Proceedings of the iSTEAMS Multidisciplinary Cross-Border Conference
University of Ghana, Legon, October, 2017,

Once Beaten "Coins" Shy - A Framework for Mitigating Bitcoin Fraud

Ajose S. S., Danquah, P., Oloyede, A. & Longe O.B
[1,3&4]Computer Science Department, Caleb University, Imota, Lagos, Nigeria
[2]LUCAS University College, Accra, Ghana
samsonajose@gmail.com, danquahpaul@gmail.com
longeolumide@fulbrightmail.org

ABSTRACT

It goes without saying that cyber criminals are apt to explore security vulnebailities on online financial transaction platforms and instruments – Bitcoins not being an exmption. This paper proposes a framework for the effective mitigation of crypto currency fraud. The proposed framework is expected, if implemented, to provide a method for detecting anomalies and suspicious activities in user transactions on Bitcoin-enabled platforms.

Keywords: Crypto-currency, Bitcoin, Fraud, Cryptography)

ISTEAMS Cross-Border Conference Proceedings Paper Citation Format
Ajose S. S., Danquah, P, Oloyede, A. & Longe (2017): Once Beaten "Coins" Shy – A Framework for Mitigating Bitcoin Fraud. Proceedings of the 9th iSTEAMS Multidisciplinary Conference, University of Ghana, Legon, Accra Ghana. Pp 361-364

1. BACKGROUND TO THE STUDY

The increasing use of crypto-currency in the business domain of many countries around the world has sparked several security debates globally. It is noteworthy, however, that 'anything' that is generally accepted and used as a means of financial exchange comes with its own inherent security threats. Malicious individuals through various fraudulent schemes, offers, and promotions have taken undue advantage of the enthusiasm of innocent citizens in the adoption of crypto-currency. In Nigeria, during the summer of 2016, the Central Bank of Nigeria (CBN) warned Nigerians to be cautious with the use of crypto-currency (Bitcoin) because of the rise in the volume of crimes purportedly perpetrated using bitcoin. The need therefore arise to develop frameworks that can be adopted to mitigate the criminal tendencies occasioned by the popularity of bitcoins as a means of financial exchange

Andy (2011), defined cryptocurrency as a digital asset designed to work as a medium of exchange using cryptography to secure the transactions and to control the creation of additional units of the currency. Additionally, cryptocurrencies can be classified as a subset of digital currencies and are also classified as a subset of alternative currencies and virtual currencies. Cryptocurrency as a means of exchange like every other currencies such as Euro (€), US Dollars, Pound Sterling (£), Nigerian Naira (N) e.t.c., was designed with the principles of cryptography, for the purpose of interchanging digital information. The creation of new and transactions of cryptocurrencies are secured using cryptography. One effective and efficient, though unfortunate, way to know that a new technological platform is emerging or has emerged is the observation of scammers/fraudsters troubling users of the system. As people tends to be drawn more to cryptocurrencies (Bitcoins), notably in Nigerian, is the desire to get rich quickly. And because Bitcoin is also new in the Nigerian space, emerging scams are frequently poorly understood and as such, malicious users have appeared to be taking advantage of these eager new targets.

2. RELATED WORKS

In 2009, Bitcoin which is the first decentralized digital currency was created. Afterwards, various cryptocurrencies have been created examples are Litecoin (LTC), Ethereum (ETH), Zcash (ZEC) e.t.c. In contrast to the centralized banking systems used by electronic money, cryptocurrencies uses a decentralized control. The decentralized control is related to the use of blockchain transaction database in the role of a distributed ledger. A collective system approached is used to produce decentralized cryptocurrency, this is done at a rate which is defined when the system is created and which is publicly known. In centralized banking and economic systems, corporate boards or governments control the supply of currency by printing units of fiat money or demanding additions to digital banking ledgers. In case of decentralized cryptocurrency, companies or governments cannot produce new units, and have not so far provided backing for other firms, banks or corporate entities which hold asset value measured in it. The underlying technical system upon which decentralized cryptocurrencies are based was created by the group or individual known as Satoshi Nakamoto.

Marie and Tyler (2015), between 2011 and 2014 studied 41 operations and identified four types of scams currently plaguing Bitcoin which are; high-yield investment programs, mining investment scams, scam wallet services and scam exchanges. This reports were obtained from discussion forums and tracking websites. High-yield investment programs (HYIPs), are online Ponzi schemes where existing investors are paid lucrative returns from the contributions of new investors. Mining-investment scams, which is a form of advanced-fee fraud that exploits people's interest in Bitcoin mining by promising a way to profitably mine without making large up-front investments in expensive hardware. Scam wallets and exchanges involves the scammers providing sought-after services such as mixing at a seemingly affordable price, only to steal incoming transfers from customers. The blockchain is a public ledger that records bitcoin transactions. A novel solution accomplishes this without any trusted central authority: the maintenance of the blockchain is performed by a network of communicating nodes running bitcoin software. Transactions of the form payer X sends Y bitcoins to payee Z are broadcast to this network using readily available software applications. Network nodes can validate transactions, add them to their copy of the ledger, and then broadcast these ledger additions to other nodes. The blockchain is a distributed database – to achieve independent verification of the chain of ownership of any and every bitcoin amount, each network node stores its own copy of the blockchain (*www.blockchain.info)*

Figure 1 Bitcoin price growth rate for 2017. Source www.blockchain.info

3. RESEARCH GAP

Since the advent of Bitcoins notably in 2009, different studies and researches have been carried out to mitigate fraudulent activities that are growing substantially in popularity and in profitability. Bitcoin has quite a few internal weaknesses that are part of its design and cannot easily be modified. The public ledger, or block chain, means that every user can see every transaction. There is semi-anonymity, in that the owners of bitcoin wallets cannot be identified outright, but it is slightly nerve-wracking for some potential adopters. The public block chain is shared with all users, which means that it is susceptible to attacks due to easy access (King, 2013)

4. RESEARCH DIRECTION

The Nigerian economic scene has continued to evolve over the years. In 2013, The Central Bank of Nigeria (CBN) introduced a new policy on cash-based transactions which stipulates a cash handling charge on daily cash withdrawals that exceed N500,000 for Individuals and N3,000,000 for Corporate bodies. The new policy on cash-based transactions (withdrawals) in banks, aims at reducing **(not eliminating)** the amount of physical cash (coins and notes) circulating in the economy, and encouraging more electronic-based transactions (payments for goods, services, transfers, etc.).

The fact that Bitcoin is been traded in the Nigerian market space shows clearly that the Bitcoin market in the country is expanding and has the potential to revolutionize the way money is exchanged. In Nigeria, today, Bitcoin is not universally recognized as official means of paying for goods and services, developing standardized systems for it use therefore becomes critical; because Nigerians have continue to do some form of exchange using bitcoins with most trading done electronically. For example, Sunej Global Ventures Limited an ICT company registered by corporate affairs commission of Nigeria (CAC) with Registration Code RC: 1069456. The company is registered to provide e-commerce services, Internet Marketing, ICT, e-currency exchange, etc.

Figure 2: A Cryptocurrency Trading Company's Office in Nigeria
Source (Researchers Field Work Photographs)

However, for the currencies to be sustainable, the Nigeria law system in alliance with its financial agencies must be come together to establish an adequate regulatory system. Regulatory systems are burgeoning, with myriad approaches being taken by various governments. Current regulatory measures are in their infancy and continue to evolve with the rapidly expanding industry. Therefore, the establishment of adequate policies and regulations into the Nigeria commercial ecosystem is critical if malicious activities on Bitcoin enabled platforms must be lessened. It is worthy of note that, if a company is registered according to the laws of the country to facilitate transaction with currency(s) without a legal backing, this will no doubt give room for 'legal' scams to occur.

5. CONCLUDING REMARKS

Whenever something gets hot, the only guarantee is that scamsters will lock onto it like a heat-seeking missile. The virtual currency bitcoin is no exception. The existence of cryptocurrency has shown clearly that any a priori declaration of a problem's impossibility. Financial transactions entail risks and moral hazards. These risks and hazards cannot be eradicated completely but, however, it can be mitigated.

6. EXPECTED CONTRIBUTIONS TO KNOWLEDGE

Without doubt, any opportunity for a cryptocurrency to suddenly supplant a national currency will likely coincide with restrictive regulations. Interestingly, though it would be an utterly unrealistic task for governments to try to stamp out cryptocurrencies, they are well positioned to prevent the emergence of stabilizing financial institutions around cryptocurrency ecosystems. The creation of these institutions will make frauds and hurdles associated with Bitcoin currently in Nigeria surmountable and eventually, trust, if the currency will be generally acceptable in the future.

WORKS CITED/CONSULTED

1. Central Bank of Nigeria; cashless society https://www.cbn.gov.ng/cashless/
2. Cameron Harwick: Cryptocurrency and the Problem of Intermediation The Independent Review, v. 20, n. 4, Spring 2016, ISSN 1086–1653, Copyright © 2016, pp. 569–588
3. DeVries, Peter. (2016). An Analysis of Cryptocurrency, Bitcoin, and the Future. International Journal of Business Management and Commerce. Vol. 1. Pages 1-9.
4. Farell, Ryan, "An Analysis of the Cryptocurrency Industry" (2015). Wharton Research Scholars. 130. http://repository.upenn.edu/wharton_research_scholars/130
5. Hackett, R. (2016, May 23). Wait, What Is Blockchain? Retrieved from Fortune: http://fortune.com/2016/05/23/blockchain-definition/
6. https://www.researchgate.net/publication/316656878_An_Analysis_of_Cryptocurrency_Bitcoin_and_the_Future [accessed Oct 20 2017].
7. Lee, J. (2009, April 30). Aristotle and the Definition of Money. Retrieved from The Market Oracle: http://www.marketoracle.co.uk/Article10370.html
8. Marie Vasek and Tyler Moore There's No Free Lunch, Even Using Bitcoin:Tracking the Popularity and Profits of Virtual Currency Scams, Computer Science and Engineering Department Southern Methodist University, Dallas, TX
9. Satoshi Nakamoto. (2008) Bitcoin: A Peer-to-Peer Electronic Cash System. [Online]. https://bitcoin.org/bitcoin.pdf
10. "When bitcoins go bad: 4 stories of fraud, hacking, and digital currencies. Washington Post. Retrieved 6 March 2015.