

The Characteristics of Money

Richard “Chip” Peterson, PhD(Economics) and Emeritus Professor of Finance and Former Holder of the Briscoe Chair of Bank Management, Texas Tech University, Feb. 2024

Money is best characterized as an “asset” that can be owned by a person and used as a “GENERALLY ACCEPTABLE MEDIUM OF EXCHANGE” with others. Precious metals have often performed this function since they are pretty and durable and can have ornamental uses that are easily recognized by others. However, other items have often had this function over the millennia. Native Americans exchanged “wampum,” often made from the pretty shells of aquatic mollusks. Prisoners in WWII concentration camps often used individual cigarettes received in aid packages as money to facilitate exchanges with other prisoners. During the bronze ages, some Scandinavians used large ingots of copper as money to facilitate exchanges because copper had many valuable uses at that time. Nomadic societies have often exchanged ownership rights to cattle or other livestock to facilitate transactions, such as marriage arrangements. To the extent that the “money” used to facilitate exchanges is DURABLE and retains its value it can also be used as a “STORE OF VALUE”. If the money is EASILY DIVISIBLE as well as “durable,” in the sense that it GENERALLY HOLDS ITS VALUE OVER TIME, it can also be used as “A UNIT OF ACCOUNT.”

Traditionally, asset based money has been acceptable as a medium of exchange because it has a physical form that many people value (such as gold or silver or cigarettes, etc.) or that they expect others to value for exchange purposes. In the past governments coined money out of precious metals and guaranteed their value by minting coins of equal weight and purity. However, governments being governments, many eventually abused their powers and “debased” their currencies by replacing some of the precious metal with base metals—thus pure gold coins began to contain more copper content, while maintaining their weight. Others “clipped” the edges of the coins or filed off some of the precious metals so they contained less of the precious metal than they originally had. As a result, people who accepted precious metal based coins in exchange had to spend some time and effort establishing the purity of the coins and their true weight before entering into exchange transactions. Consequently, governments passed laws against “counterfeiting” that prohibited private debasement of public coins or false replicas of the coins they minted. These private security measures raised the cost of transacting with such coins and reduced their relative attractiveness as media of exchange.

Private IOUs could be used to facilitate exchanges as long as people knew that the originator of the IOU would keep his or her promise to redeem the IOU for something of value (often precious metals) as agreed at some future point in time. Often people would store precious metals with goldsmiths or silversmiths who had secure storage facilities and would receive an IOU in return. If the IOU were for a standard value—such as certain amount of gold or silver coins—others might accept the IOU of a trusted merchant in exchange without first requiring that the IOU be redeemed for the physical coins. Thus, paper IOUs of trusted merchants began to be accepted as media of exchange.

This process led to the development of the banking industry. Trusted institutions began to issue notes (IOUs) that specified that the issuer would redeem the note for a stated amount of coins—often on demand. Over time, the fledgling “bankers” realized that not everyone would demand their coins back at the same time and that people would generally accept an equal value of coins for the ones they had deposited even if the coins were not the same. Thus, the “bankers” began to issue IOUs in the form of bank notes that allowed depositors to demand an equal value of precious metals for the ones they had deposited. If the IOU (banknote) issuer were trusted, people would accept the banknotes in exchange in lieu of the physical cash that they represented. Since it was easier to transact with paper banknotes than with physical coins that could be counterfeited, people began to accept banknotes in trade in lieu of cash. Originally, most banknotes specified an amount of precious metals or coin that could be received in return for the banknote when it was presented to the bank.

Clever bankers realized that not all depositors would want their precious items back at the same time. Thus, they found that they could lend some of their holdings temporarily to borrowers who were willing to repay the loans with interest. Consequently, many bankers found that they could issue more standardized banknotes than they held in precious metals. Thus, they could hold “fractional reserves” and lend notes promising to pay as much as ten times the amount of the value of precious metals that they held in their vaults. They could make more loans that way if they assumed that no more than 10% of the holders of their notes would want to redeem them at one time. They also might make some of their loans repayable on demand in case they felt they needed to obtain more cash quickly.

Prudent bankers tried to ensure that they always held sufficient cash and precious metals on hand so they could meet expected withdrawal demands. However, some bankers abused their fractional reserve abilities and were exposed to “bank runs” where suddenly they lost the trust of the public holders of their notes and everyone who held the notes wanted to redeem them at once. Since most loans could not be liquidated immediately, banks exposed to bank runs often failed and their banknotes became worth less than their face value --if they were worth anything at all.

In the U.S. during the free banking era from the mid 1830s until the Civil War, some bankers located “where the wildcats are,” in places that were hard for banknote holders to find if they wanted to redeem their banknotes for their promised value in precious metals. Because of this “wildcat banking era” people began to issue registers that assessed the relative value of notes issued by different banks. If a bank was not fully trusted, its banknotes would not be accepted at face

value, They would only be accepted at a discount. The discount would increase as the trustworthiness of the issuer decreased and as the difficulties associated with redeeming its notes at face value increased.

The National Banking Acts passed during the Civil War tried to ensure that banks held adequate reserves. It did so by requiring Nationally Chartered banks to hold reserves in the form of precious metals or U.S. Government securities to back their banknote issues. They also taxed the issuance of banknotes by state-chartered banks. These acts, in a way provided an incentive for banks to obtain national charters and, not coincidentally, increased the ability of the Federal government to sell debt to finance the Civil War. They also created an incentive for state chartered banks to issue “demand deposits” that could be transferred quickly by writing checks instead of issuing their own banknotes (which would be taxed) in exchange for deposits.

The National Banking Acts still didn't eliminate the potential for bank runs if people thought a bank held inadequate reserves or if people feared that the economy would decline and demanded to hold precious metals instead of bank notes or demand deposits in banks. Consequently, since the economy grew faster than the public's holdings of precious metals or Federal Debt after the Civil War, the U.S. Economy suffered several bank “panics” as people ran to the banks to withdraw their money during recessions. Consequently, major banking institutions that cleared funds among banks issued their own IOUs to facilitate check-clearing and related banking transactions. That was against the law since the IOUs functioned like bank notes but it mitigated the recessions.

As a result, after the panic of 1907, major banks advocated for a “lender of last resort” that could provide funding to otherwise solid banks that were experiencing a run while they liquidated their loans and assets in an orderly manner rather than through panic sales of their assets at large discounts. Thus, the Federal Reserve was authorized in 1913 to make “discount window” loans to provide liquid assets to member banks who were found to be otherwise sound and could post adequate collateral until they regained sufficient liquidity. The Federal Reserve was also empowered to issue Federal Reserve Notes that would be “legal tender for all debts public and private” to member banks. Federal Reserve notes were generally accepted by the public since they were legal payments in the eyes of the law and, most importantly, could be used to pay taxes. The Fed also held member bank deposits and cleared fund transfers among different banks. Fed member banks included all Federally chartered banks and state chartered banks that elected to buy stock in their local Federal Reserve bank and join the Federal Reserve System. Non-member banks could clear transactions through “correspondent banks” that were members of the Federal Reserve System.

Banks that wished to use the discount window would be carefully scrutinized by the Federal Reserve Banks before the loans were made so there was a bit of a stigma attached with borrowing at the discount window. Nonetheless, discount window loans provided an important source of liquidity to the banking system in general when it was running low on reserves as the public withdrew precious metal coins from their deposits at the banks. They could use discount window credit to obtain deposits at the Federal Reserve that they could transfer to other banks or withdraw as cash (usually in the form of Federal Reserve Notes), if needed.

The problem was that there was no statutory limit on how much credit in the form of bank deposits or Federal Reserve notes the Federal Reserve could issue. As a result, Federal Reserve credit obligations (often known as “high powered money” since they can be used as reserves to back deposits issued by commercial banks) have expanded greatly over the years—particularly in recent years. Since U.S. money has grown far faster than the amount of goods produced in the U.S., the price of goods has gone up. Thus, the value of the U.S. Dollar has fallen in terms of the amount of goods that can be purchased for one dollar—with one U.S. dollar purchasing less than 4% of the amount of goods that it could purchase before the Federal Reserve was formed.

Initially, U.S. Treasury currency issues and Federal Reserve Notes were theoretically backed by a given precious metal content. Until 1963, the U.S. treasury issued “silver certificates” that gave people the right to exchange those certificates for silver at the U.S. Treasury at a price of \$1.29 per ounce of silver. In addition, many coins issued by the U.S. Government initially contained silver worth 90% of the value of the coins if silver was priced at \$1.29 per ounce. For many years the U.S. was on a gold standard where gold had a value of slightly around \$22 per ounce and gold could be used to back bank obligations. That ended in 1933 when Franklin Roosevelt prohibited private ownership of gold and gold-backed obligations in the U.S. and then raised the gold price to \$35 per ounce—where it stayed until the 1960s. However, while private ownership of gold money was prohibited, gold continued to be held as an indirect backing for Federal Reserve Notes. The U.S. Treasury issued “gold certificates” that could be held by the Federal Reserve to back 10% of its issuance of Federal Reserve Notes. That ended in 1970 when President Nixon took the U.S. off the fixed price gold standard for international as well as domestic transactions. For many years the gold standard in the U.S. valued the dollar at slightly more than \$20 per ounce, which is the price Roosevelt paid to buy up privately held gold in 1933. When, shortly thereafter, he repriced gold at \$35 per ounce—he recorded a big gain for the U.S. treasury—and a loss for the public that had had to sell gold more cheaply. Gold remained near \$35 per ounce, rising only slightly until shortly before Nixon took the U.S. off the gold standard. As I write this, it is now worth over \$2,000 per ounce, or nearly 100 times as much as when the Federal Reserve was established.

Because the value of the U.S. Dollar has fallen greatly in terms of its purchasing power, many proposals have been made to provide a currency unit that would serve better as a store of value and generally acceptable medium of exchange. Proposals include returning to a gold standard, developing crypto currencies, and the origination of “central bank digital currencies.” Each approach potentially has several drawbacks. All except private crypto currencies would potentially suffer

from governmental interference that would potentially reduce their value as “money.” Even “crypto” currencies have suffered since, what was originally a good idea, has drawn the ire of government tax authorities and banking regulators. In addition, the present monetary system has some redeeming virtues that could be worth retaining provided that the government can restrain itself from continuously interfering in its operation—thereby reducing its appeal. The discussion below considers each alternative, starting with the present system.

THE PRESENT MONETARY SYSTEM

The present monetary system in the U.S. employs physical fiat currency issued in the U.S. That has value because the U.S. Government recognizes it as legal tender for paying debts and taxes so it is generally acceptable as a medium of exchange in the U.S. Also, because of the widespread use of U.S. Dollars internationally, dollars or dollar based currencies are also held as a medium of exchange in various foreign countries (such as Ecuador, Panama, etc.). In addition to physical currency, dollar denominated deposits held in U.S. commercial banks and related financial institutions that can be transferred on demand are also considered to be part of the U.S. M1 (basic) money supply. The Federal Reserve System has facilitated the transfer of money deposits among banks by providing a clearing system that qualifying institutions can use to transfer deposit obligations among themselves. In addition, banks have entered into many private clearing operations to transfer funds among themselves with net transfers being settled by transfers made among their deposits (or their correspondence banks' deposits) at the Federal Reserve. Many of the privately cleared transfers can be made more quickly and with less hassle through private clearing houses than if all transfers were made directly through the Federal Reserve for each individual transaction. In addition, major banks usually participate in the SWIFT system for international financial communication involving transfers of money balances among financial institutions across the world. Those transfers can be made very quickly at little cost as long as the member institutions have access to a mechanism for exchanging deposit balances among themselves either internally or across borders.

The present system for monetary exchanges has worked well but it has several limitations that have recently become more problematic. One problem is that in order to facilitate transfers, participating institutions must hold money balances in the monetary units that are to be exchanged. If the base monetary unit loses purchasing power quickly—as can happen with rapid inflation-- institutions will be more reluctant to hold and trade in that monetary unit as it will not function as well as a store of value.

Another problem is that for a monetary unit to function as a generally acceptable unit of exchange and store of value, it must be readily available to its owners for making all sorts of desired transactions. Lately, politicians have greatly interfered with this process. In Canada, the Prime Minister froze the bank accounts of all people in Canada who had contributed to the “Truckers' protest” against COVID restrictions that had been imposed by the government. Even though the affected people still nominally owned their bank accounts, where they had deposited their earnings in order to use them at some future point in time, their Canadian bank accounts were effectively seized by their government. Thus those deposits were effectively “stolen” by the government since they could no longer be used as a medium of exchange or store of value by their owners. A similar process has been increasingly used by the U.S. Government against foreign governments with which it had disagreements. Most recently, it denied Russians from using the SWIFT system to facilitate international exchanges of funds and currencies, many of which would have to use U.S. dollar deposits held at U.S. Banks or their subsidiaries. The U.S. Government has also frozen the accounts of people residing in Russia or selected foreign countries so they could not transact in U.S. dollars and would not have access to their deposits as a “store of value.”

As political restrictions have increasingly been imposed by U.S. government agents and politicians against governments and people with whom they had a dispute, the trust that others can have in the value of the US. dollar as a medium of exchange and store of value has been diminished. That trust has been diminished further by the fact that inflation in the U.S. has reduced the purchasing power of the dollar over time—thereby diminishing its long term value as a “store of value.”

CRYPTO CURRENCIES

Because of problems with fiat currencies in general, tech savvy investors developed an alternative system. Bitcoin is the first and best known of the crypto currencies. Crypto currencies have several advantages over traditional fiat currencies. First, they recognize valid owners of the currencies on multiple ledgers. Unlike a single bank account ledger that can be stolen or frozen by a politician or thief, the ownership is recognized in a multitude of places and all transactions are recognized only after members of the bitcoin “mining” community recognize that proposed transactions are being made by “legitimate” owners of legitimate ownership interests. Transfers are only approved if the owner can show he or she knows the proper codes to legitimize transfers of coins that have previously had their validity established by the “mining” community). Second, bitcoins were designed to maintain their value over time. Unlike fiat currencies that can be increased by the actions of politicians, bitcoins can only be increased by bitcoin “miners” who can solve increasingly difficult mathematical puzzles at increasingly great computational costs, with an upper limit on the amount of bitcoins that can be issued of approximately 21 million. Thus, if anything, because of limited potential supplies, the purchasing power of bitcoins may rise rather than fall over time—thus increasing its value as a potential store of value relative to fiat currencies.

While costs of exchanging bitcoins may impose rising transactions costs over time, thereby limiting its desirability as a medium of exchange to some extent, bitcoin may still retain value as “money.” In particular, as long as

accounts are maintained in multiple places and the personal codes to access bitcoins are kept secure, it can be valuable as a store of value. That value is enhanced because it cannot be easily confiscated by governments and it can be transferred easily between different governmental jurisdictions. Thus it is particularly valuable for people who live in difficult countries or who want to be able to transfer their wealth between countries without incurring bank exchange fees or governmental interference. Its value as a “store of value” may also be enhanced because some people want to collect bitcoin as an “asset,” possibly via purchases of exchange traded fund (ETFs), even though they may not intend to or be able to use it easily to mediate ordinary exchanges.

Over time, bitcoin and related currencies have a potential drawback for uses as a potential medium of exchange. Bitcoin exchanges are not costless because multiple ledgers must be updated each time a transaction takes place, and bitcoin is mined by thousands of individual miners who attempt to validate transactions. In addition, because bitcoin's value is designed to increase over time, a provision has been made to allow bitcoin transactions to be as small as 1/100000000 of a bitcoin. Because electricity costs are not trivial and increase as the cost of validating the history of use of each full or fractional bitcoin increases, transactions costs with bitcoins have tended to increase as their use and electricity costs have grown. Thus their use involves greater transaction costs than the updating of single ledger balances as is done with conventional money balances at banking institutions. In addition, if people don't adequately secure or remember their private bitcoin codes, bitcoins can be lost or stolen and transferred by clever thieves—and thefts of bitcoin from second party “exchanges,” such as Mt. Gox, have not been uncommon.

While individual bitcoin exchanges may be more expensive to process than most fiat money exchanges in the same currency, bitcoin exchanges among currencies and across borders are still often cheaper than fiat money exchanges in similar circumstances. Many commercial banks and other financial institutions charge relatively large fees for exchanging one currency for another, while bitcoins can be used globally and transferred seamlessly across the world. In addition, while the exchange history of individual bitcoins can be traced since their creation it requires immense computing time and effort to do so. Consequently, while bitcoin transactions tend to provide greater financial privacy than transactions conducted through bank accounts, bitcoin transaction privacy is not greater than that of transactions conducted through ledger less currencies or precious metals whose ownership history cannot be determined.

However, bitcoin has some problems. The major problem is that world politicians and financial institutions don't like it. Financial institutions don't like it because they cannot earn fees for facilitating foreign exchange transactions in fiat currencies if people can use bitcoin instead. Politicians don't like it for two reasons. First, it prevents them from being able to profit by expanding their fiat currency issues at will, thereby earning “seigniorage” profits and facilitating their ability to engage in government spending without raising taxes. Second, they don't like it because it limits their ability to have total control over people who live in their jurisdictions. Governments claim that it facilitates transactions such as smuggling, gambling, or the purchase of “prohibited” goods or services—which might include the purchase of guns or bullets or anything else the government didn't like.

Thus, the government has tried to restrict the use of bitcoin and other crypto currencies. In the U.S. the most important restriction is that bitcoins are considered a commodity for taxation purposes. Thus, if a person makes a profit on a bitcoin transaction because the bitcoin has increased in value, that person potentially owes a 25% tax on that profit. If a \$10 cup of Starbucks coffee is purchased with a bitcoin unit that cost \$5, the buyer potentially owes \$1.25 tax on the \$5 gain. Because of the potential for taxation, annual 1040 tax forms now require that people report whether they have used crypto currency in the past year.

CENTRAL BANK DIGITAL CURRENCIES

While individuals like the greater potential privacy and greater store of value and wide global acceptance of bitcoin and some other digital currencies, politicians hate them. Politicians dislike private digital currencies because they erode politicians' abilities to earn “seigniorage” through currency creation, obtain cheap funding for deficit spending, and maintain total control over their populations' financial lives and transactions. Thus, more than 100 countries, including the U.S. have been investigating digital currencies and some, such as communist China, have already adopted them. Central Bank Digital Currencies are cleared through digital transactions and many be kept on more than one government approved and controlled ledger to facilitate transactions They may reduce transactions costs and delays relative to clearing checks because all transactions can be made digitally and validated quickly and cheaply. Because they would only use a limited number of ledgers their processing costs per transactions might be lower than that of bitcoin. The initial trials with “Fed Cash” used only around 30 major banks along with the Fed to keep records on transactions involving digital exchanges of Fed Cash. Because Fed Cash transactions could be made almost instantaneously, banks could exchange funds quickly and finally without the delays and uncertainties that might be involved in clearing house mediated transactions.

However, central bank digital currencies would lack privacy and are potentially subject to substantial government control—since all transactions can be monitored and potentially restricted by the government at low cost. People who did not spend their money in approved ways might be declared domestic terrorists or enemies of the state. In communist China, such people may not be allowed to travel or enroll their children in various educational institutions or have certain privileges. In the U.S. it is possible that people might not be able to spend their money on ammunition or at gun stores—which already have found it difficult to obtain financing from some banks. The potential for political abuse of people who did

not use their digital currency in approved ways is great—as can be seen by the way Canada limited its citizens' access to their bank accounts if they had supported the striking truckers. People in the U.S. need to take heed from what they have seen happen in communist China and in Canada and resist the adoption of central bank digital money in the U.S.

GOLD AND PRECIOUS METALS

A big advantage of transactions in gold and precious metals, or other media of exchange that are privately generally acceptable, is that the exchanges can be private. There is no ledger that can be updated and copied as the item of value is instantaneously and seamlessly transferred privately from one person to another. Since the item has “intrinsic” value, no ledger or IOU must be kept to ascertain its value and ownership. Because it costs money to mine gold or produce other commodities with intrinsic value, their value should increase relative to fiat money over time. Typically, fiat money loses value via government created inflation over time. Thus, commodity backed money can provide a superior store of value function than fiat money.

Exchanges of commodities used as money can occur between any two willing parties, if those exchanges are not prohibited by governments. However, transactions costs for transactions in commodity money and precious metal money may be significant. First, potential recipients may not be willing to accept the money without first assuring themselves that the item is not counterfeit, debased, or “clipped.” Gold bars are sometimes filled with tungsten since the density of tungsten is similar to that of gold. Consequently, gold coins that are minted by and guaranteed by a trusted government may be more acceptable in exchange than coins or bars issued by lesser known mints or issuers. Second, the unit sizes of readily available coins may not be appropriate for all uses. A one ounce gold coin could buy more than 1,000 cans of soup but might not be useful for buying one can of soup. Silver coins that have less value per ounce than gold might be more useful for everyday transactions—but even one ounce of silver is worth more than \$20, so smaller denominations or alternative valuable items might be more useful for exchanges. Nonetheless, exchanges using physical items would only take place when both the buyer and seller could agree upon an acceptable exchange item and value. As a result, a barter situation would often occur, and bartering takes time and effort. Thus, transactions costs would be relatively high with commodity money (including precious metal backed monies), which would be a disadvantage and would limit their usefulness as generally acceptable media of exchange.

Another disadvantage of commodity backed monies is that potential theft could occur so the precious items would have to be protected—at some expense. There would be no ledger to record who was the rightful owner of the precious item if the items were stolen or fraudulently transferred. While the precious items could be held in a trusted depository (such as a good depository) with fractionable and transferable ownership rights, there still would be the possibility that the depository could fail or have its assets stolen. Unregulated depositories possibly could function like wildcat banks, unless they were regularly audited by trusted auditors.

Because of the transactions costs and possible losses and protection costs associated with precious or commodity money, it is easy to see why regulated depository-institution issued IOUs have preferentially been used as money in the past. The main problem of late is that governments have interfered with money issued by depository institutions--both by facilitating its unbridled increase and by interfering with and monitoring transactions that occur among institutions and individuals. Government regulation and deposit guarantees may also be suspect. Bitcoin potentially could provide a superior mechanism of exchange but only if it were devoid of government interference and taxation. Central bank digital currencies potentially have privacy and unfettered personal ownership and use problems. Perhaps if governments abstained from interfering in the monetary system except upon request (i.e., by providing legal guarantees and auditing in exchange for private payments), a better monetary system might result. However, that is unlikely given that most politicians want to have unfettered power over their people. The new president of Argentina, Milieu, however, has proposed that the country move toward a system where free markets could determine what monetary arrangements, including bitcoin, people could elect to use. It remains to be seen whether other politicians will allow Argentina to do so.