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Is it a New Tulip Mania Age?
A Comprehensive Literature Review Beyond Cryptocurrencies, Bitcoin, and Blockchain Technology

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ABSTRACT

Although cryptocurrencies and blockchain technology can be considered new advances, they have started to be recognized widely, and this has been discussed and investigated in lots of research studies. In parallel, the primary purpose of this study is to investigate the development and evolution of cryptocurrencies and blockchain technology over the past years in the academic world. To this end, 334 scholarly journal articles are examined to: (1) conduct a comprehensive literature review in the field of cryptocurrencies and blockchain; (2) identify the possible trends and changes in this field over the ten years; (3) compare the publishing productivity of journals; and (4) guide future research in this field. The results highlight that the researchers mainly concentrate on legal and ethical issues of them; their benefits, challenges, and risks; their conceptualization, evolution, and future; the economic dimension of them; and financial and accounting related issues of them.

KEYWORDS

Bitcoin, blockchain, content analysis, cryptocurrency, digital currency, trend analysis, virtual currency

1. INTRODUCTION

Blockchain technology and cryptocurrencies including Bitcoin, Ethereum, Litecoin, etc. are emerging digital phenomena across the world and one of the hot topics in the industry especially in the financial one (Raymaekers, 2014; Todorov, 2017). A cryptocurrency is knowns as an independent currency which uses cryptography for its creation (Todorov, 2017). In parallel with the development of cryptocurrencies and cryptography, and advances in decentralized computers have also led to the emergence of an innovative technology called blockchain (Wright & Filippi, 2015). Briefly, blockchain technology supports businesses and individuals to make transactions without the approval of third-parties (Underwood, 2016).

After the spread and recognition of cryptocurrencies and blockchain technology across the globe, many online stores, platforms, and especially start-ups have announced that they accept cryptocurrencies as a means of payment (Raymaekers, 2014). Although cryptocurrencies and blockchain technology have started to be proliferated among businesses and individuals, there is also a debate among academics, businesses, and even individuals that this proliferation can be a bubble and we can be involved in a tulip mania age (Shane, 2017).

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In the light of advances in cryptocurrencies and blockchain technology, this study aims (1) to conduct a comprehensive literature review in the field of cryptocurrencies and blockchain, (2) to identify the possible trends and changes in this field over the ten years, (3) to compare the publishing productivity of journals about the cryptocurrencies and blockchain technology subject, (4) to guide future research about cryptocurrencies and blockchain. To achieve these objectives, relevant articles that are published between 2008 and 2017 in refereed scholarly journals are investigated systematically as a part of content analysis. After the analysis of relevant papers, 334 articles are selected and schemed based on analyzed article themes.

In this paper, firstly, general information about cryptocurrencies, Bitcoin, and blockchain technology is introduced. After that, research methodology and study findings are presented, and the study is concluded and discussed by highlighting the key findings, trends, and research gaps in the field of cryptocurrencies and blockchain technology.

2. CRYPTOCURRENCIES AND BITCOIN

Cryptocurrencies or virtual currencies can be recognized as a technological advance in payment processing (Luther, 2016) and they can be considered as a computer-generated commodity rather than like a monetary currency (Cusumano, 2014). A cryptocurrency, which is an unregulated and digital currency, can be defined as a medium exchange that uses cryptography to secure, validate, and control the transactions (Mikołajewicz-Woźniak & Scheibe, 2015). Some of the main characteristics of these currencies are that they have a higher velocity of circulation, they carry a negative interest rate, and so they cannot be used as a measure of savings.

Cryptocurrencies can also differ from the traditional currency. For example; cryptocurrencies are not generally accepted to be used as a payment method for goods and services (Luther & White, 2014). In other words, although cryptocurrencies can be used as a medium exchange, it is apparent that they are not a common medium of exchange in anywhere. Cryptocurrencies also differ from other digital payments like PayPal by not requiring an intermediate party like a bank and by having no legal tender status (Lee et al., 2015). The main reason is that cryptocurrencies have a decentralized control rather than a centralized control as in the central banking systems. These differences imply that the value of cryptocurrencies is not issued by a central bank and online transactions are sent directly from one party to another without going through a financial institution (Raymaekers, 2014).

Bitcoin is known as the first decentralized and pioneered cryptocurrency that was designed by Satoshi Nakamoto, who is an anonymous programmer, in 2008 (Dowd & Hutchinson, 2015). This decentralized structure of Bitcoin signifies that Bitcoin is built on a transaction log which is distributed across a network of participating computers (Böhme, Christin, Edelman, & Moore, 2015). In other words, the creation of a bitcoin and the validation of bitcoin transactions depend on the trust among the Bitcoin community network instead of any central authority like a bank (Dowd & Hutchinson, 2015). The community verifies the transactions and maintains the integrity of the system, and there is only one monetary rule which is dictated by the Bitcoin protocol by Satoshi Nakamoto. Nakamoto (2009) defines Bitcoin as a cash system "based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party" (p. 1).

Moreover, the answer to the question of how a bitcoin is produced is a process called mining (Andy, 2015). Mining starts with incoming bitcoin transactions. Users who have bitcoins and want to transfer them, send transaction messages to the computers running Bitcoin software in the community network (Andy, 2015; Sompolinsky & Zohar, 2018). Computers or individuals in the community network are known as miners. When transactions come, miners start to compete with each other for the right to aggregate the transactions into batches called blocks. Mining is a mathematical process, and miners try to solve a magical number that is encrypted alongside the transaction (Andy, 2015; Todorov, 2017). The finding of this number is very hard, and it requires much electricity and computing resources (Andy, 2015). The winner, who solve the problem first, is rewarded with a bitcoin due

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