



# Journal of Internet Banking and Commerce

*An open access Internet journal (<http://www.icommercentral.com>)*

*Journal of Internet Banking and Commerce, April 2016, vol. 21, no. 2*

## The Relationship between Perceived Value and the Intention of Using Bitcoin

---

**MAJID PAKROU**

**Master of Economics, Allameh Tabataba'i University of Tehran, Iran, Tel: 00989372803225;**

*Email: [majid.pakru@gmail.com](mailto:majid.pakru@gmail.com)*

**KHADEMALIZADEH AMIR**

**Assistant Professor of Economics, Allameh Tabataba'i University of Tehran, Iran**

---

### Abstract

**Problem Explaining:** Nowadays the financial system has been affected dramatically by the development in the era of information and communication technology. One of these phenomena, is Crypto Currency Bitcoin is the most famous among them. In the reviews of Crypto Currency and Bitcoin, we can pay special attention to the public opinion, because it can have a significant impact on the future of money.

**Purpose:** The aim of this study is to identify the preferences of people using Bitcoin as a novel product introduced by human into the financial system. For this purpose, the important factors in choosing Bitcoin have been checked. In terms of practical purpose and collecting descriptive information, this research is survey - correlation.

**Design/methodology/approach:** In this study the important factors in the selection of Bitcoin through the investigation of the opinions of experts and consumers, offering model

by patterning the technology acceptance and innovation publication models, interviewing with experts using a questionnaire and the analysis of the model through PLS partial least square method using Version 2 SMARTPLS software.

**Findings:** The results show that the variables of infrastructure, structural, individualistic and cultural factors through perceived value have a significant and positive impact on the intention of using people. Meanwhile cultural factor has had the largest share, but innovative, political and environmental factors haven't had any significant effect. The results of this research indicate the effective factors in the users' tendency to use Bitcoin.

**Originality/value:** The main question in this research is that: Is there any significant relationship between the values perceived by the consumer from Bitcoin and the intention of using it?

**Keywords:** **Crypto Currency; Bitcoin; Perceived Value; Financial System**

© Majid Pakrou, 2016

---

## **INTRODUCTION**

Some new alterations and phenomena are being formed recently among which crypto currency and Bitcoin are the most characteristic. We can attribute them to the coincidence of advancements in information and communication technology and reactionary attempts toward criticizing the dominant financial system and the economic crisis. Attempts to take the advantages of recent progresses in technology and science appear to be intended to challenge the existing financial system, and design a novel financial system compatible with today technologies. In fact, new advances in the field of Internet and global Information and communication technology (ICT) have resulted in the formation of electronic environment for the Economic activities [1]. In the context of the dominant financial system, business on the Internet focuses on the electronic payments through financial institutions as financial intermediaries [2].

Financial institutions use traditional money as the payment tool and we are only dealing with the traditional financial system in electronic form in a virtual and new environment which leads to the increase of transactions cost and problems such as Reversible transactions, security problems, internet robberies, user's interception and etc. Moreover, applying different monetary units by financial entities in the dominant financial system all over the world, causes the Internet-based shopping by users, despite having access to markets of numerous countries, to be limited to markets that their monetary unit, is covered by these institutions and users will not be able to use the current potentials in the infinite Internet world. The important issue here is that some new opportunities are provided owing to developments in information technology and communication, and may result in emergence of new procedures dealing with crisis and problems. Nowadays

access to different resources in the world has become possible in the form of codes and pictures in a virtual environment, generally known as data transfer, in which everything and everyone is accessible at any time.

However, the use of traditional financial system in the context of virtual economics has brought about certain limitations and problems that are inconsistent with the spirit Of E-commerce, so frustrate today users from taking the maximum advantages of science and technology. Some users are changing their own consuming preferences toward the use of crypto currency like Bitcoin and credit money of some sites such as Facebook and some Internet games that are the result of advances in the era of information and communications technology and it doesn't have some of the limitations of traditional money. It can be interpreted as way of evading traditional financial system and associated tools which are confining, whereas today man is against any boundary, so has an inclination to set himself free from limitations as he has been successful in communications.

Following an increasing trend, this process could become a major challenge in the financial system. The money which is out of the control of governments and can be added to its amounts each day, the traditional financial system does not adapt itself with this phenomenon. If through further studies and resolving the existing problems and adapting the economic system with these models of money, the condition for Production and deployment of virtual trade-based money and electronic commerce are provided, this can provide more adaptability and alignment of Business environment with information and communications technology. The present study deals mainly with influential factors on choosing Bitcoin as a new production of today human in the worldwide financial system.

These factors can impact the perceived value and result in the purpose of usage. The aim of this study is to identify the preferences of people in the use of Bitcoin. As the most outstanding crypto currency. In particular, the important factors in choosing Bitcoin are investigated. Identification of these factors can attracted the attention of economists and related technical factors in order to produce the next generation's money, perhaps establishment of a novel and more effective financial system, which represents the effective reasons for the users who tend to use Bitcoin. The emergence of such money can have the same impact that social networks like Facebook, Whatsapp, Viberand etc. have on increasing the productivity and reducing the communication cost of users without the need for traditional telecommunications systems, in financial system, business, and electronic commerce.

## **LITERATURE REVIEW**

Money is regarded as a link joining financial and real sections of economy in such a way that any alteration in it can influence both sections. Money plays a critical role in wide range of financial challenges, so is significant in every financial system. Money is very important in human life that some reminisce it as the most important human invention and

some have even said that Civilization has been simultaneous with the invention of money. Money is anything as a medium of exchange, scale value, storage device, Savings and credit transactions that is accepted by the public. In the other definition, money is the medium of exchange and preservation of economic values [3]. Economists divide the economic history into three periods based on the importance of the role of money: barter economy period, Money economy period and credit economy era [4].

But in recent years due to rapid advances in the information and communication technology and Internet issues, Current period can be called dummy economy. An economy in which what plays the role of money is neither made of metal nor paper, but virtual codes that are known as electronic money. Recently, the completely new and different type of virtual money called Bitcoin comes into the financial system era that economists do not agree about it, furthermore it has challenged the current financial system and can be a potential threat if it achieves success. Until now, few studies have been done about Bitcoin and crypto currency [5]. Krohn and Sorge [6] presents Bitcoins as a description of the unique technology base that has completed the consumers, merchants bases and sellers of ecosystem. In this paper, the features of Bitcoin and the first steps taken in Europe and the United States of America done about this case, have been mentioned.

In this article, Laver and colleagues have done a review about the origin and the process of development of Bitcoin that has described it as a special character for industry perception and a goal that can be a vision for the future of this technology. Daniel [7], Bitcoins is analyzed as a new monetary system that completes the available transactions list. Condor and colleagues, have compared the results of the distribution of assets as a macroscopic feature with the real world data. Christopher [8] has analyzed the Bitcoins based on the money laundering laws of the United States. He has investigated the crimes related to the Bitcoin application and its use as a money laundering tool and he has mentioned the problems that May arise in the implementation of the law. Moore [9] have studied the risks that appear in the investments due to the Bitcoin transaction between Bitcoin and hard money. In this paper, the path of forty Bitcoin exchange has been studied. In Bitcoin system all the transactions have been recorded in the network in chronological order are recorded and Shared among users that everyone can analyze the events [10].

The study of money history showed that the people preferences (according to the geographical and ideological culture and environment, etc.) influence on the genesis and the process of change and evolution of all kind of money. So in the investigating of the crypto currency and Bitcoin there can be a special attitude to the public opinion, because it could have a significant impact on the future of money. In this research, the factors influencing the choice of Bitcoin as a new phenomenon and the most prominent model of crypto currency are investigated in order to identify the preferences of people in the use of Bitcoin as a novel phenomenon in the financial system and the most outstanding model of crypto currency in order to make the reasons for its spread identifiable. For this purpose, experts and consumers opinions will be studied to determine which factors and to what

extent are important for consumers. This article can be seen in the field of consumer behavior that is to analyze the preferences of consumers in the use of Bitcoin and it is the first of kind conducted research in this area. Economists need to pay more attention to this models of money and the financial systems accompanied with the Information and communication technology advances adapt itself with it till benefiting from the technology, Prevent any abuse of the existing gaps.

## **RESEARCH QUESTIONS**

One the main question in this research is that: Is there any significant relationship between the values perceived by the consumer from Bitcoin and the intention of using it?

This paper seeks to examine the factors in the selection of Bitcoin. For this purpose the following hypotheses have been proposed

### **The Main Hypothesis**

- The perceived value of Bitcoins by the consumer has a significant relationship with the intention of using it.

### **And Other Hypotheses**

- Individual factors have a significant relationship with the perceived value of Bitcoin by the consumer.
- Structural factors have a significant relationship with the perceived value of Bitcoin by the consumer.
- Innovative factors have a significant relationship with the perceived value of Bitcoin by the consumer.
- Cultural factors have a significant relationship with the perceived value of Bitcoin by the consumer.
- Environmental factors have a significant relationship with the perceived value of Bitcoin by the consumer.
- Infrastructure factors have a significant relationship with perceived value of Bitcoin by the consumer.
- Political factors have a significant relationship with perceived value of Bitcoin by the consumer.

## **THEORETICAL FRAMEWORK**

### **Bitcoin**

Bitcoin Was proposed by Satoshi Nakamoto in 2008, and it was available to users as online in January 2009 [11]. Bitcoin is a virtual and crypto currency based on a peer to peer network, digital signatures and zero knowledge proof that allows the users to do irreversible money transfer without any intermediate. Bitcoin allows very low cost

payments. Bitcoin network doesn't have centralized controller system and it isn't run by any organization or government agency. The average time to approve any Bitcoin transfer, is approximately ten minutes. The transfer of money from one point to another is informed in all networks and all the points will be aware of it. Per Bitcoin is divided to Ten to the power of eight and each part Called a Satoshi so  $0.00000001 \text{ BTC} = 1 \text{ Satoshi}$  [12]. Those who use Bitcoin Must have an electronic wallet. This wallet can be installed on a person's computer which is managed by Bitcoin software, or on a separate site. Public-key cryptography is used in Bitcoin system. Bitcoin system is used in public-key cryptography. Each wallet contains a number of public and private key pair that the public keys are converted into the Bitcoin addresses and they are introduced to the payer for receiving Bitcoin as an address.

## **Bitcoin and Financial System**

The world financial system has undergone dramatic alterations in recent years. By introduction of the new technologies, an e has been added to certain words introducing new terms in financial system such as e-money, e-commerce, e-business, e-finance, etc. The major portion of financial affairs has been translated from paper-based book keeping into a virtual environment, and this fundamental change has brought about opportunities for financial innovations which challenge the traditional financial system. These innovative approaches attempt to provide an optimum system compatible with the virtual era without typical time and location limitations of traditional financial system, although some irregularities during initial phases are inevitable. Undoubtedly, Bitcoin can be regarded as an attempt toward designing a new financial system with bound-free and global currency instead of American Dollar. Lack of centralization, absence of boundaries, respect for privacy, reduce in transactional costs, higher security, convenience of use, and falling governments and financial entities into ruin are some characteristic features of Bitcoin.

The real identity of Satoshi Nakamoto has not been clearly understood so far, however authors, who examined the reasons for use of Bitcoin by its supporters, have observed some cases about Nakamoto's purposes of encouraging people in using Bitcoin, mainly focused on criticizing injustices in the current financial system and punishment of government as the origin of these inequities. Exclusive right of printing money which solely belong to government, supporting financial entities, inflation-causing activities of these entities, some governmental policies, financial crisis, and decline in the value of individuals' savings due to inflation are some criticisms raised by Bitcoin advocates. Although inflation cannot be stated as an independent variable, it correlates with several independent variables in which the impacts of government and financial entities are observable. Advocators of Bitcoin argue that annual inflation reduces the values of people savings in such a way that they are being punished for saving; nevertheless they are not the reason for the inflation. Particularly, it is more tangible in the economies with unreasonably high rate of inflation. Banks extort toll from society for the finance they provide. Philips [13] discussing the procedures adopted by banks and financial entities, argues that lending money and money creation is equivalent to dispersion of counterfeit

money, and the only difference lies in the fact that to whom do the resultant benefits belong in both cases.

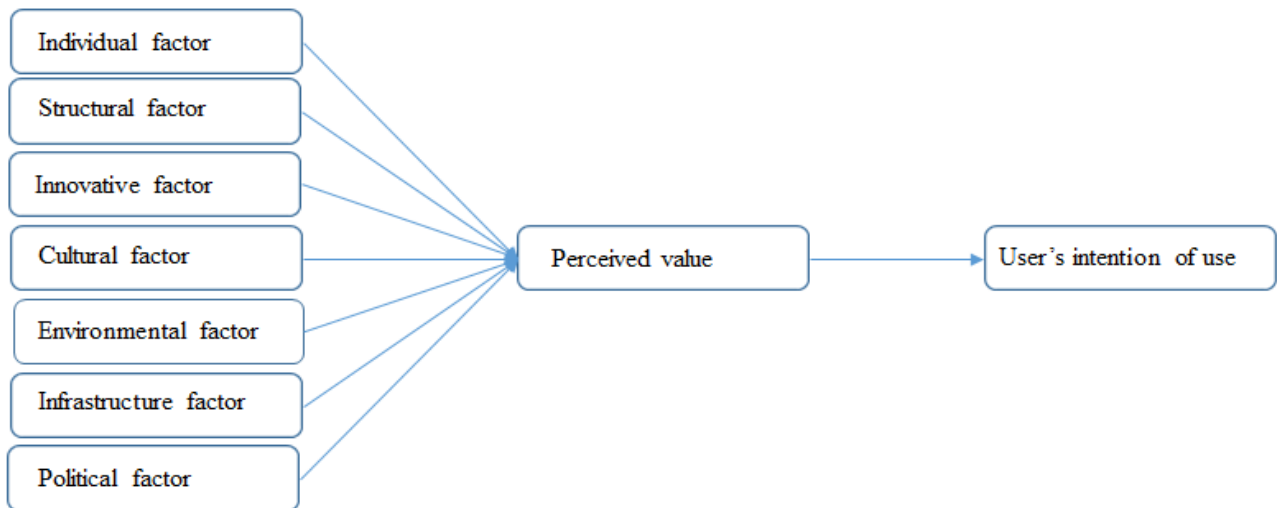
Some researchers such as Khan, Smith, and Senhadji in a shared study entitled as "Inflation and Financial Depth" found that a variation of 3 to 6% in annual inflation depends on the slow change of financial depth. This study involved 168 different countries including industrial and developing over the period from 1960 to 1999. The recent economic crisis demonstrated that whenever an economic chaos occurs, governments support financial entities through spending public treasury, so that burden of the crisis is imposed on people who should compensate for others' failures. The obvious example of such situation was observed during the recent economic crisis in eastern Asia, America, and also in the case of nuclear sanctions imposed on Iran. Decreases in real values of people savings were clearly evident in those situations. In fact, governments' avarice and fiscal mistakes account for economic crisis, unreasonable inflation, and any kind of economic chaos, while the burden of costs is imposed on people who do saving; no one blames governments. Founded their claims on presenting such cases, Bitcoin supporters accuse governments of abusing public trust, since people savings are loans the values of which should be kept. With a careful examination, it becomes evident that Satoshi Nakamoto is aiming at the issue of trust in the current financial system. He regards trust as a fundamental element for dominant financial system. By questioning the public trust in current financial system and government, he tries to introduce a coding-based system, in which the principal foundation is coding rather than trust. It is the trust in government as a supporter that persuades people into depositing their money in financial institutes and distinguishing a paper money or coin from a piece of paper or metal. Thus, he argues explicitly: "what is required is emergence of an electronic payment system on the basis of coding rather than trust" [2]. Nakamoto attempts to concentrate public concerns on similar problems, thereby questions the current financial system and recommends using Bitcoin as a way of defeating the dominant financial system.

## **Conceptual Model of Research**

If we pay attention to the innovative aspects of Bitcoin in the society, any change and innovation in the society consists of three successive stages of innovation, publishing and consequence. Innovation is a process in which new ideas and methods are created or developed during it. Publishing is a process that thoughts and new ideas are transmitted to the members of the social system. Consequences are changes that as a result of the acceptance or rejection of innovations have effects on the society. One of the most useful methods for investigation social change is attention to the source. When the source of change is analyzed within the social system, change is called as inherent and when the source of new ideas is outside of the social system change is acquired. According to what was said and regarding to the case that Bitcoin technology has been invented outside the social system and in the case that the change is acquired, in the phase of publication and acceptance within the society, it deals with obstacles and problems, that these obstacles make the expansion of this type of technology difficult in the society.

Various models of acceptance and deployment of technologies have been proposed by authors and experts in this field, including Ajzen and Fishbein, model of behavioral intentions [14], Technology Acceptance Model of Davis [15], Modified Technology Acceptance Model of Kluping and McKinney [16] and model [17]. As mentioned, it can be noted that Bitcoin is a new technology in the context of financial system, for this reason in investigating the factors affecting the choice of Bitcoin with patterning the Models of technology acceptance and the publication of innovations, particularly the Technology Acceptance Model of Davis and the innovative publishing model kwon and Zmud, the Study of the opinions of pros and cons of Bitcoin, and ultimately, the consultation of the experts and different professors of the Faculty of Economics and Management of Allameh Tabatabai University in Tehran, the conceptual model of the research was extracted.

In this study, after collecting twenty-three factors among the important factors in choosing Bitcoin, since these factors are presented in the form of a model, classifying them into seven groups and each group named Due to the teammate factors nature until the results could be modeled and tested. According to the consumer behavior theory in the economy, in this model the assumption is that the users act rationally in choosing the kind of money, means that the consumer Selects money that is the most favorable for him as well. In this study, the perceived value, the user mental assessment from the important factors in choosing Bitcoin has been defined that makes the user detect using the money that is profitable or harmful to him. If the user after the mental assessment of factors influencing the choice of Bitcoin, concludes that using Bitcoin is profitable for him, then the resultant of influencing factors in a person's perceived value will be positive and the probability of using Bitcoin will be increased, but if the user mental assessment of influencing factors in the choice of Bitcoin is that using Bitcoin is detrimental to him this means that perceived value will be negative and the probability of using Bitcoin will be decreased (Figure 1 and Table 1).



**Figure 1:** conceptual model of research.



**Table 1:** Model variables.

<b>Individual factor</b>	<b>Structural factor</b>	<b>Innovative factor</b>	<b>Cultural factor</b>	<b>Environmental factor</b>	<b>Infra structure factor</b>	<b>Political factor</b>
Fear of the future of the gold	irreversible trading	relative advantage (Price)	The user's opinions	The rivals' pressure	Technical (readiness of hardware , software)	The Threatening and weakening of financial institutions
Fear of the future of the dollar	Anonymous transactions	Being Compatible with Electronic business	Confidence	Market approach	Legal framework	The Withdrawal of money from the Government control
Possible profit of rising prices	Cross-border transactions	ease of use	The User's education	Social influence	Support groups	The Finance provision of illegal nodes
Utility			Consciousness and Cognition			

## **THE RESEARCH METHODOLOGY**

Considering that the aim of this study is to investigate the factors affecting the choice of Bitcoin as an index of crypto and decentralized money, regarding the practical purpose and How to collect the descriptive information, it is a kind of survey - correlation. Also because the structural equation modeling and the analysis of path were used to test the hypothesis, this study among the correlation researches is the type of analysis of the correlation matrix or covariance. In identifying the community of Bitcoin stakeholders in Iran for choosing the right method for the study some points of strengths and limitations can be mentioned.

## **Limitations**

Being unknown the identity of users in Iran, Lack of cooperation of traditional and internet dealers, being unknown the Bitcoin between academic and economic actors.

## **Strengths**

Having experts who have studied in this field, having access to the experts in this subject is in college. It is noteworthy that even if it was possible to interview with the traders and market participants, the results of the research were strongly biased. With regard to having competent experts in the field although their number are few, the Research route toward the interview and the record of questionnaire was pushed through them. These experts were selected from graduate students in economics with a focus on e-commerce from the University of Allameh Tabatabai of Tehran and the computer science students at the various trends in master's and Ph.D degree from Sharif University of Technology, Amirkabir and Tehran University Who Have had an investigation in the field of crypto currency and Bitcoin. Totally the poll was conducted from 62 experts in verbal and questionnaire form. The questionnaire was widely open, flexible and it has been completed through interviews. In Choosing the experts And also completing the questions posed, the greatest care was taken until the Experts mind is not affected by the interview process and in order to achieve greater reliability and validity. Delphi method or panel of Experts were not used because there was no possibility of gathering the experts under any circumstance And efforts in this era leads to failure. To cover this weakness, the interviewer himself with the full knowledge of the other expert's comments, when observed a large deviation in a reply to a special question, he announced it to the interviewee as it happened in Delphi method, and the interviewee was asked again. Thus it was tried indirectly that experts also informed from other expert's comments on the questions that seemed to have high deviate from the average It is worth noting that, for this study, there was no appropriate and standard questionnaire and, therefore, A questionnaire based on two components of perceived value (including seven-dimensions: individual, structural, innovative, cultural, Environmental, infrastructural, political) and the intention to buy in the thirty-three questions were designed by the researcher. The construct validity were approved by the Professors of the Faculty of Economics and Management of Allameh Tabatabai University in Tehran.

## **Analysis**

In this section the confirmatory factor analysis (CFA) and the structural equation modeling (SEM) have been used in order to provide answers to the hypothesis of the research. In this study, due to low sample size to confirm the model using SMARTPLS Version 2 software, the partial least square method (PLS) has been used. The PLS estimation method determine the coefficients in a way that the resulting model, Has the most power to interpret and explain, this means that the model with the highest accuracy can predict

the final dependent variable. Partial Least Squares Method which is introduced with PLS in the regression modeling discussion, is one of the multivariate statistical methods that Despite some limitations such as:(Unknowing the distribution of the response variable, the low number of the observations, or the existence of strong correlation between the explanatory variables) can model one or more response variables At the same time for several explanatory variables by using it. Before getting into the phase of test assumptions and the conceptual model of research, ensuring the accuracy of measurement models of exogenous variables and endogenous is essential. This is done through the confirmatory factor analysis. Confirmatory factor analysis is one of the oldest statistical methods used to investigate the relationship between latent variables (obtained factors) and observed variables (questions) and represents a measurement model (1994,Bern). This technique that estimates parameters and tests hypotheses according to the number of infrastructural factors among the markers, is based on a strong theoretical and empirical foundation and specifies which variables are associated with which factor and which factor with which other factors.

Table 1 shows Average Variance Extracted, Internal consistency (Cronbach's alpha (CA)), Composite Reliability (CR) and Average response. Cronbach's alpha, measures the simultaneous Loading amount of latent variables or structure at the time of increase of one of the evident variable. The amount of the index amount is from 0 to 1. The amount of the index should not be less than 0.7 [18]. In fact, composite reliability is the factor loadings total ratio of latent variables to total of factor loadings plus Error variance. Its amounts is between 0 and 1 and is an alternative for Cronbach's alpha. The index amount should not be less than 0.6. This index is also called, Dillon-Goldstein ratio. In addition the structures validity that is used for checking the importance of the selected markers for measuring the structures, the discriminant validity is also desired in this study. This means that, finally the markers of each structure provide good distinction in terms of measurement than other structures of model. In simple terms, each marker measure only its structure and their combination should be in such way that all the structures are separated from each other well. Through an Average Variance Extracted (AVE) it was found that all structures studied have the average variance extracted higher than 0.5. A column of Table 1, indicates the response average amount. According to the selection of 5-point Likert scale for the questions including the research variables, the obtained amount from the comments of respondents must be examined in order to make it clear whether the mean of their responses on average is different with the amount of 3 or not? The results show that the respondents' evaluation from the power of work and live variable, is unsatisfactory and lower than the average (less than 3). In other variables, respondents' evaluation has been favorable because the average of response has been greater than 3. Table 2 shows the correlation matrix between the research variables and discriminant validity index. On the main diameter of this matrix, the square root of the Average Variance Extracted (AVE) is showed. According to this index, the Variance of each latent variable for its own indicators should be more than the other indicators. To determine this matter, first the square root of AVE latent variable should be calculated and then the resulting Amounts are compared with the correlation amount of latent variable with other latent variables. Finally, it is

necessary that the result of the AVE square root to be greater than the other amounts of correlations. This is repeated for other latent variables. The requisite for the discriminant validity confirmation is that the amount of square root of the average variance Explained will be more than all the correlation coefficients of variables associated with the rest of variables [19]. Lower than the main diameter, the Pearson correlation coefficients have been shown. The Positive coefficient indicates a positive and direct relationship and the negative coefficient indicates a negative and reverse relationship between two variables. All the correlation coefficients are positive and significant at the level of error less than 1% (Table 3).

**Table 2:** Validity, stability, descriptive indicators.

Variables	average variance explained	Composite Reliability	Cronbach's alpha	Average
Perceived value	0.742	0.896	0.828	3.7447
Infrastructural Factor	0.894	0.962	0.943	3.9874
Structural factor	0.778	0.913	0.860	3.605
Political factor	0.873	0.934	0.929	2.4937
Individual factor	0.499	0.825	0.766	3.2393
Cultural factor	0.651	0.881	0.822	3.1381
Environmental factor	0.642	0.843	0.770	4.1132
Innovation factor	0.765	0.907	0.847	3.6423
Users intention of use	0.500	0.733	0.617	3.9869

**Table 3:** The correlation matrix and distinct validity.

Hidden variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)Perceived value	0.862								
(2)Infrastructural factor	0.278	0.946							
(3)Structural factor	0.248	0.304	0.882						
(4)Political	0.21	0.55	0.29	0.93					

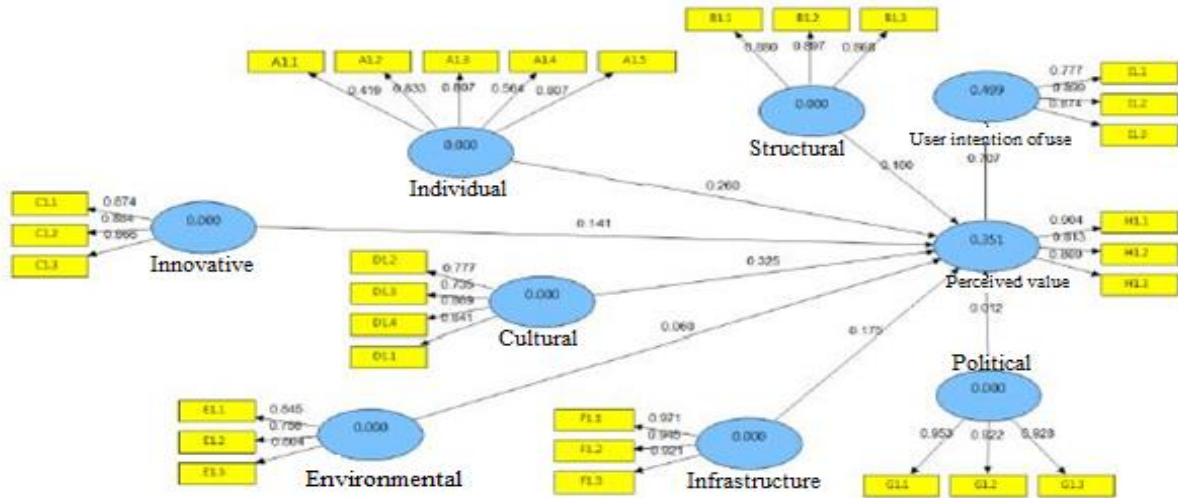
factor	3	1	8	4					
(5)Individual factor	0.45 6	0.36 9	0.53 8	0.21 6	0.77 4				
(6)Cultural factor	0.47 3	0.07 4	0.40 7	0.17 6	0.40 3	0.80 7			
(7)Environmental factor	0.19 1	0.30 3	0.21 8	0.42 7	0.26 2	0.13 9	0.80 1		
(8)Innovative factor	0.39 6	0.05 4	0.46 9	0.09 4	0.48 2	0.60 4	0.03 7	0.87 5	
(9)user intention of use	0.70 7	0.26 9	0.06 5	0.29 4	0.29 7	0.54 2	0.15 6	0.46 5	0.71 0

All correlation coefficients are meaningful at the level of error less than 1%.

\*\*Main Diameter shows the square root of Average Variance Explained (AVE).

### DISCUSSION

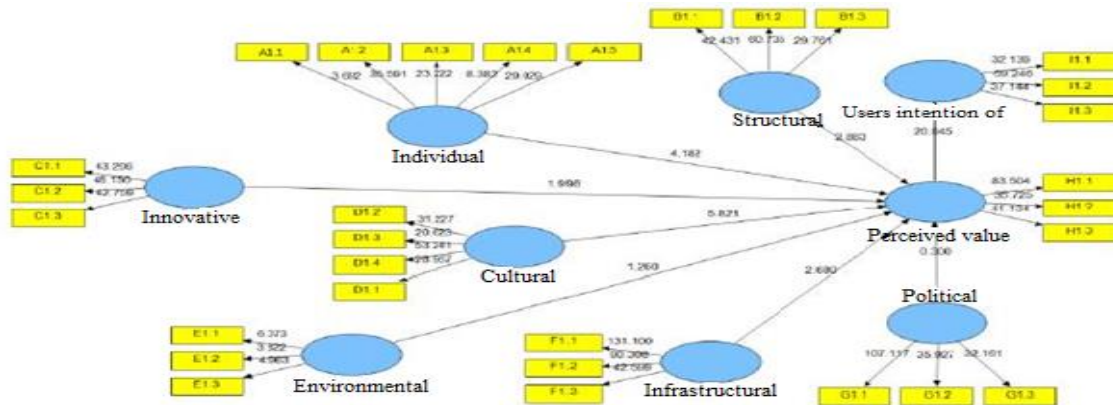
Figure 2 shows the Structural equation model in the case of estimating the standardized coefficients. In this model, variables of infrastructural factor, structural factor, political factor, individual factor, cultural factor, environmental factor, innovative factor are external and user’s intention of use variables and perceived value are internal. In this figure numbers or coefficients are divided into two categories.



**Figure 2:** The research model in the case of estimating standardized coefficients.

The first group, called measurement equations which are the relationship between the latent variables (Oval) and the evident variables (rectangular) (loading factors). All amounts of the loading factors are more than 0.5 and also the calculated amount of t for each of the loading factors of each marker with structure or its hidden variable is more than 1.96. Therefore, the alignment of the questionnaire in order to measure the concepts

in this stage can be showed validly [20]. In fact, the above results indicates what the researcher has intended to measure by the questionnaire questions, has been achieved by this tool. Therefore, the relationship between the structures or hidden variables is reliable. The second group, are the structural equations that are the relationships between the main variables of the research and they are used to test hypotheses. These coefficients are technically called the path coefficients.



**Figure 3:** Bootstrap model in a significant absolute form (t-value).

Figure 3, shows the Bootstrap model in the case of significant coefficients absolute (t-value). In fact, this model tests all the measurement equations (loading factors) and the structural equations using the statistic. According to this model, Path coefficient and loading factors is significant at a confidence level of 95% if the value of t-statistic is higher than 1.96.

Part one: direct effects: direct effect, which is actually one of the structural components of the structural equations models and shows the Directional relationship between the two variables. This type of impact actually represents the assumed linear causal effect of one variable on another variable. Direct effect within a model Specifies and explains the relationship between a dependent variable and the independent variable. Although a dependent variable can be an independent variable in another direct effect and vice versa. In addition, in a multiple regression model, a dependent variable can be linked with several dependent variables and as well as in the multiple regression/multi variate an independent variable can be linked with several dependent variables, Perceived value variable in the error level less than 0.05t. Based on the results of the structural equations coefficients and statistics and also according to the rule for this parameter, five percent error in the rejection of the hypothesis  $H_0$  has a significant impact on the user's intention of use (the amount for out-of-range amounts intervals -1.96 to +1.96 each model parameter, greater than 1.96 has been estimated). Based on the positive path coefficient with 95% confidence we can say that the relationship between the two variables is positive and meaningful (Table 4).

**Table 4:** Path Coefficients ( $\beta$ ), Statistics T, determination Coefficient and result of the research hypothesis

Research Assumptions		$\beta$	T	R <sup>2</sup>	Direction of relationship	Result of hypothesis
Direct effects	Perceived value → Intended users use	0.707	20.045	0.499	+	Confirmation
	Infrastructural factor → Perceived value	0.175	2.680	0.351	+	Confirmation
	Structural factor → Perceived value	0.160	2.883		+	Confirmation
	Political factor → Perceived value	0.012	0.300		NS	Rejection
	Individual factor → Perceived value	0.260	4.182		+	Confirmation
	Cultural factor → Perceived value	0.325	5.821		+	Confirmation
	Environmental factor → Perceived value	0.060	1.260		NS	Rejection
	Innovation factor → Perceived value	0.141	1.998		+	Confirmation
Indirect effects	Infrastructural factor → Perceived value → Intended users use	0.123	2.607		0.175	+
	Structural factor → Perceived value → Intended users use	0.113	2.754	+		Confirmation
	Political factor → Perceived value → Intended users use	0.009	0.194	NS		Rejection
	Individual factor → Perceived value → Intended users use	0.184	4.269	+		Confirmation
	Cultural factor → Perceived value → Intended users use	0.230	5.255	+		Confirmation
	Environmental factor → Perceived value → Intended users use	0.240	1.016	NS		Rejection
	Innovation factor → Perceived value → Intended users use	0.100	1.896	NS		Rejection

*t* Significant at  $P < 0.05$ ,  $t > 2.58$  Significant at  $P < 0.01$ .

The determination Coefficient is equal 0.499. So perceived value can explain 49.9% of the changes of user's intention of use. As well as the obtained results showed a positive and significant impact at a confidence level of 95% (The amount of statistics t is out of range - 1.96 to +1.96) variables of infrastructural, structural, individual, cultural and innovative factors on the perceived value and the lack of any influence of the Environmental and Political factors at level of confidence 95% (The amount of statistics t is in the range of - 1.96 to +1.96). The determination Coefficient is equal 0.351 so all the infrastructural, structural, individual, cultural, environmental, and political and innovative factors together could explain 35.1% of the changes of perceived value variable. According to the path coefficient we can say, the share of the cultural factor influencing has been more than the rest (larger path coefficient) and the share of the environmental factors has been less than the remaining variables.

Part two: Indirect effect: This fact that the dependent variable in some cases can be an independent variable has caused to make a third connection in the name of indirect effect. This work is in fact the effect of an independent variable on the dependent variable through one or more mediated variables. Variables of infrastructural, structural, individual and cultural factors have a positive and significant impact through perceived value on the intended user's intention of use at confidence level 95%. But innovative, political and environmental factors through changing the perceived value at the confidence level 95% haven't had a significant impact on the intended user's intention of use.

## **CONCLUSION**

There is no doubt that the traditional financial system with its confining tools cannot be able to handle virtual economy effectively. No one can predict the days ahead of Bitcoin, however not only it introduced a new perspective in design of modern financial systems, but also it is aiming at ruining some requirements in the dominant financial system. In this research the investigation of the effective factors in the selection of Bitcoin with patterning the models of technology acceptance and publication of innovations was done in order to identify the preferences of people in using Bitcoin. To respond to the research hypotheses, Confirmatory Factor Analysis (CFA) techniques and Structural Equation Modeling (SEM) were used. Due to low sample size to verify the model, the Partial Least Squares (PLS) method using the software SMARTPLS version 2 was used. Based on the research findings, the variables of infrastructural, structural, individual, Cultural factors through perceived value have had a positive and significant impact on the user's intention of use at 95% confidence level. But innovative, political and environmental factors through the perceived value variable at the confidence level 95% haven't had a significant impact on the user's intention of use. This research has faced with restrictions such as: the novelty of the subject, the Shortage of the scientific resources, inaccessibility to the Bitcoin's users, lack of the standard questionnaire and the lack of experts. In the end it is worth noting that Bitcoin is not a different form of common money but it is a kind of new money and it has been produced contrary to common practice in the production of traditional money which is



the result of the advances in the information and communication technology. Finally, it is noteworthy to state that Bitcoin is a new type of money contrary to common tradition in the current financial, and can be considered as a consequence of recent developments in information technology and communications. So for better understanding of bitcoin and its effects in financial system, more research is needed. In the following a few topics that could be considered for future research, will be referred:

- ❖ Comparative study on the efficiency of the traditional financial system with concentrated money against that of new financial system with non-concentrated money in economy.
- ❖ Examining different aspects of the effect of non-concentrated money on different sections of the current financial system.
- ❖ Adaptive performance study between Bitcoin and traditional money in the electronic markets.
- ❖ The possibility of omitting the paper money due to the change of public preferences from the traditional markets toward the electronic markets.
- ❖ The Preferences and expectations of the people from the monetary unit in the digital economy.
- ❖ Promoting the decentralized money (crypto and credit money of some sites and internet games) and the turmoil of the economic system.
- ❖ The way of interacting of the traditional economic system with the digital economy and developments in the information and communication technology.
- ❖ Relationship between economic crisis and inherent features of crisis-generating traditional money or current financial system.

## REFERENCES

1. Berdykulova GMK, Sailov AIU, Kaliyazhdarova SYK, & Berdykulov EBU (2014) The The Emerging Digital Economy: Case of Kazakhstan. *Procedia Social and Behavioral Sciences* 109: 1287-1291.
2. Nakamoto S (2012) Bitcoin: A peer-to-peer electronic cash system. Consulted.
3. Asghari (2006) Economic consequences of the spread of electronic money and its place in the Iran's economy. *Monthly strategic management research* Spring 37: 267-293.
4. Kohzad N, Gachlou J (2001) Economic impact of electronic money on central bank action. *Journal of Planning and Budget*.
5. Leyden J (2012) Linode hackers escape with \$70 k in daring Bitcoin heist. [http://www.theregister.co.uk/2012/03/02/linode\\_bitcoin\\_heist](http://www.theregister.co.uk/2012/03/02/linode_bitcoin_heist).
6. Krohn-Grimberghe A, Sorge C (2013) Practical Aspects of the Bitcoin System. *CoRR*.

7. Daniel K, Marton P, Istran C, Gabor V (2014) Physics. Soc-Ph 3892: 1-9.
8. Christopher CM (2014) Whack-a-Mole: Why Prosecuting Digital Currency Exchanges Won't Stop Online Laundering.
9. Moore T, Christin N (2013) Beware the middleman: Empirical analysis of bitcoin exchange risk. Financial Cryptography and Data Security pp: 25-33.
10. Möser M (2008) Anonymity of Bitcoin Transactions. Münster Bitcoin Conference.
11. Wegdell A, Andersson G (2014) Prospects of Bitcoin-An evaluation of its future.
12. Velde FR (2013) Bitcoin – A Primer. Chicago Fed Letter.
13. Phillips, Ronnie J (1992) Credit Markets and Narrow Banking. Annual meetings of the Eastern Economics Association, New York City.
14. Ajzen L, Fishbein M (1980) Understanding attitudes and predicting behavior. Prentice-Hall, applications and programming, Sage.
15. Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly pp: 319-340.
16. Kloppping IM, McKinney E (2004) Extending the technology acceptance model and the task-technology fit model to consumer e-commerce. Information technology learning and performance journal 22: 35-48.
17. Pikkarainen T, Pikkarainen K, Karjaluoto H, Pahnla S (2004) Consumer acceptance of online banking: an extension of the technology acceptance model. Internet research 14: 224-235.
18. Chin WW (1998) The partial least squares approach to structural equation modeling. Modern methods for business research 295: 295-336.
19. Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research pp: 39-50.
20. Hooman, HaiderAli (2011) Structural equation modeling using LISREL software. Publications of samt.