

Cybercurrencies

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Abstract

Cryptocurrencies appeared as a normal evolution of digital money. It is certain that cash is less used compared to twenty years ago, most transactions are made online or using digital money, such as banking transfers, credit cards payments, mobile applications, pay pal, etc.

Cryptocurrency became the second generation of digital money, in a improved form, using current technology, and is constantly growing, exceeding the most optimistic predictions, but is also challenging and unpredictable because of it is impossible to control it anyhow.

Key words: cryptocurrency, digital cash, cyber currency, bitcoin, blockchain

J.E.L. classification: E31, E32, E42, G32, M48, O3

1. Introduction

Central banks, governments and other legal or financial institutions back a traditional currency.

Compared to fiat money, a cyber currency has no physical shape, it doesn't need to be issued by any central bank, has no surveillance authority, all transactions are made by the system users, it is not legal tender and it is safe because the technology uses asymmetric key cryptography.

Nine years ago, Satoshi Nakamoto released the Bitcoin white paper in November 2008 explaining what his currency was and how it works: "Bitcoin: A Peer-to-Peer Electronic Cash System". Later, in January 2009, he launched Bitcoin currency.

2. Cryptocurrency explained

The computer scientist created the bitcoin, meaning electronic cash, as a way to facilitate payments without involving a financial institution. The innovation consists mainly in the blockchain, which keeps the blueprint of all electronic transactions, using a peer-to-peer network, at worldwide level but that is not backed up by trust, but by a cryptographic proof. Deloitte explains in a 2017 study that the transactions are validated and registered in an assigned ledger, the blockchain, by the peers, meaning the miners. After validation, the new data block becomes a new part of the blockchain, which cannot get altered. The computers making up the network are called nodes and are the ones validating and keeping the records in a peer-to-peer network extending worldwide.

Protection is provided through cryptography. The system works not on the trust of a state authority but on the trust of its users. The currency gets accepted as way of payment because people recognize it. The blockchain is the security element that impedes the occurrence of double spending in digital transactions – the greatest fear of potential users of cryptocurrencies. The "blocks of chain" are linked blocks of information, which are not changing once fixed; it is impossible to lose or change the information once set.

The digital currency is mainly a chain of digital signatures (private keys) and can be exchanged for fiat currencies.

Transactions using cybercurrencies have small costs, the owners of the digital currency are not exposed, can't be tracked, since the sender and the receiver of the payment are anonymous.

The greatest and most accessible platform for trading, and storing digital currencies is Coindesk, has similar features with banking background for traditional currencies, but with no lending option. Even though is considered to be the safest, many cyber criminals acted their thefts on Coinbase, stealing hundreds of millions of dollars from users.

3. Risk exposure

Of course that there are disadvantages for using virtual cash, for instance, it's a relatively new concept, so cyber currency is not historically credible if we were to compare it with other types of investments. On the other hand, an economic law says that higher the risk is associated with higher potential returns (investopedia.com).

Another risk comes from the online again, since the currency, being 100% digital, is vulnerable to hacking and malware. The person who has the key encryption code is the owner of the bitcoin, so if someone steals the private key, can transfer immediately the bitcoin into another account. The transactions are irreversible. So if a transaction was made incorrect, it cannot be cancelled, only the receiver of the money can opt to send the bitcoin back. There is no authority where you can send complains.

The least beautiful part of the cybercurrency fairy tail is that because of its anonymity, difficulty of being tracked and speed of transactions no matter the geographical distances, make them perfect instruments for cybercrime (ransomware), using for paying criminal activities, money laundering, avoiding taxes, financing the illegal arms trade, etc.

Governments started to conceive and implement regulations for cyber currencies transactions, since the greatest money thefts in human history were cyber robberies.

4. What makes it valuable?

When a currency is exchanged for goods, its value is maintained. More and more people are attracted by cryptocurrencies, and as long as they make cyber capital acquisitions to store them and not speculating, like exchanging them for other currencies the cyber currency will, or at least preserve its value. Otherwise, the price may vertiginously collapse.

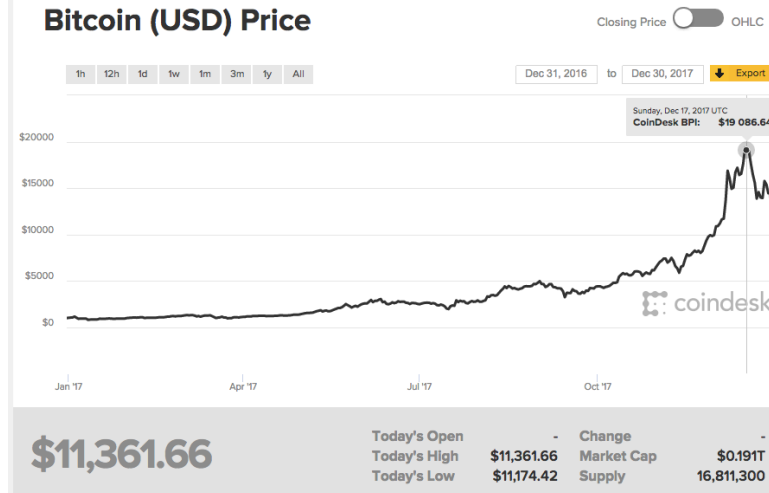
In terms of money, cryptocurrency is not money, as it doesn't have the typical characteristics:

- cannot be globally exchanged for goods and services;
- it is not transportable;
- it doesn't have a great intrinsic value compared to their volume and weight, as there is no weight, or physical form;
- it's not recognised,
- it can't be used as a standard to measure the value of the goods;
- it is not indispensable, one doesn't need to physically own the cryptocurrency in order to pay;
- one cannot consider it a value reserve, since it cannot be kept without losses, in a stable economy situation;

Bitcoin, Ethereum, Dash, Ripple, Litecoin, Monero, Dogecoin and other altcoins form together the monetary market of a more than other 1000 types of cybercurrencies. The future of money has started.

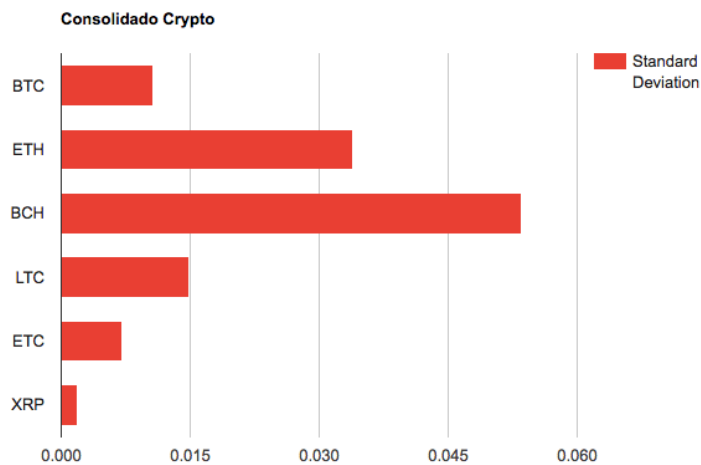
Although it has been on the market since almost a decade, in 2017, Bitcoin hugely rose from 1000\$ value at the beginning of the year, to 4000\$ in October and up to 19.000\$ by the end of the year (fig no.1). This variance of price means bitcoin had a huge volatility in 2017, even though is considered the slightest volatile cryptocurrency. The price deviation is proportional with volatility, meaning the smaller the price deviation, the lower the volatility.

Figure no. 1: Bitcoin price index, compared to USD



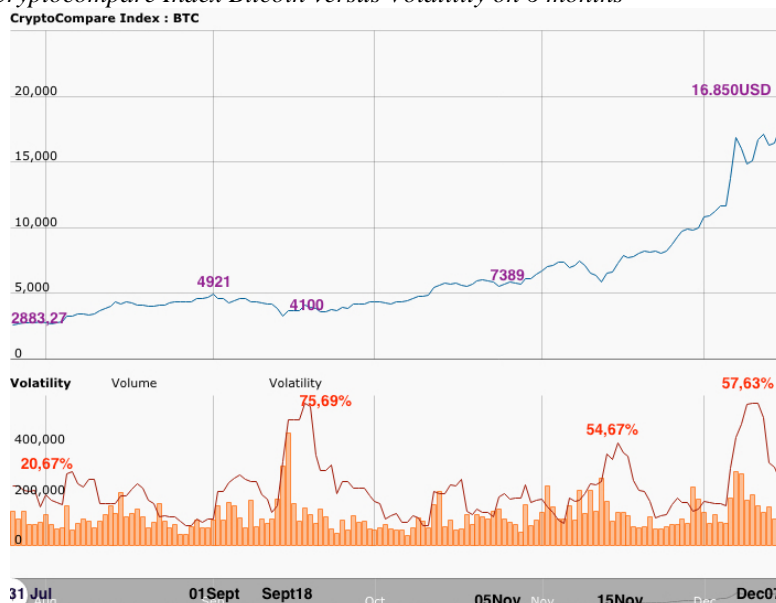
Source: data extraction from <https://www.coindesk.com/price/> (December 2017)

Figure no. 2 Standard deviation analysis of crypto currencies instant measure



Source: <https://forexstatistics.com> (accessed in November 17)

Figure no. 3 Cryptocompare Index Bitcoin versus Volatility on 6 months



Source: Author's selection and annotations extracted from www.cryptocompare.com

5. Next step – state owned currencies

United States

The United States stated since 2014 that wages paid in bitcoin and altcoins are taxable, both on payroll and as federal income for the employee. Cyber currencies are capital assets for the taxpayer, and are subject to taxation. The Internal Revenue Service (IRS) has access to track all records on transactions made on Coinbase surpassing \$20.000.

Russia

Cryptocurrency laws are created and adopted, Russia being one of the first states to introduce crypto regulation in 2018. Russians also expressed their intention to introduce the cryptoruble, a state sponsored currency, at the initiative of president Putin. The Russian cyber currency will be totally distinguished from the existing currencies, since it will be issued by the government and not through mining, and the value will equal the existing ruble. Mainly, will be a digital encrypted ruble, subject to taxation and not a sibling of bitcoin. They also want to ban bitcoin transactions in the future. There are many cases of money laundry and arms trafficking using bitcoin.

Venezuela

The hyperinflation in Venezuela brought the national currency, the bolivar in free fall (1\$ > 100.000 bolivars) and the economy in recession, lasting for more than five years now. Even the rising price of bitcoin was related with economic situation in Venezuela, where the electricity price is very low, and more than 100.000 Venezuelans work as miners. The official number is unknown, also the activity is considered illegal, and the government is chasing the miners and charge them on promoting cyber crime, extortion, money laundering, electricity theft and funding terrorism.

Anticipating the bitcoinisation of the country, the Venezuelan president, Nicolas Maduro, purposed a state-sponsored cryptocurrency, the *petro*, backed up by government and based on the oil, natural gases, gold and diamonds for taking the country out of the crisis. Its value will equal the price of a barrel. This kind of currency will be a tricky investment asset, since government is not trustworthy and will have direct control on the digital currency.

6. The path of cryptocurrency and conclusions

Deloitte (2015) made a comparison between bitcoin and state sponsored cryptocurrencies and we can conclude that in an existing crypto monetary system, based on innovation, competition is encouraged. Traditional finance institutions needs to lower the fees for their operations with fiat currencies, and create a friendly commission environment so they can still resist on the market and also they should come up with new products like digital wallets.

Bitcoin and other altcoins are a lot more volatile than traditional currencies and it takes time for the cryptocurrency market to settle. Lots of cryptocurrencies users are investors, they buy crypto currencies just to sell them after, to make a profit; less are the actual consumers. Perhaps when there will be more consumers than investors, the market will start to settle and the price volatility of bitcoin and other altcoins will get reliable.

Both consumers and organizations should see cryptocurrency as main option for the usual transactions, because of cheap commissions, speed of operations, security, and simple procedures. PwC (2015) conducted a study of the cryptocurrency evolution and asserts that banks will not be replaced but they have the opportunity to evolve in a competitive manner.

Governments and private sector also need to take measures and adopt regulations regarding the cyber security and compliance standards, working on the anti-money laundering, cybercrime downgrading and consumer protection.

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