



The History of Money

FROM BARTER TO BITCOIN

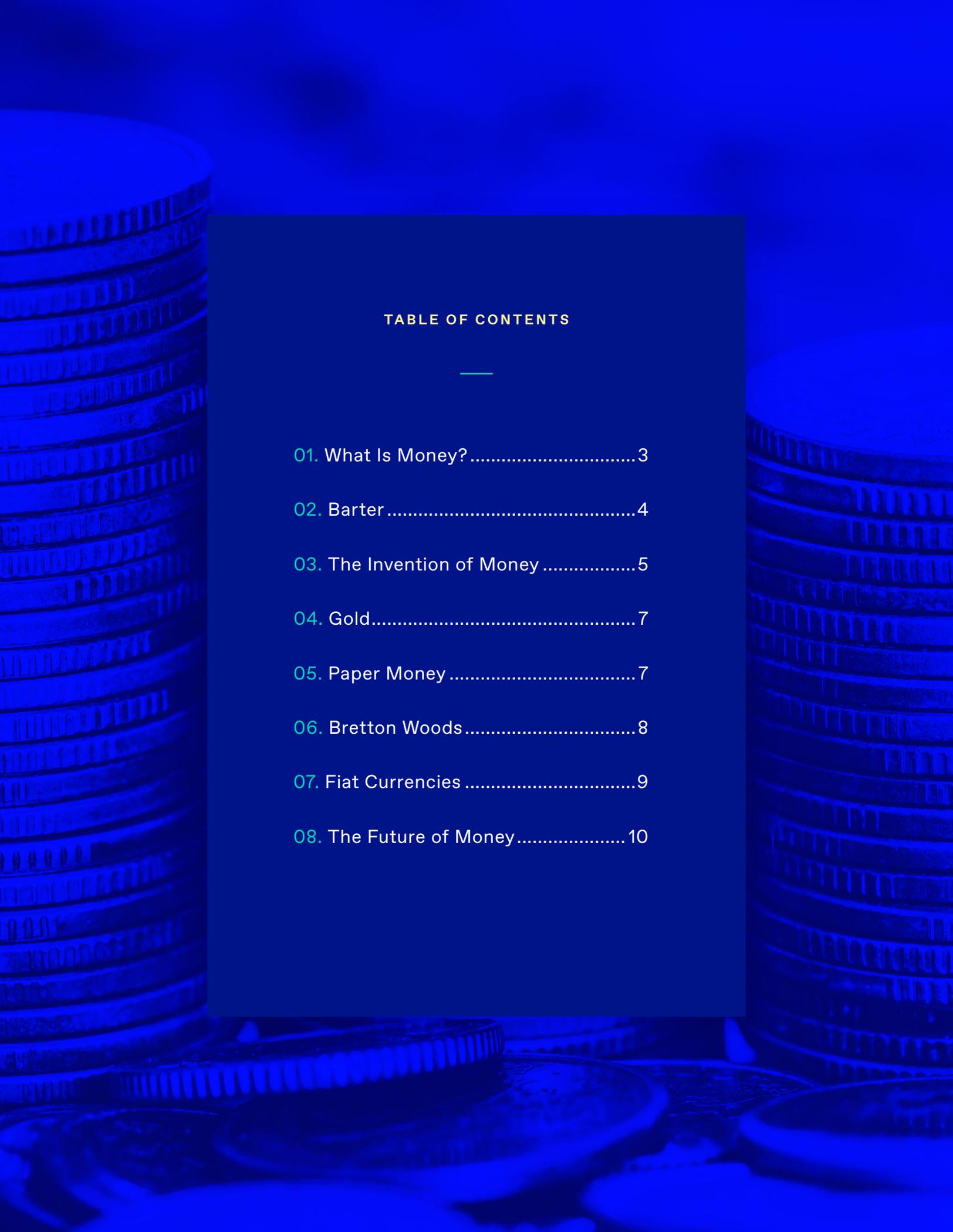


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We all have a peculiar way of deciding what to think about.

You probably don't spend much time pondering the consequences of an asteroid striking the earth. There are plenty of good reasons not to. First, it's an event that's unlikely to happen throughout any human lifetime. Second, unless you work for NASA, you have more pressing issues to contemplate.

The paradox is that we're just as unlikely to devote any considerable thought to a topic that permeates every facet of our lives.

Money is one such subject. Sure, we all worry about how we're going to get it and dream about how we'll spend it once we do. But how often do you really stop and think about what money is? For most people, the answer is likely never.

By taking money for granted, it becomes difficult to see what it really is, how it has evolved, and what could become of it.

What Is Money?

Anyone trying to understand Bitcoin must wrestle with the question of "what is money?" If you live in a developed country, there's a good chance you've never seen money evolve during your lifetime or even considered that it can and does change.

Money has evolved over the millennia because it is a technology created by humans to solve the problem of transporting purchasing power across time and space.

Human progress, a term that is often bandied about with little consideration for its meaning, can be thought of as the creation and improvement of tools. Anyone trying to dig a hole with his or her bare hands knows that a shovel makes life easier. Progress, then, is, by one measure, the evolution of technology. While improvements can come out of the clear blue sky, our collective wisdom tells us that they're more likely to be birthed from necessity. Hard as it may be to comprehend, money is subject to the same pressures that weigh on any other technology. It isn't and has never been immune to competitors, changes of preference, or obsolescence.

The history of money has been an ongoing search for a tool that makes "our wealth today available for

consumption tomorrow.”¹ To do so, money has to fulfill three functions.² A good doesn’t need to have all three attributes to be considered money, but the best monies are a:

Store of Value

01

The utility of money shouldn’t diminish over time. A bushel of apples is only valuable for as long as the apples aren’t spoiled. A currency that is subject to rot, whether it be through biological degradation or because it has an unconstrained supply that allows it to be debased, will collapse under the tests of time.

Unit of Account

02

Like degrees, inches, or pounds, money is a measure. For any measurement to be helpful, it must be standardized. Crucially, the measurement should remain constant across time (purchasing power should be stable) as well as space (frictionless movement and settlement).

Medium of Exchange

03

What would be the point of a money that others wouldn’t accept as payment? Currencies can fail as a medium of exchange for plenty of reasons. If it isn’t a good store of value or an accepted unit of account, agreeing upon prices becomes impossible. But other factors like portability are also a consideration. You’d have to lug about 150 pounds of silver to the bank for the 20% down payment on the average American home.

With these functions in mind, it’s worth taking a step back to consider what the world looked like before money was created 40,000 years ago.

Barter

Before there was money, trade was conducted through barter.³ Barter is the exchange of goods or services

1 <https://www.sec.gov/Archives/edgar/data/1764894/000119312521006404/d55182dncsr.htm>

2 <https://www.stlouisfed.org/education/economic-lowdown-podcast-series/episode-9-functions-of-money>

3 In full disclosure, there is debate on whether a true barter economy has ever existed. Anthropologist David Graeber wrote in his book, *Debt: The First 5,000 Years*, that systems of credit pre-dated the use of currency. Barter, according to Graeber and others, only appeared in societies that were already familiar with money. See the following for more information: <https://www.theatlantic.com/business/archive/2016/02/barter-society-myth/471051/>

for other goods or services. It sounds simple, but in practice, barter is exceptionally complicated.

The problem with barter is that there needs to be a double coincidence of wants for the system to work. What that means is that both participants in a transaction need to have something the other desires. If a fisherman wants bread and a baker wants tuna, there's an obvious trade to be made. But if the baker wants apples in exchange for his bread, the fisherman will have to find a farmer before getting that baguette.

Beyond the problem of finding receptive trading partners, there are a host of other issues. Just think about prices in a barter system versus a cash economy. The number of prices grows exponentially with each additional unit of trade.⁴ With apples, bread, and fish as the only products in a barter economy, nine prices are needed versus just three in a monetized economy. Trade thus becomes increasingly complex as a barter economy grows in scale.

The Invention of Money

For these and other reasons, humans across the planet independently converged on the technological solution that is money. However, what disparate groups of people adopted as currency was idiosyncratic. Cowrie shells in West Africa, giant stones on the Yap islands, and clamshells in North America are just a few examples of early money.

People chose their money, consciously or not, based on six characteristics. The more of these characteristics a material, good, or service has, the better it can serve the three functions of money mentioned above. But, as we'll detail later on, a potential monetary source's ability to fulfill these features could change over time. That's to say, what makes for sound money today might be a terrible choice tomorrow. This fact has been evident throughout history as groups of people that were once geographically isolated came into contact with each other. For example, these encounters could reveal that a monetary instrument believed to be universally scarce by one group, like seashells, is abundantly available to people from other regions. The six characteristics⁵ of sound money are:

⁴ <https://nakamotoinstitute.org/shelling-out/>

⁵ <https://www.stlouisfed.org/education/economic-lowdown-podcast-series/episode-9-functions-of-money>

01

Durability

Produce makes for poor money because it spoils. Gold, on the other hand, doesn't rust or otherwise decay.

02

Portability

Cash is easy to carry, but gold can be physically taxing to transport in large amounts. It's hard to trade when you have to hire an army just to pay your bills.

03

Divisibility

U.S. dollars can be broken down into cents for small purchases.

04

Fungibility

A dollar is a dollar, but one barrel of apples could vary significantly in quality and quantity to another barrel. If a currency isn't fungible, every transaction requires an audit.

05

Scarcity

Currencies aren't exempt from the law of supply and demand. The easier it is to find or create an object, the less value it has. Money needs to have a limited supply to ensure that its purchasing power will remain stable.

06

Acceptability

If a money fulfills the first five criteria, the more likely it is that people will use it. The more people that adopt a currency, the easier it will be to spend. Acceptability can be thought of as money's network effect.

Of all these characteristics, scarcity stands out as having the greatest impact on whether a currency will succeed or fail. Proving rarity has always been an intractable problem. When West Africans began accepting aggr beads from Europeans, they thought decorative glass was challenging to produce. But unbeknownst to the West Africans, aggr beads were being mass-produced in cities such as Venice. Europeans were all too eager to trade an abundant product for precious natural resources. Similar supply shocks would spell the end of cowrie shells and Rai stones as money as well.

Gold

Gold, however, has withstood the test of time when it comes to the property of scarcity. It's the most enduring form of money in history. In lands as far-flung as China and South America, people independently adopted gold as currency. Gold was a medium of exchange in ancient Egypt. It was adopted as legal tender by China in 1091 B.C. and first turned into coinage 500 years later by Lydia's King Croesus. It then spread throughout the Western world during the time of the Roman Empire.

But for all of gold's virtues, its use as money has been hampered by two limitations. First, gold isn't easily portable. For personal transactions, carrying a few pounds of gold can be an inconvenience even if doable by an individual. However, shipping enough metal to settle a trade at the corporate or nation-state level could require a flotilla. The hunt for shipwrecks that continues to this day is evidence that a safe passage was far from a guarantee.

Second, there was also no assurance as to the purity or weight of the gold being offered. Clipping, the act of shaving off small portions of a coin, is as old as the first mint. More advanced counterfeiters would melt pure gold and add a cheaper metal to the mix to increase the weight of their holdings. These practices debased the currency and eroded trust in gold coinage.

Paper Money

Paper money, originally underpinned by gold or other commodities, was a solution to these two shortcomings. Gold could be tested for its purity then stored in government vaults where it ostensibly couldn't be tampered with. Rather than moving it for each transaction, governments could settle the balance of payments at regular intervals. Paper money was merely a representation of the gold, silver, or other commodities that backed it. Paper, unlike precious metals, was a credit instrument that entitled the holder to a set amount of the underlying item. Paper was easy to move from place to place. Although it was still susceptible to counterfeiting, it could be exchanged without conducting costly purity tests.

As paper money came to dominate, people placed their trust in governments and then central banks to uphold the promises made by their currencies. This is why paper money is fundamentally a credit

instrument that is only as good as the government making the promise. Unfortunately, history shows that no nation-state could be trusted for long to keep up its end of the bargain.

Governments regularly devalued their currencies against the metals that underpinned them. World War I's spread across Europe brought about the end of the gold standard era (1870-1914). Soldiers needed to be paid, whether the country had the gold to print more money or not. As trenches scarred the countryside, international commerce came to a halt. No European country could increase its balance of trade (thus bringing more gold into its possession). Throughout the two World Wars, Europe's gold would make its way into the coffers of the United States where productive capacity wasn't stricken by the hostility.

Bretton Woods

Following the Second World War, the Western powers, Japan, and Australia set out to redesign the global monetary system. These countries believed that the Second World War was a direct consequence of the economic crises brought on by the First World War and that a new monetary regime was needed to prevent future conflicts.

The negotiations, which were finalized in 1944 at the Bretton Woods resort in New Hampshire, resulted in a quasi-gold standard.⁶ The U.S. dollar would serve as the global reserve currency and be exchangeable for gold at a rate of \$35 per ounce. Other currencies would have fixed exchange rates in relation to the dollar. Theoretically, the U.S. dollar's supply would be limited by the amount of gold held by the Treasury. However, in practice, this restriction was difficult to uphold.

Critical faults in the Bretton Woods system were immediately apparent. British economist John Maynard Keynes, head of the U.K. delegation at the conference, opposed the agreement, believing the U.S. (or any other country) would struggle to balance its domestic spending obligations against its role as the steward of the global reserve currency.⁷

Years later, economist Robert Triffin notably detailed how the new international monetary regime would unravel. Testifying before Congress in 1960, Triffin argued that as the country whose currency acted as the

⁶ Bretton Woods also resulted in the creation of the International Monetary Fund and a host of rules and procedures for how the new monetary order would operate.

⁷ <https://www.cfainstitute.org/en/research/financial-analysts-journal/2013/the-battle-of-bretton-woods>

global reserve currency, the U.S. would be forced to run a persistent trade deficit to provide the rest of the world with dollar liquidity. In doing so, the U.S. would chip away at the confidence placed in the dollar as the number of greenbacks in circulation exceeded the gold held in reserve. In what has come to be known as the Triffin dilemma, the economist predicted that the fixed exchange rate of dollars to gold would inevitably break. As a consequence, countries could be expected to demand the exchange of their dollars for gold before a devaluation occurred.

Triffin's assessment was proven correct in 1971 when President Richard Nixon suspended the convertibility of dollars into gold after the U.S. fiscal deficit ballooned due to spending on the Vietnam War and former President Lyndon Johnson's Great Society social programs. The peg could no longer be defended.

In a moment that has been mostly forgotten, France sent a warship into New York harbor in 1971 to retrieve its gold holdings.⁸ Shortly after, the British ambassador to the U.S. requested that \$3 billion be converted into gold.

Nixon's decision to close the gold window effectively ended the Bretton Woods regime.

Fiat Currencies

In the wake of the so-called "Nixon Shock," the global monetary system lost any pretense of being tied to gold. From 1971 until the present day, money has been backed by the faith and trust in the government issuing it, or, to be parsimonious with words, fiat. Fiat, Latin for "let it be done," is money that derives its value from a government decree. As a result, stable, fiscally responsible, and economically strong countries would see increased demand for their currencies compared to states with poor governance or low productivity.

Here again, the problem of scarcity reemerged. Under Bretton Woods, the printing of new dollars wasn't strictly limited. That much is clear. The proliferation of dollars beyond what the gold peg would dictate was, as Triffin predicted, responsible for the system's disintegration. But increases in the money supply were, at least superficially, supposed to be linked to gold reserves.

In the absence of any restriction on money creation after the fall of Bretton Woods, governments were free

⁸ https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=3545&context=faculty_scholarship

to use currency debasement as a funding mechanism. Increasingly larger deficits could be financed by simply printing more dollars, pounds, or yen. Under the fiat regime, every country and central bank faced the same temptation to print rather than tax (or the more unthinkable act of reining in spending). In this environment, money creation became a globally accepted cure for whatever ailed an economy.

A 2012 study of 775 fiat currencies showed that their average lifespan was just shy of three decades.⁹ In the time since fiat currencies were adopted, 55 hyperinflationary crises have occurred.¹⁰ For context, there have been just 56 in all of recorded history.

With no limits on the printing presses, people faced their own paradox. Holding money, what was traditionally thought of as saving, became a losing proposition. Money loses its ability to function as a store of value when its supply is unlimited. So investing, taking risks with one's money for profit, became a necessity just to counteract the never-ending cycle of debasement.

In the decades since 1971, the gap between the rich and poor widened. Assets like real estate and stocks have seen their values skyrocket, enriching those able to store money in less liquid instruments. For the part of the population without the means to put cash "to work," each new dollar printed weakened the purchasing power of their savings. Aggry beads became worthless as Europeans flooded the African market with them and a similar fate is besetting fiat currencies. Central banks "inject" increasingly more cash into the system with each new financial crisis, and those crises are coming more frequently than ever before. While it's hardly a perfect measure, the price of gold can provide a sense of the magnitude of the dollar's debasement. In 1971 an ounce of the shiny metal was worth \$35. Today, that same weight fetches more than \$1,800. So ask yourself, what's changed over that time? Was it the ounce of gold or the dollar?

The Future of Money

We believe that rampant money printing by unfettered central banks has set the stage for the next leap in monetary technology. Bitcoin was born in the wake of the 2008 Great Financial Crisis. A message encoded in the first block of bitcoin ever mined gives a clue as to the problem its pseudonymous creator(s) Satoshi Nakamoto was seeking to solve. Nakamoto wrote: "The Times 03/Jan/2009 Chancellor on brink of second

⁹ <https://dailyreckoning.com/the-failure-of-money/>

¹⁰ <https://www.cato.org/sites/cato.org/files/pubs/pdf/workingpaper-8.pdf>

bailout for banks.” The note draws the distinction between Bitcoin’s sound money philosophy and a fiat system that accords special protections to favored people and industries. Bitcoin provides no handouts or exceptions to the rich and powerful. There’s no one to lobby for favors because in the Bitcoin system there’s no person or group that controls the currency. Bitcoin is a rules-based system without rulers. If you want bitcoin, you have to buy it or mine it like anybody else.

Analyzing Bitcoin through the lens of the six characteristics of good money shows that it is quite possibly the best currency ever created:



01

Durability

Bitcoin cannot be destroyed. So long as the blockchain is maintained on even a single computer, Bitcoin exists. Since its inception, the network’s uptime has been a remarkable 99.99%, and it has gone more than 3,100 days without an outage. For a point of comparison, the Federal Reserve’s money transfer system went offline for several hours in February 2021.¹¹



02

Acceptability

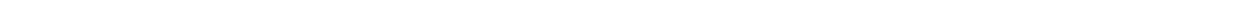
While estimates for the number of bitcoin holders vary, some peg adoption as high as 114 million people.¹² This number grows each day as knowledge of the protocol spreads and bitcoin becomes easier to buy, spend and store.



03

Portability

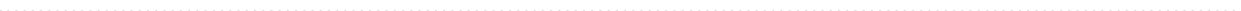
Bitcoin can be sent anywhere there’s an internet connection in seconds with final settlement within an hour. A Bitcoin user who has memorized his or her private key literally carries their bitcoin with them wherever they go.



04

Divisibility

A single bitcoin consists of 100 million smaller units known as satoshis.



11 <https://www.cnn.com/2021/02/24/the-feds-system-that-allows-banks-to-send-money-back-and-forth-is-down.html>
12 https://crypto.com/images/202107_DataReport_OnChain_Market_Sizing.pdf

05

Fungibility

Bitcoins are all the same. No coin is any more valuable than the next one. Unlike with gold or paper currency, counterfeiting is impossible.

06

Scarcity

Bitcoin is the first provably scarce object. There will only ever be 21 million bitcoin. Anyone can check the protocol's code to confirm this limit. A vast majority of nodes, the enforcers of Bitcoin's rules, would have to act against their own economic self-interest for the limit to be altered.

Bitcoin combines the hardness of gold with the portability and fungibility of fiat and comes built for the digital age. Its supply is strictly regulated by its code and enforced by those who use it. Bitcoin can be sent anywhere in the world in seconds without incurring the prohibitive costs so often charged in the traditional financial system.

Money is technology. History shows that humans are constantly creating new tools and improving those at their disposal to pursue prosperity. Monies have come and gone based on how well they serve humanity according to six characteristics. We believe Bitcoin's growing adoption is a signal that the next evolution is well underway. As entrenched as it may seem, the current fiat regime is not the end of monetary history.

Key Takeaways

01

Money is a technology.

02

Money serves three purposes: a store of value, a unit of account, and a medium of exchange.

03

Like any other technology, money has also been improved upon or replaced by new forms that better fulfill people's needs. Bitcoin is arguably the most sound money in a long line of innovations stretching back thousands of years.

04

Scarcity, or the lack thereof, has been the dominant trait determining whether a currency succeeds or fails.

05

The current fiat monetary regime has reached a crucial juncture in its history. The end of the Bretton Woods system ushered in an era of unfettered central banks with the ability to print money at a whim. This has set the stage for the next development in monetary technology, which we believe is being fulfilled by Bitcoin.

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