Leibniz Universität Hannover

Opportunities and Challenges of Cryptocurrencies in Payment Systems: A Critical Analysis Between Speculation and Actual Use

Masterarbeit

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1 Introduction

Cryptocurrencies are an emerging phenomenon in financial markets, utilizing cryptographic decentralized technology (Giudici, Milne and Vinogradov, 2020). Bitcoin, for instance, is defined as digital money within a decentralized peer-to-peer payment network and was the world's first crypto-currency. The primary roles considered for Bitcoin are as a medium of exchange or an asset, with investigations into whether it is mainly used as an alternative currency to pay for goods and services or as an investment (Baur, Hong and Lee, 2018; Jonker, 2019). Current analysis of Bitcoin account transaction data indicates that Bitcoins are mainly used as a speculative investment and not as an alternative currency and medium of exchange (Baur, Hong and Lee, 2018). Despite the potential for low transaction costs, its peer-to-peer, global and government-free design, and the ability to ease financial transactions through elimination of the intermediaries, the integration of cryptocurrencies into mainstream payment systems faces limitations. These include the high volatility of their exchange rates, potential for increasing transaction fees for crypto-payments (Jonker, 2019), and the fact that regulatory oversight may be difficult and challenging due to their decentralized nature (Baur, Hong and Lee, 2018). Nevertheless, the adoption of cryptocurrencies for payments by some major corporations like Dell, Microsoft and Expedia suggests a degree of institutional acceptance, even though the acceptance of crypto-payments is modest and their overall use in global transactions remains limited (Baur, Hong and Lee, 2018; Jonker, 2019).

The fundamental question of whether cryptocurrencies like Bitcoin serve primarily as a speculative asset or as a medium of exchange is central to understanding its current usage and future potential (Baur, Hong and Lee, 2018). This thesis critically examines the opportunities and challenges of cryptocurrencies in payment systems, focusing on the tension between speculative use and practical application. It aims to answer two key research questions: What are the opportunities and challenges of using cryptocurrencies as a payment method, and how do they vary across stakeholders? Furthermore, how does the volatility of cryptocurrencies affect their adoption and use as payment methods? By addressing these questions, this study contributes to a deeper understanding of the transformative potential of cryptocurrencies and their implications for the future of payment systems.

9 Conclusion

This thesis critically examines the transformative potential of cryptocurrencies in payment systems, navigating their dual role as speculative assets and practical payment tools. By addressing two core research questions, it elucidates the opportunities, challenges, and volatility's impact across private individuals, businesses, and regulators, drawing from a systematic literature review, expert interviews, and case studies.

Research Question 1: What are the opportunities and challenges of using cryptocurrencies as a payment method, and how do these differ among private individuals, businesses, and regulators?

The findings highlight distinct opportunities and challenges for each stakeholder group. For **private individuals**, opportunities include reduced transaction costs (Chapter 4.1) and financial inclusion in underbanked regions (Chapter 4.3), yet challenges like volatility, complexity, and trust deficits hinder adoption (Chapter 5; Section 6.2). In El Salvador (Section 7.2), initial uptake via the Chivo Wallet waned as users preferred cash and distrusted the system. **Businesses** benefit from lower fees and faster cross-border payments (Chapter 4), with 77% of U.S. merchants citing cost savings (Chapter 2.4), but face regulatory uncertainty, volatility, and integration costs (Chapter 5). Most Salvadoran firms converted Bitcoin to dollars, reflecting skepticism (Section 7.2). **Regulators** see potential in innovation and inclusion (Chapter 4), yet grapple with consumer protection, financial stability, and curbing illicit activities (Chapter 5.1). The IMF's influence on El Salvador's policy retreat (Section 7.2) underscores their cautious stance. These differences, individuals seeking usability, businesses cost efficiency, and regulators stability, reveal a fragmented adoption landscape.

Research Question 2: How does the volatility of cryptocurrencies influence their adoption and use as a payment method across various stakeholder groups?

Volatility emerges as a pivotal barrier across all groups. For **individuals**, it erodes trust and practicality, with Expert 3 noting it renders cryptocurrencies "unsuitable" for payments (Section 6.2) and El Salvador's users shunning Bitcoin post-bonus (Section 7.2). **Businesses** struggle with pricing and risk, as 88% of Salvadoran firms converted Bitcoin sales to dollars (Section 7.2), and 36% of merchants cite instability as a hurdle (Chapter 5). **Regulators** view volatility as a systemic risk, prompting IMF pressure on El Salvador after a $60 million reserve loss in 2022 (Section 7.2). The Terra-Luna collapse (Section 7.1) and Milei $LIBRA scandal (Section 6.4) exemplify volatility's destabilizing effects, amplifying distrust. Stablecoins offer a mitigative prospect, endorsed by experts (Section 6.2) and literature (Chapter 2.2), yet their centralized nature raises questions about compromising cryptocurrency's ethos.

In conclusion, cryptocurrencies promise cost efficiency, speed, and inclusion, yet their adoption as payment methods is curtailed by volatility, regulatory ambiguity, and trust issues. Individuals prioritize usability, businesses compliance and savings, and regulators stability, necessitating tailored solutions like stablecoins and coherent policies. The shift from speculation to utility hinges on overcoming these barriers, positioning cryptocurrencies as niche tools rather than mainstream currency in the near term.

Looking ahead, I remain doubtful about the future of cryptocurrencies as a widely accepted payment method in the near future. In my opinion, the crypto industry's constant involvement in scandals like the Terra-Luna collapse or fraudulent schemes reinforces a speculative culture that drowns out any practical utility. Even stablecoins, which promise consistency, seem unlikely to succeed broadly; their centralized structure clashes with the decentralized spirit of cryptocurrencies, limiting their appeal. I believe that meaningful adoption may only come with a generational shift, as younger, tech-savvy individuals become more comfortable with digital currencies-but this feels distant and uncertain. Meanwhile, central bank digital currencies (CBDCs) are emerging as a more structured alternative, backed by governments and offering stability. But their acceptance remains a question mark; for many, cash still symbolizes freedom, and privacy concerns could stall progress, much like the trust issues that plagued El Salvador's bitcoin experiment. El Salvador's experience - initial hype fading into reluctance and external pressure - shows how wide the gap is between ambition and reality. For now, I see cryptocurrencies remaining niche tools, with speculation overshadowing their potential until major technological, regulatory, and cultural shifts align.