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Case Study

A Study on Cryptocurrency Market

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I N F O

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A B S T R A C T

The paper is based on the analysis of the cryptocurrency to predict its rise in the future. The development of cryptocurrencies has lead to quick increase in their usage. The high fluctuation of these currencies is the motivation to analyse and predict their price in the market. The paper proposes the pool complexity approach to choose the best technology using social media, trading techniques, technical measures and other cryptocurrency data. According to the results achieved after analysis it shows that, the most efficient and rising cryptocurrency is the EOS cryptocurrency, which has the least complication and undertaking level among the analyzed currencies and allows the access of third-party applications in the system.

Keywords: Cryptocurrency, Block Chain, EOS, Bitcoin, Ethereum

Introduction

A cryptocurrency is “an encrypted decentralized digital currency transferred between peers and confirmed in a public ledger via a process called mining.” in order to enable a cryptocurrency, it needs a public ledger that records transactions (this is achieved securely through encryption, accurately by using transaction blockchains), transactions occurring between various parties, miners that confirm the transactions and store them in the public ledgers by solving a complex mathematical problem (a method called proof of system). Through the use of cryptography and encryption techniques, the identities of the owners of these cryptocurrencies stay unknown throughout the transactions. Moreover, mining may be achieved by anyone because it is open source.

Once every transaction occurs and is recorded in the public ledger via mining, the transaction blockchain (the ledger) grows by one block (transaction) and can not be altered again, as it is confirmed by everyone viewing the ledger. Historically, cryptocurrencies are roughly twenty years recent. “bit gold” was the primary decentralized digital cryptocurrency. Bit gold is considered the first precursor to bitcoin.

In 2008, Satoshi Nakamoto released a paper detailing what would become Bitcoin in the near future. In order to optimize this method and to make it scalable, cryptocurrencies are decentralized and enacted on peer-to- peer networks.

This bypasses the traditional economic currencies that usually required the oversight of a central bank. However, the system will have to deal with cybersecurity threats like all other digital technologies.

Since Bitcoin’s inception in january 2009, thousands of cryptocurrencies have emerged. Today, there are close to 1000 cryptocurrencies offered for change online markets.

As of 2017, the entire market capitalization of all cryptocurrencies exceeded $100 billion. With crypto currencies taking such large market capitalization, it’s become important for firms wish to evolve with and adapt to the new millennial customers that have an affinity to these technologies to understand how they work, and how they’re evolving together with the marketplace.

Literature Review

Initially, cryptocurrencies are fresh things in the development of payment systems and technologies. In many literatures the cryptocurrency has been referred as virtual currency, digital currency, electronic money and digital gold, but in real world, it has varying properties that do not fully defined by these synonyms.[1]

The entitle "cryptocurrency" derived from the science called cryptography. Since four years, Cryptographers surveys methods to ensure confidentiality of information and have deep roots. The modern connotation of cryptography is based on elements of computer science, mathematics and encryption and decryption of data using keys to access.

Cryptography has developed in several genus with the time: symmetric encryption both recipient and the sender of the data share and uses the same keys to decrypt the information exchanged with each other and asymmetric encryption each participants on the network has a public key confirming the participant's status. Concurrently, the sender of the data has a secret key to decrypt the sent information, which he shares with the desired recipient. Hashing method is used for converting data stored in array into a specific code that stores information about this greatly data. This transmutation is called a hash function, the result of the encryption is called a hash code. Each hash code is unique, its decryption leads to the acquisition of the original data.

It is this subspecies of cryptography hashing that is the basis for the configuration of cryptocurrency systems, reflecting their essence: the technological nature of creation and the security inherent in these systems. This technology increases the level of confidentiality and reliability of transaction information.

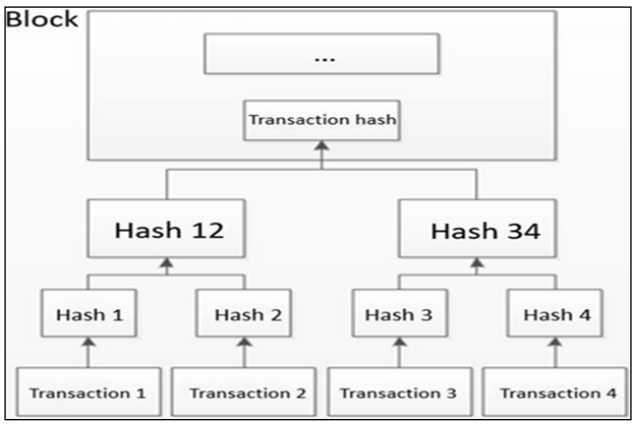

Figure 1.The Scheme of Obtaining a Hash of Transactions in Cryptocurrencies
Source: https://www.blockchain.com

The process of hashing an array of data involves: information about the individual operations performed is converted by a hash function, separate hashes are formed. This encrypted data is combined and amended by the following hash function, as a result, the expensive combination of functions will be the transaction hash, with which the data will be decrypted. As a result, information data blocks are formed.[2,6]

Further more, the hashed information formed in blocks create a single stream of inter connected data, protected using blockchain technology (Figure 1). Due to this, transactions cann't be reversed, and it is impossible to change the degenerated information. Each generated block in the blockchain network contains data about the previous block, including a key a hash function (Figure 1).

Forms of Cryptocurrency

So on with success introduce a brand-new form of currency into the open market, a research on the theoretical basis of the issue is needed. At this stage, the following countries and regions have already introduced a structure that provides the status of cryptocurrencies: Malta, Japan, Germany, China, Belarus, Georgia, Estonia, Slovenia, Gibraltar, switzerland and Singapore.

These countries welcome the business and organizational capabilities of cryptocurrency to determine the future of cryptocurrency, it's necessary to distinguish between their nature of origin, purpose, functions and properties[7] Cryptocurrencies can be classified depending on their purpose of creation.

The following types are distinguished:

- Target cryptocurrencies, the nature and origin of this contains a specific intention. These digital currencies have an original purpose
- Non-targeted the creation of such cryptocurrencies most frequently happens involuntarily, as a results of software failure and a branch of the development scheme of the indigenous digital currency. This rebuilding of the system is called a fork

By the original code, they're distinguished as:

- Original digital currencies the process of their creation began with a very new system and code, different from the previously used cryptocurrencies
- Forks modernization or strong change within the source code of a certain existing cryptocurrency to form a brand new one a subsidiary.[8,9]

Data

At present, digital currencies are not a credible store of value but a measure of value, due to high volatility in the exchange rate. The main factors impacting the price of cryptocurrencies are the supply and demand ratio. Only a small fraction of the value of digital currencies is backed up the cost of generating them. Another important feature

that distinguishes cryptocurrency from fiat money is the limited supply due to which the complexity of ductile market expansion. For example, the most popular cryptocurrency Bitcoin has an emission limit of 21.5 million coins: at the end of 2020, slightly more than 18.5 million pieces were mined. The last coin should be mined in 2140, based on the calculations of the system algorithms of Bitcoin. Due to the increasing complexity of cryptocurrency mining, the cost of its creation will constantly grow; therefore, the Bitcoin rate will also rise.

There are two specific indicators that can assess the complexity of mining, the hash rate and the complexity of the pool.[10,11] The hash rate reflects the total computing power of the mining equipment involved in the cryptocurrency system and is expressed in hash/sec (H/s). The complexity of mining is constantly increasing. The following designations are mainly used: terahesh/sec (TH/s) and exahesh/sec (EH/s), where TH/s = 1,000,000,000,000 H/s, and EH/s = 1,000,000 TH/s.[12-14]

After analyzing the graph, we can conclude that there is a geometric progression in the development of the complexity and speed of data processing by all members of the Bitcoin system. The generation of each block of data requires more and more resources in the form of electricity and increased technical requirements for participants (Figure 3). The formation of each block requires the generation of a larger number of hashes hence the tremendous growth in the network hash rate.

The second indicator, the complexity of the pool has a specific calculation formula:

D = DIF1 (target)/ CUR (target)

where D is the pool's complexity,

DIF1 (target) is the number of symbols in the hash,

CUR (target) is a standard 256-bit number (Figure 2).

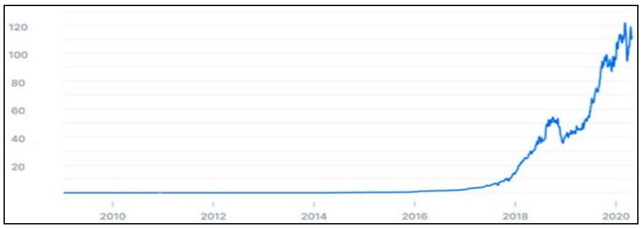

Figure 2.Bitcoin hashrate, EH/s
Source: https://www.blockchain.com

Analysis

Strength

Protection from Inflation

Inflation has caused many currencies to get their value reduced with time. When the cryptocurrency is launched, it is released with a fixed amount. As the demand increases, its value will increase which will keep up with the market and, in the long run, prevent inflation.

Secure and Private

Privacy and security have always been a major concern for cryptocurrencies. The blockchain records are based on different mathematical puzzles, which are difficult to decode. This makes a cryptocurrency secure.

Decentralized

A major pro of cryptocurrency is that they are mainly decentralized. A lot of cryptocurrencies are controlled by the developers using it and the people who have a significant amount of the coin, or by an organization to develop it before it is released into the market. The decentralization helps keep the currency monopoly free and in check so that no one organization can determine the flow and the value of the coin, which in turn, will keep it stable and secure.

Self-governed and Managed

Governance and protection of any currency is a major reason for its expansion. The cryptocurrency transactions are collected by developers/miners on their hardware and are paid for doing so. Since the miners are receiving paid for it, they keep transaction records accurate and up to date, keeping the integrity of the cryptocurrency and the records decentralized.

Currency Exchanges can be done Easily

Cryptocurrency can be purchased using any currencies like the US dollar, European euro, British pound, Indian rupee. With the help of different cryptocurrency wallets and exchanges, 1 currency can be translated into the other by trading in cryptocurrency, across different wallets, and with minimal transaction fees.

Weakness

Can be used for Illegal Transactions

Since the privacy and security of cryptocurrency is high, it is difficult for the government to track down any user by their wallet address or keep tabs on their data.

Bitcoin has been used as a mode of swapping money in a bunch of prohibited deals in the past, such as buying drugs on the dark web.

Adverse Effects of Mining on the Environment

Mining cryptocurrencies require a lot of computational power and electricity input, making it highly energy-intensive. It cannot be done on ordinary computers.

Major Bitcoin miners are in countries like China that use coal to produce electricity. This has increased China's carbon usage extensively.

Decentralized but still Operated by some Organization

The cryptocurrencies are known for being decentralized. But the flow and amount of some currencies in the market are still controlled by their creators and some organizations. The holders can manipulate the coin for large in its price.

Data Losses can cause Financial Losses

The engineers needed to make for all intents and purposes untraceable source code, solid hacking guards, and invulnerable confirmation conventions. This makes the cryptographic forms of money more secure than actual money. In any case, if any client loses the private key to their wallet, there's no getting it back.

Opportunities

Rapidity

You can instantly buy any currency without needing a wallet, and without buying Bitcoin in order to buy other currencies.

Leverage Effect

Another advantage is the opportunity to play leverage. Let us explain what the leverage effect is. Here is an example: you have decided to invest $10 in a cryptocurrency with a leverage of ⅕, and it is actually as if you had invested $50 US. Your winnings, if there are any, will be multiplied by. For this type of trading, there is a type of security called "stop loss" that allows you to never lose more than you invested.

Gains: Up or Down

You have the opportunity to win both the purchase and the sale. That is, you can "bet" on the upside as well as the downside of the desired currency. For example, you buy for $10 USD and you close at $11 US. If the price of the currency arrives as expected at $11 US, you have earned $1 US. If you decide to sell at $10 and close at $9, and the currency drops as expected to $9, you will also have earned $1. This is called a CFD: "contract for difference," or "short sale." So you have more opportunities to generate earnings.

Security

When you trade, you do not own the virtual currency. You cannot steal, hack, or lose your keys. Your purchase goes through an intermediary, who is a broker with bank security. You do not risk seeing your currencies fly away.

Threats

Price Manipulation

Another form of price manipulation is "buy walls" and "sell walls" done by a handful of individuals with massive holdings, who are simply known as "whales." If you have heard that cryptocurrency markets are volatile, this is the number-one reason why.

When an inexperienced investor sees a "buy wall," they interpret that as a positive price signal. The logic goes something like this: if someone opens a "buy" position worth a few million dollars, the price will go up. Since the same price position is taken by a whale, the investor will enter at a higher rate.

As soon as the price moves in the right direction, the "whale" will relocate their position in order to narrow down the range once again. If the market changes direction, these walls will suddenly disappear, often leaving the asset price in free fall.

Problem of Trust

The problem with scams, frauds,etc, is a problem of TRUST. The problem of trust in cryptocurrency investment is not limited to outright scams. Many projects use aggressive strategies of scaming, buy reviews and rankings, or are caught in the position of having over- promised.

High Fluctuation

The crypto market is very floatable because it's still a small market, and there is high correlation between the price of the major cryptocurrencies. Even the smallest change can have a huge effect on price, especially the fact that wealth distribution in cryptocurrencies is irregular (Figure 3).

Figure 3.Data Chart

Conclusion

It can be concluded that the cryptocurrency market is viable thus making the developers to develop both technical and technological features of its systems. Older digital currencies are constantly being improved while the new ones are emerging. Only market currencies designed for use outside the context of one system can compete since the cryptocurrency market is highly fragmented. These points helped the developers to constitute three main ways of viably developing the type of cryptocurrencies, they are: altcoins, which copy Bitcoin by their characteristics, stable coins, which are "catalogued" to a certain legal currency and cryptocurrency systems that allow developers to create applications for using these platforms in diverse industries.

Based on the results of the analysis, the most promising and effective cryptocurrency is EOS which has the platform of the similar name and has the lowest commission among the analyzed digital currencies. It also allows you to merge third-party applications into the system. Operations with

Bitcoin are also in the lead when it comes to daily turnover in the cryptocurrency market. This is due to the high unpredictability in the market that allows the usage of cryptocurrency as an instrument specifically for hypothetical operations. Cryptocurrency has a number of features that distinguish it from fiat money/inconvertible money and financial assets in spite of its investment attractiveness for investors and speculators.

The complexity of its prediction and the impossibility of using it as a means of accumulation or payment as freely as a legal currency is one of the major drawbacks of cryptocurrency on this side . The main motive of this paper is to put forward a more clear hypothetical approach that can be assessed while researching about cryptocurrencies. Furthermore, new studies may incorporate studies and also may concentrate on similar or different other factors into the theoretical base while developing new approaches for the fusion of a new model in crypto market prediction.

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