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Research Article / *Araştırma Makalesi*

RESEARCH ON CONSUMER OPINIONS ON THE USE OF CRYPTOCURRENCY IN ONLINE SHOPPING

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ABSTRACT

When it comes to virtual currencies, the first concept that comes to mind recently is cryptocurrencies. Cryptocurrencies, which are seen as investment instruments, have started to be used as payment methods by many brands in the global market. The research is based disclosing on the intention of consumers in Turkey to use cryptocurrencies for online shopping. The purpose of this study is to explore the effects of consumers' perceptions of the ease of use, risk and trust factors of cryptocurrencies on their perceived benefit and intention to use cryptocurrencies online within the framework of the Technology Acceptance Model (TAM). For this aim, it was discovered that perceived ease of use and trust have a significant positive effect on perceived benefit, while perceived risk has a significant negative effect, based on the analysis of data obtained from 391 consumers via the online survey technique. Perceived ease of use, trust and benefit also positively affect the intention to use cryptocurrency in online shopping. It is concluded that the perceived risk factor does not affect the intention to use cryptocurrency in online shopping. These findings provide significant theoretical and practical contributions to the fields of cryptocurrency and electronic commerce.

Keywords: *Cryptocurrency, Online Shopping, Consumer, Internet, TAM.*

JEL Classification Codes: *M30, M31, M39*

ONLINE ALIŞVERİŞTE KRİPTO PARA BİRİMLERİNİN KULLANIMINA İLİŞKİN TÜKETİCİ GÖRÜŞLERİ ÜZERİNE ARAŞTIRMA

ÖZET

Sanal para denilince son zamanlarda akla gelen ilk kavram kripto para birimleridir. Yatırım aracı olarak görülen kripto para birimleri küresel pazarda birçok marka tarafından ödeme yöntemi olarak kullanılmaya başlanmıştır. Araştırma, Türkiye'deki tüketicilerin online alışverişte kripto para kullanma niyetlerini ortaya koymaya dayanmaktadır. Bu çalışmanın amacı, Teknoloji Kabul Modeli (TKM) çerçevesinde tüketicilerin kripto para birimlerinin kullanım kolaylığı, risk ve güven faktörlerine ilişkin algılarının, algılanan fayda ve kripto para birimlerini çevrimiçi ortamda kullanma niyetleri üzerindeki etkilerini keşfetmektir. Bu amaçla, çevrimiçi anket tekniği ile 391 tüketiciden elde edilen verilerin analizine dayalı olarak, algılanan kullanım kolaylığı ve güvenin algılanan fayda üzerinde anlamlı bir pozitif etkiye sahip olduğu, algılanan riskin ise anlamlı bir olumsuz etkiye sahip olduğu belirlenmiştir.

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Algılanan kullanım kolaylığı, güven ve fayda da online alışverişte kripto para kullanma niyetini olumlu yönde etkilemektedir. Algılanan risk faktörünün online alışverişte kripto para birimi kullanma niyetini etkilemediği sonucuna da varılmıştır. Elde edilen bu sonuçlar kripto para birimleri ve elektronik ticaret alanlarında önemli teorik ve pratik katkılar sağlamaktadır.

Anahtar Kelimeler: *Kripto Para Birimi, Online Alışveriş, Tüketici, İnternet, TKM.*

1. Introduction

The universally accepted medium of exchange for goods and services is money. The value that makes it money is its immediate purchasing power. It is not possible to define currency within certain limits. Because money has a dynamic structure, not a static one. Therefore, money changes within the same society or from one society to another over time. Assets that we recognize as money today may not be considered as such in the future due to technology. Hence, it seems almost impossible to have a definition of money within certain limits (Öztürk & Koç, 2006). In the history of contemporary humanity, virtual money has acquired prominence at various times (Graeber, 2011). In recent years, the number of people who use cryptocurrencies has exploded, nearing the population of certain small countries (Hileman & Rauchs, 2017). A cryptocurrency, in its most basic form, is a digital asset designed to be used as a medium of exchange that uses cryptographic technology to ensure transactional flow and limit the production of new monetary units (Gil-Cordero et al., 2020). Cryptocurrencies are developed using open-source software, which is not affiliated with any central authority and is accessible to everyone over the internet without any official authority (Hari et al., 2014).

The worldwide economic crisis of 2008 was one of the factors that led to the creation of cryptocurrencies. Due to a loss of faith in central banks and financial institutions, as well as the collapse of financial markets during the crisis, it emerged as a viable alternative to strong reserve currencies such as the dollar and the euro (Dilek, 2018). Cryptocurrency is a sort of digital currency that uses databases to keep digital records of certain values. The goal of cryptocurrency growth is to eradicate printed capital from the business and devise a set that is neither regulated nor supervised by governments (Alaklabi & Kang, 2021). When using a cryptocurrency, users can exchange money digitally without the participation of a third party. Cryptocurrency is founded on the notion of generating unique, finite-number hashes by solving encryption algorithms. Thanks to a network of computers that authenticates transactions, users can exchange hashes as if they were dealing with real money (DeVries, 2016).

Cryptocurrency, serves as a medium of exchange through blockchain technology. Other terms used to describe it include virtual commodities, crypto tokens, payment tokens, cyber currency, electronic cash, and virtual assets (Ji-Xi et al., 2021). "A digital, distributed transaction record, with identical copies kept on several computer systems owned by different entities," according to the definition of the blockchain (Schatsky & Muraskin, 2015). Blockchain technology is a database that paved the way for the creation of cryptocurrencies. It is a data storage technique that is established by storing each transaction in a block on a distributed network without any centralization of authority. Blockchain technology uses a distributed network structure to store the same data records on multiple computers that communicate with one another, resulting in a distributed network or distributed system (Günen, 2020). Despite the

potentially harmful relationship between blockchain and cryptocurrency, it is important to note that cryptocurrencies are just one of the many possibilities offered by blockchain technologies (Arias-Oliva et al., 2019).

Cryptocurrency is a new technology that is revolutionizing the payment business, according to numerous researchers. Consumers are no longer reliant on a central government that owns and prints money because of technology. Furthermore, this mode of payment eliminates the need for traditional money-transfer methods and paperwork, while also enhancing transaction security through encryption. The technology has risen in prominence because of benefits such as anonymity and transaction speed, lower international transaction costs, eliminating the middleman, and contributing to community-based projects like crowdsourcing and funding. In addition to the previously mentioned advantages, the significance of the technology can be appreciated from its accompanying drawbacks, one of which is the surrounding ambiguity. According to some research, many consumers are concerned about the growing uncertainty around the use, functioning and reliability of cryptocurrencies (Sobhanifard & Sadatfarizani, 2019).

Despite the importance of studying cryptocurrencies from a consumer behavior perspective and the numerous recent types of research on cryptocurrencies, research shows that there is a need for more tangible research in the field of consumer behavior, as a reliable study on the reception of cryptocurrencies from the consumer's perspective has yet to be published (Schaupp & Festa, 2018). The research, which was created within the framework of the Technology Acceptance Model (TAM), it was aimed to reveal the effects of the ease of use, risk, and trust factors that consumers perceive about cryptocurrencies on their perceived benefit and their intention to use cryptocurrency in online shopping.

2. Literature Review and Hypothesis Development

TAM was established to determine user acceptance of information systems by restricting the drivers of that acceptance, as well as to analyze the behavior of users from various societies toward various types of computer applications. The TAM looks into the psychological and environmental aspects that influence people's adoption of computer technology from the inside out. This model tries to offer a foundation for measuring the effects of these elements on people's internal beliefs about computer technology, their trends toward computer technology, their intentions to use computer technology, and their actual usage of computer technology (Davis, 1989).

TAM stands for the individual assessment factor for computer technology and the individual assessment factor for computer technology's ease of use, both of which are closely linked to individual adoption of digital technology. The ease-of-use factor describes the degree to which a person is expected to be free to use computer technology. The interest-rate factor is the probability that using computer technology will increase one's performance. Perceived ease of use is explained as the degree of belief that individuals intend to use technology without difficulty and with the least effort (Davis et al., 1989). In other words, technologies that are easy to use are more likely to be adopted by people than similar competing technologies. In the perceived ease of use variable, human-computer interaction has a motivating aspect. It is also a major factor in initial user acceptance and continued use of systems in human-computer

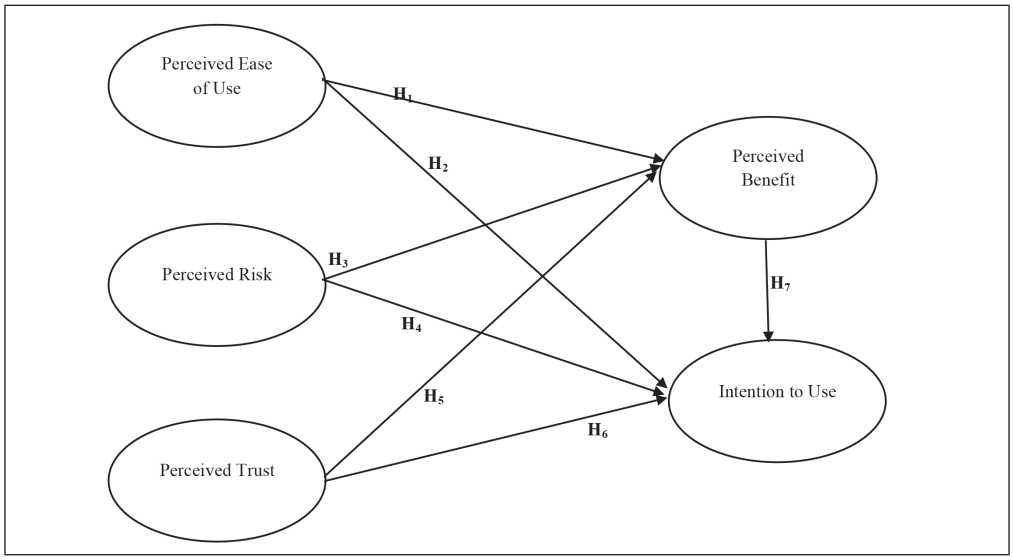
interaction research. The effect of perceived ease of use on consumers' intentions is important (Çelik & Bakırtaş, 2020). Consumers adopt systems that they find easier to use more quickly. Ramayah & Ignatius (2005) studied the impact of perceived usefulness and ease of use on online shopping intentions. They discovered that perceived ease of use and perceived enjoyment have a favorable and significant effect on intention as a consequence of this research. According to Venkastesh & Davis (2000), a technology-based application's perceived ease of use has a positive impact on future usage intentions. In their study, Lu et al. (2005) investigated the adoption intentions of wireless mobility technology. They discovered that perceived benefit and perceived ease of use have a positive association. Consumers want systems that are simple, as well as systems that are always available.

The perceived risk variable refers to the uncertainty and expected losses that consumers encounter before purchasing the products (Chen & He, 2003). Perceived risk refers to consumers' uncertainty about the consequences of their purchasing decisions. The level of risk perceived by consumers is an essential factor influencing their purchasing decisions (Schiffman & Kanuk, 2000). Consumers who intend to obtain information can take a purchase decision more easily after researching and gathering information. Because the consumer's mastery of the subject and having a sense of trust will ensure that their risk perception is lower. Afterward, it will help to focus on the desired options and disable the unnecessary ones in their minds (Çakmak & Güneşer, 2011). As a consequence of the data, consumers' risk perceptions will decrease, their focus on their preferred options will increase, and they will make more convenient and confident decisions (Aksoy, 2018). Concurrently, if the sites that offer a successful online sales service at the time of shopping help consumers with after-sales services and enable them to go through this process with ease and smoothness, they will reduce the risk perception of consumers and thus strengthen the online shopping tendency of consumers (Akçacı & Kurt, 2020). When risk rises and people's perceptions of security fall, they are more likely to avoid online transactions, and their desire to utilize online banking falls (Hanafizadeh et al., 2014). According to Cheng et al. (2006), consumers' views and readiness to accept online transactions are influenced by their perceptions of web security. One of the hurdles to adopting online transactions, according to Cruz et al. (2010), is perceived danger, which is combined with the expense of an internet connection. According to Wu et al. (2005), risk perception has a major impact on mobile commerce usage intentions. On the other hand, Tevfik et al. (2018) found that perceived risk has no effect on usage intention.

The perceived trust variable, according to Gefen (2003), is that as consumers' trust in websites increases while shopping online, their willingness to purchase also increases. Meanwhile, the trust factor can indirectly or directly affect online shopping as it reduces the perception of risk. Kim et al. (2012) expressed the trust variable as that online shoppers are more prone to perceived trust than perceived price when evaluating their purchase decisions. Kim et al. (2008), argued in their study that perceived trust has a positive effect on the intention to use cryptocurrency. Perceived trust has also been found to play a significant role in consumer acceptance of services and the success of e-services. It was concluded that people tend to adopt things they trust and have a positive attitude towards them. Hence, it is understood that consumers intend to purchase with trust. The perceived benefit variable is the degree to which consumers believe that using technology will improve business performance and productivity, i.e., the benefits that users perceive from a technical system affect the adoption and use of

that product (Aijan & Hartshorne, 2008). When consumers evaluate their purchasing decisions during online shopping, factors such as the ease of use of websites, the ease of access to that website from different internet browsers, and the variety of online payment options are of paramount importance (Büyükerişler et al., 2014). If consumers feel that they spend less effort on online shopping and that they are not forced to do so, they will see the website as a comfortable shopping environment and will start to benefit from it. The easier it is to learn and apply technology, the more inclined consumers will be to use it (Belanche et al., 2012). Consumer's perceived benefits and their intention to use the Internet have a considerable positive link, according to Chong et al. (2010), and these factors are elements that directly affect the intention to use the Internet. The possibility that a person will carry out a specific action is known as intention (Aijan & Hartshorne, 2008). The research model and hypotheses developed after the literature review are given below.

Figure 1: Research Model



H1: Perceived ease of use of cryptocurrencies has a positive effect on perceived benefit.

H2: Perceived ease of use of cryptocurrencies has a positive effect on the intention to use cryptocurrencies in online shopping.

H3: Perceived risk of cryptocurrencies has a negative effect on perceived benefit.

H4: Perceived risk of cryptocurrencies has a negative effect on the intention to use cryptocurrency in online shopping

H5: Perceived trust in cryptocurrencies has a positive effect on perceived benefit.

H6: Perceived trust in cryptocurrencies has a positive effect on the intention to use cryptocurrency in online shopping.

H7: Perceived benefits of cryptocurrencies have a positive effect on the intention to use cryptocurrencies in online shopping.

3. Methodology

3.1. Research Methodology

The research, which was created within the framework of the TAM, was aimed to reveal the effects of the ease of use, risk, and trust factors that consumers perceive about cryptocurrencies on their perceived benefit and their intention to use cryptocurrency in online shopping. In line with the research objective, the survey technique was preferred among data collection methods to reach consumers. As a sampling method, the convenience sampling method was used in which every consumer can participate in the survey. The population of the research consists of all consumers who have knowledge about cryptocurrencies. For only consumers with knowledge about cryptocurrencies to participate in the survey, a filter question "Specify your level of knowledge about cryptocurrencies" was added to the first question of the survey form, and the participants who answered "I have no knowledge" to this question were allowed to end the survey. The first part of the questionnaire form consisting of three sections, there are two questions about the level of knowledge about cryptocurrencies and purchasing behaviors; in the second part, there are statements regarding the scale items used in the research, and in the last part, there are demographic questions to determine the descriptive characteristics of the participants. The prepared questionnaire form was delivered to consumers online due to the advantage of reaching the participants and the risk of conducting face-to-face surveys due to the pandemic. Before the questionnaire form was converted into an online survey, it was checked by two academicians working in the field of marketing in terms of content. Following the academicians' corrections to the meaning and order of the questionnaire, it was converted into an online questionnaire using Google Forms. The study's questionnaire was administered to consumers with the approval of the ethics committee. The Gümüşhane University Ethics Committee approved the study's ethical compliance with its decision dated 27.04.2022 and numbered E-95674917-108.99-92930. The questionnaire was administered to 17 participants as a pre-test, and after a few corrections were made as a result of the pre-test (about typos), the link to the updated questionnaire form was shared through social media channels by providing information about the research. It was determined that 504 consumers participated in the survey in the date range (10 February-12 March, 2022) when the survey link was active; since 113 of these consumers answered: "I have no information" to the filter question, the surveys of 391 participants were taken into consideration.

3.2. Measures

TAM, the variables of the study are perceived ease of use, perceived trust, perceived risk, perceived benefit, and intention to use bitcoins in online purchasing. A 5-point Likert-type rating was used to categorize the items of all variables. In the research model, 18 items from 5 variables were used. These items are from scales created by various authors in the past. The scales are including 5 items for perceived ease of use, 3 items for perceived trust, 4 items for perceived risk, 3 items for the perceived benefit, and 3 items for intention to use cryptocurrency in online shopping (Venkatesh et al., 2012; Abramova & Böhme, 2016; Walton & Johnston, 2018; Alqaryouti et al., 2019). SPSS 21 and AMOS 24 programs were used to analyze the data obtained in the study.

4. Data Analysis and Findings

Frequency analyses were conducted to determine the demographic characteristics of the participants and their cryptocurrency knowledge/purchase status. As a result of the frequency analysis, the demographic characteristics of the consumers and their cryptocurrency purchasing status, frequency (F), and percentage (P) information are given in the tables below.

Table 1: Demographic Characteristics of Participants

		F	P			F	P
Gender	Female	158	40.4	**Marital Status**	Married	168	43
	Male	233	59.6		Single	223	57
	Total	**391**	**100**		**Total**	**391**	**100**
Age	18 and below	11	2.8	**Income**	7,500 TL and below	201	51.4
	19-29	171	43.7		7,501-10,000	76	19.4
	30-40	152	38.9		10,001 +	114	29.2
	41-51	46	11.8		**Total**	**391**	**100**
	52+	11	2.8	**Occupation**	Public Sector	132	33.8
	Total	**391**	**100**		Private Sector	117	29.9
Education	Elementary	2	0.5		Self-employment	10	2.6
	Secondary Education	34	8.7		Retired	5	1.3
	Associate's Degree	77	19.7		Not working	19	4.9
	Undergraduate	173	44.2		Student	90	23
	Post-graduate	105	26.8		Other	18	4.6
	Total	**391**	**100**		**Total**	**391**	**100**

Table 1 is analyzed, the majority of the participants are male (59.6%) and single (57%). When the age ranges are examined, the participants are mostly between the ages of 19-40, and in terms of education level, they are undergraduate and graduate graduates. In addition, in terms of monthly income, the majority of the participants are in the income group of 7,500 TL and below and 10,001 TL and above, and in terms of occupation, the participants are mostly public and private sector employees and students.

Table 2: Cryptocurrency Knowledge/Purchase Results

		F	P
Please indicate your level of knowledge about cryptocurrencies.	I have some knowledge	343	87.7
	I have a lot of knowledge	48	12.3
	Total	**391**	**100**
Which of the following types of cryptocurrencies have you bought the most before?	Never bought any	182	46.5
	Bitcoin	48	12.3
	Ethereum	34	8.7
	Binance Coin	13	3.3
	XRP	18	4.6
	Tether	7	1.8
	Dogecoin	31	7.9
	Litecoin	5	1.3
	Other	53	13.6
	Total	**391**	**100**

The results regarding the participants' cryptocurrency knowledge levels and their cryptocurrency purchase status are given in Table 2. Table 2 is analyzed, almost all of the participants (87.7%) have some knowledge about cryptocurrencies, while the rest have a lot of knowledge. In the results related to the cryptocurrencies that the participants have purchased the most, almost half of them (46.5%) have not purchased cryptocurrencies before. Among those who have purchased cryptocurrencies, Bitcoin is the most frequently purchased cryptocurrency.

4.1. Explanatory Factor Analysis

To assess the factor structures of the variables in the study, exploratory factor analysis was used. The appropriateness of the obtained data for factor analysis is determined using the KMO (Kaiser-Meyer-Olkin) and Bartlett Sphericity tests. The KMO test determines whether the research sample is adequate, whereas the Bartlett test determines whether the data are suitable for factor analysis. The KMO value obtained as a result of both tests should be above 0.60 and the Bartlett value should be below 0.05. In addition, the factor loading of each factor should be above 0.50, while the Cronbach alpha value indicating the reliability of the scale should be above 0.70 (Field, 2009; Pallant, 2016). The results of the exploratory factor analysis and reliability analysis are presented in Table 3.

Table 3: Factor Analysis Results

Variables	Statements	Factor Loadings	Cronbach Alfa	Variance Explained
Perceived Ease of Use (PE)	Learning how to make purchases with cryptocurrencies is easy for me.	0.842	0.907	49.618
	It is easy for me to acquire and learn new tools for cryptocurrency.	0.786		
	I don't think I will find it difficult to use cryptocurrency for online shopping.	0.780		
	I can easily convert the money in my account into cryptocurrencies.	0.772		
	Cryptocurrencies are easy to use.	0.716		
Using Cryptocurrency in Online Shopping (IU)	I predict that I will use cryptocurrencies for online shopping in the future.	0.841	0.933	15.104
	I may plan to use cryptocurrencies for online shopping in the future.	0.812		
	I may use cryptocurrencies for online shopping in the future.	0.767		
	I can always try to use cryptocurrencies in my daily life.	0.695		
Perceived Risk (PR)	When I use cryptocurrency for online shopping, I may not feel completely safe from illegal attacks and activities.	0.876	0.851	7.012
	When I use cryptocurrency for online shopping, I may be concerned about possible failures in the cryptosystem.	0.852		
	When I use cryptocurrency for online shopping, I may worry about losing the value of my money due to the volatility of cryptocurrency.	0.820		
	When I use cryptocurrency for online shopping, I may worry about fraud due to the lack of legal regulations.	0.768		
Perceived Benefit (PB)	Using cryptocurrency for online shopping will improve the efficiency and profitability of my money.	0.683	0.924	3.564
	Using cryptocurrency for online shopping will help me increase my productivity.	0.681		
	I can improve my economic performance by using cryptocurrency for online shopping as I will have full control over my money.	0.559		
Perceived Trust (PT)	I believe that online shopping with cryptocurrencies will be reliable as data privacy is guaranteed.	0.697	0.846	3.146
	I believe that online shopping with cryptocurrencies will be reliable as fraud will be prevented.	0.693		
	I believe that cryptocurrencies and online shopping will be inseparable.	0.538		
KMO: 0.938	Total Variance Explained: % 78.444			

Table 3 shows, the KMO test value is 0.938 and the data are suitable for factor analysis. In addition, the factor loading, reliability level, and explained variance ratio of each factor are also included. It is determined that the factor loadings of each scale are above 0.50 and the Cronbach's alpha values indicating the reliability of each scale are above 0.70. In addition, the total variance explained ratio (78%) is also above the acceptable level. With these results, it was determined that the scales used in the research were reliable, in other words, they measured what they were intended to measure. Confirmatory factor analysis was performed on AMOS 24 program to verify the model whose reliability and validity were determined as a result of the exploratory factor analysis and hypotheses were tested with structural equation modeling.

4.2. Confirmatory Factor Analysis and Structural Model

Confirmatory factor analysis was used to confirm the factor structures, and exploratory factor analysis was used to construct the research model. The model's appropriateness is assessed using the goodness of fit values acquired from the analysis. When looking at the literature, the most common goodness of fit values is X2/df, GFI, AGFI, CFI, NFI, AGFI, and RMSEA (Yavuz & Sağlam, 2018). Table 4 shows the values acquired by confirmatory factor analysis as well as recommended value ranges.

Table 4: Goodness of Fit Index of the Research Model

Fit Indexes	Good Fit	Acceptable Fit	Recommended Model
RMSEA	RMSEA<0.05	RMSEA<0.08	0.066
NFI	0.95≤NFI	0.90≤NFI	0.937
IFI	0.97≤IFI≤1	0.95≤IFI≤0,97	0.999
CFI	0.95≤CFI	0.90≤CFI	0.959
GFI	0.95≤GFI	0.90≤GFI	0.900
AGFI	0.95≤AGFI	0.85≤AGFI	0.868
x^2/df	$0<x^2/df<3$	$0<x^2/df<5$	391.244/ 144= 2.717

(Schermelleh-Engel et al., 2003; Meydan & Şeşen, 2011)

When the goodness-of-fit and acceptable goodness-of-fit values in the table are compared with the model goodness-of-fit values obtained as a result of running the research model, it is seen that the run model is within the good and acceptable goodness-of-fit ranges. These results show that the research model is appropriate and runs smoothly. The AMOS output related to the run research model is shown in Figure 2.

Figure 2: Structural Model

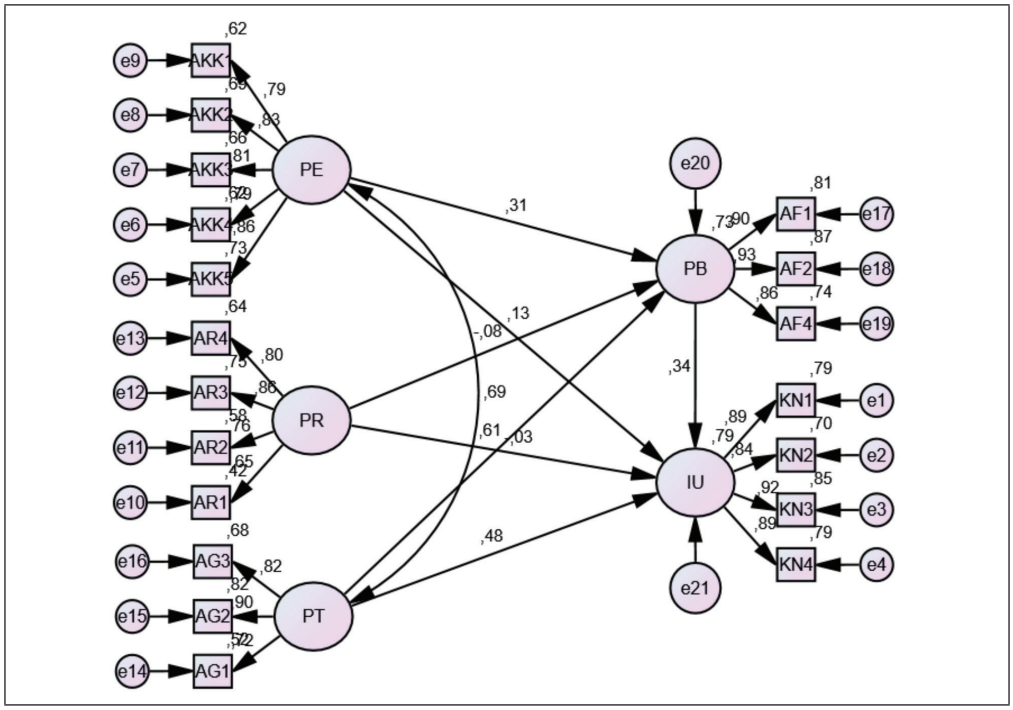


Figure 2 shows the paths between variables and the standardized values between these paths. In the evaluation of the hypotheses formed within the scope of the research model, standardized direct effect coefficients, R2, and p values were taken into consideration.

Table 5: Hypothesis and Mediation Test Results

Hypothesis	β	S.E.	P Value	Status
H1: PE→PB	0.306	0.056	***	Supported
H2: PE→IU	0.132	0.051	0.007**	Supported
H3: PR→PB	-0.084	0.052	0.015**	Supported
H4: PR→IU	-0.029	0.045	0.353	Not Supported
H5: PT→PB	0.611	0.081	***	Supported
H6: PT→IU	0.483	0.090	***	Supported
H7: PB→IU	0.341	0.066	***	Supported

*p < 0.01, **p < 0.05, ***p < 0.10

When the hypothesis results table is examined, it is seen that only H4 of the research hypotheses is not supported, while all other hypotheses are supported. When the hypothesis results are evaluated in detail, according to the result of H1 hypothesis at $p<0.01$ significance level, it is seen that the perception of cryptocurrencies as easy to use has a significant positive effect of 30% on perceived benefit and is supported. According to the result of H2 hypothesis at $p<0.05$ significance level, the perception of cryptocurrencies as easy to use has a significant positive effect of 13% on the intention to use cryptocurrencies in online shopping and is supported; according to H3 hypothesis at $p<0.05$ significance level, perceived risk of cryptocurrencies has a significant negative effect of 8% on perceived benefit and is supported; according to H5 hypothesis at $p<0.01$ significance level, perceived trust in cryptocurrencies has a significant positive effect of 61% on perceived benefit and is supported; According to H6 hypothesis at $p<0.01$ significance level, perceived trust in cryptocurrencies has a significant positive effect of 48% on the intention to use cryptocurrency in online shopping and is supported; according to H7 hypothesis at $p<0.01$ significance level, perceived benefit of cryptocurrencies has a significant positive effect of 34% on the intention to use cryptocurrency in online shopping and is supported.

5. Conclusion and Discussion

The purpose of this study is to explore the effects of consumers' perceptions of the ease of use, risk and trust factors of cryptocurrencies on their perceived benefit and intention to use cryptocurrencies online within the framework of the TAM. For this purpose, the effects of perceived ease of use, perceived risk, perceived trust, and perceived benefit variables, which are the main variables in the TAM, on the intention to use cryptocurrency in online shopping were investigated.

As a result of the analysis of the data obtained with the prepared questionnaire form, seven hypotheses of the research were tested. The hypotheses results show that perceived ease of use, perceived risk, and perceived trust have an effect on perceived benefit, while perceived ease of use, perceived trust, and perceived benefit have an effect on the intention to use cryptocurrency in online shopping. Accordingly, H1, perceived ease of use of cryptocurrencies has a positive effect on perceived benefit, is supported. If technology is easy to learn and use, it is more likely to be adopted (Wang et al., 2003). In previous studies (Abramova & Böhme, 2016; Alqaryouti et al., 2019), it has been stated that consumers adopt new technologies that they perceive as easy to use more rapidly. Therefore, the easier it is to use cryptocurrency, the more likely consumers will use cryptocurrency for online shopping. In studies on the adoption of online payment systems, it has been determined that consumers tend to use these systems due to the benefits provided by payment systems (Liu et al., 2012). H2, perceived ease of use of cryptocurrencies has a positive effect on the intention to use cryptocurrencies in online shopping, is accepted. Shahzad et al. (2018), concluded that perceived ease of use has a positive effect on the intention to use cryptocurrency. H3, perceived risk of cryptocurrencies has a negative effect on perceived benefit, is also supported. The other hypothesis H4 is not supported. Yet another result is that perceived risk has no effect on the intention to use cryptocurrencies in online shopping.

Considering that cryptocurrencies are a new technology and the majority of consumers do not have sufficient knowledge about cryptocurrencies, it can be said that this result is predictable. Arias-Oliva et al. (2019) stated in their study that the perceived risk is very high due to the lack of an official place to apply in case of any problems with cryptocurrencies. Alaklabi & Kang (2021) emphasized that the perceived risk of cryptocurrencies has no effect on the attitude towards using cryptocurrencies and the intention to adopt cryptocurrencies and that there is not enough knowledge in society as cryptocurrencies are a new technology. In addition, it is also known that cryptocurrencies are preferred in cybercrimes such as fraud, which poses a risk and trust problem for cryptocurrency users. H5, perceived trust in cryptocurrencies has a positive effect on perceived benefit, is supported. However, trust can be ensured with the technological infrastructures behind cryptocurrencies, and both privacy and copying of cryptocurrencies can be prevented with the transparent verification systems provided by the system (Gil-Cordero et al., 2020).

Fettahoğlu & Sayan (2021), found that perceived benefit has a positive effect on cryptocurrency usage behavior, while perceived risk and perceived ease of use have no effect. When the results of the research are evaluated in general, it is seen that the results obtained support similar studies in the literature and are in parallel with the results of related studies. Accordingly, H6, perceived trust in cryptocurrencies has a positive effect t on the intention to use cryptocurrency in online shopping, is also supported. H7, perceived benefits of cryptocurrencies have a positive effect on the intention to use cryptocurrencies in online shopping, is supported. Lee (2009), in his research on online banking systems, found that perceived benefits have a strong positive effect on behavioral intention. Mendoza-Tello et al. (2018), who investigated the use of cryptocurrency in digital payments on social media, found that the most influential factor in the intention to use cryptocurrency in electronic payments was perceived benefit. When all the hypothesis results are examined, it is clear that the obtained results are consistent with the findings of previous similar studies and support the literature.

In addition to its significant results on cryptocurrencies, the research also has some limitations. First of all, since the convenience sampling method was preferred in the research due to time and opportunity constraints, the results obtained cannot be generalized. The fact that there are fewer women than men among the research participants may be another limitation of the research. However, in many previous studies, it has been stated that men use cryptocurrency more (Vejačka & Paľová, 2019). Another limitation is again related to the research sample. Considering that the participants are mostly between the ages of 20-40, the research results do not represent middle-aged and older consumers. Similarly, in terms of education level, the majority of the participants have undergraduate and graduate education. Therefore, the intentions of educated people regarding cryptocurrency may be different from the general population. In previous studies, it has been determined that educated people adopt new technologies faster (Riddel & Song, 2017). Since only people with knowledge about cryptocurrency were included in the current study, future researchers can compare the cryptocurrency usage intentions of people with or without knowledge about cryptocurrency. In addition, consumers' intention to use cryptocurrency in online shopping can be evaluated in terms of different samples or consumers from different countries.

Cryptocurrencies, which continue to develop and are expected to be used by many segments in the coming years, are an academically important subject. This research makes important contributions in terms of determining the intention of Turkish consumers to use cryptocurrencies in online shopping. Also, the findings provide important theoretical and practical contributions to the fields of cryptocurrency and electronic commerce. While previous researches generally examine attitudes and behaviors towards the purchase of cryptocurrencies, this research tries to evaluate the factors that affect the intention of consumers who use cryptocurrencies to use these cryptocurrencies in online shopping.

Within the scope of the research results, there are both practical and theoretical contributions. First of all, since the technology in question is a new technology, it contains uncertainty and risk. Considering that cryptocurrencies are not officially recognized in most countries, it may be suggested that the countries that plan to recognize cryptocurrencies should conduct studies and regulations on the risks that may arise due to security reasons and how to protect against these risks, and in this way, while increasing trust in cryptocurrencies, they should minimize distrust. It is also important that cryptocurrencies are easy to use like credit cards and provide benefits to users. Considering that consumers use a technology that they perceive as useful, companies in the crypto market should act in a consumer-oriented manner. In addition to its practical contribution, the research also offers theoretical contributions. Although cryptocurrency is not used in electronic commerce activities carried out in Turkey, it has a high potential to be used in the future. For this reason, it is thought that the model developed for the adoption of cryptocurrency by Turkish consumers will guide future research. Researchers who will research on this subject in the future may be recommended to repeat the research by adding different variables to the model.

Conflict of Interest

The authors have no conflicts of interest to declare.

Authors' Contribution

The authors declare that they have contributed equally to this work.

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