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Identify the Factors Effecting the Individuals Intentions to Adopt the Bitcoin: The Moderating Role of Government Support

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Abstract

In the presence of government support acting as a moderator, this study investigates the effects of perceived risk, perceived usefulness, and internet security on the intents to embrace bitcoin. 460 respondents who were chosen using the cluster sampling technique were given questionnaires to complete, and 400 of those questionnaires were returned for analysis. Individuals served as the analytical unit. This study made use of TAM theory. The analysis was conducted using SPSS version 26. All variables had dependability levels above 0.8. Because of the p value of 0.000 and the KMO value of 0.924, the KMO and Bartlett's test determined that the overall model was significant. All of the factors had a fair amount of correlation between them. Baron and Kenny checked the effects of moderation.

Keywords: *Perceived usefulness, Perceived risk, Internet security, Adoption of bitcoin, Government Support*

1. Introduction

Despite the fact that studies on cryptocurrencies date back to the 1980s (Heilman *et al.,* 2015), Satoshi Nakamoto released the first "open" virtual money in 2009 under the name "Bitcoin." The currency's important features include its self-regulated nature, which does not require a centralized regulating body, and the fact that it does not require banks to execute payments (Grinberg, 2011).

In a paper titled "Bitcoin: A Peer to Peer Electronic cash system" published on October 31, 2008, Nakamoto (2008) put out the concept of Bitcoin. In order to create a single decentralized peer-to-peer cryptocurrency in 2009, Nakamoto created Bitcoin as open source code (Antonopoulos, 2015). One of the early supporters, adopters, contributors, and recipients of the first Bitcoin transaction was the programmer Hal Finney, who received 10 Bitcoin from Nakamoto (Nakamoto, 2008). According to early estimates, Nakamoto, the creator of bitcoin, mined 1 million Bitcoin in just one year in 2010 (Valfells and Egilsson, 2016). The price of the Bitcoin was discussed on the Bitcoin chat boards during the first transaction. One of the most prominent transactions had 10,000 BTC being used to pay for two pizzas that were indirectly delivered by papa Jones.

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2. Literature Review

2.1. Perceived Usefulness

According to Davis (1989), perceived usefulness is the extent to which a person thinks that using a particular system or technology will be advantageous for them and maybe improve the overall performance of activities. Perceived usefulness has a lasting effect on behavioral intention to use technology in the future, according to studies by Venkatesh *et al.* (2003), Almuraqab (2017) and Adams *et al.* (1992). The perceived value of Bitcoin will also have an impact on its use, which in turn will have an impact on how widely it is adopted in society Shahzad *et al.* (2018).

An individual is obligated to use a certain system if it conveys the impression that doing so will automatically improve his performance. Perceived utility is the term used to describe this perception in the user's mind. According to research by Sohaib *et al.* (2019), perceived utility is one of the elements that significantly affects the adoption and use of new technology. According to a study by Baur *et al.* (2015) on the factors that influence people's decision to use Bitcoin, perceived utility is one of them. According to Davis (1989), when selecting whether to accept new technology, perceived usefulness is a more powerful motivation than simplicity of use.

H_1: Perceived usefulness significantly impacts on intention to adopt the bitcoin.

2.2. Internet Security

Smart contracts are strengthened and improved by the development of internet technologies like the internet of things, and this could result in a new economic paradigm (Kshetri, 2017; Lee, 2019; Nadeem *et al.*, 2020; Shahzad *et al.*, 2018). The rapid rise of digital currencies, which are governed and controlled by online communities, has been made possible by technology breakthroughs (Carrick, 2016). The demand for cryptocurrencies has increased as a result of cutting-edge technological advancements and financial economics (Félix and Pablo, 2012). The level of protection offered to users as they engage with bitcoin payment systems will determine how well bitcoin is accepted. It has been explained that cryptocurrency (bitcoin) systems are attractive to hackers and criminals because of their decentralized nature and unpredictable environment (Conti *et al.*, 2018; Zaghloul, Mutka and Ren, 2020; Ciaian *et al.*, 2021). These systems make it simple for them to conduct fraudulent transactions. stringent security measures that can thwart these kinds of assault. It has been demonstrated that the ambition to use a technology is directly related to Internet security (Bu *et al.*, 2021; Khalilzadeh *et al.*, 2017).

H_2: Internet security significantly impacts on intention to adopt the bitcoin.

2.3. Moderating Effect of Regulatory Support

To deal with e-business, monitor service quality, approve new technologies, and implement them across the country in accordance with their system of governance, government regulation and regulations are crucial (Peters *et al.*, 2015). These laws are employed to make sure that every procedure goes off without a hitch and fairly. Regarding client behavior towards its technology applications, the same situation holds true for cryptocurrencies and block chain technology. To prevent or lessen the outcomes of uncertainty, regulation is essential, according to Wunsche (2016). Customers' intentions to trust technology and secure its use might be impacted by governmental legislation and directives. However, there are other issues preventing the global adoption of cryptocurrencies, such as lax government oversight and rules. Lu (2018). The need for supportive regulation also grows as a result of the rapid and significant growth of technology. There are typically more technology and service providers available in high-intensity countries, which may aid and promote the adoption of new technologies. The government also continuously enhances its rules and regulations (Xu *et al*, 2003).

H_{3a}: Regulatory support significantly moderates between perceived usefulness and intention to adopt the bitcoin.

H_{3b}: Regulatory support significantly moderates between internet security and intention to adopt the bitcoin.

H_{3c}: Regulatory support significantly moderates between perceived risk and intention to adopt the bitcoin.

2.4. Perceived Risk

According to Faqih (2016), perceived risk refers to how customers judge the degree of uncertainty and potential negative effects of using or purchasing a product. This definition comes from the standpoint of behavioral

research. In the context of purchase intention, perceived risk has been linked to consumer behavior (Salisbury *et al.*, 2001; Kannungo and Jain, 2004), and it has also been linked to technology adoption (Featherman and Pavlou, 2003).

Abramova and Böhme (2016) defined perceived risk as the adverse effects and uncertainty associated with the use of cryptocurrencies for online payments and transactions. Although bitcoin is a brand-new wonderful money with a tone of features, there are a lot of hazards associated with it, including price volatility, potential legislation, technical issues with e-commerce, theft or loss, and exchange rate risk Gazali *et al.* (2018).

H_4: Perceived risk significantly impacts on intention to adopt the bitcoin.

2.5. Theoretical Model

The Technology Acceptance Model (TAM), first presented in Davis (1989) and later updated in Featherman and Pavlou (2003), Venkatesh and Davis (2000) and Venkatesh *et al.* (2003), is the most well-known model used in IS research to understand user adoption of a wide range of new technologies. It hypothesizes that Perceived Usefulness (PU) and Perceived Ease of Use (PEU), two antecedent notions, have a significant role in determining an individual's Behavioral Intention (BI) towards the actual system use. PU assesses what "the individual's subjective assessment of the utility offered by the new IT in a specific task-related context" (Gefen *et al.*, 2011).

3. Research Methodology

3.1. Population

The phrase "population" describes the total group of persons, interesting things, or occurrences that the researchers desire to analyze. The researcher needs a group of people in order to draw findings (Saunders *et al.*, 2009; Sekaran and Bougie, 2016). The study's main focus is on Pakistan's people. The study used a quantitative research methodology. The target sample for this study was bankers, currency exchange company employees, and students from Pakistan. The cluster sampling technique was used as the data collection method.

3.2. Measurements

Self-administered questionnaires were utilized to collect the primary data for this investigation. The questionnaires, which employed a seven-point Likert scale, were distributed to the respondents by email and WhatsApp. The survey is divided into 6 components. Part one describes the demographic information from the respondents. Novendra and Gunawan (2017) are where the definition of internet security in Part 2 was obtained from. Part 3 of Davis (1989), Taylor and Odd (1995), Venkatesh and Davis (2000) further explains the PU. The motivation behind the decision to adopt bitcoin is discussed in Part 4 (Kidunda, 2021). The definition of PR in Part 5 was derived from studies by Shim and Lee (2011), Faqih (2016), Mahomed (2017), Gupta *et al.* (2020), Mendoza-Tello *et al.* (2018), Arias-Oliva *et al.* (2019) and Gil-Cordero *et al.* (2020), among others. The definition of regulatory assistance in part 6 was taken from Mensah and Mwakapesa (2022) and Albayati *et al.* (2020).

3.3. Data Analysis

The SPSS software version 24 was used to conduct descriptive statistical analysis after data collection. The descriptive analysis also includes Pearson correlation, Cronbach Alpha, frequency distribution, and regression analysis. The theories were investigated using SEM-AMOS software. CFA was utilized to assess the questionnaire's validity. Cross-check the results using the procedures described by Baron and Kenny (1986).

4. Results

4.1. Reliability and Validity Statistics

The reliability and validity were examined through Cronbach alpha and KMO values (Table 1). All the variables have marvelous reliability because the value is above 0.8. the KMO value shows that the questionnaires items are valid for further analyses.

Table 1: Reliability and Validity

S. No.	Variable Name	Cronbach Alpha	Number of Items	Chi-square	KMO
1.	Internet security	0.810	4	5162.377	0.924
2.	Perceives risk	0.813	5		
3.	Perceived usefulness	0.879	5		
4.	Intention to adopt the bitcoin	0.893	5		
5.	Regulatory support	0.861	5		

Table 2: Demographic Information

Variable	Categories	Frequency	Proportion in Total
Gender	Male	284	71%
	Female	111	28%
Age	20-35	340	85%
	36-50	49	12%
	51-65	8	2%
	66 years and above	3	1%
Education	Bachelors	187	47%
	Masters	181	45%
	PhD	24	6%
	Others	8	2%
Occupation	Government job	45	11%
	Private job	75	19%
	Student.	268	67%
	Others	12	3%
Studying/Working at	Currency exchange company	12	3%
	Bank	40	10%
	University	301	75%
	Others	47	12%
Income	Below 30,000	203	51%
	31000-50,000	65	16%
	51000-70,000	38	10%
	71000-100,000	36	9%
	101000-150,000	23	6%
	Above 150,000	35	9%

4.2. Demographic Profile

Table 2 defines the respondent's demographic information. According to these statistics, the male respondents are higher than females, which is 78% of the total sample size. The responses are higher from student's category and they are enrolled in bachelor's program and doing the private jobs.

4.3. Descriptive Statistics

According to the statistics, people's attitudes about the adoption of bitcoin are neutral. Internet security is valued at (M = 4.4744, SD = 1.44222), while PU is valued at (M = 4.83, SD = 1.43). Both the intention to use PR

Table 3: Central Tendency Measurements									
	N	**Min.**	**Max.**	**Mean**	**SD**	**Skewness**		**Kurtosis**	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
IS	400	1.00	7.00	4.4744	1.44222	-0.505	0.122	-0.615	0.243
PU	400	1.00	7.00	4.8355	1.43212	-0.617	0.122	-0.518	0.243
PR	400	1.00	7.00	4.7250	1.33823	-0.466	0.122	-0.298	0.243
GS	400	1.00	7.00	4.9105	1.44919	-0.684	0.122	-0.401	0.243
ITAB	400	1.00	7.00	4.4470	1.54225	-0.466	0.122	-0.724	0.243
Valid N (list wise)	400								

and the desire to embrace bitcoin have (M = 4.4470, SD = 1.54225, M = 4.72, SD= 1.338 respectively (Table 3). GS has a value of (M=4.9, SD=1.44). When filling out a questionnaire, the minimum and maximum values are 1 and 7, respectively. Because the numbers range from -2 to +2, the skewness and kurtosis values demonstrate that the data is properly distributed. The collected is normally distributed for further analysis.

4.4. Pearson Correlation

According to Sekaran and Bougie (2016), Pearson correlation assesses the linear correlation, intensity, and direction of the relationships between the variables. The correlations exist between the variables, which can be either positive or negative or, rarely, zero (Table 4).

Internet security shows the moderate positive correlation with PU, PR, ITAB and GS 0.606, 0.257, 0.570, 0.491. Perceived usefulness also shows the moderate positive correlation with IS, PR, ITAB and GS, 0.606, 0.398, 0.615, 0.606. Perceived risk has moderate positive correlation with the value of, internet security 0.257, with ITAB 0.156, with GS, 0.537, with PU, 0.398. Intention to adopt bitcoin has relation with internet security, 0.570, with GS, 0.521, with PU, 0.615 and lastly is PR, 0.156. Correlation of last variable GS with IS, 0.491, with ITAB, 0.521, with PR, 0.537, with PU, 0.606. The correlation between internet security and perceived risk is

| Table 4: Correlation Between Variables						
Correlations						
		IS	**ITAB**	**GS**	**PR**	**PU**
IS	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	400				
ITAB	Pearson Correlation	0.570**	1			
	Sig. (2-tailed)	0.000				
	N	400	400			
GS	Pearson Correlation	0.491**	0.521**	1		
	Sig. (2-tailed)	0.000	0.000			
	N	400	400	400		
PR	Pearson Correlation	0.257**	0.156**	0.537**	1	
	Sig. (2-tailed)	0.000	0.002	0.000		
	N	400	400	400	400	
PU	Pearson Correlation	0.606**	0.615**	0.606**	0.398**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	400	400	400	400	400
Note: **Correlation is significant at the 0.01 level (2-tailed).						
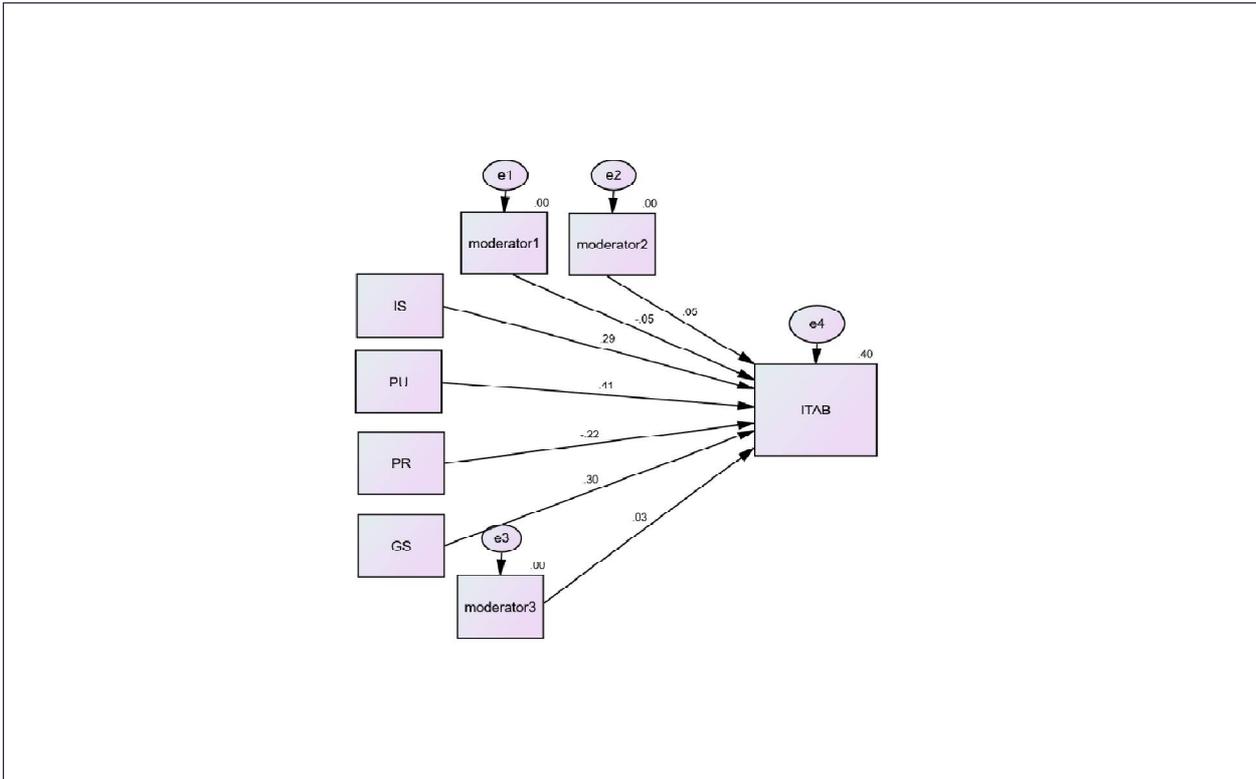
Figure 1: Moderation Effects

positively weak, because the value is lower than 0.3. however, the correlation between the perceived risk and ITAB is also lower because the value is lower than threshold point, 0.3.

4.5. Structure Equation Model

IS, PU, PR = IV, GS = Moderator

Moderator 1= IS and GS, Moderator 2= PU and GS, Moderator 3= PR and GS

4.6. Moderation Effect Through Regression Analysis

Figure 1 shows the moderation results that are examined through regression analysis to cross check the moderation effect. According to this statistics, the GS is not moderating the relationship, because the p value is 0.458, which is greater than 0.05 (Table 5). However, it can be concluded that the government support decreasing the positive relationship between internet security and adoption of bitcoin.

Table 5: Regression Between IS_ x _GS (interaction) and ITAB (Y)			
Parameters	**IS**	**GS**	**IS_ x _ GS**
Coefficients	0.643	0.350	0.042
Standard Error	0.069	0.050	0.057
t-statistics	9.309 p = (0.000)	6.986 p = (0.000)	0.743 p = (0.458)
Summary Statistics for Multiple Regression			
R squared	0.402		
Adjusted R square	0.398		
F–statistics	88.809 p = (0.000)		
Durbin Watson Sta.	2.0		

Table 6: Regression Between PU_ x _GS (interaction) and ITAB (Y)

Parameters	PU	GS	PU_ x _ GS
Coefficients	0.756	0.260	0.077
Standard Error	0.077	0.052	0.053
t-statistics	9.884 $p = (0.000)$	5.012 $p = (0.000)$	1.460 $p = (0.145)$
Summary Statistics for Multiple Regression			
R squared	0.416		
Adjusted R square	0.412		
F–statistics	94.189 $p = (0.000)$		
Durbin Watson Sta.	1.9		

Table 6 shows the moderation results that are examined through regression analysis to cross check the moderation effect. According to this statistics, the GS not moderating the relationship, because the p value is 0.145, which is greater than 0.05. However, it can be concluded that the government support decreasing the positive relationship between perceived usefulness and adoption of bitcoin.

Table 7: Regression between PR_ x _GS (interaction) and ITAB (Y)

Parameters	PR	GS	PR_ x _ GS
Coefficients	-0.294	0.628	-0.092
Standard Error	0.079	0.056	0.058
t-statistics	-3. 731 $p = (0.000)$	11.309 $p = (0.000)$	-1.585 $p = (0.114)$
Summary Statistics for Multiple Regression			
R squared	0.297		
Adjusted R square	0.292		
F–statistics	55.841 $p = (0.000)$		
Durbin Watson Sta.	1.9		

Table 7 shows the moderation results that are examined through regression analysis to cross check the moderation effect. According to this statistics, the GS not moderating the relationship, because the p value is 0.114, which is greater than 0.05. However, it can be concluded that the government support decreasing the positive relationship between perceived risk and adoption of bitcoin.

5. Conclusion and Recommendation

This study looks at how the perceived usefulness, perceived risk and internet security affect adoption of bitcoin, GS act as a moderator. To gather the replies from a sample of 400 people, questionnaires are reorganized. The target sample includes Pakistani bankers, professionals, university students, and employees of currency exchange companies. For moderation analysis, Baron and Kenny (1986) approach is used.

According to the findings, GS between IS and ITAB not significantly moderate because the value of p=0.458 and R square value is 40%, while GS between PU and ITAB not significantly moderates with a value of p=0.145 and effect is 42%, it depicts that the GS decreasing the positive relationship. The moderation effect of government support between PR and ITAB is also insignificant with a p value of, 0.114, and R^2 value is 30%. As a result of the current study, financial companies may find it advantageous to employ the new, updated decentralized block chain technology. Raising awareness of bitcoin as a digital currency that is more economical than traditional money is one of this study's social benefits. The results of the new study have significant implications for both managers and politicians. The management of the SBP can deal with speculative issues or even create a special system for exchanging or withdrawing bitcoin.

Future research may collect data from responses from different clusters using both qualitative and quantitative approaches. Future research can look into some further factors, such price worth. using the substitute program R software, PLS.

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