[Bitcoin](https://www.investopedia.com/terms/b/bitcoin.asp) offers an efficient means of transferring money over the internet and is controlled by a decentralized network with a transparent set of rules, thus presenting an alternative to central bank-controlled fiat money. There has been a lot of talk about how to price Bitcoin and we set out here to explore what the cryptocurrency's price might look like in the event it achieves further widespread adoption.

First, however, it is useful to back up a step. Bitcoin and other digital currencies have been touted as alternatives to fiat money. But what gives any type of currency value?

Why Currencies Have Value

Currency is usable if it is a [store of value](https://www.investopedia.com/terms/s/storeofvalue.asp), or, put differently, if it can reliably be counted on to maintain its relative value over time and without depreciating. In many societies throughout history, commodities or precious metals were used as methods of payment because they were seen as having relatively stable value. Rather than require individuals to carry around cumbersome quantities of cocoa beans, gold or other early forms of currency, however, societies eventually turned to minted currency as an alternative. Still, the reason many examples of minted currency were usable was because they were reliable stores of value, having been made out of metals with long shelf lives and little risk of depreciation.

In the modern age, minted currencies often take the form of paper money which does not have the same intrinsic value as coins made from precious metals. Perhaps even more likely, though, individuals utilize electronic currency and payment methods. Some types of currencies rely on the fact that they are "representative," meaning that each coin or note can be directly exchanged for a specified amount of a commodity. However, as countries [left the gold standard](https://www.investopedia.com/ask/answers/09/gold-standard.asp) in an effort to curb concerns about runs on federal gold supplies, many global currencies are now classified as [fiat](https://www.investopedia.com/terms/f/fiatmoney.asp). Fiat currency is issued by a government and not backed by any commodity, but rather by the faith that individuals and governments have that parties will accept that currency. Today, most major global currencies are fiat. Many governments and societies have found that fiat currency is the most durable and least likely to be susceptible to deterioration or loss of value over time.

Scarcity, Divisibility, Utility and Transferability

Aside from the question of whether it is a store of value, a successful currency must also meet qualifications related to scarcity, divisibility, utility and transferability. Let's look at these qualities one at a time.

1) Scarcity

Key to the maintenance of a currency's value is its supply. A money supply that is too large could cause prices of goods to spike, resulting in economic collapse. A money supply that is too small can also cause economic problems. [Monetarism](https://www.investopedia.com/terms/m/monetarism.asp) is the macroeconomic concept which aims to address the role of the money supply in the health and growth (or lack thereof) in an economy.

2) Divisibility

Successful currencies are divisible into smaller incremental units. In order for a single currency system to function as a [medium of exchange](https://www.investopedia.com/terms/m/mediumofexchange.asp) across all types of goods and values within an economy, it must have the flexibility associated with this divisibility. The currency must be sufficiently divisible so as to accurately reflect the value of every good or service available throughout the economy.

3) Utility

A currency must have utility in order to be effective. Individuals must be able to reliably trade units of the currency for goods and services. This is a primary reason why currencies developed in the first place: so that participants in a market could avoid having to barter directly for goods. Utility also requires that currencies be easily moved from one location to another. Burdensome precious metals and commodities don't easily meet this stipulation.

4) Transferability

Currencies must be easily transferred between participants in an economy in order to be useful. In fiat currency terms, this means that units of currency must be transferable within a particular country's economy as well as between nations via exchange.

To assess Bitcoin's value as a currency, we'll compare it against fiat currencies in each of the above categories.

Bitcoin Compared Against Fiat Currencies

1) Scarcity

When Bitcoin was launched in 2009, its developer(s) stipulated in the protocol that the supply of tokens would be capped at 21 million. To give some context, the current supply of bitcoin is around 18 million, the rate at which Bitcoin is released decreases by half roughly every four years, and the supply should get past 19 million in the year 2022. This assumes that the protocol will not be changed. Note that changing the protocol would require the concurrence of a majority of the computing power engaged in [Bitcoin mining](https://www.investopedia.com/tech/how-does-bitcoin-mining-work/), meaning that it is unlikely.

The approach to supply that Bitcoin has adopted is different from most fiat currencies. The global fiat money supply is often thought of as broken into different buckets, M0, [M1](https://www.investopedia.com/terms/m/m1.asp), [M2](https://www.investopedia.com/terms/m/m2.asp), and [M3](https://www.investopedia.com/terms/m/m3.asp). M0 refers to currency in circulation. M1 is M0 plus demand deposits like checking accounts. M2 is M1 plus savings accounts and small time deposits (known as [certificates of deposit](https://www.investopedia.com/terms/c/certificateofdeposit.asp) in the United States). M3 is M2 plus large time deposits and money market funds. Since M0 and M1 are readily accessible for use in commerce, we will consider these two buckets as medium of exchange, whereas M2 and M3 will be considered as money being used as a store of value. As part of their monetary policy, most governments maintain some flexible control over the supply of currency in circulation, making adjustments depending upon economic factors. This is not the case with Bitcoin. So far, the continued availability of more tokens to be generated has encouraged a robust mining community, though this is liable to change significantly as the limit of 21 million coins is approached. What exactly will happen at that time is difficult to say; an analogy would be to imagine the U.S. government suddenly ceased to produce any new bills. Fortunately, the last Bitcoin is not scheduled to be mined until around the year 2140.

2) Divisibility

21 million Bitcoins is vastly smaller than the circulation of most fiat currencies in the world. Fortunately, Bitcoin is divisible up to 8 decimal points. The smallest unit, equal to 0.00000001 Bitcoin, is called a "Satoshi" after the pseudonymous developer behind the cryptocurrency. This allows for quadrillions of individual units of Satoshis to be distributed throughout a global economy.

3) Utility

One of the biggest selling points of Bitcoin has been its use of blockchain technology. Blockchain is a distributed ledger system which is decentralized and trustless, meaning that no parties participating in the Bitcoin market need to establish trust in one another in order for the system to work properly. This is possible thanks to an elaborate system of checks and verifications which is central to the maintenance of the ledger and to the mining of new Bitcoins. Best of all, the flexibility of blockchain technology means that it has utility [outside of the cryptocurrency space](https://www.investopedia.com/terms/b/blockchain.asp) as well.

4) Transferability

Thanks to cryptocurrency exchanges, wallets and other tools, Bitcoin is transferable between parties. While it takes vast amounts of electricity to mine Bitcoin, maintain the blockchain and process digital transactions, individuals do not typically hold any physical representation of Bitcoin in the process.

Bitcoin Challenges

Generally, Bitcoin holds up fairly well in the above categories when compared against fiat currencies. So what are the challenges facing Bitcoin as a currency?

One of the biggest issues is Bitcoin's status as a store of value. Bitcoin's utility as a store of value is dependent on its utility as a medium of exchange. We base this in turn on the assumption that for something to be used as a store of value it needs to have some intrinsic value, and if Bitcoin does not achieve success as a medium of exchange, it will have no practical utility and thus no intrinsic value and won't be appealing as a store of value. Like fiat currencies, Bitcoin is not backed by any physical commodity or precious metal. Throughout much of its history, the current value of Bitcoin has been driven primarily by speculative interest. Bitcoin has exhibited characteristics of a [bubble](https://www.investopedia.com/terms/b/bubble.asp) with drastic price run-ups and a craze of media attention. This is likely to decline as Bitcoin continues to see greater mainstream adoption, but the future is uncertain.

Bitcoin's utility and transferability are challenged by difficulties surrounding the cryptocurrency storage and exchange spaces. In recent years, digital currency exchanges have been plagued by hacks, thefts and fraud. Of course, thefts also occur in the fiat currency world as well. In those cases, however, regulation is much more settled, providing somewhat more straightforward means of redress. Bitcoin and cryptocurrencies more broadly are still viewed as more of a "Wild West" setting when it comes to regulation. Different governments view Bitcoin in dramatically different ways, and the repercussions for Bitcoin's adoption as a global currency are significant.

How Much Would Bitcoin Have to Be Worth to Rival Fiat Currencies?

In order to place a value on Bitcoin we need to project what market penetration it will achieve in each sphere. This article will not make a case for what the market penetration will be, but for the sake of the evaluation, we'll pick a rather arbitrary value of 15 percent, both for bitcoin as a currency and bitcoin as a store of value. You are encouraged to form your own opinion for this projection and adjust the valuation accordingly.

The simplest way to approach the model would be to look at the current worldwide value of all mediums of exchange and of all stores of value comparable to bitcoin, and calculate the value of bitcoin's projected percentage. The predominant medium of exchange is [government backed money](https://www.investopedia.com/terms/f/fiatmoney.asp), and for our model we will focus solely on them.

Roughly speaking, M1 (which includes M0) is currently worth about 25 trillion U.S. dollars, which will serve as our current worldwide value of mediums of exchange.

M3 (which includes all the other buckets) minus M1 is worth about 45 trillion U.S. dollars. We will include this as a store of value that is comparable to bitcoin. To this, we will also add an estimate for the worldwide [value of gold](https://www.investopedia.com/articles/investing/071114/why-gold-has-always-had-value.asp)held as a store of value. While some may use jewelry as a store of value, for our model we will only consider gold bullion. The [U.S. Geological Survey](https://pubs.usgs.gov/of/2002/of02-303/OFR_02-303.pdf) estimated that at the end of 1999, there were about 122,000 metric tons of available above-ground gold. Of this, 48 percent, or 58,560 metric tons, was in the form of private and official bullion stocks. At an estimated current price of $1,200 per [troy ounce](https://www.investopedia.com/terms/t/troyounce.asp), that amount of gold is today worth upwards of 2.1 trillion U.S. dollars. Since there has in recent years been a deficit in the supply of silver and governments have been selling significant amounts of their [silver bullion](https://www.silverinstitute.org/site/supply-demand/), we reason that most [silver](https://www.investopedia.com/terms/c/commoditiesexchange.asp) is being used in industry and not as a store of value, and will not include silver in our model. Neither will we treat other precious metals or gemstones. In aggregate, our estimate for the global value of stores of value comparable to bitcoin, including savings accounts, small and large time deposits, money market funds, and gold bullion, come to 47.1 trillion U.S. dollars.

Our total estimate for global value of mediums of exchange and stores of value thus comes to 72.1 trillion U.S. dollars. If Bitcoin were to achieve 15 percent of this valuation, its market capitalization in today's money would be 10.8 trillion U.S. dollars. With all 21 million bitcoin in circulation, that would put the price of 1 Bitcoin at $514,000.

This is a rather simple long term model. Perhaps the biggest question it hinges on is exactly how much adoption will Bitcoin achieve? Coming up with a value for the current price of Bitcoin would involve pricing in the risk of low adoption or failure of Bitcoin as a currency, which could include being displaced by one or more other digital currencies. Models often consider the velocity of money, frequently arguing that since Bitcoin can support transfers that take less than an hour, the velocity of money in the future Bitcoin ecosystem will be higher than the current average velocity of money. Another view on this though would be that velocity of money is not restricted by today's payment rails in any significant way and that its main determinant is the need or willingness of people to transact. Therefore, the projected velocity of money could be treated as roughly equal to its current value.

Another angle at modeling the price of Bitcoin, and perhaps a useful one for the near-to-medium term, would be to look at specific industries or markets one thinks it could impact or disrupt and think about how much of that market could end up using Bitcoin. The World Bitcoin Network provides a [nifty tool](http://worldbitcoinnetwork.com/BitcoinPriceModel-Alpha.html) for doing just that.

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