
Basics of
Cryptocurrencies
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WHAT'S CRYPTOCURRENCY?

Cryptocurrencies, or virtual currencies, are a means of digital exchange. Cryptocurrencies were created and are used by private groups or individuals. Because of the fact that national governments don't regulate most cryptocurrencies, they are considered as alternative currencies, mediums of financial exchange which exist beyond the bounds of state monetary policy. The dominant cryptocurrency is Bitcoin. It's the first to be widely used. However there are hundreds of existing cryptocurrencies, and more created every month.

Cryptocurrencies use cryptographic protocols. These protocols are extremely complex code systems that encrypt sensitive data transfers, securing their units of exchange. The cryptocurrency developers build these cryptographic protocols on advanced mathematics and computer engineering principles that render them virtually unbreakable. Therefore to counterfeit or duplicate the protected currencies. Also, these protocols conceal the identities of cryptocurrency users. Concealing the identities makes transactions and fund flows difficult to attribute to specific groups or individuals.

DECENTRALIZED CONTROL

Also, cryptocurrencies are marked by decentralized control. The supply and value of cryptocurrencies are controlled by extremely complex protocols built into their governing codes and their users' activities. It is not by the deliberate decisions of central banks or other regulatory authorities. Specifically, the activities of miners, the cryptocurrency users who leverage huge amounts of computing power for recording transactions, receiving cryptocurrency units that are newly created and the transaction fees that other users pay in return, are essential for the smooth function and the stability of the currencies.

Importantly, cryptocurrencies are exchangeable for fiat currencies in particular online markets, meaning that each has a variable exchange rate with one of the major world currencies (such as the U.S. dollar, European euro, British pound, and Japanese yen). You need to know that cryptocurrency exchanges are slightly vulnerable to hacking. They represent the most common venue for theft of digital currency.

FINITE SUPPLY

Most, but not all of the cryptocurrencies are characterized by a supply that is finite. In their source codes are the instructions outlining the precise number of units of the cryptocurrency that can and will ever exist. Over time, it becomes more challenging for miners to produce cryptocurrency units. This is until they reach the upper limit and the new currency desists altogether to be minted. The finite supply of cryptocurrencies makes them inherently deflationary, more similar to gold and other precious metals, which have limited supplies, than fiat currencies, which central banks can, in theory, produce an unlimited supply of it.

Because of their political independence and essentially their impenetrable data security, cryptocurrency users can enjoy the benefits that are not available to users of traditional fiat currencies, like the U.S. dollar, and the financial systems that those currencies support. For example, whereas a government can easily freeze or even seize a bank account that is located in its jurisdiction, it is tough for it to do the same with funds that are held in cryptocurrency, even if the holder of the cryptocurrency is a citizen or legal resident.

Hese are just a few of many coins that operate on a limited supply:

- Litecoin (84 million)
- Ripple (100 billion)
- Dash (18.9 million)
- IOTA (2.8 billion)
- EOS (1 billion)
- AntShares-NEO (100 million)
- BitShares (100 million)
- Stem (250 million)
- Veritaseum (100 million)

This is a quick list of major players that are uncapped as of today:

- Ethereum
- Ethereum Classic
- NEM
- Monero
- Zcash
- Stratis

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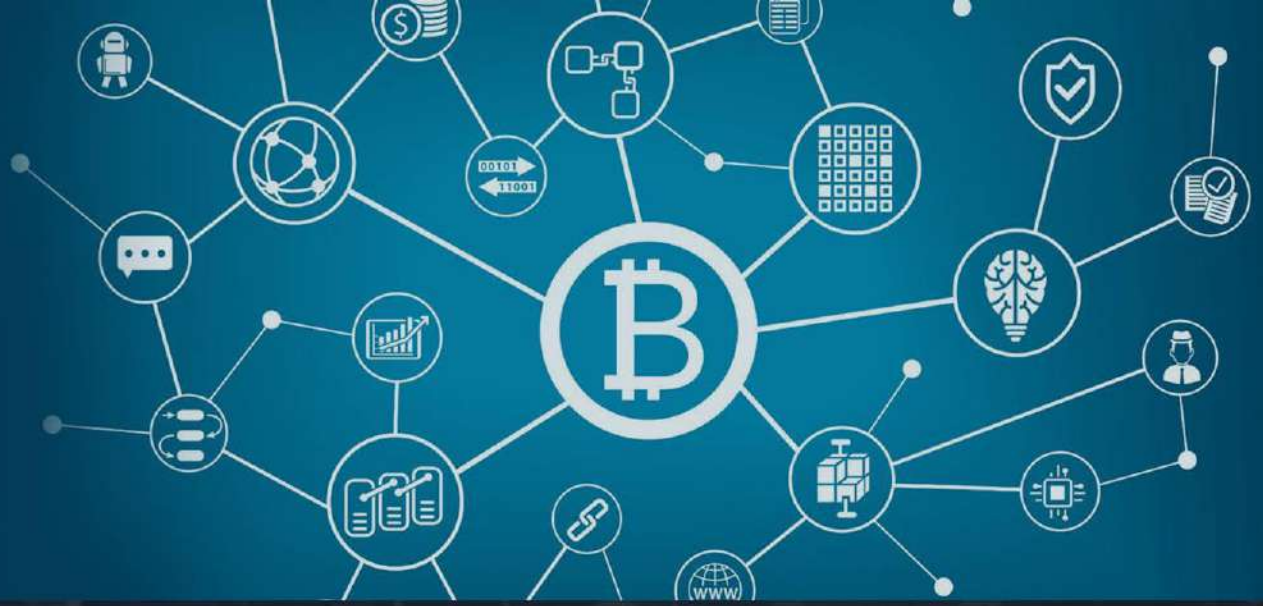
BLOCK CHAIN



The blockchain of a cryptocurrency is the master ledger that records and stores all the prior activity and transactions. It validates ownership of all units of the currency at any given time. As the record of a cryptocurrency's entire transaction history to date, a block chain's length is finite. This means that it contains a limited number of transactions that increase over time.There are identical copies of the block chain which are stored in every node of the software network of the cryptocurrency. It is a network of decentralized server farms that are run by computer-savvy individuals or groups of individuals called miners. These miners record and authenticate cryptocurrency transactions continually.

Technically, a cryptocurrency transaction isn't finalized until it is added to the block chain. This part of the transaction usually occurs within minutes. Once the transaction is finalized, it is generally irreversible. Unlike the traditional payment processors, like credit cards and PayPal, most cryptocurrencies do not have built-in chargeback or refund functions. However, some newer cryptocurrencies have basic refund features.During the lag time between the initiation and finalization of the transaction, the units aren't available for use by either party. Thus, the block chain prevents any double spending, or the manipulation of cryptocurrency code to let the same currency units to get duplicated and sent to various recipients.

PRIVATE KEYS

Every holder of cryptocurrency has a private key. This key authenticates their identity, and it allows them to exchange units. Cryptocurrency users can make up their own private keys, which are then formatted as whole numbers ranging between 1 and 78 digits long, or they can use a random number generator to create a private key. When they have a key, they can obtain and spend cryptocurrency. Without this private key, the holder cannot spend or convert their cryptocurrency, which would render their holdings worthless unless and until they recover the key

WALLETS

Cryptocurrency users have “wallets”. These wallets have unique information confirming them as the temporary owners of their units. Whereas private keys verify the authenticity of a cryptocurrency transaction, the wallets can lessen the risk of theft for units that are not being used. When it comes to storage, wallets can be stored on the cloud, an external storage device, or an internal hard drive. Regardless of how a wallet is stored, it is strongly recommended to have at least one backup. Take note that when you back up a wallet, it does not duplicate the actual cryptocurrency units. It just requires the record of their existence and current ownership.

MINERS

Cryptocurrency miners are individuals or closely-affiliated groups who maintain the completeness and accuracy of blockchain functionality and “regulate the supply of cryptocurrencies. As such, mining serves 2 purposes – adding transactions to the blockchain and releasing new units of currency. In case of the latter, miners use powerful computers or ASIC devices and dedicate its computational power to solve complex mathematical tasks. When new block with transaction data is added to the chain, miners try to “crack” it by using sophisticated cryptographic hash functions. Once the block is solved, whoever contributed more hash rate (the Hash Rate is the speed at which a computer is completing an operation in the Bitcoin code) will get a higher reward.

This might be difficult to digest first but look at this from different angle. Imagine a Gold Rush seeker in 1849 who comes to the stream. Gold seekers used simple techniques to retrieve gold from streams and riverbeds. The resulting supply of gold mined using those techniques was small and could hardly provide enough money for those who utilized simple tools. Suddenly, some individual came with much more sophisticated gold recovery technology and retrieved much more. The individual’s profit was higher than of those who used simple padding tools. The relevance of this example here lies in the fact that there is apparent similarity between both processes, with blockchain being the stream and hardware taking seeker’s place. A miner equipped with powerful hardware solves blocks faster and gets bigger rewards

CRYPTOCURRENCY EXCHANGES

Some of the many lesser-used cryptocurrencies can only be exchanged through private, peer-to-peer transfers. This means that they are not very liquid and are hard to value relative to other currencies, both cryptocurrencies and fiat currencies.

The more popular cryptocurrencies, such as Ripple and Bitcoin, trade on special secondary exchanges. These secondary exchanges are similar to forex exchanges for fiat currencies. These platforms allow for the holders to exchange their cryptocurrency holdings for major fiat currencies, like the Euro and U.S. dollar, and other cryptocurrencies (including currencies that are less-popular). In return for their services, they take a small cut of each transaction's value. The cut is usually less than 1%.

Cryptocurrency exchanges have a valuable role in creating liquid markets for popular cryptocurrencies. They set their value relative to traditional currencies. However, the exchange pricing can still be extremely volatile. For example, Bitcoin's U.S. dollar exchange rate fell by over 50% in the wake of Mt. Gox's collapse.