Thesis Project Portfolio

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

(Technical Report)

Unpacking the Adoption and Diffusion of Cryptocurrency: A Comprehensive Analysis of Social and Technical Factors

(STS Research Paper)

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Sociotechnical Synthesis

The concept of cryptocurrency is, by all standards regarding monetary systems, a mere nascent form of the underlying digital economy it is built upon. Nonetheless, such a currency has been well adopted by individuals for a multitude of reasons: it can provide privacy and anonymity, is a fast means of transaction, and is decentralized - all features that are common within the traditional monetary system. However, cryptocurrencies, as of the past few years, have been rife with speculation from investors, which have garnered distrust from individuals who believed them to be too unstable to be a currency. As such, my capstone research explored the possibility of backing cryptocurrency, which are arguably speculative tokens, with intrinsic value through the use of a commodity such as gold or silver, which would in turn provide significant improvements in the stability of the price in comparison to traditional cryptocurrencies. My research suggests that cryptocurrency with a reserve of gold is a potential field of exploration, but also addresses issues that may arise, including, but not limited to, lack of transparency, security, and government regulation.

The rate of cryptocurrency adoption is certainly driven by the various actors, and their actions, within the ecosystem, including individuals, financial institutions, and governments, and an analysis of the networks the actors form is vital to understanding potential adoption of not just a commodity-backed cryptocurrency, but of the entire ecosystem. Furthermore, there have been trends that indicate that cryptocurrency is a highly empowering technology, especially to individuals that may not have access to stable currencies. As such, a historical analysis of literature of both cryptocurrency and blockchain technology and the use of commodity-backed currency in the past centuries can shed light on both cryptocurrency adoption and individual empowerment. Although such a combination between cryptocurrency and commodities have been only attempted within the past year, common supposition would indicate that such a union between the two has the potential to revolutionize the traditional monetary system.

The initial premise of my STS research was to explore the factors that influenced the move towards cryptocurrency adoption, while my capstone project explored the possibility of opening a protocol that was dedicated towards backing a cryptocurrency with a commodity to introduce price stability. Together, one might gain an understanding of the potential of cryptocurrency within the traditional monetary system.