Can Stablecoins Foster Cryptocurrencies adoption? A Preliminary Study from the Push-Pull-Mooring Model Perspective

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Can Stablecoins Foster Cryptocurrencies adoption? A Preliminary Study from the Push-Pull-Mooring Model Perspective

Research-in-progress

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Abstract

Pegging to fiat currencies, stablecoins are cryptocurrencies with stable prices. Theoretically, stablecoins may mediate price volatility issues, which have been resisting the wider adoption of cryptocurrencies. And yet, their impact on fostering individuals’ cryptocurrency adoptions remains unclear. In this study, we adopted hot cryptocurrency wallets (hot-wallets) as the context and the Push-Pull-Mooring (PPM) model as the theoretical foundations to test these impacts. Our preliminary results showed that less experienced cryptocurrency users may not understand immediately upon learning about stablecoins. They may even feel confused and become less motivated to adopt cryptocurrencies. Conversely, more experienced users may recognize the importance of stablecoins. Hot-wallets that have included stablecoins are more likely to be used by these experienced users. The significant difference between users in terms of experience has hinted that hot-wallet service providers may need to adopt more diversified strategies to engage different potential users.

Keywords Bitcoin, Cryptocurrency, Stablecoin, PPM framework, Crypto-wallet
1 Introduction

Cryptocurrencies (or simply “crypto”) have gained increasing popularity in recent years, given it supports cheaper, faster (Hendershott et al. 2021), and geographically independent (Abramova and Böhme 2016) transactions. In 2021, Bitcoin had around 106 million individual owners, with approximately 270,000 daily transactions (Buybitcoinworldwide.com 2022). Researchers have predicted more pragmatic and diversified cryptocurrency applications in the future and have called for more research in this area (Li and Whinston 2020).

Investors and businesses appear to gradually embrace these digital currencies. And yet, the volatile nature of cryptocurrencies may impede them from going mainstream (Gandal et al. 2018). Therefore, some crypto-businesses have launched stablecoins, which are cryptocurrencies with values pegged to non-volatile assets such as US Dollars (Ante et al. 2021). Stablecoins have been included in different crypto-related services, such as exchanges and wallets. And yet, stablecoin, as a standalone artefact in the cryptocurrency world, is not well understood. Existing literature around stablecoins is mostly conducted in the finance area (Bojaj et al. 2022), leaving their impact on users’ adoption and other areas unaddressed. Without understanding the impact of stablecoins on individual adoption, crypto-businesses may not utilize their power, and the road of mainstreaming cryptocurrencies may be impeded.

This study focuses on users’ perception changes on adopting a hot cryptocurrency-wallet (hot-wallet) created by the inclusion of stablecoin in the services. We adopt hot-wallet services as our context, given that these services have the lowest adoption barriers (Gennaro et al. 2016). We presented an advertisement of a frictional hot-wallet service followed by asking them a range of questions related to their attitude and adoption likelihood. It was followed by presenting another advertisement of the same frictional hot-wallet service, but some stablecoins were featured in this advertisement. We would like to explore users’ attitude changes after learning about the inclusion of stablecoins in this frictional hot-wallet service, which, in turn, indicated the impact of stablecoins on adopting hot-wallet services and possibly the adoption of cryptocurrencies. Accordingly, our research question is, “How does stablecoin impact the attitude on cryptocurrency adoption?”.

2 Literature Review

2.1 Cryptocurrency and Stablecoin

Cryptocurrency is a digital or virtual currency that uses cryptography for security which is not issued by any central authority, rendering it theoretically immune to government interference or manipulation. With the functions of trade facilitation and the advantages of cost reduction, cryptocurrencies have the potential to replace traditional and new payment methods (Li and Whinston 2020). And yet, the volatility issue of cryptocurrency has impeded its adoption by the public. Therefore, some crypto-businesses have introduced stablecoins, whose values are pegged to other fiat currencies or financial instruments. Commonly seen examples of stablecoins include Tether (USDT), USD Coin (USDC), True USD (TUSD) and Binance USD (BUSD), all pegging with US Dollars (Wei 2018; Thanh et al. 2022). Table 1 shows several arguments in previous literature related to stablecoins.

In short, the advantages of stablecoins included price stability, lowered financial and investment risks, and their capabilities to be converted into/from more volatile cryptocurrencies quickly. Some scholars suggested their potential of replacing fiat currencies and asked for regulations that considered these impacts and potential. However, several research gaps related to stablecoins were not addressed. For example, the impact of stablecoin on users’ adoption remains unclear. Without addressing these gaps, the usefulness of stablecoins and their roles in promoting cryptocurrencies would be unclear.
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References

<table>
<thead>
<tr>
<th>Arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wei (2018)</td>
</tr>
<tr>
<td>Mita et al. (2019)</td>
</tr>
<tr>
<td>Sidorenko (2019)</td>
</tr>
<tr>
<td>Arner et al. (2020)</td>
</tr>
<tr>
<td>Lipton et al. (2020)</td>
</tr>
<tr>
<td>Moin et al. (2020)</td>
</tr>
<tr>
<td>Ante et al. (2021)</td>
</tr>
</tbody>
</table>

Table 1. A Selected List of Previous Studies Related to Stablecoins

Theoretical Framework

Assuming the adoption of cryptocurrencies as a switch from other financial investment instruments, we use the Push-Pull-Mooring (PPM) framework for our theoretical foundations. The origin of this framework may be traced back to Lee (1966), who proposed the model to explain the push-pull effect of human migration. In addition, Moon (1995) put the concept of ‘mooring’ into the push-pull model. Altogether, push factors force people to leave, pull factors attract people to a destination (Bansal et al., 2005) while mooring refers to factors related to an individual’s lifestyle, social and special elements which hinder people from leaving their existing locations (Longino Jr, 1992). Thus, the model has evolved into the PPM model, which has been used in a number of studies related to IS switching behaviours (Handarkho and Harjoseputro 2019; Nimako and Ntim 2013). Based on these studies, we identified several push, pull, and mooring factors (See Table 2), and assume that the introduction of stablecoins will enhance the influence of pull factors and decrease the impact of push factors and mooring factors.

Table 2. A Summary of Factors in the Context of PPM Model

Research Method

Online experiments with pretest-posttest surveys will be our primary research method, as we are to compare groups and measure change resulting from the impact of stablecoin introduction on users’ perception and adoption decisions (Dimitrov and Rumrill Jr 2003) within the context of hot crypto-wallets. We opted for the context of hot crypto-wallets because of their low technological adoption
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barriers so that users’ decisions will be least affected by other technological factors. The question sequence within a set of the survey was as follows:

1. Users will be asked questions about the control variables, their cryptocurrency experience and frequency of usage.
2. Users will be shown a generic hot crypto-wallet advertisement. Then they will be asked about their attitude towards the hot crypto-wallet, as well as their switching intention and continuous intention of adopting the given hot crypto-wallet.
3. Users will be shown another hot crypto-wallet advertisement that promotes their inclusion of stablecoin. The same set of questions used in step 2 will be asked.

Based on previous IS studies that adopted PPM as the theoretical framework, the attitude-related factors included task-technology fit (TTF), attractiveness (ATT), similarity (SIM), perceived ease of use (PEOU), perceived financial risks of crypto-wallet (PFRC), switching costs (SC), switching intention between crypto-wallets (SI-BC), switching intention from non-crypto to crypto-wallets (SI-FNC), continuance intention (CI) and intention to use (ITU). The questions used in our survey were adopted from previous IS research, with some modifications made with respect to our context. For example, the measurement items for TTF were adopted from Isaac et al. (2019), while measurement items for ATT were adopted from Loh et al. (2021). Moreover, the items for PEOU were adopted from Abramova and Böhme (2016). Each factor were measured with at least three questions. Table 3 shows some sample questions which was adopted in our survey.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Sample Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task-technology fit</td>
<td>The hot crypto-wallet service will fit with my way of managing money.</td>
</tr>
<tr>
<td>Attractiveness</td>
<td>If I need to adopt or switch to hot crypto-wallet services, this will be a good</td>
</tr>
<tr>
<td></td>
<td>hot crypto-wallet service to choose from.</td>
</tr>
<tr>
<td>Similarity</td>
<td>I expect that the typical usage situation of this hot crypto-wallet service is</td>
</tr>
<tr>
<td></td>
<td>similar to my existing choices of financial management options.</td>
</tr>
<tr>
<td>Perceived ease of use</td>
<td>I expect that this crypto-wallet service will be intuitive and easy to use.</td>
</tr>
<tr>
<td>Perceived financial risks of crypto-wallet</td>
<td>I may encounter financial loss due to data loss of this crypto-wallet services</td>
</tr>
<tr>
<td>Switching costs</td>
<td>Switching to this hot crypto-wallet service will cost me much effort.</td>
</tr>
<tr>
<td>Switching intention</td>
<td>I am likely to switch from the hot crypto-wallet that I am using partially to</td>
</tr>
<tr>
<td></td>
<td>this hot crypto-wallet within four months.</td>
</tr>
<tr>
<td>Continuance intention</td>
<td>I would like to continue using this crypto-wallet for managing my cryptocurrencies</td>
</tr>
<tr>
<td></td>
<td>asset.</td>
</tr>
<tr>
<td>Intention To Use</td>
<td>Given the chance, I intend to use this hot crypto-wallet services.</td>
</tr>
</tbody>
</table>

Table 3. Sample of questions being used in our survey

We used Amazon MTurk to collect our data, an increasingly common approach among senior basket IS journals (e.g., Mattke et al. 2021) and is considered effective as traditional data collection approaches (Maier et al. 2019). Jia et al. (2017) argued that MTurk was suitable for generalising studies that examine diverse cognition rather than contextualising studies involving shared awareness. In addition, MTurk allowed researchers to access hard-to-reach subjects (Smith et al. 2015) while avoiding oversampling participants from WEIRD (i.e., Western, educated, industrialised, rich, and democratic) backgrounds (Jia et al. 2017). All these characteristics are relevant to our study. Moreover, recent research shows that acquiring participants from MTurk does not create demand effects, which refers to an experimental artefact where participants form an interpretation of the experiment’s purpose and subconsciously change their behaviour to fit that interpretation (Mummolo and Peterson 2019). Nevertheless, we also consider the different potential issues of adopting MTurk for data collection, including self-selection bias, attentiveness, ability, and social desirability (Cheung et al. 2017; Jia et al. 2017).
5 Preliminary Results

We recruited 293 participants and obtained 225 responses after filtering out incomplete and contradictory responses. 90.2% of the participants are from USA, and the rest are from Australia, Albania, India, Brazil and other countries. There are 102 females and 123 males. On average, they have invested in cryptocurrencies for 10.5 months, while the median value of their investment experience is 6. On a 9-point scale, they reported an average frequency of 6.9 and a median frequency of 7.

Based on the data we collected, we conducted t-test analysis to compare the results of pretest and posttest, and thus identify the impact of stablecoins. Considering the difference in usage patterns between senior and junior users, we split the users into two groups. For each respondent, we calculated a seniority index by multiplying their usage frequency and months of experience. We classified respondents with a seniority index higher than 45 (the median value) as experienced users, while the rest were less experienced users. T-test were conducted separately both within the data subsets and the entire dataset. Table 4 shows our results, with mean difference and p-value included.

<table>
<thead>
<tr>
<th>Less Experienced Users</th>
<th>Experienced Users</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean diff.</td>
<td>p-value</td>
<td>Mean diff.</td>
</tr>
<tr>
<td>TTF</td>
<td>-0.201</td>
<td>0.011*</td>
</tr>
<tr>
<td>ATT</td>
<td>-0.091</td>
<td>0.205</td>
</tr>
<tr>
<td>SIM</td>
<td>-0.121</td>
<td>0.139</td>
</tr>
<tr>
<td>PEOU</td>
<td>-0.198</td>
<td>0.024*</td>
</tr>
<tr>
<td>PFRC</td>
<td>0.090</td>
<td>0.166</td>
</tr>
<tr>
<td>SC</td>
<td>-0.124</td>
<td>0.063</td>
</tr>
<tr>
<td>SI-BC</td>
<td>-0.165</td>
<td>0.032*</td>
</tr>
<tr>
<td>SI-FNC</td>
<td>-0.326</td>
<td>0.001**</td>
</tr>
<tr>
<td>CI</td>
<td>-0.218</td>
<td>0.024*</td>
</tr>
<tr>
<td>ITU</td>
<td>-0.018</td>
<td>0.422</td>
</tr>
</tbody>
</table>

Note: p<0.001***, p<0.01**, p<0.05*

Table 4. A Summary of Factors in the Context of PPM Model

More specifically, the results suggested that less experienced users and the more experienced users are significantly different. For less experienced users, there were significant drops in TTF and PEOU after the introduction of stablecoins. These drops were not seen among the more experienced users. Conversely, among senior users, there was a drop in PFRC after the introduction of stablecoins. Regarding SI-BC, SI-FNC, CI and ITU, we observed significant drops among less experienced users but significant increases among senior users.

Given the significant difference between the two groups of users, the difference between pretest and post-test results, when viewing the entire group of respondents, was basically insignificant.

6 Discussion and Concluding Remarks

This study is one of the earliest applications of PPM model to cryptocurrency contexts. While our research is still ongoing, our findings have already provided some implications. First, our results suggested that the adoption of cryptocurrencies has a relatively high learning curve. Users are required to learn about different basic aspects of cryptocurrencies before a more comprehensive adoption can be made. We argue that the introduction of stablecoin, despite its potential or functions, may indeed lead to more complicated perception of less experienced users. They may even get confused when learning about a “price-stable” cryptocurrency, which is against their stereotype of cryptocurrencies’ price volatility. As a result, the changes created by stablecoins may not be significant (as indicated by the p-value in our t-test). Some of them may even be less motivated to adopt or switch to cryptocurrency applications. Conversely, users who are more experienced in cryptocurrencies may welcome the introduction of stablecoins in the hot-wallet services. This is possibly due to their understanding on
stablecoins’ characteristics and recognition on the power of stablecoins. As per our results, the value of PFRC dropped after the introduction of stablecoins, which may be explained by their understanding on stablecoins as value-stable, and may be converted quickly from/into other cryptocurrencies. In turn, financial risks may be managed more easily.

From a practical perspective, our results hinted at more diversified strategies for hot-wallet service providers to engage more different users in the light of the significant difference between users in terms of experience level. For less experienced users, these service providers should spend more effort in customer education around basic knowledge about cryptocurrency, such as the principles and usages of cryptocurrencies, as well as the characteristics and potential of stablecoins. For more experienced users, given they are fairly informed about stablecoins, these service providers may consider developing more sophisticated options with stablecoins being used.

Our future research directions will be centred on different aspects of stablecoins, such as detailed applications of stablecoins in different options offered by hot-wallet services providers, including what drives the adoption of these applications. The critical success factors of the initial offerings of stablecoins may also be explored.

7 References


Acknowledgements

This study is supported by a research grant awarded by the National Science and Technology Council (NSTC) of Taiwan (ID: 110-2410-H-194 -109 -). We gratefully thank for their support.

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