

## **Cryptocurrency**

### **Abstract:**

Bitcoin and other prominent cryptocurrencies have gained much attention since the last several years. Globally known as digital coin and virtual currency, this cryptocurrency is gained and traded within the blockchain system. The blockchain technology adopted in using the cryptocurrency has raised the eyebrows within the banking sector, government, stakeholders and individual investors. The rise of the cryptocurrency within this decade since the inception of Bitcoin in 2009 has taken the market by storm. Cryptocurrency is anticipated as the future currency that might replace the current paper currency worldwide. Even though the interest has caught the attention of users, many are not aware of its opportunities, drawbacks and challenges for the future. Researches on cryptocurrencies are still lacking and still at its infancy stage. In providing substantial guide and view to the academic field and users, this paper will discuss the opportunities in the cryptocurrency such as the security of its technology, low transaction cost and high investment return.

### **Introduction to Cryptocurrency (Bitcoin)**

Since the inception of the fiat money, people have been using it for everyday transaction. Trading and transaction has been much easier. In the year 2009, after the global crash of 2008, the first form of cryptocurrency has emerged in the form of Bitcoin. It was first introduced by Nakamoto (2008), an anonymous group or individual that has introduced Bitcoin as the first digital currency for easier day-to-day transaction from individual to individual. Bitcoin is operated without the middle man such as banks and monetary institutions. It is a form of peer-to-peer transaction, without the need to reveal one's identity for a transaction to happen. Unlike the current practice, the bank functions as the middleman or the go-between, knows the identity of buyer and seller, thus, engendering the issues of personal data protection. Bitcoin platform has made the trading and transaction of cryptocurrency much easier and more independent, without compromising personal information and details. To some, opting for this method of transaction has entitled them to transact freely and anonymously. Bitcoin is the first digital coin in the world to have used the blockchain platform. It is created within a

transaction log with computers participated across a network This blockchain has one of the highest security systems by not allowing fraudsters to use the currency more than once. The blockchain protocol rely on proof of work where it ensures miners converge to this structure. The computational operation is known as hashing where the term hashing power refers to the computational power of mining the currencies.

### **Blockchain & Mining System:**

How was cryptocurrency initially gained or received? As to fiat money, it is issued by the central bank, while cryptocurrency is created by mining via the blockchain using cryptography technology. This is the method of issuing new cryptocurrency. The blockchain system consisting of users, developers, miners, node maintainers and the interactions that ensure the functionality of the distributed ledgers Such mining process requires miners to have capital expenses in purchasing the software and hardware. The software includes GUIMiner, BFGminer and CGminer are the examples used in Bitcoin mining While the hardware's are AntMiner, Avalon and ASICMiner. Mining of other currencies that uses many different algorithm requires the use of high-end and high-speed graphic cards. For a new miner, one needs to register a wallet and an encrypted banking online that can store and accept the cryptocurrency (Kethineni et al., 2017). When a miner is able to solve the puzzle in the blockchain system, the digital coins will be rewarded and transferred to the wallet that has been predetermined earlier.

### **Critics of Cryptocurrency:**

There have been considerable critics of cryptocurrency, one of them is whether it is a form of an asset currency. In its current form, having the ability to perform monetary transaction, bitcoin and cryptocurrencies are much closer and meet the definition of currency. Even though cryptocurrencies do have complete criteria of the three main characteristics of currency which are store value, unit of account and method of transaction, it does have majority of the elements.

## Cryptocurrency Beyond

How's the Cryptocurrency work's beyond see in the given picture bellowed.

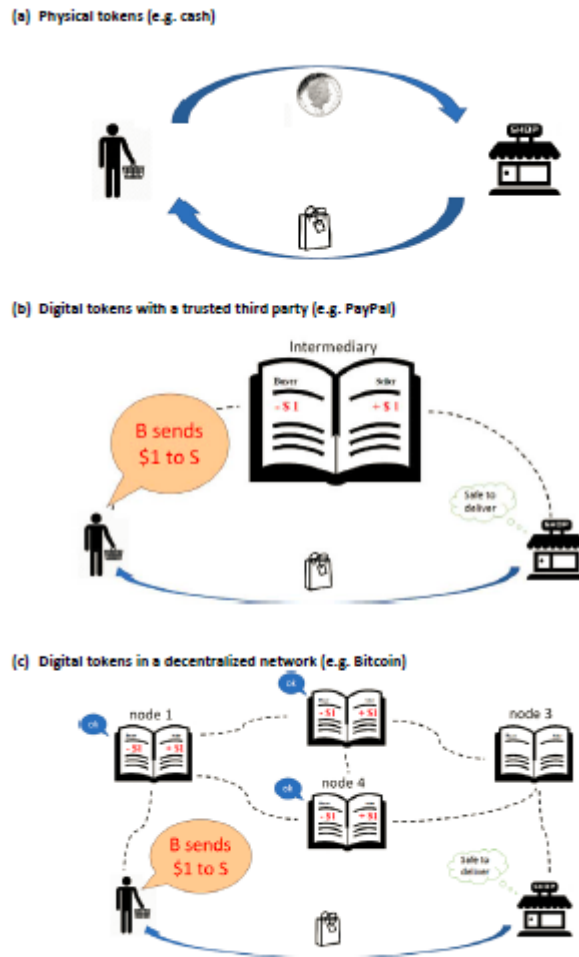


Figure 1: Different Currency Systems

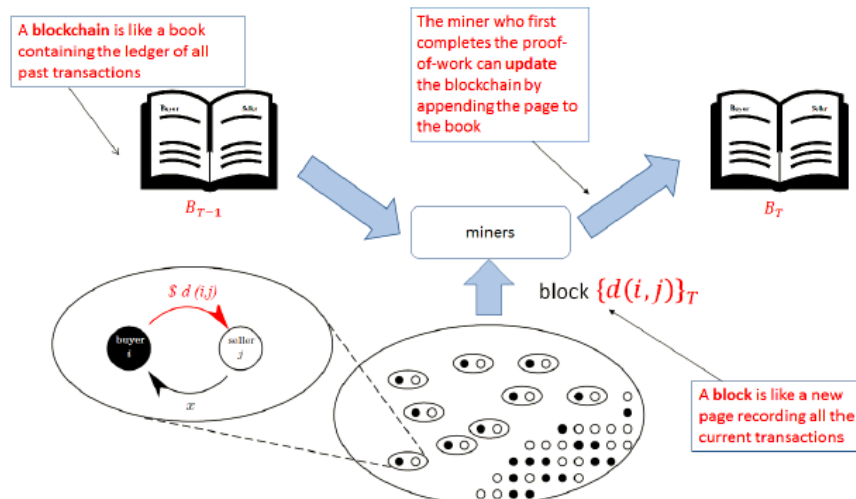
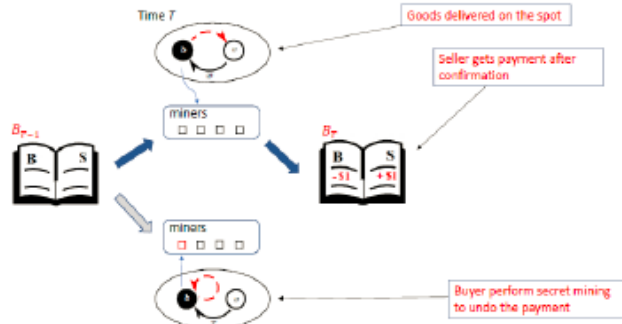


Figure 2: How the Blockchain is Updated

Case 1: No confirmation lag ( $N=0$ ). Double spending attempt fails.



Case 2: No confirmation lag ( $N=0$ ). Double spending attempt succeeds.

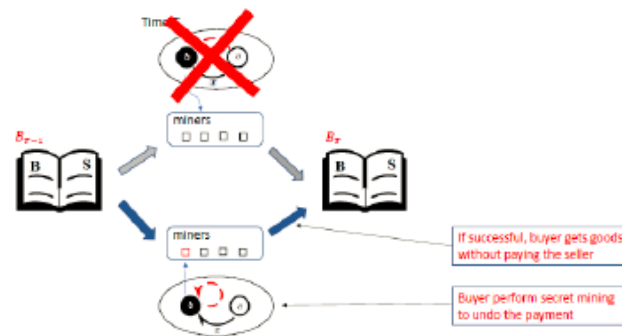
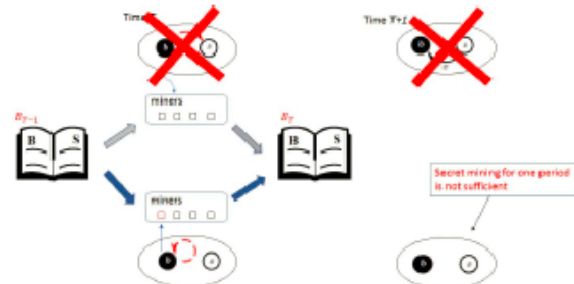


Figure 3: Double Spending Attack when  $N=0$

Case 3: Confirmation lag  $N=1$ . Double spending attempt succeeds (with 1-period secret mining).



Case 4: Confirmation lag  $N=1$ . Double spending attempt succeeds (with 2-period secret mining).

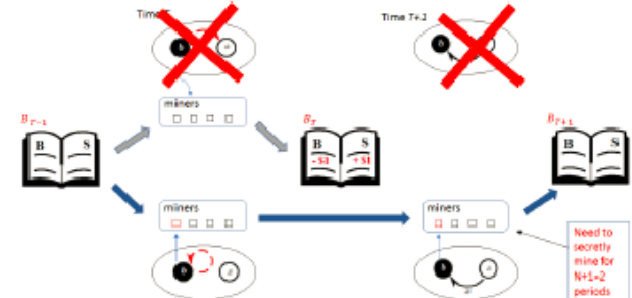


Figure 4: Double Spending Attack when  $N=1$

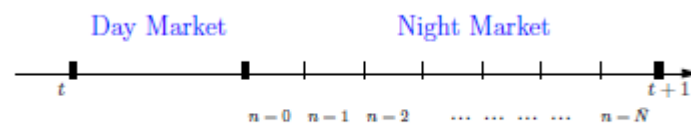


Figure 5: Time line

Due to the anonymity in the night market, the exchange of goods necessitates a means of payment which we assume is a cryptocurrency.<sup>7</sup> A cryptocurrency is a digital record-keeping device that uses balances to keep track of the obligations from trading and that is publicly known to all traders.

### **Challenging Area:**

Despite the opportunities in cryptocurrency, there are still many challenges waiting to be faced by the cryptocurrency. Onlookers and new investors have probably taken precautionary step whether to invest heavily or not is because the risk and challenges pose by trading and investing in cryptocurrency.

### **Conclusion:**

Cryptocurrencies are here to stay. The future of trading lies well with new emerging technologies that are able to benefit mankind. Needless to say, that, users and industry player can evaluate whether cryptocurrency can benefit or harm them, in accordance with their objectives and perspectives in owning it. This paper has reviewed the opportunities in cryptocurrency in term of its security of its technology.

### **References:**

- [http://www.wired.com/magazine/2011/11/mf\\_bitcoin](http://www.wired.com/magazine/2011/11/mf_bitcoin)
- <https://doi.org/10.1016/j.physa.2017.04.159>
- [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2499418](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2499418)