Review Article

Cryptocurrency: Historical Development, Operations and Accountability

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Abstract: The functioning of financial markets is impacted by the global cryptocurrency market, which also has significant effects on entire economies. Cryptocurrencies, which are still a relatively new idea and are constantly evolving and changing the financial landscape of the world, have started to take hold in a variety of industries, from financial markets to day-to-day commercial life. A new financial era has allegedly dawned with the advent of cryptocurrency. Cryptocurrencies are projected to become more prevalent and a part of daily life in the future as their popularity grows every day. Virtual money and Bitcoin have been discovered to have high levels of transaction volumes in the majority of nations. By looking over the existing literature and previous studies, the study used an exploratory methodology. Many businesses already pay their employees with bitcoins. The purpose of the study is to provide details on virtual currencies, including information about how each cryptocurrency, including Bitcoin, functions and its characteristics, as well as to make assessments regarding the accounting of their business dealings using Bitcoin in accordance with international accounting standards. According to the findings, the held cryptocurrency should be revalued at the end of the term, and any disparities resulting from gains or losses should be taxed. The importance of conducting studies for this is also underlined, as is the control over the cryptocurrency owned by businesses and the transactions done with it. Although the intangible asset accounting method is now thought to be the most appropriate way, future advances will inevitably lead to the creation of a new account class or group for cryptocurrencies.

Keywords: Bitcoin, Cryptocurrencies, Financial Market, Legal Regulations of the market, Technological and financial changes.

INTRODUCTION

Cryptocurrency, or digital currency, is a distributed accounting system based on encryption that stores information about the ownership status of traditional units. Samiran *et al.,* (2017) claim that only the owner of the connection's private key is permitted to administer the designated portfolio and that the state of ownership is linked to specific system nodes (portfolios) in a way that prevents the issuance of the same unit more than once. According to the founder of the most well-known cryptocurrency, it is "a chain of digital signatures as a digital coin." By digitally signing a hash of the earlier transaction and the new owner's public key and appending them to the end of the coin, each owner transfers ownership of the currency to the subsequent party. As seen in Figure 1, the payee can check the signatures to confirm the chain of ownership. The fact that the payee cannot confirm that one of the owners did not double-spend the currency, however, presents a glaring issue. The traditional remedy is to set up a reliable central authority, or mint, that examines each transaction for indications of double-spending (Satoshi, 2008).
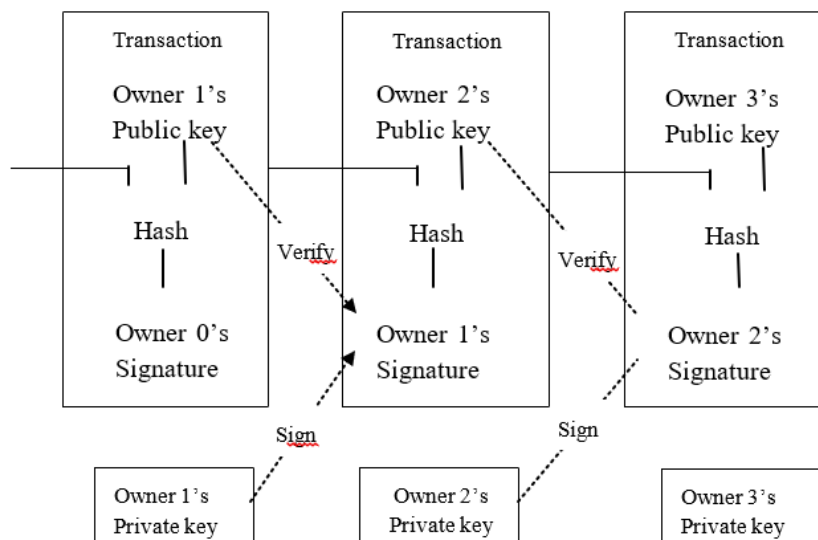
Figure 1: Cryptocurrency authentication transaction
Source: own study based on [Satoshi 2008]

Most online businesses currently rely on banking institutions to handle electronic payments as reliable third parties. The system is effective for the majority of transactions, but because it cannot avoid resolving disagreements, it continues to suffer from the fundamental flaws in the trust-based approach. A system of electronic payments based on cryptographic proof rather than confidence is required to enable any two willing parties to interact with each other directly without the need for a third party to be trusted (Investopedia, 2018). Online payments could be made instantly from an individual to another without going through a banking institution with a peer-to-peer version of virtual cash. The core of the entire cryptocurrency operational system is cryptology, the study of how to transmit data into a way that is protected from unwanted access (Christin, 2013). However, this approach also depends on organizations that ensure the confidence and validity of cryptographic keys. Unlike currently-existing cryptocurrencies, which mostly rely on bilateral confidence (between buyers and sellers), algorithms that make up the operating system are subject to control and change at the discretion of the developers. This carries the greatest danger, as evidenced by the overwhelming majority of cryptocurrencies that have abruptly ceased to operate or even exist. This is why this subject is so crucial (Gandal, Halaburda 2016). These systems, on the one hand, look for ideas that might work without requiring outside validation. Even without formal confidence signals from governments or other organizations, the global Bitcoin system is still in operation. Additionally, there is the chance to speculatively build rich mansions for private persons or businesses that are essentially hidden from the rest of the global system.

On the other hand, it creates significant worldwide economic losses, poses significant systemic risks, and serves as a cover for serious criminal conduct and financial catastrophes. This post will explain how cryptocurrencies work and go through recent changes. The writers will then take into account this perspective when they investigate and evaluate the global cryptocurrency market. The article uses the foresight approach, especially trend evaluation (quantitative data) and the discrete event system (qualitative and expert data), to achieve the research purpose. The analysis of the bitcoin market's recent history (Böhme *et al*. 2015) has identified trends that affect a variety of interest groups. This enables responsible behavior from the perspective of the international and European nations that must regulate the bitcoin market and establish the necessary legal framework. But from the perspective of investors, the study's findings make it possible to identify both new hazards and potential investment opportunities. This is shown by the historical study done in the article, which focuses initially on the most significant Bitcoin cryptocurrency, as well as by the acknowledgement of the issue of many short-lived cryptocurrencies, which causes many regularities for the cryptocurrency market. This directly translates into investors and institutions overseeing the financial system in nations and the global economy understanding it and making the appropriate decisions. These are numerical data that are essential for research and the real world of commerce.

Historical Evolution

Two factors account for the widespread interest in cryptocurrency. First and foremost, this is because of the notion of freedom and independence from external entities like the government or financial organizations. Second, both from the standpoint of potential investment gains those may be made legally and illegally. The fact that cryptocurrencies function like virtual currency is one of their key characteristics. Such a cryptocurrency is kept by its owner in a private, password-protected "wallet" on a computer or smartphone application. If he or she chooses to transact, it happens electronically and only between them and the contractor. Each cryptocurrency unit has a unique code that contains

information preventing duplicating or repurchasing of that unit. Another important component of the cryptocurrency concept is the lack of an active regulator (Zhu, Iansiti 2012). As a result, cryptocurrencies lack a central bank that may, for instance, decide to boost supply and cause a decline in value. The amount of a specific cryptocurrency in circulation at the time the system is being developed is determined by the creator. Its value is determined by the free market. Online, outside of any banking system, or amongst currency users using peer-to-peer technology, trading in cryptocurrencies takes occur. This implies that there is no supervision of the transaction in any way. Therefore, unlike with banking transactions for quantities over the equivalent of 15,000 Euro, there is no organization that will alert the tax authorities if someone wishes to sell a significant amount of bitcoin. No one can block our account, and the bailiff won't show up. Given the foregoing, it seems that the purpose of cryptocurrencies can be encapsulated in the word "freedom."

Cryptocurrencies are digital forms of money whose turnover is only controlled by a strong system of electronic, automated securities and completely unaltered by governance, local or international banking institutions. First and foremost, cryptocurrencies are ground-breaking internet technologies, and utilizing them for payment is but one of many potential uses for them. It is a system built on a peer-to-peer network, making it entirely distributed and devoid of a single entity, group, or location in which to be controlled. The computers used by system users are network nodes that exchange, approve, and settle transactions. This system maintains data on the ownership status of bitcoin contract units. The ownership of a particular cryptocurrency is associated with specific portfolios that provide data on the cryptocurrency of a particular user. During the initial user authorization in the system, the wallet is automatically created. The portfolio can only be managed by the holder of the matching encrypted private key. Double-issuing cryptocurrency, counterfeiting, or theft are impossible thanks to sophisticated mathematical and cryptographic techniques. The technology behind blockchain underpins the entire system. The first innovation in the financial system to be created outside of financial institutions and even without any collaboration with them is cryptocurrency. It is inventive, straightforward, and does not rely on the current financial systems.

The inherent strength of the financial system is also at danger. As a result, a lot of market authorities, including governments and financial institutions around the globe, see this system as a threat to both their personal financial security and to their widely recognised place of authority and dominance. We see the wildly disparate responses of nations all around the world as a result. To demonstrate the swift evolution of the Japanese regulators' tactics, one can utilize Japan (as an example of the most extensive regulation). Cryptocurrencies were acknowledged as a payment method but not yet as the currency established by the act on payment services on May 25, 2016, until new law that fully accepted them as legal tender was issued in April 2018. Additionally, the Japanese Central Bank began creating J-Coin, a model for its own digital currency. There is a contrast, though. For instance, while the creation of cryptocurrencies is prohibited in China, Bangladesh and Nepal have penalized the selling of cryptocurrencies by enacting the necessary rules. The use of cryptocurrency is now considered a violation of Bangladeshi money laundering laws and is subject to a 12-year maximum sentence in prison. The first detentions for such actions have occurred in Nepal following the introduction of regulations that forbid the circulation of crypts (Abram, Szymura 2017).

Volume of Operations
The most recent Bitcoin history, which essentially starts at the end of 2017, shows a spike in interest and nearly astonishing value growth, from the return and a turning point value of $ 1,000 to as high as $ 20,000 in the middle of December 2017 for one bitcoin. Almost one-fourth of the historical maximum value has decreased since then, and in the less than six months since, Figure 3 shows an increase and oscillation to about half of this number.
- One bitcoin is currently worth 1055.26 USD as of February 20, 2017.
- March 2, 2017 saw bitcoin worth more than gold at $ 1268 for 1 BTC, reaching its all-time high value of $20,000 in December;
- May 1, 2018: The exchange rate for 1 bitcoin is 8951.64 USD (31,105 PLN).

The cryptocurrency system, the majority of which replicate the regularity of the system's behavior, has Bitcoin as its leading example. The term "altcoin" (alternative coin) refers to the several hundred additional cryptocurrencies, including the "younger brother" of the bitcoin, the ethereum currency. Some of them were developed with other objectives in mind at the same time, such as Namecoin's establishment of a decentralized DNS system and Peer Coin's attempt to more evenly distribute the proceeds from unit extraction. Because it is based on free software, anyone can obtain the source code and use it to create their own coin. There are presently about 1,500 different types of cryptocurrencies. Many of them use the same code strategy and just slightly deviate from the original coin in terms of specific properties (such as the timing of blocks or the number of coins). More than 2,500 cryptocurrencies are currently listed on more than 7,000 specialized exchanges. Unfortunately, there are benefits and cons to each of them. Many cryptocurrencies, especially local ones, have a short operating history before going out of circulation. Because there are several instances of exploiting cryptocurrencies for financial fraud, adopting the system as a whole has the unfavorable consequence of doing so. There are unquestionably more advantages, even if emphasizing and fully utilizing them will necessitate certain technological and legal solutions. Table 1 lists cryptocurrencies with market capitalizations that are

currently greater than one billion US dollars to demonstrate the significance of the topic in the financial and economic sectors. A list of cryptocurrencies with a market capitalization of at least $1 billion is shown in the table. There are now roughly 25 of these cryptocurrencies. Market capitalization is the sum of all the coins in circulation times their current value. Number of coins in circulation multiplied by the price of one coin today equals market capitalization.

Table 1: A list of digital currencies having a market value greater than $1 billion

No.	Cryptocurrency	Code	Exchange rate	Number of coins	Market capitalization
1	Bitcoin	BTC	$ 8951.6394	17 180 188	$ 153,790,855,757
2	Ethereum	ETH	$ 646.5789	100 154 753	$ 64,757,950,249
3	Ripple	XRP	$ .80371665	39 541 619 593	$ 31,780,258,035
4	Bitcoin Cash	XBC	$ 1281.7728	17 275 946	$ 22,143,838,920
5	EOS	EOS	$ 16.7904	835 329 772	$ 14,025,521,010
6	Cardano	ADA	$ 0.3254823	26 188 960 137	$ 8,524,042,980
7	Litecoin	LTC	$ 143.9658	56 898 395	$ 8,191,423,098
8	Stellar Lumes	XLM	$ .39935016	18 759 309 869	$ 7,491,533,398
9	Tronix	TRX	$ .09088398	66 412 089 292	$ 6,035,794,995
10	NEO	NEO	$ 80.4078	65 659 718	$ 5,279,553,500
11	IOTA	IOT	$ 1.8513	2 800 940 157	$ 5,185,380,514
12	Monero	XMR	$ 230.3433	16 146 465	$ 3,719,230,081
13	Dash	DASH	$ 454.2615	8 121 006	$ 3,689,060,743
14	Nem	XEM	$ .39074508	9 090 909 088	$ 3,552,227,999
15	Tether	USDT	$ 0.99	2 450 101 824	$ 2,425,600,806

| No.	Cryptocurrency	Code	Exchange rate	Number of coins	Market capitalization
16	Vechain	VEN	$ 4.3362	530 773 566	$ 2,301,540,339
17	Etherum Classic	ETC	$ 20.7207	102 514 915	$ 2,124,180,807
18	Qtum	QTUM	$ 21.4731	89 476 920	$ 1,921,346,857
19	OmiseGO	OMG	$ 16.1964	103 074 544	$ 1,669,436,555
20	Binance Coin	BNB	$ 13.7511	115 221 419	$ 1,584,421,260
21	Lisk	LSK	$ 12.2463	106 472 521	$ 1,303,894,445
22	RaiBlocks	XRB	$ 9.4347	134 639 002	$ 1,270,278,593
23	Bitcoin Gold	BTG	$ 69.7455	17 146 505	$ 1,195,891,577
24	Verge	XVG	$ .07307982	15 092 890 527	$ 1,102,985,723
25	Zcash	ZEC	$ 272.6064	3 856 723	$ 1,051,367,505

Source: Ireneusz & Katarzyna (2019)

Accounting Implications of Cryptocurrency

The main accounting concerns for cryptocurrencies include tax size, position for auditing, and accounting of cryptocurrency. What the cryptocurrency is in this context in terms of accounting is the first question that needs to be addressed. The accounting guidelines and the financial reports from the nations' official institutions must be examined to get the answer to this query. The studies conducted in this context have led to the conclusion that treating and accounting for cryptocurrency as an intangible asset is the most appropriate course of action. According to the findings, the held cryptocurrency should be revalued at the end of the term, and any disparities resulting from gains or losses should be taxed. Additionally, the importance of the studies for this is underlined, as is the control of the cryptocurrency owned by the companies and the transactions done with it. Although the intangible asset accounting method is now thought to be the most appropriate way, future advances will inevitably lead to the creation of a new account class or group for cryptocurrencies. The number of scientific studies on cryptocurrencies is rising in the modern day. Answering questions like, "How should cryptocurrencies be recognized for in terms of operating assets or liabilities" has been crucial in terms of accounting science and discipline. - How should profit or loss from cryptocurrency transactions be recorded? - Countries are just beginning to develop legal guidelines for cryptocurrencies. In many nations, there are still no laws or official regulations describing the status of cryptocurrency transactions in terms of accounting.

Nevertheless, countries express their views on cryptocurrencies through their legal systems and work to assist those who anticipate needing their minimal legal requirements. States have been seen to be slow to enact the required legislation in response to cryptocurrencies, which have grown so quickly. It was noted that cryptocurrencies are stored on block chains, which are databases based on cryptography. From an accounting standpoint, cryptography is described as the conveyance of data through alteration so that only the appropriate recipient can read it; blockchain can be thought of as a type of digital notepad. As an alternative to double-sided recording, which is a traditional recording system, blockchain records are referred to as tripartite records in terms of accounting because in addition to the buyer and seller books, these transactions are also recorded in the blockchain network. Thus, it is also feasible to regulate the document (https://www.forbes.com/sites/forbes finance council). The value of a coin is one of the most crucial issues in accounting for cryptocurrencies. The accounting of the cryptocurrency money based on the day it was received and documented

according to the difference when it spends or sells can be used to explain this. In other words, it appears most logical to recognize cryptocurrencies for their true values. Bitcoin must satisfy the financial asset requirements in order for its real worth to be determined. However, because to its illegality, lack of foreign currency equivalent, and lack of contractually enforceable right and obligation, Bitcoin cannot be regarded as a financial asset. The value of Bitcoin may reach zero, according to a report in Morgan Stanley studies (Faucette, 2017).

Growth of the Cryptocurrency
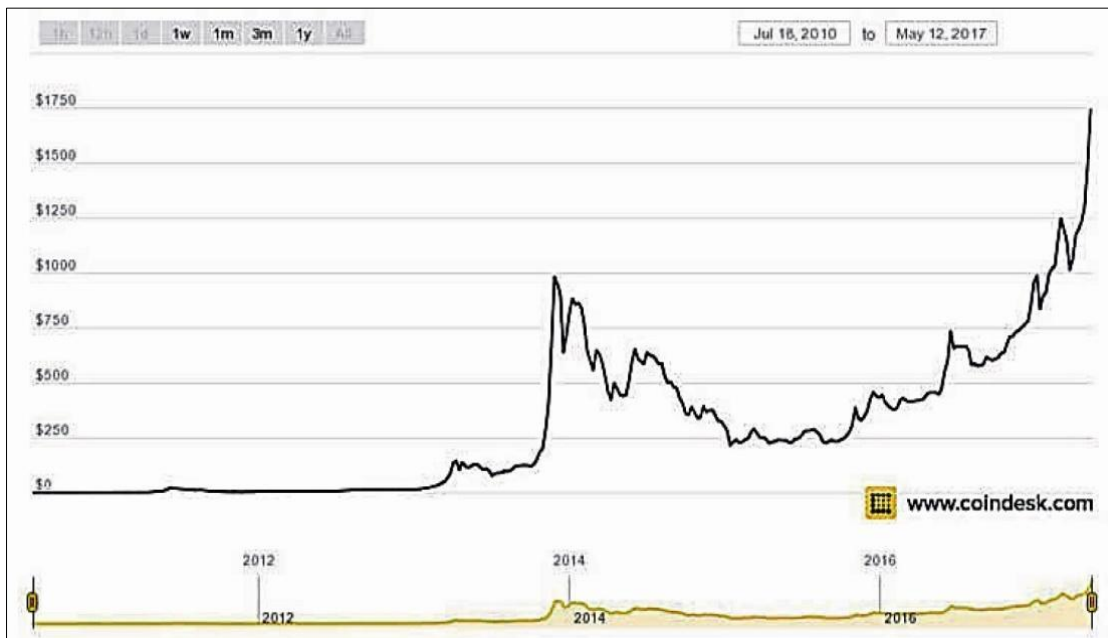
Figure 2: Bitcoin exchange rate in 2010-201
Source: Coindesk (2018]
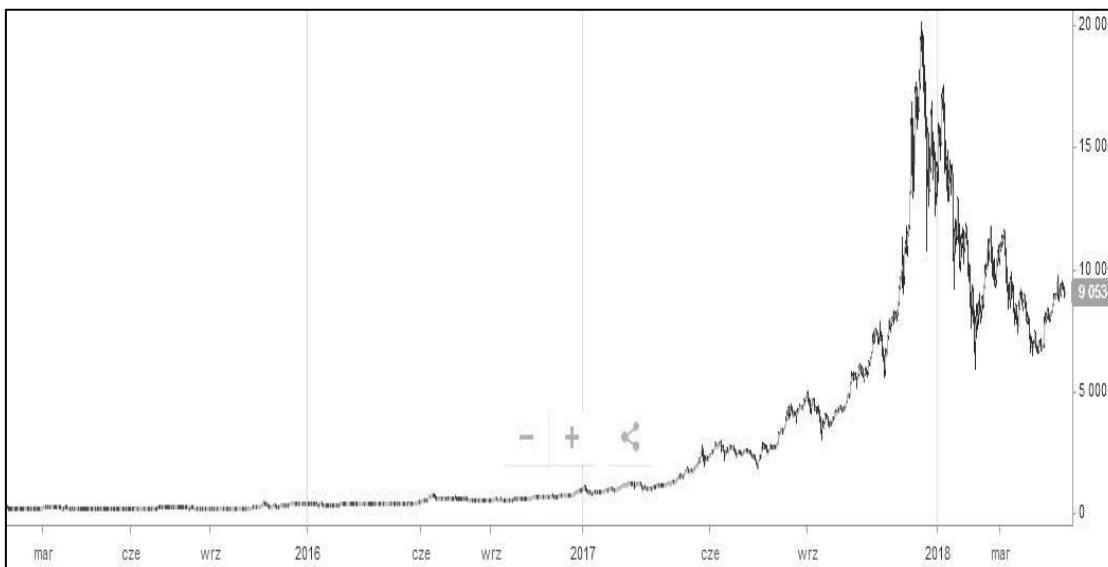
Figure 3: Bitcoin exchange rate in 2015-2018
Source: Money (2018)

- The most recent Bitcoin history, which essentially begins at the end of 2017, demonstrates a resurgence in interest and an almost unbelievable rise in value, from the return and breakthrough value of $ 1,000 to as high as $ 20,000 in mid-December 2017 for one bitcoin. As indicated in Figure 3, since then, in less than six months, we have observed a fall of almost a quarter of the historical maximum value and an increase and oscillation to around half of this value.
- As of February 20, 2017, 1 bitcoin is worth 1055.26 USD.

- As of March 2, 2017, bitcoin is more valuable than gold at $1268,
- 1 bitcoin was historically worth 20,000 dollars in December 2017, and as of May 1, 2018, it is worth 8951.64 USD (31,105 PLN).

Crypto Currencies, BlockChain Technology and Bitcoin
Crypto Currencies
Virtual money that is formed using a structure known as the cryptography-based block chain is referred to as a cryptocurrency. These currencies are transacted in electronic environments that offer quick, inexpensive, and secure money transfers between parties. They also have no physical assets, no centers, and cannot be controlled by any authority. With qualities like not being governed from any central location, fostering greater social cohesion, and doing away with financial intermediaries, cryptocurrencies built on the principles of open source and an end-to-end network architecture are disrupting the traditional financial sector (Scott, Loonam, Kumar, 2017). A financial system, as is common knowledge, is made up of individuals who supply and demand money, financial instruments, brokerage firms, legal agreements, and institutional structures. Each of these components guarantees that the financial system and financial markets are operating properly. The system's performance will be adversely affected if any one of these components fails, or if any one of them is missing. The cryptocurrency processing process is shown in the figure below.
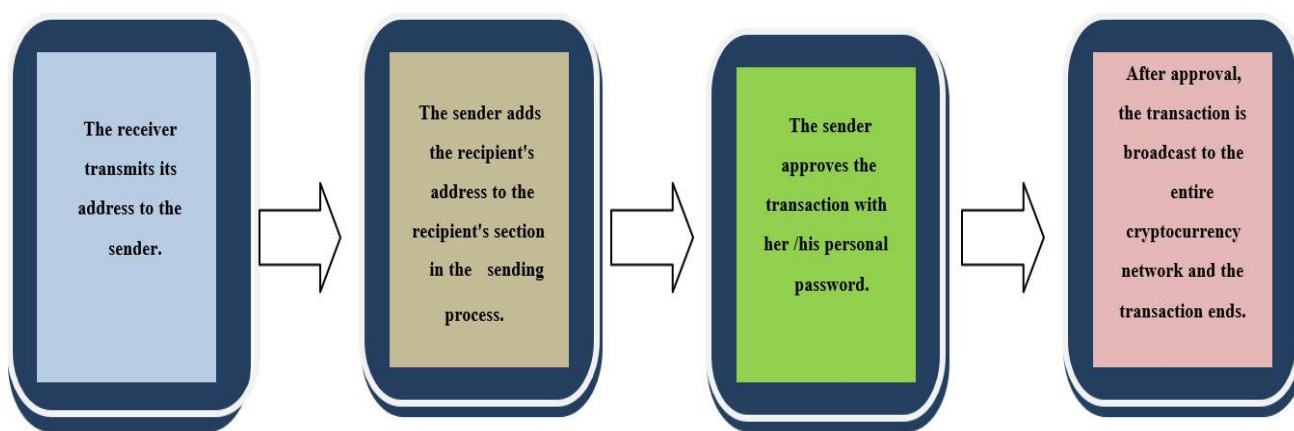

Figure 4: Transaction Process in Cryptocurrency

Blockchain
"Block chain or register chain" is another name for the phrase "blockchain." The first version of blockchain, titled "Bitcoin: Peer to Peer Electronic Cash System" (or "Bitcoin: Person to Person Electronic Money System"), was created by Satoshi Nakamoto or other individuals in 2008. (Nakamoto, 2009). It is a technology that permits value exchange between individuals without requiring the consent of a third party, such as a bank, government, or blockchain. Currency, qualifications, agreement, applications, and personal information are among the items that can be transferred and are stored in a decentralized virtual ledger (Bridgers, 2017). Such a system is now possible due to the transition accounting standard-setting bodies, like the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB), have made from the conservative nature of accounting to a more equitable and adaptable framework (Kaya, 2013). Blockchain is an open source technology that serves as the basis for Bitcoin and other digital currencies. It continually and verifiably records the transactions that take place between the two parties (Iansiti, Lakhani, 2017).

Bitcoin
Bitcoin is the first cryptocurrency. The term "alternative in cipher coins" is frequently used to describe the numerous cryptocurrencies that are now in use. It's important to concentrate on how the Bitcoin system works in order to understand how cryptocurrency systems operate. Blockchain can be characterized as a quick, secure system that cannot be altered. The block chain is described as a digital ledger that records every Bitcoin transaction. Based on distributed ledger technology, everyone in the system maintains a copy of every transaction. Users of the free Bitcoin miner application, known as miners, create new Bitcoins by running specific algorithms within the Bitcoin network. Anyone with the necessary equipment can make mining. Offered by the mining software, the problems, which are too complex and difficult to solve, are been worked on and whoever finds the solution first is rewarded with a certain amount of Bitcoin. The Bitcoin ecosystem is shown in the figure below.
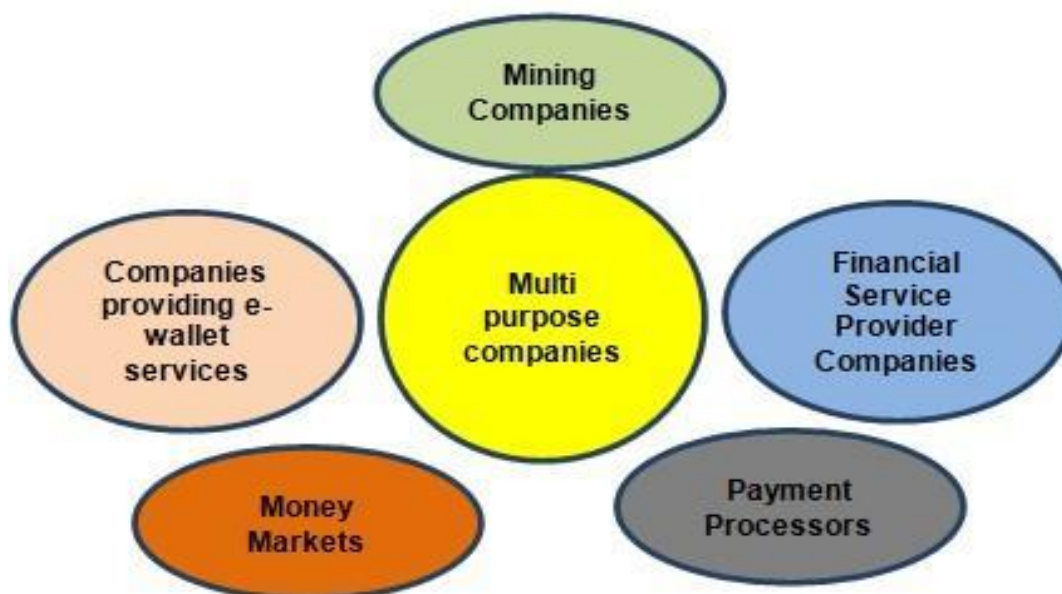
Figure 5: Bitcoin Ecosystem
Source: Kessler, G. C. 2014. An Overview of Cryptography, http://www.garykessler.net/library/ crypto.html

Cryptocurrency and International Monetary Approach

Currently, cryptocurrencies and traditional currency coexist. The current sums are insignificant and do not challenge the official currency's dominance. However, as algorithms improve to lessen the volatility of cryptocurrencies, their use and popularity tend to increase. Other forms of legal tender would coexist as a result of this. Could this result in the central bank losing control of the economy? is the crucial question here. Fernandes-Villa Verde and Sanches (2018) go into great detail about how the use of cryptocurrencies and the monetary policies of central banks interact. According to their theoretical framework, the ability of private money and bank money to coexist depends on the monetary policies of the central bank. However, if the central bank explicitly guaranteed the value of money balances, privately manufactured currencies would cease to be usable as a medium of exchange. This is true particularly when the official currencies do not maintain price stability. Hence, there are two results. First off, it is not technically impossible for governmental funds and cryptocurrencies to coexist as exchangeable units of value. Second, by choosing a specific monetary policy, central banks have the advantage of preventing cryptocurrencies from being used as a medium of exchange (although they might still be valued for other reasons, such as as a pure speculative asset).

According to this perspective, the coexistence of fiat currency and cryptocurrencies can serve society by serving as a check on central banks rather than posing a threat. Currency competition has the potential to significantly lower inflation as well as curtail the kind of price and interest rate manipulation that governments have historically been known to engage in. This is a partial defense of Hayek's (1976) suggestion that the state should no longer have a monopoly on money in order to maintain the stability of legal tender. From a more practical standpoint, however, central banks might experience some issues with the growth of cryptocurrencies as meaningful vehicles of exchange with stable purchasing power due to their high level of volatility. Effect of Fiscal Policy The relationship between cryptocurrencies and fiscal policy may be asymmetrical. The activity of cryptocurrencies may be challenging to regulate in an economy with an underdeveloped financial market and, as a result, may offer a platform for investors, both individuals and corporate entities, to evade tax. This could result in low income generation for the government relative to the level of market activity, which could have an impact on the government's budgetary plans. This circumstance might obstruct governmental financial goals, which would have an impact on macroeconomic fiscal goals. Additionally, in a country with a highly developed financial sector, the correct coordination of cryptocurrencies might lead to an increase in tax revenue, which would improve the government's fiscal projections. This circumstance may contribute to improving government fiscal goals, improving fiscal macroeconomic goals, and stabilizing the economy.

Features of Cryptocurrency: Opportunities and Challenges

- In many ways, Bitcoin is the world's best payment system to date. Due to its decentralized nature and lack of reliance on any government or central bank, it is autonomous.
- Inflation or manipulation have no impact on it.
- The value of Bitcoin is not adjusted for inflation by a central bank.

- Since the money is transferred directly to the person's or organization's account, there is no need for an intermediary institution.
- Due to the absence of financial intermediaries like banks, the transaction cost is either nonexistent or almost nonexistent.

Weaknesses
- It is only a piece of software or code, not an actual thing.
- Lack of an institution or power to audit results in insufficient control and potential dangers.
- Since there can only be 21 million Bitcoin given, it is impossible to demonstrate the functions of money.
- Being a lending agent is impossible when the Bitcoin supply is subject to credit after completion since there is no fresh Bitcoin to pay interest on.
- An uncontrollable arms race was sparked by the "mining" system, which grew the supply of Bitcoin and ensured the integrity of the currency.

CONCLUSION

Digital money with a cryptographic foundation known as cryptocurrencies is traded on the block chain network. Bitcoin is the first and most well-known of these currencies. The use of cryptocurrency in business and finance is growing quickly. Legal restrictions are critical in this setting. There aren't any laws governing cryptocurrencies, though, because of how distantly nations are approaching them. Many alternative cryptocurrencies replaced Bitcoin in various areas once it began to be traded there in 2010. The number of these marketplaces, which draw investors looking for various investment options, is rising daily, and the number of cryptocurrencies exchanged is rising concurrently. Additionally, cryptocurrency trading activity and market value are also rising extremely quickly. Furthermore, it has the ability to greatly influence and change the global economic system in the future based on the root revolutionary technology and novel business idea. After Bitcoin, numerous exchanges started to list other cryptocurrencies for sale, and new financing techniques that had never been employed before began to emerge. However, independent of central banks, behind a state or cryptocurrencies still exist, where there is no community of states, no oversight and regulatory bodies, high price volatility, serious condemnation of black money theft, and hijacking can be easily made from digital accounts in a hacker attack.

RECOMMENDATIONS

These countries should collaborate assiduously to create a legislative framework and international standards for the use of cryptocurrencies that are universally accepted. As a result, there will be less opportunities for fraud, better client protection, and more monetary policy monitoring, which will improve economic planning for each particular nation. Instead of outright banning cryptocurrencies and CBDCs, that nation governments should look for innovative ways to maximize the advantages associated with their use, including blockchain technology, to enable better payment systems. Financial regulators need to be sufficiently persuaded that cryptocurrencies can coexist with conventional fiat currencies. The nation's economic interests as well as the wellbeing of its populace are taken into consideration in that federal legislation on cryptocurrency.

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