assets on the issuer's balance sheet are not free from credit risk. For example, the Zimbabwean government formally ceased to accept its own currency—initially in 2009, and again effectively in 2015—after its value collapsed due to hyperinflation. At that point, the public completely lost trust in the currency and turned to foreign currencies like the US dollar, South African rand, and

[5] The exception applies to dollarized countries, where the domestic currency is partially or fully substituted by a foreign currency, usually the US dollar.

others for all transactions, including tax payments. In several instances, monarchs who issued coins but failed to accept them in settlement of tax obligations severely undermined public trust (Taylor 1828). These coins were frequently melted down for their metal content, reflecting the vulnerability of monetary systems when not anchored by a credible and enforceable state commitment.

Are State-Issued Note, Coin, and Reserve Under Gold or Silver Standard Considered Money?

Central Bank (or Treasury) under Gold/Silver standard

Assets	**Liabilities**
Gold/Silver ingots	Convertible (gold/silver) notes/certificates
Gold/Silver coins	

Government-issued notes under the gold or silver standard satisfy the five conditions of monetary instruments. The key difference from one in a fiat money system is that these notes—whether issued by the central bank, such as the gold-convertible Federal Reserve Notes (until 1928), or by the Treasury, such as US Treasury Gold Certificates (until 1933) and Silver Certificates (until 1964)—were convertible on demand into gold or silver coins, or a specified quantity of gold/silver, as reflected on the issuer's balance sheet. This arrangement implied that state-issued notes under gold or silver standard carried a conversion risk. A contemporary analogue would be state-issued notes that promise on-demand conversion into a foreign currency at a fixed exchange rate.

A government can choose to close one or more of these redemption channels while keeping the notes in circulation. This was the case for silver certificates, which have not been convertible since 1968 and gold certificates (unconvertible since 1933). Although gold certificates can no longer be redeemed for gold, the remaining ones in circulation can still be exchanged for Federal Reserve notes and coins. Today, however, the government no longer makes the market for these certificates. As such, they are primarily used by bearers as collectibles items circulate according

to principles similar to commodities, with factors such as rarity, novelty, fad and fashion influencing their premium over face value:

> Although gold certificates are no longer produced and are not redeemable in gold, they still maintain their legal tender status. You may redeem the notes you have through the Treasury Department or any financial institution. The redemption, however, will be at the face value on the note. These notes may, however, have a "premium" value to coin and currency collectors or dealers. (US Treasury 2017)

Is Bank Deposit in the Modern Central Banking System Considered Money?

Commercial Banks

Assets	**Liabilities**
Coins	Demand deposits
Federal Reserve Notes	Savings deposits

A central feature of bank balance sheets is that the liabilities issued by private banks—most notably deposits—are money. Demand deposits and certain types of savings deposits are redeemable on demand, exhibit a high degree of transferability among holders, and possess three at-par redemption channels: (1) transfers between bank accounts are executed at par, (2) conversions into Federal Reserve notes and coins occur at par, and (3) debts owed to banks may be extinguished at par using deposit balances. Such par convertibility of bank credit into state money, however, is not a purely private achievement. It is made possible only through state-backed institutional arrangements that guarantee such convertibility (Wullweber 2019a, b). This capacity has been described as the “extraordinary legal privilege” (Ricks 2016) of private banks.

Confidence in bank-issued money is further reinforced by the central bank’s provision of both liquidity and solvency backstops. On the liquidity side, the central bank stands ready to supply funds to solvent banks against eligible collateral. In times of crisis, when depositors simultaneously demand state-issued money, the central bank assumes its role as lender of last resort, ensuring that banks can honor withdrawals and maintain par convertibility. The central bank also facilitates the smooth functioning of interbank payment systems and money markets, thereby enabling banks to manage day-to-day liquidity needs. On the solvency side, deposit insurance schemes guarantee retail deposits up to a certain threshold and historical precedent

demonstrates that these thresholds may be extended in systemic crises. Complementing these explicit guarantees are supervisory and regulatory frameworks, including capital adequacy standards, liquidity requirements, and, at times, credit guidance, all of which limit bank leverage and profitability in exchange for stability. The Treasury has also relied extensively on the private banking system, with the central bank guaranteeing par movement of funds between the Treasury's accounts at commercial banks and at the central bank. Together, these measures mitigate the inherent credit risk of bank-issued monetary instruments, strengthen public confidence in them, and thereby promote their widespread use by households and firms as a generally accepted medium of exchange within the national territory.

Is Banknote issued during the Free Banking Era Considered Money?

Banks during the Free Banking Era

Assets	**Liabilities**
Gold or Silver coins	Banknotes
	Demand deposits

In the US Free Banking Era (1837–63), entry into banking business was relatively easy and more than a thousand banks issued their own banknotes, which circulated alongside—and increasingly displaced a bewildering assortment of foreign and domestic coins (Eichengreen 2019; Bordo 2021; Gorton and Zhang 2023). Although these notes formally promised on-demand redemption at par and were widely transferable within their region—features that qualify them as money—many banks struggled to honor redemption, especially during runs when simultaneous demands for specie exceeded reserves, or when banks were undercapitalized or engaged in fraudulent practices, as in the case of many "wildcat banks." In the absence of comprehensive federal regulation, supervision, or support, the fair value of each bank's notes depended largely on the perceived solvency and reputation of the issuing institution.

As a result, these notes did not consistently circulate at par across regions or over time. Discounts were common and varied with both distance and the perceived creditworthiness of the issuing bank, since redemption required physical transport and information about a distant bank's solvency was limited. For instance, a note issued by a Tennessee bank might trade at a 20 percent

discount in Philadelphia (Gorton and Zhang 2023). Banknote reporters regularly published such discounts, allowing merchants and households to assess the relative credibility of different notes. Well-capitalized and reputable banks saw their notes circulate close to par, while smaller or more remote banks faced steep markdowns, and notes from insolvent banks could become worthless altogether. Nonetheless, some regional private arrangements—most notably the Suffolk Banking System in New England—successfully promoted the circulation of country-bank notes at par (Rolnick, Smith, and Weber 2000).

In retrospect, the Free Banking Era underscores the precarious nature of private monetary instruments, which always carried the risk that the issuer could no longer honor on-demand, par redemption due to solvency or conversion issues. During this period, banknotes did not contain Gary Gorton's (2024) "no-questions-asked" principle, but were claims whose acceptance required continual assessment of issuer-specific risk. By contrast, modern bank deposits, though privately issued, carry minimum credit risk, as explained previously. The lack of general acceptance for freely issued private notes was a central motivation behind the National Banking Acts of 1863 and 1864, which standardized the national currency, established federal regulation and oversight, and ultimately led to the creation of the Federal Reserve in 1913.

Is E-money Considered Money?

E-money Issuers

Assets	**Liabilities**
Demand deposits	E-money

In recent years, retail payment systems have undergone rapid innovation, with the rise of various forms of electronic money (e-money) across both advanced and emerging economies. These instruments facilitate everyday transactions for consumers and businesses by offering digital alternatives to cash and bank deposits. E-money can be defined as a stored monetary value represented by a claim on an issuer, with records of funds held on a prepaid card, mobile phone, or other electronic device, and accepted by parties other than the issuer as a means of payment (Huang et al. 2024). This stored value constitutes a legally enforceable claim on the e-money

provider, redeemable in full on demand and highly transferable among its user—features that qualify e-money as a monetary instrument.

Prominent examples of e-money platforms include Alipay and WeChat Pay in China, M-Pesa in Kenya, GCash in the Philippines, and PayPal, Venmo, and CashApp mainly in the United States. Typically, e-money platforms link to a user's bank account or card, enabling electronic transfers through a mobile app or website. Consumers initially acquire e-money balances from an issuer using bank money. These balances can then be used to make purchases or transfer funds to other users—typically via the recipient's phone number, email address, or username—who may, in turn, redeem the funds with the issuer. These systems facilitate instantaneous peer-to-peer transfers and extend payment access to underbanked populations.

From a regulatory perspective, there are no globally harmonized standards governing electronic money issuers (EMIs/Fintech), but most jurisdictions have developed robust legal frameworks requiring licensing and prudential compliance (IMF 2021). Typically, EMIs guarantee redemption at par: for every unit of e-money issued. Doing so, the issuers must hold an equivalent amount of safe and liquid assets (usually deposits in regulated banks or short-term government securities). Unlike banks, EMIs are prohibited from lending these funds, and customer assets are generally held in segregated accounts, insulated from the issuer's proprietary funds. Safeguards may also include insurance policies or bank guarantees to protect customer claims in case of insolvency. Importantly, while e-money balances are fully backed and ring-fenced from creditors in bankruptcy, they are not covered by conventional deposit insurance (e.g., FDIC in the US or FSCS in the UK) unless the EMI operates in partnership with a licensed bank. Furthermore, in the event of an issuer's bankruptcy, access to funds may be temporarily delayed—often longer than in traditional bank failures—and administrative or legal costs could reduce the effective value of balances. Overall, e-money carries lower credit risk than unregulated private monies, thanks to strict state regulation and supervision, but it still does not offer the full security or institutional backing provided to insured bank deposits or state-issued currency.

Is Shadow Money Considered Money?

The cases of private monetary innovation are commonly captured by the concepts of shadow money and shadow banking. In this analysis, we employ both terms in accordance with the shared elements found across existing definitions. Shadow money is typically defined as a category of financial instruments that, similar to bank deposits, are redeemable at par—either on demand or near on demand for bank money, thereby functioning as private substitutes for traditional bank deposits (Murau 2017; Claessens and Ratnovski 2014; Adrian and Ashcraft, 2012). Crucially, these instruments are issued by private financial actors operating outside the scope of traditional banking licenses and are therefore neither subject to conventional banking regulation nor supported by public guarantees (see, for example Nesvetailova 2015; Pozsar 2014).

While there is ongoing debate among scholars regarding the specific instruments that meet these criteria, there is broad consensus that repurchase agreements (repos) and shares in money market funds (MMFs) qualify (FSB, 2011; Gabor and Vestergaard 2016; Menand 2022; Murau 2017; Pozsar 2014; Ricks 2012). In the following sections, we examine whether repos and MMF shares can be classified as money from a Chartalist perspective, and we analyze how state backstops mitigate the credit risk of these instruments during periods of financial distress.

Is Repo Considered Money?

Shadow Banks

Assets	**Liabilities**
Collateral (Treasuries)	Repos

A repurchase agreement (repo) is fundamentally a short-term (typically overnight) collateralized loan. In a typical repo transaction, one party sells a security—usually a government bond—with an agreement to repurchase it at a slightly higher price at a later date. The price differential represents the interest on the loan. Repos are normally initiated by financial institutions such as banks, dealer banks, or hedge funds that require short-term liquidity. On the other side of the

transaction are MMFs, pension funds, insurance companies, corporations, and other institutional investors with surplus cash. These institutions provide funds in exchange for collateral, thereby acquiring a claim backed by high-quality securities. Although most repos mature overnight, they are frequently rolled over on a continuous basis until one party chooses to terminate the arrangement. In this sense, repos function as an ongoing financing mechanism for the issuer, akin to a continuously rolled federal funds loan or a revolving credit card balance, albeit with the key distinction that repos are collateralized while those forms of credit are unsecured.

From a Chartalist perspective, repos are not monetary instruments. Although they are financial instruments, they are not redeemable on demand.[6] A repo holder cannot obtain immediate redemption; repayment occurs only at maturity, typically the next day in the case of an overnight repo. More importantly, repos are not transferable among holders. This limitation stems from their structure as bilateral contracts between specific counterparties—usually an issuer/borrower and a bearer/lender—each bound by contractual obligations such as the promise to repay cash and the promise to sell the underlying security (Pozsar 2014; 2015). Redemption is therefore legally tied to the named counterparty, meaning a holder cannot simply transfer a repo position to another party without the formal consent of the other original party (issuer).[7] Although the collateral may be transferable, the repo contract itself is typically not.

The issuer's capacity to raise funds through a repo contract depends on the quality of the collateral and on broader macroeconomic conditions. In the shadow banking system, collateral functions analogously to deposit insurance in the regulated banking sector (Gabor and Vestergaard, 2016). However, where deposit insurance is a state-backed guarantee, collateral is subject to market valuation. In normal times, this distinction may appear negligible, particularly when collateral is marked to market and widely accepted. In periods of financial stress, however, the difference becomes critical. Declining collateral values precipitate margin calls, forced fire sales, and a feedback loop of falling prices and vanishing liquidity. This dynamic became evident

[6] For the same reason, bills of exchange—which circulated widely as a medium of exchange in Europe from the twelfth century onward—do not qualify as monetary instruments, because they carry non-zero term to maturities.

[7] If a repo position is transferred, it must be done through a novation. This requires all three parties—the original issuer, the original bearer, and the new bearer—to agree, after which the old contract is terminated and a new one is created with the incoming party.

during the 2008 financial crisis, when the Federal Reserve was compelled to extend liquidity support directly to repo issuers —mainly primary dealers—thereby stabilizing repo claims and halting destabilizing fire sales. This policy response was subsequently institutionalized in 2013 when the Federal Reserve established a permanent overnight repo facility (Federal Reserve, 2015), and it was reaffirmed during the 2020 COVID-19 crisis through larger and more comprehensive market support. As a result, holders of repos today face comparatively limited credit risk, largely reflecting Federal Reserve's de facto backstopping of the market. The necessity of such intervention reinforces the conclusion reached by Gorton and Metrick (2012): like the traditional banking system, the shadow banking system ultimately requires state support in times of crisis.

Is Money Market Fund Share Considered Money?

Money Market Funds

Assets	**Liabilities**
T-bills/CPs/repos	MMF shares

A Money Market Fund (MMF) is a type of mutual fund that invests in short-term, high-quality debt instruments. These funds raise capital by issuing shares to investors, pooling their cash into a single portfolio. The fund manager then allocates these funds across a range of low-risk, short-duration assets, including Treasury bills, commercial paper, certificates of deposit, repurchase agreements (repos), and the Federal Reserve's overnight reverse repo facility (ON RRP). In a typical arrangement, investors purchase shares in MMFs in a manner comparable to depositors placing funds in demand deposit accounts. However, unlike other mutual funds, MMFs generally aim to maintain a stable net asset value (NAV) of $1.00 per share, redeemable on demand. This structure allows investors to withdraw funds at par, plus any accrued yield, making MMFs functionally similar to deposit accounts in normal market conditions. MMFs are key lenders in repo markets, providing short-term funds to banks and dealers in exchange for collateral. In this role, they have become an integral part of the shadow banking system, facilitating the flow of trillions of dollars between savers, financial institutions, and the Federal Reserve.

Despite the MMF promise to redeem at par on demand, they are not monetary instruments, primarily because they are not transferable among holders. Redemption is restricted to the named beneficiary—the registered owner of the MMF shares. Although MMF shares can be legally and operationally transferable, doing so requires administrative steps such as re-registration or gifting, which involve clearing and settlement through financial intermediaries and therefore take time. In this respect, they resemble repos, which cannot be "passed around" in payment systems.

The ability of MMFs to redeem shares at par on demand depends critically on the quality and liquidity of the underlying assets. MMFs are vulnerable to runs, a phenomenon referred to as "breaking the buck"—which occurs when the fund's NAV falls below $1.00. If the share price deviates significantly (typically by more than 0.5 percent) from the $1.00 peg, investors may no longer be able to redeem one share for one dollar. In September 2008, the Reserve Primary Fund broke the buck after Lehman Brothers' bankruptcy, triggering panic-driven redemptions of roughly $400 billion—about 14 percent of prime institutional MMF assets—in one week. Investors feared late redeemers would bear losses after early withdrawals exhausted the most liquid assets, a dynamic identical to pre–deposit insurance bank runs. Because MMFs hold short-term securities rather than cash, mass redemptions force fire sales that amplify liquidity stress. To prevent systemic collapse, the Treasury temporarily guaranteed MMF shares while the Federal Reserve provided emergency liquidity—measures analogous to deposit insurance and lender-of-last-resort support. This fragility reemerged in March 2020, prompting the Fed to establish the Money Market Fund Liquidity Facility. Overall, MMFs—like repos—remain structurally prone to runs, with on-demand par redemption effectively contingent on implicit public backstops.

Is Bitcoin Considered Money?

While the bearers of bitcoin are clearly identifiable, the question arises: who is the issuer? Unlike state, bank or any other money, bitcoin is not issued by a sovereign state, central bank, or other formal institution.[8] Crucially, cryptoassets are designed precisely to *not* constitute a liability of

[8] Most investors do not hold cryptoassets directly but instead deposit them with centralized exchanges (CEXs) through custodial accounts—such as those offered by Coinbase and Binance—rather than maintaining assets in non-custodial (self-custody) wallets and transacting on decentralized exchanges (DEXs). When an investor exchanges dollars for bitcoin and subsequently deposits that bitcoin into a CEX account, the investor no longer holds the

any issuer (Fantacci 2019; Nakamoto 2008). This commitment to so-called "debt-free money" poses an explicit challenge to the Chartalist approach to money, which conceptualizes all monetary instruments as embedded in credit–debt relations, supported by trust in the issuer. By contrast, bitcoin represents a deliberate attempt to establish "trustless" money—a fungible medium not reliant on institutional guarantees from banks or governments. Unfortunately, this objective is entirely unrealistic. Cryptoassets and decentralized finance (DeFi) have evolved in ways that require users to place trust in a complex constellation of actors, including internet service providers, core software developers, miners or validators, wallet providers, exchanges, stablecoin issuers, price oracles, client API providers used to access distributed ledgers, and concentrated holders of governance tokens (Allen 2023). In this sense, DeFi does not so much eliminate financial intermediation as much as replace trust in regulated banks with trust in a new set of intermediaries that are often opaque, unidentified, and unregulated.

The absence of an issuer who is obligated to redeem bitcoins mean that they are irredeemable and, given that they pay no income, their fair price is zero BTC (the blockchain forces its user to trade it at 1 BTC so instead this zero fair price is expressed through a highly volatile foreign exchange rate) (Tymoigne 2013). This feature disqualifies bitcoin from satisfying the conditions of monetary instruments: it contains no promise from anyone and thus cannot be regarded as a financial instrument or, by extension, a monetary instrument. For the same reason, bitcoin carries no credit risk, as it is not a claim on any counterparty and entails no obligation to perform. Instead, bitcoin resembles a virtual commodity. Like gold or silver, its creation involves "mining"—albeit through cryptographic processes rather than physical extraction. Since cryptoassets are not issued by any entity, no balance sheet of an issuer can be drawn. They exist only as assets to their holders, similar in this respect to precious metals. Moreover, unlike commodity or commodity-backed money, cryptoassets are not backed by tangible or financial assets.

bitcoin itself but instead holds a claim on bitcoin. In effect, the exchange issues debt denominated in bitcoin: the CEX creates highly liquid, deposit-like liabilities that represent promises to deliver bitcoin on demand. Even if such bitcoin-denominated claims are, under normal conditions, redeemable into on-chain bitcoin, they do not entail any promise of conversion at a stable or predictable exchange rate—let alone at par—into sovereign money. For this reason, a bitcoin claim is not a financial instrument, as the promise it embodies is not financial.

Nevertheless, cryptoassets can, in limited contexts, serve as medium of exchange. With the improvement of payment system, one can easily imagine that households will save in bitcoin due to its potential for appreciation and purchase, in particular, big-ticket items such as houses and cars with it as long as sellers are willing to accept them. In addition, it can be used for international transactions thanks to its no cross-border limitations. From a Chartalist perspective, however, bitcoin transactions are *in-kind* payments or barter, facilitated by blockchain technology. Such an in-kind payment is, however, within the realm of commodities, not monetary payments, which is within the realm of finance. Importantly, while cryptoassets fail to provide a credible alternative to established forms of money, the underlying blockchain technology has potential applications far beyond its original purpose of supporting decentralized currency (Panetta 2021).[9]

Is Unregulated Stablecoin Considered Money?

Stablecoin issuers

Assets	**Liabilities**
T-bills/CPs/repos/MMFs/cryto assets	Stablecoins

Stablecoins are privately issued digital financial instruments designed to replace bank money, with each token ostensibly backed by safe, liquid assets. Like e-money, stablecoins promise full and stable convertibility into bank money. However, they differ in important respects. The unit of account for stablecoins has a different denomination from sovereign currency; the payment mechanism is token-based, and in some cases pseudonymous, akin to cash transactions conducted outside the direct oversight of banks or central banks.[10] Their use has, to date, been

[9] Blockchain technology can enhance supply chain traceability by enabling a transparent, tamper-resistant, and real-time ledger that records each stage of a product's movement from origin to final delivery and is accessible to authorized stakeholders. Beyond supply chain management, blockchain has broader applications, including the implementation of smart contracts, asset tokenization, digital identity verification, and the secure management of healthcare data.

[10] A stablecoin is token-based when held in non-custodial wallets (e.g., Uniswap), meaning that ownership and transfer are determined by control of a blockchain-based token rather than by an intermediary updating an account ledger. In this respect, token-based stablecoins are functionally analogous to physical cash, as they enable peer-to-

concentrated primarily within digital asset trading platforms. Within these ecosystems, they facilitate trading, lending, and borrowing across DeFi platforms, and serve as a bridge across disparate blockchain environments. More importantly, stablecoins aim to reduce volatility and thereby enable transactions that connect the "crypto sphere" with the "real world" (Fantacci and Gobbi 2024). While their present use is largely confined to digital asset markets, policymakers have noted their potential to expand into everyday transactions in the future (Brainard 2022).

Stablecoins are distinct from cryptoassets such as Bitcoin and Ethereum. Cryptoassets are characterized by high volatility, with values capable of rising or falling by double-digit percentages over short periods. Stablecoins, by contrast, are designed to maintain a fixed foreign exchange rate, typically at par with a national currency; approximately 98 percent of global stablecoins are pegged to the US dollar (Pearl and Kumar, 2025). While cryptoassets lack asset backing, USD-referenced stablecoins such as Tether (USDT), USD Coin (USDC), BUSD (Binance USD) are supported—at least in principle—by reserves of safe assets, including short-term US Treasury securities, which are meant to enhance their credibility.

Consider an investor purchasing bitcoin. The investor typically transfers dollars from a bank account to that of a stablecoin issuer, which then invests those funds in a portfolio of reserve assets. In return, the issuer creates and delivers an equivalent amount of stablecoins, backed by those reserves. These stablecoins can subsequently circulate within digital asset markets and are eventually redeemed for bank money, extinguishing the issuer's outstanding liability. From a Chartalist perspective, stablecoins are monetary instruments, as they are issuers' liabilities accompanied by commitment to par redemption in bank money and exhibit a high degree of transferability, including across borders.[11]

peer transactions without reliance on traditional financial institutions. By contrast, bank deposits and central bank reserves are account-based, with ownership recorded and maintained on the balance sheets of trusted institutions, such as commercial banks or central banks. Moreover, stablecoins held in non-custodial wallets and transferred directly on public blockchains exhibit pseudonymity, in contrast to stablecoins held and transacted through centralized exchanges (e.g., Coinbase), where user identities are typically known and verified.

[11] Stablecoins account for approximately 3 percent of all cross-border monetary transfers (Marple, Bushmeneva, and Arif 2025).

The credibility of stablecoins hinges on the adequacy and liquidity of their reserve assets, which are often only partially liquid. Fiat-backed stablecoins typically hold diversified portfolios that include government bonds, commercial paper, repos, access to the Federal Reserve's overnight reverse repo facility, money market fund shares, precious metals, secured loans, cryptoassets, and other comparatively illiquid investments, rather than cash alone (Barthelemy, Gardin, and Nguyen 2021; Liao and Carmichael 2022). For example, Circle reported that only 61 percent of USDC reserves were held in cash or cash equivalents, while Tether has at times held less than 5 percent of its reserves in cash and US Treasuries. This reserve composition creates maturity and liquidity mismatches, and because stablecoins remain largely unregulated and uninsured, they are particularly vulnerable to runs when confidence in issuers deteriorates. Such runs—whether triggered by cyberattacks, declines in reserve asset quality, flaws in the smart contracts underpinning decentralized stablecoins, or broader doubts about issuer credibility—can force fire sales of assets, depressing their prices and converting liquidity stress into solvency problems (Allen, 2023; Landau, 2021). Consequently, stablecoins face a heightened risk of default. This fragility closely parallels, as discussed before, that of nineteenth-century US free banking. Indeed, stablecoins have at times suspended redemptions or traded below par ("broken the buck") during periods of stress, as observed with USDT in May 2022 and USDC during the 2023 Silicon Valley Bank failure. These episodes underscore stablecoins' inability to reliably satisfy the monetary principle of instantaneous par convertibility.

Is Stablecoin Under the GENIUS Act Considered Money?

Payment Stablecoin issuers

Assets	**Liabilities**
T-bills	Stablecoins

The original vision of crypto enthusiasts—a fully decentralized system operating without intermediaries or government involvement—has given way to a far more modest framework that depends on government oversight and the legal enforcement of property rights. In practice, stablecoins have faced significant vulnerabilities due to weak regulatory oversight and limited transparency, exposing them to runs when investors' confidence in issuers' management of

reserves falters (PWG 2021; Allen 2022; Azar et al. 2022). In response, the GENIUS Act (Guiding and Establishing National Innovation for US Stablecoins Act), enacted in July 2025, provides the first comprehensive US federal framework for payment stablecoins. It mandates full 1:1 backing by high-quality, liquid assets (e.g., state-issued monetary instruments, bank deposits, short-term Treasuries, MMF shares, or repos), monthly public disclosure of reserves, and licensing of issuers under federal or state supervision depending on size. The Act also establishes compliance standards, including segregated, bankruptcy-remote reserves, CEO/CFO and PCAOB attestation, and regular regulatory examinations.

With the enactment of the GENIUS Act, US dollar–pegged stablecoins transition from largely unregulated instruments to formally regulated monetary instruments. The requirement that stablecoins be backed by highly liquid, low-risk reserve assets tied directly or indirectly to the US government or the insured banking system is expected to mitigate some of the associated credit risk, although it stops short of guaranteeing par convertibility among different stablecoins. As a result, the legislation has the potential to expand the area of general acceptance of these monetary instruments beyond US borders. In this context, stablecoins may increasingly function as a parallel currency, especially in developing countries with high inflation rates, unstable currencies, and unreliable banking and payment systems. Such developments could pose challenges to financial stability and to central banks' authority and control over the domestic economy, and would reinforce the global demand for USD.[12] In developing economies, partial or full substitution of local currencies with stablecoins may generate dynamics similar to those associated with dollarization (e.g., Bradbury and Vernengo 2008; Landau 2021, 15).

The GENIUS Act, however, does not fully eliminate the inherent limitations discussed in the previous section. Stablecoins are expected to face a residual risk of destabilizing runs triggered by liquidity shocks to their reserve assets. Although the new regulatory framework may substantially reduce the probability of such events, this vulnerability persists, as illustrated by the severe strains experienced even in the US Treasury market during the March 2020 "dash for

[12] Because most stablecoins are denominated in distinct units of account and backed by offshore reserve assets, their circulation bypasses domestic banking systems and payment infrastructures, thereby reducing central banks' control over liquidity conditions and monetary policy transmission.

cash." During the early stages of the COVID-19 pandemic, investors rushed to liquidate US Treasuries to obtain cash, causing prices to fall sharply and market liquidity to evaporate. Restoring market functioning required large-scale Federal Reserve purchases of Treasury securities. Although holding Treasuries indirectly links stablecoin issuers to markets in which the Federal Reserve acts as dealer of last resort, access to this backstop remains indirect and contingent on broker-dealer intermediation (Samuel et al. 2025). Consequently, the effective liquidity of stablecoin reserves is constrained by intermediary capacity, and issuers are not assured liquidity support because they lack direct access to the Federal Reserve as lender of last resort.

Despite these risks, the GENIUS Act does not require regulators to impose capital requirements on payment stablecoin issuers. Even where regulators choose to do so, any such requirements are capped at a level deemed "sufficient to ensure ongoing operations" (Sec. 4(4)(A)(ii)) (Cecchetti and Schoenholtz 2025). In the absence of meaningful capital buffers to absorb potential losses, it is likely that stablecoins remain information-sensitive assets, subject to bearers' scrutiny during periods of financial stress or when doubts arise about the quality or liquidity of their collateral; in this sense, stablecoins under the Act remains vulnerable to run and potential demonetization, rendering them riskier than—and inferior to—FDIC-insured bank deposits.

Is CBDC Considered Money?

Central Bank

Assets	**Liabilities**
	Federal Reserve Notes
	Reserves
	CBDCs

Although strict regulation and full reserve backing can mitigate the most aggressive forms of stablecoin issuance, their deployment still poses some structural and policy challenges. Over the past two decades, the US government—through the Federal Reserve, the Treasury, or both—has intervened twice to backstop repos and MMFs, despite their lack of formal access to the lender

of last resort (Cecchetti and Schoenholtz 2021) as discussed above. What, then, would prevent a similar intervention in the event of distress at a widely used stablecoin issued by a systemically important entity—especially if the issuer were able to privatize gains while socializing losses, thereby creating moral hazard? Moreover, even in a worst-case scenario in which government intervention becomes unavoidable, the central bank's capacity to act as a lender of last resort would remain constrained, especially in a financial system dominated by privately issued stablecoins denominated in distinct units of account (Díez de los Ríos and Zhu 2020). These concerns have fueled rising interest in the development of central bank digital currencies (CBDCs), which do not entail conversion risk.[13]

A CBDC can be viewed as a public-sector analogue to stablecoins. While it may not fully replace physical cash, it would likely circulate alongside it, with both individuals and firms using either form interchangeably. The central bank would facilitate one-to-one convertibility between cash and CBDC, making the total monetary base (excluding reserves) the sum of physical currency and CBDC. CBDC differs fundamentally from existing retail monetary instruments—such as bank deposits and e-money—in that it constitutes a direct claim on the central bank, rather than on a private financial institution. Like coins, Federal Reserve Notes, and reserve balances, CBDC would not be a private liability. Because it would be accepted immediately at par by both the central bank and the Treasury through established redemption channels and would exhibit a high degree of transferability, a CBDC would satisfy the full set of conditions required of a monetary instrument.

There are two primary models for the implementation of CBDC, each with different implications for the role of commercial banks and the central bank. Under the first model, the central bank issues CBDC to private financial institutions—such as Bank of America or Wells Fargo—rather than directly to the public. Individuals and firms interact solely with these intermediaries: they can deposit and withdraw funds in either physical cash or CBDC, and choose between the two

[13] Initial motivations for CBDCs stem from concerns about the gradual decline of physical cash (Landau 2021; Panetta 2021b). The expansion of e-commerce, changing consumer payment habits—particularly the widespread adoption of mobile payment applications—and the COVID-19 pandemic have all accelerated the shift away from banknotes toward electronic payments. In this context, CBDCs are often framed as the natural evolution of cash in a digital economy, functioning as its digital equivalent as physical currency use diminishes (Meaning et al. 2018).

when making withdrawals. The central bank stands ready to convert cash into CBDC (and vice versa) for the banks, but it does not interface directly with end users. This model closely resembles the current structure of cash distribution, with CBDC functioning as a digital equivalent of physical currency. Retail payments using CBDC would be processed through commercial banks or bank-operated mobile apps, with banks maintaining transaction records, just as they do today. Under the second design option, individuals and firms are permitted to open accounts directly with the central bank. These accounts would allow them to deposit, hold, and withdraw both CBDC and physical cash. In this case, the central bank assumes responsibility for transaction processing and record-keeping, functions traditionally performed by commercial banks. A key motivation behind this model is to enhance financial inclusion, particularly for the unbanked or underbanked populations, by providing direct access to safe, affordable, state-backed digital money.

The area of general acceptance of CBDCs depends critically on the development of a globally interoperable, blockchain-based infrastructure. While CBDCs offer significant efficiency gains for cross-border payments—particularly in complex global supply chains—most initiatives in advanced economies focus on wholesale and cross-border use rather than retail adoption. Given the already strong foreign demand for US paper currency, the international rollout of CBDCs could amplify capital flows from less stable jurisdictions to perceived safe havens, expanding the area of general acceptance of CBDCs issued by recipient countries.

CONCLUSION

This paper has examined a wide spectrum of instruments commonly described as money—ranging from state-issued notes, coins, reserves, and prospective CBDC to bank deposits, e-money, repos, MMF shares, bitcoins, and stablecoins—through a Chartalist lens. Chartalism emphasizes that money is fundamentally a negotiable financial instrument: its value derives not from physical composition, but from the explicit or implicit promise of an issuer to redeem it on demand at face value. Historically, the credibility and general acceptance of monetary instruments have depended on three interrelated factors: the issuer's creditworthiness, the

robustness of redemption channels, and the efficiency of the payment system in which the instrument circulates.

From this perspective, shadow banking instruments such as repos and MMF shares do not qualify as money because they are not easily transferable among bearers. Likewise, cryptoassets such as Bitcoin and Ethereum are not monetary instruments, as they are not financial claims on an issuer but resemble commodities whose valuation is detached from any redemption promise.

State-issued notes, coins, and reserves exemplify the defining features of monetary instruments. They are liabilities of the state that are accepted on demand at par—most notably through taxation—and circulate within the state's area of political and economic influence under enforceable legal and institutional frameworks. Although such instruments are not free from risk—most notably political risk—their credibility rests on the state's capacity and willingness to uphold redemption commitments. Where state-issued money is convertible into a commodity or foreign currency, additional conversion risk is introduced into the credit risk.

Privately issued monetary instruments, by contrast, are inherently exposed to solvency risk: issuers must remain financially sound to honor their redemption promises. Modern bank deposits represent a special case in which private money is embedded within a dense framework of state regulation, deposit insurance, and central bank liquidity support. These institutional arrangements sharply limit both solvency and conversion risk, enabling bank deposits to circulate at par with state money. Historical free-banking notes and unregulated stablecoins, by contrast, are highly susceptible to runs and demonetization, reflecting elevated solvency and conversion risks. This fragmented structure highlights the fragility of a monetary system based on private promises without state guarantees or oversight**.** E-money and stablecoins regulated under the GENIUS Act occupy an intermediate position: strict reserve requirements and supervisory oversight substantially reduce credit risk, though they do not eliminate it entirely.

Stablecoins nonetheless exhibit a higher degree of transferability than bank deposits or state money. As token-based instruments circulating on open, global payment rails, they can be transferred peer-to-peer across borders, platforms, and jurisdictions without reliance on

correspondent banking networks or settlement delays. This expands their potential area of circulation, even as their higher credit risk due to lack of direct access to public backstops limit their reliability relative to insured bank deposits or state-issued currency. As past interventions in the shadow banking sector demonstrate, governments may ultimately be compelled to mitigate the residual risks of widely used private monies, raising concerns about moral hazard.

CBDCs represent the latest evolution of monetary instruments. By combining the safety of direct claims on the central bank with the efficiency of modern payment systems, they have the potential to broaden their general acceptance not only domestically but potentially internationally.

Overall, the analysis reinforces a central Chartalist insight: money is not defined by its material form or technological platform, but by the financial promises embedded within legal and institutional structures that ensure redemption and transferability. Whether physical, electronic, or tokenized, the authority, credibility, and commitment of the issuer remain the cornerstone of any effective monetary instrument—and of any durable monetary system. This has important policy implications for the setup and management of monetary systems.

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