The influence of the pandemic on financial decisions made by individuals in Turkey: A cross-sectional study

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Abstract The citizens of Turkey were confronted with the shock of the Covid-19 pandemic while struggling with high inflation and unemployment rates, and a weakening domestic currency. However, a noteworthy phenomenon during the year 2020 was the performance of stock market in Turkey, which was mostly driven by local individuals. Not only stocks, but cryptocurrencies are also popular investments favored by the populace, collectively signaling an increase in risk-taking behavior. Learning more about this point of interest is even more intriguing when considering the ongoing poor economic circumstances. In this study, the financial product decisions of individuals living in Turkey are examined for the first year of pandemic. The data were collected using an Internet survey. Information on participant's demographics, financial product choices, declarations on changes in their interest in financial markets/ products, financial status, and net income after Covid-19 was used. The results show that changes were associated with several product preferences, particularly with cryptocurrency. The findings indicate that regulators/authorities need to understand the reasons and conditions which influence those financial decisions and intervene if necessary because such excessive risk taking may eventually deteriorate social and financial wealth across the whole country.

Keywords Financial decision making · Individuals · Risk-taking · Covid-19 pandemic

JEL Classification D8 · D14 · G40 · G5

Introduction

Turkish and global financial markets have been subject to high levels of uncertainty since the World Health Organization's Covid-19 pandemic announcement in March 2020. At the onset of pandemic, on March 16, 2020, the Volatility Index (VIX) exceeded its previous maximum level in the Global Financial Crisis (GFC) reaching 82.69[1] and almost all stock market indexes in the world fell dramatically.

Governments shut down economies and responded to the pandemic by putting stringent policies like school and workplace closures, and travel bans into effect. Inevitably, many economies experienced negative growth rates in 2020 alongside increased unemployment rates. In terms of real GDP, the world

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[1] Chicago Board Options Exchange, CBOE Volatility Index: VIX [VIXCLS], FRED, Federal Reserve Bank of St. Louis. https://fred.stlouisfed.org/series/VIXCLS, Accessed on May 16, 2021.

economy shrank by 3.3% in 2020, equating to 4.7% for developed countries and 2.2% for emerging countries (IMF 2021b, p. 128). Following the outbreak of the pandemic, unemployment rates in OECD countries increased from 5.5% to 6.8% (OECD 2021). Covid-19 is expected to have deteriorating effects on household income, living standards, and inequality in societies (Belot et al. 2021; Egger et al. 2021; Laborde et al. 2021).

In order to compensate for economic losses during the pandemic, governments swiftly took actions and began to support individuals and households. Central banks, especially the Federal Reserve (FED) and European Central Bank (ECB), tried to stabilize stress in the financial markets with expansionary monetary policies. According to Rebucci et al. (2021), this objective was mostly achieved with many stock markets recovering their initial losses and managing to reach pre-Covid volumes and some even passing beyond those levels (Altınbaş 2022). While it is not evident if these recoveries were also experienced by individuals (or disadvantaged groups), in Clark et al. (2021)'s study, it was reported that in some European countries, poorer populations benefitted more from policy responses than richer groups and thus inequality decreased.

In spite of all the above-mentioned efforts, pandemic-related uncertainty still continues; economic and financial risks are still high and the economic wellbeing of many people is strictly bound to government and central bank policies (Mosser 2020).

Moreover, inflation expectations are increasing all over the world, which adds another detrimental factor to individual welfare. Many countries have managed to control inflation for several years, and this can be seen as a brand-new concern for most of them, but Turkey has been dealing with two-digit annual inflation rates since 2017. The country has been subject to high unemployment and inflation rates at the same time, and since 2018, the Turkish Lira has lost its value against the US Dollar by more than 200%.[2] Devaluated currency is also pushing up consumer prices because of the import dependency of the Turkish economy, especially for energy and fuel sources.

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[2] Exchange rate data from Electronic Data Delivery System of Central Bank of the Republic of Turkey; https://evds2.tcmb.gov.tr/index.php?/evds/serieMarket.

Under these conditions, it becomes important to understand individuals' investment decisions, financial instrument choices, and risk preferences and the impact of Covid-19 on all of these. To this end, data from a financial literature and inclusion survey which was conducted online for individuals living in Turkey were used. Details on the survey and data collection process will be explained later in Methodology section. In the following section, the literature on individuals' risk attitudes and investment decisions will be presented along with findings on the effect of disasters on these attitudes and decisions.

Individuals' risk-taking behavior and investment decisions

Though conventional finance theories rely on the assumption of human rationality in decision making, in virtue of behavioral finance/economics studies, it is now a well-known fact that this is not true in most situations. Personality traits (e.g., the Big Five), cognitive biases (e.g., overconfidence, mental accounting, anchoring), and risk attitudes can influence and alter decisions made by individuals (Aren & Nayman Hamamci 2020), even if the decision is not beneficial. In this study, individuals' financial decisions are going to be discussed in the context of risk attitude.

Traditionally, people are categorized as risk averse, risk neutral, or risk seekers. While it is convenient to match these attitudes with a number of personal, sociodemographic, and psychological characteristics (Saraç and Kahyaoğlu 2011), this static categorization is not reliable because one's risk perceptions and decisions can change according to external stimuli. Sahm (2014) found that major life events such as job loss or marriage breakup do not alter the willingness of risk taking in individuals, but macroeconomic conditions and aging do have some influence on changes in risk tolerance. The effect of macroeconomic conditions on risk taking was also examined in Malmendier and Nagel (2011), and they found lower stock market returns are associated with a lower willingness to take financial risks.

Social interaction is also an example for external stimulus: Investors change their decisions when they recognize their peers make different choices and imitation adjustments may occur (Delfino et al. 2016).

Weather can be given as an interesting example; it has been shown that on sunnier days, investors become more optimistic, which results in positive stock market returns (Goetzmann et al. 2015; Hirshleifer and Shumway 2003). Bull and bear market conditions are also shifting risk perceptions (Cohn et al. 2015), and collective changes in perceptions may result in exacerbated market cycles. The movement of the Turkish stock market benchmark index (BIST-100) during the pandemic is an indicator of such changes in investor behavior.

The effect of disasters on individuals' financial decisions

After the GFC, a collective fear took hold of investors in many markets, both professional and non-professional. Fear constitutes a potential mechanism for an increase in risk aversion (Guiso et al. 2018). The study of Jetter et al. (2020) found that men became more sensitive to unemployment rates and there was an increase in their risk aversion with increasing unemployment rates after the GFC. In Hoffmann et al. (2013), risk perceptions during the times of turmoil in the GFC period substantially increased, while risk tolerances decreased. However, they also report that investors did not cease trading and there was a recovery in perceptions toward the end of crisis.

It seems that crises like the GFC do not hold so much weight on investor's risk perceptions in general because economic has history shown, in one way or another, that the system recovers itself and individuals' financial losses will be retrieved. Whether or not personal recovery occurs, people will be aware that those kinds of crises are human-made and will believe there will be no recurrence.

Natural disasters are unexpected events that can adversely affect large groups of people, both physically and psychologically. People who experience such a disaster will initially be subject to shock, fear and anxiety will manage their behavior in the short term, and in more traumatic cases, this may last for longer periods. When people feel that the world is an uncertain, unsecure, and unpredictable place, this will further lower objective reasoning and rationality in decision making.

In Cameron and Shah (2015), it was found that people in Indonesia suffering from a recent disaster became more risk averse than those who were not.

This can be partially explained by changes in people's beliefs and by individuals' loss of income. Similarly, in Sun (2014), individuals who had experienced severe famine (China 1959–1961) were found to be more risk averse. Further evidence for increased risk aversion following a disaster is presented in Cassar et al. (2017), in which they conducted experiments in Thailand to see the impact of the 2004 tsunami.

In contrast, Abatayo and Lynham (2020) found an increased risk preference in populations with deteriorated economic conditions after a typhoon had hit an area of island in the Philippines. The authors referred to Kahneman and Tversky (1979)'s argument that someone who has not made peace with previous losses will accept gambles that would be unacceptable to him/her otherwise.

Covid-19 is also a "natural" disaster. However, unlike most of the previous disasters that humanity faced after World War II, its impact has been on a global scale rather than on a country or geographic region.

The impact of Covid-19 on financial decisions

In a study which used survey[3] results of Chinese households, it was found that people become more risk averse and decrease their total investment amounts if they know someone infected with the virus (Yue et al. 2020). This finding is in line with studies about the influence of natural disasters on financial decision making; people who have been directly affected by the disaster will be more likely to fear and lose confidence in the future. Risk aversion in individual's investment choices after Covid-19 was also reported in Himanshu et al. (2021), for a sample taken from India. In contrast, a study on retail investors' trading activity in UK between August 2019 and August 2020, was found that trading activities increased and more accounts were opened (Ortmann et al. 2020). It seems that there are differences between investor behaviors in different countries. Maybe, as Fernandez-Perez et al. (2021) found in their study, these distinctive attitudes are closely related to culture. They expressed that cultures with less individualism and high uncertainty avoidance (Hofstede et al. 2005) experienced more decline in stock markets and greater volatility for the first three

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[3] Survey conducted between 12.02.2020 and 22.03.2020.

weeks after the first Covid-19 announcement (e.g., Turkey).

Studies on the performance of stock markets during the pandemic reveal more insights into investor reactions and behaviors. In an extensive study with a panel data (covering the period between January 01 and March 31, 2020) of the twenty countries worst-affected by the pandemic, stock returns were found to be negatively affected by (more) health news associated with Covid-19 (Salisu and Vo 2020). Current information/news flow and circulation speed can contribute to (and sometimes exaggerates) herd behavior, as shown in Smales (2021), where an increase in Google search volumes for the term "coronavirus" was followed by higher volatility in stock markets of the G20 countries.

The Covid-19 pandemic has led the world into an idiosyncratic crisis stage. It originated from a source (a virus) outside of the economic or financial system, and yet, it has impacted both systems deeply. On an individual level, jobs have been lost, and incomes and savings have decreased. One important property that makes this pandemic crisis idiosyncratic is the role of the financial system in recovery. Financial institutions are now seen as part of the solution, and along with government and central bank policies, they provide funds to support individuals and businesses (Giese and Haldane 2020). On a household or small and medium enterprise level, more credit and borrowing would not be seen as a solution, and direct relief payments to support people who are struggling to compensate daily needs seem more appropriate.

Van Dalen and Henkens (2020) points out that households need a financial buffer to make ends meet when unexpected setbacks occur, and according to a survey conducted in May 2019, 40.4% of US consumers reported difficulty in this respect. In Turkey, household debt has increased by 36% annually since March 2020, and the number of retail customers has increased by 2.3 million.[4] Consumer loans account for 46% of the total debt, and credit card debt accounts for 17%. There was a year-on-year decrease in unpaid consumer loans and credit card debt for the first three months of 2021,[5] but it is possible that this decrease was due to debt restructuring/rescheduling relief options given by banks. Delayed payments will cause aggregated problems in the future. It is also necessary to point out that different groups of individuals needed to be treated differently in terms of their exposure to downturns.

In developed countries (plus Brazil), the size of additional spending and forgone revenue as a percent of 2020 GDP exceeded 7.5% for almost all of them (IMF 2021a, p. 10). In Turkey, this type of fiscal support was below 2.5% of 2020 GDP with the majority of support in the form of loans, equity, and guarantees. In conjunction with the high inflation rate in Turkey, a lack of funds may push individuals to seek additional income. For those who have access to financial markets or who use intermediary institutions, financial instruments may be seen as an apparent way to increase (or at least sustain) wealth. In the following section, the increasing demand in high-risk instruments, especially in stocks and cryptocurrencies, will be examined.

A snapshot of individuals' attention and investment choices in Turkey

There has been a remarkable interest from locals in riskier financial instruments. According to data obtained from the central securities depository, the number of investors in stock markets who are Turkish nationals has doubled (to 2.7 million) since January 2020 and nearly tripled (19 thousand as of April 2021) in structured financial products (warrants, turbo certificates). In contrast, the number of Turkish investors has halved in government debt securities and has remained stable in funds and corporate bonds.[6] In the Turkish stock market, the risk appetite index for individuals has been moving into risky levels above the threshold since April 2021.[7] The BIST-100 recovered its losses after the initial shock of the

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[4] Banks Association of Turkey, Risk Center, monthly bulletin: https://www.riskmerkezi.org/Content/Upload/istatistikiraporlar/ekler/2794/Risk_Merkezi_Aylik_Bulten_Ozeti_Mart_2021.pdf.

[5] https://www.riskmerkezi.org/en/Content/Upload/istatistikiraporlar/ekler/2537/The_Number_of_Retail_Customers_with_Unpaid_Consumer_Loans_and_Credit_Card_Debts-_March-2021.pdf.

[6] https://www.vap.org.tr/Yatirimci-Istatistikleri/Sayfalar/Uyruk-Bazinda-Yatirimci-Sayilari.aspx; accessed on May 25, 2021.

[7] https://www.vap.org.tr/Endeksler/Sayfalar/RISE-Risk-Istahi-Endeksi.aspx; accessed on May 25, 2021.
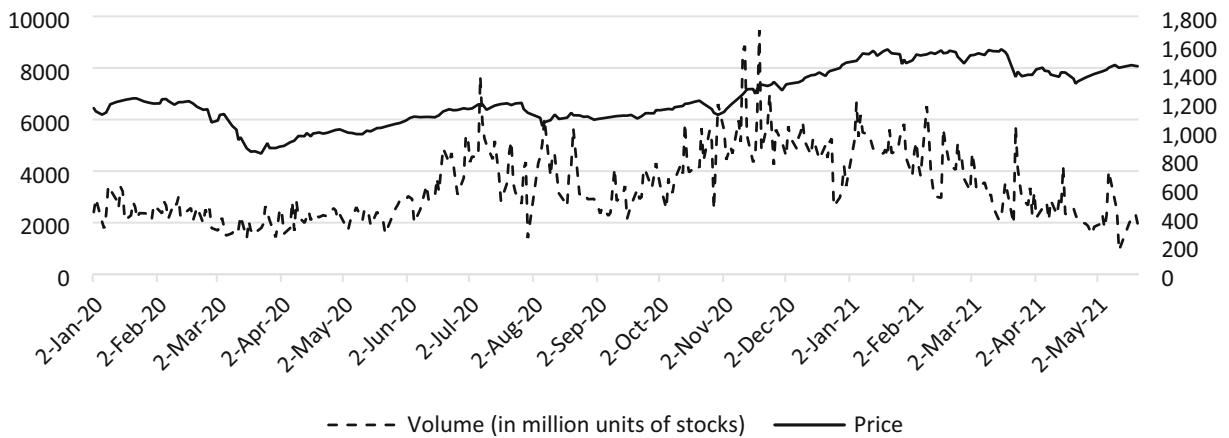
Fig. 1 Number of daily trade volume (on left axis) and BIST-100 index price (on right axis); Jan 02, 2020–May 21, 2021.Data source: investing.com

pandemic in March 2020 and even passed beyond its pre-pandemic levels, as shown in Fig. 1. Though there has been a decreasing trend in daily stock transactions since Nov 2020, the index still maintains its current levels.

Another popular investment alternative for Turkish investors is cryptocurrencies. As these instruments have drawn attention globally and prices have skyrocketed in bear market conditions, more investors, including financial institutions, have been lured to join the "party." There are many debates on the validity and sustainability of cryptocurrencies as an investment alternative. Arguments on cryptocurrencies (or at least for major ones like Bitcoin and Ethereum) include their potential for inherent price bubbles, regulatory challenges, usage in cybercriminal activity (both as a target and source), product and price efficiency, sustainability (especially in terms of energy consumption), and diversification benefits (Corbet et al. 2019). Nevertheless, it is certain that these cryptoassets are extremely volatile and profoundly serious downturns have been happening in very short periods of time. Between May 9 and May 25, 2021, Bitcoin's price fell from 58,788\$ to 38,085\$,[8] with very high intraday fluctuations.

There is also a discussion around if cryptocurrencies, predominantly Bitcoin, can be regarded as hedging, diversifying, and safe-haven instruments (Goodell and Goutte 2021), especially in an era of turmoil such as Covid-19. Recent research suggests that cryptocurrencies (in particular Bitcoin and Ethereum) act neither as a safe haven nor hedge, and may even amplify contagion in stressful times (Conlon et al. 2020; Corbet et al. 2020). There is a necessity for maturation in crypto markets, and their excessive speculative attributes need to be mitigated. That being said, it would not be wrong to say that most of the investors rushing to these markets are influenced by the charm of great gains.

Because this market is neither formal nor regulated, it is not possible to obtain precise information about the investors who are actively trading in cryptocurrencies. According to Statistica[9] surveys, 16.1% of questionnaire respondents from Turkey indicated they owned or used cryptocurrencies in 2020.[10] Google search trend data can be used as a proxy in the search for individual's interest in crypto-assets and stock markets. Along with the informal assessment of the Turkish media interest and Google Trends data,[11] it seems quite obvious that people in Turkey have an increased interest in cryptocurrencies. Also, again by consulting Google Trends data, it can be seen that average popularity for the search term "stock market"

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[8] Data source: https://www.coindesk.com/price/bitcoin; accessed on May 26, 2021.

[9] An international market and consumer data company.

[10] https://www.statista.com/statistics/1202468/global-cryptocurrency-ownership/

[11] "Bitcoin," "Ethereum," "Cryptocoin" in Turkish, terms are checked.

Table 1 Descriptive statistics of sociodemographic variables

	Frequency	Percentage		Frequency	Percentage
Sex			*Net income in household (monthly)*		
Male	108	50.23	< 4,525 TL	18	8.37
Female	101	46.98	4,521–7,540 TL	43	20.00
Missing	6	2.79	> 7,541 TL	150	69.77
Settlement			Don't know	4	1.86
Village	5	2.33			
Town	6	2.79	*Job*		
City	204	94.88	Retired	41	19.07
Age			Non-paid housework	2	0.93
18–19	6	2.79	Self-employed	48	22.33
20–29	39	18.14	Paid job	88	40.93
30–39	46	21.39	Not working/not seeking	3	1.39
40–49	30	13.95	Student	27	12.55
50–59	56	26.05	Not working/ actively seeking	5	2.33
60–69	38	17.67	Other	1	0.47

in Turkish is around 82.43[12] between March 2020 and April 2021.

Research question

Considering the recent abovementioned shifts in interest in several financial products, a better understanding of individuals' financial choices after the pandemic will provide valuable insights. To this end, this study aims to shed light on the association between a number of financial product (dependent variables) choices and three pandemic-related declarations of individuals on change in income, financial status, and interest in financial markets/products.

Although numerous risky instruments have been under the spotlight, in this study, a total of eight products are considered. Two of the products are house and car loans, which reflect long-term borrowing choices. Next are retirement plan/pension funds and insurance, which reflect long-term saving choices and protection incentives. Cryptocurrencies and stocks are highly volatile (especially cryptocurrencies) and thus representative of risk-taking behavior, with short-term goals. Precious metals, predominantly

gold, are traditional "saving" instruments in Turkey and usually considered as long-term investments. Lastly, bills and bonds are mostly attracting more financially curious individuals with relatively less market volume.

Methodology

Participants

The survey was completed by 354 participants, 97 of which were excluded because they had not actively invested in any product within the last two years or because they had selected "don't know" for any of the preference questions ($n = 257$). A further 40 observations were excluded due to inconsistencies in their answers[13] ($n = 217$). Lastly, 2 observations were removed as they seemed to have left many questions unanswered ($n = 215$). To provide more information about the sample, several descriptive statistics are given in Table 1.

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[12] Calculated with data accessed on May 26, 2021. 100 is the maximum and shows the most popular time for the search term.

[13] Specifically, participants who indicated they have not invested/used a particular financial service or product in the last two years but also indicated that they invested/used very same service or product after Covid-19 and marked "don't know" to any product preference question.

Table 2 Descriptive statistics for independent variables

	Frequency	Percentage
Net income after Covid-19		
Decreased	57	26.51
Similar	110	51.16
Increased	42	19.54
Don't know	6	2.79
Worsened financial status after Covid-19		
Yes	78	36.28
No	134	62.33
Don't know	3	1.39
Interest on financial markets/products after Covid-19		
Decreased	23	10.69
Similar	88	40.93
Increased	99	46.05
Don't know	4	1.86
Missing	1	0.47

Measurement

The data were collected with a survey constructed using the OECD's toolkit for measuring financial literacy. This toolkit was prepared as a part of the "International Network on Financial Education" program, which enables international comparisons. The original questions and items were translated (to Turkish), adapted and slightly modified (especially for contextual information). In some of these questions, several items were inserted to include country-specific products or to collect additional information. Covid-19-related questions were added in appropriate places without disturbing the flow of the questionnaire suggested by the OECD.[14]

Procedure

This study was approved by the university ethics committee. Informed consent was obtained at the beginning of survey.

Adults living in Turkey made up the population of this study. Convenience sampling was used as the sampling design, and the survey was accessed via the Internet and applied via an online form (JotForm). Data collection started after the first-year anniversary of the global pandemic announcement, and the form was active for two months (from March 18 to May 18, 2021). This one year of pandemic experience was believed to be adequate for correctly setting participants' cognitive reference point and thus for acquiring precise information.

Findings and discussion

According to the data in Table 1, it is seen that sex and age distribution (excluding 18–19) across the groups is pretty much equal. The majority of the individuals in the sample live in a city (94.88%) and have a household income in the upper category (> 7541 TL, 69.77%). Income thresholds and ranges in this study are calculated as per the OECD's toolkit instructions, which uses 75% and 125% of a country's median income. The share of individuals that do not work or have a regular income (students, not working, no-paid housework) is 17.20%.

In Table 2, statistics concerning individual's declarations on changes in their income, financial status, and interest in financial markets or products after Covid-19 are provided as independent variables. It seems that most of the individuals did not experience a decline in their income or financial status after the pandemic started. That being said, nearly a quarter of the sample (26.51%) observed a decrease in income and 36.28% of the sample experienced a worsened financial status. These numbers are striking

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[14] Details on questions and items are available upon request (in Turkish).

Table 3 Descriptive statistics for dependent variables

Product	Preference after Covid-19			
	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Retirement plan/pension fund	46	21.39	169	78.61
Bill/bond	12	5.58	203	94.42
Stocks	36	16.74	179	83.26
Cryptocurrencies	34	15.81	181	84.19
Precious metals (gold, silver, etc.)	101	49.98	114	53.02
House loan	16	7.44	199	92.56
Car loan	11	5.17	204	94.88
Insurance	46	21.39	169	78.61

considering all the policy actions which were taken against the adverse effects of economic slowdown due to the pandemic. Participants were also asked if they had found themselves insolvent in terms of living expenditure over the last twelve months. Of the participants, 51 people answered yes and 38 of them also stated it had happened due to pandemic-related economic and social problems in Turkey. A considerable number of participants appeared to be financially distressed during pandemic.

The participants' financial product/service choices are given in Table 3. Not all available alternatives from the survey are given here, only the ones that explicitly reflect the individual's behavior.[15] Among all the choices, precious metals were the most popular choice, followed by retirement and insurance products. Though precious metal prices are highly volatile in Turkey due to domestic currency value changes, it would not be wrong to say that cultural attitudes sway peoples' opinions to consider those metals as safe investments. It is possible to say that these three most popular products were deemed as safer choices by the participants.

Stocks and cryptocurrency were the fourth and fifth most popular choices during the pandemic. These two products are highly risky and cumulative returns in the pandemic were higher than many alternative investments. Nine participants invested in both stocks and cryptocurrencies, while the rest invested only in one of them. Borrowing choices for houses and cars were very low. This may be due to the high interest rates on

credit in Turkey, a measure used to counter high inflation.[16] Bill and/or bonds were among the least popular choices. Only a small portion of participants had no product choice.

In order to understand in which conditions participants made those choices in the Covid-19 pandemic, relationships between product choices and changes in financial market/product interest, financial status, and net income were investigated. Observations with "I don't know" and no marks as a response to these three questions were excluded. The results are given in Table 4.

Only a few choices seemed to be significantly associated with changes. Cryptocurrency was found to be strongly relational with change in interest in financial markets and products, with a significant Chi-square statistic (p-value below 1%) and an above-medium effect size.[17] Again, cryptocurrency had a significant relationship with net income changes, along with insurance, and house loans were found marginally significant. The effect sizes for these three relationships were close to medium. The only product found related to financial status change was the car loan, with marginal significance and close to a small effect size.

A post hoc analysis was conducted for significant interactions found in previous analyses. First, the adjusted residuals were computed, and p values were calculated,[18] which were then compared to

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[15] For example, the option *deposit account* was not included in analysis.

[16] It is worthwhile pointing out that in the summer of 2020, a house credit campaign was run in the country.

[17] Magnitudes of effect sizes are interpreted according to Kim (2017, p. 154).

[18] All calculations and post hoc steps are available as Excel data. Available on request.

Table 4 Chi-square test results and effect sizes (Cramer's V)

n = 210	Changed interest on financial markets/products after Covid-19		
Dependent	X^2	p-value	Cramer's V
Stock	1.449	0.485	0.083
Bill/bond	1.615	0.446	0.088
Car loan	2.317	0.314	0.105
House loan	3.031	0.220	0.120
Cryptocurrency	17.803	< 0.001***	0.291
Precious metals	2.748	0.253	0.114
Retirement plan/pension fund	4.086	0.130	0.139
Insurance	2.558	0.278	0.110
None	1.583	0.453	0.087

n = 212	Worsened financial status after Covid-19		
Dependent	X^2	p-value	Cramer's V
Stock	0.002	0.962	0.003
Bill/bond	0.761	0.383	0.060
Car loan	3.595	0.058*	0.130
House loan	0.229	0.633	0.033
Cryptocurrency	0.335	0.563	0.040
Precious metals	0.635	0.426	0.055
Retirement plan/pension fund	1.839	0.175	0.093
Insurance	0.000	0.979	0.002
None	0.210	0.646	0.032

n = 209	Changed net income after Covid-19		
Dependent	X^2	p-value	Cramer's V
Stock	2.417	0.299	0.108
Bill/bond	0.756	0.685	0.060
Car loan	0.487	0.784	0.048
House loan	6.039	0.049**	0.170
Cryptocurrency	7.400	0.025**	0.188
Precious metals	1.680	0.432	0.090
Retirement plan/pension fund	0.013	0.993	0.008
Insurance	7.937	0.019**	0.195
None	1.946	0.378	0.096

*Significant at 10%, **significant at 5%, ***significant at 1%

Bonferroni-corrected p values.[19] The results are given in Table 5.

Cryptocurrency preference had a significant positive relationship with increased interest in financial markets and products and increased net income after Covid-19. High returns on those assets and hype seemed to attract individuals as their available funds and/or interest in investing grew. People whose interest in markets/products did not change were less likely to invest in cryptocurrencies. Because there was no other financial product that was significantly related to changed interest, it may be possible to say

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[19] Bonferroni corrected p-values were calculated as: α/W, in which α is the preferred significance level and W is the number of pairwise comparisons.

Table 5 *p* Values for adjusted standardized residuals. Direction of relation is given in parenthesis

	Changed interest on financial markets/products after Covid-19		
	Increase	*Decrease*	*Similar*
Cryptocurrency preference	0.000*** (+)	0.024 (−)	0.006** (−)
	Worsened financial status after Covid-19		
	Yes		*No*
Car loan preference	0.059 (+)		0.058 (−)
	Changed net income after Covid-19		
	Increased	*Decreased*	*Similar*
House loan preference	0.015* (+)	0.422 (−)	0.214 (−)
Insurance preference	0.581 (−)	0.006** (+)	0.041 (−)
Cryptocurrency preference	0.012* (+)	0.087 (−)	0.626 (−)

* Significant at 10%, ** significant at 5%, *** significant at 1%

that cryptocurrencies influenced people to increase their willingness to invest.

House loan preference seemed to be in a positive relationship with increased net income. Considering the continuously increasing house prices and inflation along with promoted real estate market during the summer the 2020, this sounds plausible. Nevertheless, the share of participants who borrowed house and/or car loans was quite low in the sample (a total of 21), so the borrowing incentive of participants was not high in the pandemic. Even though demand for cars is high in Turkey, factors like the currency shocks after 2018 in Turkey and the global supply shortages caused during the pandemic hindered trading activity in the automotive industry. Additionally, there is a heavy "special consuming tax" burden on cars, which sometimes causes a car's price to be nearly the same as an average home.

It is noteworthy that a decrease in net income was associated with a higher insurance preference. This can largely be attributed to stress and future anxiety caused by the pandemic, combined with a loss in income. Individuals may try to lower risks and potential financial losses by buying insurances (health, life, traffic, casualty, etc.).[20] Lastly, although the Chi-square statistic indicated a significant relationship at

10%, pairwise relationships for car loan preference and financial status change were not observed, a fact which could be a result of the low sample size and specifically very low preference for car loans (see Table 3).

Stocks and precious metals, both at the focus of investor attention in Turkey, did not have a significant relationship with any of the three independent variables. An upward trend in stock market interest was already evident before the pandemic announcement. Also, Baker and Haslem (1974) found that (family) income level does not influence investor's assigned importance to risk characteristics and price appreciation of stocks; rather, it only influences expected dividend yield importance. The importance of expected dividend payments on an individual's stock investment decision is worth examining in further analyses, especially in such a volatile environment as that experienced in the pandemic. As mentioned before, precious metals are traditional saving instruments in Turkey. Thus, the fact that there was no change in patterns in individual's preferences for those two instruments is not surprising. However, it is worthwhile noting that even though people in Turkey view precious metals as safe instruments, these assets are subject to steep price movements as a result of both sudden global events (via dollar to ounce rate) and domestic economic and policy turbulence (via dollar to lira rate). There is some doubt as to whether

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[20] Policy types need to be further investigated to distinguish if these insurances are taken voluntarily or mandatory by law.

individuals are aware of this risky nature. More literacy on financial products would improve individuals' wealth by better adjusting returns on risks taken. At this point, it is appropriate to address higher cryptocurrency preferences.

Cryptocurrencies are seen as eccentric assets with high return expectations, but the use of cryptocurrency technologies and related understanding as to whether they possess any (intrinsic) value is very hard or even impossible for many people. Delfabbro et al. (2021) say that cryptocurrency trading involves elements of risk inherent in gambling along with excessive social media use. In Turkey, there are many "influencers" who actively broadcast videos or share thoughts via text messages on financial markets and continuously give trading hints. Thus, herding behavior is widespread in crypto investments (Omane-Adjepong et al. 2021). Also, cryptocurrency traders are active traders with excessive risk-taking behavior (Hackethal et al. 2021), but this behavior goes hand-in-hand with short-term thinking and eventually results in lower realized returns (Hasso et al. 2019).

As the findings of this study show, higher levels of cryptocurrency investment are linked with increased focus on financial markets and increased income. This finding is in line with several studies that examine the linkage between risky asset choice and mentioned factors (Donkers and van Soest 1999). In a period with high inflation and economic turmoil, and parallel to high return expectations, individuals naturally seek alternatives to maintain or increase their wealth. Even for those who have increased their net income, a fear of decline in purchasing power boosts risk-taking incentives. Given the unsupervised market structure and recent fraud in Turkey, rapid regulations and guidance for individuals are a necessity.

Of course, above all, conditions that encourage people to take more risk, consciously or unconsciously, need to be fixed. Involving more individuals in financial markets will no doubt have numerous advantages for all parties in economies, but managing this in a stable and trustworthy economic condition is a must; otherwise, massively speculative positioning will harm the general wealthiness of society and enhance inequality. In a more predictable and reliable economy, individual's decision making will be more valid and beneficial.

Conclusions

There is no doubt that the pandemic has been a major element in decision making. Whether or not they have been adversely affected by the pandemic's direct consequences on health or wealth, individuals have been influenced by the surrounding turbulence. Turkey was already struggling with ongoing economic issues when the pandemic began: High inflation and unemployment rates were and (still) are the foremost problems, and with closures and economic slowdown, many individuals have experienced increases in their expenditures and decreases in income. Moreover, the gap between the top income group and those below has widened.

Nevertheless, individuals have shown a notable interest in the stock market in Turkey. That interest started at the beginning of 2020, and the number and portfolio volume of individual investors grew nonstop until April 2021, despite the pandemic. This indicates a change in the risk-taking behaviors of individuals. When cryptocurrencies are considered, change becomes a serious matter. Losing faith in potential future well-being by working-hard and being productive, more people are likely to be lured to speculative assets and to take more risks. Therefore, examining the financial decisions of individuals is crucial to understand driving factors of choices. In this way, it may be possible to avert irrational and desperate decisions and prevent further financial decline.

This study attempted to reveal individuals' financial product preferences and if/how these preferences are related to changing interests in financial markets, financial status, and net income, by using a dataset collected via an Internet survey. Many people indicated that they have become more interested in investing during the pandemic, and the findings point out that cryptocurrencies require more regulatory attention because increased interest in financial products and higher income are found to be connected with cryptocurrency trading. Without proper guidance or official supervision, individuals will be subject to fraud or excessive losses. Also, considering the last three years of economic stress in Turkey, establishing a more reliable and foreseeable economic environment will ensure that better and appropriate decisions will be made by individuals.

It is important to note that certain limitations of this study hinder the generalizability of its findings to the whole population. First, the sampling and survey technique employed prohibits acquisition of data from people who do not have access to or use the Internet. While Internet penetration in Turkey is above 75% according to the International Telecommunication Union, there is still a significant proportion without access. Second, there is self-selection bias. Third, the survey requires a relatively long time (around 20–25 min) to be completed and it also requires attention and considerable level of literacy to finish, which again narrows down the sample to highly educated (mostly bachelor's and above) participants. Lastly, the sample size needs to be increased to make more reliable inferences. While the findings of this study are believed to be useful, these limitations should be taken into account in further studies to understand more about the investment behavior of the population.

Today's world bears too much uncertainty and the financial and emotional challenges of individuals can shape/disturb their actions and decisions. Future studies should dig into the psychological and financial characteristics of people who invest in risky assets and examine how these people behave in a post-Covid-19 world, which sources of information they use and if they managed to acquire high realized returns in favor of their risk taking.

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