Bitcoin Distribution in the Age of Digital Transformation: Dual-path Approach*

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Abstract

Purpose – The potential use of cryptocurrencies in a retail environment proposes a rapid shift from the traditional financial system. Nakamoto(2008) defines Bitcoin as an open source alt-coin based on the blockchain technology. Luther(2016) insists that the new technology will be widely adopted for the digital payment processes. However, the use of Bitcoin is in the real world is still sparse. Despite the growing attention and purported benefits, it is doubtful whether the Bitcoin will be eagerly accepted by ordinary consumers in the mainstream market. To answer this question, this paper develops a causal model that has a dual path to explain the motivation to adopt Bitcoin. According to Glaser, Zimmermann, Haferkorn, Weber, and Siering(2014), Bitcoin is both an asset and a currency at the same time. In summary, the attitude towards Bitcoin may vary depending on whether the fin-tech product is viewed as an asset or as a currency. Based on the arguments, we propose that asset attitude and currency attitude will give influence to consumers' intention to adopt Bitcoin.
Research design, data, and methodology – Quantitative data collection is conducted from a Bitcoin SIG(special interest group) working in an internet community. As a result, 192 respondents who know Bitcoin completed the survey. To analyze the causal relations in the research model, PLS-SEM(partial least squares structural equation modeling) method is used. Also, reliability and validity of measures are tested by performing Cronbach's alpha test, Fornell-Larcker test and confirmatory factor test.
Results – Our test results show that every hypothesis is supported except the influence of perceived ease of use. In addition, we find that the relationships between constructs are different between the high innovative group and low innovative group.
Conclusions – We provide evidence that asset attitude and currency attitude are key antecedents of Bitcoin adoption.

Keywords: Bitcoin Distribution, Altcoin, Cryptocurrency, Retail Payment, Adoption Behavior, PLS.

JEL classifications: M15, M21, M50.

1. Introduction

The year 2017 turned out to be eventful for cryptocurrencies. Price of these alt-coins were volatile, some Bitcoin exchanges declared bankruptcy after the hack and theft, government hearings were held. As these events continue to unfold, consumers, academics and practitioners are waiting to find out whether our generations are witnessing a disruptive innovation to replace the traditional money system or another speculative bubble. Cryptocurrencies propose a rapid shift from the traditional financial systems, and Bitcoin was at the beginning. Bitcoin is a sort of cryptocurrency system initially designed and created by Satoshi Nakamoto in October 2008, and is the most popular and well-known cryptocurrency. It is an open-source community project and the first genesis block which is the first block of blockchain was established on January 3rd 2009(Simon, Xavier, Elaine, & Ersin, 2012).
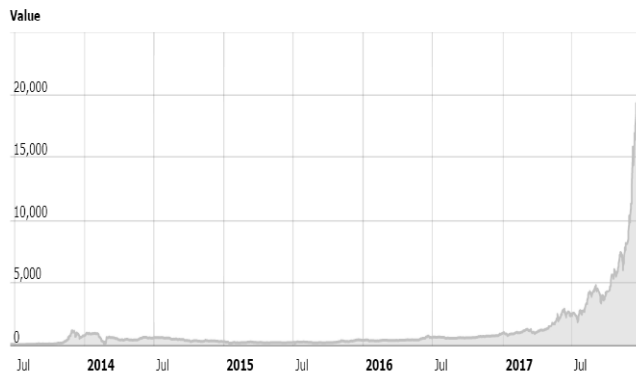
Since its first introduction, Bitcoin has gained steady popularity. According to the press, the initial price of Bitcoin was $0.001 in 2009 and the price increased by 1,000% in November 2013. Since then, Bitcoin has earned the trust of people and the price has continued to climb. In December 2017, one Bitcoin is worth more than $ 14,000.

Source: The Cointelegraph (2017)

Figure 1: Bitcoin Price Surge

However, some critics still have suspicions about the future of Bitcoin. For instance, Krugman(2014) doubts whether Bitcoin has any economic value. For those who have doubts, Bitcoin is a useless illusion fueled by speculation and greediness. Naturally, some interesting research question arises. Why people are keep buying Bitcoin when Bitcoin is not based on real value such as gold or dollars? To answer these questions, this study tries to understand the attitudes and their antecedents affecting user adoption of Bitcoin. In particular, the purposed main contributions of this research are as follows.

- This paper presents the academic background knowledge for Bitcoin, its concept and related issues. The goal is to enable the marketing practitioner and academics to get the necessary familiarity with the Bitcoin.
- This paper presents the existing market issues from consumer-oriented viewpoint that are associated with the market adoption of Bitcoin. We identify the antecedents that affect consumer attitudes toward Bitcoin.
- This paper proposes the dual path model that addresses paradoxical attitudes of consumer and analyzes their influences on the intention to adopt Bitcoin. This unoque and systematic analysis is based on empirical data that is acquired through an online survey.

To the best of our understanding, this is one of the initial empirical data analysis approach that tries to understand actual Bitcoin users' motivation and attitudes. The paper's goal is to help readers to understand the concept of Bitcoin, and to identify the dual factors that drive people to possess Bitcoin.

2. Literature Review

2.1. Bitcoin System

Satoshi Nakamoto, an anonymous computer programmer

in shadow or a group of programmers proposed Bitcoin electronic cash system in 2008 as an open source digital currency(Nakamoto, 2008). However, defining Bitcoin is not easy. It can be described as an open source software, a currency, a digital payment system, a network protocol and a fin-tech(financial technology) platform(Athey et al., 2017). Bitcoins are computer database files based on blockchain coding technology and are stored in a 'digital wallet' program or on an online service. It is referred to with terms like alt-coin, digital cash, digital currency, e-cash and cryptocurrency. In Bitcoin system, an owner has full control over his/her digital currency, he/she could spend them anytime, anywhere without intervention of any commercial bank or any centralized authority because Bitcoin is highly decentralized.
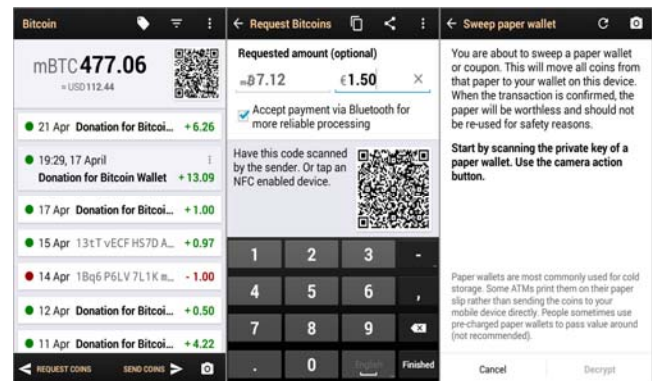

Figure 2: Wallet System

This feature that lacks intrinsic value is both an advantage and disadvantage of Bitcoin. Unlike other commonly used currencies, Bitcoin is not the creation of any government. Compared to traditional payment systems, Bitcoin lacks a governance structure. It imposes no obligation for banks, or other financial intermediaries to verify a user's identity(Bohme, Edelman, & Moore, 2015).

Bitcoin is getting a lot of attention from governments due to its frequent use by the illegal users and criminal groups to undermine legal controls. As a result, Bitcoin cannot be bought from the government or bank. Users can get Bitcoin in three possible ways: (1) in exchange for money, (2) in exchange for the sales of products and services, and (3) through mining effort. Mining uses strong computing power to solve complex mathematical problems to earn new Bitcoin(Tsukerman 2015).

Before the initiation of Bitcoin, there have been several kinds of digital currencies that attracted attention, and the game money is one of the examples. For example, a user needs bags of gold to purchase new weapons and level up in 'WOW'(World of Warcraft) online game. However, these old digital currencies were a mere local community currency in a closed wall. Bitcoin, on the contrary, deals not only within the virtual world, but also in the real world.

2.2. Potential of Bitcoin and Consumer

Predicting the future of Bitcoin in the face of environmental change is almost impossible. Luther(2016) insists that the cryptocurrency technology will be widely adopted for the digital payment process. Compared to the traditional payment methods employed for transactions, the Bitcoin system is faster, more secure and less expensive. Transaction fees are paid directly to the network as part of incentive to confirm the transaction, and are apparently lower than the fees in the traditional payment system (Wolfson, 2015).

To take advantage of these characteristics, some businesses have taken steps toward accepting Bitcoin instead of cash and credit card. Thus, Bitcoin has gained much attention and great popularity in the real world. At the moment, people can use Bitcoins to purchase products and services in a number of global leading retailers including Expedia, Bic Camera, Newegg, Microsoft, Overstock, PayPal and DISH Network.

However, the use of Bitcoin as a payment method in the real world is still rare and hard to find. Despite the growing popularity and purported benefits, it is doubtful whether the Bitcoin will be popularly accepted by ordinary consumers in the mainstream market for everyday use. There are some known risks of Bitcoin that must be overcome. In fact, it is true that the Bitcoin is still unfamiliar to most consumers, and there is no certainty that the Bitcoin will spread. Also, on-going updates, technological developments and frequent changes are another problem. Bitcoin is still in beta status with many incomplete features in active development. New features and services are being made to make Bitcoin more secure and accessible to the general users. It is still not ready for everyone. Therefore, this study aims to find out the implications for market diffusion based on the result of the empirical study on consumers who are familiar with Bitcoin.

3. Hypothesis

3.1. Research Framework

There are two different intentions of users when changing their old money into a cryptocurrency. According to Glaser et al.(2014), Bitcoin is both an asset and a currency at the same time. First, Bitcoin is an alternative payment system, where the user acquires Bitcoin to buy and sell products. Second, Bitcoins serving as a highly speculative asset, where the user acquires it to accumulate financial returns of future.

According to Glaser et al.(2014), Bitcoin users, rather use it as an asset and their interests has an influence on the Bitcoin volume on the asset market. Bitcoin price has

fluctuated continuously over time, which might prove tempting for a high risk oriented investor(Yelowita & Wilson, 2015). Some Argentinians have bought Bitcoins to protect their savings against high inflation rates or the danger that their Argentinian government could confiscate bank accounts(Lee, 2013). Bitcoin is still more popular as an investment target.

On the other hand, the role of Bitcoin as currency has not reach the expectation yet. In order for the Bitcoin to function as a good currency, the same reliability as the general currency must be secured. Bitcoin seeks to solve the need for a trusted intermediary(such as a National bank) to verify the integrity of transactions. This problem is also known as 'double-spending problem'. It is a duplication problem occurs when an owner of a digital file(i.e. mp3 file), can simply copy the file without any additional cost. The Bitcoin tries to solve this double-spending problem by making the blockchain the only method to transfer Bitcoins(Tsukerman, 2015). A blockchain is a continuously growing list of records, called 'blocks', which are linked and secured using cryptography. By this secure design, blockchains are inherently resistant to modification of data. As a result, Bitcoin owners can feel confident about their money and have a positive attitude towards the value of Bitcoin. According to the 'The Economist(July, 2015)', Bitcoins have three major qualities as a currency. Bitcoins are hard to earn, limited in supply and very easy to verify.

In conclusion, the attitude towards Bitcoin may vary depending on whether the Bitcoin is viewed as an asset or as a currency. The user may have a dual attitude that recognizes the Bitcoin as an asset and also recognizes it as a kind of new currency. At this time, the antecedents forming the asset attitude and the antecedents forming the currency attitude will be different and will affect the retention intention independently. Based on these arguments, we propose the following hypothesis and research model.

Figure 3: Research Framework
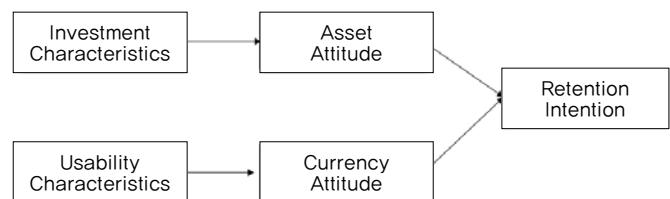
3.2. Antecedents of Bitcoin Attitude

The exchange rate of Bitcoin has increased rapidly. For example, with a value of $0.3 per Bitcoin in January 2011, the exchange rate soared through $1,300 in November 2013(Glaser et al., 2014), and $14,000 again in December 2017. Its scarcity and potential value have driven the Bitcoin price. The remarkable increase in exchange rate provides

indications that Bitcoin is considered as an attractive financial asset(Yelowitz & Wilson, 2015). Lui(2013) surveyed members of Bitcoin community and identified profit expectancy is a leading key motivation for purchasing Bitcoin. The profitability expectancy of Bitcoin is attributed to the limited amount of Bitcoin that can be issued in the future. At first, miners received 50 Bitcoins as a reward for solving the puzzle. However, this incentive is periodically cut in half and the incentive falls zero after 21 million Bitcoins have been mined(Bohme et al., 2015). Hence, the design for Bitcoin system set a final limit to the total number of Bitcoin issues and people would have a profitability expectancy because no further Bitcoin is going to be created making it very scarce. Thus, we hypothesize:

H1: Profitability expectancy of Bitcoin will have a positive effect on the asset attitude of the user.

Trust is an important factor in any economic transactions, involving high uncertainty. When investigating the influence of trust on consumer attitude, the relation has been supported positively. For example, trust positively influences the consumer's attitude toward online banking (Grabner-Krauter & Faullant, 2008), e-commerce(Oliveira, Alhinho, Rita, & Dhillon, 2017), and using new technology (Venkatesh, Morris, Davis, & Davis, 2003). Bitcoin has a completely distributed architecture and believes that the majority of nodes in its network are honest. Unlike most traditional money and e-cash systems require centralized bank, Bitcoin has not any single trusted entity(Barber, Boyen, Shi, & Uzun, 2012). Therefore, trust in Bitcoin will vary greatly depending on individual beliefs, and only users with high confidence will decide to invest in Bitcoin. Thus, we hypothesize:

H2: Trust of Bitcoin will have a positive effect on the asset attitude of the user.

Perceived usefulness is defined as the extent to which a person believes that using a technology will enhance his/her performance(Wang, Wang, Lin, & Tang, 2003). According to Rahi, Ghani, and Alnaser(2017), perceived usefulness could save time and increase effectiveness of the service in online banking context, and positively influences on consumer attitude. Bitcoin is useful in an unstable market where sellers are concerned about credit card fraud, because Bitcoin transaction instantly becomes irreversible(Barber et al. 2012). A currency can be used as a means of trade, and a vehicle to store value(European Central Bank, 2012), and Bitcoin has a certain value for every potential user. Baur, Bühler, Bick, and Bonorden(2015) discover that usability and usefulness could make Bitcoin a real game changer, after the research team performed an exploratory qualitative interview. Thus, we hypothesize:

H3: Perceived usefulness of Bitcoin will have a positive effect on the currency attitude of the user.

In accepting new technologies, it will be introduced more smoothly if much effort isn't required, and Bitcoin is no exception. According to Venkatesh, Thong, and Xu(2012), Cho and Kim(2017) technology service will be more acceptable if it is easier to use. Especially in online banking context, research results show that perceived ease of use had a positive influence on user's attitude(Wang et al., 2003; Rahi et al., 2017). Also, in the UTAUT model developed to explain technology adoption, effort expectancy has been shown to be an antecedent of user intention (Venkatesh, 2000; Venkatesh et al., 2012). As Bitcoin is perceived to take less effort to use, the more likely users are to use Bitcoin for daily transactions. Thus, we hypothesize:

H4: Perceived ease of use of Bitcoin will have a positive effect on the currency attitude of the user.

There are many local community currencies designed to be used in a specific environment and Bitcoin mostly resembles a community currency(Adrian, 2015). One of the community currency is a virtual gold in the online games such as 'World of Warcraft'. However, these community currencies have been successful only inside their closed virtual environment and never used successfully in the real world like Bitcoin seems capable of(Glaser et al., 2014). In contrast, Bitcoin is accepted by a wide variety of vendors around the world for commercial transaction(Yelowitz & Wilson, 2015; Luther, 2016). Thus, we hypothesize:

H5: Transaction compatibility of Bitcoin will have a positive effect on the currency attitude of the user.

3.3. Consumer Attitude and Intention

There is a strong relationship between positive attitude of consumers and their intention. According to the theory proposed by Fishbein(1980), consumers' intention to behave is highly correlated with their attitudes and normative beliefs. In the previous researches, empirical results have confirmed that in technology service, attitude has a positive influence on behavioral intention(Wu, 2006; Rahi et al., 2017; Verma & Sinha, 2017). Therefore, positive attitude of Bitcoin users toward Bitcoin as an asset or a currency will affect their intentions to adopt Bitcoin system positively. Thus, we hypothesize:

H6: Asset attitude of the user will have a positive effect on intention to possess Bitcoin.

H7: Currency attitude of the user will have a positive effect on intention to possess Bitcoin.
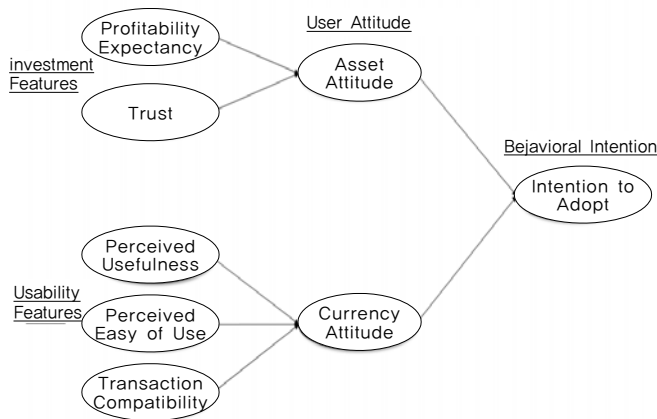
Figure 4: Research Model

content validity. They are required to rate items on a Likert scale(1=very disagree ~ 5=very agree) as to whether the measurement items fit the constructs. Table 1 lists the constructs and measurement items used in this research.

4. Research process

4.1. Measurement Development

Measurement items of the construct are developed based on a series of stages. In the first step, every measure in the model is borrowed from the previous studies to get initial face validity and modified to fit in the Bitcoin research context. In the second step, a list of defined constructs and items is submitted to a group of academicians to get

4.2. Sample Collection

Empirical data collection is conducted from Korean Bitcoin online community(http://cafe.naver.com/nexontv) members and potential users in November 2017. The questionnaires are collected from online interviews and 192 respondents complete the survey. The respondents are confined only to adults who are more than 20 years old.

The demographic characteristics of the respondents are as follows. Their age in average is 29.89 years old, and 73.4% are male and 26.6% are female. It is very difficult to collect a large sample and more personal information about the Bitcoin users, because actual users are very rare and the alt-coin system has not been spread to the market and general consumers. Although Bitcoin becomes a very popular social issue, consumers who have and use the new currency in real life are still hard to contact. For example, a recent Bitcoin survey by Todorov(2017) only involved 50 people. The Bitcoin users are afraid of exposing too much personal information to the researcher because of a news that the South Korea government will impose sanctions on the use of Bitcoin.

Table 1: Measurement Item

Construct	Item	Source
Profitability Expectancy (PE)	1. The Bitcoin's value will continue to rise. 2. The profit of the Bitcoin will be satisfactory. 3. The Bitcoin's revenue growth is satisfactory.	Katsikeas et al.(2016)
Trust (TR)	1. I trust the Bitcoin. 2. I believe that the Bitcoin is trustworthy. 3. I believe the Bitcoin will keep its promise and commitments.	Hong and Cha(2013), Kim and Cho(2013)
Perceived Usefulness (PU)	1. The Bitcoin enables me to accomplish tasks more quickly. 2. Using the Bitcoin increases my job performance. 3. Overall, I find the Bitcoin useful in my job.	Hess et. al.(2014)
Perceived Ease of Use (PEU)	1. Learning to use the Bitcoin is easy for me. 2. I find the Bitcoin to be easy to use. 3. Overall, I find the Bitcoin easy to use.	Venkatesh et al.(2012), Hess et al. (2014)
Transaction Compatibility (TC)	1. Using the Bitcoin is compatible with all aspects of real money. 2. Using the Bitcoin is completely compatible with real money transaction. 3. Using the Bitcoin fits into my transaction style.	Moore and Benbasat (1991)
Asset Attitude (AA)	1. All things considered, buying the Bitcoin for investment is a good idea. 2. All things considered, buying the Bitcoin for investment is a wise move. 3. All things considered, buying the Bitcoin for investment is a positive step.	Bhattacherjee and Premkumar (2004)
Currency Attitude (CA)	1. All things considered, using the Bitcoin instead of real money is a good idea. 2. All things considered, using the Bitcoin instead of real money is a wise move. 3. All things considered, using the Bitcoin instead of real money is a positive step.	Bhattacherjee and Premkumar (2004)
Intention to Adopt (ITA)	1. I intend to have the Bitcoin. 2. I predict I would have the Bitcoin. 3. I plan to have the Bitcoin.	Shin and Lee (2014)

5. Empirical Result

5.1. Research Method

PLS-SEM(partial least squares structural equation modeling) is an emerging multi-variate analysis method that can test additive causal models(Statsoft, 2013; Wong, 2013; Woo, Park, & Jung, 2014). CB-SEM(covariance-based SEM) is widely applied in the field of empirical analysis and is the preferred method. However, PLS-SEM can be a good alternative to CB-SEM when it is difficult to find a proper data set that satisfy the requirements of the CB-SEM. PLS-SEM is used when the conditions are encountered(i.e: small sample size, little previous theory, predictive research purpose according to data researchers(Bacon, 1999; Wong, 2013). PLS-SEM is considered to be a suitable analysis method in this analysis because of lack of previous study and relatively small sample size. In this research, we use SmartPLS(version 3.0) software to perform PLS-SEM.

5.2. Reliability and Validity

It is essential to test the reliability and validity of the variables to complete the structural model test. Reliability of measures are tested by calculating Cronbach's alpha scores. The Cronbach's alpha scores are found to be higher than 0.7 in every variables satisfying the criterion. However, it is not recommended to use only Cronbach's alpha for testing internal consistency reliability(Bagozzi & Yi, 1988; Wong, 2013). The confidence interval for the population value makes an unnecessary assumption that the multiple measurement items have equal variance when alpha scores are calculated(Bonett & Wright, 2015). Additional factor analysis is required to overcome the possible problems.

Confirmatory factor analysis is performed to check both convergent validity and discriminant validity. Overall, the model fit statistics exhibit satisfactory results. All of the construct dimensions are shown to be valid and reliable; major statistics are acceptable and there are no offending estimates. The x^2 value is 437.349(p=.000), however, other fit statistics such as CFI, NFI, RMR, and RMSEA could be more proper than a x^2 value. Also, other reliability measures such composite reliability and average variance extracted (AVE) are recommended(Bagozzi & Yi, 1988; Hulland, 1999). The results of our test are shown in Table 2, and most conditions of reliability and convergent validity are satisfied with the data.

In addition, Fornell-Larcker test is performed to check discriminant validity. Fornell and Larcker(1981) suggest that the square root of AVE can be used to establish discriminant validity, when the calculated value is larger than other correlation values among the latent variables. To test this criteria, Table 3 is created in which the square root of AVE is written in bold. The correlations between variables

Table 2: Reliability and CFA Test

Variable	Indicator	Std. Estimate (*=p<0.05)	AVE	Cronbach's Alpha	Composite Reliability
Profitability Expectancy (PE)	a1	.837*	.850	.912	.945
	a2	.925*			
	a3	.889*			
User Trust (TR)	b1	.876*	.755	.838	.902
	b2	.761*			
	b3	.776*			
Perceived Usefulness (PU)	c1	.891*	.810	.883	.927
	c2	.839*			
	c3	.796*			
Perceived Ease of Use (PEU)	d1	.945*	.774	.853	.910
	d2	.895*			
	d3	.607*			
Transaction Compatibility (TC)	f1	.722*	.796	.875	.921
	f2	.931*			
	f3	.881*			
Asset Attitude (AA)	aa1	.937*	.931	.963	.976
	aa2	.952*			
	aa3	.954*			
Currency Attitude (CA)	bb1	.884*	.905	.947	.966
	bb2	.964*			
	bb3	.935*			
Intention to Adopt (ITA)	cc1	.941*	.978	.967	.978
	cc2	.953*			
	cc3	.963*			

* Fit indicators: x^2 (d.f) = 437.349 (271), p = .000, CFI = .948, NFI = .901, SRMR = .059, RMSEA = .074

are placed in the lower left triangle of the Table 3. For example, the square root of currency attitude(CA) is .944, and this number is larger than the correlations in the column of CA(.646, 498, 532, 508, 532, 606), and also larger than those in the row of CA(.621). Similar result is also made for other variables. The Fornell-Larcker test result indicates that discriminant validity is well established.

Table 3: Fornell-Larcker Test

	AA	CA	ITA	PEU	PU	PE	TC	TR
AA	.965							
CA	.611	.951						
ITA	.765	.635	.968					
PEU	.368	.481	.435	.880				
PU	.390	.525	.388	.656	.900			
PE	.681	.511	.660	.377	.443	.922		
TC	.381	.516	.403	.366	.407	.344	.892	
TR	.633	.592	.676	.419	.525	.616	.423	.869

5.3. Hypothesis Test

A path model to identify the hypotheses is tested by using PLS-SEM(structural equation modeling) technique. An examination of the R^2 value shows that the research model demonstrates a substantial amount of the variance. In the model, the R^2 values of asset attitude, currency attitude and intention to adopt are 0.537, 0.403, 0.631 subsequently. According to the empirical test results, every hypothesis is accepted. Profitability expectancy and trust affect the asset attitude of users positively. Perceived usefulness and transaction compatibility also affect currency attitude positively. Also, the relationship between perceived ease of use and currency attitude is supported. The relationships between attitudes(i.e. asset attitude and currency attitude) and intention to adopt Bitcoin are supported as we expected. When comparing the standardized path coefficients, the effect of asset attitude on intention to adopt Bitcoin is greater than that of currency attitude(0.619 > 0.262).

Table 4: Test Result

Hypothesis	Std. Estimate	S.E	C.R	p-value (*<.05)
H1. PE → AA	.465	.097	5.501	.000*
H2. TR → AA	.379	.094	4.427	.000*
H3. PU → CA	.391	.116	3.316	.000*
H4. PEU → CA	.127	.102	1.162	.245
H5. TC → CA	.272	.091	3.621	.000*
H6. AA → ITA	.672	.054	11.720	.000*
H7. CA → ITA	.272	.055	4.997	.000*

5.4. Group Difference Test

To test the difference between the groups, PLS-SEM analysis is performed again after separating the data into two groups according to their level of innovativeness. In the results of the low innovativeness group every relation except H4 is supported. In case of the high innovativeness group, the relations between currency attitude and its antecedents are not supported. Interestingly, this group comparison result suggests that high innovativeness group can be skeptical about the possibility of Bitcoin as a new currency system while low innovativeness group is not(Figure 5).

6. Conclusion

6.1. Finding and Implication

This study is an initial research that empirically investigates the consumer's attitude toward Bitcoin. A dual-path model is used to find influences of asset attitude
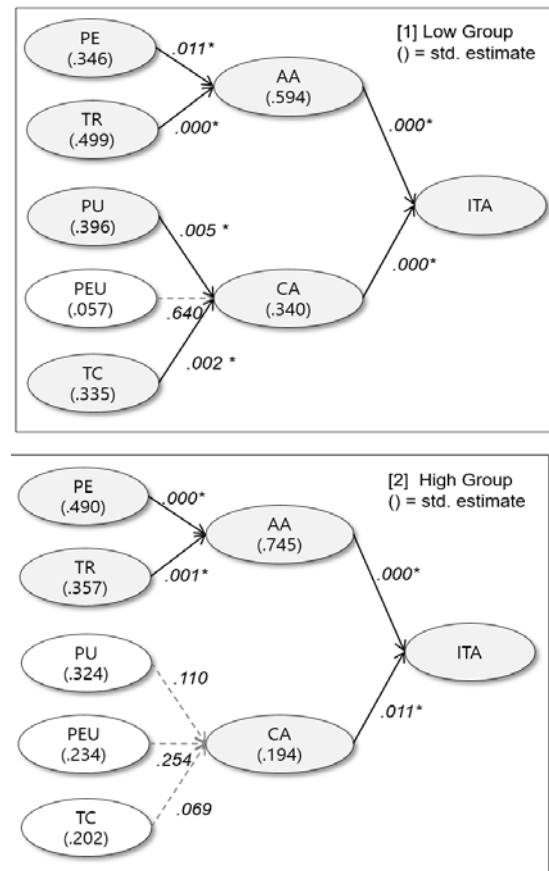

Figure 5: Group Comparison

and currency attitude on the intention to adopt Bitcoin, and the relationships between antecedents and attitudes are analyzed too. Understanding the Bitcoin phenomenon from the perspective of consumers rather than technology is a very important task. Bitcoin is based on the blockchain technology and represents an innovative advance in the payment technology. However, Bitcoin is unlikely to function as more than a niche money except in the event of hyperinflation(Luther, 2016). In order for the Bitcoin to be recognized as a currency or accepted socially, an understanding of the user's motivation and attitude must be achieved.

According to the results of the study, Bitcoin is perceived as alternative money and is recognized as an investment target. The investment characteristics perceived by the consumers have effects on the asset attitude. Profitability expectancy and trust give positive influence on asset attitude. This result implies that consumers are looking for Bitcoin as a target of speculation and want high profitability and safety just like other investment objects. Also, the currency characteristics related to perceived usefulness and transaction compatibility affect the currency attitude positively. To replace existing currencies, the Bitcoin should be a real

deal in more shops and places and be compatible with existing currencies.

However, unlike expected, the effect of perceived ease of use is not supported. Considering that the Bitcoin is still in an initial stage, interpreting this result needs to be a bit cautious. The greater possibility is that users tend to be more cautious about transactions because they are accompanied by monetary risks, or convenience value such as perceived ease of use is not important. For example, the process of using internet banking is very uncomfortable and complex, but generally people do not complain about it, and are willing to accept the inconvenience(Shin & Lee, 2014). Another possibility is that the response sample may be a techy group. These group members are relatively innovative people that have little difficulty in using new technologies, and they are the major customers in the introductory stage of any technology-based product.

In conclusion, these results raise some contradictory problems. In order to become stable currency, stability of exchange price is necessary, and high profitability cannot be realized. It can be contradictory that it is an excellent investment target and excellent money at the same time. The comparison of standardized path coefficients between AA to ITA and CA to ITA shows that the Bitcoin is more strongly perceived as a speculator than a monetary coin. This paradoxical attitude, which is now the basis for the Bitcoin boom, is very unstable and hard to exist theoretically. As a result, the possibility of future market volatility related to Bitcoin is very high.

Although Bitcoin has not yet widespread, it can not be denied that the payment method using Bitcoin is one of the possible future we can imagine. For example, 'Qoo 10', a global online retailer in Korea, commenced commercial transactions through cryptocurrency recently. Therefore, this study on Bitcoin will help to understand future distribution and payment methods and help retailers to prepare for future oriented distribution environment.

6.2. Limitation and Further Direction

This study has some limitations to be improved in future research. Firstly, the sample size for the empirical analysis is a little bit small. Even if public awareness or experience of the current Bitcoin lacks for now, the small sample size of this research can cause the difficulty in generalizing of the result found in this research. When the Bitcoin becomes more popular in the future, it will be necessary to collect more responses. Secondly, we should acknowledge that further demographic information of respondents such as respondents' gender and annual salary is needed for the explication of Bitcoin consumer behavior. Especially sensitive information like Bitcoin reserves is very difficult to collect due to respondents' concerns about security and leakage of personal information. Nevertheless, such information would be valuable as a control variable to explain the individual

differences in the attitude of the Bitcoin adoption.

Besides, other similar cryptocurrencies(i.e. Ethereum, Ripple, Litecoin, BTC Gold. Etc.) need to be analyzed whether the same results can be applied. There are more than five hundred cryptocurrencies trading in 2016(Luther, 2016), and the kind of cryptocurrency has increased to more than 1,300 now(retrieved from https://coinmarketcap.com/all/views/all/). These alt-coins are in the different market position, and consumers may have different attitudes toward these alt-coins. Future research should be directed toward improving these constraints and suggesting additional research challenges.

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