TESAM AKADEMİ
Journal of TESAM Academy
ISSN 2148 - 2462
E-ISSN 2458 - 9217

The Analysis of Investment Decisions of Foreign Exchange Investors from the Perspective of Behavioral Finance

TURGAY MÜNYAS
Dr. Öğr. Üyesi,
İstanbul Okan Üniversitesi, İ.İ.B.F.,
İşletme Bölümü.
turgay.munyas@okan.edu.tr
ORCİD: 0000-0002-8558-2032

Cilt / Issue: 7(2), 403-440
Geliş Tarihi: 14.02.2020
Kabul Tarihi: 28.04.2020

Atıf: Münyas, T. (2020). The Analysis of Investment Decisions of Foreign Exchange Investors from the Perspective of Behavioural Finance. *Tesam Akademi Dergisi*, *7*(2), 403-440. http://dx.doi.org/10.30626/tesamakademi.788832.

Abstract

Behavioral finance is a multidisciplinary sub-branch of finance that seeks to explain the financial decisions of investors by taking advantage of different fields such as sociology, psychology and anthropology. The purpose of this research is to examine the behaviors of the individual foreign exchange investor from the perspective of behavioral finance. In the study, the behaviors of individual foreign exchange investors were studied under five dimensions: overconfidence, overoptimism, regret aversion, loss aversion, and representative bias. A total of 319 individual foreign exchange investors was surveyed in order to investigate the relationship in question. This study investigates the difference in the behaviors of individual foreign exchange investors in terms of marital status, age, education level, professional experience, frequency of reviewing the investments, the most frequently used sources of information while making decisions about the investments, the most common methods used for the preference of investment instruments, the main factors considered in the preference of the investment instruments, the amount of capital, and personality traits. The research findings are discussed in the conclusion section.

Keywords: Behavioral Finance, Foreign Exchange Investor, Finance, Investor Behaviors

JEL Code: F31, G11, G17, G32,

Döviz Yatırımcısının Yatırım Kararlarının Davranışsal Finans Açısından İncelenmesi

Öz

Davranışsal finans, sosyoloji, psikoloji ve antropoloji gibi farklı alanlardan yararlanarak yatırımcıların finansal kararlarını açıklamaya çalışan finansın çok disiplinli bir alt dalıdır. Bu araştırmanın amacı, davranışsal finans açısından bireysel döviz yatırımcısının davranışları incelemektir. Çalışmada bireysel döviz yatırımcısının yatırım davranışları, aşırı güven, aşırı iyimserlik, pişmanlıktan kaçınma, kayıptan kaçınma ve temsil etme eğilimi olmak üzere toplam 5 boyut çerçevesinde incelenmiştir. Söz konusu ilişkinin incelenebilmesi amacıyla toplam 319 bireysel döviz yatırımcısına anket uygulanmıştır. Araştırmada, medeni durum, yaş, eğitim düzeyi, mesleki tecrübe, yatırımları gözden geçirme sıklığı, yatırımları yönlendirirken en sık yararlanılan bilgi kaynağı, yatırım araçlarının tercihinde temel alınan en sık yöntemler, yatırım araçlarının tercihinde göz önünde bulunan temel unsurlar, sermaye tutarı ve kişilik özellikleri bakımından farklılık gösterip göstermediği incelenmiştir. Araştırma bulguları sonuç bölümünde tartışılmıştır.

Anahtar Kelimeler: Davranışsal Finans, Döviz Yatırımcısı, Finans, Yatırımcı Davranışları

Introduction

The process of globalization and technological developments in financial markets challenges the economic units every day. The process of globalization in financial markets forces the economic units that will make decisions in the market for a versatile thinking and analyses. In today's world, Economic and financial indicators for investors who will make investment decisions in financial markets are becoming inadequate. This inadequacy has revealed that investor behavior is of great importance as a third factor, along with the economic and financial indicators.

When making investment decisions, investors' own internal worlds, past experiences and ways of perceiving opportunities as well as economic and financial indicators are influential in their decisions (Taner and Akkaya, 2005). Traditional finance models assume that investors act rationally when making investment decisions. According to traditional financial models, it is assumed that investors aim for the highest benefit with the lowest risk in the market, that markets work effectively and that investors have homogeneous expectations. However, traditional finance models were deemed insufficient to explain most of the events occurring in the market (Gül, Ekşi and Sürme, 2017). This idea has spawned a new branch of finance introduced to literature by Nobel laureate Daniel Kahneman in 2002. Behavioral finance is a branch of finance that attempts to explain the financial decisions of investors by taking advantage of different fields such as sociology, psychology and anthropology (Çetiner, Göcek and Gölbaşı, 2019). As the most important thing concerned, the behavioral finance examines the psychological factors that determine the financial decisions of investors.

The basic concepts related to behavioral finance are as follows.

Overconfidence is the fact that the individual has too much confidence in his or her knowledge and relies more the possibility that his or her expectations will be realized in line with the decisions he or she made based on that knowledge. Overconfidence causes investors to overestimate their ability to make investment decisions in financial markets, without considering the negative aspects of their investment decisions. Overconfidence can also be considered a psychological mistake in thinking. The investor, who is overconfident in the financial markets, thinks that the investment that will perform best will be his or her investment as a result of the investment decisions he/she

made. The overconfidence of investors can lead to manipulation of the investment decisions that investors will take. A less than necessary diversification in the portfolio made by the investor can be given as an example of this situation. The investor's overconfidence to his/her self and decisions can be a hindrance in distributing the risk encountered (Taner and Akkaya, 2005). It is possible to state that the psychology of trust that the investor has towards the markets and the investment decisions that he or she will take is a positive thing, but the psychology of overconfidence, which he or she has, is a harmful thinking system.

Overoptimism, optimism, is defined as a worldview seeing the bright side of everything, hoping a good way in any case (TDK, https://sozluk.gov.tr/). Overoptimism can be defined as the confidence that all would be nice and as expected. In the case of overoptimism, investors who make investment decisions think that everything will perform better in accordance with their expectations. It is possible to state that the psychology of optimism that the investor has towards the markets and the investment decisions that he or she will take is a positive thing, but the psychology of overoptimism that he or she has is a harmful thinking system. In a case of overoptimism, investors consider the information they have as more valuable and tend to perceive the risks lower and overestimate their own capabilities (Gazel, 2013, p.77). Overoptimism causes investors to consider events positively, read and adopt of opinions of experts that have the same opinion as themselves, and prefer positive news about market and investment preferences. These investors begin to see themselves as above the average and prefer to make investment decisions by staying within their familiar circle (Hamurcu, 2015, p. 68).

Regret aversion is based on the understanding that persuading that it is easier to sell profiting ones than the losing ones. According to this understanding, investors hold on to their depreciated investments for a longer period. However, they trade their investments faster (Akın, 2009).

Loss aversion is a concept used to avoid irrational risks. It is defined as the preference of avoiding losses to gain due to the unhappiness of losing something that is owned, which is greater than the happiness of having that thing. "The loss aversion effect causes investors to have a reflex to retain their losing investments for a long time. Investors always want to earn more than the price they pay. They have difficulty reconciling with their losses because of the motive to compensate. The

motive to compensate can also cause major losses by creating a risk-prone situation for investors" (Hamurcu, 2015, p. 70).

People with representative bias make decisions based on the law of small numbers. According to the law of small numbers, a small sample drawn from the population represents a large proportion of the population. People with this bias will generalize the results obtained based on a small sample of the population. The representative bias occurs as a result of investors placing more emphasis on the most recent or most conspicuous factors during the decision making process, and neglecting the characteristics of population distribution (Küçük, 2014). Investors with representative bias tend to make decisions by acting according to certain biases in their investment decisions (Gül, Ekşi and Sürme, 2017).

Literature

It is observed in the literature review that the studies conducted are generally conceptual framework studies related to behavioral finance, analysis of individual investors' investment decisions in terms of behavioral finance, and studies on the factors affecting the investment decisions of the stock exchange investor. Studies on behavioral finance in the literature are as follows.

In 2019, Çetiner, Gökçek and Gölbaşı investigated the irrational behaviors exhibited by investors in their investment decisions and these behaviors' relationship with demographic variables. In the study, the snowball sampling was used, an online survey was conducted, and the responses of 115 participants were analyzed. As a result of the study, they found that participants trusted themselves more according to the direct question of "overconfidence", compared to the indirect question. They identified the attitudes of investors regarding "cognitive contradiction" as expected. According to the responses to the imitation and herd behavior scale, 44.3% of the investors who were undecided about following a successful investor was found to imitate the behaviors of foreign and institutional investors by 40.9%.

In their 2019 study, Paksoy, Özbezek and Gül investigated the impact of university students' personality traits on their psychological biases in terms of behavioral finance. The study was carried out with students studying at the Faculty of Economics and Administrative Sciences at the Kilis 7 Aralık University. Data were collected using a questionnaire for analysis of the study. A total of 295 undergraduate

students participated in the individual investor survey. As a result of their study, they found that the personality traits of students, i.e. individuals, had a significant impact on their psychological biases.

In 2018, Alalwani and Dayı investigated the factors affecting the investment decisions of individual investors. The research was conducted with individual investors who invest in the Iraqi Stock Exchange. The questionnaire, developed for the research was applied to 400 investors between June and July 2019. The data collected by the survey technique was interpreted by applying frequency and percentage analyses in SPSS 22,0 program. As a result of the analysis, they found that there are many factors affecting the investment decisions of individual investors, such as risk, financial crisis, financial knowledge and herd psychology. The results of the study found that young people were more involved in financial investments and were more keen on financial markets. Another conclusion they reached in the study was that working people tend to invest financially.

In his study in 2018, Gürünlü conceptually investigated corporate finance decisions from the perspective of behavioral finance theory. The study outlined studies on behavioral corporate finance and made recommendations for managers and investors in order be able to make mutually successful decisions.

In 2018, Özer and Korkulutaş investigated the factors affecting the investment decisions of individual investors. The study was conducted on the investors in the province of Erzincan, Turkey. Data were collected using a questionnaire for analysis of the study. A total of 390 individual investors participated in the individual investor questionnaire between July and September 2017. As a result of their study, Özer and Korkulutaş found that behavioral tendencies had a considerable impact on investment decisions.

In their study in 2017, Gül , Ekşi and Sürme investigated investment decisions of gold trading jewelers in terms of behavioral finance. They conducted a survey with 63 jewelers, working in the province of Gaziantep, Turkey. As a result of the study, they found that investor behavior did not differ according to marital status, age and capital amount. However, they found that investor behavior differs according to education, the age of the firm and professional experience. It is possible to state that investors have full confidence in themselves, but are worried about the future.

In their 2016 study, Aydın and Ağan investigated the psychological effects that guide the financial decision-making behavior of individual investors and how these effects influence their investment decisions. The study analysis was performed with a total of 600 individual investors using the individual investor questionnaire between May 25th and June 15th, 2015. The results of their study found that individual investors were influenced by behavioral tendencies, made systematic mistakes, and exhibited irrational behavior when making financial investment decisions.

In 2016, Sümer and Aybar evaluated the inadequacy of the efficient markets hypothesis in explaining the financial markets in terms of behavioral finance. In the study, the Efficient Market Hypothesis, which was argued to be insufficient to reflect the general situation in finance, and valid only for exceptions, was discussed together with the effectiveness of the behavioral finance, which takes social, cognitive and emotional biases into consideration.

In a 2015 study, Mien and Thao investigated the impact of investors' financial attitudes, financial knowledge, locus of control and financial management behaviors on behavioral finance. Data were collected using a questionnaire for analysis of the study. A total of 307 investors in the 19-30 age group was surveyed. In their study, Mien and Thao found that investors with greater external locus of control exhibited poor financial management behavior, and that financial knowledge management affects the locus of control and that financial knowledge and attitudes affect behavioral finance positively.

In a 2015 study, Kendirli and Kaya investigated the investment preferences of individual investors in Çorum and Yozgat provinces and the demographic and psychological factors that influence these preferences. Data were collected using a questionnaire for analysis of the study. A total of 400 individual investors participated in the individual investor survey. As a result of their study, Kendirli and Kaya found that investors in Çorum and Yozgat provinces preferred similar investment instruments. Another result of the study was that there was a statistically significant difference between investment instrument preferences of the individual investors living in the provinces in question.

In their 2014 study, Kengatharan and Kengatharan investigated the factors influencing the decisions of investors in the Colombo Stock Exchange. Data were collected using a questionnaire for analysis of the

study. Hundred and twenty-eight investors participated in the survey. As a result of their study, Kengatharan and Kengatharan found that investors' investment decisions were influenced by the herd behavior, intuition, expectations and the market.

In his 2014 study, Küçük investigated the factors that guide individual investors in their financial investment decisions in terms of behavioral finance. Data were collected using a questionnaire for analysis of the study. 150 investors were surveyed by the individual investor questionnaire. The study found that behavioral finance had an influence on investors' investment decisions.

In his 2014 study, Lodhi investigated the factors that influence the decisions of individual investors who invest in the Karachi Stock Exchange. Data were collected using a questionnaire for analysis of the study. Sixty investors participated in the survey. In his study in 2014, Lodhi concluded that financial literacy and accounting knowledge reduced asymmetric knowledge and influenced investors' decisions.

In 2014, Phan and Zhou studied factors that influence the investment decisions of individual investors. They conducted the study with 472 individual investors who invested in the Vietnam Stock Exchange. The study analysis was performed using the Structural Equation Model. As a result of the study, they found that gender and psychological factors were influencing investors' investment decisions.

In his 2013 study, Hon investigated the factors that influence the investment decisions of individual investors. Data were collected using a questionnaire for analysis of the study. 1199 investors participated in the survey. Frequency analysis was performed on the data obtained. As a result of the study, they found that individual investors have high faith in their own opinions, whether they face bad outcomes in the stock market or invest in a bad stock market.

In their study in 2011, Sadi et al. investigated the relationship between investors' perceptions of the stock market and their personalities. For the analysis of the study, they randomly selected 200 investors, trading on the Tehran Stock Exchange. As a result of their study, they found that there was a strong relationship between the perceptions of investors in the stock market and their personalities.

Another study on behavioral finance was conducted by Saraç and Kahyaoğlu in 2011. In their study, Saraç and Kahyaoğlu investigated

the impact of the economic crisis in 2008 on investor behavior. The study investigated the impact of investors' demographics on the risk-taking behavior. The study analysis was carried out with 31 investors who traded on the stock exchange between 2007 and 2009. The study found that socio-economic and demographic characteristics had an impact on risk-taking tendencies.

Statistical Analysis

Purpose, Importance and Scope of the Research

This study aims to investigate the difference in the behaviors of individual foreign exchange investors within the framework of five dimensions, namely the overconfidence, overoptimism, regret aversion, loss aversion, and the representative bias dimensions, in terms of marital status, age, education level, professional experience, frequency of reviewing the investments, the most frequently used sources of information while making decisions about the investments, the most common methods used for the preference of investment instruments, the main factors considered in the preference of the investment instruments, the amount of capital, and personality traits. The study was conducted using the scale developed by Gül, Ekşi and Sürme through academic research. During the study period, between January and February 2020, 319 individual foreign exchange investors were reached for their participation in the survey.

Research Hypotheses and Limitations

It was accepted that the participants expressed their true thoughts when responding to the items on the scale, answered the questionnaire with their own will and answered the questionnaire in a complete and accurate manner. There were some difficulties in increasing the number of samples in the survey. The people who were asked to participate in the survey stated that they did not have time to participate. As a limitation of the study, the participants had a negative attitude towards the participation in the survey.

Research Hypotheses

Table 1

Research Hypotheses

H	Hypothesis
H1	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of marital status
H2	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of age
H3	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of educational status
H4	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of professional experience
H5	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of the time to review the investments
H6	There are significant differences in the dimensions of overconfidence, overoptimismA, regret aversion, loss aversion, and representative bias in terms of the most commonly used information sources when directing investments
H7	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of the methods used for the preference of investment instruments
H8	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of the main factors considered in the preference of investment instruments
H9	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of the current amount of capital
H10	There are significant differences in the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias in terms of personality traits
H11	There are significant correlations between the dimensions of overconfidence, overoptimism, regret aversion, loss aversion, and representative bias

Findings and Interpretations

Frequency Distribution Analysis of the Demographic Variables

Table 1.1

Demographic Characteristics of the Participants and Company Profiles

Marital Status	**N**	**%**	**Age**	**N**	**%**
Married	206	64.6	19-25	15	4.7
Single	113	35.4	26-35	105	32.9
Total	**319**	**100**	36-45	134	42.0
			46 and over	65	20.4
			Total	**319**	**100**
Education Level	**N**	**%**	**Professional Experience**	**N**	**%**
High School	13	4.1	0-5 years	60	18.8
Associate degree	21	6.6	6-10 years	55	17.2
Bachelor's degree	175	54.9	11-15 years	60	18.8
Master degree	110	34.5	16-20 years	60	18.8
Total	**319**	**100**	21 years and over	84	26.3
			Total	**319**	**100**
Time to Review Investments	**N**	**%**	**Sources of Information that You Use Most Frequently when Directing Your Investments**	**N**	**%**
Every hour	20	6.3	TV Economy Channels	67	21.0
Every day	115	36.1	Newspaper	4	1.3
Weekly	83	26.0	Recommendations	35	11.0
Monthly	101	31.7	Social Media	39	12.2
Total	**319**	**100**	Internet Sites	173	54.2
			Journals	1	0.3
			Total	**319**	**100**

The Most Common Methods Used for the Preference of Investment Instruments	N	%	The Main Factors in the Preference of Investment Instruments	N	%
Analysis Methods	95	29.8	Rate of Return	177	55.5
Recommendation of Brokerage Houses	20	6.3	Maintaining Purchasing Power	47	14.7
Recommendation of Acquaintances	38	11.9	Reducing Risk by Diversification	95	29.8
Exchange Rates	96	30.1	**Total**	**319**	**100**
Personal Intuitions	70	21.9			
Total	**319**	**100**			
Current Capital Amount	**N**	**%**	**Personality Traits**	**N**	**%**
less than 10,000	70	21.9	Confident	139	43.6
10,000-50,000 TL	74	23.2	Careful	104	32.6
50,000-100,000 TL	58	18.2	Concerned	38	11.9
100,000-500,000 TL	78	24.5	Emotional	38	11.9
500,000 TL and Over	35	11.0	**Total**	**319**	**100**
100,000-499,999 TL	2	.6			
less than 100,000	2	.6			
Total	**319**	**100**			

Table 2 shows the frequency analysis of the variables. Accordingly, 64.6% of the participants was married, and 35.4% was single.

- Of the respondents, 4.7% was in the 19-25 age group, 32.9% was in the 26-35 age group, 42% was in the 36-45 age group, and 20.4% was 46 years old or older. Accordingly, most of the participants were in the 36-45 age group.
- Of the respondents, 4.1% was high school graduate, 6.6% had an associate degree, 54.9% had a bachelor's degree, and 34.5% was postgraduate.
- Of the respondents, 18.8% had professional experience of 0-5 years, 17.2% had professional experience of 6-10 years, 18.8% had professional experience of 11-15 years, 18.8% had professional

experience of 16-20 years, and 26.3% had a professional experience of 21 years or more.

- Of the respondents, 6.3% reviewed their investments every hour, while 36.1% reviewed them every day, 26% once a week, and 31.7% was reviewing once a month. Accordingly, the majority of the participants go through their investments every day.
- Of the respondents, 54.2% uses websites most frequently when deciding on their investments. This is followed by TV Economy Channels by 21%, Social Media by 12.2%, Recommendations by 11%, Newspapers by 1.3%, and Magazines by 0.3% respectively.
- Of the respondents, 29.8% based their preference of investment on the analysis methods, 6.3% based on the brokerage guidance, 11.9% based on the guidance of their close circle, 30.1% based on the exchange rates, and 21.9% based their preference for investment instruments on their intuition.
- Of the respondents, 55.5% considered maintaining the Rate of Return, 14.7% considered maintaining Purchasing Power, and 29.8% considered Reducing Risk by Diversification in their preference of investment instruments.
- The current capital amount of 21.9% of respondents was less than 10,000 TL, 23.2% had less than 10,000-50,000 TL, 18.2% had less than 50,000-100,000 TL, 24.5% had less than 100,000-500,000 TL, 11% had 500,000 TL and over, 0.6% had in the range of 100,000-499.999 TL, and 0.6% had less than 100,000 TL.
- Looking at the personality traits of the participants, 43.6% was Confident, 32.6% was Careful, 11.9% was Concerned, and 11.9% was Emotional. Accordingly, the majority of the respondents can be considered Confident.
- In terms of behavioral finance, investor behaviors were studied under five dimensions: "overconfidence, overoptimism, regret aversion, loss aversion, and representative bias."

Frequency Distribution Analysis for Investor Behavior Dimensions from the Perspective of Behavioral Finance

Table 1.2.

Frequency Distribution Table of the Overconfidence Dimension

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Avg. ±SD.		
1. I believe the information I have is more valuable than the information of other investors.	19.7	32.6	19.1	19.4	9.1	2.66	±	1.25
2. I am confident that I am making the right and healthy decisions.	15.7	15.7	19.7	36.1	12.9	3.15	±	1.28
3. The returns on my financial investments are always above the average returns on the market.	15.7	21.3	30.7	24.1	8.2	2.88	±	1.18
GENERAL						2.89	±	

Proposition 1:"I believe the information I have is more valuable than the information of other investors." proposition was responded with "Strongly disagree" by 19.7% of the respondents, "Disagree" by 32.6%, "Neutral" by 19.1%, "Agree" by 19.4%, and "Strongly agree" by 9.1% of the respondents. For this proposition, the mean value was 2.66 and the standard deviation was 1.25.

Proposition 2:"I am confident that I am making the right and healthy decisions." proposition was responded with "Strongly disagree" by 15.7% of the respondents, "Disagree" by 15.7%, "Neutral" by 19.7%, "Agree" by 36.1%, and "Strongly agree" by 12.9% of the respondents. For this proposition, the mean value was 3.15 and the standard deviation was 1.28.

Proposition 3:"The returns on my financial investments are always above the average returns on the market." proposition was responded with "Strongly disagree" by 15.7% of the respondents, "Disagree" by 21.3%, "Neutral" by 30.7%, "Agree" by 24.1%, and "Strongly agree" by 8.2% of the respondents. For this proposition, the mean value was 2.88 and the standard deviation was 1.18.

Table 1.3.

Frequency Distribution Table of the Overoptimism Dimension

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Avg. ±SD.**		
4. The information available to a small number of investors in the market gives me an absolute advantage in my financial investments.	17.2	19.1	16.9	30.4	16.3	3.09	±	1.35
5. I have a strong expectation that my financial investments will yield a profit in the future.	14.4	14.1	19.7	34.5	17.2	3.26	±	1.30
6. The financial investment instruments that will cause a loss in the future will not be mine, but those of other investors.	15.4	19.7	32.6	21.6	10.7	2.92	±	1.21
7. I believe the economic developments in the local and international markets will be positive.	22.9	30.1	20.7	18.8	7.5	2.58	±	1.24
GENERAL						2.96	±	

Proposition 4:"The information available to a small number of investors in the market gives me an absolute advantage in my financial investments." proposition was responded with "Strongly disagree" by 17.2% of the respondents, "Disagree" by 19.1%, "Neutral" by 16.9%, "Agree" by 30.4%, and "Strongly agree" by 16.3% of the respondents. For this proposition, the mean value was 3.09 and the standard deviation was 1.35.

Proposition 5:"I have a strong expectation that my financial investments will yield a profit in the future." proposition was responded with "Strongly disagree" by 14.4% of the respondents, "Disagree" by 14.1%, "Neutral" by 19.7%, "Agree" by 34.5%, and "Strongly agree" by 17.2% of the respondents. For this proposition, the mean value was 3.26 and the standard deviation was 1.30.

Proposition 6:"The financial investment instruments that will cause a loss in the future will not be mine, but those of other investors." proposition was responded with "Strongly disagree" by 15.4% of the respondents, "Disagree" by 19.7%, "Neutral" by 32.6%, "Agree" by 21.6%, and "Strongly agree" by 10.7% of the respondents. For this proposition, the mean value was 2.92 and the standard deviation was 1.21.

Proposition 7:"I believe the economic developments in the local and international markets will be positive." proposition was responded with "Strongly disagree" by 22.9% of the respondents, "Disagree" by 30.1%, "Neutral" by 20.7%, "Agree" by 18.8%, and "Strongly agree" by 7.5% of the respondents. For this proposition, the mean value was 2.58 and the standard deviation was 1.24.

Table 1.4.

Frequency Distribution Table of the Regret Aversion Dimension

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Avg. ±SD.		
8. When I have losses in an investment instrument, I don't trade the investment instrument until I can cover my losses.	18.8	23.8	19.7	26.3	11.3	2.87	±	1.30
9. I trade an investment instrument for its cost of buying.	22.6	36.1	17.6	18.2	5.6	2.48	±	1.19
10. If I have two investments with the same costs, A and B, in case of urgent need of cash, I sell the investment instrument that causes a loss.	20.4	20.1	13.2	28.2	18.2	3.04	±	1.42
GENERAL						2.80	±	

Proposition 8:"When I have losses in an investment instrument, I don't trade the investment instrument until I can cover my losses." proposition was responded with "Strongly disagree" by 18.8% of the respondents, "Disagree" by 23.8%, "Neutral" by 19.7%, "Agree" by 26.3%, and "Strongly agree" by 11.3% of the respondents. For this proposition, the mean value was 2.87 and the standard deviation was 1.30.

Proposition 9:"I trade an investment instrument for its cost of buying." proposition was responded with "Strongly disagree" by 22.6% of the respondents, "Disagree" by 36.1%, "Neutral" by 17.6%, "Agree" by 28.2%, and "Strongly agree" by 5.6% of the respondents. For this proposition, the mean value was 2.48 and the standard deviation was 1.19.

Proposition 10:"If I have two investments with the same costs, A and B, in case of urgent need of cash, I sell the investment instrument that

causes a loss." proposition was responded with "Strongly disagree" by 20.4% of the respondents, "Disagree" by 20.1%, "Neutral" by 13.2%, "Agree" by 28.2%, and "Strongly agree" by 18.2% of the respondents. For this proposition, the mean value was 3.04 and the standard deviation was 1.42.

Table 1.5.

Frequency Distribution Table of the Loss Aversion Dimension

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Avg. ±SD.**		
11. I prefer low-return/low-risk investment instruments more than high-risk/high-return investment instruments.	18.5	19.4	20.1	26	16	3.02	±	1.36
12. I'd rather make a 3,000 profit with 100% probability than 4,000 with 80% probability.	19.1	12.2	11.9	27.6	29.2	3.35	±	1.49
GENERAL						3.18	±	

Proposition 11:"I prefer low-return/low-risk investment instruments more than high-risk/high-return investment instruments." proposition was responded with "Strongly disagree" by 18.5% of the respondents, "Disagree" by 19.4%, "Neutral" by 20.1%, "Agree" by 26%, and "Strongly agree" by 16% of the respondents. For this proposition, the mean value was 3.02 and the standard deviation was 1.36.

Proposition 12:"I'd rather make a 3,000 profit with 100% probability than 4,000 with 80% probability." proposition was responded with "Strongly disagree" by 19.1% of the respondents, "Disagree" by 12.2%,

"Neutral" by 11.9%, "Agree" by 27.6%, and "Strongly agree" by 29.2% of the respondents. For this proposition, the mean value was 3.35 and the standard deviation was 1.49.

Table 1.6.

Frequency Distribution Table of the Representative Bias Dimension

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Avg. ±SD.**		
13. I keep positive performances or positive information about an investment instrument in my memory, and use them in the decision making phase of my subsequent investments.	15	11.3	12.5	39.8	21.3	3.41	±	1.34
14. I prefer high-interest but unrecognized/small-scale banks instead of well-known/large-scale banks that offer low interest on deposits.	27	26.6	18.5	19.4	8.5	2.56	±	1.30
15. If I were to invest, I would invest in the stocks of large, well-known companies.	17.6	16.9	20.4	24.1	21	3.14	±	1.39
GENERAL						3.04	±	

Proposition 13:"I keep positive performances or positive information

about an investment instrument in my memory, and use them in the decision making phase of my subsequent investments." proposition was responded with "Strongly disagree" by 15% of the respondents, "Disagree" by 11.3%, "Neutral" by 12.5%, "Agree" by 39.8%, and "Strongly agree" by 21.3% of the respondents. For this proposition, the mean value was 3.41 and the standard deviation was 1.34.

Proposition 14:"I prefer high-interest but unrecognized/small-scale banks instead of well-known/large-scale banks that offer low interest on deposits." proposition was responded with "Strongly disagree" by 27% of the respondents, "Disagree" by 26.6%, "Neutral" by 18.5%, "Agree" by 19.4%, and "Strongly agree" by 8.5% of the respondents. For this proposition, the mean value was 2.56 and the standard deviation was 1.30.

Proposition 15:"If I were to invest, I would invest in the stocks of large, well-known companies." proposition was responded with "Strongly disagree" by 17.6% of the respondents, "Disagree" by 16.9%, "Neutral" by 20.4%, "Agree" by 24.1%, and "Strongly agree" by 21% of the respondents. For this proposition, the mean value was 3.14 and the standard deviation was 1.39.

Explanatory Factor Analysis Results

Factor analysis is a multivariate statistic that aims to find and discover unrelated and conceptually significant new variables (factors, dimensions) by bringing correlated p new variables together. In the explanatory factor analysis process for the scales, the suitability of the data for factor analysis was tested first. Accordingly, the Kaiser-Meyer-Olkin (KMO) sample adequacy of the data set was 0.924, which was above 0.70, indicating a good level of adequacy. The Bartlett's Sphericity test, which measures the consistency of analyzed items/variables, was statistically significant (χ^2= 5862.41 and p=0.000). The results of the tests showed that the sample to be used for explanatory factor analysis was sufficient and suitable for the factor analysis.

After the conformity of the data set was confirmed by the tests, "Varimax" rotation and principal component analysis methods were applied in order to reveal the factor structure. A 5-factor structure was identified in the factor structure, explaining 78.94% of the total variance. As stated in their study, Çokluk et al. (2012) considered 40-60% variance explained sufficient in studies in the social sciences with multifactorial patterns. As the four dimensions explained 78.94% of

the total variance, the explanatory ratio of the factors was deemed sufficient. Anti-image matrix diagonal values were above 0.50. Thus, there was no need to remove any items. As stated in the study by Costello and Osborne (2005), items whose values are less than 0.20 in the extraction column as a result of factor analysis should be removed from analysis since their effect on variance change is minimal. In this study, all questionnaire items were used without removing any, as there was no item with a value under 0.20 for the 5 factors.

In terms of behavioral finance, investor behaviors were studied under five dimensions: "overconfidence, overoptimism, regret aversion, loss aversion, and representative bias."

Table 1.7

Explanatory Factor Analysis Results for the Investor Behavior Scale from the Perspective of Behavioral Finance

Factor 1: OVERCONFIDENCE	**Explained variance: 22.34**	**Cronbach's Alpha (CA):0.918**
	Factor loading	**CA if item deleted**
1. I believe the information I have is more valuable than the information of other investors.	.678	0.911
2. I am confident that I am making the right and healthy decisions.	.701	0.914
3. The returns on my financial investments are always above the average returns on the market.	.663	0.917
Factor 2: EXCESSIVE OPTIMISM	**Explained variance: 18.56**	**Cronbach's Alpha (CA):0.915**
	Factor loading	**CA if item deleted**
4. The information available to a small number of investors in the market gives me an absolute advantage in my financial investments.	.682	0.912
5. I have a strong expectation that my financial investments will yield a profit in the future.	.670	0.909
6. The financial investment instruments that will cause a loss in the future will not be mine, but those of other investors.	.712	0.910

7. I believe the economic developments in the local and international markets will be positive.	.709	0.907
Factor 3: REGRET AVERSION	**Explained variance: 14.89**	**Cronbach's Alpha (CA):0.913**
	Factor loading	**CA if item deleted**
8. When I have losses in an investment instrument, I don't trade the investment instrument until I can cover my losses.	.704	0.910
9. I trade an investment instrument for its cost of buying.	.723	0.904
10. If I have two investments with the same costs, A and B, in case of urgent need of cash, I sell the investment instrument that causes a loss.	.698	0.907
Factor 4: LOSS AVERSION	**Explained variance: 12.25**	**Cronbach's Alpha (CA):0.910**
	Factor loading	**CA if item deleted**
11. I prefer low-return/low-risk investment instruments more than high-risk/high-return investment instruments.	.755	0.903
12. I'd rather make a 3,000 profit with 100% probability than 4,000 with 80% probability.	.731	0.901
Factor 5: REPRESENTATIVE BIAS	**Explained variance: 10.90**	**Cronbach's Alpha (CA):0.907**
	Factor loading	**CA if item deleted**
13. I keep positive performances or positive information about an investment instrument in my memory, and use them in the decision making phase of my subsequent investments.	.675	0.903
14. I prefer high-interest but unrecognized/small-scale banks instead of well-known/large-scale banks that offer low interest on deposits.	.605	0.900
15. If I were to invest, I would invest in the stocks of large, well-known companies.	.611	0.905

Testing Hypotheses

Kolmogorov-Simirnov and Shapiro-Wilk normal distribution tests were used to determine the methods to be used in the study. The H1 hypothesis indicating that normal distribution is not achieved was accepted since p<0.05 as a result of both normality tests. In this case, non-parametric methods are used in the analysis of group differences. In the analysis of group differences, the Mann-Whitney-U test was applied for two groups, and Kruskal Wallis test was used for 3 or more groups. Mean rank values were examined at for the source of the difference.

Table 1.8

Mann-Whitney U test results in terms of marital status

Dimensions	**Group**	**N**	**Mean rank**	**Mann-Whitney U**	**p**
Overconfidence	*Married*	*206*	*167.69*	10055.000	0.044*
	Single	113	145.98		
Overoptimism	Married	206	159.15	11463.500	0.824
	Single	113	161.55		
Regret Aversion	Married	206	160.03	11632.500	0.993
	Single	113	159.94		
Loss Aversion	Married	206	164.64	10683.500	0.223
	Single	113	151.54		
Representative Bias	Married	206	165.44	10517.500	0.154
	Single	113	150.08		

* difference at the level of significance of 0.05

Overoptimism, regret aversion, loss aversion, and the representative bias dimensions did not differ significantly between the married and single groups, while there was a significant difference in term of the overconfidence dimension. When we look at the mean rank values, it is seen that the difference is caused by the married participants.

Table 1.9

Kruskal-Wallis test results in terms of age

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	19-25 Age Group	15	144.17	1.880	0.598
	26-35 Age Group	105	152.14		
	36-45 Age Group	134	165.66		
	46 Years and Over	65	164.68		
Overoptimism	19-25 Age Group	15	207.43	4.890	0.180
	26-35 Age Group	105	156.67		
	36-45 Age Group	134	162.01		
	46 Years and Over	65	150,30		
Regret Aversion	*19-25 Age Group*	*15*	*223.10*	9.824	0.020*
	26-35 Age Group	105	156.83		
	36-45 Age Group	134	164.04		
	46 Years and Over	65	142.24		
Loss Aversion	19-25 Age Group	15	212.23	6.362	0.095
	26-35 Age Group	105	151.79		
	36-45 Age Group	134	164.10		
	46 Years and Over	65	152.75		
Representative Bias	19-25 Age Group	15	208.30	6.355	0.096
	26-35 Age Group	105	147.33		
	36-45 Age Group	134	163.93		
	46 Years and Over	65	161.22		

* difference at the level of significance of 0.05

While the regret aversion dimension varied significantly between age groups, there was no significant difference in other dimensions. When we look at the mean rank values of the regret aversion dimension, it is seen that the difference stems from the participants in the 19-25 age group.

Table 1.10

Kruskal-Wallis test results in terms of educational level

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	High School	13	142.35	1.928	0.587
	Associate degree	21	173.76		
	Bachelor's degree	175	155.50		
	Master degree	110	166.61		
Overoptimism	High School	13	117.27	3.859	0.277
	Associate degree	21	175.60		
	Bachelor's degree	175	157.91		
	Master degree	110	165.40		
Regret Aversion	High School	13	121.88	4.921	0.178
	Associate degree	21	189.43		
	Bachelor's degree	175	156.35		
	Master degree	110	164.69		
Loss Aversion	High School	13	128.77	4.053	0.256
	Associate degree	21	175.50		
	Bachelor's degree	175	154.26		
	Master degree	110	169.86		
Representative Bias	High School	13	98.62	12.243	0.007*
	Associate degree	*21*	*186.64*		
	Bachelor's degree	175	151.45		
	Master degree	110	175.77		

* difference at the level of significance of 0.05

While the representative bias dimension differed significantly in terms of educational level, there was no significant difference in other dimensions. When we look at the mean rank values of the Representative Bias dimension for the source of the difference, it is seen that the difference is due to the participants who had an associate degree.

Table 1.11

Kruskal-Wallis test results in terms of professional experience

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	0-5 Years	60	144.78	5.560	0.235
	6-10 Years	55	165.91		
	11-15 Years	60	165.78		
	16-20 Years	60	144.89		
	21 Years and Over	84	173.67		
Overoptimism	0-5 Years	60	174.61	5.200	0.267
	6-10 Years	55	157.61		
	11-15 Years	60	164.89		
	16-20 Years	60	138.11		
	21 Years and Over	84	163.27		
Regret Aversion	0-5 Years	60	177.93	2.924	0.571
	6-10 Years	55	157.60		
	11-15 Years	60	157.01		
	16-20 Years	60	152.21		
	21 Years and Over	84	156.46		
Loss Aversion	0-5 Years	60	176.29	7.177	0.127
	6-10 Years	55	154.35		
	11-15 Years	60	159.07		
	16-20 Years	60	135.98		
	21 Years and Over	84	169.89		
Representative Bias	0-5 Years	60	170.67	3,023	0.554
	6-10 Years	55	155.39		
	11-15 Years	60	152.18		
	16-20 Years	60	148.92		
	21 Years and Over	84	168.90		

None of the dimensions showed any significant difference in terms of professional experience.

Table 1.12

Kruskal-Wallis test results in terms of the time to review the investments

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	Every Hour	20	193.30	4.226	0.238
	Every day	115	162.78		
	Weekly	83	161.70		
	Monthly	101	148.84		
Overoptimism	Every Hour	20	185.88	3.067	0.381
	Every day	115	166.02		
	Weekly	83	155.35		
	Monthly	101	151.84		
Regret Aversion	Every Hour	20	145.60	3.410	0.333
	Every day	115	149.93		
	Weekly	83	164.42		
	Monthly	101	170.69		
Loss Aversion	Every Hour	20	149.48	1.171	0.760
	Every day	115	156.49		
	Weekly	83	158.07		
	Monthly	101	167.67		
Representative Bias	Every Hour	20	168.78	3.719	0.293
	Every day	115	171.39		
	Weekly	83	156.49		
	Monthly	101	148.18		

None of the dimensions showed any significant difference in terms of the time to review investments.

Table 1.13.

The Kruskal-Wallis Test Results in Terms of the Most Commonly Used Sources of Information when Making Decisions about Investments

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	TV Economy Channels	67	174.74	7.242	0.203
	Newspaper	4	106.50		
	Recommendations	35	130.81		
	Social Media	39	162.40		
	Internet Sites	173	161.31		
	Journals	1	88.00		
Overoptimism	TV Economy Channels	67	156.84	2.992	0.701
	Newspaper	4	170.88		
	Recommendations	35	142.86		
	Social Media	39	163.23		
	Internet Sites	173	164.30		
	Journals	1	58.00		
Regret Aversion	TV Economy Channels	67	164.49	1.891	0.864
	Newspaper	4	127.63		
	Recommendations	35	147.70		
	Social Media	39	151.08		
	Internet Sites	173	163.50		
	Journals	1	161.50		
Loss Aversion	TV Economy Channels	67	175.48	2,914	0.713
	Newspaper	4	166.38		
	Recommendations	35	148.21		
	Social Media	39	155.26		
	Internet Sites	173	157.11		
	Journals	1	194.50		
Representative Bias	TV Economy Channels	67	174.95	10.018	0.075
	Newspaper	4	148.13		
	Recommendations	35	122.30		
	Social Media	39	144.26		
	Internet Sites	173	166.02		
	Journals	1	97.50		

None of the dimensions showed any significant difference in terms of the information sources used in deciding investments.

Table 1.14.

The Kruskal-Wallis Test Results for the Most Common Methods Used for the Preference of Investment Instruments

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	*Analysis Methods*	*95*	*180.67*	17.520	0.002*
	Recommendation of Brokerage Houses	20	180.33		
	Recommendation of Acquaintances	38	113.72		
	Exchange Rates	96	147.84		
	Personal Intuitions	70	167.94		
Overoptimism	Analysis Methods	95	172.94	3.292	0.510
	Recommendation of Brokerage Houses	20	168.55		
	Recommendation of Acquaintances	38	153.61		
	Exchange Rates	96	150.93		
	Personal Intuitions	70	155.91		
Regret Aversion	Analysis Methods	95	145.16	7.161	0.128
	Recommendation of Brokerage Houses	20	199.78		
	Recommendation of Acquaintances	38	173.63		
	Exchange Rates	96	158.31		
	Personal Intuitions	70	163.69		
Loss Aversion	Analysis Methods	95	150.74	3.644	0.456
	Recommendation of Brokerage Houses	20	170.65		
	Recommendation of Acquaintances	38	176.42		
	Exchange Rates	96	153.61		
	Personal Intuitions	70	169.38		
Representative Bias	Analysis Methods	95	161.44	2,329	0.676
	Recommendation of Brokerage Houses	20	165.43		
	Recommendation of Acquaintances	38	146.22		
	Exchange Rates	96	154.63		
	Personal Intuitions	70	171.35		

* difference at the level of significance of 0.05

The overconfidence dimension differs significantly in terms of the methods used in the preference of investment instruments. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the participants who follow the Analysis Method.

Table 1.15.

The Kruskal-Wallis Test Results in Terms of the Main Factors Considered in the Preference of Investment Instruments

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	Rate of Return	177	161.72	0.334	0.846
	Maintaining Purchasing Power	47	162.72		
	Reducing Risk by Diversification	95	155.45		
Overoptimism	Rate of Return	177	163.36	1.333	0.513
	Maintaining Purchasing Power	47	145.94		
	Reducing Risk by Diversification	95	160.71		
Regret Aversion	Rate of Return	177	159.40	.973	0.615
	Maintaining Purchasing Power	47	171.50		
	Reducing Risk by Diversification	95	155.43		
Loss Aversion	Rate of Return	177	151.68	3.801	0.149
	Maintaining Purchasing Power	47	178.40		
	Reducing Risk by Diversification	95	166.40		
Representative Bias	Rate of Return	177	155.40	1.108	0.575
	Maintaining Purchasing Power	47	169.49		
	Reducing Risk by Diversification	95	163.88		

None of the dimensions showed any significant difference in terms of the main factors considered in the preference of investment instruments.

Table 1.16.

Kruskal-Wallis test results in terms of current capital amount

Dimensions	Group	N	Mean rank	Chi-square value	p
Overconfidence	Less than 10,000 TL	70	128.96	12.863	0.045*
	10,000 - 50,000 TL	74	164.66		
	50,000 - 100,000 TL	58	160.17		
	100,000 - 500,000 TL	78	181.83		
	500,000 TL and over	35	161.50		
	100,000 - 499,999 TL	2	*198.00*		
	Less than 100,000 TL	2	153.25		
Overoptimism	Less than 10,000 TL	70	155.52	5.263	0.511
	10,000 - 50,000 TL	74	155.02		
	50,000 - 100,000 TL	58	150.33		
	100,000 - 500,000 TL	78	179.72		
	500,000 TL and over	35	149.29		
	100,000 - 499,999 TL	2	174.00		
	Less than 100,000 TL	2	185.75		
Regret Aversion	Less than 10,000 TL	70	172.05	5.480	0.484
	10,000 - 50,000 TL	74	151.45		
	50,000 - 100,000 TL	58	168.77		
	100,000 - 500,000 TL	78	158.15		
	500,000 TL and over	35	142.04		
	100,000 - 499,999 TL	2	113.50		
	Less than 100,000 TL	2	233.00		
Loss Aversion	Less than 10,000 TL	70	170.93	7.047	0.317
	10,000 - 50,000 TL	74	149.79		
	50,000 - 100,000 TL	58	165.41		
	100,000 - 500,000 TL	78	164.97		
	500,000 TL and over	35	139.09		
	100,000 - 499,999 TL	2	87.25		
	Less than 100,000 TL	2	243.25		
Representative Bias	Less than 10,000 TL	70	155.22	3.711	0.716
	10,000 - 50,000 TL	74	147.55		
	50,000 - 100,000 TL	58	160.54		
	100,000 - 500,000 TL	78	171.50		
	500,000 TL and over	35	167.21		
	100,000 - 499,999 TL	2	143.75		
	Less than 100,000 TL	2	213.75		

* difference at the level of significance of 0.05

The overconfidence dimension shows a significant difference between the groups in terms of the current amount of capital. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the participants with a capital in the range of 100,000-499,000 TL.

Table 1.17.

Kruskal-Wallis test results in terms of personality traits

Dimensions	**Group**	**N**	**Mean rank**	**Chi-square value**	**p**
Overconfidence	Confident	139	167.19	8.536	0.036*
	Careful	*104*	*169,91*		
	Concerned	38	129.87		
	Emotional	38	136.71		
Overoptimism	Confident	139	162.74	4,832	0.185
	Careful	104	170.50		
	Concerned	38	141.07		
	Emotional	38	140.17		
Regret Aversion	Confident	139	156.40	4.337	0.227
	Careful	104	159.62		
	Concerned	38	187.37		
	Emotional	38	146.86		
Loss Aversion	Confident	139	161.97	1,930	0.587
	Careful	104	164.11		
	Concerned	38	160.72		
	Emotional	38	140.83		
Representative Bias	Confident	139	158.68	3.675	0.299
	Careful	104	166.19		
	Concerned	38	171.79		
	Emotional	38	136.09		

* difference at the level of significance of 0.05

The overconfidence dimension shows a significant difference between the groups in terms of the personality traits. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the careful participants.

Table 1.18.

Correlation Analysis Results that Determine the Relationship Between Participants' Behavioral Finance Sub-Dimensions

		Overconfidence	Overoptimism	Regret Aversion	Loss Aversion	Representative Bias
Overconfidence	r	1.000	.535**	.274**	.248**	.380**
	p	.	.000	.000	.000	.000
	n		319	319	319	319
Overoptimism	r		1.000	.370**	.318**	.432**
	p		.	.000	.000	.000
	n			319	319	319
Regret Aversion	r			1.000	.474**	.401**
	p			.	.000	.000
	n				319	319
Loss Aversion	r				1.000	.443**
	p				.	.000
	n					319
Representative Bias	r					1.000
	p					.
	n					

**p<0.05

As can be seen from the relationship analyses, the overconfidence dimension increases overoptimism dimension by 53.5%, regret aversion dimension by 27.4%, loss aversion by 24.8%, and representative bias dimension by 38% in the positive direction. The overoptimism dimension increases regret aversion dimension by 37%, loss aversion by 31.8%, and representative bias dimension by 43.2% in the positive direction. The regret aversion dimension increases the loss aversion dimension by 47.4%, while increasing the representative bias dimension by 40.1%. And finally, the representative bias dimension increases positively by 44.3%, in line with the increase in the loss aversion dimension.

Conclusion

The factors affecting the investment decisions of individual foreign exchange investors were investigated in this study. Behavioral finance is a branch of finance introduced to the literature by Nobel laureate Daniel Kahneman in 2002 on the assumption that traditional finance models are inadequate in explaining most of the events that occur in markets. As mentioned above, behavioral finance is a branch of finance that seeks to explain the financial decisions of investors by taking advantage of different fields such as sociology, psychology and anthropology. The behaviors of the individual foreign exchange investors were studied under five dimensions. Analyses resulted in the following findings.

- Overoptimism, regret aversion, loss aversion, and the representative bias dimensions did not differ significantly between the married and single groups, while there was a significant difference in term of the overconfidence dimension.
- While the regret aversion dimension varied significantly between age groups, there was no significant difference in other dimensions.
- While the representative bias dimension differed significantly in terms of educational level, there was no significant difference in other dimensions. When we look at the mean rank values of the Representative Bias dimension for the source of the difference, it is seen that the difference is due to the participants who had an associate degree.
- None of the dimensions showed any significant difference in terms of professional experience.
- None of the dimensions showed any significant difference in terms of the time to review investments.
- None of the dimensions showed any significant difference in terms of the information sources used in deciding investments.
- The overconfidence dimension differs significantly in terms of the methods used in the preference of investment instruments. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the participants who follow the Analysis Method.

- None of the dimensions showed any significant difference in terms of the main factors considered in the preference of investment instruments.
- The overconfidence dimension shows a significant difference between the groups in terms of the current amount of capital. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the participants with a capital in the range of 100,000-499,000 TL.
- The overconfidence dimension shows a significant difference between the groups in terms of the personality traits. There was no significant difference in other dimensions. When we look at the mean rank values of the overconfidence dimension for the source of the difference, it is seen that most of the difference stems from the careful participants.
- As can be seen from the relationship analyses, the overconfidence dimension increases overoptimism dimension by 53.5, regret aversion dimension by 27.4%, loss aversion by 24.8%, and representative bias dimension by 38% in the positive direction. The overoptimism dimension increases regret aversion dimension by 37%, loss aversion by 31.8%, and representative bias dimension by 43.2% in the positive direction. The regret aversion dimension increases the loss aversion dimension by 47.4%, while increasing the representative bias dimension by 40.1%. And finally, the representative bias dimension increases positively by 44.3%, in line with the increase in the loss aversion dimension.

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