Commodity-Backed Cryptocurrencies: Exploring Benefits and Challenges of a New Digital Currency Paradigm

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ABSTRACT

Cryptocurrency, digital currency maintained by a decentralized system using cryptography, was initially intended to be a secure way for people to send money over the internet without the authority of a centralized institution; but it has become a source of speculation among investors. Without the backing of a commodity, its inherent lack of intrinsic value causes the value of each cryptocurrency to fluctuate wildly depending on its supply and demand. However, with the backing of an easily stored commodity, such as gold or silver, cryptocurrency can shift from being a speculative token to a more stable asset reflective of the value of the commodity backing it. As such, the proposal of attributing crypto tokens with intrinsic value, in conjunction with the benefits within blockchain technology has the potential to be a much more viable alternative to contemporary cryptocurrencies. It is anticipated that the introduction of such cryptocurrencies can provide an alternative to the current monetary system, allowing its users to be exposed to the benefits of blockchain technology. However, building and maintaining trust within the system is a necessity to ensure its success.

1. INTRODUCTION

The history of currency itself has taken many differing forms throughout human history and is inarguably a distinguishing factor of the human race. Prior to and years after the Neolithic Revolution, it initially manifested itself in the form of a system of transactions involving trading and bartering in which one person's goods or services were traded for another's directly, without the use of a medium of exchange. However, the benefits that such a standardized medium could provide were able to patch the inefficiencies of bartering and trade, and different societies gradually began accepting these mediums, most notably gold and silver coins or bills.

Money has evolved through history and although it has had many differing interpretations, its expressions have not diverged greatly from its original form. The most recent of these interpretations lies in the creation of cryptocurrency, and by extension, the blockchain—a public ledger which records the transactions of money through a chain of blocks using cryptography. In addition to this inherent decentralization, transactions on the blockchain have the potential to be cheaper, faster and simpler than transactions with conventional digital money.

With this development, however, cryptocurrency still subscribes to the

contemporary system of fiat money—money backed by nothing but faith in the issuing government or system. As such, it is subject to heavy price fluctuations because of speculation and investment, and thus is currently failing to live up to the standards of a conventional currency.

2. RELATED WORKS

Nakamoto (2008) introduces the concept of cryptocurrency, a public ledger that allows for electronic transactions. In this paper, he introduces the concept of a blockchain: blocks with hashes that are chained together to form a stable and secure record. His work serves as the foundation for understanding the uniqueness of blockchain as the basis for any potential speculation of future development in cryptocurrency.

Schaupp and Festa (2018) believe that although cryptocurrency regulation is counterintuitive to the inherent decentralized nature of cryptocurrency, it can be seen by many as a source of legitimacy that will enable it to escape its current volatility. By doing so, it can be seen as a more stable asset, relative to its current conditions in which its behavior is analogous to that of speculative assets.

Rahman and Wasiuzzaman (2021) analyzed the potential of a gold-backed cryptocurrency. Through the analysis of five different gold-backed cryptocurrencies, they drew the conclusion that gold-backed cryptocurrencies mirrored the behavior of traditional "safe-havens" during periods of crisis, referencing specifically the Covid-19 pandemic.

3. PROPOSED DESIGN

The design being proposed involves the creation of a new type of cryptocurrency that addresses the current issues within the existing cryptocurrency ecosystem—namely, high volatility, speculation, and a lack of intrinsic value. The intended solution to this problem is to back this currency with a commodity, such as silver or gold, to provide the said cryptocurrency with greater stability and intrinsic value. The backing of the commodity will ensure that the cryptocurrency has "real-world value," providing a stable basis for exchange and reducing the potential for price fluctuation.

To achieve this, a new blockchain system will be created that incorporates gold as its reserve. The physical metal will be stored at a trusted third-party depository, and the currency itself will be fully decentralized, transparent, and secure. In addition, the currency must be easily transferable and available for a wide range of transactions, providing users with a reliable alternative to the contemporary monetary system dependent on fiat currency.

As such, the key component of this new cryptocurrency will include the use of a commodity-backed reserve (with the value of the cryptocurrency being closely pegged to the respective commodity), transparent blockchain architecture to maintain transaction records, and protocol for conducting transactions. Furthermore, the use of a trusted third party will ensure that the commodity itself remains secure, which will also inspire confidence in users.

To address the challenges and maintain user confidence within the development and implementation of this new cryptocurrency project, building and maintaining trust is the primary factor that will be prioritized by developers. This includes ensuring the transparency of the blockchain records and frequent audits of the third-party gold repository, etc., features which will require consistent ongoing efforts. This process can be accelerated by partnering with financial

institutions, enabling promotion, acceptance, and recognition of this new cryptocurrency.

3.1.Anticipated Challenges

However, with that being said, any such alternative monetary system, including both fiat- based cryptocurrencies and the proposed commodity-backed cryptocurrency system, will become competition for government issued currency if sufficiently adopted. As such, there may be political pressure to heavily regulate, or outright ban, such currencies. The countries of Japan, Singapore, Australia, and the United States have embarked on the former path, with regulations issued to protect consumers and prevent illicit activities or use of cryptocurrency. However, certain territories, including China, Russia, Ecuador, and Bolivia, viewed it as a competitive threat to their currencies and outright banned them, with some issuing their own digital currency. Although the respective governments have issued a variety of critiques of cryptocurrencies, it is certain that some viewed cryptocurrency as direct competition to government issued digital currency.

While such a direct ban is unlikely to happen within the United States, there certainly will be increasing political pressure should there be sufficient adoption of commodity-backed cryptocurrency. As such, building and maintaining trust through transparency and security will be crucial for the success of this new cryptocurrency. Despite the potential challenges, with the right approach, this new commodity-backed cryptocurrency has the potential to provide users with a reliable and stable alternative to traditional fiat currency.

4. ANTICIPATED RESULTS

The proposed design for a commodity-backed currency has the potential to yield promising results. By backing a cryptocurrency with a commodity, the cryptocurrency itself will have intrinsic value and, as such, will provide a significant improvement in price stability in comparison to traditional cryptocurrency.

Furthermore, it provides a means to digitally divide and transact physical commodities, which is also in conjunction with the benefits the blockchain ledger provides, including speed, security, availability, etc. The use of efficient protocols will enable transactions to be conducted quickly. As such, the combination of these benefits will ultimately provide users with a stable and reliable alternative to both existing cryptocurrencies and traditional fiat currencies.

5. CONCLUSION

The proposed commodity-backed cryptocurrency has the potential to revolutionize not only the cryptocurrency ecosystem but may also offer a significant improvement relative to contemporary fiat currency. By joining together commodity-backed currency with blockchain technology, this new digital currency will be given intrinsic value, which will offer stability and security to its users, and will ideally enjoy the transparency and security of blockchain technology. Hopefully, commodity-backed cryptocurrency can usher in a new period of cryptocurrency development, and ultimately improve the stability and reliability of the traditional monetary system.

6. FUTURE WORK

Although certain studies espouse the potential of commodity-backed cryptocurrencies, the cryptocurrency community itself is still in its nascent form—not to mention the even more advanced concept of cryptocurrencies

backed by commodities. Future work involves increasing awareness and support from relevant stakeholders, including lawmakers and financial institutions, which will ultimately heighten the legitimacy of commodity-backed cryptocurrency.

Furthermore, developers must prioritize building and maintaining trust from the public in a transparent way, such as through frequent and public audits of third-party repositories. Additionally, more research and development are necessary to explore the potential success or failures of certain types of commodities. Regardless, the possibilities for future advancements in this field are extensive, and this proposal is the foundation for potentially revolutionizing the traditional monetary system with commodity-backed cryptocurrency.

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