



For Dummies Like Me

MONEY & CRYPTOCURRENCY



Money and Cryptocurrency for Dummies Like Me

Overview

Money doesn't always have value, whether it's represented by a seashell, a metal coin, a piece of paper, or a string of code mined electronically by a computer. With global household wealth estimated to be about \$454 trillion at the end of 2024, the value of money depends on the importance that people place on it as a medium of exchange, a unit of measurement, and a storehouse for wealth.

Money allows people to trade goods and services indirectly. It helps communicate the price and value of goods and provides individuals with a way to store their wealth. It is valuable as a socially accepted standard by which things are priced and with which payment is accepted. However, both the usage and form of money have evolved throughout history.

History of Money

Money has been part of human history for at least the past 5,000 years in some form or another. Before that time, historians generally agree that a system of bartering was likely used. Bartering is a direct trade of goods and services. For example, a farmer may exchange a bushel of wheat for a pair of shoes from a shoemaker, but this obviously requires trade between parties that need wheat and shoes respectively. Once those two parties were brought together, an agreement would have to be reached on how much wheat is worth a specified number of shoes. These arrangements are cumbersome and take time.

A type of currency slowly developed over the centuries that involved easily traded items. Traditionally, commodities such as gold, silver, salt, shells, and other valuables used as “commodity money” were chosen as currency because they possessed qualities like durability, divisibility, and scarcity. Scarcity plays a crucial role in the value of a commodity used as money. If a commodity is plentiful, its value would likely decrease, making it less suitable for use as a medium of exchange.

In the first millennium BCE metal coins began to be used as money. The world's oldest known, securely dated, coin minting site was located in the Henan Province of China. The mint began striking coins sometime around 640 BCE, likely the first standardized metal coinage. The Persian, Greek and Roman empires had their own coin minting in the centuries that followed. The Romans standardized their coins to make trading fair. Although they often bartered, as did many cultures, they shifted more quickly toward currency exchange of coins for goods and services.

The first documented paper money was issued during the Tang dynasty of China starting in the 7th century CE. Its roots were in receipts of deposit as merchants and wholesalers desired to avoid the heavy bulk of metal coinage in large commercial transactions. Government issued centralized paper money did not appear until centuries later. In Europe, cloth notes were in use in Prague in 960 CE and as part of the banking scheme of the Knights Templars around 1150. The first European attempt by a bank at issuing banknotes was in the 17th century.

The perception of paper money as currency has evolved over time. Originally, paper money was based on precious metals held by banks or governments. A gold standard monetary system was in effect from the late 1800's until the 1970's. Governments kept gold in storage (think Fort Knox in the US) that would be transferred among those countries depending on trade surpluses and deficits. With this system, the value of a country's currency is directly linked to gold and countries agreed to convert paper money into a fixed amount of that commodity upon request. With growing global economies, mining of new gold was required to provide a sufficient supply of gold to back the money supply and facilitate trade. While the appeal of a gold standard is that it limits the issuance of money by a government depending on how much gold it had, it also hamstrung governments from responding to economic crises as exemplified by the Great Depression of 1929 when the US couldn't issue new money to stimulate the economy.

The gold standard was eliminated in the US in 1971 and was completely replaced by "fiat money", a term to describe currency that is used because of a government's order, or fiat, that the currency must be accepted as a means of payment. Fiat money works because its value is not derived from any physical commodity like gold or silver, but rather from the government's declaration that it is legal tender to purchase goods or invest in the local economy. The value of fiat money is ultimately based on the public's faith in the government's ability to maintain a stable and trusted economy, and the willingness of people to accept it as a medium of exchange.

With either traditional paper money or fiat money, banks only keep enough physical currency on hand to cover anticipated normal withdrawals and transactions, that for a small bank may be about \$50,000. Today, the use of credit cards and other digital technologies have reduced the importance of physical money exchanging hands during transactions, with an individual or business's funds on deposit merely numbers on a spreadsheet that are added to or subtracted from with transactions. Credit cards began to be widely used in the 1950's and 1960's and are now one of the most widely used forms of payment in the world. Credit cards function by providing a revolving line of credit, allowing users to borrow money from a financial institution, which the borrower is then obligated to repay, plus any accrued interest, within a set timeframe. Electronic transfers of funds with use of a physical credit card that can be swiped in-store or used on line are accomplished with the use of unique card numbers.

Like credit card transactions, mobile payment apps are a digital payment service that offer a convenient payment method but differ from credit cards in how they store and

process payments, and how they handle security. Mobile apps store your payment information (credit cards or debit cards, etc.) securely on your phone and allow contactless transactions and, in some cases, peer-to-peer payments. They utilize a unique code instead of a card number for each transaction, enhancing security where, among other inherent security precautions, card information is not given to the merchant.

The history of money is still being written. The system of financial transactions has moved from swapping animal skins or salt to minting coins to printing paper money, and today, we are on the cusp of a shift to predominantly electronic transactions. We readily transfer our fiat money digitally to pay for goods and services, and to make peer-to-peer transfers with credit and debit cards, and through the use of payment platforms such as Venmo. Therefore, these are types of digital money systems. But these transactions are made with the use of third party such as a bank, broker or payment app who charge a fee for their service making transactions somewhat slower and more expensive. Cryptocurrencies, which are described in more detail below, aim to eliminate the middleman and to achieve true peer-to-peer transactions with enhanced security.

Attributes of Money

Money possesses several key characteristics that make it useful as a medium of exchange, a unit of account (used to value goods and services and be countable), and a store of value (preservation of wealth). According to Aristotle, in order for something to be used as money it should be durable, portable, divisible, and have intrinsic value. Today we eliminate the need for money to have intrinsic value and replace with scarcity, or a limit of supply. Perhaps this last attribute needs further explanation with the use of a fiat currency with no intrinsic value.

If money was infinitely available, for example if blades of grass were used as money people could make more money by simply cutting their lawn and the amount of money in circulation would expand rapidly resulting in the decrease in value of each blade of grass. We would then need to carry around huge amounts of grass to pay for goods and services making it unportable. Of course, there's also the fact that It would also be nondurable, non-uniform, and not easily divided into smaller units of blades, at least in a uniform way.

As described earlier, the gold standard acted to limit the supply of money by requiring governments to back the country's paper currency with gold that would be transferred between governments to balance trade surplus and deficit. Gold has intrinsic value because it can be used to make desirable products and it isn't readily available. With the advent of fiat currencies, governments can make more currency to stimulate the economy, but it needs to regulate the amount of currency in circulation to avoid inflation. Just like people producing more currency in the "blades of grass economy", if governments produce too much currency it can lead to the erosion of purchasing power, increase the cost of living, and potentially lead to economic instability.

Fiat currency provides a medium of exchange, a unit of account, and a store of value and has been used very successfully as money. However, it does remain susceptible to bad decisions made by politicians and regulators as they try to manipulate its scarcity or lack thereof. The value of a country's fiat currency is derived from the trust people have of the strength of the economy in that country, but it has no intrinsic value.

A cursory Look at How Cryptocurrencies Work

Cryptocurrencies are virtual currencies underpinned by cryptographic systems. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard the exchange transactions. Cryptocurrencies enable secure online payments without the use of third-party intermediaries (banks etc.), and they aren't reliant on the trust in any one government. As such, cryptocurrencies don't have a central regulating authority standing behind it, instead using a decentralized system to record transactions and issue new units that insulates them from bad decisions by governments, but which also leaves owners vulnerable to the volatility of the currency market and to a lack of regulation.

Central to the appeal and functionality of cryptocurrencies is blockchain technology. As its name indicates, a blockchain is essentially a set of connected blocks of information, or code, on an online ledger or database. Each block contains a set of transactions (currency transfers, etc.) that have been verified by a network of independent, globally distributed validators on the network. A record of all the transactions ever made are included in the blockchain, that include all the blocks linked together from the beginning. Each block is provided with a digital fingerprint that includes data from the previous block. The important thing to know is that this method provides security, ensuring the data within a block remains unchanged and verifiable.

When a user creates a new cryptocurrency wallet, a pair of public and private keys are generated for that user. The private key is used to sign transactions and authorize the transfer of digital assets from the wallet, while the public key is used to receive digital assets into the wallet. These keys work in tandem to verify and authorize transactions. While anyone can send transactions to the public key, you need the private key to "unlock" them and prove that you are the owner of the cryptocurrency received in the transaction. The important thing to know here is that the private key is generated as an extremely large number format making it almost impossible to duplicate which allows you to transfer and receive cryptocurrency with the knowledge that the transaction is secure. Just like with a \$100,000 paper bill, you need to protect your private key and remember where you put it.

In the world of cryptocurrency, crypto mining's primary role is to validate transactions and secure the blockchain network. There are over 1,300 globally distributed miners on the Bitcoin system for instance. They function by using powerful computers to solve complex mathematical problems, effectively verifying and adding new blocks of

transactions to the blockchain. This process not only ensures the integrity of the network but also rewards miners with new cryptocurrency and/or transaction fees. Just like the process of mining for gold, the blockchain computers are validating transactions to extract a quantity of new cryptocurrency from the digital mines. This process of validation allows people to have trust in the system that it will be valid and secure.

The Attributes of Cryptocurrency

Cryptocurrency has many of the same attributes as fiat currency that allows it to be used as a medium of exchange, a unit of account, and a store of value. There are differences also. Cryptocurrencies exist solely in the digital realm and have no physical form. They operate without a central authority or bank, using a distributed ledger (blockchain) to record transactions. Fiat currencies are available in a physical form (paper money) and are regulated by a central authority or financial institution. Because cryptocurrencies have no physical form, and encryption methods ensure the security of transactions, they are more difficult to counterfeit than fiat currency.

Transactions for cryptocurrencies are linked to random characters rather than user identities, offering a level of anonymity, though not complete privacy. Cryptocurrencies can be used by anyone with an internet connection, facilitating cross-border transactions without the need for a third party to carry out transactions. This can be very useful for citizens in less developed countries who may not have ready access to a financial institution.

On the negative side, cryptocurrency values can fluctuate dramatically, leading to substantial gains and losses for investors and consumers for any specific time period. The unit value is completely dependent on the currency market making it more prone to rapid price swings. Also, the lack of clear and consistent regulations across jurisdictions creates a complex and unpredictable landscape for cryptocurrency businesses and investors. Cryptocurrency investments are not typically protected or insured like traditional bank deposits or investments, meaning there's no recourse if the value declines or if assets are lost.

In addition, once a cryptocurrency transaction is made, it cannot be undone, unlike traditional financial transactions. And mining cryptocurrency can be extremely energy-intensive, raising concerns about the environmental impact.

Cryptocurrencies have no legislated or intrinsic value; they are simply worth what people are willing to pay for them in the market. But they also offer owners the confidence and trust that they likely will retain value even when specific fiat currencies are under pressure due to economic turbulence. There are reasons why individuals use or invest in cryptocurrencies that may or may not apply to everyone.

1. Cryptocurrencies operate on decentralized networks, such as blockchains, that can offer greater autonomy and control over funds, potentially mitigating the risk

of central authority manipulation. (If you're a criminal this can potentially be attractive for money laundering when paired with reason no. 6 below).

2. Cryptocurrency can be easily accessed globally with just an internet connection and a crypto wallet that is particularly beneficial for individuals who are unbanked or underbanked.
3. Cryptocurrency transactions, particularly international ones, can be processed much faster and often at lower fees compared to traditional banking systems.
4. Cryptocurrencies, like Bitcoin, have the potential for significant appreciation over time, attracting investors seeking high returns. This should be balanced against their potential for big losses.
5. Cryptocurrency transactions are secured by blockchain technology, offering increased security through cryptographic techniques.
6. Greater privacy and anonymity.

The Future of Money

How we think about and use money has undergone vast changes in the last few decades, and even now some societies are moving toward a “cashless” system of transactions. Digital payment methods and financial technologies such as contactless credit cards or mobile wallets are on the rise. These offer benefits such as increased convenience, fewer business risks, and ease of international payments.

Cryptocurrencies have become popular in large part due to the possibility of decentralization and it being generally cheaper and faster to conduct cross-border, real time transfers. Even with the disadvantages of high price volatility and lack of financial stability, it's clear that cryptocurrency will play a role in how we interact with and use money, although to what extent still remains to be seen.

Because of the rise in interest in cryptocurrency in recent years, countries have turned their eyes towards other new technologies. A Central Bank Digital Currency (CBDC) is something policymakers have begun to develop and even implement. A CBDC is a digital form of fiat currency and could be a safer alternative to cryptocurrency. For most countries a CBDC won't necessarily replace a fiat currency but rather to complement it. These currencies would be regulated by a governmental or central authority and would be tied to the fiat currency's value. Theoretically, this reduces some of the inherent risks of cryptocurrency due to its decentralization and volatility. They could help provide financial inclusion for unbanked members of society and would directly connect consumers to central banks with all the savings in time and money that this will bring about.

While we may not know exactly how the future will play out, one thing is certain: how we use money will constantly continue to evolve