Volume 20 Issue 37
Originally issued as C4



Global Journal of Management and Business Research: C Finance
Volume 20 Issue 4 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

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Abstract- Recent developments in crypto currency have heightened the emerge and development of new form of money generally and crypto currency particularly. This development has reach to the precious metal which is historically known as a money. Reusing precious metal as a money by benefiting from crypto currencies technology is perceived to be an innovation in the current payment system that abandoned precious metal as a money since 1973. Therefore, the major aim of this research is to investigate in the potential users' tendency to adopt a Sharīʿah-compliant precious metal backed crypto currency. The methodological approach adopted in this study is a quantitative method using questionnaires that was built based on the original model of innovation diffusion theory which consists of five factors. The analysis was conducted based on data elicited from 92 questionnaires using PLS-SEM. Overall, the results indicate that four out of the five constructs that specified to affect the adoption of PMBC were statistically significant. 50.4 percent of the differences in adoption of PMBC can be explained by the structure model provided by this research.

Keywords: sharīʿah – compliant, precious metal, crypto currency, malaysia, adoption model.

GJMBR-C Classification: JEL Code: F65



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Abstract- Recent developments in crypto currency have heightened the emerge and development of new form of money generally and crypto currency particularly. This development has reach to the precious metal which is historically known as a money. Reusing precious metal as a money by benefiting from crypto currencies technology is perceived to be an innovation in the current payment system that abandoned precious metal as a money since 1973. Therefore, the major aim of this research is to investigate in the potential users' tendency to adopt a Sharīʿah-compliant precious metal backed crypto currency. The methodological approach adopted in this study is a quantitative method using questionnaires that was built based on the original model of innovation diffusion theory which consists of five factors. The analysis was conducted based on data elicited from 92 questionnaires using PLS-SEM. Overall, the results indicate that four out of the five constructs that specified to affect the adoption of PMBC were statistically significant. 50.4 percent of the differences in adoption of PMBC can be explained by the structure model provided by this research. Just over half of the respondents (63.35) reported that they are willing to use PMBC in their future transaction. It is recommended that further empirical investigations to be undertaken using alternative theoriesand methods.

Keywords: sharīʿah – compliant, precious metal, crypto currency, malaysia, adoption model.

I. Introduction

At the beginning of 2007 international financial crisis, criticizers analysed different approaches to transfer value that decentralised, trust-less currency, that is not reliant on central authority (Maurer et al., 2013; Mullan, 2014). Therefore, on 3 January 2009, Satoshi Nakamoto presented the first crypto currency in the world which called Bitcoin (Nakamoto, 2008). The market of crypto currency has grown-up and developed unsteadily and promptly over a short-term since the launch of Bitcoin (Farell, 2015). As early as 2020, more than 2518 varied type of crypto currencies were emerged as never happened before, with a market valued exceeded USD260 billion (Coin Market Cap, 2020).

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Although crypto currencies customarily and Bitcoin specifically have appeared to solve the problems created by fiat money, it had only partly resolved the problem. However, it boosted other issues and challenges, on the contrary crypto currencies were preferred targets for risk-takers, manipulators and illegitimate business which led to disastrous instabilities in its value. For examples, in 18 of December 2017 the value of one Bitcoin has radically plummetedduring 6 daysfrom UDS 19,298 to USD 13,206 (Coin Market Cap, 2020). Currently 2 July 2020 the one Bitcoin is trafficked at USD 9,099 which show the huge instabilities in its value. Moreover, it has been found that crypto currencies have many Sharīʿah concerns, which derived some countries to ban some of these currencies(Al-Qaradaghi, 2018; Islamic Economy Forum, 2018).

These topics were encouraging to examine other options by developing valuable metal backed crypto currency to overcome the instability of value. Precious metal has been conserved its value, as confirmed by history, that metal stayed steady and trusted by economy (Abdullah, 2016b). Generally speaking, the idea of precious metal backed crypto currency PMC is an electronic representation of physical precious metal held offline in a safe cellar as users are circulating the encrypted electronic units. Basically, it offers efficient and protected online methods to sale, buy, hold, spend, earn, send and redeem gold and silver (Ajouz et al., 2020b). Until the written of these lines there almost 111 different type of assets backed crypto currency has introduced in various countries and jurisdictions (James, 2020). Interestingly enough, two of these companies such as Hello Gold and One Gram Coin have been approved to be *Sharīʿah*-compliant (Hello Gold, 2018; One Gram, 2018).

Presenting of precious metal backed crypto currency is supposed to be an innovation among the world's payment system (Ajouz et al., 2020a; Yusuf et al., 2013). This is because after the downfall of the Bretton Woods system in the early 1970s, the precious metals were not used as a currency and the concept of crypto currency has only arose in early 2009.Therefore, it is essential to examine the potential users' views to understand from demand viewpoint if the potential users are willing to adopt precious metal backed crypto currency based on innovation diffusion theory (IDT).

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This paper is arranged as follows: it first starts with the introduction of the paper, then it presents the review of related literature followed by the used methodology of the study. The last section presents discussion and the findings of the study followed by a conclusion and some recommendations.

II. Literature Review

a) Relative Advantage

Relative advantage refers to "the extent by which an innovation is perceived as better than the idea it replaces" (Rogers, 2003:229). Precious metal as a money has proved its capability to preserves wealth and value throughout long run. Given their stability, gold and silver can perform vital role as a money, at the same time precious metal can protect from inflation and ensure price stability (Abdullah, 2016a; Ajouz et al., 2020b; Meera, 2002, 2004). As a result, this study hypothesizes that:

H_1 Relative advantage of using precious metal backed crypto currency will have a positive effect on its adoption.

b) Compatibility

Compatibility refers to "the extent by which an innovation is perceived as being compatible with the current values, needs of possible adopters and past experiences" (Rogers, 2003: 240). PMBC could be compatible with the lifestyle of current generation, values and socio cultural beliefs, this mainly because gold and silver are money by itself, and the desire to accumulating them did not fade away (Ajouz et al., 2020a). Therefore, this research proposes that:

H_2 Compatibility of using precious metal backed crypto currency will have a positive effect on its adoption.

c) Anxiety

Anxiety refers to "the extent by which an innovation is perceived as relatively difficult to use and understood" (Rogers, 2003: 257). The complexity factor in PMBC mainly associated with the precious metal (Ajouz et al., 2020a; Yusuf et al., 2013). According to Yusuf et al., (2013: 100-101), there are three main challenges obstruct implementing gold dinar as a currency that are exchange risks, price volatility and political risk. As a result, this research proposes that:

H_3 Anxiety of using precious metal backed crypto currency would have a negative effect on its rate of adoption.

d) Trialability

Trialability refers to "the extent by which an innovation may be experimented with on a limited basis before adoption" (Rogers, 2003: 258). PMBC is a completely different form of money which individuals are used to. Potential users need to experiment the consequences of PMBC before choosing to use or adopt it (Ajouz et al., 2020a; Karahanna et al., 1999). Hence, giving potential users the opportunity to try PMBC would enhance the adoption process. Because of this, this study hypothesizes that:

H_4 Trialability of using precious metal backed crypto currency will have a positive effect on its adoption.

e) Observability

Observability refers to "the degree to which the results of an innovation are visible to others". Thus, some ideas are easy to observe, described and communicate among society members about theses inventions, whilst other inventions are much difficult to be observed or described by a society members (Rogers, 2003: 258). Thus, the usage rate of any new invention would increase significantly if the potential adopters are able to easily able to observe and described the value added by the new payment mechanism which is PMBC (Ajouz et al., 2020a; Yusuf et al., 2015). Therefore, this study hypothesizes that:

H_5 Observability of using precious metal backed crypto currency will have a positive effect on its adoption.

III. Materials and Methods

This research was conducted in Klang Valley, Malaysia. The potential users are the primary target respondents who are the economic active residents in Klang Valley. The study also adopted a judgement sampling as a sampled frame, where the selection criteria were mainly based on their uses of electronic payment procedure either debit or/and credit cards, mobile payment online banking, crypto currency, or electronic money. In addition, they are aged above 20 years, permeant residents or residents of Klang Valley, this criterion is similar to the one used by Yusuf et al. (2013). Given that, with five percent margin error and 95 percent of confidence level, the minimum sample size that was recommended by Hair et al. (2016: 20) for this type of research is 50. Using a self-administered and trained enumerator, a total of 110 questionnaires were distributed to selective potential users in Klang Valley. Eighteen questionnaires were not included in the data analysis because they did not meet the selection criteria adopted in this research. Therefore, 92 questionnaires were analyzed.

The demographic results obtained from the 92 respondents showed that around 51.1 percent of the respondents are male, and the rest (48.9%) are female. Interestingly, the younger generations who aged between 20 years and 40 year are dominated on the sample with 90.3%, while only 9.7% of the respondents above 41 years. The Malaysian society is very well known for its ethnic compositions which were reflected in the sample, as such majority of the respondents were Muslims (62.3%), Buddhist present 25.0%, while 3.3 and

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1.3 percent Hindus and Christians respectively. The themes of monthly income showed that more than 80% of the respondents are from middle-class income who have less than RM5, 000 per month, meanwhile around 19.6% earn above that per month. In term of distribution of the respondents by educational level, majority of the respondent (87%) are well educated where they are holding at least diploma certificate or higher certificate, while the rest are having school education. The demography profile of the respondents revealed their belong to different occupation categories encompassing 40.2% are self-employed, while 40.2% are working in civil servants and private sector, followed by students who present 12%, and 7.6 are still looking for opportunities.

IV. Results

a) The measurement models

The fit of hypothesized model was evaluated based on confirmatory factor analysis through partial least squares (PLS) in Smart-PLS 3 (Ringle et al., 2015). The 92 sampled data collected from potential users of Sharī'ah-compliant precious metal backed crypto currency. As suggested by (Hair et al., 2016), the assessment of the model was conducting for indicator reliability, internal consistency, as well as convergent and discriminant validity.

First of all, indicator reliability was conducted according to (Hair et al., 2016) criteria, where each indicator must have outer loadings of 0.70 or greater. Some items were eliminated because they were not qualified by this criterion, the remaining items (shown in Fig 1) were having outer loading between 0.70 and 0.92, and all the indicators were statistically significant at 0.00. These results indicate that the instrument is having indicator reliability. Secondly, Cronbach's alpha and composite reliability were used to evaluate the internal consistency reliability. The results of Cronbach's alpha for all constructs were between 0.728 and 0.865. Additionally, the results of composite reliability for all constructs were between 0.849 and 0.912. Accordingly, the above results represent an acceptable internal consistency reliability according to (Hair et al., 2016) criteria.

According to the validity evidence, the validity of hypothesized model was established using convergent and discriminant validity. Firstly, average variance extracted (AVE) was carried out to ensure convergent validity. The results of AVE were above 0.50 indicating that the convergent validity was established according to (Hair et al., 2016) criteria, where the value of AVE were between 0.598 and 0.775. Whilst discriminant validity was evaluated based on three approaches which are observing the cross loading of the items, Fornell-Larcker criteria, and heterotrait-monotrait ratio of correlations (HTMT) criteria (Hair et al., 2016, 2019). Firstly, by evaluating the items and construct loading and cross loading, it shows that all items and construct in their respective items and construct have factorial and construct loads higher than any other items and construct which indicate the establishment of discriminant validity based on loading and cross loading criteria, and Fornell-Larcker criteria (Chin, 1998). Secondly, by evaluating the results of discriminant validity based on HTMT criteria, it was found that all results of construct were below 0.85, and all the indicators were statistically significant from 1, which according to (Kline, 2011) criteria achieve the discriminant validity. All in all, the results of the hypothesized measurement model are satisfactory which can be used in the structural model analysis to test the hypothesis of this research.

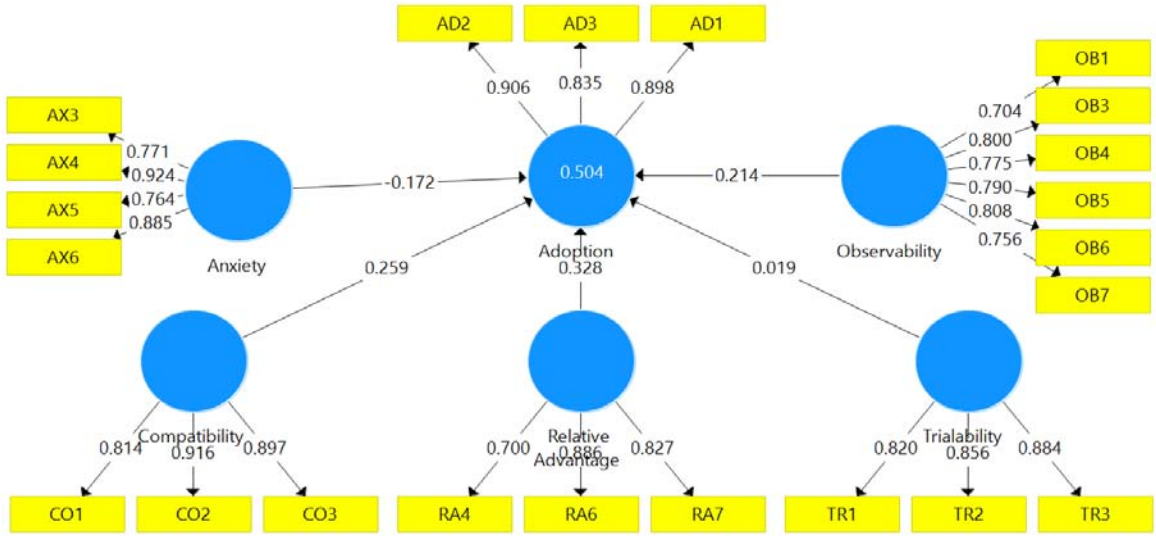

Figure 1: PLS-SEM with the values of the t-tests obtained via the Bootstrapping module

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b) The structural model: Assessing Adoption of Precious Metal Backed Crypto Currency

It is apparent from Table1 below that there was a significant positive correlation betweenadoption of PMC and relatively advantage where the $\beta = 0.322$; $t = 3.073$, $P < 0.05$. The result indicates that the potential users believe they will have relatively advantages by using and adopting of PMC in their daily transactions. In addition, on average, compatibility was shown to have positive correlation on the adoption of PMC as $\beta = 0.261$; $t = 2.356$, $P < 0.05$. The respondents found to be believing in PMC to compatible with their current values, needs and past experiences. However, a negative correlation was found between anxiety and adoption of PMC, where the hypotheses found supported with a negative sign as was expected where $\beta = -0.177$; $t = 2.136$, $P < 0.05$. This means that the more difficulty and complexity attached to the precious metal backed crypto currency the less users' willingness to adopt it in their future transaction. Further statistical tests revealed a positive effect of observability on adoption of PMC as $\beta = 0.215$; $t = 2.475$, $P < 0.05$. The potential users found to be able to observe the results and gains of adopting PMC.

Unexpectedly, there were no significant differences between trial ability and adoption of PMC where $\beta = 0.030$; $t = 0.220$, $P > 0.05$. According to Yusuf et al. (2015) giving potential users the chance to try PMC before full adoption will increase their wiliness to adopted PMC completely in the future, but such a relationship was not confirmed by the collected data. However, testing the hypothesis using Kruskal-Wallis Test was found to be statistically significant as Chi-Square = 18.977; 4, Asymp. Sig < 0.05.

Table 1: PLS-SEM Results: Path Coefficients of the Adjusted Model

Hypotheses	Relationship	Std Beta	Std Error	T-Value	Decision
H_{RA}	Relative Advantage -> Adoption	0.322	0.107	3.073	Supported
H_{CO}	Compatibility -> Adoption	0.261	0.110	2.356	Supported
H_{AX}	Anxiety -> Adoption	-0.177	0.081	2.136	Supported
H_{TR}	Trialability -> Adoption	0.030	0.087	0.220	Not Supported
H_{OB}	Observability -> Adoption	0.215	0.086	2.475	Supported

V. Conclusion

The present research was designed to determine the factors that influencing the adoption of *Sharīʿah*-compliant precious metal backed crypto currency. This study has found that generallyfour out of the five constructs were found to be statistically significant where relative advantage, compatibility and observability found to be positively influencing the adoption of PMC, while only anxietywas negatively influencing the adoption of PMC. Surprisingly, only trialability was found not statistically significant based on the collected data. The second major finding was that 50.4% of the differences in adoption of PMC were explained by the structure model proposed in the current study. The results of this investigation also showed that around 63.55% of the respondents are willing to adopt PMC in their future transaction.

The exploratory results of hypotheses found that four out of the five constructs were found to be statistically significant. Therefore, it is suggested that other research should be conducted using confirmatory methods. In addition, the current investigation was limited to use innovation diffusion theory (IDT) in Malaysia. Further studies, which use other theories are therefore suggested.

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