Drivers of Investment Intention in Cryptocurrencies: Before and during COVID-19

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

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Abstract

The COVID-19 pandemic has had an impact on individuals in various ways due to the restrictions it caused. Among many aspects, financial uncertainty was a factor that worried people and it became important to find safe assets in times of crisis, while simultaneously the cryptocurrency market was found to increase. The aim of this bachelor thesis is to examine how the drivers of cryptocurrency investment intention have changed during the COVID-19 pandemic as compared to the situation before. Further, it focuses on researching whether the investment drivers before the pandemic could be considered as useful predictors for the drivers during the pandemic.

For this reason, a quantitative research method was chosen by conducting an online survey, which was answered by a total of 80 participants. The questionnaire consisted of close-ended questions which examined the drivers of investment for the period before the COVID-19 pandemic and for the period during the COVID-19 pandemic. Statistical tests were run to investigate the significance of numerous relationships. A convenience sampling approach has been used for this research.

The findings of this thesis indicate that social as well as Twitter influence on cryptocurrency investment intention were perceived to be higher during the pandemic as compared to before. The participants indicated that their engagement with cryptocurrencies has also been higher during the pandemic as compared to before. Moreover, it was found that all drivers of investment during the pandemic (social influence, innovativeness, trustworthiness, expected profitability and perceived risk) can be predicted by the same drivers from before the pandemic.

Keywords: Cryptocurrency; Twitter; Social Media; Social influence; Drivers; Investment; COVID-19; pandemic

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1   Introduction

Over one decade ago, in 2009, the first cryptocurrency, namely the "Bitcoin" emerged, changing the traditional financial markets due to its decentralization. Cryptocurrencies are digital currencies which can be traded by using blockchain, a distributed ledger which offers a public record of all transactions made by a specific cryptocurrency and are almost impossible to change. The demand stems from various benefits offered. These include the elimination of capital control and high taxes as well as no mismanagement by authorities. However, in the past it has also been under criticism, as it has been used for illegal purchases and tax evasions due to its an anonymity (Kuepper, 2022).

In 2020, when the global COVID-19 pandemic hit and financial markets became fragile, it caused uncertainty among individuals (Iqbal et al., 2021). Consequently, enterprises were in need of technological innovations and expansion in order to provide remote financial services (Finance Derivative, 2020). The interest in blockchain technology and the crypto-market of dominant companies in the e-commerce and payment is continuing to grow as "The Global Blockchain and Cryptocurrency Market 2021" reports. These might have been the contributing reasons for an increase in the popularity of cryptocurrencies and a growth in the market, since individuals were seeking for new assets for investment options in times where the financial institutions were unstable and enterprises are continuing to set the trend of digital currencies (Iqbal et al., 2021). Moreover, due to COVID-19 lockdown restrictions and the feeling of loneliness, social media usage has increased dramatically (Azer et al., 2021). Discussions of uncertainty on social media platforms (e.g. Twitter) regarding a certain cryptocurrency have as well been proven to have an effect on the performance of the cryptocurrency. Therefore, social media usage and e-word of mouth might have contributed to changes as well as promotion of the crypto-market (Aharon et al., 2022).

With the beginning of the pandemic, approximately in March 2020, there was a drastic rise in the crypto-market, as seen in the price difference in Bitcoin, which was 6483.74 US Dollars and amounted to 58,734.48 US Dollars in March 2021. It reached its peak in value of 61,374.28 US Dollars in October 2021, after which it decreased significantly to today's value of approximately 28.000 US Dollars (Statista, 2022). During parts of the period, where Bitcoin showed a substantial increase, approximately 3.9 billion people were ordered to stay in lockdown by governments due to the pandemic (Sandford, 2020). These ordered restrictions

might have caused a higher demand for digital currencies and a rising interest in new investment assets due to more available leisure time. Once the COVID-19 restrictions were loosened and social distancing regulations did not apply anymore, the Bitcoin price decreased simultaneously. Therefore, the drivers to invest in cryptocurrencies might have changed due to the effects of the COVID-19 pandemic.

1.1　Topicality and relevance of the topic

This thesis is based on studies that look at a similar situation as the pandemic and could be used as an example on how such markets are perceived during a crisis as well as serve as a comparison. By conducting a quantitative research approach in the form of an online survey, this also provides valuable information about the financial behavior of individuals in such situations as well as how the drivers of investment in new assets change.

Uncertainty in the financial market during the pandemic and more time spent at home and on social media could be potential reasons for why the popularity of the cryptomarket and the curiosity for it increased during the pandemic.

The research question that this paper aims to answer is:

How did the drivers of investment intentions in cryptocurrencies change during the COVID-19 pandemic as compared to before?

1.2　Aim of Study

The purpose of this thesis is to examine whether certain drivers of investment were perceived to be more present among society during the pandemic as compared to before. Further, to investigate which drivers of investment were perceived to change the most during the COVID-19 pandemic as compared to before. Moreover, it aims to provide insights in whether drivers of investment in crisis can be predicted with the drivers of investment from before such situations. This will be executed by comparing crucial constructs before and during the implemented COVID-19 restrictions. The research in terms of societal behavior towards cryptocurrencies and the rise in popularity and knowledge of the crypto-market during the COVID-pandemic is scarce and should be therefore highlighted in this paper. This thesis provides valuable

information for investors as well as serves as an example for similar periods of crisis as the COVID-19 pandemic.

1.3 Research process

Even though there are numerous articles discussing and analyzing the connection between the COVID-19 pandemic and the cryptocurrencies market are increasing, the focus of this paper, namely *how the drivers of investment intentions in cryptocurrencies have changed during the pandemic as compared to before,* has not been researched before. In order to find a valuable answer to the central research question, a quantitative approach was applied, by conducting an online survey. The survey reached a sample of 80 participants, whose responses were used to test the main hypotheses.

The structure of the thesis can be categorized into 4 main parts: first, the discussion and research of existing literature and definitions, to provide a better understanding of the thesis topic to the reader. Further, the methodology section includes details concerning the data collection as well as how the survey was designed and analyzed. Next, the results of the conducted survey are elaborated, whereby the sample characteristics are analyzed, and the results of the hypotheses testing provided and discussed. Last, the conclusions of the research paper are discussed, including further research suggestions and limitations to this paper.

2 Literature Review

2.1 Blockchain Technology

Blockchain technology is the fundamental foundation of cryptocurrencies. It is a distributed ledger, which holds records of each transaction made in the system. Once a transaction is made, it is reviewed, verified, and maintained by the use of computers algorithms. Further on, the transaction is then connected to the previous transaction made and therefor builds chain of transactions, which explains the name "blockchain". Its technology provides a decentralized system, since each record is distributed among anyone using the software, instead of holding the database on a single server. Due to this fact, it is impossible to manipulate or change information as well as to gain control of the system since every user is provided with the ability to access each transaction (Sarmah, 2018). Because of its decentralized nature, it is resistant against attacks and collusions. Blockchain offers various advantages to its users, such as transparency, since each transaction is available to every user, trust, due to the function of blockchain it provides users with secure operations, and disintermediation, since a central control is eliminated in blockchain. However, the main critique concerning blockchain include the large amount of energy that is needed in order to operate many public and permissionless blockchains, which is referred to as the "mining process" (Holotescu et al., 2018).

2.2 Cryptocurrencies

The first mention of cryptocurrencies was in 1998 by Wei Dai. Cryptocurrencies can be defined as a subcategory of digital and alternative currencies since they have a decentralized nature in comparison to other digital currencies. The name was derived from the word "Crypto", which describes encrypted algorithms and processes that keep transaction entries secure. The purpose of cryptocurrencies lies in performing exchange transactions by using cryptography, which provides a secure and almost impossible system to attack by double spending or falsification. The transactions provide a monetary exchange with digital "tokens" and "coins". These are secured in a record keeping system that holds information of each entry and transaction made as well as the anonymous identities of users (Frankenfield, 2022). As in traditional stock markets, cryptocurrencies can be traded in the "crypto-market" at fiat currency

rates (Dourado & Brito, 2016). The benefits of cryptocurrencies include the facilitation of monetary transfers without a central authority, since they are in comparison to single authorities such as banks, secured by public and private keys (Frankenfield, 2022). With each first transaction of a user a public as well as a private key can be generated. Public keys hold a cryptographic code which provides users with the function of acquiring cryptocurrencies into their accounts (or UTXOs), whereas a private key is solely available to the user and acts as their virtual identity. The public key confirms that the signature to perform a transaction came from the users private key (Frankenfield, 2021). Nevertheless, due to the anonymity of transactions, it sets the possibility to participate in illegal activities, such as money washing. However, this varies with each cryptocurrency since some are more transparent than others. With cryptocurrencies "Bitcoin" is the most popular as well as most valuable coin (Frankenfield, 2022). After the emergence of Bitcoin, many other alternative coins to Bitcoin have been created, which are referred to as "altcoins" (Victor, 2017).

2.2.1 Altcoins

Altcoins are defined as alternative coins to Bitcoin (Schueffel et al., 2019). As of today, there are over 10,000 altcoins that have been created after Bitcoin and are holding over 40% of the total market capitalization (CoinMarketCap, 2021). They can differ in terms of their abilities and what they have to offer, such as reduced energy for the creation of blocks. Popular Altcoins include Litecoin, Bitcoin Cash and Dogecoin. However, Bitcoin influences and leads the movement of every altcoin (Frankenfield, 2022).

2.2.2 Token

As it is with altcoins, tokens are defined as subcategories of cryptocurrencies that have different purposes and characteristics. The major difference between altcoins and tokens, is that altcoins are used for payment transactions and are in possession of their own blockchain, whereas tokens, do not have their own blockchain but rather run on an existing chain of blocks. Tokens can be put to use for trading, as a payment method or for value storage. They are commonly used for creating smart contracts and apps. Some tokens provide the holder to stream videos on certain blockchain based content sharing, or a token could be standing for another cryptocurrency such

as being equivalent to 10 Bitcoins. Ultimately, tokens offer more to users, since they have more utilization possibilities than regular crypto coins (Frankenfield, 2021).

2.2.3 Cryptography

Cryptography is referred to as changing a message, a so called "plaintext", by encryption techniques. After the encryption process the plaintext is now a "ciphertext". In order to get from ciphertext to a plaintext again, the process of decryption would be needed. Hereby mathematical algorithms and practices are used. (Munir, 2005). In the case of cryptocurrencies, cryptography is responsible for the anonymity, secure transactions and decentralization. It is used to secure the data in a way that only intended user can view it. This is done in a way that the message sent is secured by an encryption process and once it is received by the intended receiver the message is reversed to the initial message through decryption. Cryptocurrencies apply this method when verifying transfers, overviewing new cryptocurrencies and safeguarding transactions in the overall system (Shobhit, 2021).

2.2.4 Crypto-market

Crypto-markets are as traditional stock markets, a platform where users can exchange cryptocurrencies as well as trade cryptocurrencies for standard money (Galanov et al., 2018). Hereby, some of the most famous exchange platforms include Bitfinex, Kraken and Poloniex. In order to use these websites and applications, users are required to verify their personal identity. So-called "wallets" are used to exchange cryptocurrencies, as well as to have an overview of their account balance. With this, there are two types of wallets, hardware, and software. While hardware is known to be more secure since it stores the private key offline. The private key stays within the hardware wallet and is therefore secured from any computer hacks. With the software wallet on the contrary, the funds can be held online by the provider of the wallet, which increases the risk. Reasons for investing in cryptocurrencies can vary. Due to the changing prices of the cryptocurrencies, it adds a speculative characteristic, which can lead to profit. Moreover, a rise in the Bitcoin price has been noted especially during times of uncertainty (Mazer, n.d.).

3 COVID-19

The following section will explain the COVID-19 pandemic, the implemented government regulations, and effects on societal behavior, whereby the focus lies on analyzing the impact on social media usage and crypto-markets. Further, it illustrates whether the increased usage of social media in lockdown had effects on the crypto-market development and popularity.

3.1 COVID-19 pandemic

The first human case of the coronavirus was reported in December 2019, in Wuhan, China and spread rapidly worldwide. Patients with the virus showed symptoms such a dry cough, high fever, dyspnea. After the virus has spread by human-to-human transmissions all over the world within a short time period, the number of cases increased drastically, whereby more data was collected and was found that the virus causes an atypical pneumonia, which in some cases has led to fatality (Liu et al., 2020). In fact, as of November 2021, 5.25 million deaths have been reported that were caused by the virus (Statista, n.d.).

However, in the beginning of the COVID-19 outbreak, in 2019, the World Health Organization classified the virus as novel coronavirus, 2019-nCoV, but soon after was termed as severe acute respitory syndrome coronavirus 2 (SARS-CoV-2), by the International Committee on Taxonomy of Viruses. In March 2020, due to the tremendously high transmission rate, number of cases and caused deaths globally, the WHO declared it as a pandemic. Almost one year later, in December 2020, vaccines were released, first mad (McNamara et al., 2021) available for people from the age of 65, that were categorized as priority (McNamara et al., 2021). By now, in November 2021, 55.8% of the world population have received at least one dose of vaccination (Holder, 2021).

3.2 COVID-19 effects

Due to the high infection rates as well as overcrowded intensive care units, many states declared a city, region or national-wide lockdown and social restrictions leading to the closing of gastronomy, hospitality, businesses, and institutions partly or fully. The length of the lockdown differed among countries and regions, depending on the

COVID-19 cases in the given area. Consequences of these government restrictions include psychological effects such as stress and depression, environmental effects, whereby an increase in air and water quality was observed (Atalan, 2020). According to Atalan (2020) economic effects were as well noticeable results of the imposed lockdown. Due to government restrictions businesses were demanded to close for the lockdown period, which lead to changes in the employment status. Hereby in Austria the unemployment rate has experienced a rise from 8% in February to 13% in April 2020 (Kittel et al., 2021). The same applies to many countries, such as the U.S. whereby the unemployment rate increased from 3.67% in 2019 to 8.31% in 2020 (Statista, 2020). According to Statista (2021), the number of unemployed people reached a peak of 220 million in 2021 compared to the last 30 years. In addition, on a global scale, the pandemic had a severe negative effect on the economy with a GDP loss of 3.4 percent for large economies and a loss of 2.96 trillion U.S. dollars of economic output globally. Further, the banking systems as well as stock markets have experienced a negative impact by the pandemic. Hereby the S&P500, which is an index weighting the market capitalization of the 500 most relevant companies in the U.S. that are traded publicly (Investopedia, n.d.), has decreased by 30% in March 2020, reporting its highest point drop in one day of all times (Iqbal et al., 2021). Other researchers have further investigated the relationship between stock markets and the COVID-19 pandemic, whereby Ashraf (2020), found that depending on the development of the crisis, stock markets were affected positively or negatively. With announcements implementing social distancing regulations and therefor the expected negative impacts on economic activities, stock markets were affected negatively. However, when it was reported that COVID-19 cases decreased, the stock market experienced a positive return (Ashraf, 2020). Iqbal argues that during such crisis, cryptocurrencies were a common investment during the pandemic, as it is decentralized. In fact, studies have found that the prices of Bitcoin were positively influenced by the health crisis (Béjaoui et al., 2021).

3.3 COVID-19 and Social Media

With social distancing restrictions and stay-at-home orders by the government, people were not able to continue socializing in physical form (Marengo et al., 2022). Human connections, however, are fundamental to each individual for their mental

health. In fact, multiple scientific studies have proven that social connection can decrease mortality risk (Marinucci et al., 2021). As a response to the limitations of face-to-face interaction, social media usage among adolescents increased during this period, as most felt it was needed as a coping mechanism in order to fulfill social needs via online platforms (Marengo et al., 2022). Additionally, Facebook, which is the owner of Instagram and WhatsApp as well, has released an article at the end of March 2020, describing the heightened social media usage it has experienced since the COVID-19 outbreak. Hereby an increase of total messaging in countries that had the highest cases, such as Italy, by 50% was observed. Further, in Italy up to 70% more time was spent across all applications owned by Facebook (Schultz & Parikh, 2020). According to Statista (n.d.), in the U.S., the average daily time spent on social networks by users amounted 54 and 56 minutes in 2018 and 2019 respectively, whereas in 2020 it increased to 65 minutes. The reason for this, are the social distancing requirements due to COVID-19 (Statista, n.d.). The "liking" and "commenting" features of multiple social networks presented an additional possibility for people to receive a sense of belonging and attention during times of quarantine (Onat Kocabıyık, 2021). Furthermore, social networks were often the primary source to collect information on any reported topics regarding the COVID-19 pandemic (Mahmood et al., 2021). In fact, a study conducted by Onat Kocabıyık (2021) reported that over 90% of young adults used social media platforms in order to receive details concerning the pandemic, such as COVID-19 transmission, vaccines and number of cases.

3.4   COVID-19 and Cryptocurrencies

As mentioned above, the effects of the COVID-19 pandemic have had a negative effect on the economy, which was also observed in the decrease of oil prices and stock markets worldwide (Managi et al., 2022). Nevertheless, there are many contradicting studies when it comes to the cryptocurrency market, which have investigated the relationship between the COVID-19 pandemic and cryptocurrencies performance as well as examining whether cryptocurrencies, and especially Bitcoin was frequently considered as a hedge or safe havens during a period of financial uncertainty.

Research by Diniz-Maganini et al. (2021), shows that shortly after the WHO declared the coronavirus as a global pandemic Bitcoin's price decreased from 8.900$ to 5.165$, but rose again in July to 9.243$ and finally, one year after the pandemic was officially

announced it had risen to 60.000$ in March 2021. Further, Le et al. (2021) argues that there is evidence indicating that during times of financial uncertainty cryptocurrencies acted as new potential safe-haven. This reflects the same findings from Goodell & Goutte (2021). Moreover, Dong et al. (2021) suggests for investors in developed markets to diversify their portfolios by adding Bitcoin as well as gold to prevent more losses from investments in the stock market. On the contrary, research by Corbet et al. (2020) find that it is not appropriate as a safe haven during the COVID-19 pandemic, which are in line with findings from Conlon & McGee (2020). These findings are consistent with the results found in a study by Allen (2022), who investigated the correlation between two of the most crucial cryptocurrencies, namely Bitcoin and Ethereum and the S&P500 Index. Due to drastic differences in the results, both cryptocurrencies are not considered to be safe diversifications in investors' portfolios during the COVID-19 crisis (Allen, 2022). However, such different findings may be caused by differences in research aspects, such as the time period of examination. Research conducted by Béjaoui et al. (2021), found that social media was as well widely used as an information source to make investment decisions as well as search for new investment possibilities in times of financial instability such as the pandemic.

4   Drivers of investment

For the purpose of this thesis, six drivers of investment have been chosen, namely social influence, Twitter influence, innovativeness, trustworthiness, expected profitability as well as perceived risk.

4.1   Social Influence

Social Influence can be defined as the extent of an individual's belief that others are convinced they need to adapt to a certain technology (Arias-Oliva et al., 2019). The level to which individuals are likely to accept new technologies heavily depends on the influence of their social surroundings as well as their personal perception (Alaklabi & Kang, 2018). This is supported by research conducted by Al-Nawayseh (2020) who as well stress that users purchase decisions are often influenced by their friends, family as well as social media. Therefore, the social circle of an individual has the ability to influence them in a positive or negative direction regarding a certain action

or even purchase intention, if the people's opinions within the social surrounding are important to the individual (Alaklabi & Kang, 2018). Results from a survey conducted by the FCA (2021), shows that 76% of 18 to 40-year-olds are motivated to invest in "high risk products", such as in the crypto-market due to competition with friends and family. Moreover, research shows that social influence resulted to be a crucial predictor for indicating whether a new technology results in acceptance or its rejection. Further, the outcome of the level of impact social influence has on the adaptation of new technologies was found to depend on whether it is imposed on society or is done voluntarily (Alaklabi & Kang, 2018).

Therefore, the researcher derives the following hypotheses:

H1a: Social influence impacts cryptocurrency investment intention more during the COVID-19 pandemic as compared to before the COVID-19 pandemic.

H1b: The level of social influence on cryptocurrency investment intention before the COVID-19 pandemic impacts the level of social influence on cryptocurrency investment intention during the COVID-19 pandemic.

4.2   Twitter Influence

Another factor that needs to be considered and is closely related to social influence is social media, since cryptocurrencies are still relatively new most investors would rely on social networks to find information to make their investment decision (Echchabi et al., n.d.). Therefore, in the case of cryptocurrencies, Twitter has been serving as an information and entertainment platform for crypto-users (Abraham et al., 2018). The social media platform Twitter is mainly used for sharing text-based posts, called "tweets" which allow up to 280 characters. Further users have the option to follow certain topics they are interested in and share their thoughts as well as read others posts (Gil, 2021). One of such topics is the cryptocurrencies market, where different coins are discussed, and opinions are shared. Such microblogs frequently share viral news that have instant effects on financial markets (Kraaijeveld & De Smedt, 2020). Further, Abraham et al. (2018) found that there is a high correlation between the prices of cryptocurrencies and search volume index on Twitter as well as tweet volumes. During the pandemic, the number of active users worldwide increased from

290.5 million in 2019 to 3,125 million in 2020 (Statista, 2022). At that time Elon Musk, who as the richest man worldwide had an influential position, has tweeted multiple times in regard to the crypto-market. For instance, Musk has changed his profile bio, which serves as a description of the profile user, to "#bitcoin", whereby soon after the price of Bitcoin increased from 32.000 US dollars to 38.000 US dollars (Ante, 2021). Moreover, according to research conducted by Ante (2021), Musk's tweets regarding a certain cryptocurrency increased the return as well as the trading volume, whereby the return increased from 3.58% after two minutes to 4.79% within the first hour. This implies that Musk's tweets have an impact on the movement of the cryptocurrency market (Ante, 2021). Moreover, many individuals investment intentions are based on the fear of missing out, which, according to Delfabbro et al. (2021), is defined as the situation when users are viewing a chart and have invested in a certain coin, and that coin increases in value rapidly, the traders regret not having invested a higher number. Another possible situation occurs, when a person has invested in a certain coin but another different coin goes up in value, leaving the person to regret the purchase decision and keep monitoring the chart due to the fear of missing out on a good investment (Delfabbro et al., 2021).

H2c: Twitter influence impacts cryptocurrency investment intention more during the COVID-19 pandemic as compared to before the COVID-19 pandemic.

H2d: The level of twitter influence on cryptocurrency investment intention before the COVID-19 pandemic impacts the level of twitter influence on cryptocurrency investment intention during the COVID-19 pandemic.

4.3   Innovativeness

Cryptocurrencies are perceived as innovative due to their basis on the new blockchain technology. The blockchain replaces trust in an authority with evidence from cryptography, which ensures anonymity and acts without a third party (Marx, 2017). Therefore, cryptocurrencies qualify for technological innovativeness, which determines the degree to which users seek to try novel products and ideas. Hence, it increases the level of consumers' knowledge of the product or service, which in turn increases their trust in the product and likelihood of sharing and recommending the product or service (Thakur et al., 2016). However technological innovativeness relies

on users' personal innovativeness, which can be defined as the level individuals adapt earlier to new technologies as compared to other members of society (Sun et al., 2020). Moreover, various research in different fields stress the importance of personal innovativeness (Sun et al., 2020). In addition, Iqbal et al. (2021) suggests that during periods of financial uncertainty, such as a pandemic, many wanted to extend their investment portfolios and have therefore searched for innovative assets to invest in, such as cryptocurrencies.

Therefore, the following hypotheses are postulated:

H3a: The perceived personal level of innovativeness was higher during the COVID-19 pandemic as compared to before the COVID-19 pandemic.

H3b: The perceived personal level of innovativeness during the COVID-19 pandemic impacts the perceived personal level of innovativeness before the COVID-19 pandemic.

4.4   Trustworthiness

Trust is a crucial factor that influences the intention to purchase and reduces perceived risk as well. Certain factors of mistrust, which are perceived with traditional currencies are eliminated from cryptocurrencies due to its fundament on blockchain technology. Further, cryptocurrencies and transactions completed with them are confidential, provide pseudonymity and do not include intermediaries and authorities (Mendoza-Tello et al., 2018). However, for that reason of cryptocurrencies users' pseudonymity it is increasingly important for investors to have trust in the system. However, even though all transactions are completed with transparency and considered to be unchangeable due to the blockchain technology there are still negative cases of cryptocurrency brands, including pyramid selling and fraudulent actions, which might lead to reduced trust (Sun et al., 2021). In addition, due to financial crisis during the pandemic, individuals were concerned about the development of traditional currencies leading some to put more trust in the decentralized digital cryptocurrency (Ibrahim & Saleh, 2022).

From this, the following is hypothesized:

H4a: The trustworthiness of cryptocurrencies during the COVID-19 pandemic was higher as compared to before the COVID-19 pandemic.

H4b: The trustworthiness of cryptocurrencies before the COVID-19 pandemic impacts the trustworthiness of cryptocurrencies during the COVID-19 pandemic.

4.5   Expected Profitability

As defined by Hazar & Yilmaz (2018), profitability refers to the investor's expectation of the gains, which is equal to the difference between the initial purchasing price of a cryptocurrency and the current price. In contrast to traditional stocks, cryptocurrencies are characterized by their high volatility, resulting in high gains and losses due to the frequent fluctuations in the market, while stocks are more stable and increase or decrease more gradually (Reed, 2021). Due to these rapid price fluctuations, cryptocurrencies are considered to be tempting investment options since they provide the opportunity to achieve a high profitability in a short amount of time as compared to traditional stock markets (Sukumaran et al., 2022). However, due to the high volatility of cryptocurrencies, trading and engaging in the cryptomarket is often perceived as exciting and thrilling (Stieg, 2021). Moreover, Chen et al. (2022) researched the relationship between Bitcoin price discrepancies, using the Bitcoin fiat currencies pair, and various countries with differences in the extend of media coverage of COVID-19 related topics. The results showed that countries which had a higher media coverage of COVID-19 topics and where citizens experienced higher emotional crisis due to the pandemic, had higher Bitcoin price changes. These findings imply that investors perceived in this case the cryptocurrency Bitcoin to be a favorable asset in times of financial uncertainty (Chen et al. 2022).

Therefore, the following hypotheses are postulated:

H5a: The expected profitability of cryptocurrencies was higher during the COVID-19 pandemic compared to before COVID-19.

H5b: The expected profitability of cryptocurrencies before the COVID-19 pandemic impacts the expected profitability of cryptocurrencies during COVID-19.

4.6 Perceived Risk

Perceived risk can be described as an uncertainty or expected loss that is associated with possible negative outcomes of an event, in this case the investment in the crypto-market (Mendoza-Tello et al., 2018). This is due to frequent price fluctuations as well as the fact that it is decentralized and not overseen by an authority. Moreover, the lack of regulations increases counterparty risks such as cyber-attacks and due to its pseudonymity makes illegal actions more feasible and not traceable (Jariyapan et al., 2021). Another crucial aspect of cryptocurrencies that contributes to a high perceived risk is the inability to recover the key to one's wallet, which holds the purchased cryptocurrencies, if it was forgotten or lost. Further, due to financial uncertainty during the COVID-19 pandemic people might have been more cautious when making investment decisions. This is supported by the findings of Jariyapan et al. (2022), who found that risk did not have any impact on the behavioral intention to use cryptocurrencies during the COVID-19 pandemic.

From this, the researcher postulates the following hypotheses:

H6a: The perceived risk of cryptocurrencies was lower during the COVID-19 pandemic as compared to before the COVID-19 pandemic.

H6b: The level of perceived risk of cryptocurrencies before the COVID-19 pandemic impacts the level of perceived risk of cryptocurrencies during the COVID-19 pandemic.

5 Methodology

The methodology in this thesis is described in three sections. First, in 5.1. the data collection provides information regarding the chosen approach for this paper whereby a brief explanation and justification for this approach is given. In the following section, 5.2, the characteristics of survey and the related hypothesis of this paper will be elaborated. In 5.3, a detailed overview of the data analysis is given, including the methods used.

5.1 Data Collection

For this paper, a quantitative research method has been selected, which is associated with a testing approach and focuses on surveys and experiments. This method comes to use when objective theories are examined by researching the relationship between variables. Pre-determined methods are applied, whereby the questions are instrument-based and closed-ended. In a quantitative method, a statistical characteristic is found in both, the analysis as well as interpretation (Creswell, 2014). Therefore, this method is appropriate for answering the research question of this paper, namely what the drivers of investment in the cryptocurrencies market were during the COVID-19 pandemic.

5.2 Survey Development

For the purpose of data collection an online survey has been selected , in order to gain an in-depth understanding in behavioral characteristics and attitudes of the participants regarding cryptocurrency investments before and during the COVID-19 pandemic. The authors main objective is to find valuable information about drivers of crypto-investment decisions during this time and whether this changed from before the COVID-19 pandemic. Therefore, the purpose of the survey is to test the developed hypothesis.

The survey consisted of 61 questions and was be divided into three parts. The first section contains multiple-choice questions concerning the demographic information, such as gender, age and education status. This is crucial to confirm that the sample is diversified and can be used as a representation of the population. Following this section, further multiple-choice questions with on one hand, two answer choices with

"yes" and "no" and on the other hand, a 7-point Likert Scale has been chosen, where "Strongly Disagree" is 1 and "Strongly Disagree" is 7, indicating the extent to which the participants agree to a given statement in the survey. Moreover, participants are asked about their engagement with cryptocurrency investments before and during the COVID-19 pandemic, to give insights into the participants knowledge and understanding of cryptocurrencies, as well as whether this has changed in those periods. Further, the third section investigates the drivers of investments decisions in cryptocurrencies and if those differ from the period before and during COVID-19 pandemic. This includes questions regarding social influence from friends and family, twitter influence, personal innovativeness, trustworthiness, expected profitability as well as perceived risk. For the purpose of this paper, each item within a construct has been asked twice once related to the period before the COVID-19 pandemic and once related to the period after the COVID-19 pandemic. Participants were always provided with a heading, informing them for which period the questions are referred to.

Below an outline of the survey that was presented to the participants through Google forms is illustrated, including the modifications that were necessary for the applicability of this study.

Heading:

Drivers of Cryptocurrency Investments: before and during COVID-19 Survey

Introduction:

Dear Participants,

I am inviting you to take part in this survey for my Bachelor Thesis "Drivers of Cryptocurrency Investments: before and during COVID-19".

In this survey I compare the drivers of cryptocurrency investments before and during the COVID-19 pandemic. My goal is to analyze changes between those periods.

Please read the headings before providing an answer to understand whether the question is related to the period before or during the COVID-19 pandemic.

Engagement	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_5.1	Are you engaged (e.g. analysing and trading) in cryptocurrency? o Yes o No	Did you engage (e.g. analysing and trading) in cryptocurrency before COVID-19? o Yes o No
Var_5.2	Are you engaged (e.g. analysing and trading) in cryptocurrency? o Yes o No	Are you currently engaged (e.g. analysing and trading) in cryptocurrency? o Yes o No

Please assess the importance of social influence on cryptocurrency investments BEFORE COVID-19.

Social Influence	Original Item	Modified Item
(Gupta et al., 2020) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_6.1	People whose opinions I value would like me to use cryptocurrencies.	People whose opinions I value wanted me to use cryptocurrencies.
Var_6.2	The people who are important to me will think	The people who are important to me thought

	that I should use cryptocurrencies	that I should use cryptocurrencies
Var_6.3	The people who influence me will think that I should use cryptocurrencies.	The people who influence me thought that I should use cryptocurrencies.

How did the level of social influence change DURING COVID-19?

Social Influence	Original Item	Modified Item
(Gupta et al., 2020) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_7.1	People whose opinions I value would like me to use cryptocurrencies.	
Var_7.2	The people who are important to me will think that I should use cryptocurrencies	The people who are important to me think that I should use cryptocurrencies
Var_7.3	The people who influence me will think that I should use cryptocurrencies.	The people who influence me think that I should use cryptocurrencies.

Please assess your Twitter usage BEFORE COVID-19.

Twitter Usage Frequency	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_8	**How much time do you spend daily on social media?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • All the time	**How much time did you spend daily on Twitter ?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • All the time

Twitter Cryptocurrency News	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_9	**How often did social media on your news feed discuss cryptocurrency in the last month?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%)	**How often did Twitter tweets in your news feed discuss cryptocurrency?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%)

	• Usually(90%) • Every Day	• Every Day

Twitter Influence	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_10.1	I (would) use social media to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.	I used Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.
Var_10.2	I (would) use social media for entertainment purposes (success/failure stories) regarding cryptocurrency.	I used Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency.
Var_10.3	SM (can) positively change(d) my opinion about trading in cryptocurrency	Twitter positively changed my opinion about trading in cryptocurrency.
Var_10.4	SM convinces me that trading in cryptocurrency is something be proud of.	Twitter convinced me that trading in cryptocurrency is something be proud of.
Var_10.5	My opinion is susceptible to friend's/others beliefs expressed on SM.	My opinion was susceptible to friend's/others beliefs expressed on Twitter.

Var_10.6	SM pressures me to trade in cryptocurrency.	Twitter pressured me to trade in cryptocurrency.

How did your Twitter usage change DURING COVID-19?

Twitter Usage Frequency	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_11	**How much time do you spend daily on social media?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • All the time	**How much time do you spend daily on Twitter?** • Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • All the time

Twitter Cryptocurrency News	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		

Var_12	**How often did social media on your news feed discuss cryptocurrency in the last month?**	**How often did Twitter tweets in your news feed discuss cryptocurrency in the last month?**
	• Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • Every Day	• Rarely(10%) • Occasionally(30%) • Sometimes(50%) • Frequently(70%) • Usually(90%) • Every Day

Twitter Influence	Original Item	Modified Item
(Rodenrijs & Wokke, 2018) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_13.1	I (would) use social media to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.	I use Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.
Var_13.2	I (would) use social media for entertainment purposes (success/failure stories) regarding cryptocurrency.	I use Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency.
Var_13.3	SM (can) positively change(d) my opinion about trading in cryptocurrency	Twitter can positively change my opinion about trading in cryptocurrency

Var_13.4	SM convinces me that trading in cryptocurrency is something be proud of.	Twitter convinces me that trading in cryptocurrency is something be proud of.
Var_13.5	My opinion is susceptible to friend's/others beliefs expressed on SM.	My opinion is susceptible to friend's/others beliefs expressed on Twitter.
Var_13.6	SM pressures me to trade in cryptocurrency.	Twitter pressures me to trade in cryptocurrency.

Please assess your level of innovativeness BEFORE COVID-19.

Innovativeness	Original Item	Modified Item
(Abbasi et al., 2021) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_14.1	If I hear about a new information technology, I would look for ways to experiment with it.	If I heard about a new information technology, I looked for ways to experiment with it.
Var_14.2	Among my peers, I am usually the first to try out new information technologies.	Among my peers, I was usually the first to try out new information technologies.
Var_14.3	In general, I am not hesitant to try out new information technologies.	In general, I was not hesitant to try out new information technologies.

How did your level of innovativeness change DURING COVID-19?

Innovativeness	Original Item	Modified Item
(Abbasi et al., 2021) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_15.1	If I hear about a new information technology, I would look for ways to experiment with it.	If I hear about a new information technology, I look for ways to experiment with it.
Var_15.2	Among my peers, I am usually the first to try out new information technologies.	
Var_15.3	In general, I am not hesitant to try out new information technologies.	

Please assess your level of trust in cryptocurrencies BEFORE COVID-19.

Trustworthiness	Original Item	Modified Item
(Albayati et al., 2020) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		
Var_16.1	This service is trustworthy.	Cryptocurrencies were trustworthy.

Var_16.2	The service providers (both cryptocurrency and blockchain) give the impression that they keep promises and commitments.	Cryptocurrencies gave the impression that they keep promises and commitments.
(Gupta et al., 2020) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_16.3	I believe that electronic payments made with cryptocurrency are trustworthy because they guarantee the privacy of data collected.	I believed that cryptocurrencies were trustworthy because they guarantee the privacy of the data collected.
Var_16.4	I believe that electronic payments made with cryptocurrency are reliable because they avoid fraud and reduce the risk in transaction.	I believed that cryptocurrencies were reliable because they avoided fraud and reduced the risk in transaction.

How did your level of trust in cryptocurrencies change DURING COVID-19?

Trustworthiness	Original Item	Modified Item
(Albayati et al., 2020) (7-point likert scale 1 = 'strongly disagree' to 7 = 'strongly agree',)		

Var_17.1	This service is trustworthy.	Cryptocurrencies are trustworthy.
Var_17.2	The service providers (both cryptocurrency and blockchain) give the impression that they keep promises and commitments.	Cryptocurrencies give the impression that they keep promises and commitments.
(Gupta et al., 2020) (5 point likert scale - (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.)		
Var_17.3	I believe that electronic payments made with cryptocurrency are trustworthy because they guarantee the privacy of data collected.	I believe that cryptocurrencies are trustworthy because they guarantee the privacy of data collected.
Var_17.4	I believe that electronic payments made with cryptocurrency are reliable because they avoid fraud and reduce the risk in transaction.	I believe that cryptocurrencies are reliable because they avoid fraud and reduce the risk in transaction.

Please assess your expected profitability from cryptocurrencies BEFORE COVID-19.

Expected Profitability	Original Item	Modified Item
(Mattke et al., 2021)		

(7-point likert scale 1 = 'completely disagree' to 7 = 'completely agree',)		
Var_18.1	Investing in bitcoin seems to be able to generate high returns.	Investing in cryptocurrencies seemed to be able to generate high returns.
Var_18.2	I believe bitcoin will perform satisfactorily in the future.	I believed that cryptocurrencies will perform satisfactorily in the future.
Var_18.3	Bitcoin has sufficient resources to grow in the future.	Cryptocurrencies had sufficient resources to grow in the future.
Var_18.4	I think investing in bitcoin is highly rewarding.	I thought that investing in cryptocurrencies was highly rewarding.

How did your expected profitability for cryptocurrencies change DURING COVID-19?

Expected Profitability	Original Item	Modified Item
(Mattke et al., 2021) (7-point likert scale 1 = 'completely disagree' to 7 = 'completely agree',)		
Var_19.1	Investing in bitcoin seems to be able to generate high returns.	Investing in cryptocurrencies seems to be able to generate high returns.

Var_19.2	I believe bitcoin will perform satisfactorily in the future.	I believe that cryptocurrencies will perform satisfactorily in the future.
Var_19.3	Bitcoin has sufficient resources to grow in the future.	Cryptocurrencies have sufficient resources to grow in the future.
Var_19.4	I think investing in bitcoin is highly rewarding.	I think that investing in cryptocurrencies is highly rewarding.

Please assess your perceived risk of cryptocurrencies BEFORE COVID-19.

Perceived Risk	Original Item	Modified Item
(Arias-Oliva et al., 2019)		
Var_20.1	Using cryptocurrencies is risky.	Using cryptocurrencies was risky.
Var_20.2	There is too much uncertainty associated with the use of cryptocurrencies.	There was too much uncertainty associated with the use of cryptocurrencies.
Var_20.3	Compared with other currencies/investments, cryptocurrencies are riskier.	Compared with other currencies/investments, cryptocurrencies were riskier.

How did your perceived risk of cryptocurrencies change DURING COVID-19?

Perceived Risk	Original Item	Modified Item
(Arias-Oliva et al., 2019)		
Var_21.1	Using cryptocurrencies is risky.	
Var_21.2	There is too much uncertainty associated with the use of cryptocurrencies.	
Var_21.3	Compared with other currencies/investments, cryptocurrencies are riskier.	

5.3 Data analysis

80 participants completed the survey, whereby the participants could access the survey for 22 days. The purpose of a survey is to draw conclusions from the sample to the population by diversifying the participants, so that the sample is representative of the population. In order to get a wider range of participants, the study was published in English. In addition, the distribution of the survey took place online as well, by sharing a link through various social media platforms, such as WhatsApp and Instagram, to friends and family members and asking those to further broadcast it. The survey was conducted by the use of "Google Forms" and was open starting on the 8th of March until the 28th of March, so that there was sufficient time for the researcher to conduct the data analysis. Due to the fact, that the survey was conducted online and therefore excludes individuals without internet access or usage, it is part of convenience sampling and therefore, the sampling method applied, will be non-probability sampling. The program "Jamovi" was used to conduct statistical tests, namely a regression analyses, which will inform the researcher, on whether to reject or accept the hypotheses by evaluating the impact of the independent variable on the dependent variable.

6 Results

6.1 Sample Characteristics

This section discusses the characteristics of the survey sample, as it is important to understand the sociodemographic statistics for the interpretation of the overall results. For this part of the survey analysis the total frequencies as well as percentages were used.

6.1.1 Gender

The survey was completed by a total of 80 participants, whereby the majority namely 52.5% (42) selected the category "male" and 47.5% (38), the category "female". A third category labelled "prefer not to say" has also been included in the survey, which was not chosen by any of the participants.

Gender Frequency
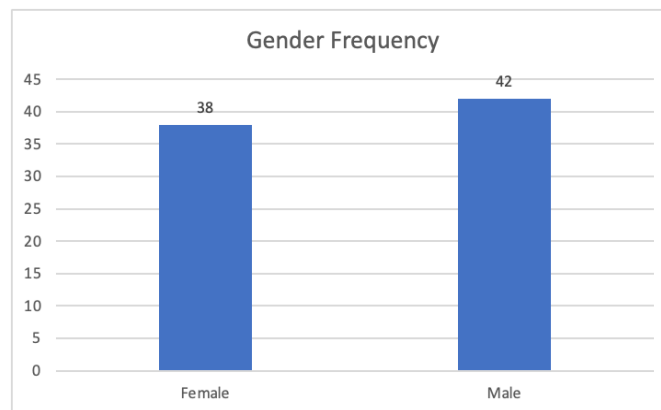
Figure 1: Gender

6.1.2 Age

The age of the participants is shown in *Figure 2.* While there was a no limitation to age, no participants indicated to be over the age of 65. Most participants were between 18 and 24 years old, followed by the category of "25-34" year olds, which amounted to 27.5% of all participants. In total 6 participants were between 35-44, which made up 7.5% of the overall participant. 3.8%, which corresponds to 3 participants selected the age group "45-54" and 2 participants, which amounts to 2.5% were in the age group "55-64". None of the participants indicated to be in the age of "under 18" or "above 64". In *Figure 2* a clear decrease in participants with increasing age is shown.

Age Frequency
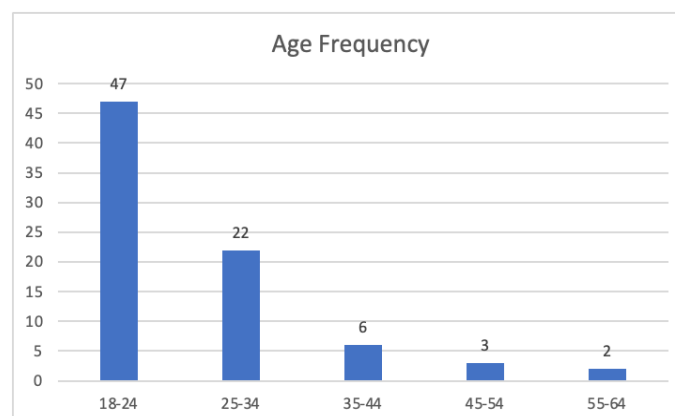
Figure 2: Age

6.1.3 Monthly income

The majority of participants, namely 21, which amounts to 26.3% of the total number of participants selected the category "2,000€ to 2,999€" as their monthly income. In addition, 16 participants, which equals to 20% choose "500€-999€" and 16.3%, which is equal to 13 participants, choose "under 500€". 7 selected "1.500€-1.999€"and "over 5.000€", which made up 8.8% of the total, respectively. Lastly, 6 participants, which is equal to 7.5%, indicated the category "3.000€ - 4.999€" as their monthly income.
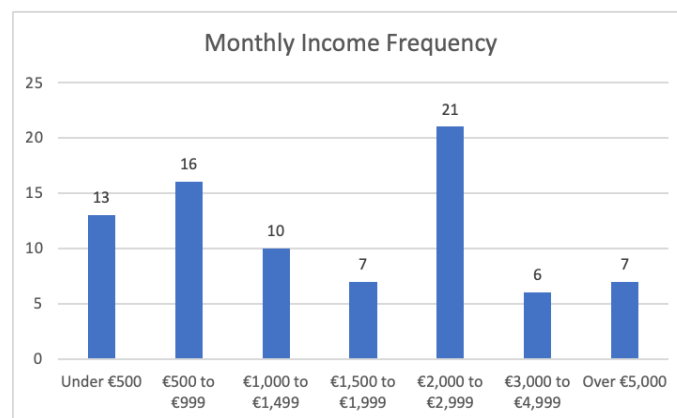
Figure 3: Monthly income

6.1.4 Highest Level of Education

The major part of the participants, namely 46.3%, which is equal to 37 participants indicated "High School" as their highest level of education, followed by "Bachelor's Degree", which was chosen by 22 participants which made up 27.5% of the total. 21.3% which amounts to 17 participants selected "Master's Degree", and 2 participants selected "PhD" and "Trade/technical/vocational training" respectively as their highest level of education.
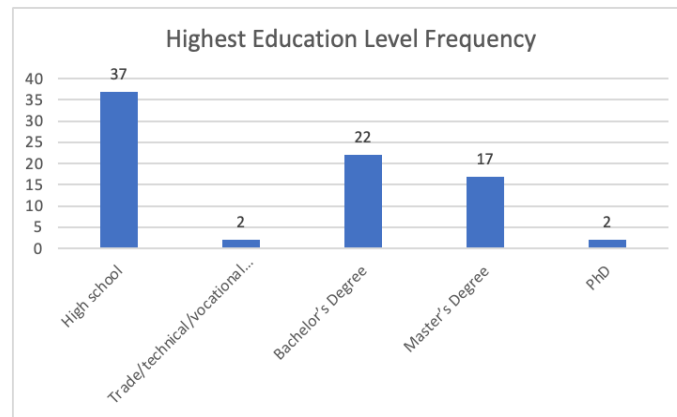
Figure 4: Highest level of Education

In order to examine whether engagement with cryptocurrencies has changed in the two measured periods, the author compared the answers for the engagement before and during COVID-19. Hereby the questions were on one hand "Did you engage (e.g. analysing and trading) in cryptocurrency before COVID-19?" and on the other hand "Are you currently engaged (e.g. analysing and trading) in cryptocurrency?", whereby there were two answer choices given with "Yes" and "No". *Figure 5* shows that 54 of participants indicated to have never engaged with cryptocurrencies before the pandemic, whereas 26 had in fact been engaging with cryptocurrencies before the pandemic. In comparison, the responses for the engagement during the COVID-19 pandemic show that 42 participants, which equals to 52.2% have not been engaged with cryptocurrencies during the pandemic. However, the number of respondents who have engaged in cryptocurrencies during the COVID-19 pandemic increased by 12, equivalent to 15% of participants.
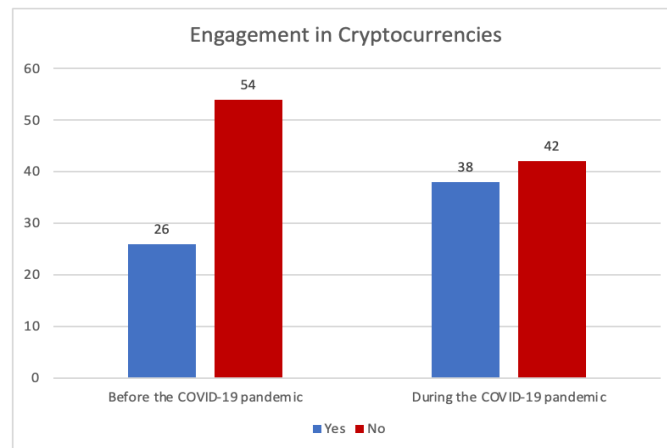
Figure 5: Engagement in Cryptocurrencies Before and During the COVID-19 pandemic

6.2 Reliability Test

Cronbach's α was used as a reliability test to examine whether the data is statistically sufficient. Hereby each construct is above 0.7 (Table 1) with most of the data being even higher than 0.8, and therefore exceeding 0.6, which is a commonly accepted threshold. For this reason, all constructs are considered reliable.

Construct	Items	Cronbach's Alpha
Social Influence Before the COVID-19 pandemic	People whose opinions I value would like me to use cryptocurrencies. The people who are important to me thought that I should use cryptocurrencies. The people who influence me thought that I should use cryptocurrencies.	0.929
Social Influence During the COVID-19 pandemic	People whose opinions I value would like me to use cryptocurrencies. The people who are important to me think that I should use cryptocurrencies The people who influence me think that I should use cryptocurrencies.	0.960
Twitter Influence Before the COVID-19 pandemic	How much time did you spend daily on Twitter? How often did Twitter tweets in your news feed discuss cryptocurrency? I used Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency. I used Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency. Twitter positively changed my opinion about trading in cryptocurrency. Twitter convinced me that trading in cryptocurrency is something be proud of. My opinion was susceptible to friend's/others beliefs expressed on Twitter. Twitter pressured me to trade in cryptocurrency.	0.899
Twitter Influence During the COVID-19 pandemic	How much time do you spend daily on Twitter? How often did Twitter tweets in your news feed discuss cryptocurrency in the last month? I use Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency. I use Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency. Twitter can positively change my opinion about trading in cryptocurrency. Twitter convinces me that trading in cryptocurrency is something be proud of. My opinion is susceptible to friend's/others beliefs expressed on Twitter. Twitter pressures me to trade in cryptocurrency.	0.941
Innovativeness Before the COVID-19 pandemic	If I heard about a new information technology, I looked for ways to experiment with it. Among my peers, I was usually the first to try out new information technologies. In general, I was not hesitant to try out new information technologies.	0.725
Innovativeness During the COVID-19 pandemic	If I hear about a new information technology, I look for ways to experiment with it. Among my peers, I am usually the first to try out new information technologies. In general, I am not hesitant to try out new information technologies.	0.851
Trustworthiness Before the COVID-19 pandemic	Cryptocurrencies were trustworthy. Cryptocurrencies gave the impression that they keep promises and commitments. I believed that cryptocurrencies were trustworthy because they guarantee the privacy of the data collected. I believed that cryptocurrencies were reliable because they avoided fraud and reduced the risk in transaction.	0.823
Trustworthiness During the COVID-19 pandemic	Cryptocurrencies are trustworthy. Cryptocurrencies give the impression that they keep promises and commitments. I believe that cryptocurrencies are trustworthy because they guarantee the privacy of data collected. I believe that cryptocurrencies are reliable because they avoid fraud and reduce the risk in transaction.	0.896
Expected Profitability Before the COVID-19 pandemic	Investing in cryptocurrencies seemed to be able to generate high returns. I believed that cryptocurrencies will perform satisfactorily in the future. Cryptocurrencies had sufficient resources to grow in the future. I thought that investing in cryptocurrencies was highly rewarding.	0.741
Expected Profitability During the COVID-19 pandemic	Investing in cryptocurrencies seems to be able to generate high returns. I believe that cryptocurrencies will perform satisfactorily in the future. Cryptocurrencies have sufficient resources to grow in the future. I think that investing in cryptocurrencies is highly rewarding.	0.888
Perceived Risk Before the COVID-19 pandemic	Using cryptocurrencies was risky. There was too much uncertainty associated with the use of cryptocurrencies. Compared with other currencies/investments, cryptocurrencies were riskier.	0.839
Perceived Risk During the COVID-19 pandemic	Using cryptocurrencies is risky. There is too much uncertainty associated with the use of cryptocurrencies. Compared with other currencies/investments, cryptocurrencies are riskier.	0.908

Table 1: Cronbach's α

6.3 Descriptive Statistics

The descriptive statistics in *Table 2* show the key drivers of investing in cryptocurrencies before and during the COVID-19 pandemic. "Perceived Risk During the COVID-19 pandemic" is the variable with the highest mean of 5.38, followed by "Perceived Risk Before the COVID-19 pandemic" with a mean of 5.30 and "Expected Profitability During the COVID-19 pandemic" with 5.24. The lowest number for the mean is shown for "Twitter Usage Before the COVID-19 pandemic" with a mean of -2.12. All variables except for "Twitter Usage Before the COVID-19 pandemic" and "Twitter Usage During the COVID-19 pandemic", show a negative number for skewness which implies that the data is skewed to the left. Moreover, the kurtosis of the data is positive for 5 variables, meaning that the data is distributed higher than the normal curve as well as heavy tailed, whereby for the remaining 7 variables, the kurtosis shows a negative number and therefore implies a flatter distribution and is light tailed. Further, the standard deviation stands for the dispersion of the data from the mean. Hereby, "Social Influence Before the COVID-19 pandemic", shows the highest number, indicating that the data is spread widely. A Shapiro-Wilk Test was conducted in order to test the data for normality, whereby a p-value < 0.05 indicates that the null hypothesis that the data is normally distributed can be rejected. Therefore, since all variables except for two show a number lower than 0.05, the data is not normally distributed. "Trustworthiness During the COVID-19 pandemic" and "Innovativeness Before the COVID-19 pandemic" both show a number that exceeds the index of 0.05, with values of 0.234 and 0.056 respectively, implying that the data is normally distributed.

Construct	Mean	Skewness	Kurtosis	Standard Deviation	Statistic	Significance
Social Influence Before the COVID-19 pandemic	3,83	-0,287	-0,733	1,58	0,941	0,001
Social Influence During the COVID-19 pandemic	4,25	-0,415	-0,601	1,56	0,95	0,004
Twitter Influence Before the COVID-19 pandemic	2,12	1,09	0,543	1,28	0,838	<0,001
Twitter Influence During the COVID-19 pandemic	2,30	0,810	-0,612	1,50	0,821	<0,001
Innovativeness Before the COVID-19 pandemic	4,56	-0,100	-0,904	1,34	0,97	0,056
Innovativeness During the COVID-19 pandemic	4,58	-0,597	-0,295	1,55	0,943	0,001
Trustworthiness Before the COVID-19 pandemic	3,95	-0,385	0,522	1,16	0,967	0,036
Trustworthiness During the COVID-19 pandemic	4,07	-0,341	0,204	1,16	0,980	0,234
Expected Profitability Before the COVID-19 pandemic	5,15	-0,408	-0,398	1,16	0,966	0,031
Expected Profitability During the COVID-19 pandemic	5,24	-0,844	0,685	1,22	0,942	0,001
Perceived Risk Before the COVID-19 pandemic	5,30	-0,310	-0,473	1,09	0,958	0,010
Perceived Risk During the COVID-19 pandemic	5,38	-0,701	0,133	1,19	0,937	<0,001

Table 2: Descriptive Statistics

6.4 Mean comparison

The following *Figures 6 to 12* show the comparison between the means of the same constructs in the periods before and during the pandemic.

As seen in *Figure 6* the means of Social Influence Before and During COVID-19 differ widely, whereby the mean for the period before the pandemic shows a mean of 3,83, whereas Social Influence during the COVID-19 pandemic shows a mean of 4.25. This indicates that the responses for the periods before the pandemic and during had different trends, whereby for "before the COVID-19 pandemic" the lower number implies a lower level of agreement which means that the respondents did not perceive as much social influence as in the period during the COVID-19 pandemic.
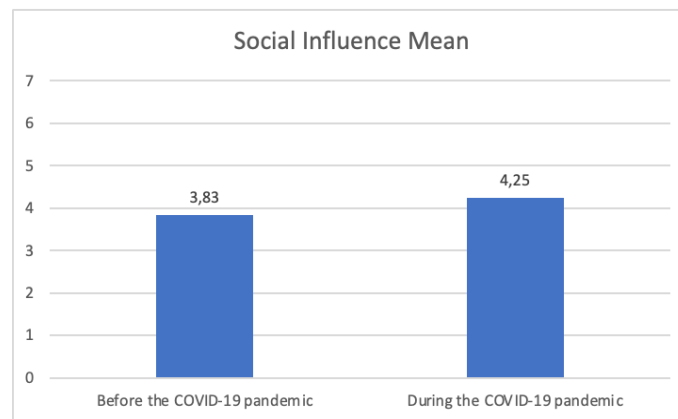
Figure 6: Consumer's Perception of Social Influence

Figure 7 shows the mean of the time frequencies concerning twitter usage. This question and the following have been separated from the construct as they were measured using a frequency scale (1-6) and not as with the resulting questions a 7 Point Likert Scale. However, the author chose to compare the mean of the datasets from before and during the pandemic, in order to get a deeper understanding in the participants usage behavior of the social media platform and whether participants perceived drastic discrepancies of usage frequencies. The increased mean from the data during the pandemic implies that, on average, the participants choose a higher frequency of Twitter usage compared to before the pandemic. The mean showed only a slight increase from 1.23 to 1.36.
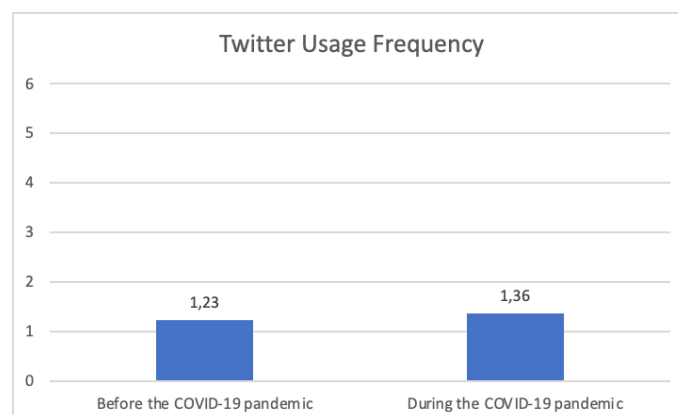
Figure 7: Participants Twitter Usage Frequency

In addition, the mean of the frequency of cryptocurrency related topics shown on the news feed on Twitter was compared for the same reasons as mentioned above. As shown in Figure 8, the mean rose as well when comparing the two periods. Hereby the mean for before the pandemic was 1.64, whereas during the COVID-19 pandemic the mean was equal to 1.73, indicating a slight increase of 0.09.
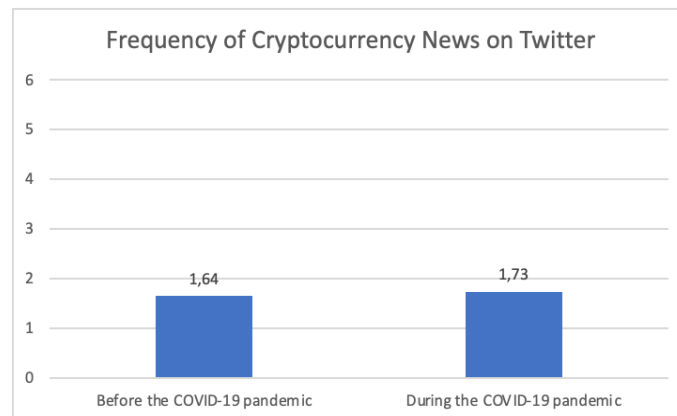
Figure 8: Perceived Frequency of Cryptocurrency related topics on Twitter's News Feed

The mean for the Twitter Influence which measures the purpose of the participants Twitter usage and its influence on cryptocurrency engagement for both periods is shown in Figure 9, whereby for the period before the pandemic it is equal to the value of 2.12. Compared to this, the period during COVID-19, shows a higher value of 2.30, resulting in an increase of 0.18 which implies that for this slightly more people chose answers towards an affirmative direction.
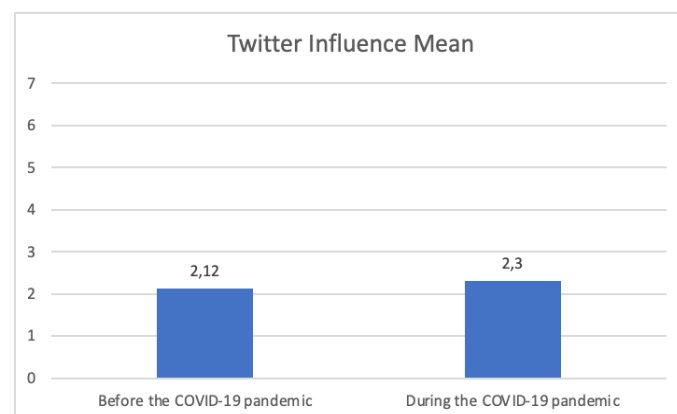
Figure 9: Twitter Influence

Further, Figure 10 represents the individual level of perceived personal innovativeness of the participants for both measured periods. The data shows a mean value of 4.56 for the period before the COVID-19 pandemic and 4.58 for the period during the pandemic.
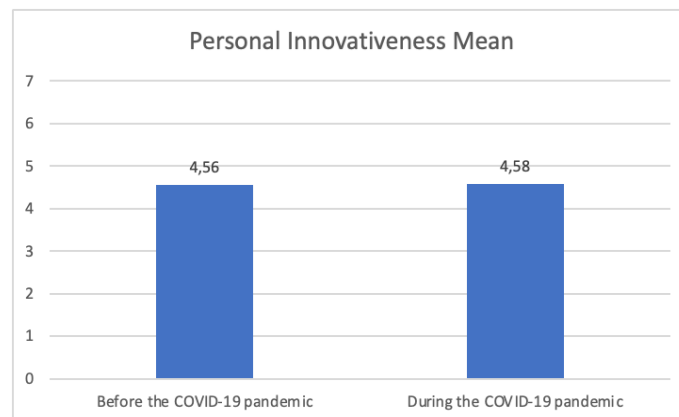
Figure 10: Perceived Level of Personal Innovativeness

Figure 11, shows the mean values of the measured perceived trustworthiness of cryptocurrencies in the two respective periods. The mean number of 3.95 indicates that for the periods before the COVID-19 pandemic, participants trusted cryptocurrencies less in comparison to the period during, where a slight increase of 0.12 is measured, reflected in a mean value of 4.07 in the second period.
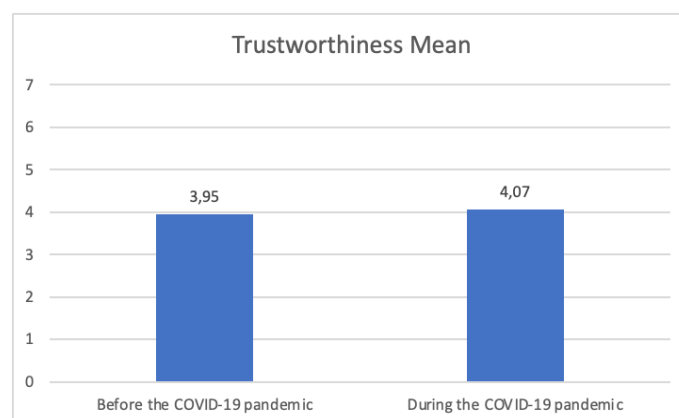
Figure 11: Perceived Trustworthiness

Figure 12 shows the mean values regarding the expected profitability of cryptocurrencies in the two periods. The "before the COVID-19 pandemic" value is equal to 5.15, whereas the mean for "during the COVID-19 pandemic" shows a number of 5.24, resulting in only a slight increase of 0.09. This would indicate that slightly more people had a higher expected profitability regarding cryptocurrencies in the period during the pandemic as compared to before.

Figure 12: Expected Profitability

Lastly, the means of the construct of 'perceived risk' were compared, whereby the mean for the period before COVID-19 showed a smaller number of 5.30 as compared to the value of during COVID-19, which is 5.38. This indicates that, on average, more people found the usage of cryptocurrencies to be risky during COVID-19 than before.
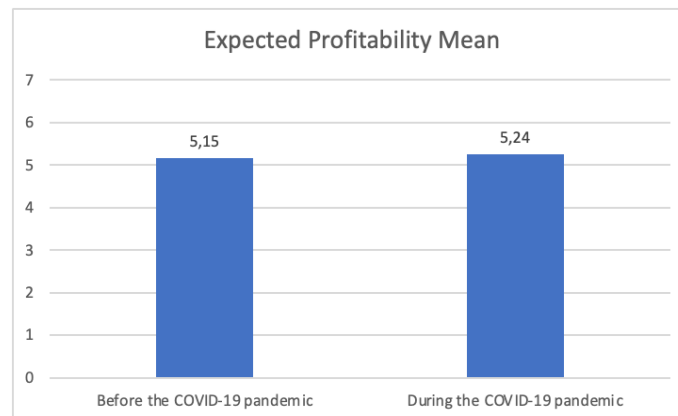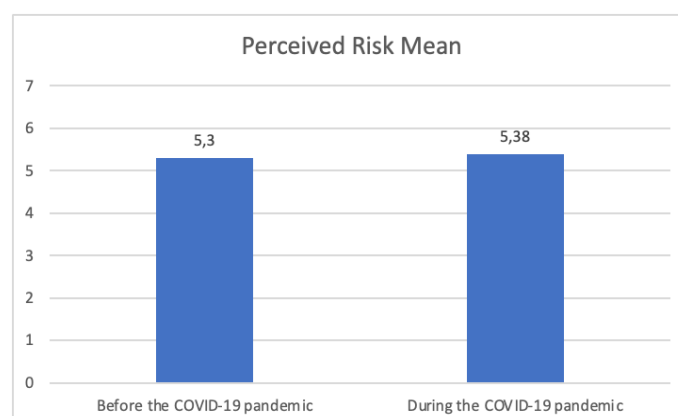

Figure 13: Perceived Risk

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6.5 Inferential Statistics

The following section focuses on testing the twelve hypotheses, whereby two types of analysis have been chosen to be most appropriate, namely a t-test and the linear regression analysis. Even though the data does not fulfill the criteria of normal distribution required to conduct a t-test, as mentioned in 6.2.2, according to the central limit theorem however, the large sample size of N=80, the sample means still follow a normal distribution and therefore the t-test is considered a suitable test ("Central Limit Theorem," 2008). Moreover, the linear regression analysis is used to examine whether constructs before the COVID-19 pandemic impact the same constructs during the COVID-19 pandemic.

6.5.1 Social Influence

For the first hypothesis H1a a paired samples t-test has been conducted in order to understand whether Social Influence impacts cryptocurrency investment intention more during the COVID-19 pandemic as compared to before the COVID-19 pandemic. Due to the main purpose of this paper, namely comparing data of a survey that directed questions at the period before and during the COVID-19 pandemic, the paired samples t-test was chosen, since it compares the mean values of the same group over a period of time or an intervention.

The results show that the participants perceived a higher social influence regarding cryptocurrency investments during the COVID-19 pandemic (mean= 4,25, SD= 1.56) as compared to before the COVID-19 pandemic (mean= 3,83, SD=1.58). The paired samples t-test indicates that the results are highly significant (t(79)= 2.65, p= 0.01). Consequently, these findings support the hypothesis H1a *Social influence impacts cryptocurrency investment intention more during the COVID-19 pandemic compared to before the COVID-19 pandemic* and the null hypothesis can be rejected.

	mean	std. deviation	statistic	df	p-value	mean difference
Social Influence During the Pandemic (Mean)	4,25	1,56	2,65	79,0	0,010	0,417
Social Influence Before the Pandemic (Mean)	3,83	1,58				

Table 3: Paired Samples t-test results for Social Influence before the COVID-19 pandemic and Social Influence during the COVID-19 pandemic

Moreover, a linear regression analysis was conducted, to determine to what extent the respective constructs during the COVID-19 pandemic can be predicted based on the period before the COVID-19 pandemic.

The first regression analysis examines whether *the level of social influence on cryptocurrency investment intention during the COVID-19* impacts *the level of social influence on cryptocurrency investment intention before the COVID-19 pandemic.* The test results in a significant R^2 with 35.8%, of the variance of social influence on cryptocurrency investment decisions during the COVID-19 pandemic being explained by with the social influence on cryptocurrency investment intention before the COVID-19 pandemic. It was found that the *Social Influence on cryptocurrency investment intention before the COVID-19 pandemic* can be used as a predictor for *Social Influence on cryptocurrency investment decisions during the COVID-19 pandemic* (β=0.598, p<.001). In the Figure 14 below, a scatterplot has been created in order to visualize the relationship.
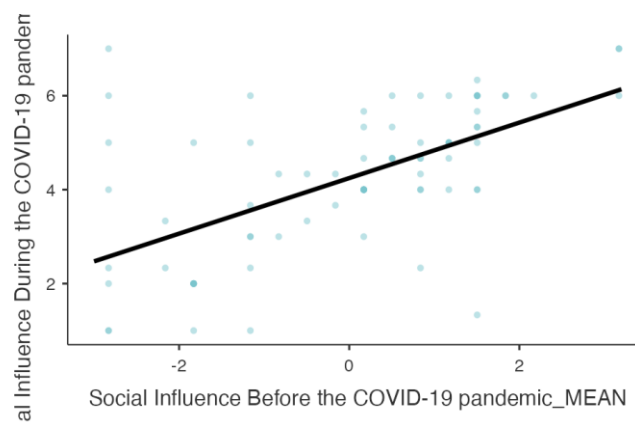

Figure 14: Social Influence on Cryptocurrency Investment Intention during the COVID-19 pandemic based on Social Influence on Cryptocurrency Investment Intention Before the COVID-19 pandemic

6.5.2 Twitter Influence

In addition, the hypothesis H2a was tested by conducting a paired samples t-test, to examine whether Twitter influenced cryptocurrency investment intentions more during the COVID-19 pandemic as compared to before the COVID-19 pandemic. The mean for during the COVID-19 pandemic equals to 2.30 with a standard deviation of 1.50, whereas for before the COVID-19 pandemic the mean value is 2.12 with a standard deviation of 1.28. Due to $t(79)=2.07$ and a p-value < 0.042 this is considered a significant result and therefore the null hypotheses can be rejected, and H2a is accepted. Therefore, it can be concluded that participants perceived Twitter Influence on cryptocurrency engagement to be higher during the times of the pandemic as compared to before.

	mean	std. deviation	statistic	df	p-value	mean difference
Twitter Influence During the Pandemic (Mean)	2,30	1,50				
Twitter Influence Before the Pandemic (Mean)	2,12	1,28	2,07	79,0	0,042	0,181

Table 4: Paired Samples t-test results for Twitter Influence before the COVID-19 pandemic and Twitter Influence during the COVID-19 pandemic

Another regression analysis is conducted, whereby the model examines whether the construct *twitter influence on cryptocurrency investment intention during the COVID-19* impacts *twitter influence on cryptocurrency investment intentions before the COVID-19 pandemic.* This resulted in a substantial R^2 of 0.726 and due to the positive β-value of 0.852 with a p-value <.001 there is a large positive effect of *twitter influence on cryptocurrency investment intention before the COVID-19 pandemic* as a predictor for *twitter influence on cryptocurrency investment intention during the COVID-19 pandemic.* The relationship between these variables is shown in the form of a scatterplot in Figure 15 below.
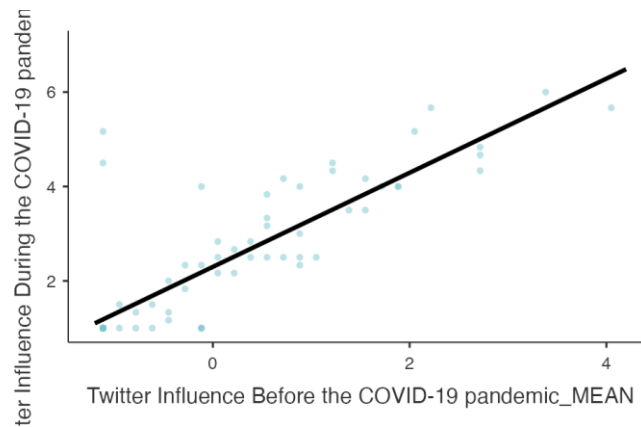
Figure 15: Twitter Influence During the COVID-19 pandemic based on Twitter Influence Before the COVID-19 pandemic

6.5.3 Personal Innovativeness

Further, another paired samples t-test has been conducted to compare the constructs *personal level of innovativeness before the COVID-19 pandemic* and *personal level of innovativeness during the COVID-19 pandemic*. The test showed that the mean values for before the COVID-19 pandemic (mean= 4.56, SD=1.34) and during the pandemic (mean=4.58, SD=1.55) were very close as well as low t-value of 0.157 and a p-value of 0.876. Together, the results indicate that the null hypotheses is to be accepted and H3a to be rejected. For this reason, the perceived personal level of innovativeness during the COVID-19 was not perceived to be higher as compared to before the COVID-19 pandemic.

	mean	std. deviation	statistic	df	p-value	mean difference
Personal Innovativeness During the Pandemic (Mean)	4,58	1,55	0,157	79,0	0,876	0,0167
Personal Innovativeness Before the Pandemic (Mean)	4,56	1,34				

Table 5: Paired Samples t-test results for Personal Innovativeness before the COVID-19 pandemic and Personal Innovativeness during the COVID-19 pandemic

Another regression analysis was conducted to analyze H3a, whether the construct *personal level of innovativeness before the COVID-19 pandemic* is considered as a significant predictor for *personal level of innovativeness during the COVID-19*

pandemic. The test results in a significant R² equal to 0.629. The p-value of <.001 is below 0.05, indicating a statistically significant relationship between the variables. Due to the β=0.793, the *personal level of innovativeness before the COVID-19 pandemic* positively predicts the influence of the *personal level of innovativeness during the COVID-19 pandemic* with a positive large effect. The scatterplot below visualizes the average score of answers of the participants for the constructs.
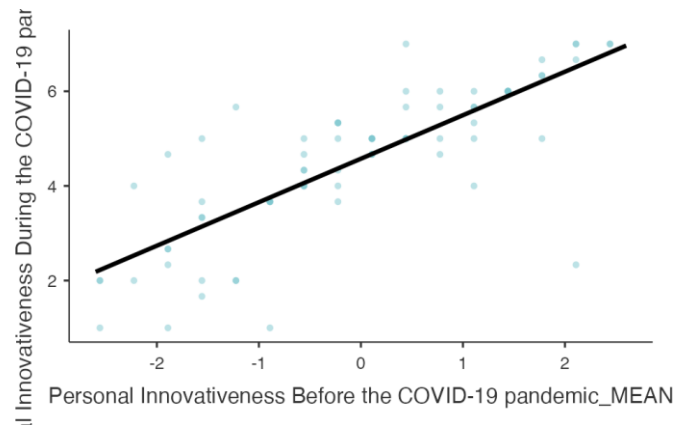
Figure 16: Personal Level of Innovativeness during the COVID-19 pandemic based on Personal Level of Innovativeness before the COVID-19 pandemic.

6.5.4 Trustworthiness

A further t-test was run analyzing whether the trustworthiness of cryptocurrencies during the COVID-19 pandemic was higher as compared to before the COVID-19 pandemic. The results show that the difference between the two mean variables are not significantly different and the statistic $t(79)=1.06$ with a p-value of 0.292 which exceeds 0.05, indicating an insignificant result. Hereby *trustworthiness of cryptocurrencies during the COVID-19 pandemic* had a mean of 4.07 and a standard deviation of 1.16 whereas *trustworthiness of cryptocurrencies before the COVID-19 pandemic* showed a mean of 3.95 with the same standard deviation of 1.16 and only small mean difference of 0.113. Consequently, the hypothesis H4a can be rejected and the null hypothesis *the trustworthiness of cryptocurrencies during the COVID-19 pandemic was not higher as compared to before the COVID-19 pandemic* is accepted.

	mean	std. deviation	statistic	df	p-value	mean difference
Trustworthiness During the Pandemic (Mean)	4,07	1,16	1,060	79,0	0,292	0,113
Trustworthiness Before the Pandemic (Mean)	3,95	1,16				

Table 6: Paired Samples t-test results Trustworthiness in Cryptocurrencies before the COVID-19 pandemic and Trustworthiness in Cryptocurrencies during the COVID-19 pandemic

Furthermore, in order to test H4b, another regression analysis was conducted examining whether *the trustworthiness of cryptocurrencies during the* COVID-19 pandemic can be predicted based on *the trustworthiness of cryptocurrencies before the COVID-19 pandemic.* The prediction regarding this regression analysis resulted in a significance with R^2= 0.446. According to the positive β-value of 0.668 the effect of the prediction has a moderate to large effect size (β=0.668, p<.001). Hence the hypothesis H4b is corroborated and therefore *the trustworthiness on cryptocurrencies before the COVID-19 pandemic* is considered a significant predictor of *trustworthiness of cryptocurrencies during the COVID-19 pandemic.* A visual representation of the model is illustrated in Figure 17.

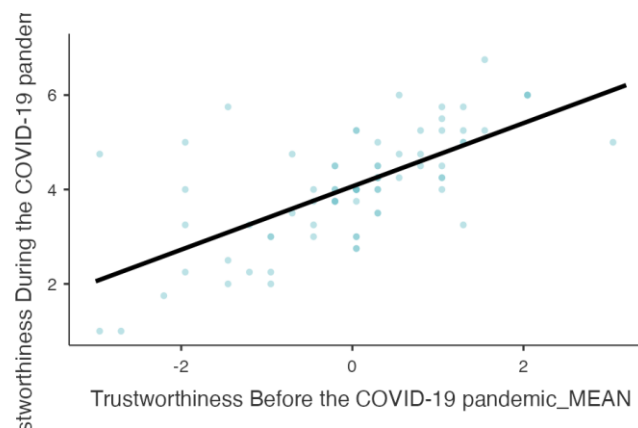*Figure 17: Trustworthiness of Cryptocurrencies during COVID-19 based Trustworthiness of Cryptocurrencies before COVID-19*

6.5.5   Expected Profitability

In order to test the hypothesis *"The expected profitability of cryptocurrencies was higher during the COVID-19 pandemic as compared to before the COVID-19 pandemic",* another paired samples t-test was conducted. The results show a slight

difference between the *expected profitability of cryptocurrencies during the COVID-19 pandemic* (mean=5.24, SD=1.22) and the *expected profitability of cryptocurrencies before the COVID-19 pandemic* (mean=5.15, SD=1.16). The difference turned out to be statistically insignificant (t(79)=0.704, p=0.484). For this reason, the alternative hypothesis is to be rejected and the null hypothesis is kept.

	mean	std. deviation	statistic	df	p-value	mean difference
Expected Profitability During the Pandemic (Mean)	5,24	1,22	0,704	79,0	0,484	0,0906
Expected Profitability Before the Pandemic (Mean)	5,15	1,16				

Table 7: Paired Samples t-test Expected Profitability before the COVID-19 pandemic and Expected Profitability during the COVID-19 pandemic

In order to test H5b, namely whether *expected profitability of cryptocurrencies before the COVID-19 pandemic* is a positive predictor for the *expected profitability of cryptocurrencies during the COVID-19 pandemic,* the author estimated another regression analysis model. The test resulted in a R² of 0.274, which is considered significant however due to a low R² value, the predictive power is on a weaker side. Moreover, the predictor has a moderate to large effect size with a β-value of 0.533 and a p-value <.001. Consequently, H5b is accepted, and the null hypotheses can be rejected. Therefore, the *expected before the COVID-19 pandemic* is a positive predictor for the *expected profitability during the COVID-19 pandemic.* Figure 18 shows a scatterplot, created with Jamovi, with the obtained data.
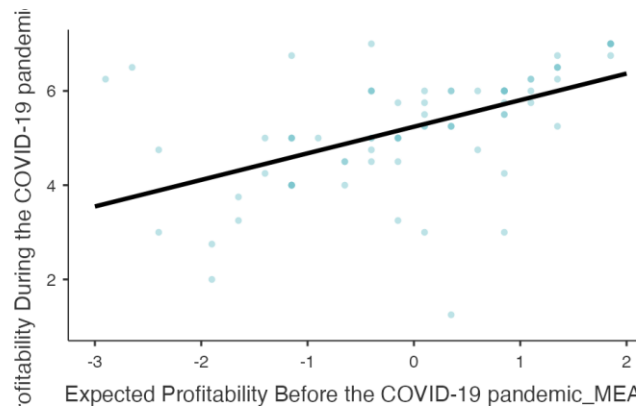
Figure 18: Expected of Cryptocurrencies during the COVID-19 pandemic based on of Expected Profitability on Cryptocurrencies before the COVID-19 pandemic

6.5.6   Perceived Risk

In order to investigate whether *the perceived risk of cryptocurrencies was lower during the COVID-19 pandemic as compared to before,* another t-test was conducted. Results showed that participants did not perceive a difference in the level of risk regarding cryptocurrencies, since the mean for before the COVID-19 pandemic was equal to 5.30 and a standard deviation of 1.09, while the mean for during the COVID-19 pandemic showed a mean of 5.38 and a standard deviation of 1.19. The test showed insignificant results for this hypothesis, which means the null hypothesis is accepted ($t(79)=0.639$, $p=0.525$).

	mean	std. deviation	statistic	df	p-value	mean difference
Perceived Risk During the Pandemic (Mean)	5,38	1,19	0,639	79,0	0,525	0,0708
Perceived Risk Before the Pandemic (Mean)	5,30	1,09				

Table 8: Paired Samples t-test Perceived Risk before the COVID-19 pandemic and Perceived Risk during the COVID-19 pandemic

To test the last hypothesis H6b conducting another regression analysis was used. The results indicated a moderate R^2 with a value of 0.392, meaning that 39.2% of the variance in the dependent variable *the level of perceived risk of cryptocurrencies during the COVID-19 pandemic* can be predicted from the independent variable, namely *the level of perceived risk of cryptocurrencies before the COVID-19 pandemic*

(R^2= 0.392 R^2 adj.= 0.384). The β-value equals 0.626, indicating a large effect of the model (B=0.682, β=0.626, p<.001). Figure 19, below illustrates the respective scatterplot for this model.
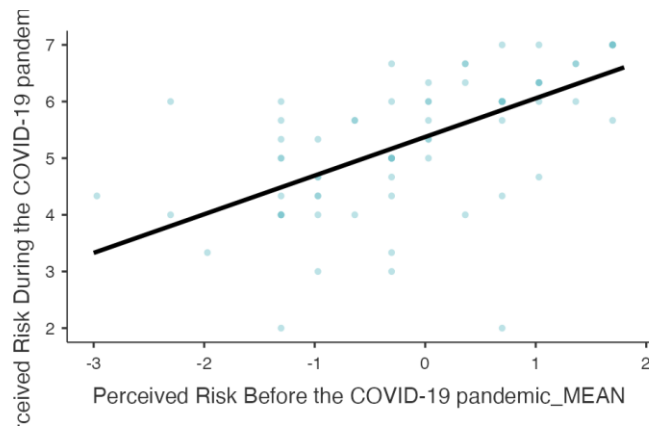
Figure 19: Influence of Perceived Risk on Cryptocurrency Investment Intention during the COVID-19 pandemic based on Influence of Perceived Risk on Cryptocurrency Investment Intention before the COVID-19 pandemic

6.6 Discussion of Results

The following section compares and discusses the results of the empirical part of this paper and combine the findings in the literature review. Moreover, the central research question of this paper will be answered.

This thesis aims to find valuable insights on how the drivers of investment intention in the cryptocurrencies market changed during the COVID-19 pandemic as compared to before. Some of the findings of the conducted research support existing research and some are different from previous findings.

The results were quite interesting, received from both the t-test and the linear regression analysis that were run on Jamovi. It can be concluded that Social Influence was the construct with the highest difference when comparing the answers for the period before and during the COVID-19 pandemic, whereby the participants were impacted more to invest by society during the pandemic as compared to before. This is in line with existing findings mentioned in the literature review by FCA (2021). However, the regression analysis showed that Social Influence on cryptocurrency investment intention during the COVID-19 pandemic can be predicted based on the Social Influence on cryptocurrency investment intention before the COVID-19 pandemic. This applies to the hypothesis concerning Twitter Influence, which showed that Twitter Influence was higher during the pandemic as compared to before as well as that Twitter Influence before the COVID-19 pandemic can predict Twitter Influence during the COVID-19 pandemic. This is in line with the research conducted by Abraham et al. (2018), suggesting that the twitter search index and cryptocurrency prices were positively related and the findings that the number of users increased drastically during the pandemic. Furthermore, this is closely related to research conducted by Marengo et al. (2022), which confirms that during times the of social distancing due to the coronavirus, especially young adults were in need of social contact resulting in an increase in the usage of social media.

The third hypothesis H3a *, the perceived personal level of innovativeness was higher during the COVID-19 pandemic as compared to before the COVID-19 pandemic,* was not accepted. This implies that participants did not notice a change in their behavior towards innovativeness and finding new information technologies. As defined in Marx

(2017) research, cryptocurrencies are considered as a new information technology due to its blockchain fundament. For this reason, the findings go against the mentioned literature findings, since the participants were not experimenting more with new technologies during the COVID-19 pandemic as compared to before (Iqbal et al., 2021). Nevertheless, it was found when running a linear regression analysis, that personal level of innovativeness before the COVID-19 pandemic serves as a useful predictor for the personal level of innovativeness during the COVID-19 pandemic.

Moreover, trustworthiness regarding cryptocurrencies did not show significant differences between the two respective periods. Therefore, the hypothesis was not supported, implying that there was not a higher level of trust concerning the cryptocurrencies market during the COVID- 19 pandemic as compared to before. However, the regression analysis demonstrated a significant finding that trustworthiness before the COVID-19 pandemic impacts trustworthiness during the COVID-19 pandemic.

Further, H5a was rejected as well, indicating that the participants did not perceive the expected profitability of the cryptocurrencies market to be higher during the pandemic than before the pandemic. Moreover, H4b tested whether *the expected profitability of cryptocurrencies before the COVID-19 pandemic impacts the expected profitability of cryptocurrencies during COVID-19.* This resulted in significant findings and implied that the expected profitability in the respective periods did not change crucially.

Lastly, the hypothesis H6a and H6b were tested, whereby H6a (The perceived risk of cryptocurrencies was lower during the COVID-19 pandemic as compared to before the COVID-19 pandemic) was shown to be insignificant according to the conducted t-test. Moreover, H5b analyzed whether *the level of perceived risk of cryptocurrencies before the COVID-19 pandemic impacts the level of perceived risk of cryptocurrencies during the COVID-19 pandemic.* With a high significance the hypothesis was accepted, implying that there were no drastic changes in the participant's perceived risk regarding cryptocurrencies.

While only two hypotheses defining a direction of the compared constructs were accepted, namely Social Influence and Twitter Influence, the remaining hypothesis

resulted to be insignificant. However, all hypothesis suggesting that the construct before the COVID-19 pandemic impacted the construct during the COVID-19 pandemic were highly significant. This suggests that even though participants perceived a higher pressure from their surroundings as well as through Twitter to invest during the pandemic, all other tested drivers of investment did not show any significant differences for the two periods. In other words, even though participants perceived a heightened suggestion to use cryptocurrencies, none of the remaining drivers of investment did increase, meaning that level of trust, personal level of innovativeness, expected profitability and perceived risk were not perceived to have changed.

To answer the central research question of this paper, it can be concluded that the only drivers of investment intention in cryptocurrencies that showed a significant change during the COVID-19 pandemic as compared to before were Social Influence and Twitter Influence. The results showed that both constructs were perceived higher during the pandemic as compared to before. The remaining constructs did were not perceived to have changed in the periods before and during the pandemic.

7 Conclusion and recommendations

The purpose of this paper was to assess and examine how the drivers of investment intention changed during the COVID-19 pandemic as compared to before. For this reason, the research of the paper was directed at comparing drivers of cryptocurrency investments and finding key differences between those. Literature on this topic was reviewed as well as discussed and primary research by conducting using an online survey. The survey was broadcasted using social media platforms and reached a total of 80 respondents. Moreover, eight of the defined hypotheses resulted to be significant and four showed insignificant results.

In conclusion, the findings show that social influence as well as twitter influence on cryptocurrency investment intentions were the only two constructs proven to be higher during the pandemic as compared to before. However, all constructs before the COVID-19 pandemic including the remaining, namely personal innovativeness, trustworthiness, expected profitability and perceived risk impact the same measured

constructs during the COVID-19 pandemic. This implies that the participants perception and attitudes towards the drivers of cryptocurrency investment did not change drastically during times of crisis and uncertainty. However, the findings of this paper show an increased usage of Twitter during the pandemic, which in turn was one of the highest influences for their investment decisions. This result is in line with the statistics, reporting a drastic increase in the number of active users (Statista, 2022). This could be related to the circumstances of that period including social distancing and limitations to social events. Moreover, the findings suggest that there was an increased pressure from social surroundings to invest in the cryptocurrencies market during the pandemic. Further, this is seen in the engagement with cryptocurrencies, which compared to before the pandemic, was much higher during. This can be related to many reasons such as the mentioned psychological phenomena of the Fear of missing out (FOMO), which through WOM of their surroundings could lead to users feeling compelled to invest.

Further analyses were conducted in order to understand whether the constructs, namely personal level of innovativeness, trustworthiness and expected profitability, were higher during the COVID-19 pandemic as compared to before. However, all results were proven to be insignificant. However, with a higher number of survey respondents more in-depth results could be found. In addition, there was no significant result when perceived risk of cryptocurrencies was tested to be higher during the pandemic. Moreover, there were no key differences found between the gender and the constructs.

Cryptocurrencies have been widely adapted and as shown in the findings of this research paper more people were engaged in cryptocurrencies during the pandemic as compared to before the pandemic. However, the concept of a decentralized currency is still new and might need some changes and level of promised security to be generally accepted by the public. From the results of this paper it is clear that among individuals there were more discussions about cryptocurrencies and possible investments. This was measured with Social Influence and the influence of the social media platform Twitter, which played an increasingly crucial part in cryptocurrency engagement during COVID-19.

7.1 Limitations

The findings and conclusions of this paper need to be with caution. Due to the relatively small sample size of 80 respondents, it sets a limitation to the research since it cannot accurately be considered a representation of the population. Moreover, the sociodemographic aspect of the paper might not be appropriate, especially due to its majority of participants being in the "18-24" age group. Therefore, better results might have been accomplished with a sample providing a wider age distribution. Another potential limitation of this paper is its focus on cryptocurrencies, which due to their blockchain system, are considered a rather new technology. For this reason, the lack of knowledge and information in this specific field among participants might be responsible for less meaningful results. In addition, simple factors such as the origin of the respondents might have had an influence on the collected results.

7.2 Suggestions for further research

The cryptocurrencies market and trading is growing and evolving rapidly due to the new technologies (Farell, 2015). For this reason, the field of cryptocurrencies is experiencing crucial and rapid changes and will most likely continue to do so. Therefore, for further research, it would be interesting to examine how the attitudes towards the cryptocurrencies market develop after the COVID-19 restrictions become less noticeable and compare the findings during the pandemic with research conducted after the pandemic. Moreover, future research should focus on in depth psychological reasons for investment intentions in the cryptocurrency market such as the briefly mentioned fear of missing out, which has not been examined in detail yet.

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Appendices

Appendix 1

Survey: Drivers of Cryptocurrency Investments: before and during COVID-19

Note: Dear Participants,

I am inviting you to take part in this survey for my Bachelor Thesis "Drivers of Cryptocurrency Investments: before and during COVID-19".

In this survey I compare the drivers of cryptocurrency investments before and during the COVID-19 pandemic. My goal is to analyze changes between those periods.

Please read the headings before providing an answer to understand whether the question is related to the period before or during the COVID-19 pandemic.

Informed Consent

Do you wish to participate?

- Yes

Survey Questions:

1. What is your age?

- under 18
- 18-24
- 25-34
- 35-44
- 45-64
- above 64

2. What is your gender?

- Male
- Female
- Prefer not to say

3. What is your monthly income?

- Under €500

- €500 to €999
- €1,000 to €1,499
- €1,500 to €1,999
- €2,000 to €2,999
- €3,000 to €4,999
- Over €5,000

4. What is your highest level of education?

- High school
- Trade/technical/vocational training
- Bachelor's Degree
- Master's Degree
- PhD

5. Did you engage (e.g. analysing and trading) in cryptocurrency before COVID-19?

- Yes
- No

6. Are you currently engaged (e.g. analysing and trading) in cryptocurrency?

- Yes
- No

Please assess the importance of social influence on cryptocurrency investments BEFORE COVID-19.

7. People whose opinions I value wanted me to use cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

8. The people who are important to me thought that I should use cryptocurrencies

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

9. The people who influence me thought that I should use cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did the level of social influence change DURING COVID-19?

10. People whose opinions I value would like me to use cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

11. The people who are important to me think that I should use cryptocurrencies

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

12. The people who influence me think that I should use cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Please assess your Twitter usage BEFORE COVID-19.

13. How much time did you spend daily on Twitter?

- Rarely(10%)
- Occasionally(30%)

- Sometimes(50%)
- Frequently(70%)
- Usually(90%)
- All the time

14. How often did Twitter tweets in your news feed discuss cryptocurrency?

- Rarely(10%)
- Occasionally(30%)
- Sometimes(50%)
- Frequently(70%)
- Usually(90%)
- All the time

15. I used Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

16. I used Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

17. Twitter positively changed my opinion about trading in cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

18. Twitter convinced me that trading in cryptocurrency is something be proud of.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

19. My opinion was susceptible to friend's/others beliefs expressed on Twitter.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

20. Twitter pressured me to trade in cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did your Twitter usage change DURING COVID-19?

21. How much time do you spend daily on Twitter?

- Rarely(10%)
- Occasionally(30%)
- Sometimes(50%)
- Frequently(70%)
- Usually(90%)
- All the time

22. How often did Twitter tweets in your news feed discuss cryptocurrency in the last month?

- Rarely(10%)
- Occasionally(30%)
- Sometimes(50%)
- Frequently(70%)
- Usually(90%)
- All the time

23. I use Twitter to gather new information (trends, tips, tutorials, etc.) about cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

24. I use Twitter for entertainment purposes (e.g., success/failure stories) regarding cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

25. Twitter can positively change my opinion about trading in cryptocurrency

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

26. Twitter convinces me that trading in cryptocurrency is something be proud of.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

27. My opinion is susceptible to friend's/others beliefs expressed on Twitter.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral

- Somewhat agree
- Agree
- Strongly agree

28. Twitter pressures me to trade in cryptocurrency.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Please assess your level of innovativeness BEFORE COVID-19.

29. If I heard about a new information technology, I looked for ways to experiment with it.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

30. Among my peers, I was usually the first to try out new information technologies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

31. In general, I was not hesitant to try out new information technologies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did your level of innovativeness change DURING COVID-19?

32. If I hear about a new information technology, I look for ways to experiment with it.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

33. Among my peers, I am usually the first to try out new information technologies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

34. In general, I am not hesitant to try out new information technologies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Please assess your level of trust in cryptocurrencies BEFORE COVID-19.

35. Cryptocurrencies were trustworthy.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

36. Cryptocurrencies gave the impression that they keep promises and commitments.

- Strongly disagree
- Disagree

- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

37. I believed that cryptocurrencies were trustworthy because they guarantee the privacy of the data collected.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

38. I believed that cryptocurrencies were reliable because they avoided fraud and reduced the risk in transaction.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did your level of trust in cryptocurrencies change DURING COVID-19?

39. Cryptocurrencies are trustworthy.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

40. Cryptocurrencies give the impression that they keep promises and commitments.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree

- Agree
- Strongly agree

41. I believe that cryptocurrencies are trustworthy because they guarantee the privacy of data collected.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

42. I believe that cryptocurrencies are reliable because they avoid fraud and reduce the risk in transaction.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Please assess your expected profitability from cryptocurrencies BEFORE COVID-19.

43. Investing in cryptocurrencies seemed to be able to generate high returns.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

44. I believed that cryptocurrencies will perform satisfactorily in the future.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

45. Cryptocurrencies had sufficient resources to grow in the future.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

46. I thought that investing in cryptocurrencies was highly rewarding.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did your expected profitability for cryptocurrencies change DURING COVID-19?

47. Investing in cryptocurrencies seems to be able to generate high returns.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

48. I believe that cryptocurrencies will perform satisfactorily in the future.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

49. Cryptocurrencies have sufficient resources to grow in the future.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree

- Agree
- Strongly agree

50. I think that investing in cryptocurrencies is highly rewarding.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Please assess your perceived risk of cryptocurrencies BEFORE COVID-19.

51. Using cryptocurrencies was risky.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

52. There was too much uncertainty associated with the use of cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

53. Compared with other currencies/investments, cryptocurrencies were riskier.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

How did your perceived risk of cryptocurrencies change DURING COVID-19?

54. Using cryptocurrencies is risky.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

55. There is too much uncertainty associated with the use of cryptocurrencies.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

56. Compared with other currencies/investments, cryptocurrencies are riskier.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree
- Strongly agree

Thank you for participating!