Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics

Extended Abstract of Bachelor Thesis

Bitcoin and other virtual currencies

Diana Rokhmina

Abstract

In virtue of the enthusiasm of IT specialists, virtual currencies have emerged, becoming a novelty for the exchange market, and subsequently have successfully embedded in it, receiving recognition of financial experts and analysts. The most successful and well-known cryptocurrency today is Bitcoin. Bitcoins are computer files, analogous to music or a text document. Just like cash it can be destroyed or lost. However, unlike traditional currencies, it is not controlled by a single company, financial institution or government. Instead, its work is based on peer-to-peer network of clients running the open-source Bitcoin software. (David Allen Bronleewe, 2011) Its storage is either trusted on an online service or it's being kept on a personal computer and can be spent on both virtual and real goods and services.

This thesis work discusses the concept of e-money and digital currencies, factors that influence its development and affect its value. It explains the idea behind futures, summarizes all relevant data about the most successful digital currencies of today and clarifies the outcomes of Bitcoin's innovative intrusion and possible ways of its further development.

Keywords: Cryptocurrency, digital payment, transaction, blockchain, Bitcoin, scrypt, altcoin, futures, investment, miner.

Objectives and methodology

Given the crisis and numerous problems in financial systems at present, an importance of developing new ways of performing basic financial operations arises. The main goal of the work is to analyse Bitcoin as the most popular and successful cryptocurrency on the market, determine the factors that influence its price per coin, and could possibly be helpful in making the assessment, as well as the prognosis of Bitcoin's value changes in the future.

The Bachelor thesis consists of the following parts: literature review, practical part and conclusion. Main focus of the theoretical part is based on collecting, summarizing and presenting all the relevant data about electronic types of payment, digital currencies and Bitcoin. The necessary research has been implemented by means of obtaining data from existing documents – literature and publications – through documentary analysis.

The aim of the practical part is to conduct a trend analysis of Bitcoin's price fluctuations and its determinants; therefore, the applicable information and statistical data on Bitcoin's prices throughout recent years and its dependency on BTC or another cryptocurrencies acceptance has been gathered and evaluated by being synthesized.

Finally, to identify digital assets' place in the financial systems and economy of the future, a prognosis regarding analytical results of the researches performed has been assembled. Additionally, other types of digital currencies have been studied out, analysed in terms of their market capitalization, current price and circulating supply, and presented in form of an investent guide, providing all time price graphs and further relevant information.

1. Literature review

Digital currencies are assets, which value is determined by supply and demand. In contrast to traditional e-money, cryptocurrencies are not considered a liability of any individual or institution and aren't backed by any authority, resulting into their value relying only on the belief that they might be exchanged for other goods or services. The establishment of new units, in other words - the management of the total supply, is generally defined by a computer protocol and an algorithm, as no single entity has the discretion to manage the supply of units over time. The invention and issuance of new units is determined by various schemes, which have different long-run supplies and specific predetermined rules that help to create scarcity in the supply.

The key innovation of some of the digital currency schemes is the use of distributed ledgers to allow remote peer-to-peer exchanges of electronic value in the absence of trust between the parties and without the need for intermediaries. Thus, a payer is able to access the value through a digital wallet, where his/her cryptographic keys are stored and used to initiate a transaction that transfers a specific amount of value to the payee. Performed transaction then goes through a process of validation and adds it to a unified ledger, where many copies are distributed across the peer-to-peer network.

1. Introduction to Bitcoin

Bitcoin – world's first digital, decentralized and partially anonymous currency was created in 2009 by Satoshi Nakamoto. It is not supported by the government or a legal entity. Bitcoin does not have a central authority in charge of the money supply or a clearing center. Its transactions do not involve any traditional financial institutions; all the steps are performed solely by the users, involved in the given financial operation. Bitcoins are not tied to any real currency, their value in relativity to other currencies is determined by supply and demand. To maintain the anonymity of its users and the integrity of transactions, Bitcoin works using peer-

to-peer networks and cryptography. Its software is an open source that allows all users to view and understand how a basic computer code works.

There are three general ways for users to obtain bitcoins: it can be purchased by exchanging "real money" for Bitcoin files, users can get bitcoins in exchange for goods or services, and finally it's possible to gain Bitcoin by generating them through a process called "mining", that allows the users to generate digital currency rather than buying it.

2. Practical part review

1. Is Bitcoin a worthwhile investment?

Having made the necessary calculations, as well as having observed Bitcoin's price changes over a period of 6 month (October 2017 – March 2018), the investment can be considered profitable, as it has a positive Net Present Value (3813.4152), Internal rate of return (31%) and a decent profitability index ratio (1.3813). Moreover, due to a rapid increase in Bitcoin's cost per token in December, the real money equivalent of the return exceeds invested funds by more than 2 times in a relatively short period of time. However, the chosen time interval has been crucial for BTC value, resulting into a very high demand, which has also fundamentally influenced its current value. Thus, such high returns can't be expected in the nearest future, unless cryptocurrency is on a big rise again.

2. Acceptance of the bitcoin

Despite its volatility and instability of its exchange rate, the number of venues where it is possible to use your Bitcoin Wallet as a means of payment is steadily growing. It is clear that this is due to the great demand and popularity of Bitcoin, as well as its adaptation and integration into everyday life. Among the biggest companies accepting BTC as a currency today are: Microsoft, Overstock, Virgin Galactic, Tesla, Lionsgate films, Subway, Alza and Big Four's PwC.

3. What are futures and what do they mean for Bitcoin price?

Although Bitcoin itself stay unregulated, its futures can be traded on regulated exchanges.

Additionally, Bitcoin futures make it possible for investors to continue speculating on BTC price in those areas, where its trade is banned, such as Algeria, Bolivia, Bangladesh, Ecuador, Nepal and Kyrgyzstan. As the general interest in the cryptocurrency is growing, in the short term, futures push BTC value upwards: in December 2017, one day after Bitcoin Futures' first launch at the Chicago Board Options Exchange (CBOE) – a large regulated exchange, the price escalated by almost 10% to $16,936. The long-term impact of the Bitcoin's futures on its value, however, is harder to prognose, but it is likely to continue on boosting its price.

4. What are the determinants of Bitcoin price?

Bitcoin's cost is resolved against fiat cash. In this manner it shows up on the exchange market like any other traded symbol. However, it differs from fiat monetary standards, as there is no official cost; just different midpoints considering value bolsters from worldwide trades. Bitcoin Average and CoinDesk are two records detailing the average cost. It's typical for Bitcoin to be exchanged on any single trade at a cost somewhat different to the actual average. Moreover, its value is determined by several factors, among which: market supply and demand; total amount of Bitcoins and its holders; technical issues; mass media, political and economic events worldwide; high volatility.

3. Conclusion

The year 2017 has become significant in the history of Bitcoin and digital currencies in general. Considering the aspects, that are determinant when it comes to Bitcoin's volatility and price changes, we can distinguish three main factors, which are used for the forecast of Bitcoin future value:

- the evaluation of consumer and buyer's volume in the virtual arena;
- the issue price (the cost of Bitcoin's emission in comparison with other digital currencies);
- the cost of bitcoin after investing (the gain of the BTC holder in the form of supplementary profit in addition to fluctuations in its own value).

In the nearest future, cryptocurrencies could have an ambitious take-off and become a widely used payment method, being accepted everywhere and facilitating the financial transactions between the parties, regardless the boarders. However, if this 'speculative bubble' bursts, it could have such severe consequences, that could possibly affect the entire sector, making the investors lose their faith in it and dragging them out, bankrupting the miners, who would by this time have spent hundreds thousands, if not millions on single-purpose hardware that requires a high price of a Bitcoin in order to be profitable, and renouncing virtual currencies as a technological dead-end. Nevertheless, it is possible, that digital currencies won't be facing a major change and things will stay as they are at the moment and as they have been for the past 5 years: its use will stay stable, mostly for the illegal operations, due to the lack of regulation, regardless its market price and high volatility.

4. References

1. Plassaras, Nicholas A. (2013) *Regulating Digital Currencies: Bringing Bitcoin within the Reach of the IMF*, Chicago Journal of International Law: Vol. 14: No. 1, Article 12.

Available at: http://chicagounbound.uchicago.edu/cjil/vol14/iss1/12

2. Bank for International Settlements (2015) *Committee on Payments and Market Infrastructures report on digital currencies.* Publication

Available at: https://www.bis.org/cpmi/publ/d137.pdf

3. Nakatomo, Satoshi. (October, 2008) *Bitcoin: A Peer-to-Peer Electronic Cash System.*

Available at: http://bitcoins.info/bitcoin.pdf

4. Campell, Robert.(July 10, 2017) *Bitcoin A to Z – The comple on guide for beginner to buy, sell, invest and trade*.

Available at: http://amazon.com

5. Ron, Dorit and Shamir, Adi. (2013) *Quantitative Analysis of the Full Bitcoin Transaction Graph.*

Available at: https://eprint.iacr.org/2012/584.pdf