

What Determines the Acceptance of Cryptocurrency in Malaysia? An Analysis based on UTAUT2.

Research-in-Progress

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Abstract

The nascent blockchain technology that sparked the advent of cryptocurrency has been receiving heightened attention from practitioners and scholars. With the unpredictable cryptocurrency value, the controversy surrounding the cryptocurrency hype remains vigorous. However, less academic research has investigated the individual cryptocurrency acceptance behavior, especially in developing country context. Drawing on the literature on blockchain, cryptocurrency, e-banking and Unified Theory of Acceptance and Use of Technology2 (UTAUT2), this paper aims to propose a model that integrates cryptocurrency dimension antecedents and UTAUT2 constructs to examine the factors that influence individual cryptocurrency acceptance behavior in Malaysia. This study employs a quantitative approach by collecting online survey questionnaire data to evaluate the proposed model using partial least square structural equation modeling (PLS-SEM) approach. This paper appears as a valuable contribution that provides regulators and cryptocurrency practitioners a high-level overview of potential individual cryptocurrency acceptance factors.

Keywords: blockchain, cryptocurrency, acceptance, conceptual model, Malaysia, UTAUT2

Introduction

The rapid advancements in technology driven by the internet revolution profoundly affected the global financial market in the 1990s (Lee and Shin 2018). Since then, financial technology (fintech) has emerged as a new term to describe the embracement of novel technologies that transform financial activities to be more effective and efficient (Gai Keke et al. 2018). According to Milian et al. (2019), existing fintech literature shows the most discussed subjects included network externality, electronic banking, cryptocurrency, big data, and biometrics authentication. The most recent technology has been introduced to fintech is blockchain. One undeniable fact is that the blockchain technology is well-known due to the cryptocurrency hype, which comes into place in 2008 (Nakamoto 2008).

To date, blockchain technology is still at its infancy stage and the fluctuation of cryptocurrency value remains debatable. In spite of that, this does not repel the fact that this technology and cryptocurrency serves as an enabling force for economics transformation which has the ability to transform the conventional financial services (Morkunas et al. 2018). Beyond the financial sector, blockchain-based solutions have been deployed in a wide array of contexts. For instance, there is electronic medical record system (Chen et al. 2019; Wanitcharakkhakul and Rotchanakitumnuai 2017), supply chain (Casado-Varaa et al. 2018; Chang et al. 2019), manufacturing (Liu et al. 2017; Zhang et al. 2017), intelligent transportation system (Ao et al. 2017; Kang et al. 2017; Kato et al. 2018)

In fintech context, the extant blockchain literature has pointed various advantages of this technology, which is evident in the advent of cryptocurrency. Cryptocurrency is “a peer-to-peer version of electronic cash that allows online payment to be sent directly from one party to another without going through a financial institution” (Crosby et al. 2016). The most mentioned benefits include decentralization (Ermakova et al. 2016; Walton and Johnston 2018), low transaction fees (Baur et al. 2015; Seetharaman et al. 2017) and speedy transaction (Gao et al. 2016; Sas and Khairuddin 2017). However, the negative sentiment associated with cryptocurrency is alarming when it is involved in money laundering, illegal marketplaces and cyber hacking (Zulhuda and Sayuti 2017).

Global regulators are yet to assimilated into a standardized regulatory framework because the regulators’ stance on the legitimacy of cryptocurrency remains ambiguity (Pieters and Vivanco 2017). Considering the uncertainty future of cryptocurrency and the radical skepticism about its price fluctuations, it becomes interesting to investigate on individuals’ behavior when it comes to accepting and adopting cryptocurrency. The emerging literature has reported cryptocurrency acceptance and adoption studies in the context of developed countries, especially European countries (Ermakova et al. 2016; Roos 2015; Wahl 2016). However, the cryptocurrency acceptance behavior and the factors that drive such acceptance has so far limitedly explored, especially in the developing country context (Henry et al. 2018; Kick and Connolly 2015). While the Malaysian government officially launched a regulatory framework to monitor cryptocurrency exchange businesses on 15th January 2019, it is envisaged that cryptocurrency will still be around for the foreseeable future. Hence, it is of paramount importance to grasp the understanding of cryptocurrency acceptance behavior before a well-established cryptocurrency system can come into place. To achieve this, this study strives to answer the following research question: What are the drivers of cryptocurrency acceptance in Malaysia?

On top of that, this study aims to provide the blockchain and cryptocurrency enthusiasts with a better understanding of the acceptance pattern and behavior resides in the Malaysians (individual level). The study seeks to encourage merchants to ponder upon the business opportunities granted by the implementation of cryptocurrency-friendly payment system. This also adds a competitive advantage and value to their businesses by integrating the business model with innovative financial solutions. While cryptocurrency presents a new paradigm of transactions, this study paves the way for individuals to stay abreast of this digital era where blockchain-based solutions are receiving massive attention. With respect to regulators, this study provides valuable insight into developing a sophisticated and holistic governance model. From a technical point of view, this study potentially helps blockchain-based financial solution developers to contemplate the current issues of payment system towards the development of an ideal and secure payment system. Additionally, this study also flourishes the literature on blockchain, fintech and IT adoption.

Theoretical Background1

Technology Acceptance and Adoption Theories

With the rapid progression of information and communication technologies, technology acceptance theories became essential to help understanding acceptance and adoption behaviors. Since the past decades, scholars have dedicated significant efforts to build robust technology acceptance models. These include, Theory of Reasoned Action (TRA) , Technology Acceptance Model (TAM) (Davis 1989), Model of PC Utilization (MPCU) (Thompson et al. 1991), Theory of Planned Behavior (TPB) (Ajzen 1991), Social Cognitive Theory (SCT) (Compeau and Higgins 1995), Innovation Diffusion Theory (IDT) (Moore and Benbasat 1991), Unified Theory of Acceptance and Use of Technology (UTAUT/2) (Venkatesh et al. 2003; Venkatesh et al. 2012).

In order to build a solid theoretical foundation for this study, the theories were reviewed to decide on the most suitable theory to be adapted into the cryptocurrency acceptance context. TRA, SCT, and TPB focus on how social factors influence a person’s behavior. In another word, the technological factor which is important to this novel financial innovation is disregarded. Moreover, the constructs embedded in TAM are not comprehensive enough to address cryptocurrency acceptance. MPCU specifically deals with the factors that impact a worker’s use of computer at the workplace. While the evolution of cryptocurrency is frequently growing, IDT requires relatively static input to predict individuals’ behavior. Meanwhile, the original UTAUT model emphasizes on the organizational

context which does not take individual behavioral factor into consideration. Overall, this study does not opt for these mentioned theories to understand cryptocurrency acceptance.

In this vein, the UTAUT2 model which extended from UTAUT has appeared to us as the most suitable approach because it is a robust and comprehensive model that focuses on individual context. It also deals with technological and social factors. From a good number of existing studies, the UTAUT2 model has been proven to work in understanding the acceptance of numerous technologies. For instance, the patients' use of laboratory electronic portal (Ravangard et al. 2017), mobile internet for mobile users (Kraljić and Peštek 2016), internet banking application for elderly people (Jorge et al. 2015; Moura et al. 2017), and learning management system (Ain et al. 2016) as well as Google classroom for university students (Jakkaew and Hemrungrote 2017). These literature shows that the model was partially or fully supported by the hypothesized relationships in different contexts. Additionally, existing empirical studies have demonstrated that online survey questionnaire is a feasible data collection tool for cryptocurrency acceptance and adoption studies (Abramova and Böhme 2016; Gunawan and Novendra 2017; Shahzad et al. 2018).

Proposed Research Model

While the original UTAUT2 model that examined the use of mobile internet which has appeared as a generally widespread technology in the current era, this study sparks the literature by examining the more recent and novel blockchain-based cryptocurrency. Given that Venkatesh et al. (2012) has conducted the original UTAUT2 study in a developed country context (i.e. Hong Kong, China), this present work aims to bridge this gap by targeting a developing country context (i.e. Malaysia). Since both types of country is different in terms of the progression of technological infrastructure and the economic status, it is worth examining how the findings will be altered from the original study.

On the other hand, Dwivedi et al. (2017) have reported that the moderators in UTAUT model (i.e. gender, age, and experience) were typically dropped and one possible reason is that the effect of moderators does not bring a significant variation for technology acceptance and adoption context. While the nature of this study is longitudinal, prior literature shows that it is inappropriate to include Experience as the moderator due to the incompetency of acquiring the respondents' increasing level of experience at different points of a time period (Jorge et al. 2015).

This study considers the novelty and recency of cryptocurrency can result in a lack of individual interactions and familiarity with the use of cryptocurrency, which is inadequate to form the different habit level. Hence, the construct Habit was excluded. Adhering to the research objective of examining the cryptocurrency acceptance behavior, the Behavioral Intention is sufficient to measure the degree of acceptance and thus Usage Behavior was eliminated. The exclusion of Usage Behavior is supported by prior studies (Nikolopoulos and Likothanassis 2017; Queiroz and Wamba 2019). Also, it is inappropriate to include Usage Behavior construct while this study does not delineate the passage of time from how the individuals transform their initial intention to the actual use of cryptocurrency.

In addition to the constructs originally embedded in UTAUT2, the proposed model includes three cryptocurrency dimension antecedents. Considering the legitimacy of cryptocurrency has not reached an international consensus, this study sought to include Government Regulation to take the role of regulators into consideration. Another aspect is that this study considers cryptocurrency features that make it unique from the conventional currency, by including Transaction Features as a predictor of individual acceptance behavior. Besides, the inclusion of Price Volatility is of paramount importance because the fluctuations in cryptocurrency value has resulted in a deep skepticism. In a nutshell, these make up an original contribution to the field of technology acceptance study in Malaysia.

Conceptual Model

A conceptual model was derived based on the literature on blockchain, cryptocurrency, electronic banking and technology acceptance studies. Figure 1 displays the illustration of the conceptual model which is used towards the development of hypotheses statements.

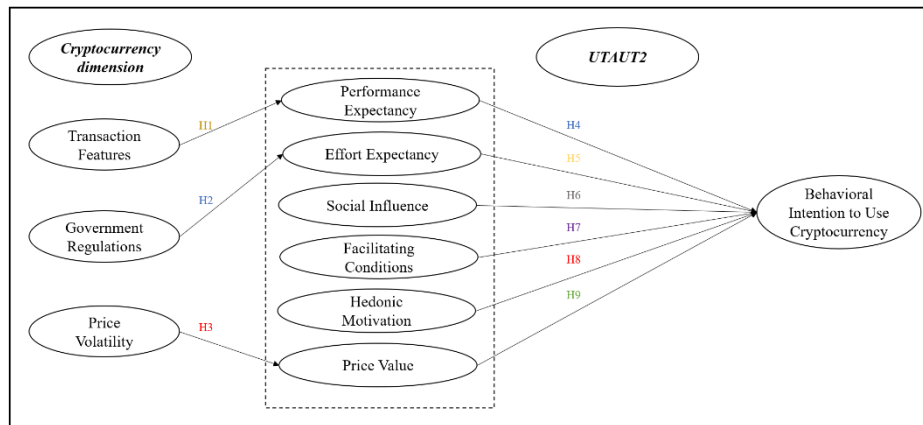


Figure 1. Proposed Conceptual Model

Hypotheses Development

The flaws and drawbacks of the current digital payment solution (e.g. credit card, PayPal) have led to a novel approach to digital payment: blockchain-based cryptocurrency (Baur et al. 2015). Apart from the first cryptocurrency (i.e. Bitcoin), there are over thousands of viable alternatives which have different strengths. The unique and novel cryptocurrency features included, but not limited to, improved transaction speed (Gao et al. 2016; Gunawan and Novendra 2017; Mendoza-Tello et al. 2018), lower transaction costs for remittances (Ermakova et al. 2016; Folkinshteyn and Lennon 2017), anonymity and privacy (Seetharaman et al. 2017; Shehhi et al. 2014) as well as intermediaries removal (Gao et al. 2016; Walton and Johnston 2018). While these features are expected to be beneficial for consumers, this study postulates the following hypothesis:

H1: Cryptocurrency's transaction features (TF) influence Performance Expectancy (PE) positively.

While the legitimacy of cryptocurrency remains debatable among global regulators (Bollen 2016; Pieters and Vivanco 2017), the establishment of regulations by regulators play a decisive role for mass acceptance and adoption (Shahzad et al. 2018). The study argues that the exchange rate of Bitcoin versus US dollar will increase significantly if the regulators' support comes into place (Seetharaman et al. 2017). Malaysian regulators have shown their support by allocating investment fund for peer-to-peer financing platforms, at the same time, safeguarding the public interest by establishing the regulations to govern cryptocurrency exchanges and initial coin offerings which came into force on 15th January 2019 (Zmudzinski 2019). Since this standpoint might encourage the development of technological infrastructure (e.g. digital exchange platform, digital wallet application) to support the cryptocurrency-based payment system, this study hypothesizes that:

H2: Cryptocurrency's government regulations (GR) influence Facilitating Conditions (FC) positively.

Unlike the government-controlled Malaysian Ringgit (MYR), Bank Rakyat Malaysia does not control the supply of cryptocurrency. Hence, it is inevitable that the cryptocurrency market is highly volatile as compared to the conventional fiat currency (Berentsen and Schär 2018). It is undeniable that the cryptocurrency's price fluctuations incur fear within individuals (Baur et al. 2015). On the other hand, a surprising finding shows that a drastic increase in price volatility attracts individual adoption behavior for monetary gain (Farell 2015; Henry et al. 2018). Besides, Urquhart (2018) found that the volatility and trading volume of cryptocurrency significantly drives public attention. This study argues that the price volatility will affect a user's perception of the cryptocurrency value because its monetary cost fluctuates in line with its price. Hence, the following hypothesis is formed:

H3: Cryptocurrency's price volatility (PVL) influences Price Value (PV) positively.

As discussed, cryptocurrency leverages on blockchain technology to appear as an alternative digital payment system with unique transaction features to address the drawbacks of traditional financial services. Therefore, it is expected that users can gain prominent benefits from cryptocurrency adoption. Kumpajaya and Dhewanto (2015) and Shahzad et al. (2018) suggested that the acknowledgment of the perceived usefulness of cryptocurrency in daily life plays a role in cryptocurrency acceptance and adoption behavior. With that, the hypothesis is formed as below:

H4: Performance Expectancy (PE) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

As a new paradigm in the field of fintech newly launched in late 2008 (Nakamoto 2008), cryptocurrency is still at its immature landscape. Despite it is unnecessary to understand the back-end of cryptocurrency system to use cryptocurrency, some basic technical and financial knowledge is necessary to deal with the digital wallet and exchange platforms. Existing cryptocurrency studies show that the knowledge about cryptocurrency system may decrease the chance of being scammed (Abramova and Böhme 2016; Shehhi et al. 2014). In line with the study of Henry et al. (2018) and Kumpajaya and Dhewanto (2015), cryptocurrency acceptance behavior depends on the individual's belief about perceived ease of cryptocurrency use. This study hypothesizes that:

H5: Effort Expectancy (EE) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

One of the success factors for the cryptocurrency is attributed to the large network effects as the consumption of social media is increasing steadily (Walton and Johnston 2018). Prior studies have shown that social influence has a great impact on individual acceptance behavior because people tend to gather information and listen to advice from other people related to a product or service before the actual adoption (Megadewandanu et al. 2016). In line with that, Zhang et al. (2018) recommended that a widespread electronic banking acceptance could be achieved through the power of word-of-mouth. Considering money is much a societal and psychological context, it is anticipated that social attention is one of the important drivers of cryptocurrency acceptance. This leads to the following hypothesis:

H6: Social Influence (SI) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

Based on the findings of Queiroz and Wamba (2019), the facilitating condition construct affects blockchain adoption in the developed country (i.e. the USA) but plays no role in developing country context (i.e. India). This is because developed country tends to have adequate facilitating conditions to support new technology whereas the lack of infrastructure in a developing country might become one of the impediments. In contrast, Gunawan and Novendra (2017) showed that facilitating condition affects cryptocurrency use in Indonesia and individuals are satisfied with the existing facilities and infrastructure behind the use of cryptocurrency. In view of the increasing number of blockchain solutions provider in Malaysia, it is worth examining how the availability of facilitating conditions impact cryptocurrency behavior. Hence, this study hypothesizes that:

H7: Facilitating Condition (FC) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

Apart from the functionality of technology as one of the extrinsic motivation factors, the original UTAUT2 model found that intrinsic motivation also led to technology acceptance and adoption (Venkatesh et al. 2012). Megadewandanu et al. (2016) are in line with the original study and the authors suggested that the concept of gamification can fuse into the mobile wallet application to increase hedonic motivation. While cryptocurrency can be used as a transactional currency and an investment asset for monetary gain, it is predicted that this motivates individual engagement towards cryptocurrency. Another example of intrinsic motivation provided by cryptocurrency is the "sense of freedom" while using the decentralized and anonymous cryptocurrency (Bashir et al. 2016). The individual curiosity and attractiveness to the novel blockchain technology and cryptocurrency also contributed to the increase hedonic motivation. This is hypothesized as follows:

H8: Hedonic Motivation (HM) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

At the individual level, the price value factor should be taken into consideration as the individual who uses the technology will need to bear all the associated costs (Venkatesh et al. 2012). Previous empirical studies have shown that individual behavioral intention to adopt mobile/ internet banking is impacted by the price value factor (Jorge et al. 2015; Mahfuz et al. 2016). Since the price of cryptocurrency is determined by the global market demand and supply, its value is relatively volatile and unstable as compared to the fiat currency (Berentsen and Schär 2018). Therefore, this study proposes the following hypothesis:

H9: Price Value (PV) has a positive impact on Behavioral Intention (BI) to use cryptocurrency.

Methodology

This study intends to investigate the factors that directly and indirectly impact cryptocurrency acceptance behavior at the individual level. Specifically, the target unit of analysis focuses on Malaysian individuals who are equipped with cryptocurrency knowledge. Following a quantitative methodology, this study will use a survey questionnaire as data collection tool. Since cryptocurrency is anonymous in nature, it is unable to retrieve a complete list of individuals who are accepting cryptocurrency. Therefore, non-probabilistic sampling method (i.e. purposive sampling) will be employed with the aim of achieving theory generalization instead of sample generalization (Memon et al. 2017). The minimum sample size required for actual data collection is 279, which is calculated with Gpower software (Faul et al. 2007). With the gathered survey data, the proposed model will be evaluated using PLS-SEM with SmartPLS software (Hair et al. 2017; Ringle et al. 2015).

Conclusion

With the disruptive effects that brought by blockchain technology and the anticipated impacts of cryptocurrency to FinTech field, this study is timely as such it aims to understand blockchain-based cryptocurrency acceptance whose advantages are not entirely cleared, whose skepticisms are still rising, and whose diffusion path remains uncertain. In term of theoretical contribution, this study attempts to expand the usage of UTAUT2 to cryptocurrency context by proposing a model to enable a better understanding of how individuals behave towards cryptocurrency that leverages on the nascent technology (blockchain). In addition to the original UTAUT2 constructs, the proposed model considers cryptocurrency's characteristics to include three new predictors of technology acceptance behavior. On top of that, this study focuses on the context of developing country and thereafter scholars can work on a cross-country context by applying this model to developed country context. In term of practical contribution, this study provides valuable insight to consumers, merchants, regulators, developers, and enthusiasts into cryptocurrency acceptance behavior.

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