



# cryptocurrencies



## what are they?

They're decentralised digital currencies protected by encryption, that have no 'centre' controlling supply. Transactions are 'peer-to-peer', with a public ledger – controlled by everyone involved, and the action is on members' computers around the world. The big difference is not that they're encrypted, it's that they're decentralised. You can use a cryptocurrency without knowing how it works. If you can use a smartphone, you can use a cryptocurrency.

The most powerful tool in a cryptocurrency is a 'blockchain' - a list of previous transactions. New transactions are added in a way that verifies they're valid, and is transparent, so everyone has full knowledge of all accounts and transactions – although individual account holders remain anonymous. Fraud is virtually impossible.

**History:** Bitcoin was launched in 2009 by 'Satoshi Nakamoto' (no-one knows who s/he is – or if it's a person or a group). Since then, maybe thousands of cryptocurrencies have been created, many of which were scams or not very good – but a few hundred are still working. They're called 'altcoins', i.e. alternatives to Bitcoin. You can find a list here - [coinmarketcap.com/currencies/views/all/](http://coinmarketcap.com/currencies/views/all/).

**How they work:** money used to be coins of precious metals. It was quite a leap of faith when notes that 'promise to pay the bearer' were used instead (safer than carrying gold around). Now most money is created as debt, which only ever exists as figures on a screen. But people trust those figures, and are happy to accept them as wages or as payment for goods and services.

Cryptocurrencies aren't produced by banks, but by individuals, usually by 'mining' (proof of work). With Bitcoin, miners' computers do complex calculations, and receive crypto-coins as reward for work done. Think of gold prospectors working to find gold, which brought more money into circulation. This system creates competition and requires lots of energy to obtain coins – similar to the growth/competition economic model that is so bad for ecology. Other sysCopleft licences

prevent the corporate enclosure (by amending and patenting / copyrighting) of work that the originator wanted to remain open.tems (e.g. Faircoin) have a 'proof of stake' algorithm, not based on work, but on savings, so it doesn't require ever-increasing computing power. They accept that this has implications for equality (people with more money get more coins), and they're developing a 'proof of co-operation' algorithm.

## what are the benefits?

- fast – easy to set up, no hoops to jump through
- cheap – no bank fees, including for overseas transfers (tiny fee for immediate transfer)
- don't contribute to bankers' profits / bonuses, or to bank bailouts with taxpayers' money
- can't be controlled by banks or governments, and could eventually help do away with the need for banks altogether; as Max Keiser says: 'the bankers' model of doing business is 100 years out of date, and we need to get rid of it'
- worst-case scenario, your bank can take your money, as Cypriot banks did in 2013; this absolutely can't happen with cryptocurrencies
- encryption ensures no-one makes transactions in the name of anyone else – everyone has their own digital signature. Records of transactions are sent to everyone in the network, and automatically checked so that no-one uses their crypto-coins fraudulently
- so you don't have to trust anyone, because fraud is virtually impossible; and anyway, in this day and age, do you really trust banks?
- there's no way to reverse payment to defraud a seller; if you were a genius with unlimited time and funds, you may be able to get round this, but in the real world, it's pretty much impossible
- you're not asked to give secret information like credit card CSV numbers; transactions are via a public key and a private key, and you'll never be asked for your private key
- resilient – because it exists as a peer-to-peer network, there's no danger to the system from a particular server crashing



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- non-inflationary – ‘quantitative easing’ isn’t going to happen in cryptocurrency world, because banks and governments can’t pump money into it, devaluing your funds

And a couple of disbenefits: first, blockchains may become too big and unwieldy to be stored on users’ computers. Safecoin is developing an alternative to the blockchain, and so this may provide the answer, but growth in the blockchain may be paralleled by growth in storage device capacity, which may make it a non-problem. Second, cryptocurrencies have to be bought with bank-controlled, debt money. This means that we can’t escape from the banks’ power via cryptocurrencies. They also fluctuate in value wildly and they can concentrate in few hands, which encourages speculators and causes inequality. In the end, it may be the blockchain that benefits society more than cryptocurrencies. Already, one country (Honduras) is moving to blockchain technology to run its land registry, after years of fraudulent land-grabbing.

### what can I do?

Check everything for security and get experience. Do a tutorial (online), dabble with small amounts. Fraudulent traders can buy large amounts of an unpopular coin, which causes a stir and raises the price, after which they sell their stock, make a huge profit, but cause a slump which may mean the end of that coin. The more resilient a coin, the less likely this is to happen. CoinGecko ranks coins based on their relative strength.

**Choose your cryptocurrency:** try Bitcoin first, as it’s big and secure, and there’s more information out there about it. Then set up a virtual wallet. Each currency will have a page on its website where you can download your wallet, with instructions on how to use it, add a password and back it up. Like a real wallet, you want to keep it secure (see resources). Your wallet will provide you with an address to make transactions.

Then get some coins. It’s good to mine, as it makes the currency more secure, but it’s so difficult now, at least with Bitcoin, that you’ll probably buy. Bitcoin allow a new block to be mined every 10 minutes, but more people are joining, so the calculations to mine a block are becoming so difficult, that you need to be part of a pool, and these pools have become quite sophisticated set-ups. With some of the other altcoins, you can mine as an enthusiastic amateur.



More and more outlets are accepting Bitcoin.

**Buying coins:** if you’re new, go through an exchange. Coinbase is a reputable one – just follow instructions. You’ll need to enter your bank details. Or search online for ‘buy Bitcoins’ and browse. There are many online marketplaces that put buyers in touch with sellers, listed by price. Just click on a seller and buy via bank transfer. Coins will be delivered to your wallet.

**Spending coins:** put whatever you want to buy, plus Bitcoin (or another coin) into a search engine (e.g. buy laptop Bitcoin). You can make payments to any individual or business with a wallet. Just go to your exchange account, enter the payee’s address, and how much, and away you go.

**Accepting coins as payment:** can be done face-to-face via smartphone apps; Bitcoin payment terminals for Bitcoin-based debit cards; payment buttons and plugins for online shopping carts etc. There are lots of companies providing payment services, but this market is going to be changing fast – do some research and talk with specialists.

### resources

- [lowimpact.org/cryptocurrencies](http://lowimpact.org/cryptocurrencies) - more info, websites, services, courses & books, including:
- Vigna & Casey, *the Age of Cryptocurrency*
- Melanie Swan, *Blockchain: Blueprint for a New Economy*
- Andreas Antonopoulos, *Mastering Bitcoin*
- [cryptobizmagazine.com](http://cryptobizmagazine.com) - Cryptobiz magazine
- [coindesk.com](http://coindesk.com) - lots of useful info
- [bitcoin.org](http://bitcoin.org) - Bitcoin
- [youtube.com/watch?v=T\\_hBhymFfm8](https://www.youtube.com/watch?v=T_hBhymFfm8) - why banks fear Bitcoin
- [2017.fair.coop/faircoin/](http://2017.fair.coop/faircoin/) - FairCoin: coin based on ‘proof of stake’ rather than proof of work

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