

**T.C.**  
**TURKISH – GERMAN UNIVERSITY**  
**INSTITUTE OF SOCIAL SCIENCES**  
**BUSINESS MANAGEMENT**

**TURKISH CONSUMERS' INTENTIONS TOWARDS**  
**CRYPTOCURRENCY INVESTMENT**

**MASTER'S THESIS**

**Yunus Emre KOÇAK**

**ADVISOR**

**Prof. Dr. Ela Sibel Bayrak MEYDANOĞLU**

**Prof. Dr. Ahmet Mete ÇİLİNGİRTÜRK**

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I hereby declare that this thesis is an original work. I also declare that, I have acted in accordance with academic rules and ethical conduct at all stages of the work including preparation, data collection and analysis. I have cited and referenced all the information that is not original to this work.

Yunus Emre KOÇAK



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# ÖZET

## TÜRKİYE'DEKİ TÜKETİCİLERİN KRİPTO PARA YATIRIMLARINA İLİŞKİN NİYETLERİ

Temeli çok daha eskilere dayanmasına rağmen ilk başarılı örneği Bitcoin olan kripto paralar 2008 yılında piyasalara sessiz bir giriş yapmıştır. Blok zinciri teknolojisi sayesinde birçok benzersiz özellikler barındıran kripto paralar kısa sürede yatırımcılar arasında popülerlik kazanarak değerini çok yüksek seviyelere çıkarmıştır. Kripto paraların giderek artan popülaritesi Türkiye'deki yatırımcılar tarafından da karşılık bulmuştur. Piyasaların kripto paralara yoğun ilgisine karşılık, Türkiye'deki yatırımcıları kapsamına alan yeterli sayıda akademik çalışma henüz oluşmamıştır. Dolayısıyla, bu çalışmada Türkiye'de kripto paralara yatırım yapan yatırımcıların, bu davranışlarını etkileyen faktörlerin incelenmesi amaçlanmıştır. Bu bağlamda söz konusu inceleme için genişletilmiş planlı davranış teorisi çalışmanın araştırma modelini oluşturmuştur. Söz konusu araştırma modeli çerçevesinde oluşturulmuş olan anket, 245 katılımcı tarafından yanıtlanmış, elde edilen bilgiler yapısal eşitlik modellemesi tekniği ile istatistiksel olarak incelenmiştir. Çalışmanın sonuçlarına göre tutum, öznel normlar ve algılanan davranışsal kontrol faktörleri Türkiye'deki kripto para yatırımcılarının, kripto paralara yönelik davranış niyetlerini etkileyen önemli faktörler olduğu ortaya çıkmıştır. Ayrıca bu çalışmada, kriptoparalarla bağdaştırılan algılanan risk faktörünün yatırımcıların kripto paralara yönelik yatırım yapma niyetlerini etkileyen bir unsur olmadığı bulunmuştur.

**Key Words:** Kripto paralar, Bitcoin, blokzincir, blockzincir teknolojisi, planlı davranış teorisi, tüketici davranışı, davranışsal niyet

**Date:** 20.07.2023

# **ABSTRACT**

## **TURKISH CONSUMERS' INTENTIONS TOWARDS CRYPTOCURRENCY INVESTMENT**

Although the origins of cryptocurrencies go back much earlier, the most successful and the most famous example of it, Bitcoin, made a silent entry into the markets in 2008. Thanks to blockchain technology, cryptocurrencies possess unique features that make them attractive to investors, so that price of the cryptocurrencies skyrocketed in a short time. The increasing popularity of cryptocurrencies also found a response from Turkish consumers. However, despite the big interest of Turkish consumers toward cryptocurrencies, only very few number of studies have addressed them. Therefore, this study aims to analyze the intentions of Turkish cryptocurrency investors and the factors influencing these behaviors. Therefore, an extended planned behavior theory generates the research model of this study to analyze the intentions of cryptocurrency investors in Türkiye. The survey developed within this research model has been answered by 245 Turkish cryptocurrency users and the obtained data was statistically analyzed by using the structural equation modeling technique. The results of the study demonstrate that attitudes, subjective norms, and perceived behavioral control factors influence the behavioral intentions of cryptocurrency investors in Türkiye. Additionally, this study asserts that the perceived risk that associated with cryptocurrencies is not a significant factor that affects behavioral intention of Turkish people toward cryptocurrencies.

**Key Words:** Cryptocurrency, Bitcoin, blockchain, theory of planned behavior, consumer behavior, behavioral intention

**Date:** 20.07.2023



## LIST OF ABBREVIATION

ANOVA	: Analysis of Variance
AVE	: Average Variance Extracted
BAT	: Basic Attention Token
BNB	: Binance Coin
BTC	: Bitcoin
CA	: Cronbach's Alpha
CFA	: Confirmatory Factor Analysis
CFI	: Comparative Fit Index
CR	: Construct Reliability
C-TAM-TPB	: Combined TAM and TPB
DPoS	: Delegated Proof of Stake
ECB	: European Central Bank
ETH	: Ethereum
GFI	: Goodness of Fit Index
HTMT	: Heterotrait-monotrait ratio
IDT	: Diffusion Theory
KMO	: Kaiser-Meyer-Olkin
MM	: Motivational Model
MPCU	: Model of PC Utilization

NFI	: Normed Fix Index
OECD	: Organisation for Economic Co-operation and Development
PBC	: Perceived behavioral control
PoS	: Proof of Stake
PoW	: Proof of Work
RMSEA	: Root Mean Square Error of Approximation
SCT	: Social Cognitive Theory
SEM	: Structural Equation Modelling
SPSS	: Statistical Package for Social Sciences
SRMR	: Standardized Root Mean Square Residual
TAM	: Technology Acceptance Model
TL	: Turkish Lira
TLI	: Tucker-Lewis index
TPB	: Theory of Planned Behavior
TRA	: Theory of Reasoned Action
US	: United States
USD	: United States Dollar
USDT	: Tether Coin
UTAUT	: Unified Theory of Acceptance and Use of Technology

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# 1 INTRODUCTION

Technological developments have been a natural part of the history of humanity. Especially, invention of the internet has led to a new era by making individuals' daily lives more virtual and digital. Thanks to the internet and the other latest technological developments, even the characteristics of money have gone through radical changes, despite the concept of money has been stable since its invention. Initially, the form of money has become digital, but very recently, conventional structure of money has changed thanks to the blockchain technology. While blockchain technology initially used in the areas of supply chain management, internet of things, government services etc., the real reputation of blockchain technology emerged as it pioneered the emergence of cryptocurrencies (Al-Megren et al., 2018). Because blockchain technology provides cryptocurrencies to have a decentralized, transparent, immutable, and secure infrastructure, which makes cryptocurrencies to become a unique financial instruments. (Conti, Lal, & Ruj, 2018; Shen, 2021). In this way, as the first successful example of cryptocurrencies Bitcoin made a silent entry into the market in 2008. Although it didn't gain much attention in its early years, Bitcoin later gained extreme popularity as its price surged and led to the creation of thousands of other cryptocurrencies in a short time.

While the popularity and prices of cryptocurrencies are increasing, the number of cryptocurrencies, as well as the cryptocurrency exchange have also increased. In this sense, Coinmarketcap.com (2023) submits that, as of 10.07.2023 there are 26,267 different cryptocurrencies, 642 different cryptocurrency exchange markets, current market cap is approximately 1.18 trillion United States (US) dollars and the daily volume of exchanged cryptocurrency worth around 24 billion US dollars. Also, World Economic Forum (2019) estimated that in year 2027, 10% of the global gross domestic product will be reserved in cryptocurrencies.

On the other hand, when the consumers are compared in terms of cryptocurrency adaptation, Statista has made a detailed analysis (2023) by combining 56 different surveys

from around the world and found out remarkable results. According to the result of the survey, especially citizens of developing countries dominated the top rankings of the list, but developing countries also takes place at the bottom of the list like Chile, Morocco, Pakistan . Nonetheless, users from well developed countries such as Switzerland, South Korea, United Arab Emirates also have comparatively high cryptocurrency adoption rates. Therefore, it can be suggested that, crypto currency investment rates do not show a direct relationship with the development level of the countries, hence a more detailed research is required to explain consumers’ intentions towards cryptocurrency investment.

Table 1.1 Share of Respondents Who Indicated They Either Owned or Used Cryptocurrencies in 56 Countries and Territories Worldwide from 2019 to 2023

Year	2019	2020	2021	2022	2023
Nigeria	28%	32%	42%	45%	47%
Türkiye	20%	16%	25%	40%	47%
United Arab Emirates	-	10%	13%	34%	31%
Indonesia	11%	13%	12%	19%	29%
Brazil	18%	12%	12%	22%	28%
India	8%	8%	10%	22%	27%
Argentina	16%	14%	21%	35%	26%
Malaysia	-	12%	16%	20%	23%
Saudi Arabia	14%	11%	12%	20%	23%
South Africa	16%	17%	18%	23%	22%
Switzerland	10%	9%	13%	18%	21%
South Korea	6%	8%	8%	19%	20%
Egypt	-	8%	12%	14%	19%
Netherlands	10%	9%	10%	19%	19%
Pakistan	6%	6%	14%	19%	18%
Australia	7%	8%	9%	16%	17%
Norway	7%	8%	9%	15%	17%
Belgium	7%	6%	10%	15%	16%
Ireland	8%	10%	13%	15%	16%
Morocco	10%	9%	10%	12%	16%
United States	5%	7%	8%	15%	16%
Chile	11%	12%	14%	14%	15%

(Source: <https://www.statista.com/statistics/1202468/global-cryptocurrency-ownership/>)

Türkiye takes the second place in the list. Obviously, Turkish lira has experienced a significant depreciation in recent years and according to table 1.1 adaptation of cryptocurrencies has been very high for Türkiye in the last years as well. More specifically, table 1.1 indicates that usage of cryptocurrencies increased more than %50 after year 2020 and 47% of Türkiye’s population either used or adopted cryptocurrency in 2023. Thus, it is noticeable that there is a rapidly growing trend of cryptocurrency

around the world and this trend clearly has found its response in Türkiye. In that regard, Bilen (2022) reported that there is an increasing investment rates on cryptocurrencies in Türkiye and even the people with quite low income would like to invest on cryptocurrencies.

Although cryptocurrencies have aspects that can be considered as risky and untrustworthy (Koroma et al., 2022) Turkish consumers' behaviors regarding cryptocurrencies are undoubtedly quite interesting. So, analyzing the Turkish consumers' behavioral intentions can reveal different insights of Turkish individuals and it can be also beneficial for the academics, marketers, managers and cryptocurrency developers. In that sense, especially consumer behavior framework can provide significant information for marketing managers, academics and developers to understand specific marketing tactics and strategies. Besides, if marketing managers, academics and cryptocurrency developers understand the insights of Turkish consumers' intentions, they can figure out what do Turkish consumers value, so that, they can improve, interact and deliver proper goods and services. (Hoyer, MacInnis, & Pieters, 2017). In other words, understanding the Turkish consumers' behavioral intentions toward cryptocurrencies can help practitioners to generate better products, services and approaches for cryptocurrency sector.

Despite numerous studies have been conducted on cryptocurrencies, in academic literature, there is a limited number of research studies focusing on Turkish consumers' behaviors towards cryptocurrencies as of June 2023 (Dergipark, 2023). Recognizing this academic gap, this study aims to shed light on the Turkish consumers' behavioral intentions toward cryptocurrency investment. By doing so, the first section of the research thoroughly investigates the concept of cryptocurrencies, explores the perspective of cryptocurrencies in Türkiye and explains the theory of planned behavior model, which constitutes the main framework of the research model of the thesis. In the second part of the study, the research model and its variables, the hypotheses of the study and the research methodology are explained. In addition, the analysis of the data that is obtained through the survey, the findings derived from the data analysis, along with their interpretations as well presented.



## **2 CONCEPTUAL FRAMEWORK**

The conceptual framework of this study consists of 4 parts. Initially, some information was provided about the blockchain technology which forms the basis of cryptocurrencies. After that, the concept of cryptocurrencies has been broadly explained. In that regard, various aspects and features of cryptocurrencies have been discussed and the status of cryptocurrencies in Türkiye has been examined. After that, the theory that forms the research model of this study has been examined in detail. Lastly, the previous studies that focus on the cryptocurrency investment behaviors of individuals are analyzed.

### **2.1 BLOCKCHAIN TECHNOLOGY**

Blockchain technology can be defined as a decentralized system that functions as a public ledger for recording and sharing transactions among its members without the need for intermediaries. (Spohrer & Risius, 2017; Glaser, 2017; Linn & Koo, 2016). Blockchain technology can be visualized as a series of interconnected blocks, each containing a list of transaction records, similar to a traditional public ledger (Chuen, 2015). The blocks in a blockchain are linked together, with each block referring to the previous block, known as the parent block (Zheng et al., 2017). This creates a chain of transactions where all entries are interconnected and the very first block in the chain is called the genesis block (Business Insider, 2017). On the other hand, the data stored within blockchain is encrypted and repeatedly verified by miners, ensuring the integrity of the system without relying on third parties. Additionally, the inclusion of encrypted records of new data combined with previous encrypted input ensures data security and regular timestamping of blocks along with their availability to all members of the system further enhances transparency and reliability of the blockchain (Yermack, 2019; De Patie J, 2017). In addition, blockchain technology encompasses a range of exceptional features beyond the ones mentioned earlier. Notably, the consensus mechanism plays a crucial role, it requires participants within a decentralized network to reach an agreement regarding transaction validity and ordering. Moreover, the immutability characteristics of

blockchain prevent any unauthorized alteration of records within the ledger (Carson et al., 2018). As a result, this innovative combination of data in a successive and encrypted manner establishes a robust security framework which offers a technological innovation that can be used in many areas (Menon & Mady, 2021).

The origin of blockchain technology can be traced back to before the advent of cryptocurrencies. In 1982, David Chaum proposed one of the earliest blockchain-like protocols, (Sherman et al., 2019). This was followed by Haber and Stornetta's work in 1991, where they aimed to create a system to prevent document tampering by introducing a cryptographically protected blockchain system (Narayanan et al., 2016). In 1992, Bayer, Stornetta and Haber further enhanced the design of blockchain by incorporating Merkle trees, allowing multiple document certificates to be stored in a single block (Narayanan et al., 2016). However, it was in 2008 that Satoshi Nakamoto's white paper, titled "Bitcoin: A Peer-to-Peer Electronic Cash System," marked a significant milestone in the development of blockchain technology by combining it with the currencies (Nakamoto, 2008). Nakamoto's design introduced blockchain as a digital payment tool, enabling secure and anonymous transactions by eliminating the need for third-party confirmation. This new blockchain concept facilitated decentralized networks and shared public ledgers (Menon & Mady, 2021). Since then, blockchain-based products have emerged in various fields however cryptocurrencies, particularly Bitcoin, have become the most prominent example of blockchain technology. However, when the other application areas of blockchain technology examined; internet of things, healthcare, supply chain management, and government services come to the forefront (Al-Megren et al., 2018). Additionally, McKinsey's survey highlights the great potential for implementing blockchain technologies in finance, media, technology, and the public sectors as well (Carson et al., 2018). This demonstrates that, even though blockchain technology has become well known through cryptocurrencies, there is also an increasing interest and recognition of blockchain's versatility and applicability in diverse industries. However, in this study, the focus will be specifically on cryptocurrencies.

## 2.2 CRYPTOCURRENCIES

Crypto as the word root of cryptocurrency emphasizes the cryptographic proof characteristics of cryptocurrencies and undoubtedly, cryptocurrency has emerged as the most famous product that utilizes blockchain technology. Basically, cryptocurrencies represent a virtual currency that is used in a digital environment without a physical counterpart like fiat currencies. They enable peer-to-peer transactions without the need for intermediaries such as banks and they operate independently without any requirement from central authorities (Fang et al., 2022). So, cryptocurrencies exist solely in a digital form and provide the opportunity for individuals to engage in transactions without the involvement of intermediaries. In short, cryptocurrencies provide some unique advantages and features that regular currencies do not have.

Despite being highly popular today, cryptocurrencies made a slow entry into people's lives. In 2008 the first cryptocurrency "Bitcoin" has been introduced by Satoshi Nakamoto within his white paper of "Bitcoin: A Peer-to-Peer Electronic Cash System" (Nakamoto, 2008). Later in 2009, the first transaction with bitcoin is made by programmer Hal Finney (Peterson, 2014) and in 2011 other cryptocurrencies began to emerge thanks to open-source code of bitcoin (Espinoza, 2014). Also, in February 2011 Bitcoin had its first remarkable increase or arguably its first bubble by reaching 1.06 \$, before that value of Bitcoin was less than a cent. This situation considered to be very important for the development of Bitcoin (Morris, 2021). After that, the price of Bitcoin started to increase slowly and steadily over the years, until reaching thousands of dollars.

Cryptocurrencies gained significant popularity, particularly during the period known as the "cryptocurrency boom" in 2017. This surge in popularity can be attributed to several factors. Firstly, the increased media coverage and mainstream attention towards cryptocurrencies, including Bitcoin, attracted a broader audience (Crosby et al., 2016). Additionally, the potential for high returns on investment and the speculative nature of cryptocurrencies generated significant interest from investors (Cheah & Fry, 2015). Moreover, the growing acceptance and adoption of cryptocurrencies by businesses and individuals played a crucial role in their rising popularity. Companies such as Microsoft

and Expedia started accepting Bitcoin as a form of payment, providing legitimacy and practicality to digital currencies (Yli-Huumo et al., 2016).

### 2.2.1 Types of Cryptocurrencies

Although cryptocurrency technology is quite new, in a short time many types of cryptocurrencies have emerged for different purposes. Particularly, in the cryptocurrency industry there is a significant difference between coins and tokens. While cryptocurrencies represent the native coins of blockchain systems like Ethereum and Bitcoin, on the other hand, crypto tokens have been generated by using the existing blockchain systems, for instance, USD Coin uses blockchain system of Ethereum. Moreover, a blockchain system can have only one crypto coin however, they do not have a limitation for the number of crypto tokens to possess. Furthermore, since the term cryptocurrency represents the blockchain based digital money, in this study crypto coins and crypto tokens have been examined under the title of cryptocurrency.

Thousands of the cryptocurrencies that take place in cryptocurrency markets serve for different objectives for the users and investors. Hence, according to their design, application and other factors cryptocurrencies can be identified into 4 categories:

**Utility tokens** are generated as a tool for blockchain based projects or applications to provide some service and profit to its users in general. In this sense, Angelo & Salzer (2020) mentioned that, utility coins can provide rewards, voting or management rights to its users. For instance, Brave Browser rewards its consumers with Basic Attention Token (BAT) when they use the browser. Furthermore, Brave Browser allows its users to tip content creators with the BAT or users can exchange the BAT in cryptocurrency markets (Delisle, 2018)

**Payment tokens** are one of the most common type of cryptocurrencies and they are especially used for their payment functions to trade good and services digitally without any third parties (Angelo & Salzer, 2020). Bitcoin, Ethereum, Binance Coin etc. accepted as a payment token.

**Security tokens** enable its investors to claim certain assets like stocks, bonds or its derivatives. So basically, issuing company of the security tokens sell their shares as a type of cryptocurrency (Angelo & Salzer, 2020). Hence, investors of the security tokens will

receive a share of the profit or loss that the issuer company makes. Science Blockchain, Sia Funds and Blockchain Capital are the prominent security tokens.

**Stable Coins** are designed to have a certain value for all the time. By doing so, stable coins peg their value against a commodity or a fiat money (Grobys et al., 2021). Thanks to their stabilized value, users of cryptocurrencies especially prefer them to exchange certain amount of money or cryptocurrency. Tether Coin and USD Coin's value is equal to 1 United States Dollar (USD) and they have a huge market capitalization in the cryptocurrency markets.

### 2.2.2 Prominent Cryptocurrencies

According to Statista, by the year 2023 there are more than 8,000 cryptocurrencies (Figure 2.1) in the world and since the year 2013 amount of the cryptocurrency is increased until February 2023, however, it started to fluctuate after that.

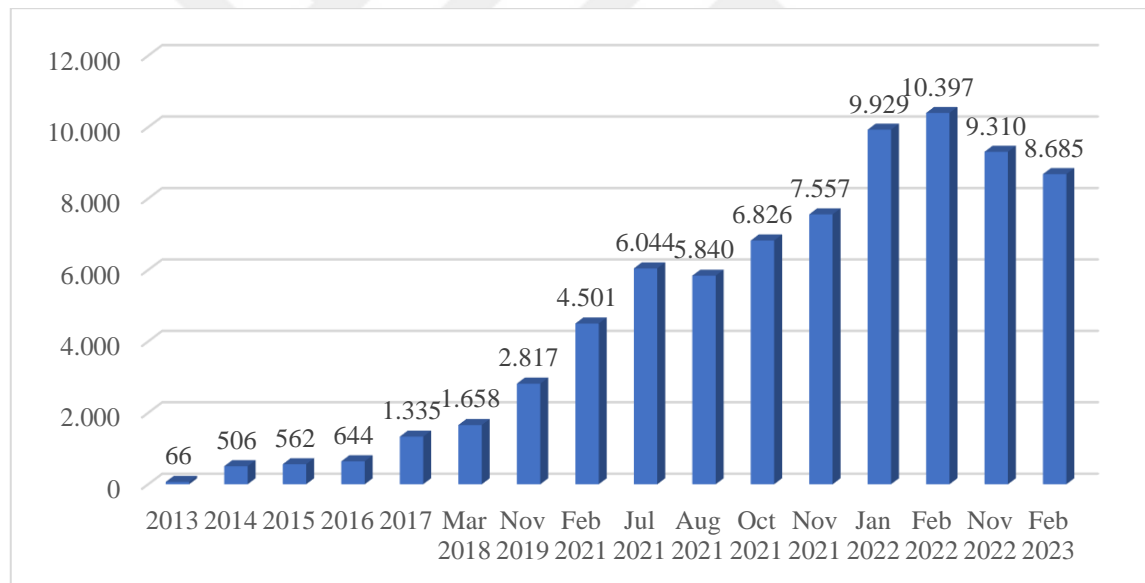


Figure 2.1 Number of Cryptocurrencies Worldwide from 2013 to February 2023

(Source: <https://www.statista.com/statistics/863917/number-crypto-coins-tokens>)

As shown in Table 2.2 total market capitalization of cryptocurrencies increased consistently with several bubbles and had reached its all-time peak level in November 2021 by reaching 2.9 trillion dollars levels. However, shortly after that in the second quarter of 2022 the total cryptocurrency market had a great downfall and suddenly decreased to 876-billion-dollar levels. After that, until June 2022 overall cryptocurrency

capitalization had a downward tendency, since then, it has a stable attitude as of July 2023. (Statista 2023)

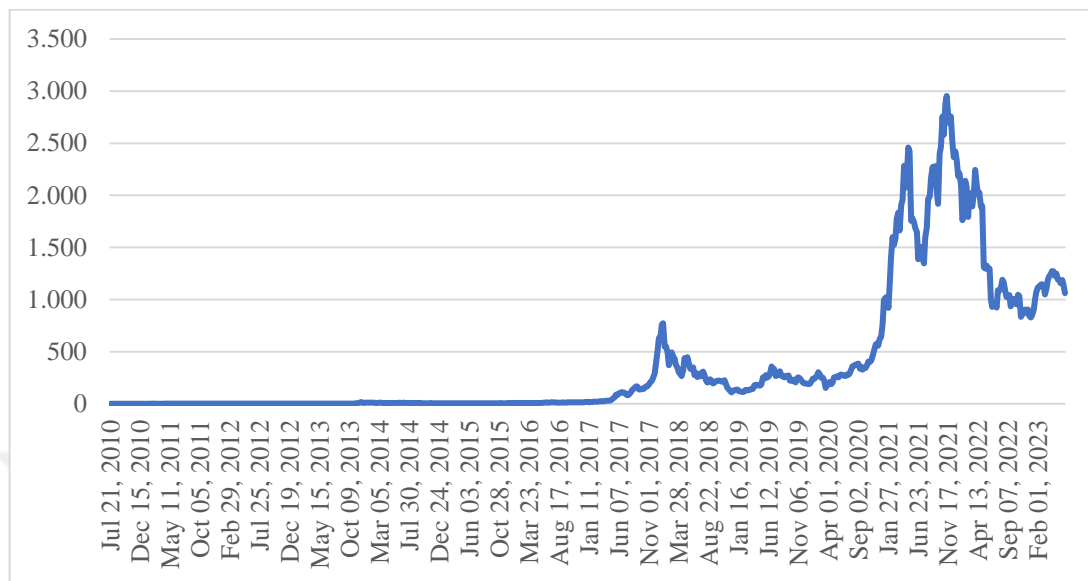


Figure 2.2 Overall cryptocurrency market capitalization per week from July 2010 to June 2023 (in US Dollars)

(Source: <https://www.statista.com/statistics/730876/cryptocurrency-maket-value/>)

When the total cryptocurrency market has a great decline and pursue a stagnant performance scholars call this situation as a “crypto winter”. (Chohan & Usman, 2022). When this great crypto winter that occurred between the year 2021 and 2022 is examined more closely, scholars have suggested that, global economic slowdown after covid-19 pandemics, fed’s interest rate increase, Russia-Ukraine conflict, collapse of a highly popular coin of Terra Luna and regulatory statements of the governments towards cryptocurrencies could be the main reasons for it. (Chohan & Usman, 2022; Kharpal, 2022). Currently, as of July 2023 global market capitalization for cryptocurrencies is around 1,18 trillion US dollars (Coinmarketcap.com, 2023).

Bitcoin, the first and the most well-known cryptocurrency dominated the cryptocurrency market for a long time. Even, until 2010, in order to invest in other cryptocurrencies investors had to buy Bitcoin first, so while cryptocurrencies are getting popular Bitcoin has been extremely dominant over the other coins, therefore, cryptocurrencies other than the Bitcoin started to be called alternative coins or Altcoins (Kulal, 2021). Despite the popularity and prevalence of Bitcoin it comes with some criticism as well, hence Altcoins in general aim to meet inadequacies of Bitcoin and some

of them have become successful and adopted by many investors. According Coinmarketcap.com (2023), as of June 2023 market capitalization of Bitcoin is around 589 billion USD while market capitalization of Altcoins are approximately 591 billion USD. Besides, the top 4 alternative coins after Bitcoin is respectively, Ethereum, Tether, USD Coin and Binance Coin. (coinmarketcap.com, 2023)

**Bitcoin** is the first decentralized and one of the most prominent cryptocurrency of the world as it already mentioned and abbreviation of it is BTC. In his famous white paper Satoshi Nakamoto has explained some unique solutions to overcome problems of former digital currencies faced (Nakamoto, 2008). The smallest unit of a Bitcoin is called Satoshi and 100 million of them generate a single Bitcoin, which means that no matter of the price of a cryptocurrency investors, they can buy any piece of a Bitcoin even with the very small amount of money.

The price of Bitcoin has been quite volatile all the time, however its price has performed better than any stocks, commodities and bonds by increasing nine million percent since its foundation from 2008 to until 2020. More specifically, when Bitcoin first released it worthed less than a cent, however in February 2011 price of the Bitcoin has reached to 1 US dollar first time ever and the attention of the new investors started to rise towards Bitcoin so, the price of it continued to increase. In 2013, the price of Bitcoin has exceeded 1,000 USD level first time ever, after that, price of the Bitcoin kept rising. Even though some significant declines, price of the Bitcoin has reached over 65,000 USD in November 2021 (Statista 2023). However, during the crypto winter, in the second quarter of 2022 the price of Bitcoin also had a sharp decline and as of July 2023 a Bitcoin is around 30,000 US dollars levels. (Figure 2.3)

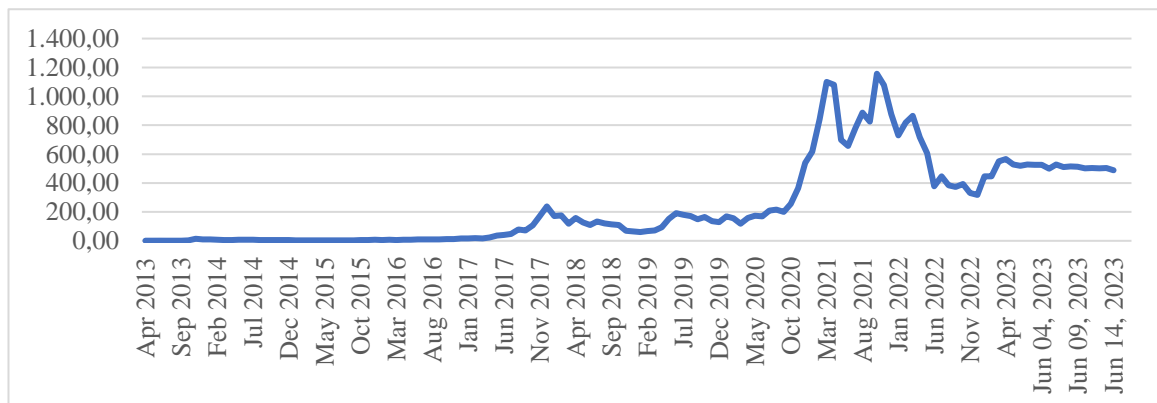


Figure 2.3 Bitcoin (BTC) price per day from October 2013 to June 14, 2023 (in U.S. dollars)

(Source: <https://www.statista.com/statistics/377382/bitcoin-market-capitalization>)

Due to the high price and popularity of Bitcoin, production of it via mining process has become considerably common as well. However, the energy that is used for Bitcoin mining process has reached to the very high levels that has drawn criticism from governments and individuals (Coindesk, 2022). According to Forbes (2022) estimated electricity consumption of Bitcoin is 127 terawatt per hours in annualized rate which is higher than the annual electricity usage of Norway.

**Ethereum/Ether** is another unique blockchain platform that allow it users to globally receive or send its native cryptocurrency Ether without any intermediary (Coindesk, 2022). Ethereum and Ether has been introduced in the white paper of Russian Canadian developer Vitalik Buterin in 2014 and abbreviation of it is ETH. (Ethereum.org, 2022) Ether had its all-time highest price around 4,890 US dollars in November 2021 but, recently due to crypto winter in the second quarter of 2022 Ether had a massive price fall and as of June 2023 an Ether is around 1,871 US dollars level. (Statista, 2023)

Unlike other cryptocurrencies, the unique blockchain ecosystem of Ethereum comes with specific features and potential. In that regard, Vitalik Buterin tried to overcome some limitations of Bitcoin, by doing so, underlying Blockchain technology of Ethereum has been designed as Turing-complete software which means that all kind of computations such as loops are applicable, also state of transactions and several other improvements has been supported in Ethereum blockchain system (Vujicic, Jagodic & Randic, 2018). Besides, Ethereum is designed to extend the usability of cryptocurrencies because in the Ethereum's blockchain structure developers are allowed to create their own applications. Since these applications are Ethereum Based they are called as "decentralized applications" and they can even self-execute themselves by using smart contract feature of Ethereum blockchain system (Coindesk, 2022).

Furthermore, the smart contracts are one of the most promising innovation of the Ethereum, simply, they are code-based applications which are placed in the Ethereum's Blockchain system and they are programmed to implement certain functions if the certain requirements are met. Those requirements can be a cryptocurrency transaction if specific conditions are fulfilled by both sides or a loan can automatically take place if the required collateral is paid. (Coindesk, 2022). In addition, thanks to support of smart contracts another technological innovation "Non-Fungible Tokens" (NFTs) has been created. NFTs



digitally represents an asset and they are generated within the smart contracts (Chandra, 2022). Especially, in the last years NFTs has become a popular investment tool and consumers are able to buy, sell and trade NFTs through cryptocurrencies. Songs, images, video clips, photos etc. can become NFTs to be exchanged and in 2021, NFTs contributed more than 40 billion USD to global economy (Versprille, 2022).



Figure 2.4 Ethereum (ETH) Price per Day from August 2015 to June 21, 2023 (in U.S. Dollars)

(Source: <https://www.statista.com/statistics/806453/price-of-ethereum>)

Ether used to be worth only 0.311 USD when it's released in 2014 and has reached its peak price in November 2021 with over 4,800 USD (see figure 2.4). However, the price of Ether also started to decrease like rest of the cryptocurrencies in the March 2022 (Statista, 2023). As of July 2023, an Ether worths around 1,860 USD and it's the second most popular cryptocurrency after Bitcoin in terms of market capitalization (coinmarketcap.com, 2023). Lastly, by the June of 2023 the energy being spend for Ethereum mining is 112 Terawatt-hour/Year which equals to energy that Netherland consumes a year (ethereum.org, 2023), yet Ethereum plans to decrease that energy spend 99.95% by changing their consensus mechanism from proof-of-work to proof-of-stake.

**Tether Coin** is one of the most popular and first example of a stable coin, in this respect, Tether coin targets to pegs its value to a 1\$ (Coindesk, 2022). Has been founded in 2014 by a team of Bitcoin enthusiasts to use fiat currencies for digital purposes. (Tether.to, 2022). Its abbreviation is USDT and as of July 2023 an Ether worths 1 USD as its

expected (Coinmarketcap.com, 2023). According to Coinmarketcap.com (2022) Tether has 83 billion USD worth market capitalization that makes it third most popular cryptocurrency and the most popular stable coin. Compared to today, the price of Tether was unstable in its early years however, since February 2021 its considerably stable (see figure 2.5).

Many cryptocurrencies even the most popular ones like Ether and Bitcoin often perform highly volatile price changes in short periods of time. Yet, Tether Coin intends to stabilize these price fluctuations by trying to fix its value to 1 USD. So that, compared to the other type of coins Tether's USDT is accepted as a safer cryptocurrency to exchange, deposit and withdraw between fiat currencies. Besides, fixing the price of a cryptocurrency is not that easy since their prices are determined based on supply and demand. USDT had its all-time lowest value as 0.57 USD in March 2015 and the all-time highest value as 1.32 \$ in July 2018, this price fluctuations occur when demand for the cryptocurrencies change, especially when the cryptocurrency market is fluctuating demand for the USDT tend to be low, because other cryptocurrencies offer higher profit potential in such times (Coindesk, 2022). According to the Figure 2.5 (Statista, 2022) after 2020 Tether's USDT coin has succeed to become more stable against USD.

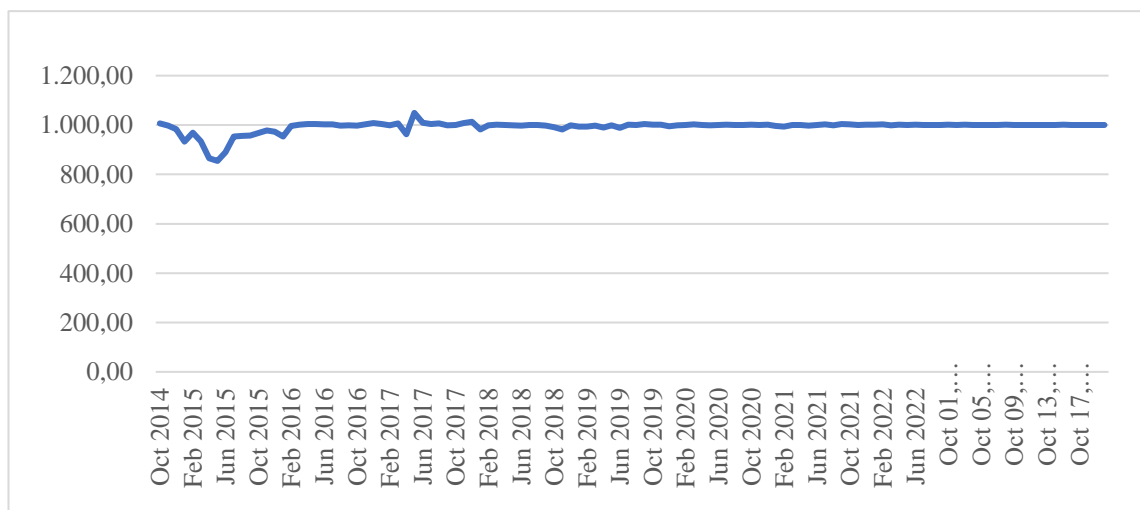


Figure 2.5 Price of 1,000 Tether (USDT) per day from October 2014 to October 20, 2022(in US \$)  
(Source: <https://www-statista-com.offcampus.ozyegin.edu.tr/statistics/1269281/tether-price-index/>)

**Binance Coin** has been founded in July 2017 by Chanpeng Zhao who is also the founder of the biggest cryptocurrency exchange platform of Binance (Coindesk, 2022). The abbreviation of Binance Coin is BNB, and it is the fourth most popular cryptocurrency.

The all-time highest price of the BNB was 686.31 USD in May 2021, and the all-time lowest price was 0.019 USD during its establishment period. (Coindesk, 2022). Nowadays BNB coin worths around 245 USD and it has a market capitalization of approximately 38 billion USD (Coinmarketcap.com, 2023). Initially when its first released, BNB was using blockchain system of Ethereum, however, after that, Binance has created its own blockchain ecosystem that is called Binance Smart Chain. In this ecosystem Binance offers many other decentralized applications as well, for instance; “Binance Trust Wallet” is a secure mobile wallet that allows customers to reach wide range of cryptocurrencies and other blockchain applications (Binance, 2022). Hence, thanks to its popular cryptocurrency exchange and other innovative projects Binance’s BNB has a high popularity among the investors.

**USD Coin** is another stable coin that is also the second most popular after Tether’s USDT coin and the fifth most popular cryptocurrency in general. As of July 2023, USD Coin has approximately 27 billion US Dollar market capitalization. (Coinmarketcap.com, 2023). Its abbreviation is USDC and has been launched at the end of 2018 by Centre Consortium company (Coindesk, 2022). However, the price of the USDC tends to fluctuate a little bit like all the other stable coins. All-time highest price of USDC was 1.19 USD in May 2019 and the all-time lowest price was 0.89 USD in May 2021 (Coindesk, 2022). Also, there is no finite supply of the USD Coin and new tokens are generated depending on the demand.

### **2.2.3 Cryptocurrency Mining**

There are three major alternatives of acquiring cryptocurrency. Firstly, they can be exchanged in cryptocurrency markets second, cryptocurrencies can be received in return for a good or a service and lastly, they can be virtually mined. Cryptocurrency mining refers to the process of validating and adding new transactions to a blockchain structure and its is an essential part of the decentralized cryptocurrencies, such as Bitcoin, Ether, BNB. At the same time, mining process plays a crucial role in maintaining the security and integrity of the blockchain (Nakamoto, 2008; Antonopoulos, 2014).

In cryptocurrency mining, specialized computers or they are also referred to as miners, compete with each other to solve complex mathematical problems. These problems require significant computational power and hardware system to be solved and

when a miner successfully solves a problem, it means that miner added a new block of transactions to the blockchain (Nakamoto, 2008). This process involves verifying the authenticity of transactions and ensuring that the transactions are following the consensus rules of the certain network. Besides, the miner who solves the problem and adds a new block to the blockchain system is rewarded with a certain amount of newly mined cryptocurrency. So, this process serves as an incentive for miners to contribute their computational resources to the network (Nakamoto, 2008).

Cryptocurrency mining process often relies on some specific consensus mechanism. In this sense, there are different types of consensus mechanisms and Proof of Work (PoW) is a popular one, in the PoW miners compete with each other to solve computational puzzles. The difficulty of these puzzles is determined to maintain a consistent rate of block production. (Nakamoto, 2008). Also, Proof of Stake (PoS) and Delegated Proof of Stake (DPoS) are other common consensus mechanisms and they are developed as alternative approaches, in these mechanisms mining capacity is determined based on the current cryptocurrency amount instead of computational resources (Buterin, 2014; Larimer, 2018).

Due to lack of prevalence, in the early times of cryptocurrencies, the required equipment to mine cryptocurrency was only computer hardware, electricity and internet connection (Krause & Tolaymat, 2018). But nowadays a profitable mining process requires excessively expensive hardware components and so high electricity consumption. (Greenberg & Bugden, 2019). Consequently, even though cryptocurrency mining process generates financial value it has questionable energy and investment costs as well.

#### **2.2.4 Monetary Characteristics of Cryptocurrencies**

Even though cryptocurrencies are widely being used as a financial instruments, their acceptance as an alternative to fiat currencies is a controversial issue. In that regard, some scholar accepts the cryptocurrencies as a type of commodity (Paule-Vianez et al., 2020; Bouri et al., 2018), some of them categorized them as a currency that can be an alternative to fiat money (Carrick, 2016; Luther, 2018) and there are also some studies that suggest cryptocurrencies as only speculation tools (Corbet et al., 2018; Bouoiyour

& Selmi, 2015). Hence, it can be concluded that determining a certain role for cryptocurrencies in financial markets is a challenging issue.

There are three main functions of money which are unit of account, medium of exchange and store of value. (Laura & Alfreda, 2021). Since, cryptocurrencies allow consumers to exchange goods and services, they can be accepted as a medium of exchange, however unit of account characteristics point out the money's role to emphasizing certain price for good and services, but cryptocurrencies are not able to meet this function of money since their volatility is quite high (Cheah & Fry, 2015). For instance, a product with a value of 5\$, can be worth different every second when its Bitcoin denominated because, value of Bitcoin can change every second against USD, Euro etc. Lastly, store of value expresses the purchasing power transfer of money today to the future. If a commodity is able to store its value over time, the owner of that commodity can sustain her/his wealth over time (Ammous, 2018). Yet high volatility of cryptocurrencies can restrict the store value.

Despite the differences approaches cryptocurrencies also possess a supply control mechanism like central banks' management of fiat money supply. The supply of cryptocurrencies is encoded within their respective blockchain systems. For example, Bitcoin's supply is designed to decrease gradually over time, with the total supply expected to be exhausted around the year 2140 (Fang et al., 2022). This predetermined supply schedule attaches an element of scarcity and long-term sustainability to cryptocurrencies, which differs them from traditional currencies. (Fang et al., 2022)

Even though usage of cryptocurrency as a substitute to fiat money includes some problems, cryptocurrencies are primarily used for speculations like an investment tool (Hong, Baur, & Lee, 2018). Investors prefer to buy cryptocurrencies today to sell them in future with higher prices. But also, this speculation of cryptocurrencies leads to volatilization in their fiat money prices which is against to traditional function of money (Yermack, 2015; Cheah & Fry, 2015 )

### **2.2.5 Advantages and Disadvantages of Cryptocurrencies from the Point of Investors**

Despite the cryptocurrencies are subject to some criticism and tribute, they have become a digital asset that interests many institutions and people. Undoubtedly, like every

new technology, cryptocurrencies possess certain cons and pros that can be important from the aspects of investors. (Conti, Lal & Ruj, 2018)

### **Advantages:**

**Peer-to-peer transactions and absence of taxes:** Online trade and financial transactions require intermediaries (e.g., banks) to guarantee the transactions between buyers and sellers. Especially the transnational money transfers costs quite high to consumers. However, intermediaries do not involve in the transactions of cryptocurrencies, because they are based on a peer-to-peer networks (Nakamoto, 2008). This situation lowers the transaction costs when cryptocurrencies are exchanged between the users and this might be appealing to the consumers who do not trust the intermediaries. Also, thanks to its decentralized structure and pseudonymity, blockchains are not tax applicable (Conti, Lal & Ruj, 2018). Therefore, cryptocurrency investors do not need to pay taxes while traditional financial investment instruments have tax obligations to their owners.

**Protection from inflation:** After the covid-19 pandemics, inflation have increased steeply all around the world and majority of the currencies have lost their values including US dollar and Euro (Worldbank, 2022). However, cryptocurrencies are not fiat currency which means, they do not respond to the reasons of inflation (Reed, 2022). On the other hand, source code of cryptocurrencies determines the amount of coin that will be released and the price of many cryptocurrencies is determined according to supply and demand (Fang, et al., 2022). So that, cryptocurrencies can be a safe asset for the investors who protect their money against inflations.

**Privacy and Security:** One of the prominent feature of cryptocurrencies is user privacy. Cryptocurrency transactions are designed to take place without a need for the real identity of users. Yet, if the parties of a transaction do not share their wallet addresses, it is very difficult to reach their users' identity (Conti, Lal, & Ruj, 2018). This makes cryptocurrencies quite different than the other traditional payment systems. In addition, transaction records are available to all participants in the network and they are stored in the digital ledger. Therefore, if a change is requested in a transaction, this situation can be noticed immediately by all network participants (Stephen & Alex, 2018). Hence, the privacy and transaction security that cryptocurrencies provide increases the reliability of the cryptocurrencies from the aspect of investors.

**Transparency:** Transactions made on the cryptocurrency network recorded on the block chain system and the blockchain technology makes the entire cryptocurrency platform transparent as well as open to the public so, everyone can follow the transaction chain and it can be seen between which addresses a transaction takes place (Ciaian et al., 2016). However, although all transactions are open to the public, personal information is hidden. This means that the wallet addresses are visible, but personal details are not (Stegaroui, 2018). So that, the transaction transparency of cryptocurrency can increase the trust and use of the cryptocurrencies among the investors.

**Decentralization:** Decentralization features of the blockchain technology gives unique characteristics to cryptocurrencies. It makes the database open source and shares the data with others without any central executive (Shen, 2021). Besides, decentralization theoretically makes cryptocurrencies immune to interference of any type of entity. (Rose C. 2015) So that, thanks to decentralization consumer do no need to depend on centralistic third parties to apply transactions and pay extra fees. In the financial crisis of 2009 consumers' trust toward banks decreased a lot however, decentralized structure of the cryptocurrencies can be in favor of the investors who does not trust the banks or any other constitutions (Shen, 2021).

**24 hours market:** Markets of cryptocurrencies are available 7 days a week 24 hours a day which means that investors of cryptocurrencies can make exchanges anytime (Fang et al., 2022). On the other hand, selling and buying commodities and stocks are only available during business hours and they take place in a single location or market. In contrary, cryptocurrency markets allow their investors to make decision and trade anytime anywhere.

#### **Disadvantages:**

**High energy consumption:** Mining process of cryptocurrencies consume too much energy (Conti, Lal & Ruj, 2018). Also, compared to the other conventional financial transaction systems, cryptocurrency transactions consume more energy, for example, a bitcoin transaction process uses approximately 5,000 times more energy than a using a conventional credit card (Doming, 2017). Which means that in the future cryptocurrencies may require innovative solutions or new technologies to reduce the consumed energy to ensure a more sustainable future, since the world has been facing an energy crisis already. In addition, because of the high energy consumption and increasing

network loads the time duration required for cryptocurrency transactions also increases (Conti, Lal, & Ruj, 2018). Thus, for the environmentally conscious investors and for the better future cryptocurrencies contains some problems.

**Price Volatility:** One of the most important problems of cryptocurrency is high volatility. Volatility is a measure of how much the price of an asset has changed over time. Also, volatility refers to the amount of uncertainty and risk associated with the size of changes in the value of an asset. Especially, high price volatility means that the price of an asset can change in both directions within a short period of time. While low price volatility emphasizes that the value of an asset does not fluctuate significantly, but its value still can change at a constant rate over a certain period. So, due to its speculative nature, cryptocurrency investors are exposed to high risks, as it can be seen in Figure 2.6 even the most popular cryptocurrency Bitcoin holds high yearly and daily volatility rates (Statista, 2023). Nonetheless, this high volatility environment can cause undesired results among the investors, such as panic sell or buy and it can even lead to high losses.

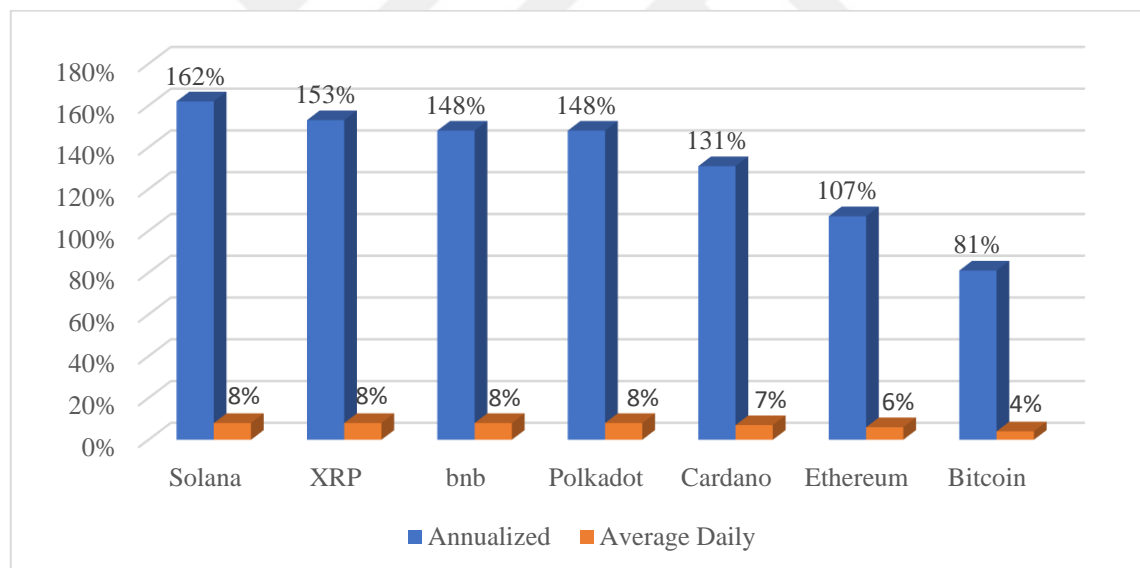


Figure 2.6 The Varying Volatility of Cryptocurrencies in 2021

(Source: <https://www.statista.com/chart/27577/cryptocurrency-volatility-dmo/>)

Besides, Fabio Panetta (2022) suggest that one of the main tasks of national central banks is to ensure price and financial stability. For example, in case of a sharp exchange rate fluctuation in the Eurozone, the European Central Bank (ECB) would try to maintain the exchange rate balances by intervening in various monetary policy tools. On the other side, because of the decentralized nature of cryptocurrencies, they are not under the



control of any person or institution, so their price stability is not regulated by any entity. The price of cryptocurrencies is being determined through to the supply and demand that in the cryptocurrency markets and according to their popularity among the investors (Kristoufek, 2013; Ciaian et al., 2016). So, obviously, it is not a surprise that cryptocurrencies have a high price volatility.

**Criminal activity:** Thanks to pseudonymity, anonymity and decentralization that has been provided by cryptocurrencies, it is difficult for the governments to find cryptocurrency users by observing their data. Thereby, cryptocurrencies have become an ideal payment tool that accepted for illegal commodities and trades such as illegal drugs, weapons, fake documents, money laundering etc. (Kethineni & Cao, 2019). By doing so, cryptocurrency users even build a marketplaces for illegal activities called “darknet” where consumers and suppliers of illegal products meet without the risk of being recognized by authorities (Kethineni & Cao, 2019).

**Regulations:** Many governments around the world, judge the nature and characteristics of cryptocurrencies because of the possible risks that they possess (Fang et al., 2022). Thus, while some countries allow cryptocurrency usage some of them do not accept them. In the figure 2.7 above, according to the Statista (2021), countries and regions where cryptocurrencies are banned or regulated can be seen.

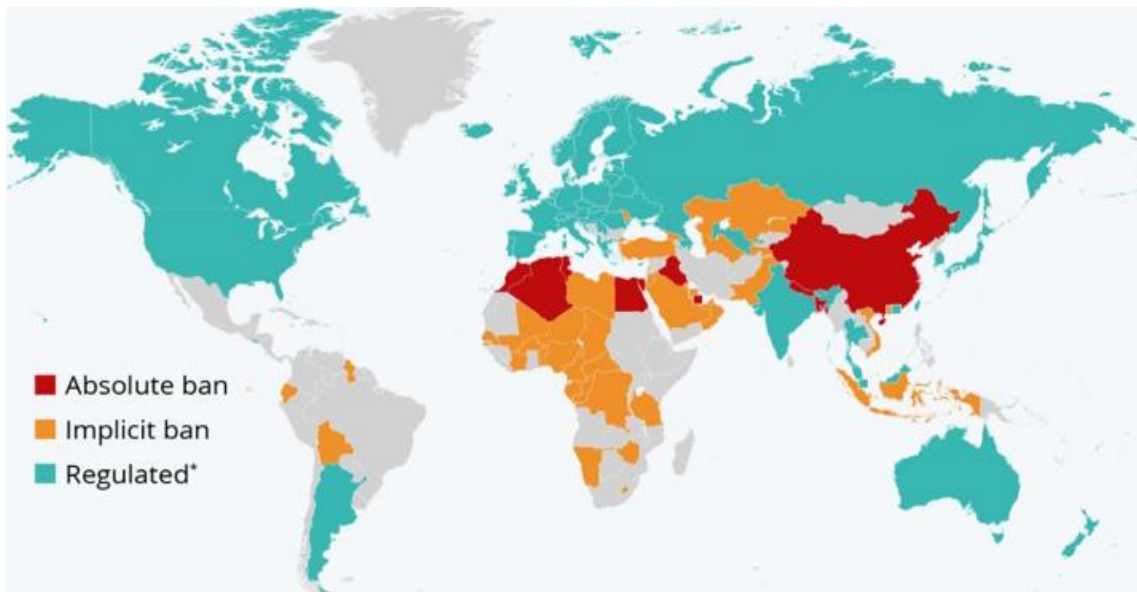


Figure 2.7 Countries/regional economies where cryptocurrencies are regulated.

(Source: <https://www-statista-com.offcampus.ozyegin.edu.tr/chart/27069/cryptocurrency-regulation-world-map/>)






Thus, it is obvious that cryptocurrencies are not accepted everywhere around the world and it is also not guaranteed that, whether the countries that accept the cryptocurrencies will change their decision in the future. So that, investors can even lose their access to cryptocurrencies if their governments decide to ban use of the cryptocurrencies.

**Data Lose:** Since cryptocurrencies are decentralized and do not possess any intermediaries, in case of a private key loss cryptocurrency owners cannot reclaim their information or accounts. So, all the cryptocurrency assets within the users' wallet would be lost forever and the all the crypto assets inside the wallet ineffectively stay there. If the investors of cryptocurrencies crash their hardware or lose their passwords a high amount of cryptocurrencies may get lost irreversibly.

#### **2.2.6 Cryptocurrency Exchanges**

A cryptocurrency exchange is a platform that allows investors to trade and exchange cryptocurrencies in return of fiat money or cryptocurrencies (Fang et al., 2022). There are two types of crypto exchanges which are decentralized and centralized however, majority of the cryptocurrencies are being traded in centralized exchanges, but popularity of decentralized exchanges also increasing (Aspris et al., 2021). Besides, Cryptocurrency exchanges either work as a matching platform which simply charges fees from the transactions or as market makers that use bid-ask spread for its own services. Also, majority of the cryptocurrency exchanges are regulated by other fiat money exchanges and institutions such as Chicago Mercantile Exchange, Chicago Board Exchange and Bakkt (Fang et al., 2022). Here below in Table 2.1 top 5 cryptocurrency exchanges presented as of 10.07.2023 according to coinmarketcap.com's ranking (2022). By doing so, factors of volume, website traffic, liquidity, trading volumes etc. has been considered by the coinmarketcap.com (2023).

Table 2.1 Top Cryptocurrency exchange markets

#	Name	Volume(24h)	Weekly Visit	# Coins	# Fiat Currency
1	 <b>Binance</b>	\$5,902,440,898	11,130,597	388	EUR, GBP, TRY +8 More
2	 <b>Coinbase Exchange</b>	\$780,861,704	23,579	244	USD, EUR, GBP
3	 <b>Kraken</b>	\$384,578,696	908,32	228	USD, EUR, GBP + 4 More
4	 <b>KuCoin</b>	\$368,652,986	1,714,840	870	USD, EUR, GBP + 45 More
5	 <b>Bybit</b>	\$581,181,670	3,000,104	407	USD, EUR, GBP + 3 More

(Source: <https://coinmarketcap.com/rankings/exchanges/>)

However, the ranking of the exchanges tends to change often still, Binance is the by far the most popular cryptocurrency exchange platform with an extremely high trade volume compared to the others.

### 2.2.7 Cryptocurrency in Türkiye

In the last 10 years, Turkish Lira (TL) continuously depreciated against all reserve currencies. In the Figure 2.8 below, the value of Euro in last 10 years against Turkish Lira can be seen, especially after 2017 Turkish Lira started to lose value against the Euro dramatically (ECB 2022). According to Turkish Central Bank (2022), at the beginning of 2017, 1 TL worthed 3,721 Euro and 3,545 USD, however in the first day of July 2023, 1 TL equals to 28.64 Euro and 26.14 USD which means that Turkish lira depreciated against Euro and USD approximately %750 within 6 years.

Türkiye's fragile economy has been heavily affected by global and domestic instabilities of the last 5 years. Especially, by the start of 2020 due to Covid-19 pandemics a global recession has aroused and nowadays still every country struggles from high percentage of inflations. Nonetheless, according to Organization for Economic Co-operation and Development (OECD) (2022), Türkiye had one of the highest inflation rates after the pandemic crisis with 19.6% in 2021 and 71.98% in 2022. According to Euromonitor (2022) when compared with the inflation rates of other economies Figure 2.8 shows that Türkiye's inflation rate is considerably higher.

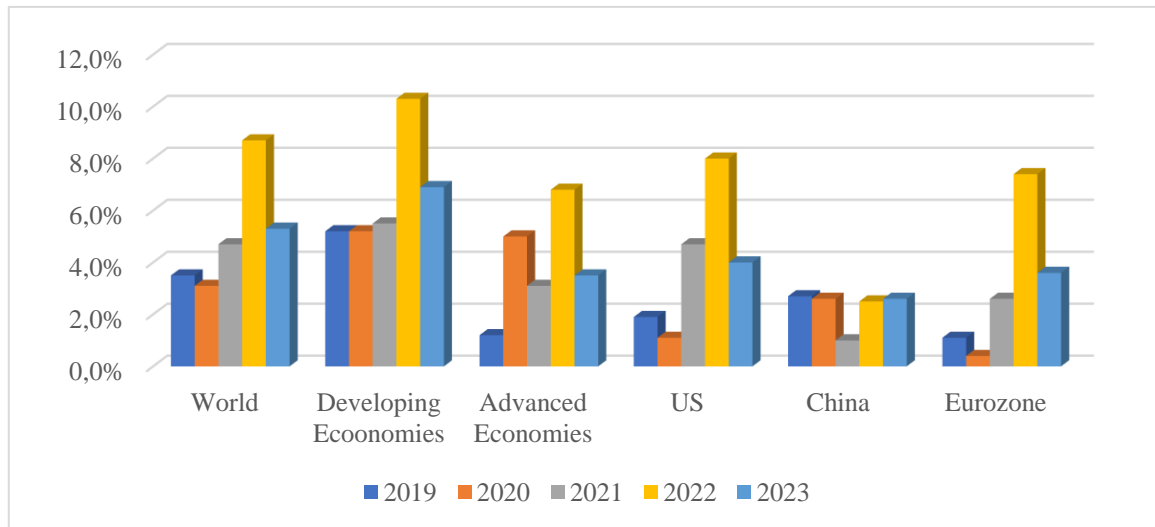


Figure 2.8 Global Inflation Baseline Forecast, 2019-2023

(Source: <https://www.euromonitor.com/article/global-inflation-tracker-q2-2022-energy-dependent-countries-under-pressure>)

Considering all these problems, the reliability of Turkish Lira indeed decreased globally and domestically especially in the last few years. Therefore, Turkish investors started to be interested in alternative investment tools to protect their assets. According to Eğilmez (2020) high inflation, negative real interest, depreciation of money can lead to loss of confidence in the local currency, in this case users of the local currency can switch to other currencies to use and save, this situation is called dollarization (IMF, 2023). However, while Turkish Lira loses its reliability cryptocurrencies have become another attractive investment tool for Turkish users (Bilen, 2022). According to the report of Statista (2022) awareness of Bitcoin or cryptocurrencies increased 8.5% to 63.3% among Turkish people between 2020 and 2021, which means that reputation of cryptocurrencies and Bitcoin has increased in Türkiye. Besides, Morning Consulting Company has published a cryptocurrency report in July 2022, which states that 54% of Türkiye's Population, trades cryptocurrency at least once a month. Figure 2.9 shows that Türkiye is the second most cryptocurrency trader country while Nigeria is the first with 56% also, USA has 16% and Germany has 10% of population who buy and sell cryptocurrency. So, undoubtedly, investment rate on cryptocurrencies is highly popular in Türkiye especially compared to the other countries.

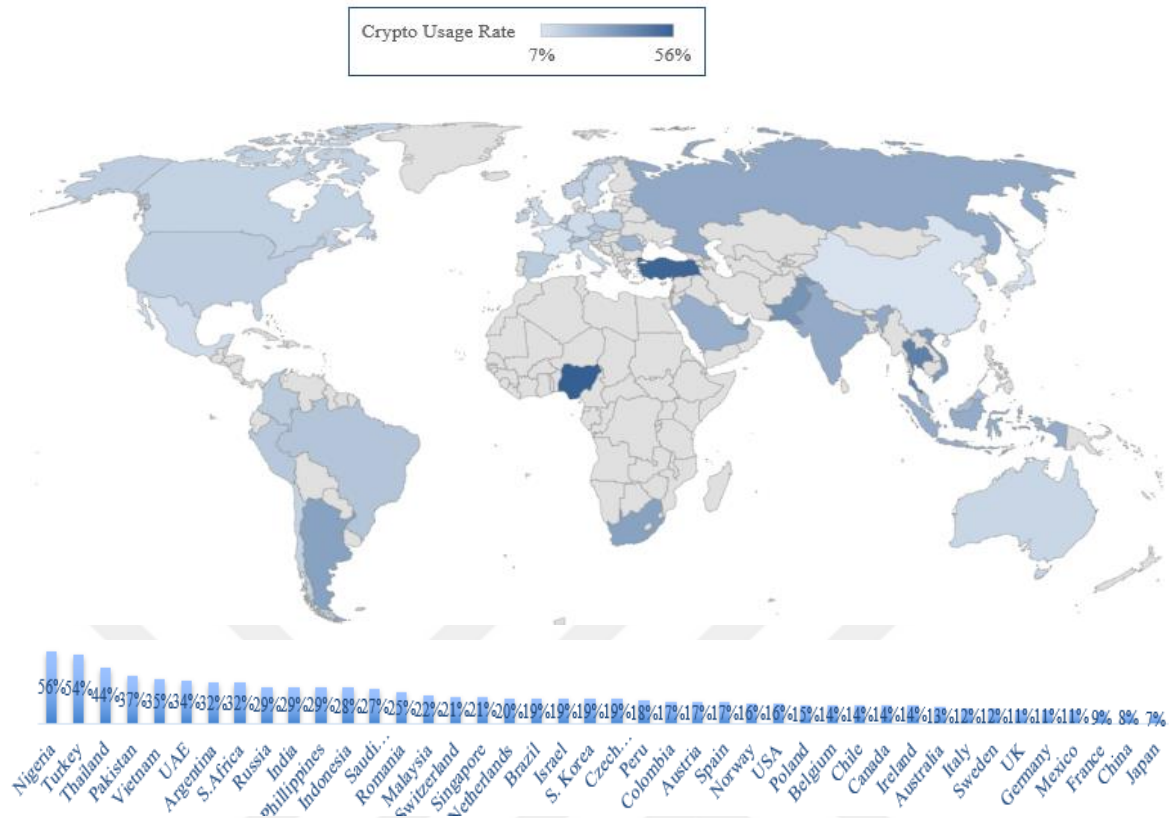


Figure 2.9 Share of Adults who Buy or Sell Cryptocurrency at least a Month.

(Source: Morning Consultancy)

While attention on cryptocurrencies is increasing governments started to impose some regulations as well, while some governments totally ban the usage of cryptocurrencies some of them accept them as a legal tender. From the perspective of Türkiye, the first formal statement has been made by the Banking Regulation and Supervision Agency in 2013 and it has been stated that cryptocurrencies cannot be accepted as legal tender. Also, there has not been any type of regulation or taxation mentioned in the statement so, a convenient environment has been generated for the cryptocurrency investors in Türkiye (Taskinsoy, 2019). After that, the official gazette of Türkiye stated that (2021) cryptocurrencies cannot be used as a payment tool in Türkiye because of the risks they possess. Which means that, consumers still can invest into cryptocurrencies and they can legally trade cryptocurrencies in exchange markets without paying any taxes, but they cannot exchange cryptocurrencies in return of goods and services. Hence, as investment and speculation tool there is not any restrictions for cryptocurrencies in Türkiye. Therefore, it can be concluded that, there has been a positive

attitude towards cryptocurrencies from the Turkish government's side, which indeed facilitates the investment process.

### **2.3 THEORY OF PLANNED BEHAVIOR**

The behaviors and attitudes of human beings towards modern technologies have always been an important research subjects of science, especially in the science of marketing. Because measurement and observation of consumer behaviors can provide significant information to marketers, academics and developers. In this context, the study of information systems includes the examination and adoption of the new technologies and innovations from the perspective of consumers, which can be used by the marketing researchers (Tatnall, A. 2009). So that, in order to determine behaviors and adoption of consumers towards new technologies, various theoretical models were developed thanks to information systems. In that regard, Venkatesh et al. (2003) mentioned eight distinct theoretical models that has been often used by the scholars to analyze consumer behaviors which are Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Motivational Model (MM), Diffusion Theory (IDT), and Social Cognitive Theory (SCT), Unified Theory of Acceptance and Use of Technology (UTAUT).

In particular, the theory of reasoned action has been commonly used as behavioral and intentional prediction model for a long time (Ajzen & Fishbein, 1980). TRA model emphasizes that, behaviors can be predicted by observing certain attitudes towards an objective and subjective norms can shape behavioral intentions, which specify the real behaviors of the human being (Ajzen & Fishbein, 1975). Also, according to Madden, Ellen and Ajzen, (1992) testing and development of the TRA model is based on the full volitional control of the behaviors which mean that people think that they can perform a behavior if they are willing to do it. However, after Ajzen worked with the TRA model couple of years, he stated that (2020) assumption of full volitional control leads strict limitations on TRA model by decreasing ability of model to overcome behaviors that are hard to execute. So that, theory of planned behavior has been constituted as an extension to theory of reasoned action model by Ajzen, (1991) because TRA model is lack of

antecedents that explain incomplete volitional control of the people. Hence, in the TPB, it is supposed that individuals can perform certain behaviors if they have sufficient opportunities or/and capabilities to do, so that, this factor can increase the generality of the model in a considerable extent, since many behaviors require some certain skills or factors to be performed (Staats, 2003). By this way, in the consumer behavior studies, theory of planned behavior has been exercised as one of the most prominent psychological aspect to discover different decision-making processes of consumers (Ajzen, 2002).

TPB model shows distinctive features than TRA model, for instance, TPB model has a new behavioral predecessor, in other words, TPB model is more comprehensive. While TRA includes variables of subjective norms, attitude and intention, TPB additionally includes perceived behavioral control (PBC) factor. In that regard, attitude refers to an individual's overall evaluation or positive/negative feeling toward performing a particular behavior and it is also stated as the most significant factor of behavior by the founder of the TPB model (Ajzen, 1991). Perceived behavioral control refers to an individual's perception of their ability to successfully engage in a specific behavior and subjective norms refers to an individual's perception of social norms and expectations regarding a specific behavior (Ajzen, 1991).

According to Hrubes, Daigle and Ajzen (2001), the strength of behavioral intention is enhanced when subjective norms and perceived behavioral control variables are favorable and when there is a greater sense of behavioral control. In essence, perceived behavioral control influences an individual's specific attitudes towards a particular behavior, followed by subjective norms which generate social pressures, and ultimately, perceived behavioral control indicates the level of difficulty or ease in taking a specific action (Ajzen, 2002). Thus, according to TPB model subjective norm, attitude and perceived behavioral control incorporate and generate behavioral intention that leads to actual behavior of an individual (Ajzen, 2002; Hamilton et al., 2020)

Also, founder of TPB model Ajzen (2005) stated that, multitude of a variable can be originated from demographic attributes that individuals hold. Individuals who live in different environments can have different ideas about a certain issue, due to differences in age, gender, income and even temporary moods can influence the intentions and actions

of individuals (Ajzen 2005). In other words, demographic characteristics, personality traits, life values etc. referred as background factors in the TPB and they are supposed to influence the relationship between the TPB constructs and behavioral intentions (Ajzen, 2020). So, while TPB primarily focuses on attitudes, subjective norms, perceived behavioral control and behavioral intention, background factors can contribute further context and can help explain between these variables. Therefore, in this study certain background factors are going to be considered alongside the TPB constructs to provide a more comprehensive understanding of the attitudes, subjective norms, perceived behavioral control, and behavioral intentions factors. Hence, including relevant background factors in this study can reveal the complexity and contextual nuances of Turkish consumers' intentions towards cryptocurrency investment within the TPB framework.

Other than the original variables of TPB, it is stated that additional variables can be added according to the specific criteria. (Ajzen, 2020). More specifically, additional variables must be behavior specific and it must be possible to measure the additional variable by its own. Also, additional variables must be different from the actual variables of TPB and they must have a causal relationship with the actual behavior and intention. Lastly, any additional variable must have theoretical background and must also be suitable to other social science topics (Ajzen, 2020).

Bauer A. (1960) put forward that consumer behavior can be accepted as an example of risk taking and Mitchell (1999) concluded that the concept of perceived risk has formed a unique consumer behavior research tradition. Put it differently, perceived risk has been commonly practiced since 1960s to analyze behaviors of consumers, (Lee, 2009) especially in the studies of consumer behavior and technology adoption (e.g., Salisbury et al., 2001; Kannungo & Jain, 2004; Featherman & Pavlou, 2003). Further, perceived risk variable has been used as an additional variable for many TPB and TAM based studies as well (e.g., Arias-Oliva et al., 2019; Ghulam, Luqman & Adeel, 2020; Lee, 2009). Therefore, it can be concluded that, perceived risk is a behavior specific antecedent and many behavior specific studies have tried to measure perceived risk (Wolff, Larsen & Øgaard, 2019). For instance, perceived risk has been asserted as a significant variable especially in the online shopping behavior studies (e.g. Tham et al.,



2019; Lăzăroiu, et al., 2020), since investment in cryptocurrencies also requires completely online process, variable of perceived risk can also be used in this study as an additional variable of TPB. However, in this study the survey questions only asked to the cryptocurrency users from Türkiye, therefore this study can reveal that, whether investors in Türkiye consider cryptocurrencies as risky or not, despite they invest in them. So, overall perceived risk that Turkish cryptocurrency users associated with the cryptocurrencies can be observed. Obviously, when the risks of cryptocurrencies are considered, especially the harsh price decline of them in the last years and their high price volatility, undoubtedly cryptocurrencies can be accepted as risky assets for many people. But the perceived risk perception of the cryptocurrency users can be different since they still use cryptocurrency in spite of all the possible risks. Thus, it can put forward that the perceived risk is an important factor for this study and it fills all the required criteria to take place in the TPB model.

## **2.4 LITERATURE REVIEW**

Since cryptocurrency is a comparatively recent technology, there has been a small amount of research has been conducted about it yet. Especially, the studies that investigate Turkish users' intentions and behaviors towards cryptocurrencies are extremely scarce, even though one fourth of Türkiye's population have already used it or owned cryptocurrencies in 2021 (Statista). However, when global studies are examined regarding the cryptocurrency usage of individuals, it can be seen that, some of the studies has focused on technology acceptance model (TAM). For instance, Arias-Oliva et al., (2019) introduced that variables of performance expectancy and facilitating conditions have the most significant explanatory power to measure cryptocurrency usage behavior of the investors while, effort expectancy has a great explanatory power but with a small influence. Mendoza-Tello et al. (2019) incorporated TAM with trust and perceived risk variables and suggested that perceived usefulness increases the investors' intention to use cryptocurrencies. Besides, Albayati et al. (2020) have combined TAM with the variables of trust, social influence, regulatory support and designed to study cryptocurrency acceptance for financial transactions, the study has found out that regulatory support and experience are the most powerful two powerful constructs, the study also concluded that, respondents with some experience have certain amount of trust against the blockchain

applications. Furthermore, Shahzad et al. (2018) has investigated Bitcoin adoption among the Chinese investors by using TAM and the study asserted that, perceived trustworthiness and awareness have great influence on the intention to use Bitcoin. Moreover, Namahoot and Rattanawiboonsom (2022) examined intention to adopt cryptocurrency exchanges in Thailand and the study proposed that perceived usefulness, perceived risk, perceived ease of use, innovativeness and attitude have a significant positive affect to adopt cryptocurrency exchange. Moreover, Gupta et al. (2020) studied intentions behind investment in cryptocurrencies by practicing UTAUT and TAM, in this way they have proposed that, social influence is the most influencing factor.

Some other studies especially focused on TPB model to find out behaviors and intentions of cryptocurrency users. In that regard, Kim (2020) combined TPB and certain money attitude variables which are power prestige, retention time, distrust, quality and anxiety. The study found out that perceived behavioral control and subjective norms have important influences on money attitudes that indirectly motivates consumers to use cryptocurrency in their daily lives. After that, in their studies Schaupp and Festa (2018) and Soomro et al. (2022) proposed that all variables of the TPB model have a great influence over the cryptocurrency usage intention of the individuals, while Mazambani and Mutambara (2019) found that only subjective norm variable of the TPB model is not statistically significant in terms of cryptocurrency investment intention. More, Pham et al. (2021) combined TPB model with socio-demographic factors and financial literacy, in order to investigate Italian cryptocurrency investors, in that regard, only TPB model found to be influential on cryptocurrency investment intention. Furthermore, Ghulam & Luqman (2020) examined people's intention towards Bitcoin and social media usage by using TPB model and perceived risk. The study has emphasized that, social media usage can strengthen the perceived behavioral control, attitude and subjective norms of the individuals toward Bitcoin. It has also been stated that, individuals with high-risk perceptions less likely to involve in Bitcoin even though, they have an intention to adapt it.

On the other hand, some other studies combined TPB with other models to study cryptocurrency usage intentions and behaviors of individuals. In that sense, Walton and Johnston (2018) analyzed Bitcoin adaptation in South Africa and it has been put forward

that, perceived benefit, attitude, subjective norms and perceived behavioral control directly affect the Bitcoin usage of the individuals. Likewise, Pilatin and Dilek (2023) conducted one of the few studies conducted in Türkiye by combining TRA and TPB models hence, they have proposed that attitude, subjective norms and perceived behavioral control factors are important to understand cryptocurrency investment intentions of Turkish individuals.

Consequently, when all these studies are examined, obviously TAM and TPB theories of information systems are usually used by scholars to study investors' behavioral intention and adoption towards cryptocurrencies. Table 2.2 demonstrates the mentioned studies in detail.

Table 2.2 Literature on factors that affect Cryptocurrency usage.

<b>Authors</b>	<b>Title</b>	<b>Theoretical Base</b>
Arias-Oliva et al. (2019)	Variables Influencing Cryptocurrency Use: A Technology Acceptance Model in Spain	TAM combined with financial literacy and perceived risk
Mendoza-Tello et al. (2019)	Disruptive innovation of cryptocurrencies in consumer acceptance and trust	TAM combined with trust and perceived risk
Albayati et al. (2020)	Accepting financial transactions using blockchain technology and cryptocurrency: a customer perspective approach	TAM combined with trust, regulatory support, social influence, design, and experience.
Shahzad et al. (2018)	An empirical investigation on the adoption of cryptocurrencies among the people of mainland China	TAM
Namahoot and Rattanawiboonsom (2022)	Integration of TAM Model of Consumers' Intention to Adopt Cryptocurrency Platform in Thailand: The Mediating Role of Attitude and Perceived Risk	TAM combined with Attitude and Perceived Risk
Gupta et al. (2020)	Prioritizing intentions behind investment in cryptocurrency: a fuzzy analytical framework	UTAUT & TAM
Ghulam, Luqman & Adeel (2020)	Social media usage and individuals' intentions toward adopting Bitcoin: The role of the theory of planned behavior and perceived risk.	TPB & Perceived Risk
Walton and Johnston (2018)	Exploring perceptions of bitcoin adoption: The South African virtual community perspective	TAM & TPB

Table 2.2 Continued

Authors	Title	Theoretical Base
Kim (2020)	A psychological approach to Bitcoin usage behavior in the era of COVID-19: Focusing on the role of attitudes toward money	TPB combined with money attitudes
Mazambani, L., & Mutambara, E. (2019).	Predicting FinTech innovation adoption in South Africa: the case of cryptocurrency	TPB
Soomro, B.A. et al., (2022)	Intention to adopt cryptocurrency: a robust contribution of trust and the theory of planned behavior	TPB
Pilatin, A. & Dilek Ö., 2023	Investor intention, investor behavior and crypto assets in the framework of decomposed theory of planned behavior	TRA & TPB
Schaupp L. & Festa M. 2018	Cryptocurrency adoption and the road to regulation	TPB
Pham T., et al., (2021)	Examining intention to invest in cryptocurrencies: An extended application of the theory of planned behavior on Italian independent investors.	TPB combined with soci-demographic factors and financial literacy.

Despite TPB model and TAM address to similar purposes, their impact is also often discussed by the scientists. In this context, as a developer of both model, Ajzen (2020) explained the TAM as a content-specific model that is applied primarily to the acceptance of technologies, while the scope of TPB is much more general. Also, the TPB model can be constructed for any content and its suitable for all types of behavioral studies that can be used by behavioral and social scientists. Nonetheless, Mathieson (1991) and Taylor & Todd (1995) argued that TPB model serves better findings for development compared to the TAM model, but Ndubisi (2006) and Ma & Yuen (2005) suggested that prediction capabilities of the TAM model are little bit higher than the TPB. Also, combination of them is a controversial issue, in this respect, Hu and Yayla (2007) determined that results of individual models are more persuasive then combined models. Cheng (2019) argued that, when both models are combined explanatory power increases in a quite few amount besides, TPB model contributes stronger definition of behaviors and intentions compared to the TAM. However, Chen & Chu (2016) asserted that TAM can be more convenient in the use of technology and personal adoption, but in contrary, the TPB model examines social impacts on technology use and adoption. Also, Mathieson

(1991) concluded that, while TAM is easier to implement it provides superficial information about the consumers' assessments but, TPB ensures more concrete information that can lead to a better understanding.

When the subject of Turkish consumers' intentions toward cryptocurrencies has been considered in the light of information above, it can be put forward that, research model of TPB can provide a comprehensive framework for understanding the underlying factors that drive individuals' decisions to invest in cryptocurrencies. There are several reasons for determining TPB as a research model for this study, initially TPB particularly focuses on the behavior determining factors and it is practicable for any type of behavioral study (Ajzen, 2020). More, methodological mechanisms of the TPB model are well-structured thus, accurate and confidential measurement for a theoretical construction can be acquired as well (Ajzen & Fishbein, 2010). Also, it is important to note that the TPB has been extensively accepted and applied in many different cultural contexts, including studies in Türkiye, which makes it a robust and appropriate framework for this study (Hrubes, Daigle & Ajzen, 2001).

As it already stated by Chen and Chu (2016), the TPB model examines social impacts on technology use and adoption better than TAM so, when the Turkish people's collectivistic structure considered (Görgeneli, 1997), the TPB model that examines behaviors from a social impact framework can provide more adequate results. Therefore, using TPB in this study will provide valuable insights into the underlying psychological and social factors driving Turkish individuals' decision-making processes regarding cryptocurrency investment. By identifying the motivations, beliefs, barriers and risks that influence their behavioral intentions, this study aims to contribute to a deeper understanding of Turkish individuals' investment intentions in the cryptocurrency domain.

### **3 RESEARCH MODEL AND HYPOTHESIS**

#### **3.1 PROPOSED RESEARCH MODEL**

The theory of planned behavior research model generates the research model of this study, as it is extensively used and recognized in various fields especially in psychology, marketing, and consumer behavior studies (Hrubes, Daigle & Ajzen, 2001). However, in order to achieve the ultimate aim of the study, an extended research model was generated by incorporating the variable of perceived risk. Despite the founder of TPB model Ajzen (2020) stated that, there is no additional variable is needed to increase the prediction capabilities of the TPB model, perceived risk associated with cryptocurrencies has been found extremely important in this study. Because, after 2021, significant decline in cryptocurrency prices and the big shrinkage of the cryptocurrency market cap resulted in huge financial losses for millions of cryptocurrency investors (Statista 2023). Also, many experts and governments have expressed concerns about the risks associated with cryptocurrencies (European Central Bank, 2012; Stark, 2013; Ponsford, 2015; Baur et al., 2018). Therefore, considering that the survey questions has been only asked to cryptocurrency investors in Türkiye, this study aims to observe whether Turkish cryptocurrency investors invest in cryptocurrencies even if they consider it as a risky asset. Also, many other studies found out that perceived risk plays a significant role in shaping individuals' attitudes and intentions towards innovative technologies (Venkatesh & Davis, 2000; Bhattacharjee, 2002) and the perceived risk has been widely used along with TPB, as a significant factor in many consumer behavior studies as well (Bangun & Handra, 2021; Quintal et al., 2010). Hence, considering the concerns and recent price falls, cryptocurrencies are definitely contain some risks for many individuals therefore, perceived risk that Turkish cryptocurrency users associated with the cryptocurrencies also included in this study to find out whether Turkish investors consider it risky while they are still investing it.

By incorporating perceived risk into the TPB research model, the study aims to provide a more comprehensive understanding of Turkish consumers' intentions towards cryptocurrency investment. Also, inclusion of perceived risk into the TPB research model enables an examination of its interaction with other TPB variables. Thus, insights of how perceived risk correlates with the variables of TPB and individuals' behavioral intentions can be seen as well.

Particularly, this study aims to research, behavioral intentions of Turkish consumers from the social aspects based on subjective norms, attitude, perceived behavioral control and perceived risk variables. As a result, the TPB research model generates the fundamental framework of this study and the traditional research model of TPB has been reinforced with perceived risk variable. So, each variable of the final model will be explained and discussed respectively. (See Figure 3.1)

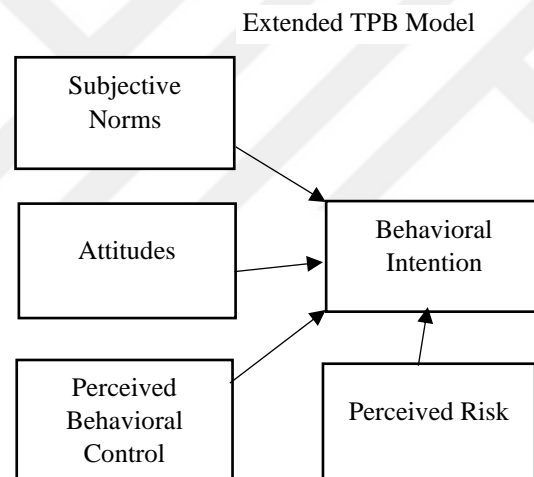


Figure 3.1 Proposed Research Model

### 3.2 RESEARCH HYPOTESIS DEVELOPMENT

Subjective norms refer to an individual's sense that affected by a person or a group of people to whether to apply a certain action or not (Ajzen, 2002). In other words, subjective norms are the reflections of the social pressure perceptions of people when they decide to perform or not to perform a certain behavior. So, expectations and behaviors of other people can serve as a motivational determinant for someone's behavior, for instance a socially influential factor (Blok et al., 2015). Thus, this

assumption can be implemented to cryptocurrency usage and adaptation behaviors. In other words, from the cryptocurrency investment framework, individuals can be interested in cryptocurrencies investment if they notice that cryptocurrencies can be adopted in their environments. For instance, the use of cryptocurrencies in daily transactions or as an investment tool can create social pressure for others to use cryptocurrencies. Pham et al., (2018) found subjective norms as an important factor in their study that analyze cryptocurrency investment intentions of Italian users. Therefore, in this study following hypothesis has been asserted:

**H1: Subjective norms positively influence the intention to invest in cryptocurrencies.**

Attitude is another principal factor of the TPB and the social psychology studies describe it as the most significant variable in the science of social psychology. (Allport, 1935). Also, Ajzen (2008) defines attitude as the most significant factor of the behavior and explains it as the perception of the individuals when they take a questionable action. Therefore, it can be implemented in cryptocurrency usage and adaptation behaviors. Considering that for many people investing in cryptocurrencies is questionable action, individuals' attitudes towards cryptocurrencies can play important role. Thus, the attitude of the individuals who invest in cryptocurrency is a critical issue that is going to be investigated in this study. In that sense, Walton & Johnston (2018) and Mazambani & Mutambara (2019) in their studies that examine South African citizens' cryptocurrency investment behaviors, both studies found that, attitude is a statistically significant factor. For this reason, in this study following hypothesis has been submitted as well:

**H2: Attitudes positively influence the intention to invest in cryptocurrencies.**

Perceived behavioral control indicates individuals' perceived difficulty or easiness to practice certain behaviors, also, its assumed that perceived behavioral control reflects former experiences and expected obstacles (Ajzen, 1991). Hence, perceived behavioral control can form certain behaviors of individuals to cope with external constraints. (Lewis & Martinez, 2016). Besides, Ajzen and Fishbein (2010) indicated that, individuals prefer to hold greater behavioral intentions, if there are few number of environmental boundaries and/or if a certain behavior for an activity requires a small levels of ability. So, abilities of individuals and external factors must be considered within the study of cryptocurrency usage and adaptation. In this sense, the technology of



cryptocurrency is indeed new and the individuals who interested in cryptocurrencies hold high amount of perceived control (Hau & Kang, 2016). However, investing in cryptocurrencies also requires certain knowledge and abilities, in that regard, Pilatin & Dilek (2023) found out that perceived behavioral control is a significant factor for Turkish investors who invest in cryptocurrencies.

Therefore, this study proposes that Perceived behavioral control of individuals can play a crucial role within their cryptocurrency investment process. In this way the third hypothesis below has been raised:

**H3: Perceived behavioral control positively influences the intention to invest in cryptocurrencies.**

From the aspect of consumer behavior, Faqih (2016) explained the perceived risk as individuals' sense of uncertainty and any potential unwelcomed outcomes when they buy or use certain products. According to Ghulam & Luqman, Adeel (2020) from the perspective of Bitcoin adoption, perceived risk plays a significant role between the individuals' actual behavior and their intention, but they noted that, this situation is only valid when the perceived risk is not high. So, from the aspect of cryptocurrency investment, if the perceived risk is at a low level, consumers' behavioral intentions towards cryptocurrency investment can rise as well. Moreover, many scholars have considered perceived risk as a determinant for consumer behavior and technology adoption studies (eg., Jain & Kannungo 2004; Salisbury et al., 2001; Featherman & Pavlou, 2003). Besides, Namahoot and Rattanawiboonsom (2022) suggested a significant and positive relationship between perceived risk and cryptocurrency adaptation. Since perceived risk as a predictor has an explanatory power in lots of technology adaptation studies including cryptocurrencies, it is also going to be used in this study to strengthen TPB model. So that, cryptocurrency investment intentions of individuals can be deeply explained. Therefore, following hypothesis has been put forward:

**H4: Perceived risk negatively influences the intention to invest in cryptocurrencies.**

### **3.3 DATA COLLECTION AND SURVEY**

In this study, quantitative and cross-sectional research design has been implemented. By doing so survey questions were developed based on the former consumer behavior studies that used theory of planned behavior research model. In that regard, the proposed survey consists of two parts. Accordingly, the first part includes 8 demographic questions with specific multiple-choice answers to analyze sample characteristics. The second part includes 16 questions with Likert 7 scale and this part also comprises: 3 questions for subjective norms variable, 4 questions for attitude variable, 3 questions for perceived behavioral control variable, 3 questions for perceived risk and 3 questions for behavioral intention variable. The questions within the second part of the survey were modified from the following references. Questions that are related about subjective norms variable adopted from Wu and Chen (2005), questions concerning the attitude and perceived behavioral control adopted from Walton & Johnson (2018), questions regarding perceived risk adopted from Faqih (2016) and Behavioral Intention questions adopted from Hung et al. (2006). The questionnaire forms can be found in the Appendix.

The population of research refers to the complete set of people, objects or elements that the researcher intends to study and draw conclusions from (Creswell, 2014). In this study, the population of the survey consist of the Turkish consumers who invest in cryptocurrencies. However, there is no specific value determinable for the population size therefore, a sample could not be determined. For the advantage of cost and ease of implementation, convenience sampling method was preferred in the study. In convenience sampling, participants are chosen based on their availability and willingness to participate, rather than using a random or systematic sampling method. (Babbie, 2016). In that regard, an online survey has been generated to test the proposed research model of the study, as the study is dedicated to only Turkish cryptocurrency users, the questionnaire has been presented in Turkish.

In total 245 participants have properly answered the online survey, between December 2022 to February 2023. The survey was shared directly in person and within the online cryptocurrency forms to reach participants who invest in cryptocurrencies. Since the internet forms are accessible from everywhere, it's been believed that an online

Turkish cryptocurrency form could provide a good sample for the study. Besides, in order to ensure the validity of statistical analyzes, Gorsuch (1983) stated that 5 people per item and at least 200 samples are required, while Streiner (1994) mentioned that 10 people per item and at least 100 samples are adequate. From this point of view, it can be suggested that the data obtained from 245 participants can meet the mentioned qualifications above.

Structural Equational Modelling (SEM), *t*-test and one-way Analysis of Variance (ANOVA) were used while examining the survey results of the study. Initially, structural equation modeling is a multivariate statistical analysis method that includes factor analysis and path analysis which enables studying relationships between the measured variables and latent variables (Elliott & Wu, 2007). In other words, structural equation modeling is a method that can analyze both measurement model and the structural model simultaneously. More specifically, a measurement model is a method that examines and evaluates latent variables which are the elements that cannot be measured directly, such as attitudes and perceptions of individuals. By doing so measurement models make use of several observable variables (Elliott & Wu, 2007). Structural models, on the other hand, are models that demonstrate the causal relationships among latent variables within a theoretical framework. (Weston & Gore, 2006). Structural Equational Modelling is a powerful and useful method that has been used in social sciences for a long time (Beran & Violato, 2010). Particularly social sciences studies with the TPB research model, often uses the SEM. Besides, SEM is a second-generation data analysis method and it is advantageous over first-generation data analysis techniques as it can analyze the relationships between more dependent and independent variables, distinguish direct and indirect effects, and analyze both structural and measurement models (Dursun & Kocagöz, 2010).

There are several statistical packages that exist to study the SEM concept (Dash & Paul 2021). However, in this study only Covariance Based Structural Equation Modeling (CB-SEM) is going to be mentioned since it is used in this study. In that sense, scholars recommended that, if the objective of the study is theory confirmation and testing, the CB-SEM model is more appropriate (Dash, & Paul, 2021; Hair et al., 2019). Since the research model of the study the TPB is well-known and highly popular, usage of the CB-SEM can be appropriate and provide better results.

## 4 DATA ANALYSIS AND RESULTS

The information collected from the survey has been analyzed in three sections. Firstly, demographic characteristics of the respondents defined. In the second section, the responses given by participants to the research model questions have been compared regarding their demographic characteristics. Lastly, the survey results obtained within the framework of the research model have been analyzed using the SEM (Structural Equation Modeling) approach.

### 4.1 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

In this part of the study, the frequency and percentage distributions of the questions asked regarding gender, age, marital status, monthly income, education level, job type, and other investment instruments, based on the demographic characteristics of cryptocurrency users in Türkiye are presented below.

Initially, when the demographic distribution of the respondents has been analyzed, 245 participants consisted of 187 males (76,3%) and 58 (23,7%) females (Table 4.1). Therefore, it can be put forward that number of male cryptocurrency users are superior to the female users.

Table 4.1 Gender Distribution

Gender	N	%
Male	187	76,3
Female	58	23,7

When the age distribution of the participants is examined (Table 4.2), participants in the age range of 26 and 30 generates the highest share with 35,5% but, the number of participants whose age range between the 18 – 25 and 31 – 35 also high, with the percentages of respectively 26,5% and 25,7%. However, participants who are younger than 18 have shown the lowest participation to the sample with 1,6%.

Table 4.2 Age Distribution Chart of Participants

<b>Age</b>	<b>N</b>	<b>%</b>
18 –	4	1,6
18 – 25	65	26,5
26 – 30	87	35,5
31 – 35	63	25,7
36 +	26	10,6

When the marital status of the participants is analyzed, table 4.3 shows that 149 people who are 60,8% of the sample are single, while 94 participants which are 38,4% of the sample are married and two people did not want to mention their marital status as well.

Table 4.3 Marital Status Distribution

<b>Marital Status</b>	<b>N</b>	<b>%</b>
Married	94	38,4
Single	149	60,8
Others	2	0,8

Table 4.4 reveals the monthly income of the survey attendant. According to Table 4.4, participants who have income between 8500 TL – 15 000 TL are the most common among the cryptocurrency users with 45.7%. Table 4.4 also shows that people whose income is less than 8500 TL and people whose income more than 20 000 TL generates the lowest share in the sample with 12,7% and 18,8%. Therefore, it can put forward that people whose income higher than minimum salary (8500 TL) and less than 15 000 TL forms the highest share for the cryptocurrency usage.

Table 4.4 Monthly Income Distribution

<b>Income</b>	<b>N</b>	<b>%</b>
0 - 8500 TL	31	12,7
8500 TL - 15 000 TL	112	45,7
15 000 TL - 20 000 TL	56	22,9
20 000 TL and above	46	18,8

Education level distribution of the participants has been stated in Table 4.5. In this context, 114 participants have a bachelor's degree and they generate the highest share with 46,5%. Besides, the amount of high school graduate participants high as well with 98 people and 40% share. Hence, it can put forward that majority of cryptocurrency users are either high school graduates or have a bachelor's degree within the sample.

Table 4.5 Education Level Distribution

<b>Last Education Level</b>	<b>N</b>	<b>%</b>
Primary School	6	2,4
Highschool	98	40
Associate Degree	10	4,1
Bachelor's Degree	114	46,5
Master's Degree	17	6,9

In addition, when the job types of the participants analyzed, 82,8% of the sample, which is 203 participants, have a full-time job. While, rest of the participants who are unemployed, students, retired or has a part-time job have relatively much lower participation rates (Table 4.6)

Table 4.6 Job Type Distributions

<b>Type of work</b>	<b>N</b>	<b>%</b>
Full-Time Job	203	82,8
Student	22	9
Unemployed	11	4,5
Part time job	7	2,9
Retired	2	0,8

While all the survey participants have an investment in cryptocurrencies, some of them also invest in other investment tools. In this section participants were allowed to choose more than one option, since they can invest in any financial tool. Hence, next to cryptocurrencies 43,5% of participants invested in stocks, 39,4% invested in foreign currencies. Besides, precious metals used as an investment tool by 28,5% of the sample and 12,2% of the participants use deposit accounts as well. (Table 4.7)

Table 4.7 Other Investment Distributions

<b>Other investment tools</b>	<b>N</b>	<b>%</b>
Stocks	107	43,5
Foreign Currency	97	39,4
Precious Metals (Golden, Silver etc.)	70	28,5
Deposit Account	30	12,2
Total	304	123,6

## 4.2 DEFINITION OF DEMOGRAPHIC CHARACTERISTICS

After demographic groups are identified, the responses of the participants were compared based on their demographic characteristics. In this way, it is aimed to observe that, whether the research model questions differentiate according to the demographic characteristics or they have the similar impacts for all type of participants.

Before the analysis of the demographic characteristics, some of the demographic groups are reorganized to conduct better observations from the statistical analyzes, after that, *t*-test and one-way Analysis of Variance (ANOVA) research were conducted to compare demographic groups by using SPSS 25 software.

Prior to conducting the ANOVA test to examine the survey results based on age groups, Levene's test was performed and based on that, variance of subjective norms ( $p=0,360$ ), variance of attitude ( $p=0,466$ ), variance of perceived behavioral control ( $p=0,340$ ), variance of perceived risk ( $p=0,765$ ) and variance of behavioral intention ( $p=0,085$ ) have been found equally distributed, because their *p* values greater than 0,05 (Pallant, 2011). According to Table 4.8 below, given answers by the specified age ranges have similar mean values for all factors and they are slightly over the average regarding Likert 7 scale. Also, according to the ANOVA test, *p* values for all the factors are greater than 0,05 therefore, it can be concluded that, among the participants who invest in cryptocurrencies subjective norms, attitude, perceived behavioral control, perceived risk and behavioral intention variables do not show significant differences in terms of age.

Table 4.8 ANOVA results according to age groups of participants

Factors	Age Groups	N	Mean	Std. Deviation	F	P
Subjective Norms	18 - 25	69	4,4155	1,61529	1,488	0,219
	26 - 30	87	4,0958	1,57328		
	31 - 35	63	4,5820	1,33732		
	36 and above	26	4,5513	1,51421		
	Total	245	4,3592	1,52686		
Attitude	18 - 25	69	4,9094	1,41354	1,166	0,323
	26 - 30	87	4,5891	1,55190		
	31 - 35	63	4,9960	1,42521		
	36 and above	26	4,9615	1,53247		
	Total	245	4,8235	1,48117		

Table 4.8 Continued

Factors	Age Groups	N	Mean	Std. Deviation	F	P
Perceived Behavioral Control	18 - 25	69	4,3623	1,44704	1,688	0,170
	26 - 30	87	4,4061	1,61503		
	31 - 35	63	4,8677	1,39320		
	36 and above	26	4,7179	1,43818		
	Total	245	4,5456	1,50147		
Perceived Risk	18 - 25	69	4,6377	1,56424	1,081	0,358
	26 - 30	87	4,7893	1,58246		
	31 - 35	63	4,6825	1,48400		
	36 and above	26	4,1667	1,60069		
	Total	245	4,6531	1,55524		
Behavioral Intention	18 - 25	69	4,5411	1,75557	1,207	0,308
	26 - 30	87	4,5900	1,62482		
	31 - 35	63	4,8889	1,51929		
	36 and above	26	5,1154	1,46042		
	Total	245	4,7088	1,62279		

N: 245; 95% confidence interval;  $p < 0.05$  significance level.

When the survey results are examined in terms of income groups, initially, Levene's test put forward that, variance of subjective norms ( $p=0,969$ ), variance of attitude ( $p=0,443$ ), variance of perceived behavioral control ( $p=0,30$ ) and variance of perceived risk ( $p=0,461$ ) are equally distributed because, their  $p$  values are greater than 0,05, while variance of behavioral intention ( $p=0,007$ ) has been observed as unequally distributed because its  $p$  values lower than 0,05 (Pallant, 2011). After that, ANOVA test in Table 4.9 shows that, given answer by the specified income group ranges have similar mean values for all factors and they are slightly over the average. Also,  $p$  values for all the factors are greater than 0,05 therefore, it can be concluded that, among the participants who invest in cryptocurrencies subjective norms, attitude, perceived behavioral control, perceived risk and behavioral intention variables do not show significant differences in terms of income.



Table 4.9 ANOVA results according to income of participants

<b>Factors</b>	<b>Income Group</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>F</b>	<b>P</b>
Subjective Norms	0 - 8500 TL	31	4,2258	1,51874	0,209	0,890
	8500 TL - 15 000 TL	112	4,3720	1,57543		
	15 000 TL - 20 000 TL	56	4,3036	1,48157		
	20 000 TL and above	46	4,4855	1,50506		
	Total	245	4,3592	1,52686		
Attitude	0 - 8500 TL	31	4,6129	1,51085	0,406	0,749
	8500 TL - 15 000 TL	112	4,8817	1,52825		
	15 000 TL - 20 000 TL	56	4,7366	1,31721		
	20 000 TL and above	46	4,9293	1,55961		
	Total	245	4,8235	1,48117		
Perceived Behavioral Control	0 - 8500 TL	31	4,2796	1,60346	1,957	0,121
	8500 TL - 15 000 TL	112	4,3720	1,59375		
	15 000 TL - 20 000 TL	56	4,8155	1,30720		
	20 000 TL and above	46	4,8188	1,36573		
	Total	245	4,5456	1,50147		
Perceived Risk	0 - 8500 TL	31	4,9032	1,38027	2,105	0,100
	8500 TL - 15 000 TL	112	4,7976	1,54502		
	15 000 TL - 20 000 TL	56	4,2143	1,61986		
	20 000 TL and above	46	4,6667	1,55397		
	Total	245	4,6531	1,55524		
Behavioral Intention	0 - 8500 TL	31	4,3978	1,91567	1,215	0,317
	8500 TL - 15 000 TL	112	4,5923	1,67219		
	15 000 TL - 20 000 TL	56	4,9286	1,39075		
	20 000 TL and above	46	4,9348	1,53578		
	Total	245	4,7088	1,62279		

N: 245; 95% confidence interval;  $p < 0.05$  significance level.

Furthermore, in order to test whether the survey results show differences by gender, *t*-test has been performed. Prior to the analysis, equality of variances has been tested via Levene's test. In that regard, variance of subjective norms ( $p=0,955$ ), variance of attitude ( $p=0,085$ ), variance of perceived behavioral control ( $p=0,926$ ), variance of perceived risk ( $p=0,177$ ) and variance of behavioral intention ( $p=0,251$ ) have been found equally distributed, since their *p* values greater than 0,05 (Pallant, 2011). When the *t*-test results are examined in Table 4.10, mean values in each factor for both genders very close to each other. Besides, *p* values for each factor is higher than 0,05 therefore there is not a significant difference observed between the male and female responders who uses cryptocurrency.

Table 4.10 t-test results according to genders of participants

Factors	Gender	N	Mean	Std. Deviation	Std. Error Mean	t value	P
Subjective Norms	Male	187	4,3316	1,53979	0,11260	-0,508	0,612
	Female	58	4,4483	1,49405	0,19618		
Attitudes	Male	187	4,8543	1,53690	0,11239	0,584	0,56
	Female	58	4,7241	1,29243	0,16970		
Perceived Behavioral Control	Male	187	4,5348	1,49366	0,10923	-0,202	0,84
	Female	58	4,5805	1,53904	0,20209		
Perceived Risk	Male	187	4,6774	1,52866	0,11179	0,438	0,661
	Female	58	4,5747	1,64938	0,21657		
Behavioral Intention	Male	187	4,6453	1,66042	0,12142	-1,101	0,272
	Female	58	4,9138	1,49014	0,19566		

N: 245; 95% confidence interval;  $p < 0.05$  significance level.

The responses of the participants have been analyzed according to marital status to find out whether they show difference, by doing so, two participants who do not state their marital status ignored. In that manner, Levene's test proved that variance of subjective norms ( $p=0,060$ ), variance of attitude ( $p=0,072$ ), variance of perceived behavioral control ( $p=0,218$ ), variance of perceived risk ( $p=0,879$ ) and variance of behavioral intention ( $p=0,080$ ) are equally distributed, because their p values greater than 0,05 (Pallant, 2011). Results of the *t*-test in Table 4.11 suggest that mean values for each factor take place around 4,5 for both married and single participants. Also, except perceived risk factor, married attendants have slightly higher average than the single attendants. However, when the p values for each factor analyzed it can be suggested that, among the participants who invest in cryptocurrencies subjective norms, attitude, perceived behavioral control, perceived risk and behavioral intention variables do not show significant differences in terms of marital status.

Table 4.11 t-test results according to marital status of participants

<b>Factors</b>	<b>Marital Status</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>	<b>t value</b>	<b>p</b>
Subjective Norms	Married	94	4,5355	1,39226	0,14360	1,407	0,161
	Single	149	4,2528	1,60267	0,13130		
Attitudes	Married	94	4,8484	1,40335	0,14474	0,186	0,852
	Single	149	4,8121	1,52842	0,12521		
Perceived Behavioral Control	Married	94	4,7163	1,42344	0,14682	1,524	0,129
	Single	149	4,4161	1,53923	0,12610		
Perceived Risk	Married	94	4,5106	1,51827	0,15660	-1,147	0,253
	Single	149	4,7450	1,57228	0,12881		
Behavioral Intention	Married	94	4,8759	1,54501	0,15936	1,312	0,191
	Single	149	4,5951	1,67321	0,13708		

N: 245; 95% confidence interval;  $p < 0.05$  significance level.

Since the education levels of the participants vary unequally, in order to interpret it better, the education level of participants is divided into two groups as until bachelor's degree and bachelor's degree and higher. In that manner, Levene's test proved that variance of subjective norms ( $p=0,987$ ), variance of attitude ( $p=0,280$ ), variance of perceived behavioral control ( $p=0,202$ ), variance of perceived risk ( $p=0,061$ ) and variance of behavioral intention ( $p=0,705$ ) are equally distributed because for each factor because, their p values are greater than 0,05 (Pallant, 2011). Table 4.12 summarizes the t-test results and in respect to that, mean values for both groups are quite close to each other and they are slightly higher than the median value. In addition, the group who studied until bachelor's degree have slightly higher mean values for all factors. On the other hand, the p value for each factor is above 0.05 thus, it can be put forward that, there is not a significant difference observed among the attendants in terms the education level.

Table 4.12 t-test results according to education level of participants

Factors	Education Level	N	Mean	Std. Deviation	Std. Error Mean	t value	p
Subjective Norms	Until Bachelor's Degree	114	4,5058	1,53057	0,14335	1,405	0,161
	Bachelor's Degree and Higher	131	4,2316	1,51792	0,13262		
Attitudes	Until Bachelor's Degree	114	4,8969	1,43472	0,13437	0,723	0,47
	Bachelor's Degree and Higher	131	4,7595	1,52303	0,13307		
Perceived Behavioral Control	Until Bachelor's Degree	114	4,6374	1,45639	0,13640	0,893	0,373
	Bachelor's Degree and Higher	131	4,4656	1,54072	0,13461		
Perceived Risk	Until Bachelor's Degree	114	4,7047	1,45585	0,13635	0,484	0,629
	Bachelor's Degree and Higher	131	4,6081	1,64108	0,14338		
Behavioral Intention	Until Bachelor's Degree	114	4,8246	1,62346	0,15205	1,041	0,299
	Bachelor's Degree and Higher	131	4,6081	1,62169	0,14169		

N: 245; 95% confidence interval;  $p < 0.05$  significance level.

As a result, t-tests and ANOVA analyses showed that, given answers by the survey participants do not show significant differences in terms of age, income, gender, marital status and education level. Which means that, survey questions that are constituted according to theory of planned behavior based research model, shows similar impact for all participants, regardless of their demographic characteristics. In other words, given answers to the survey questions that generate the proposed research model do not show significant differences in terms of the demographic characteristics of participants. Therefore, it can be concluded that, Turkish consumers' intentions towards cryptocurrency investment can be objectively analyzed with the proposed research model of the study.

### 4.3 ANALYSIS OF THEORETICAL MODEL & RESULTS

After the description and analysis of the demographic characteristics of the survey, the proposed research model has been examined. By doing so structural equation modelling was used and before the SEM analysis, various other tests have been applied to prove reliability, robustness and validity of the survey data.

**Kaiser-Meyer-Olkin (KMO) and Barlett Test:** The research model of the study has been created based on the theory of planned behavior model therefore, the survey questions were also created within the scope of this framework. After that, Kaiser-Meyer-Olkin (KMO) and Barlett's Test have been used to find out whether survey data is appropriate for the factor analysis. In that regard, Statistical Package for Social Sciences (SPSS) 25 software was used and results can be seen in Table 4.13. According to Tabachnick and Fidell (2013) data set is suitable for the factor analysis since the KMO value is higher than 0,60.

Table 4.13 Kmo and Barlett's Test

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</b>		,888
<b>Bartlett's Test of Sphericity</b>	Approx. Chi-Square	3543,768
	Df	120
	Sig.	,000

**Normality of the Data:** Scores of skewness and kurtosis, which are preferred to be with +1 (Hair et al., 2019), can be seen in Table 4.14 that all the variables met this requirement thus, the normality of the data can be assumed. Besides, the normality analysis has been applied to subdimension means. By doing so, subdimension means were calculated by taking the average scores of the questions that generate specific sub-dimension. So, it can provide an indication of the central tendency or average level for the particular variable.

Table 4.14 Normality of Data

Variable	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Subjective Norms	245	-,315	,156	-,679	.310
Attitude	245	-,530	,156	-,623	.310
Perceived Behavioral Control	245	-,508	,156	-,594	.310
Perceived Risk	245	-,469	,156	-,983	.310
Behavioral Intention	245	-,604	,156	-,691	.310

**Descriptive Statistics:** Mean values and standard deviation values can provide specific information about the variables of the model. Also, descriptive statistics were calculated from subdimension means to determine central tendency statistics for the variables. As the mean value of each variable analyzed, it can be seen in Table 4.15 that they are between 4 and 5 on a Likert 7 scale. Therefore, it can be accepted as a neutral or ambivalent attitude and perception among respondents. Also, standard deviation of each variable takes place around 1,5 which suggests a moderate to high level of variability or dispersion in the responses. This means that the participants' scores on the scale are spread out or diverse, indicating different perceptions, attitudes and opinions among the respondents. On the other hand, when the correlations between variables are examined visually, it can be seen that, all the correlations are significant at the 0.01 level. This establishes a suitable foundation for conducting empirical assessments of the suitability of factor analysis, for both overall and individual variables (Hair et al., 2019). Lastly, it can be noted that correlations between the variables are neither too high nor too low. Table 4.15 shows all the details on Mean, Standard Deviation and Correlations. Correlations between each variables calculated as Pearson Correlation via SPSS 25.

Table 4.15 Mean, SD and Correlations

Variable	Mean	Standard Deviation	SN	ATT	PBC	PR	BI
Subjective Norms	4,36	1,53	1				
Attitude	4,81	1,50	,529**	1			
Perceived Behavioral Risk	4,49	1,49	,376**	,647**	1		
Perceived Risk	4,66	1,55	-,389**	-,380**	-,390**	1	
Behavioral Intention	4,73	1,66	,489**	,590**	,578**	-,336**	1

N = 245; \*\*p < .01; \*p < .05

**Confirmatory Factor Analysis:** In order to analyze the fitness of the proposed research model, a confirmatory factor analysis (CFA) with maximum likelihood has been constructed on the 16 indicators of 5 latent variables via AMOS 24 software. Various fit measures are suggested in numerous studies for evaluating the adequacy of a CFA, since there are not universally accepted measure values. These measures are outlined in Table 4.16 (Hair et al., 2019; Chau, 1997; Byrene, 2001). In this respect, indexes of chi-square test statistic divided by the degrees of freedom ( $\chi^2/df$ ), goodness of fit index (GFI), normed fix index (NFI), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMS) were used. Chau (1997) recommended that for an acceptable model fit GFI index must be higher than 0.9, the proposed model has GFI value of 0.901, therefore it can put forward that GFI index criteria is met. However, when the other model fitness indexes are analyzed, Hair et al. (2019) proposed that CFI, NFI and TLI indexes must be over 0.9 and SRMR index must be lower than 0.9 for a good model fitness. In that regard, the proposed model achieved satisfying results with the values of CFI = 0.966, NFI = 0.942, TLI = 0.957, SRMR = 0.047, which are placed within the desired levels (Table 4.16). Besides, Byrene (2001) recommended RMSEA index must be less than 0.08, in this respect, the model satisfies the required threshold with 0.072 value. Lastly, Hair et al. (2019) advise that  $\chi^2 / df$  rate must be less than 3 which is also met by the model

with the value of 2.255. Ultimately, the studied model indexes provide overall sufficient model fit values.

Table 4.16 CFA Model Fitness

Index	Criteria	Literature	Result
Chi <sup>2</sup> / df	3:1	Hair et al. (2019)	2.235 < 3
SRMR	< .09	Hair et al. (2019)	0.046
RMSEA	< .08	Byrene (2001)	0.071
CFI	> .90	Hair et al. (2019)	0.967
NFI	> .90	Hair et al. (2019)	0.942
TLI	> .90	Hair et al. (2019)	0.957
GFI	> .90	Chau (1997)	0.901

**Factor Loadings:** A measure is considered to be reliable when the associated factor loadings are above 0.50 (Hair et al., 2019). As the factor loadings are examined throughout the CFA table, it can be seen that, all the factor loadings values, between the variables and questions, are greater than 0.5, (see Figure 4.1)

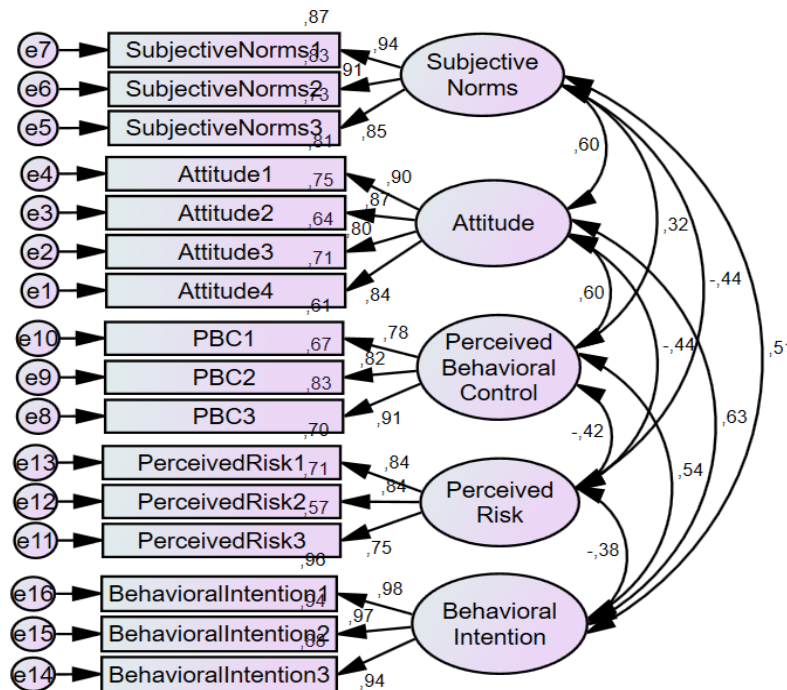


Figure 4.1 CFA Diagram



**Internal Reliability / Consistency:** Cronbach's Alpha (CA), established by Lee Cronbach (1951) to measure internal consistency of variables. Internal consistency defines whether all the items in a model measure the same construct (Nunnally & Bernstein, 1994). The threshold for reliability of the measure is over 0.7 scores of the CA (Hair et al., 2019). For the overall model Cronbach's alpha value is 0.838 and for each variable of the model Cronbach's Alpha values meet the criteria as well (see Table 4.17).

**Construct Reliability (CR):** Although Cronbach's alpha is widely used, it does not assign different weights to the individual indicators when performing the calculations (Hair et al., 2019) therefore, there is a need for greater estimation of true reliability. Jöreskog K. (1971) suggests that composite reliability can address this limitation by assigning weights to individual indicators based on their loadings, making it the preferred approach for measuring reliability. As shown in Table 4.17, the model adequately meets the acceptable values of CR of over 0.7 for confirmatory purposes (Hair et al., 2019).

**Convergent Validity:** Convergent validity is a comprehensive measure of a reflective measurement model that evaluates the degree to which indicators of a construct come together and accounts for the variability of the items. (Hair et al. 2019). Convergent validity is determined by analyzing the average variance extracted (AVE) and it should be greater than 0.5 (Hair et al., 2019). The AVE values for all the variables can be seen in Table 4.17 and they are well above the criteria to prove the convergent validity of the constructs.

**Eigenvalue:** In the statistical analysis context, Eigenvalue refers to the explained variance by each principal component in a factor analysis, it also determines the significance and contribution of each component to the overall data structure. (Hair et al., 2019). The Kaiser-Guttman rule suggests that components with eigenvalues above 1 explain more variance than a single variable, so they are more meaningful (Hair et al., 2019). Table 4.17 presents the eigenvalues of each variable and they are above the recommended threshold.

**Discriminant Validity:** Refers to the degree to which a concept or idea is genuinely different from and unrelated to other concepts or ideas (Hair et al., 2019). The Heterotrait-monotrait ratio (HTMT) approach provides an estimation of the actual correlation

between two constructs under the assumption of perfect measurement (Hair et al., 2019). Also, it has been concluded that, the discriminant validity based on HTMT should be lower than 0.85 (Hair et al., 2019). Table 4.17 shows that all HTMT ratios were below 0.85. So, it can be concluded that, the construct of the model has sufficient discriminant validity.

Table 4.17 Reliability and Validity Analysis of the Measurement Model

Scale	Cronbach's Alpha	CR	AVE	Eigen Value	HTMT				
					SNs	ATT	PBC	PR	BI
Subjective Norms	0.926	0.915	0.728	1.704					
Attitude	0.915	0.928	0.811	7.635	0.593				
Perceived Behavioral Control	0.871	0.875	0.700	1.309	0.603	0.323			
Perceived Risk	0.862	0.854	0.661	1.030	0.430	0.441	0.408		
Behavioral Intention	0.974	0.974	0.926	1.851	0.610	0.506	0.551	0.377	

#### 4.4 ANALYSIS OF THE STRUCTURAL MODELLING

Satisfactory results of various reliability tests and validity measurements of the model, proves that structural equation modelling (SEM) will provide reliable results. In that sense, SEM technique enables researchers to analyze a collection of latent constructs, similar to how regression analysis examines independent and dependent variables. (Segars & Grover, 1993). In addition, SEM technique offers researchers a comprehensive approach to assess and modify theoretical models (Karahanna et al., 1999). In Figure 4.2 SEM path diagram analysis with the factor loadings between the latent variables and indicators, the errors estimations for latent variables and indicators, and standardized coefficients are all illustrated.

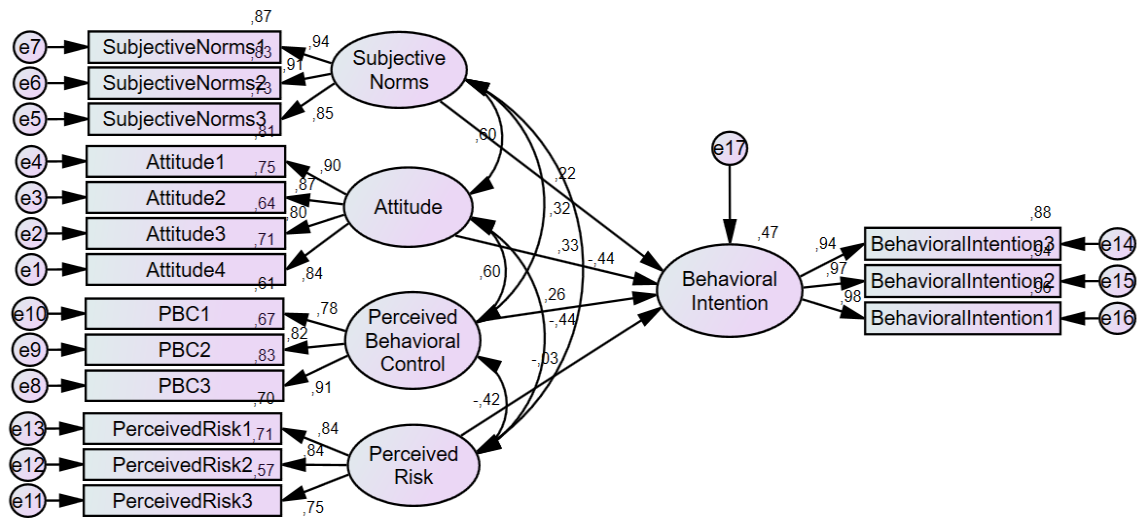


Figure 4.2 SEM Path Diagram

According to Figure 4.2 all the factor loadings between the latent variables and indicators are in the required level as they are above 0.5 (Hair et al., 2019). Additionally, when the model fit indices of the structural model assessed with the AMOS 24 software, it has been found that, structural Equational modelling also has the same model fitness values as CFA model. Hence, the model fit values of SEM in a required level as well, as it can be seen in Table 4.16 above. However according to Holger (2020), if the CFA and SEM have the same model fit values, latent level of SEM path diagram is saturated and this situation is only possible in partial mediation models.

Through SEM, the model estimates, standard errors, and latent variables are estimated by maximum likelihood method. Results on the hypotheses testing are given in Table 4.18, which shows that overall model explained 46.5% variance ( $R^2 = .465$ ). Which means that %46 variance of the “behavioral intention” of the Turkish consumer who invest in cryptocurrencies has been explained by the independent variables of subjective norms, attitude, perceived behavioral control and perceived risk. Although, the variance explained at the rate of %46 can be considered as low, in social sciences it can be acceptable. According to Cohen (1988) R-squared values around 0.50 can be considered as large effect size in social sciences also, Ozili (2022) suggested that R-squared value of at least 10% is considered acceptable in social science studies.

Table 4.18 Hypotheses Analysis Results

Hypothesis	Path	$\beta$	Standard Error	Critical Ratio	P	R <sup>2</sup>	Status
H1	SN $\rightarrow$ BI	.226	.073	3.082	.002	0.465	Supported
H2	ATT $\rightarrow$ BI	.373	.094	3.965	<.001		Supported
H3	PBC $\rightarrow$ BI	.251	.070	3.562	<.001		Supported
H4	PR $\rightarrow$ BI	-.030	.071	-.429	.668		Not Supported

The result of the structural model shows that only the variables of theory of planned behavior model, subjective norms, attitude, and perceived behavioral control is statistically significant and they are able to explain %46 variance in the behavioral intention of Turkish people towards cryptocurrencies. When these factors are examined in detail, attitude has been found as the most significant factor with  $\beta=0.373$  estimate, After that, perceived behavioral control has been obtained as the second most significant factor with  $\beta=0.251$  estimate, lastly subjective norms is the least significant factor with  $\beta=0.226$  estimate. Hence, it can be concluded that, while attitudes toward cryptocurrencies is the most significant factor explaining Turkish people's behavioral intentions towards cryptocurrencies, subjective norms is the least important factor.

## 5 DISCUSSIONS

In recent years, cryptocurrencies gained excessive popularity and attracted a great deal of interest from users in Türkiye. Therefore, the main objective of this study is to analyze and understand the behavioral intentions of Turkish consumers towards cryptocurrency investment. By doing so, the theory of planned behavior research model has been used and the traditional TPB model was extended by incorporating the “perceived risk” construct. So, subjective norms, attitude, perceived behavioral control and perceived risk variables were found crucial to explain behavioral intention of Turkish consumers towards cryptocurrency investments. Besides, in order to investigate the constructs of the conceptual research model more deeply, some background factors were also included and their effects over the variables also observed. Hence, hypotheses that are created within the framework of this research model are tested by an online survey among the Turkish cryptocurrency users and the collected survey data has been analyzed via t-tests, ANOVA and Structural Equation Modelling.

The claim of H1 that states, there is a positive relationship between subjective norms and behavioral intention, has been found positive and significant. In that context, other cryptocurrency adoption studies based on the TPB (Schaupp & Festa, 2018; Soomro et al., 2022; Pilatin & Dilek, 2023; Walton & Johnston 2018; Pham et al., 2021) also found that, individuals who hold stronger subjective norms regarding cryptocurrency usage are more likely to adopt cryptocurrencies. But, Mazambani and Mutambara (2019) asserted a negative and non-significant influence of subjective norm on the behavioral intention to use cryptocurrencies. Besides Kim (2021) suggested that subjective norms are indirectly motivating the individuals’ intention to use Bitcoin by directly forming their attitudes towards money. Also, Gupta et al. (2020) put forward that social influence is one of the influencing parameter that determine individuals’ intention to use cryptocurrency, this study can support the H1 as well, since social influence and subjective norms are similar concepts. In addition, CoinGecko’s (2021) cryptocurrency awareness report of Türkiye also proved that majority of the Turkish consumers prefer to use social media, family and friend to learn about cryptocurrencies. Essentially, this

finding implies that, as individuals perceive stronger social norms or pressure from significant others such as family, friends, etc. to invest in cryptocurrencies, they are more willing to invest in them. Hence it can be interpreted that, this result supports the relevance of subjective norms as a predictor of intention to invest in cryptocurrencies among Turkish cryptocurrency investors. This situation also highlights the impact of social factors and the potential influence of significant others in shaping individuals' investment intentions into cryptocurrencies.

In support of H2, the study proved that there is a statistically significant and positive relationship between the individuals' attitude towards cryptocurrencies and their intention to invest in cryptocurrencies. The study proves that, attitude has the strongest influence over behavioral intention with  $\beta = 0.373$  (see table 4.18). Also, the founder of the TPB Ajzen (1991) mentioned that attitude is the strongest antecedent of behavioral intention, therefore this study is in line with his recommendation. Besides, when the related former studies examined, it can be seen that, Schaupp & Festa (2018), Mazambani & Mutambara, (2019), Soomro et al., (2022), Pilatin & Dilek (2023) and Pham et al., (2021) have claimed results in this direction as well. In addition, a study conducted by Namahoot and Rattanawiboonsom (2022) in Thailand proposed that attitude towards cryptocurrency have a significant positive influence on intention to use cryptocurrencies among the Thai people. As a result, this finding of the study implies that as Turkish individuals hold more positive attitudes towards cryptocurrencies, they are more likely to express intentions to invest in cryptocurrencies. Therefore, this evidence supports the relevance of attitudes as a significant predictor of intention to invest in cryptocurrencies among Turkish cryptocurrency users.

In this study claim of H3, perceived behavioral control positively influences the intention to invest in cryptocurrencies, was supported as well and it has a positive and moderate influence on the behavioral intention to use cryptocurrency. At the same time, previous studies have proved results in the same direction (Schaupp & Festa, 2018; Mazambani & Mutambara, 2019; Soomro et al., 2022; Pilatin & Dilek, 2023; Walton & Johnston, 2018; Pham et al., 2021). Thus, it can be asserted that Turkish cryptocurrency users perceive a higher level of control over their ability to engage in cryptocurrency investment and their intentions to invest in cryptocurrencies are more likely to be positive or favorable.

H4 is the only variable that is not empirically supported in this study and suggests that, perceived risk negatively influence the intention to invest in cryptocurrencies. When the previous related studies examined, Fettahoğlu & Sayan (2021) studied Turkish individuals' cryptocurrency usage behaviors and they also could not observe significant effect of perceived risk over cryptocurrency usage behavior. Besides, when the global studies are examined, while Namahoot and Rattanawiboonsom (2022) suggested a significant and positive relationship between perceived risk and cryptocurrency adoption, other studies also proved that perceived risk is not relevant in explaining the adoption of cryptocurrencies (Arias-Oliva, 2019; Mendoza-Tello et al., 2018). Besides, Ghulam, Luqman & Adeel (2020) suggested that perceived risk that associated with Bitcoin has a moderator relationship between the adoption and intention to use cryptocurrencies. Obviously, the absence of an empirical evidence of perceived risk's negative impact on the intention to use cryptocurrencies is a surprising finding that stands out. Considering the significant price falls in the cryptocurrency prices in recent years, it could easily be argued that they are risky, but apparently it's not the case for Turkish cryptocurrency users. However, considering the survey of this study was only conducted among cryptocurrency users, this study proved that while Turkish people invest in cryptocurrencies they do not think cryptocurrencies are risky assets. Therefore, the perceived risk that is associated with cryptocurrencies does not negatively affect the intention to invest in cryptocurrencies and Turkish users would not perceive any problems in making investments to cryptocurrencies. Also, other studies have found similar results it can be indicated that this is not a surprising situation. In that context, CoinGecko's (2021) cryptocurrency awareness report of Türkiye that consist of 715 participants provides some evidence to promote this opinion. The report found out that, even though Turkish cryptocurrency users have many altcoins they do not know how to read a smart contract, which shows that these users might not be aware of the associated risks, in addition, when their expectation from cryptocurrency market for next 6 months is asked, 79% of the participants stated to be optimistic, so it can be put forward that, perceived risk associated with cryptocurrencies is not a significant factor that affect the behavioral intention of Turkish cryptocurrency users.

When the demographic characteristics of the survey participants are examined, given answers to the survey questions that generate the proposed research model do not

show significant difference in terms of the demographic characteristics of the survey participants. In other words, when the Turkish people who invest in cryptocurrencies are analyzed, their subjective norms, attitudes, perceived behavioral controls, perceived risks and behavioral intentions do not show significant differences according to their age, income, gender, marital status and education levels. In this sense, when the related studies are examined, Ante et al. (2020) analyzed cryptocurrency investment performance of 354 cryptocurrency investors from Germany and found out no significant difference in terms of gender, age and education level of the participants. Besides, Pham et al. (2021) investigated 275 Italian cryptocurrency investors and compared their demographic characteristics, in terms of their intention to invest in cryptocurrencies. In that sense, they could not find differences from the point of financial literacy, gender, education, income and age among the Italian cryptocurrency users. Furthermore, in 2021 cryptocurrency data provider platform CoinGecko (2021) conducted a cryptocurrency awareness report in Türkiye by analyzing 715 Turkish cryptocurrency users. According to the report while 84% of the survey Turkish cryptocurrency consumers rely on social media, 15% of the consumers trust family and friends to learn about cryptocurrencies. Thus, it can put forward that, Turkish cryptocurrency consumers' using way of the cryptocurrencies is often driven by their reliance on social media and their families/friends, which can expose them to the same news and lead to the development of similar beliefs and ideas regarding cryptocurrency investment. Therefore, according to the research report of CoinGecko (2021), it is not a coincidence that, certain demographic characteristics of Turkish cryptocurrency users do not exhibit any differences from the point of subjective norms, attitudes, perceived behavioral controls, perceived risks and behavioral intentions.



## 6 CONCLUSION

This study intended to understand Turkish consumers' intentions towards cryptocurrency investment by examining the variables of the theory of planned behavior and perceived risk. The prepared survey has been presented to 245 cryptocurrency users in Türkiye and to analyze this data, structural equation modeling and mean comparison analyses were used.

The results of this study provide important insights into the specific factors that influence Turkish consumers' intentions to invest in cryptocurrencies. Also, the results confirm that subjective norms, attitude, and perceived behavioral control are all significant predictors of intention to invest in cryptocurrencies, aligning with the TPB framework. However, the results also suggest that perceived risk may not be an important predictor of intention to invest in cryptocurrencies and demographic factors of age, gender, income, marital status, education level do not directly or indirectly affect the intention to use cryptocurrencies. The findings of this thesis are consistent with the prior studies that investigate the theory of planned behavior and cryptocurrency adoption of individuals (Schaupp & Festa, 2018; Mazambani & Mutambara, 2019; Soomro et al., 2022; Pilatin & Dilek, 2023; Walton & Johnston, 2018; Pham et al., 2021).

So that, this study contributes to the growing field of cryptocurrencies, particularly from the perspective of Turkish consumers. Since very few studies have been practiced especially from the Turkish users' perspective, this study aims to fill the existing knowledge gap and provide valuable insights. Thus, it is envisaged that the findings from this study will contribute to managers and literature.

In that regard, as a theoretical contribution this study has focused on an extended version of TPB to analyze Turkish consumers' intentions toward cryptocurrency investment. By doing so, certain background factors and perceived risk factor has been added to the traditional TPB model. When the research model of other cryptocurrency

consumer behavior studies are examined, this study differentiated itself by using an extended TPB model.

From a managerial perspective, the findings of the study can have important implications for managers, investors and policymakers. In that sense, possible implications and recommendations will be put forward for each variable. Initially, attitude has been found as positive and the most significant factor that influence behavioral intention of Turkish people towards cryptocurrency investment. Basically, in the theory of planned behavior, attitude refers to an individual's overall evaluation or positive/negative feeling toward performing a particular behavior (Ajzen, 1991). Therefore, it can easily be put forward that managers should focus on developing positive attitudes towards cryptocurrencies if they want to increase the amount of cryptocurrency investors. In that sense, education programs, awareness campaigns, specific marketing strategies etc. can be offered.

Perceived behavioral control has been obtained statistically significant and positive factor that affect behavioral intention of Turkish people towards cryptocurrency investment. Hence, businesses that are interested in promoting cryptocurrency investment or usage should focus on increasing people's perceived behavioral controls. This could be done by providing information about the resources and support that are available to help people to invest in cryptocurrencies, or by reducing the perceived barriers to enter cryptocurrency markets. For instance, managers can try to decrease concerns about technological complexity, security, or regulatory issues regarding cryptocurrencies, so they can increase the perceived control of potential users.

Subjective norms also found statistically significant and positive factor that influence behavioral intention of Turkish people regarding cryptocurrency investment. In that sense, this finding suggests that businesses that are interested in promoting cryptocurrency investment should focus on increasing the perceived social pressure to invest in cryptocurrencies. This could be done by highlighting the fact that many people are investing in cryptocurrencies, or by getting celebrities or other influential people to endorse cryptocurrency investment.

The study also revealed that background factors of age, gender, marital status, education level and income do not directly or indirectly affect the intention to invest in

cryptocurrencies. Therefore, managers that are interested in promoting cryptocurrency investment should focus on the other factors more and they should not differentiate their strategies according to these background factors.

## **6.1 LIMITATIONS**

The population of the survey is limited only to Turkish individual consumers who invest in cryptocurrencies. While institutions can also invest in cryptocurrencies, they survey of the study only shared to individual investors. Despite the survey was shared in online platforms with a large number of users, the participation rate from these platforms were quite low, so that, the majority of the respondents consist of the individuals who is directly or indirectly reached by the researcher. Hence, individuals who choose not to attend the survey may have different intentions towards cryptocurrency investment so, representativeness of the sample can be limited. Also, the risk of self-report bias can exist as well since the data collected from the individuals through a survey. Besides, collected data belongs to only 245 respondents from Türkiye, which is a very small sample size, hence, a bigger sample size can provide more comprehensive results.

The survey was conducted during the period of December 2022 to February 2023, which corresponds to approximately one year after the peak cryptocurrency market capitalization in 2021 and the significant price fall between 2021 and 2022 (Statista, 2023). Therefore, the participants of the survey might have been affected by this recent price fall and they might have given their answers under this influence as well. So, the dynamic nature of cryptocurrencies can limit the generalizability of the behaviors of consumers.

The research model of the study includes variables from theory of planned behavior and variable of perceived risk. However, there might be other relevant factors that influence consumers' behavioral intentions toward cryptocurrency investment. Even though, theory of planned behavior model is commonly used in similar studies, certain variables can still be missing which can limit the comprehensive understanding of the study.



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# APPENDIX

## Appendix A – Questionnaire in English

### Survey Information Letter

Dear Participant,

The information obtained from this questionnaire will be used in academic research. The information you share and your identity will be kept strictly private. In this study, the collective results that is going to be obtained from the sample is more important the What is important in the research is not the individual answers of the people, but the collective results to be obtained from the sample. Your answers are very valuable in terms of acquiring correct results. Thank you for your interest, your time and valuable contributions.

### 1. Section

#### Demographic Questions

1-) What is the highest degree or level of education you have completed?

☐ Primary education ☐ High school ☐ Associate ☐ Undergraduate ☐ Graduate

2-) Your Gender:

☐ Female ☐ Male ☐ Other

3-) Your age:

☐ 18-20 ☐ 21-25 ☐ 26-30 ☐ 31-35 ☐ 36 and above

4-) Your marital status:

☐ Married ☐ Single ☐ Divorced

5-) Your monthly income:

☐ 0 - 5500 TL ☐ 5500 - 10 000 TL ☐ 10 000 TL and above

6-) In which of the following financial assets do you have an investment? (Multiple options you can choose)

( ) Cryptocurrencies ( ) Stocks ( ) Foreign Currency ( ) Precious Metals (Gold, silver etc.) ( ) Deposit Accounts ( ) None ( ) Other:\_\_\_\_

7 -) Do you work? If you are working, what kind of job do you have?

( ) Full-time job ( ) Part-time job ( ) Not working ( ) Retired ( ) Student ( ) Other:\_\_\_\_

8-) In which field you work, please specify. (You can leave it blank if you are not working)

( )\_\_\_\_ (fill in the blanks) (Optional for those who answered question 7 as a full-time job or a part-time job)

## 2. Section

### Questions about Theory of Planned Behavior and Perceived Risk.

9	People whose opinions are important to me would think that I should invest in cryptocurrencies
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
10	People who influence me would think that I should invest in cryptocurrencies
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
11	People (peers and experts) important to me would support my use of cryptocurrency
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
12	I think that investing in cryptocurrencies is a good idea.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
13	I think that using cryptocurrencies for financial transactions would be a wise idea
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
14	In my opinion, cryptocurrencies can be used in substitution for legal currencies (euro, dollar, TL etc.)
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
15	I think that using cryptocurrencies for investments would be a wise idea.

	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
16	I think that I would be able to use cryptocurrencies well for financial transactions
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
17	I think investing in cryptocurrencies is completely under my control
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
18	I think that I have the resources , knowledge, and ability to use cryptocurrencies
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
19	I think there is too much uncertainty to invest in cryptocurrencies.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
20	I think there is too much uncertainty associated with using cryptocurrencies
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
21	I think that, compared to the other financial assets, cryptocurrencies are riskier.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
22	I intend to invest in cryptocurrencies.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
23	I will most likely invest in cryptocurrencies.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )
24	I hope to invest in cryptocurrencies.
	Totally Disagree( ) Disagree( ) Slightly Disagree( ) Neutral( ) Slightly Agree( ) Agree( ), Totally Agree( )

## **Appendix B - Questionnaire in Turkish**

### **Anket Önbilgilendirme Mektubu**

Değerli Katılımcı;

Bu anket formundan elde edilecek bilgiler bir akademik araştırmada kullanılacaktır. Paylaşacağınız bilgiler ve kimliğiniz kesinlikle gizli tutulacaktır. Araştırmada önemli olan kişilerin bireysel cevapları değil, örneklemden elde edilecek toplu sonuçlardır. Vereceğiniz cevaplar, doğru sonuçların elde edilebilmesi açısından çok kıymetlidir. Gösterdiğiniz ilgi, ayırdığınız zaman ve değerli katkılarınız için teşekkür ederiz.

#### **1. Bölüm**

##### **Demografik Sorular**

1-) En son mezun olduğunuz eğitim düzeyi

☐ İlköğretim ☐ Lise ☐ Önlisans ☐ Lisans ☐ Lisansüstü

2-) Cinsiyetiniz

☐ Kadın ☐ Erkek ☐ Diğer

3-) Yaşınız

☐ 18'den küçük ☐ 18 – 25 ☐ 26 – 30 ☐ 31 – 35 ☐ 36 ve üzeri

4-) Medeni durumunuz

☐ Evli ☐ Bekar ☐ Diğer

5-) Aylık gelir durumunuz

☐ 0 - 5500 TL ☐ 5500 TL - 10 000 TL ☐ 10 000 TL - 15 000 TL ☐ 15 000 TL ve üzeri

6-) Aşağıdaki finansal varlıklardan hangisinde yatırımınız bulunmaktadır? (Birden fazla seçenek seçebilirsiniz)



( ) Kripto Paralar ( ) Hisse Senedi ( ) Döviz ( ) Değerli Metaller ( Altın, gümüş vs)  
( ) Mevduat Hesabı ( ) Hiçbiri ( ) Diğer:\_\_\_\_

7-) Çalışıyor musunuz? Çalışıyorsanız eğer nasıl bir işte çalışıyorsunuz?

( ) Tam Zamanlı İş ( ) Yarı Zamanlı İş ( ) Çalışmıyorum ( ) Emekli ( ) Öğrenci ( )  
Diğer:\_\_\_\_

8-) Hangi alanda çalışıyorsunuz, lütfen belirtiniz. (Çalışmıyorsanız boş bırakabilirsiniz)

( )\_\_\_\_ (boşluk doldurma) (7. soruyu tam zamanlı iş ya da yarı zamanlı iş olarak  
yanıtlayanlara opsiyonel)

## 2. Bölüm

### Planlı Davranış Teorisi ve Algılanan Risk ile İlgili Sorular

9	Görüşlerine değer verdiğim kişiler kripto paralara yatırım yapmam gerektiğini düşünürler
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
10	Beni etkileyen insanlar kripto para birimlerine yatırım yapmam gerektiğini düşünürler
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
11	Benim için önemli olan kişiler (meslektaşlarım, uzmanlar, ailem vs.) kripto paralara yatırım yapmamı destekler
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
12	Kripto paralara yatırım yapmanın iyi bir fikir olduğunu düşünüyorum
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
13	Finansal işlemler için kripto para birimleri kullanmanın akıllıca bir fikir olacağını düşünüyorum
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
14	Bence, kripto paralar yasal para birimlerinin (euro, dolar, TL vs.) yerine kullanılabilir.

	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
15	Yatırımlar için kripto para birimleri kullanmanın akıllıca bir fikir olacağını düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
16	Finansal işlemler için kripto para birimlerini iyi bir şekilde kullanabileceğimi düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
17	Kripto paralara yatırım yapmanın tamamen benim kontrolümde olduğunu düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
18	Kripto paralara yatırım yapmak için gereken kaynaklara, bilgiye ve yeteneğe sahip olduğumu düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
19	Kripto para birimlerine yatırım yapmak için çok fazla belirsizlik olduğunu düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
20	Diğer finansal varlıklarla karşılaştırıldığında, kripto para birimlerinin daha riskli olduğunu düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
21	Kripto para birimlerine yatırım yapmanın riskli olduğunu düşünüyorum.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
22	Kripto paralara yatırım yapma niyetindeyim.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )
23	Büyük ihtimalle kripto paralara yatırım yapacağım.
	Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )

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24 Kripto para birimlerine yatırım yapmayı umuyorum.

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Kesinlikle Katılmıyorum( ) Katılmıyorum( ) Kısmen Katılmıyorum( ) Kararsızım( ) Kısmen Katılıyorum( ) Katılıyorum( ) Kesinlikle Katılıyorum( )

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## **CURRICULUM VITAE**

Yunus Emre Koak has graduated from the Business Administration Bachelors Program of the zyeėin University in 2018. After that, started business management master program in Turkish-German University in 2020. He has been working as a manager at his family business in hospitality sector since 2018.

