BEHAVIORAL FINANCE: INVESTIGATION OF INVESTMENT DECISIONS

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ABSTRACT

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In traditional financial hypotheses, human brain research is ignored, and people's emotions and thoughts are ignored and expected to act normally. Since this situation is insufficient to reveal a large number of events, the human figure based on financial behavior and behaviorally centered have been questioned. In this context, what financial experts need to do is to reveal the behaviors and mental states that affect their decision making on monetary issues and to decide how these conditions affect initiatives, preferences and financial behavior. Because of these, a study has been done on this subject. In this context, investor behavior has been analyzed and analyzed. The questionnaire consists of two main sections: sociodemographic characteristics and behavioral finance questions. SPSS was used to analyze the survey data. As a result of the inquiry, behaviors; it was found to be affected by gender, age, marital status, education level, profession, and monthly income.

Keywords: Behavioral finance, Behavioral economics, Financial economics, Investor psychology, Heuristics, Social finance, Investor Psychology

ÖZET

DAVRANIŞSAL FİNANS: YATIRIM KARARLARININ İNCELENMESİ

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Finans Ekonomisi Yüksek Lisans Programı

Tez Danışmanı: Prof. Dr. Ayla OĞUŞ BİNATLI

Temmuz, 2020

Geleneksel finansal hipotezlerde, insan beyni araştırmaları göz ardı edilir. İnsanların duygu ve düşünceleri göz ardı edilir ayrıca normal hareket etmesi beklenir. Bu durum çok sayıda olayı ortaya çıkarmak için yetersiz olduğundan, finansal davranış ve davranışsal merkezli insan figürü sorgulanmıştır. Bu bağlamda, finansal uzmanların yapması gereken, parasal konularda karar vermelerini etkileyen davranışları ve zihinsel durumları ortaya çıkarmak ve bu koşulların girişimleri, tercihleri ve finansal davranışları nasıl etkilediğine karar vermektir. Bunlar nedeniyle bu konuda bir çalışma yapılmıştır. Bu bağlamda yatırımcı davranışları analiz edilmiştir. Anket iki ana bölümden oluşmaktadır: sosyodemografik özellikler ve davranışsal finans soruları. Anket verilerini analiz etmek için SPSS kullanılmıştır. Sorgulama sonucunda davranışlar; cinsiyet, yaş, medeni durum, eğitim düzeyi, meslek ve aylık gelirden etkilendiği bulunmuştur.

Anahtar Kelimeler: Davranışsal finans, Davranışsal ekonomi, Finansal ekonomi, Yatırımcı psikolojisi, Sezgisel tarama, Sosyal finans, Yatırımcı psikolojisi

TEŞEKKÜR

Tez çalışmam sürecinde kıymetli bilgi, birikim ve tecrübeleri ile yol gösteren, bu çalışmanın yürütülmesi sırasında bana desteğini esirgemeyen sevgili danışmanım Prof. Dr. Ayla Oğuş Binatlı'ya, yoğun çalışmalarım sırasında sabır gösterdikleri, maddi manevi her koşulda yanımda oldukları ve sürekli çalışmama izin verip bana uygun çalışma ortamını sağladıkları için sevgili annem Menşure Gilgil'e ve sevgili babam Serdal Gilgil'e, çalışmalarım sırasında en başından sonuna kadar ümit verdiği ve destek olduğu için sevgili teyzem Nurhan Erkan'a, ayrıca SPSS istatistik analizlerinde bana yardımcı olan arkadaşım Kaan Karakuş'a ve çalışma sürecinde küçük veya büyük yardımını esirgemeyen herkese sonsuz teşekkürlerimi ve en içten dileklerimle saygılarımı sunarım.

Burçin Gilgil

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CHAPTER1: INTRODUCTION

Behavioral finance is the worldview where cash related markets are considered utilizing models that are less restrain than those based on Von Neumann–Morgenstern expected utility theory and arbitrage doubts. Especially, behavioral finance has two building pieces: cognitive brain inquire about and the limits to arbitrage. Cognitive implies to how people think. There may be a colossal brain investigate composing recording that people make deliberate goofs within the way that they think: They are careless, they put as well much weight on later encounter, etc. Their slants may besides make twists. Behavioral support businesses this body of data rather than taking the self-important approach that it ought to be neglected. Limits to arbitrage insinuate to predicting in what circumstances arbitrage powers will be effective, and when they will not be.

Conventional back models; It expect that financial specialists are judicious in making their venture choices, point for the most noteworthy advantage, the markets are successful, speculators have comparable desires, and the costs of securities are shaped by chance. Be that as it may, these hypotheses have been criticized as being deficiently to clarify most of the occasions within the advertise and this has driven to a modern approach called behavioral fund (Gümüş, Koç, and Agalarova, 2013). Behavioral back hypothesis expect that feelings and mood affect people's behavior and so individuals cannot make levelheaded choices (Küçük, 2014).

Expecting that individuals act to the driving of their claim interface makes strong theories inside the field of back for budgetary specialists. For outline, examiners; show day portfolio theory, entertainment theory, capital asset evaluating models, expected returns and perils with arbitrage assessing illustrates. Examinations of budgetary pros 'decision-making behaviors totally different zones such as monetary things, brain inquire about, human science and law have been assessed and it is observed that there are deviations in individuals' choices and obvious deliberate botches in their desires. The decision-making behavior of individuals underneath flimsiness and hazard is reviewed interior the framework of “behavioral back and the basic doubt of the economy is“homo economicus”. Examiners are not because it were influenced by budgetary or budgetary markers, but in addition by their inward world, association and intuitive when making wander choices. This see nullifies ordinary support theory and constitutes the subject of behavioral finance. In this setting; it has been briefly said

how the thinks about on behavioral fund have begun in common and a few concepts have been clarified in order to way better get it the behavioral back. At that point, within the light of the concepts clarified, mental variables influencing human behavior are examined. The discoveries of the investigation and inductions of the overview comes about with five hundred seventeen individuals were clarified.

CHAPTER 2: LITERATURE REVIEW

Behavioral finance, which has entered the finance literature in the last 30 years, has also attracted great interest in academic issues. This issue, known as behavioral finance in the 1990s, started to be published in academic journals, some newspapers, and business-school publications. The history of this subject, which became popular in the 1990s, dates back to about 200 years. In this context, there are many studies on combining psychology and finance since the 1800s. These studies formed the basis of behavioral finance. "Extraordinarily Popular Delusions and Crowd Madness", written by MacKay in 1841, tells the ordered timeline of financial plans. This book on herd psychology gives information about the markets. He is also interested in people's behavior. Thanks to this situation, it also shows how group behaviors will be applied to financial markets today. We can say the decision making process for choosing the best among the options. The main action of investing is making decisions. At first, rational decision models, which considered people's decision-making behavior to be rational, were followed by the exact opposite of this. Models emerged based on the fact that human behavior is not always rational.

The first study of psychology science applied directly to the capital markets was in 1912 by Selden with the book “Stock Exchange Psychology”. This book put the terms investment psychology and financial psychology into the literature to best discuss the balance of traditional finance, behavioral finance, behavioral economics, psychology and sociology by discussing the emotional and psychological challenges of investors in financial markets.

Keynes (1921), in his book where he created the concept of “Logical Probability”, uncovered the distinction between the meaning, significance or conviction within the likelihood of the data gotten amid the choice making handle. Knight (1921) shared the see that unsafe circumstances whose probabilities are communicated in a certain and quantifiable way and choice circumstances with vulnerability whose probabilities are obscure and not measurable must be separated. The foremost common approach to decision-making at risk is the expected utility theory, a theory based on known probabilities and weighted probabilities. The expected utility theory proposed by Von Neumann and Morgenstern (1947) expect that the conceivable outcomes of possible results for a choice are known. The primary feedback for the expected utility theory was made by Allais (1953). Along these lines,

Savage (1954) brought up the subjective expected utility theory, which has an equivocal sense of likelihood, contending that it isn't essential to know probabilities impartially. Ellsberg (1961) contended that a real decision-making prepare is really past the subjective expected utility theory, which the state of certainty and uncertainty of the event may be a figure within the handle. The discoveries gotten in this study are called the Ellsberg Paradox. It is expressed by Howard (1992) that the Ellsberg paradox is within the frame of uncommon thinking mistakes, which are comparable to defective operations amid scientific operations or consistent blunders within the mental handle. In their study, Slovic and Tversky (1974) found that the resistance created against this circumstance was watched within the choices made against certain choice circumstances. Tversky and Kahneman, on the other hand, completed the thinks about of choice making beneath instability in 1974, the mistake of unification and partition in 1983 and add up to desire in 1992.

Agreeing to Ricciardi and Simon's work in 2000, behavioral finance has three fundamental columns. These; back is humanism and brain research. Agreeing to the think about, bunches of individuals have a solid impact on the behavior of people. They claimed that behavioral finance did not provide as much significance to human science science. They expressed that numerous financial specialists are collaboration with each other, so humanism ought to not be pushed into the foundation in their works. Gümüş, Koç and Agalarova (2003), Turkey and have carried out an overview of 384 individuals by the person speculator in Azerbaijan. As portion of the consider, whereas making the choices of speculators; It has been explored whether demographic factors such as marital status, age, sex, education level have an impact on behavioral finance bias. As a result of the investigate, it has been decided that demographic factors cause separation in behavioral finance bias. Brown and Cliff, on the other hand, investigated in 2005 that the blunder of over positive thinking might cause overvaluation within the markets. In like manner, they concluded that intemperate positive thinking caused valuation and over the top response within the markets. In 2008, Alper and Ertan assessed the Framing Effect on financial specialists who favored the stock and deposit support in Bursa in their research. Within the research, he moreover analyzed the impacts of the arrange and length of this information, where financial specialists prefer their account determination by preparing the information with a development and return arranged account. He conducted a study on 380 person stock or common finance investors living in Bursa. As a result of the analysis, it was

concluded that the speculators depend on their account holders and think that the past information are not erroneous. Working within the field of behavioral finance in 2012, Böyükaslan conducted a survey to assess the components that influence the venture choice making forms of person speculators in Afyonkarahisar province inside the scope of behavioral finance. The survey was conducted in face-to-face interviews and one-on-one participation in Afyonkarahisar area and connected to 460 members. As a result of the investigation, it was concluded that the financial specialists in Afyonkarahisar have solid behavioral finance inclinations. In reaction, in 2014, Küçük conducted a survey of 150 financial specialists in Osmaniye area in arrange to decide whether person investors' expectations, estimates, feelings, individual instincts in Osmaniye impact venture choices beneath the impact of mental and sociological components. In his study, he said that behavioral finance and ventures influence mental and sociological components, and hence, preparing of financial specialists will contribute not as it were to speculation choices but moreover to the advertise slant in common.

Küden, who too worked on behavioral finance within the same year, conducted his investigate with 437 person financial specialists. Opposite to the conventional approach, it was decided that speculators made behavioral finance bias and errors inside the scope of the consider. Opposite to past theses, Kendirli and Kaya, who composed a proposition on behavioral finance in 2016, believed that individual financial specialists within the areas of Çorum and Yozgat within the Behavioral Finance Approach point of view, as well as rational choices, impact mental and demographic highlights on speculation choices, they wanted to degree. In arrange to assess the contrasts and similitudes within the speculation behavior of speculators living in both areas, they conducted a survey study. The study was connected to 400 individuals. As a result of the investigation, it was chosen that the ponder contributed to the literature on the assessment of the variables influencing the venture choices of person speculators living in so also measured territories totally different areas and the endeavors to uncover the contrasts in speculation behavior of individual financial specialists to be assessed totally different provinces. Appropriately, it was concluded that the investment behaviors and choices of person speculators living in two distinctive areas contrasting in terms of improvement level are comparative. Bodur (2016), who also conducted his study within the same year, decreased his work inside the scope of behavioral finance and made a inquire about from the behavioral finance

viewpoint of the components that influence the behavior of speculators. Agreeing to the discoveries within the study, it was concluded that statistic components and intemperate believe are successful on speculation choices. Öztopçu and Aytekin, who carried out considers in 2017, conducted a study of 326 participants in arrange to assess the individual financial specialists by analyzing the individual's possess circumstance, isolating them from data and communication based on emotional and social trends, and to test the legitimacy and reasonableness of these trends for the buildings living in Balıkesir. It has been found that individual financial specialists living in Balıkesir appear a psychological, information and communication-oriented, emotional and social tendency within the investment choices, comparative to the discoveries gotten in past thinks about on the same subject but totally different areas. In any case, by growing other considers, as a result of the examination, he pointed out that the essential desire of people when making the speculation choice is the request for persistent wage. According to the 2002 study by Baker and Nofsinger, they inspected the components that influence the investors' monetary store demeanors cognitively and behaviorally. They concluded that speculators made cognitive and behavioral mistakes coming about from mental and social impacts within the choice making prepare. Another proposition titled cognitive and behavioral was composed by Ateş in 2007. Ateş utilized the survey strategy to look at the behavioral economics of financial specialists within the behavioral economics, which comprises of individuals' speculation sort inclinations and the money related front of the speculators and the cognitive and enthusiastic expressions that contribute to the rise of these profiles. The study was carried out with 400 subjects, and as a result of the investigation, it was concluded that there were measurably ties between the person investors' behavioral and financial fronts.

In 2004, Ede was based on the ISE in his study. Ede by individual financial specialists could be a mental propensity in Turkey have examined the particular status changes, counting statistic characteristics. As a result of the inquire about, it was found that the members did not vary, and most of them made precise botches and seem not apply in spite of knowing the levelheaded arrangement. In arrange to test the mental characteristics and inclinations of person investors' states of mind within the investment process inside the system of literary behavioral economics, he conducted a survey study for individual financial specialists within the ISE. The overview was conducted with 775 person speculators, and as a result of the assessments, it was

concluded that mental characteristics and non-rational behaviors were successful within the attitudes of the people and this circumstance decreased the effectiveness of the market. The primary work on the work of Ede was carried out by Altay in 2007. Altay broadened the subject and examined group predisposition on the Istanbul Stock Exchange. It has been decided that group behavior is watched when the showcase appears a sudden upward and descending drift. Within the consider, it is expressed that speculators take after the showcase in times of sudden developments. After one year of this think about, Barak (2008), watched within the stock markets and worldwide writing too of overcompensation irregularity is prove of Turkey markets in arrange to survey the current is to investigate whether and gotten discoveries scope of behavioral finance models, which work within the nation and recorded on ISE He analyzed all enterprises (80 ventures) working regularly between 1992-2004 and having 27 information for analysis. Utilizing the total unusual returns calculated for all periods with respect to stocks, in arrange to degree the over the top response irregularity in ISE, it has made winner-loser portfolios in 5-year periods and watched their return execution within the taking after 5 a long time. As a result of the assessments, it has been come to that the compelling markets hypothesis is invalid within the ISE, the behavioral shapes of financial matters are characterized in several mental highlights to characterize them, but parallel comes about are obtained. On the other hand, it has been concluded that already gaining stocks have made misfortunes within the future, whereas those who have made misfortunes have picked up within the future. In 2009, Akın investigated herd psychology at the ISE within the same way as Altay's work in 2007. In arrange to test the legitimacy of the behavioral finance hypothesis, which has diverse suggestions from traditional finance hypothesis in securities valuation, Akın conducted a inquire about on 307 subjects contributing in ISE. As a result of the analysis, the assumptions and implications of behavioral finance for the markets have been watched within the ISE and the anomalies related to the days, weeks, months and occasions within the market have been confirmed, and when assessed in terms of financial specialists, the ISE contains a semi-strong form and it is distant from soundness when investors make an investment decision. Concluded that they acted on the basis of cognitive partialities, herd psychology was effective within the choices of ISE investors and they acted agreeing to the investors' hypothesis of expectation. Within the same year, Yüksel (2009) conducted an overview to decide the common patterns that speculators are influenced and the demeanors and mental orientation of

the individuals within the Istanbul Stock Exchange (ISE). The overview was connected in Izmir. The study was connected to 95 individuals who monitor the financial markets and exchange on the stock market. As a result of the analyzes, it has been seen that traditional finance theories and models are insufficient and individuals don't act normally. Moreover; it is concluded how important psychological variables are in financial markets.

The foremost comprehensive of these works was done in 2011 by Kahyaoğlu and Saraç. In their study, Kahyaoğlu and Saraç combined the issues of ISE, sexual orientation and risk. In their study, Kahyaoğlu and Saraç conducted research on the examination of the contrasts between male and female speculators in terms of the level of introduction to psychological and emotional factors that have an affect on risk perception. Within the study, information related to the stock exchanging exchanges carried out by the 31 individual financial specialists within the ISE between 2007 and 2009 were utilized. As a result of the study, it was concluded that male and female financial specialists have diverse levels of psychology and emotions. As a result of the analysis, it was decided that the risk recognition of female speculators is higher than that of male financial specialists. After this study, Asoy and Saldanlı carried out their work in 2017. Asoy and Saldanlı conducted a study with 423 financial specialists exchanged in BIST to analyze the relationship between cognitive biases and demographic features, as well as to recognize the financial specialist profile exchanging on the ISE. As a result of the analyzes, it has been watched that speculators believe their individual instinct and analysis and are hopeful in their future expectations. In this manner, opposite to the presumption that traditional investment theories uniformize individuals, it has been concluded that people may display distinctive demeanors based on their age, sex, industry involvement and monthly pay.

Working in 2011, Wang et al. compared the behaviors of ladies and men with respect to their resources in their studies. Within the study, they concluded that the risk perception abilities of ladies were higher than men. On the other hand, the figure of fear of losing profit in settled and excessive, on popular assets isn't met. As another result; it is concluded that the ladies consider the investment funds of collectibles, gold and craftsmanship at lower risk compared to men. The reason for the circumstance has been come about with the liberalities that the ladies appear beneath. Jacobsen et al., in 2011, Wang et al., supports the work. Jacobsen et al., in their study, they obtained the conclusion that the sexual orientation factor had an affect on investment behaviors

through the research they conducted on investment behaviors of the sex factor. Within the same year, Barber and Odean (2014) expressed that individuals display hesitant demeanors towards arranging their stocks whereas compensation are diminishing, and the feeling of self-confidence increments as the number of stores increments. They moreover come to the conclusion that the feeling of self-confidence is certain and noticeable in men. Another research was done in 2017 by Öncü and Özevin. Öncü and Özevin, ladies invest in their behavior, behavioral economics than ladies living in to investigate the presence of the psychological affect included different provinces of Turkey, simple random conducted 300 ladies investors within the survey application chosen by testing strategies. As a result of the analysis, it was concluded that ladies speculators are influenced by psychological factors which speculation choices are psychologically inclined, which ladies know and prefer less-risky investment tools and incline toward long-term investment instead of short-term. At the same time, it is another result that ladies join extraordinary significance to the calculate of having data whereas contributing. Bayrakdaroğlu and Kuyu (2018), who worked one year afterward, needed to grow and expound the inquire about. Bayrakdaroğlu and Kuyu utilized a subjective status pattern in their studies and conducted investigate on financial risk perceptions of 24 ladies with diverse demographic structure whereas making investment choices. As a result of his work; it has been concluded that socio-economic variables and demographic characteristics, salary level contrasts, financial literacy level, the way individuals are raised and the boldness they appear are persuasive on the discernment of financial risk.

Working in 2007, Süer held gatherings with SME proprietors or supervisors working within the material segment in Istanbul in arrange to decide the level of chance that company directors take within the venture decision-making stage. Amid face-to-face interviews with an add up to of 100 individuals, directors confronted different scenarios that require choice making. Scenarios are arranged by assessing the concepts of profit, misfortune, benefit, misfortune, use, pay, and fetched independently. As a result, the comes about of eight scenarios back the anticipated information. It is concluded that whereas person speculators need to remain absent from risk when it comes to return, and near to risk when it comes to losing, the concepts of income-profit are seen at the side the phenomenon of return, and spending-cost along with the phenomenon of losing. Be that as it may, Aydın, who conducted his study in 2010, decided that it isn't conceivable to create a reliable show in arrange to

clarify the movements watched within the markets where securities are exchanged, depending on the risk, and conducted his consider on this subject. Doğan et al. (2015) working in Hatay, Kocaeli, Denizli, Eskişehir, Aydın and Mersin areas in arrange to decide how and in which way person speculators are influenced by the psycho-social variables in their financial decisions and to look at the connections between investors' identity and demographic characteristics, investment choices and chance discernments. Studied 268 staff of banks. As a result of the analyzes, it was decided that speculation inclinations changed concurring to demographic characteristics. In expansion, in arrange for speculators to select the correct speculations and to diminish the risk by diversifying, the level of financial literacy must to begin with be adequate and they contended that particularly the securities such as repo, stocks and bonds are not completely known, causing speculators not to turn towards these securities. A year afterward, Aydın and Ağan (2016) conducted a study on person speculators to degree the components that influence the speculation choices of person speculators and the affect of psychological tendencies on investment choices. The study was displayed to the members on the web and 600 person financial specialists were come to. The strategy of the study is the graphic and clear strategy and the correlational measurable procedure. As a result of the analyzes made, it was concluded that psychological preferences influence the investment inclinations of the individual speculator and people have different mental recognitions and are exceedingly related to their social environment, so the basic and characteristic highlights that they have cause unreasonable behaviors beneath the impact of the mental partialities of the speculators within the decision-making stage.

In addition, Otoo (1999) found that there is a strong positive relationship between the Michigan consumer confidence index and stocks, stock prices are the leading factor, and the increase in stocks caused an increase in consumer confidence. Jansen and Nahuis (2003), Fisher and Statman (2003), Golinelli and Parigi (2003), Charoenrook (2003), Ludvigson (2004) examined the relationship between consumer confidence and stock returns, and found a strong, statistically significant relationship in the same direction. . Bremmer (2008) found results compatible with the work of Otoo and Jansen-Nahius in his study. Stock prices affect consumer confidence. The expected changes in consumer confidence have no effect on stock prices. In addition, Lee, Shleifer and Thaler (1991), Neal and Wheatley (1998), Barberis, Shleifer and Vishny (1998), Elton, Gruber and Busse (1998), Fisher and Statman (2000), Howrey

(2001), Baker, Stein and Wurgler (2002), Chen, Chan and Steiner (2002), Baker and Wurgler (2004 and 2006), Brown and Cliff (2004), Brown and Cliff (2005), Kumar and Lee (2006), Canbaş and Kandır (2006), Baker and Wurgler (2007), Barber, Odean and Zhu (2007), Verma, Baklacı and Soydemir (2008), Lemmon and Ni (2010), Baker, Wurgler and Yuan (2012), Uygur and Taş (2013) and Park and Sohn (2013) investigated the effect of investor sentiment on financial markets and found an important effect of investor sentiment on market returns. In addition, Kandır (2006), the consumer confidence index is an important factor for the majority of the BIST financial sector stocks, Korkmaz and Çevik (2009), the rise in the real sector confidence index increased the average return of the BIST 100 index and affects the volatility. 2010) found that the increase in consumer confidence positively affected real exchange rates and stock prices, increasing consumer spending, firm profits and, ultimately, stock prices.

CHAPTER 3: BASIC CONCEPTUAL EXPLANATIONS

In this section, financial decision, risk and uncertainty concepts, traditional and behavioral finance approaches, investor concepts, financial investment tools are examined.

3.1 Financial Decision, Risk and Uncertainty Concepts

All future choices made at businesses have a financial aspect. In like manner, financial decision is clarified as the decision making handle pointing at giving the resources required within the enterprises from the proper place, at the proper time and conditions, assessing them within the right place and maximizing the esteem of the commerce and making benefit for its stakeholders. These choices are analyzed in two measurements in terms of businesses and individuals. These financial decisions made by individuals are characterized as being related to financial institutions in arrange to assess their possess investment funds or provide the resources they require, whereas financial decisions taken by businesses are characterized as the evaluation of the assets claimed by the commerce with settled or turning resources (Tufan, 2008).

Financial decisions are the full of the choices taken by the institutions to carry out their plans to extend their benefit objectives and firm values, which guarantee the progression of their exercises and supportability. In like manner, the choices taken carry the concepts of both benefit and chance together. Company administrators attempt to keep their companies' showcase esteem at the most noteworthy level by acting in understanding with their financial goals whereas actualizing their choices (Apak and Demirel, 2009).

According to Solomon, a manager can make financial decisions by answering the following questions:

1. What specific assets should the business have?
2. What should be the total amount of funds that the business should deposit?
3. How should these funds be provided?

The first and second questions concern investment decisions, and the last one concerns the financial decision (Gönenli, 1979).

Within the word reference, the concept of chance is characterized as the likelihood of being influenced by an occasion, the probability of an unexpected circumstance emerging within the future, the chance of damage or harm. From a budgetary point of see, the chance is explained as the likelihood of realizing the

circumstances that will emerge as a result of the choice of the financial units, which may influence the anticipated return emphatically or adversely. In cases of instability, there's no data around the dissemination of the likelihood of event of future occasions among options. Whereas instability alludes to subjective conceivable outcomes, the risk circumstance talks of objective conceivable outcomes for the event of the occasion (Kaya, 2015). The concrete representation of the chance in numbers is of extraordinary significance for speculators. The chance of a speculation is by and large measured by strategies such as change, standard deviation and coefficient of inconstancy.

3.1.1 Systematic Risk

Systematic (non-diversified) chance is characterized as the chance that influences the returns of all ventures in common terms. Since there's an orderly relationship between speculations, it is emphasized that chance cannot be differentiated and each speculation will be influenced by risk. Systematic chance; it is due to the components that moreover influence the costs of all financial resources within the showcase. The sources of systematic risk are changes within the financial, political and social environment. In spite of the fact that the resources within the showcase are at diverse rates, they are influenced by systematic risk within the same course. As a result, enhancement among securities will not permit for the end of risk. Able to deliver systematic risks, interest rate risk, inflation risk and market risk as illustrations (Bolak, 2001).

3.1.2. Unsystematic Risk

Non-systematic (diversifiable) risk; it arises from the risks specific to the asset that is the subject of investment. This risk can be diversified for this reason. By investing in different investment instruments, the risks that may arise in any one are balanced with the returns of other investment instruments. In this way, effective risk management can also be done. Unsystematic risk is the part of the total risk present for the company or the sector in which the company is located. Strikes, management errors, legal practices can be given as examples. Therefore, non-systematic risk needs to be evaluated separately for each company. Since the non-systematic risk of each security is at different points, it is possible to reduce this risk by diversification. Non-systematic risks include financial risk, operational risk, and management risk (Bolak, 2001).

3.2. The Concept of Traditional Finance

The concept of traditional finance suggests that people behave “economically and rationally”. Advocates of this concept think that individual investors have equal, accurate and sufficient information. They also argue that investors are consistent in making their financial decisions and capable of making choices that are of maximum benefit to them. However, advocates of this concept ignored the psychology of the individual. Despite the fact that the required information is reached very quickly and easily under the influence of developing technology, the issue of why individuals cannot act rationally has not been clarified. In recent financial research, the factors affecting the individual's psychology and investment decisions have been brought to the fore. Thus, the concept of behavioral finance has become increasingly important (Tufan, 2008).

3.3. The Concept of Behavioral Finance

Behavioral finance, unlike traditional finance, assumes that people are "irrational" rather than rational. Behavioral finance concept; With the contributions of economics, finance, business, psychology and sociology, it tries to explain investor behavior and individuals' financial decision making processes by making use of the theories and theories that examine the behavior of individuals.

Behavioral finance; It tries to understand the behavior of financial markets by making use of theories based on human behavior, derived from psychology, sociology and anthropology. The basis of behavioral finance is based on the principles derived from these three social sciences, which can be useful in developing knowledge about the behavior of financial markets (Giuseppe, 2003). Behavioral finance hypothesis bargains with the impacts of cognitive psychology on the person decision-making handle, and takes a diverse approach from modern finance hypotheses that acknowledge levelheaded individuals as their foundation. Psychologists have conducted ponders to clarify in what ways individuals veer off efficiently from ideal judgment and choices. Behavioral finance improves financial investigation by exchanging these discoveries on human nature to monetary models. Behavioral finance is what happens when individuals are not judicious as anticipated in conventional financial institutions, when the concept of soundness is lifted or taken more adaptably.

3.3.1. Emergence of Behavioral Finance Concept and Historical Development

Human nature consists of multiple motivations, beliefs and behaviors. While psychological research tries to highlight the richness and diversity that human beings contain, economics uses highly simplified assumptions in this regard. In the expected utility theory, people are considered as rational individuals trying to maximize stable, well-defined utility functions. In psychology, anomalies that cannot be explained by the rational individual model in human behaviors are frequently mentioned in the decision making process. Behavioral finance has emerged by taking into account that the reason of many anomalies occurring in the markets may be caused by human psychology or by adding it in psychological factors in decision making processes. Behaviorism as a new approach in psychology was introduced in 1913 by John D. Watson. Watson has revealed that the factors that determine behavior are the external environment rather than internal trends, and behaviorism was later developed by Skinner.

Although it became known in the field of psychology in the 1900s, the basis of behavioral economics is based on Adam Smith's Moral Theory of Thought. At the same time, Jeremy Bentham made important contributions to neoclassical economics and examined the psychological dimensions of the concept of utility (Giuseppe, 2003).

It was introduced by Herbert Simon in 1955; He put forward the concept of limited rationality by emphasizing that people's capacities are limited in solving difficult problems. Later in 1979, Daniel Kahneman and Amors Tversky, by exploring the Theory of Expectation: Analysis of Decisions Made at Risk, set out the basics of the concept of behavioral finance (Önder, 2004).

Behavioral finance, which has a significant interest in researchers, is not yet well defined, as it is a newly developing area in terms of economy and finance. The following definitions are found in the literature:

- Behavioral finance is the combination of classical economy and finance with the principles of psychology and decision making.
- Behavioral finance is a scientific approach that tries to explain the causes of anomalies observed and reported in the finance literature.
- Behavioral finance is the study of how investors systematically make conscious and logical mistakes in their financial decisions.

- Behavioral finance is the determination of how investors make systematic mistakes when making predictions about the expected returns of their financial assets.
- Behavioral finance is the study of what happens when market participants act in the complexity and inadequacy of human nature.
- Behavioral finance, as a new branch of economics and finance, is concerned with the discovery and explanation of observations that contradict the expected theory of benefit and the predictions of the narrow-defined rational behavioral paradigm, with the help of behavioral sciences such as sociology and psychology.

As can be understood from these definitions, behavioral finance theory deals with the effects of cognitive psychology on the individual decision-making process, and takes a different approach from modern finance theories that accept rational people as their infrastructure. Psychologists have conducted studies to explain in what ways people deviate systematically from optimal judgment and decisions. Behavioral finance enriches economic analysis by transferring these findings on human nature to financial models. Behavioral finance is what happens when people are not rational as predicted in traditional financial institutions, when the concept of rationality is lifted or taken more flexibly.

3.3.2. The Relationship of Behavioral Finance with Behavioral Sciences

The foundations of the concept of behavioral finance are based on the sciences of psychology, sociology and anthropology, which examine human behavior. Another definition is behavioral finance; it tries to explain the financial markets, the behavior of investors, starting from the sciences of psychology, sociology and anthropology, and by supporting theories based on human behavior. The concept of this concept, also called behavioral economics, is based on the basic principles of these three social sciences in the development of knowledge to explain financial markets and the behavior of investors (Giuseppe, 2003).

Behavioral finance theory takes its place in science as a sub-discipline of the behavioral economy. It is known that the science of psychology and sociology made a great contribution to the emergence of behavioral finance. It is known that scientists named Daniel Kahneman and Amos Tversky, who are already the most important studies of behavioral finance, are experimental psychologists. It is for this reason that; behavioral finance takes psychology as an infrastructure to itself.

3.4. Concept of Investor

The concept of investment means pre-allocating funds to provide economic benefits in the future (Büker, Aşıkoğlu, and Güven, 2009). The main purpose of the investment is to increase the welfare of the investors individually. Institutionally, it is explained as increasing the value of the business and increasing the welfare level of the partners. The concept of investor consists of two main topics, individually and institutionally.

3.4.1. Individual Investor

The concept of individual investors mostly covers investors who make short-term investment decisions. Under the influence of psychological and demographic factors, they make transactions only for their own welfare in the decision making process. Often they may not behave professionally. Since individual investors do not have sufficient information in their investment decisions, they are often not sufficient for long-term decision-making, accessing data and making transactions. The diversity and complexity of financial products, the concerns created by products that are not priced correctly, lead to investors making bad decisions by being badly affected.

3.4.2. Institutional Investor

Specialized professionals who help bring small savings of small-scale savings together into highly efficient deposits are called institutional investors (Demir and Kocabıyık, 2008). Institutional investors provide risk gain stability that individual investors cannot provide alone. They provide a lot of liquidity as they play in the big money market. They open to foreign markets as well as domestic deposits. Their ability to receive and play data is higher than individual investors.

3.4.3. Foreign Investors

Especially in developing markets, it is suggested that foreign investors are in a more advantageous position with their advanced analytical skills, higher capitals and high level of knowledge at the industry level compared to local investors (Döm, 2003). Foreign investors are of great importance for a country and its investors. This is especially important for developing countries.

Ülkü (2001) knows that the most intensive purchases of foreign investors took place in November 1999, and the biggest output of the ISE Index was in December 1999, when the information was made available to the public. This is evaluated as the

market's inadequate reaction to the information contained in the transactions of foreigners.

3.5 Investor Behavior Against Risk

Some people love the risk, while others avoid it. There are many different variables that determine how investors should behave in the face of risk. While frightened people avoid risk, angry people are as comfortable as happy people about risk. The determining factor in risk-taking is the audit perception. Feared investors feel insecure and experience the feeling that they are not in control. As a result, while the markets are falling, those who are afraid tend to sell. Furious investors identify the enemy and feel that they control the situation. Because they are more confident in their position, they hold the falling shares in their hands (Peterson, 2012).

Saraç and Kahyaoğlu (2011) achieved the following results in their study: The risk of elderly investors to take risks is higher than young investors. Retired investors tend to take higher risks than worker investors. While the investors whose education level is high school take more risks than those who get undergraduate and graduate education; those with a bachelor's degree have a lower risk perception than those with a postgraduate degree. Female investors' tendency to take risks is lower than male investors. As it is known, there are three types of investors in the face of risk. These; risk-loving investors, non-risk-seeking investors and indifferent investors.

3.5.1 Risk-loving Investors

Investor who loves risk; the expected benefit of the investment for these people is greater than the expected benefit of the investment. Even if the risk increases more than the expected return, they do not prefer to be afraid of investment and on the contrary they tend to take risks. The marginal utility of this investor has a positive tendency (Civan, 2010). Investors who love risk will prefer to invest in stocks or instruments that promise higher returns rather than preferring fixed return investments. More profit is expected, with more losses in mind.

Widespread use of futures contracts and options, no one knowing the person when trading over the internet, and a sense of personal supervision stimulate investors' need to take risks. Some traders take extreme risks because they cannot carefully measure the probability of profit and loss (Peterson, 2012).

3.5.2 Investor Who Doesn't Like Risk

Investor who does not like risk; these investors, who are afraid of taking risks and do not like risk, tend to prefer the most risk-free investments. For the investor who does not like risk, the marginal benefit of money is negative (Civan, 2010).

Investors who do not like risk will invest their money in instruments with lower returns rather than investing in the stock market or risky places. Time deposits or government bonds are examples. There are many different derivative instruments available to investors who want to escape risk. Investors can minimize their risks or eliminate them completely by diversifying their portfolios from derivative markets with assets. Sayılgan (2010) risk; He described it as "the chance of losing that can be determined objectively." In portfolio management, he defined the risk as "the probability of deviating from the expected return of the portfolio."

Fear prevents most investors from taking optimal market risk. People are particularly afraid of the negative events they expect or anticipate and they start selling more as the event approaches. Waiting for an unfavorable incident is so psychologically painful that most people dispose of their assets just to avoid "suffering" (Peterson, 2012). We can also say the "risk perception" of the fear in the financial language. Investors have many different risk perceptions, either logical or unreasonable.

3.5.3 Indifferent Investor Against Risk

Indifferent investors against risk; which investment to choose and the risk is not very important. They do not refrain from taking risks, provided that the return increases in parallel with the risk. The marginal benefit of money for such investors is 1 (Civan, 2010). Investors who are indifferent to risk are not interested in risk. It doesn't matter which investment to choose for these people. For this reason, investors remain indifferent between risk and return.

3.6. Financial Investment Tools

The concept of investment in economic science; Real capital is disclosed as a share added to the capital without being taken from national income at a certain time, and it emerges as one of the most important factors creating the formation of capital in the economy. Likewise, the concept of investment in business science; it is defined as the allocation of scarce resources for production for the future gain or other requests (Büker, Aşıkoğlu, and Güven, 2009).

It is possible for individual investors to give up a certain part of their current income, in other words, to invest in financial investments in order to increase their future purchasing power and improve their welfare levels and to protect their existing capital (Böyükaslan, 2012). These financial instruments are; it consists of TL bank deposits, foreign currency bank deposits, stocks, bonds, bonds, mutual funds, gold, repo, and interest-free participation funds.

3.6.1 Bank Deposits

The word deposit originated in Arabic is derived from the word deposits. His deposit is to leave something somewhere entrusted. While deposits are in question, everything is left open and closed, while the deposit only covers the deposit of money. In other words, the deposit refers to the "money deposited to the bank to be taken back at any time or at the end of a certain period" (Kılıç, 2012).

Banks and similar credit institutions are called deposits that are deposited to withdraw for a certain term or when the notice period expires or is requested. In our country, after the decisions of January 24, 1980, real interest policy was adopted in the money market and banks started to determine their deposit interest rates on inflation rate or a couple of points. Deposit accounts opened in banks; it is one, three, six months and annual. Principal and interest income can only be collected at the end of maturity (Ceylan and Korkmaz, 2013).

Deposit accounts are divided into two as deposit accounts and demand deposit accounts. Demand deposit accounts are accounts where individuals and companies that do not aim to earn interest and profit provide daily money flows. The time deposit account, which has the feature of being an investment purpose, offers interest income in certain periods. Time deposit accounts can also be opened as Turkish Lira or Foreign Currency Deposits Account, depending on the type of money. Since participation banks provide services on Islamic basis, they do not pay deposit accounts under the name of interest. The accounts opened in participation banks are called “participation accounts” and they give investors a dividend instead of interest. In the Official Gazette numbered 28560 on 15.02.2013, “Regulation on Amendment to the Regulation on Insurance Deposits and Participation Funds and Savings Deposits Insurance Fund” was published and entered into force on the same day. Turkish Lira, foreign currency and precious metal savings deposits accounts up to 100 thousand Turkish Liras for

each natural person will be covered by insurance. This decision offers a great advantage to the investor in terms of choosing deposits.

3.6.2 Stock

Stock trading is based on very old dates. As is known, stock trading has been carried out in the UK, France and the Netherlands for more than 300 years. Stocks are a property stock. When the stock is owned, it becomes a partner to the organization that issued the stock. The stock received is at a certain rate of capital. Along with the stock, all rights granted to the share can be used. The purpose of buying stocks is due to the hope that the price of the stock will increase due to the profit share and the company's appreciation. Stocks are issued by joint stock companies.

Sayılgan (2010) shares the stock; also known as esham, action or share, stocks define them as securities that represent part of the company's capital. Due to this feature, the owner; it provides the right to take a share from the company's profit, to participate and vote in the company management, to get a share from the liquidation and the priority (pre-purchase).

Canbaş and Doğukanlı (2007) shares; they defined it as "a financial asset that creates a partnership link between the purchaser and the issuer and gives the purchaser the right to take a share of the profit, and the issuer to use the funds until the liquidation moment".

To the investor of the stock investment, whose investment period and return are uncertain and that carry a certain risk; Depending on the time in which it invests, invests in the stock it chooses and sells the stock, it can earn 300% - 500% or even 1000% more than 100% compared to fixed income investments (Civan, 2010). Despite these returns, however, stocks still have a complex selection and contain uncertainties. Therefore, it may not be suitable for every investor. Still, one of the most profitable investment tools in the long run is stock investments.

The market logic stipulates: "Stocks of good companies are generally bad, and stocks of bad companies are generally good." In fact, as everyone knows, stocks should be bought when they are cheap and sold when the price rises. But that's not what's really happening. It is bought when the price is high and sold when the price drops. Very few investors earn money by doing the opposite.

3.6.3 Currency

Currency of foreign countries is called "foreign currency" as a general term. Foreign exchange markets are also called institutional structures that allow foreign currencies to be bought and sold or to convert one national currency into another (Seydioğlu, 2003).

In addition to those who argue that “buying money with money is not an investment”, there are also those who think that foreign currency is an investment tool and who evaluate their experience in this field. January 24, 1980 by applying economic stabilization policies in Turkey, a realistic approach to the formation of the value of exchange rates was adopted. With legal regulations, foreign exchange buying and selling has been liberalized (Ceylan and Korkmaz, 2013). Foreign currency deposits are defined as “Foreign Exchange Deposits”. Investors can benefit from the increase in exchange rates and earn interest income by repurchasing their foreign currency.

3.6.4 Bonds and Bills

Civan (2010) Bonds; It defined it as “debt securities issued by the state or private sector by borrowing to meet medium or long term financing needs”. Bonds are generally fixed income assets and are the securities representing the right to receive the holders and the debt in terms of the issuer.

Bonds are defined as a long-term (more than one year) debt stock issued by local and central governments and firms to meet their financing needs. Companies issue bonds; They have advantages over all debts such as low cost, tax savings, benefiting from financial leverage, decrease in principal value due to inflation and not sharing management. The return on bonds for investors is the interest paid periodically by the institution. Interests are generally paid in six-month periods. In addition, quarterly and annual interest-paying bonds are also available on the market (Kılıç, 2012).

As can be understood from the above definitions, bond is an investment type that provides fixed income to its investor. Bonds are a long-term security type. There are also bonds with 30-40 years maturity.

Canbaş and Doğukanlı (2007) Bono; They defined it as “a commercial promissory note issued by the borrower by fulfilling the special form requirements ordered by the law, indicating that a certain amount will be paid unconditionally to a specified person or order” at a determined date. The borrower who issues the bond is

accepted. Financing bills; started to be used in our country after 1980s. It is also a kind of securities.

Financing bills are; are the securities that issuers sell and issue on the basis of discount, by arranging and exporting them as debtors. The maturity of the financing bills cannot exceed 1 year. Bank bills cannot be less than 60 days and more than 1 year. Likewise, the maturity of gold, silver and platinum bills cannot be less than 60 days and more than 1 year (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011). Financing bills, like bonds, include interest, inflation and non-payment risks. However, due to the short term in financing bills, interest and inflation risks are lower compared to bonds. The risk of non-payment does not apply to guaranteed financing bills (Ceylan and Korkmaz, 2013).

3.6.5 Repurchase (Repo)

Repo; It refers to the sale of a security at the transaction start value and withdrawal at the end value. The party making the repo becomes the party using the money. In other words, the sale of securities is in question with the buyback commitment (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011).

Repo is also known as repurchase agreements. It is a short-term investment. Repo offers investors the opportunity to invest even in very short terms such as one day. Among investors, this investment is called an overnight investment. Therefore, repo interest rates are the lowest in the market. Repo returns are subject to 15% withholding, just like the return on deposits.

Civan (2010) defined Repo contracts as "overnight sales with the promise of reselling state securities on the next business day". In overnight repo, the trading volume is quite large. The price of the repo contract is determined as current price + interest. Since the loan is overnight, the interest rate in the repo is lower than the interbank debt ratios.

If the reverse repo is; it is defined as the transaction of buying a security at the transaction beginning value and selling it at the end value. The party making the reverse repo is the party that makes use of the money. In other words, there is a purchase commitment with a commitment to resell (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011). The reverse repo is used by the Central Bank, it sells Treasury Bills on condition that it is bought back to the banks and in this way it draws cash from the market.

3.6.6 Warehouse Certificates

Foreign securities represented by warehouse certificates are stored in the custody institution on behalf of the intermediary institution prior to the registration application to the Board. The document to be taken from the custody institution is delivered to Takasbank and the warehouse certificates are issued by Takasbank on behalf of the intermediary institution following the registration by the Board (Doğukanlı and Canbaş, 2007). Thus, warehouse certificates allow investors to invest in foreign stocks. Instead of making direct purchases from foreign exchanges, investments can be made through warehouse certificates.

3.6.7 Futures Markets

Futures have been available for centuries. Forward contracts are used to help manage risk. In fact, futures contracts serve as insurance, in addition to reducing risk. However, today, some investors see futures markets as an opportunity for future gambling. Futures contracts are not standard contracts. The parties to the contract are people who know and trust each other well. Therefore, the fulfillment of these contracts depends on the good will of the parties. Futures contracts are intended to determine the future price. Differences with the price in the spot market constitute profit or loss e.g; profit can be earned if the spot price at a certain date is lower than the contract price; on the contrary, it is damaged.

Derivative instruments on foreign currency; foreign currency futures consist of foreign currency futures, foreign currency options and swaps. These are called financial derivatives because the changes in the value of these contracts are not due to the direct contract but because of the developments in the market conditions to which the currency is linked (Seydioğlu, 2003).

It is known that Futures contracts were used in 16th century to get rid of the risks caused by the change in rice prices in Japan. In 1636, it was reported in different sources that "tulip futures" contracts were used for tulip bulbs in the Netherlands. Forward contracts have been used by Flemish merchants since the 19th century (Doğukanlı and Canbaş, 2007).

Futures markets; In Turkish sources, it is referred to as futures markets, futures markets, derivative markets. Contracts representing assets are bought and sold in these markets. The price of contracts is a price derived from the price of the asset represented

by the contract. The main reason for calling term markets as derivative markets is this derived price (Sayılgan, 2010).

3.6.8 Option Contracts

The concept of option; although it is known in ancient Greece and Rome, its first practices can be shown as tulip craze that started in Holland in the 17th century. Many speculators went bankrupt in the Netherlands with the crisis of 1636. Buying and selling options especially in agricultural products started in England and USA in 19th century. Stock options were traded on over-the-counter exchanges until 1973. Chicago Board Options Exchange (CBOE) was launched for the first time on 26.04.1973, with 16 standard option contracts. The first selling option in the said stock exchange started trading on 03.06.1977 and the first index option started on 11.03.1983 (Karan, 2011).

Seyidoğlu (2003) defines "as a general concept as an option, the right to buy or sell a financial asset or property at a fixed term (at the expiry date or within the maturity) of a fixed price". Option is a Latin word which means meaning, selection, choice. It is not necessary to implement an option that should be emphasized in this definition, it is a matter of preference.

Options are financial instruments that give the option buyer the right to buy (call option) or sell (put option) any financial asset from the agreed application price (strike price) in exchange of the option premium. But the options do not impose any obligations. In other words, the party who has the right to option has no obligation to exercise the right. However, the party that sells the option has an obligation to fulfill the option requirements (Kasap, Kasap, Akçay, and Doğuç, 2012).

The most important reason why investors prefer option contracts; is the flexibility of options in terms of application. If the market rates at the end of maturity are more suitable for the trader, the contract will not be applied and losses to be incurred will be limited to the contract premium only (Seydioğlu, 2003).

3.6.9 Mutual Funds

A non-professional investor will both receive professional fund management through mutual funds and take advantage of these funds in risk management.

Mutual Funds are defined as follows in the different Article 37 of the Law No. 3794. Pursuant to the provisions of this Law, with the money collected in return for participation certificates, the certificate holders account is called the Investment Fund, which is established to operate a portfolio of capital market instruments, real estate,

gold and other precious metals, in accordance with the principle of the risk distribution and faithful ownership. So Mutual funds; we can also define that the savings collected from small savers are created by managing a portfolio by expert staff according to the principle of risk allocation for specified purposes (Civan, 2010).

Mutual Funds can be established in two ways, Type A and Type B. Type a mutual funds portfolios consist of at least monthly average of 25% of Turkish stocks. There is no such restriction in Type B mutual funds. The most important difference between A and B Type Funds is to provide tax advantage to A Type funds. Type B mutual funds deduct 10% income tax on portfolio management earnings. So; in type B mutual funds, while 10% of the increase in value in the portfolio compared to the previous day is deducted as tax; In Type A mutual funds, this rate is 0% (Sayılgan, 2010).

Type A mutual funds documents are counted as securities and traded on the stock exchange. Type B mutual funds are not considered securities and are not traded on the stock exchange. Type B funds are funds with little or no stock and bond-weighted funds (Parasız, Başoğlu, and Ceylan, 2001).

3.7. Investment Strategies and the Factors Affecting Investment Strategies

Investors determine their own investment strategies by taking into account different sources of risk perception, time, money and perhaps most importantly, information sources. If they do not set investment strategies, they are more likely to suffer losses in their investments than profits. Investment strategies; It is divided into active investment strategies and passive investment strategies.

3.7.1. Active Strategies (Active Portfolio Management)

Portfolios created by determining an active strategy are constantly regulated and the portfolio is constantly updated. For this reason, many investors adopt this strategy. They think that if they adopt active strategies, they will be able to beat the market and earn more than what the market offers. Active strategies are examined in this section.

3.7.1.1 Strategies for Basic Analysis

Fundamental analysis is an objective and long-term method of analysis. Fundamental analysis reports; Includes research and analysis on sectors and companies for the stock market. In these studies; Methods such as discounted cash

flow analysis, comparative ratio valuation, net asset values are used. The basic analysis is the most common technical feature used in the selection of securities. This technique is an arduous technique because a lot of data is collected (Civan, 2010).

This approach, known as basic analysis in stock valuation; It is based on determining the investment value or real value of the stock by analyzing the basic facts such as profitability, liquidity, financial structure, management skill, and competition that affect the stock price (Günak, 2007). Fundamental analysis; it can be done in two ways: macro (country basis) and micro (company basis). While making general economic analysis at macro level; firm analysis is done at micro level.

Fundamental analysis, as is generally known, does not only mean examining the financial statements of a company. It has a broader meaning. If it is considered in this sense, we can consider it as follows (Erdinç, 2004):

- The socio-economic structure, military and political structure of the country and the risk phenomenon created by these structures.
- The country's macro-economic data and dynamics (GNP, Production Indices, Exchange rates, etc.)
- Status of sectors within the macro-economic structure (food, textile, insurance, bank etc.) and the structure of strategic sectors
- Financial analysis and evaluation of all financial statements of the company of interest, such as balance sheet, income statement and fund flow.

Fundamental analysts calculate the “real value” (intrinsic value) of the stocks of the companies they are interested in, compare them with the prices in the market and make a purchase or sale decision accordingly. The actual value of a stock is found by reviewing and interpreting the items in the financial statements of the company, the management of the company, in addition to the previous period, especially the future profit and dividend figures and various risks (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011).

Basic Analysis is the investigation of the value of a company by making use of the information disclosed to the public. The basic analysis is based on all information, financial statements and evaluations disclosed to the public about the company. In this way, the value of the company can be determined. The basic analysis is entirely based on real information. On the other hand, the criticisms directed to the basic analysis have focused on the fact that this analysis reaches the investor delayed and the basic

data is sometimes removed from the real situation with the balance sheet makeup. Balance sheet data reaches investors with a delay of 2-3 months (Karan, 2011).

3.7.1.2 Strategies for Technical Analysis

Investors who apply the technical analysis method aim to make money in the short term by making use of past price movements. According to technical analysts, basic analysis is unnecessary and technical analysis is more important than basic analysis and saves more money.

According to Erdinç (2004), technical analysis is: "The basically the study of market movements that tries to predict future price change trends by using price charts." Various tools are used in technical analysis. These; There may be visual tools such as bar graphs, candlestick graphs, and tools such as what we call formations (triangles, flags, flags, bowls, etc.) based on statistical formulas called indicator such as stochastic, momentum.

Günak (2007) according to the technical analysis, "any stocks, indices, commodities, exchange rate or futures contracts, previously realized transaction prices of the market, to be registered as usually graphics and train future from these data that belong to the past estimation method ". The future direction of stock prices and thus the most appropriate purchase and sale time of a stock is tried to be estimated.

Technical analysis based on Dow Theory was born as a type of analysis that tries to predict tomorrow by looking at the prices and transaction amounts that occurred in the past and was widely accepted. The Dow Theory, compiled from the articles published in 1900-1902 in The Wall Street Journal of Charles Dow, on which modern technical analysis is based, is the oldest and the most researched one (Karan, 2011).

Technical analysis does not take many variables based on basic analysis as data. Likewise, it does not accept human psychology as data. Technical analysis is a very good decision-making tool for investors who want to make a profit in the short term from stocks.

Technical analysts' assumptions are as follows (Ceylan and Korkmaz, 2013):

- The value of stocks is determined entirely by market supply and demand.
- There are many factors that affect supply and demand.
- Fluctuations in stocks generally continue as a certain trend.
- Changes in the trend are due to shifts in supply and demand.
- The trend is often interrupted by its own movements.

- At critical points of the trend, the price of the stock affects the volume of the stock.
- Changes in ongoing trends should not be interpreted as the balance between supply and demand is disrupted. All changes will be discovered and corrected by the market.

Investors often trade on the basis of price information on the chart. Information such as the lowest or highest point, the latest price trend and the long-term price average affect investors' judgment. When investors see a chart pointing to an upward long-term price trend, they tend to buy more because they reflect that trend to the future. When they see a long-term price trend downward, they prefer to sell it (Peterson, 2012).

3.7.1.3 Dividend Yield Strategies

When new information comes in, rational revaluation may be in question. For example, let's assume that an arbitrator believes that the market is overvalued based on the expected dividend of a particular stock in the future. This arbitrage will sell short in anticipation that the price will be lower when it buys the stock to close its position. In this knowledge-based belief, the investor will be exposed to risk even if he is right. Because suddenly, information that nobody knows can come and profit and loss may arise (Bayar, 2012). Dividend yield is found by dividing the annual dividend amount per share by the market value of the stock. Recently, two indices have been created through Borsa Istanbul. Investors can also form strategies by following these indices.

3.7.1.4 Strategies in terms of Price / Earnings Ratio

The Price / Earnings (P / E) ratio effect is one of the most recognized anomalies. Based on the recently announced data of the company, investments can be made over the current P / E at that moment. If the current P / E is lower than past rates, stock promises returns. Another way is to estimate the future P / E ratio of the company and invest accordingly. If the rate to occur in the future will be lower than the current or past rates, investment can be made considering the stock will increase.

The value of the price / earnings (P / E) ratio can be calculated by averaging historical data or by averaging the coefficients of similar businesses in the same sector.

Then, the net profit per share to be obtained by the business next year is determined and the stock value is calculated (Doğukanlı and Canbaş, 2007).

P / E ratios of stocks generally reflect the growth expectations of investors. Ironically, shares with low P / E ratios (hence growth expectations are also low) often outperform higher shares with P / E over time. This is one of the basic principles of value investment. One reason that value strategies work well is that investors' low expectations often result in positive surprises, increased positive feelings about shares with low P / E ratios, and shares with higher P / E ratios are much more disappointing (Peterson, 2012).

3.7.1.5 Strategies for Anomalies

Stock prices sometimes follow a different trend. This is explained by the anomaly definition.

"Anomaly" studies documenting seasonality in stock returns are very important. Especially in January, the returns of the shares of small companies are higher than other months on average. These high returns are obtained on the last trading day of December and the first five days of January. Returns occur on the last days of each month and on the days before holidays. Daily returns generally occur at the beginning and end of the day (Parasız, Başoğlu, and Ceylan, 2001).

Anomaly, which is announced as an anomaly related to days, is to obtain higher or lower returns on a certain day or days of stocks traded in the stock market.

In the finance literature, when it comes to the day of the week or weekend anomaly, it comes to mind that stock returns on Monday (Tuesday in some countries) systematically provide negative returns. In the studies related to the anomaly of the day of the week, stock prices decrease regularly on Mondays compared to the previous day, and on Friday, it increases significantly compared to the previous trading day. In other words, average returns are high on the last trading day of the week and lowest on the first day of the week (Barak, 2008).

Anomaly, which is described as an anomaly for months, is whether stock returns yield different returns in any month of the year compared to other months. The most studied anomaly is the January anomaly. The reason for the January anomaly attracting so much attention is that investors get very different returns from stocks in January compared to other months.

Possible causes of the January anomaly may be shown as investors selling in the last month of the year to avoid taxes and getting used in the first days of January after taking advantage of this advantage. As another reason; the fact is that institutional investors and mutual funds sell poorly performing stocks in December to better show their year-end balance sheet. Therefore, the shares sold are taken back to the portfolio in January. It is known that the anomaly of January is caused by small firms (Karan, 2011).

3.7.2. Passive Strategies (Passive Portfolio Management)

In passive strategies; a passive portfolio is established and the portfolio is held for a long time with very few adjustments. As an example of passive strategies; buy and hold strategy, indexed fund strategy and cost average strategy can be given.

3.7.2.1. Buy and Hold Strategy

In the holding process, no transactions are made even if the prices in the market decrease. There is no clarity in the strategy regarding which of the available investment instruments in the market and the timing of trading. These issues are left to the knowledge and skills of the investor. In the holding period, the commission paid in the strategy is very low, since the purchase and sale is made only once (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011).

It is seen as the simplest of investment strategies. It starts with the selection of one or more securities in accordance with the investors' wishes and needs. The purpose of the strategy is that the retention periods of the invested assets are equal to the desired. The absence of any purchase or sale until the end of this period after the investment results in the strategy being counted as one of the "passive portfolio methods".

3.7.2.2. Indexed Fund

Although it is actually described as a separate title, Indexed Funds are also a “buy and hold strategy”.

According to this technique, the funds included in the portfolio are created according to a published index. In other words, stocks covered by the index are invested by preserving their weights in the index. Since the index represents the market, an equal return to this index is obtained. The best diversification that eliminates business risk is index fund strategy. Trading costs are low in index funds.

The reason for this may be the low turnover rate and no expense to buy more to earn more (Usta, 2012).

It is observed that the funds with index content are created by institutional investors who generally believe in the “Efficient Market Theory”. This strategy is based on the assumption that there will be no better returns than the indices in the long run and that the indices reflect the whole market. Today, it is also possible to create a portfolio (bond index fund) for fixed income investment instruments (hence the indices calculated from them) with the same logic (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011).

Creating an indexed fund is another portfolio management strategy. In this strategy, investments are made in the index stocks by protecting their weights in the index. Thus, obtaining a return equal to the index assumed to represent the market becomes clear. A little deviation will be provided between the index and the returns of the fund. Failure to take any action after investing in the created portfolio leads to counting the strategy as one of the passive portfolio methods (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011).

3.7.2.3 Average Cost Strategy

The average cost strategy is based on long-term investment. The purpose of the strategy is to create a large portfolio with small money for the long term.

It can be seen as one of the most used methods by investors who do not have enough knowledge about analysis methods. Average cost strategy "What should be taken?" "When should it be taken?" answers the question. Equally consistent purchases are made at certain intervals for certain periods. When the price of a stock starts to decrease, it is continued to be taken from the falling prices, and then it is averaged, and then it is aimed to gain when the price rises (Usta, 2012).

It is based on the principle of depositing the same amount of money to the stocks for a long period of time, regardless of the market situation at intervals determined by the investor (monthly, quarterly, and annual). Considering the inflation rate in our country, it is more correct to apply the amount of money in US dollars instead of TL, as in the original method. This strategy can be compared to obtaining a very high price by paying in installments. However, during the investment period, it is not necessary to purchase the same stock continuously. With different stocks, diversification of the portfolio and the risks taken can be reduced to some extent. It is also possible to dispose

of unwanted stocks and replace them with new stocks (Sermaye Piyasası ve Borsa Temel Bilgiler Klavuzu, 2011). The most important point to be considered in this strategy is that people have difficulty in implementing this strategy in a disciplined way for a long time. Investors may find it difficult to stick to their strategies when a certain amount of money accumulates in their portfolios.

CHAPTER 4: INVESTOR TENDENCIES WITHIN THE SCOPE OF BEHAVIORAL FINANCE

In this section, the cognitive, emotional and social trends that investors are affected by behavioral finance are examined.

In classical economic models, it is argued that the preferences of individuals are based on fixed mathematical facts and do not change. But in real life, individuals show that it is not possible to provide these facts. Irrational investors strive to find solutions that meet the changing environment and conditions of the problems. As a result; behavioral economics has made many different examples to explain irrational investor behavior and shows that these irrational behaviors are continuous and that people can be reduced to all levels of society without being influenced by demographic factors such as gender, age, and education (Ede, 2007).

4.1. Cognitive Trends

Cognitive investor trends, time savings in investments to individuals, etc. provides benefits. However, not being able to evaluate all the data in the decision making process or not using the appropriate method increases the share of individuals making mistakes (Ertan, 2007). These trends are; trends such as overconfidence, loss aversion, optimism, representative heuristics, anchor, misattribution, framing tendency, and cognitive dissonance.

4.1.1. Overconfidence

Overconfidence arrogant financial specialists think that the data they have is more profitable than the data of other financial specialists which the return they anticipate from their ventures will be more. The excessively certain financial specialist is certain that his speculation will perform best (Böyükaslan, 2012).

In common, individuals are sure almost the exactness of their forecasts. Self-belief bias is the cause of overconfidence. A common tendency among investors is that they believe that if they succeed, this is the result of their own predictions, and if they fail, they are bound to bad luck as a rule. In spite of the fact that people are excessively self-confident and very sure, they overlook that they may experience awful shocks at any minute.

Investors can be overly confident in their personal talents. Similarly, entrepreneurs have an extreme sense of self-confidence. Excessive confidence can cause investment decisions to be manipulated. An example of this kind of manipulation is to trade more than necessary in the market. The excessive reliance of the investor on himself and his decisions may cause his expected return to decrease as a result of over-trading in the market. As a result of the researches, it was seen that the investors who made a lot of transactions in the market and constantly changed their portfolio performed worse (Barber and Odean, 1999). Excessive trust also depends on optimism. For example, in a study, 80% of drivers believe their abilities are above average. In another study, half of the MBA students believe that they are in the top 20% section.

According to the expectation theory, the concept of risk is defined as the perceived risk rather than the expected risk in the markets. In this context, extremely secure investors misjudge the level of risk related to their portfolios. The risk of these shares is low for investors who believe that their stocks will generate high profits. However, the portfolios of overly secure investors carry higher risks for two reasons. First, investors tend to buy high-risk stocks. High-risk shares are small companies or new company shares. Second, these investors tend to diversify their portfolios at a low rate (Baker and Nofsinger, 2010).

According to the tendency to attribute to themselves, individuals attribute the validation of their actions to the superior abilities that they think they have. Investor confidence grows if public information is in the same direction as its own, but not in the opposite direction. If an investor is overly confident in his abilities at the stage of interpreting the information and believes that he has realized that others do not notice, he will underestimate the errors that may occur in his estimates. Because of his personal belief that he thinks he has, he will tend to be overly confident about his knowledge. But basically such a situation will not be the case for this public information. This shows that people trust them extremely, and in the event of an error, they blame external factors for failure. Psychological findings show that over-trust causes people to overestimate their knowledge, underestimate the risks, and exaggerate their ability to control events. The self-deceiving person thinks he is smarter, better, more capable than the average.

4.1.2. Loss Aversion

Avoidance of loss accept that an investor's pity when she loses a thousand liras from any speculation instrument is more than the delight she wins from a venture of the same esteem (Birgili, 2013).

In the expectation theory, the behavior of avoidance of loss refers to the tendency of people to prefer to avoid loss instead of choosing to win. The tendency to avoid loss depends on previous gains and losses. Considering the returns lost or never won, the tendency to avoid loss can be quite heavy. Experimental findings show that the degree of loss aversion depends on previous gains and losses. While the losses following the previous earnings create less distress, the losses that occur following a loss create greater distress and sadness. Earlier gains support subsequent losses and individuals are vulnerable to risk. However, people are more sensitive and behave more frequently to the adversities that will arise after a loss realization (Döm, 2003). While individuals are deprived of the present in the loss, there is a loss in gain or a decrease in gain. In other words, people feel a decrease in a standard that exists in the first, and loss in gain loses what is not already. For example, the loss caused by losing 500 TL will be greater than the happiness of 500 TL earned unexpectedly. Therefore, people are more sensitive to the decrease in their wealth compared to the increase in their wealth (Barak, 2008). Fear of losing something motivates people more than the thought of winning something of the same value.

The tendency to avoid loss guides people's attitudes towards risk. Behavioral economic models based on decision making in cases of uncertainty argue that people benefit from the gains and losses in their capital, not the final level of capital they will obtain. This concept emerges as a result of investors' tendencies towards pride and their desire to avoid reproach. Therefore, it causes investors to lose their winning stocks very early by holding the lost stocks in their hands (Aydoğan, 2013).

Perceptual mistakes in brain research are clarified by distinctive speculations. For illustration, people's creative ability, perceptual disarranges such as illusion, as well as perceptual mistakes caused by data lacks within the cognitive valuation handle. In the event that man is sound in his choices, he must be autonomous of the system in which the choices are made. For financial specialists, mental instinct can supplant levelheaded thought in financial choices, or it is ideal that they make rationale instead of foreseeing likelihood calculations.

4.1.3. Optimism/Wishful Thinking

The tendency to be overly optimistic leads people to underestimate situations that are not under their control. At the same time, individuals with an optimism prejudice tend to stay in control illusion and exaggerate their degree of control over their future. Optimism bias tends to underestimate the percentage of luck in social events and misunderstands luck-related situations (Barak, 2008).

The tendency to be overly optimistic is considered to be very influential in analysts' proposals for gains in financial markets and analysts. Looking at empirical findings, analysts' earnings estimates are on average optimistic. In addition, the findings show that although individuals are warned against such prejudices, they are still exposed to prejudices (Döm, 2003).

4.1.4. Representative Heuristics

This concept, also called representational tendency, is explained as a decision-making phenomenon, which varies according to the extent to which a particular concept carries. People validate that the concepts available to the same specialty count at the same level at a high level. Likewise, the concept of representation also consists of data-based issues. Therefore, investors also accept good companies at the level to obtain deposits. Individuals make mistakes because the management, manager, product and value of a good company are perceived at a high level. These mistakes lead to overlooking the possibility of companies that earn very well in time, at the same time, at the same time (Gümüş, Koç, and Agalarova, 2013).

4.1.5. Mooring Tendency and Anchor

Individuals need to count a representation limit when solving problems or facing a complex event. They make estimates according to this reference point. As a result, with the new information added, the first value is possible through anchoring. Often the points provided by previous experiences are the formula of the problems. The concept of anchoring is not sufficient in either (Şenkesen, 2009).

Anchor as a result of researches in behavioral finance, it has been discovered that if there is an explanation or information that the human brain already trusts about the subject, this previously acquired knowledge will affect decision making. For example; in an experiment, the subjects were asked to write the last three digits of their phone numbers on a blank sheet of paper. Then, when it was requested to estimate the empty paper in front of the death year of Cengiz Khan, a high correlation was found

between the phone numbers of the subjects and the year of death of Cengiz Han. In fact, although Cengiz Khan lived between 1162 and 1227, it was observed that the figures before 1000 with three digits as the year of death were written on the blank paper by the subjects (Erdinç, 2004).

As can be seen in this example, the human brain tends to establish a relationship between a number mentioned and the answer to a question that has nothing to do with it. Anchor can be an important force for price strategists. When a price is mentioned before the sale of an asset, bargaining generally concentrates around this price. However, anchoring for past figures can be very damaging. For example, if a long-term investment is made in the stock, the promise is made if the past 4-5 year returns are made; such a period can be entered that no return can be obtained in the next 4-5 years.

The anchor effect is common in investor behavior. If any specialist mentions the price level for a stock or investment instrument, the investor focuses on that level. Whatever new conditions bring, they are in the illusion and expectation that that entity will reach the level mentioned. Another effect of anchoring is the target and expectation figures. The strongest movements in the markets occur when there are significant deviations from these figures.

4.1.6. Misattribution

The tendency to misrelate their mistakes is explained by the fact that individuals attribute their success to external factors such as bad luck. This concept causes people not to see their mistakes or to notice the negativities caused by their mistakes. Therefore, individuals who are affected by this trend cannot learn from their mistakes and have to make the same mistakes again (Özan, 2010).

Investors who tend to associate errors incorrectly attribute their success in their portfolios to themselves and their failures to external sources. They exaggerate their mistakes by overestimating their right decisions and associating their wrong decisions with luck or an external reason (Hamurcu and Yalvaç Çamurcu, 2016).

4.1.7. Framing Tendency

Framing tendency is defined as a psychological process that is at the core of the tendency to avoid loss. Individuals with a tendency to frame emerged at the stage of evaluating the changes, unable to make accurate rational evaluations on all options

during their selection; they have to choose among them by framing some options (Küden, 2014).

4.1.8. Cognitive Dissonance

The concept of conservatism is defined as keeping the culture to which it belongs, keeping away from the attitudes that negatively affect our beliefs and customs. In cases where individuals perceive them as usual, they feel better about themselves and have difficulty in adapting to these situations by avoiding diversities. As the newly acquired data increases, the phenomenon of conservatism becomes higher (Akkaya and Taner, 2005).

Confidence arising from the conservative tendency tends to decrease with the public release of the data. Investors are beginning to realize that new information is diverse from their original ideas. This situation, which also has an impact on investment decision making, provides an idea that wages will shift over time in individuals. Therefore, this idea causes a small reaction in financial markets (Ülkü, 2001).

4.2. Emotional Trends

In this section, the psychological trends that are the subject of behavioral finance are those that are evaluated emotionally. These trends are; the tendencies to avoid reproach the tendency to avoid uncertainty and to choose what is known, and the lack of self-control.

4.2.1. Ambiguity Aversion (Tendency to Avoid Uncertainty and Prefer the Known)

The tendency to avoid uncertainty and the tendency to choose what is known is one that investors are frequently affected. In situations where the options of a situation are uncertain, it is difficult for people to identify the lights. The situations where the risk is in question are considered to be certain. In cases of uncertainty, there is no connection between the event and the result. In such cases, investors have to choose an option they know little, even if they have no knowledge. Even in cases of high risk, individuals turn to the options they know (Barak, 2008). Uncertainty moves with risk. Avoiding uncertainty and avoiding risk are different concepts. In risk aversion, while investors calculate the probabilities of the outcome of an event, it is not possible to calculate the possible consequences of events in avoiding uncertainty. Therefore,

"avoiding uncertainty" means that individuals avoid situations where they do not know the possible consequences.

4.2.2. Regret Aversion

Avoidance of regret is based on the understanding that it is less demanding to persuade the champs to offer than to convince the failures to offer.

Regret is the pain felt when it is understood that the other option has a better result and that it is too late to change it. In other words, it is defined in psychology as the emotion experienced due to a wrong decision. Avoiding regret is on the emotional reaction caused by people acting incorrectly (Döm, 2003). When people make mistakes, no matter how small their mistakes, they feel regret by their creation, so they try to program their behavior in order not to feel regret. In their experiment, Bar-Hillel and Neter (1996) observed that people refused to sell their tickets or coupons they bought before the chance games were drawn. It is the avoidance of regret that guides this behavior (Bostancı, 2003). Investors do not give up the hope of earning money from a particular investment because they invested money because they wanted to earn more than they originally invested. The urge to compensate expresses the difficulties of people being at peace with their losses when viewed psychologically. Research shows that the tendency to compensate affects both experts and ordinary investors. Compensation encourages people to take risks, which is perhaps more harm to portfolio investments than other factors will do, rather than avoiding losses (Döm, 2003). Fear of regret can explain why investors tend to traditional investment instruments instead of different investment preferences and why they hold capital market instruments for a long time when they lose as a result of their investments. According to Thompson (1997), investors who do not want to experience the regret of missing an opportunity take risks more easily and trust the investment professionals who they believe can steer their investments (Bostancı, 2003).

Agreeing to this understanding, financial specialists hold their speculations for a longer period of time. In any case, they expel their speculations quicker (Akın, 2009). Regret is the pain felt when it is understood that the other option has a better result and that it is too late to change it. In other words, it is defined in psychology as the emotion exposed due to a wrong decision. Avoiding regret is on the emotional reaction caused by people acting incorrectly (Döm, 2003). When people make mistakes, no matter how

small their mistakes, they feel regret by their creation, so they try to program their behavior in order not to feel regret.

Regret is the torment when it is caught on that the other alternative could be a superior result and it is as well late to alter it. In other words, it is characterized in brain research as the feeling uncovered due to an off-base choice. Speculators don't grant up the trust of making cash from a specific speculation since they have contributed since they need to gain more than they initially invested. The inspiration to create up alludes to the challenges of individuals being accommodated with the misfortune of individuals from a mental viewpoint.

4.2.3. Auto Control Deficiency Tendency

People's ideas can change quickly and they can get confused easily. This concept, called the lack of auto-control, is explained by the fact that individuals make great plans for their future and spend their savings uncontrollably against today's opportunities and cannot think about their future (Otluoğlu, 2009).

Being patient is one of the most difficult behaviors. In people, he does not like to let go of time or wants to get away immediately rather than waiting for a long time. This understanding also prevails in investors. One of the biggest obstacles to earnings and savings is time effect. Investment tools such as private pensions are not considered negative for many people since they do not allow withdrawing money from the account for a long time. It is more attractive to wait for ten days and earn 10 TL, while it is 5 TL today. Another behavior that investors make is that they risk to further damage their investments by leaving them to future times, considering that they can compensate the loss in case of a loss in their investments. When they earn money, the situation may be the opposite.

4.2.4. Mood

According to Myer, the mood of the human affects his judgment in the decision-making process. That is, an individual with a negative mood is more pessimistic than an individual with a positive mood. The individual's thoughts keep up with the mood, so if the investor feels bad mentally, bad thoughts will come to his mind and he will avoid taking risks.

4.2.5. Self-attribution Bias

In general, people have the incentive to know success by themselves and to connect failure to external factors. If there is a success, this success stems from its own ability, work or vision. On the contrary, in case of failure, the causes of this failure are never sought in itself; the causes of this failure are either bad luck or others, in short, a reason other than itself. He never admits that he could be the cause of failure, he denies this in his own mind.

4.2.6. Confirmation Bias

It is the search of individuals to support their beliefs in line with their own hypotheses. Generally, individuals are less interested in the information that is against the solid hypotheses created by individuals and which do not provide support. If you are convinced that an investment strategy is lucrative for you, feedback is no longer important to you. This leads to the direct rejection of ideas without further evidence and to preserve the hypothesis that you have created, albeit weak.

4.2.7. Hindsight Bias

It is the situation where after the events occur, the results are predictable and known to people. Once the event has taken place and the results have been understood, they act in the manner I knew beforehand. This causes people to think that their predictive abilities are above average.

4.2.8. Disappointment Tendency

Individuals experience some emotions according to the results that occur when they encounter the steps they take and the results of their decisions. They have positive emotions in the direction they want and expect, and negative emotions beyond their expectations and desires. Loomes and Sugden, who researched rational choices under uncertainty, were disappointed; defined the response of a decision as the response when it does not match what is expected (Loomes and Sugden, 1982).

The effect of the disappointing trend on decision-making has begun to be examined with the work of David Bell. As a result of the study, Bell concluded that while people are frustrated, they try to avoid disappointment and also consider the frustration that may be experienced later in the decision-making phase (Bell, 1985).

4.3. Social Trends

In this section, social behavior that is evaluated socially from psychological tendencies that are subject to behavioral finance is included.

4.3.1. Herding Behavior

Herd psychology is when a group of investors do the same financial transaction in the same time frame.

People are left with more information than they need. This situation causes people to delay their investments until they understand or resolve the situation (Küden, 2014).

This psychology, which individual investors enter in the decision making process, causes individuals to move away from economic indicators and analysis. These insignificant economic indicators are disabling investors from rationality. However, as a result of the researches, it has been found that the investments made will earn more if the situation is the opposite.

Herd psychology is the result of financial specialists carrying on concurring to the exchanges of others rather than their own knowledge and it may be a negative and undesirable behavior sort in numerous markets where money related emergencies are experienced (Döm, 2003).

Herd behavior occurs as a result of investors behaving according to the transactions of others instead of their own information and appears as a negative and undesired behavior in many markets where financial crises are experienced (Döm, 2003). Theories of the structure of financial markets suggest that investors acquire market-related information as they trade in the market, and over time, the difference between transaction prices and long-term real values disappears. Accordingly, investors make transactions in line with the information they have obtained and the information in question is reflected in the prices. In other words, in the long term, financial markets are effective in a strong form in terms of information (Canbaş and Kandır, 2007). However, this activity can be eliminated if investors imitate the transactions of others and not according to their own information. This type of investor behavior, called herd behavior, forces investors to imitate each other rather than acquiring information about the market. However, every similar behavior that investors show cannot be accepted as herd behavior. The prerequisite for an investment decision to conform to herd behavior is that an investor does not perform a behavior if

other investors do not know that they are also showing the same behavior. In other words, changing an investment decision made by the investor according to the decision of other investors is a prerequisite for an investor's behavior to be accepted as herd behavior (Lovo and Decamps, 2002).

The hypotheses with respect to the structure of monetary markets propose that speculators obtain data almost the advertise as they exchange which the contrast between exchange costs and long-term genuine values disappears over time. In like manner, speculators make exchanges in line with the data they have gotten and the data they receive is reflected within the costs. In any case, any comparable behavior of financial specialists cannot be respected as group behavior. The prerequisite for a venture choice to comply with the crowd behavior is that a financial specialist does not perform a behavior in the event that he or she does not know that other financial specialists do the same.

4.3.2. Social Contagion

Social contamination, which first entered the literature in 1896 when Gustave Le Bön tried to explain the extreme behaviors of individuals in society, meant that the individuals in the social crowd underwent a serious transformation and the spread of emotions, thoughts and behaviors in this crowd.

This concept tries to define the excessive behavior of individuals in the society. It is also explained by the rapid transformation of emotions, thoughts and behaviors in this crowd by being subjected to serious transformation of the people in the crowd in the society (Aytekin and Aygün, 2016).

4.3.3. Gambler's Fallacy

This illusion, called the gambling illusion, emerges when individuals make inappropriate predictions when the trend is in complete sweat. It causes individual investors to think that their positive or negative gains in market gains are over. This situation is considered as a gambler mistake. This type of illusion occurs when people make inappropriate predictions when the trend is reversed. This trend may cause investors to think that the positive or negative returns in the market returns are over. Gambler error can be considered as excessive belief in arithmetic mean in regression. In regression, the arithmetic mean is found in many human systems, and the extreme trend approaches the arithmetic mean over time. The arithmetic mean is sometimes perceived as wrong, and as a result, it is believed that, for example, the upward trend

has to be followed by a downward trend in accordance with the law of averages (Tufan, 2008).

It is a fact that an event related to chance or chance can be predicted. For example, if nine of the money that is thrown into the air nine times comes in writing, the person may think that the probability of coming to the next shot is very high. However, in reality, the tenth shot has a 50% probability of coming to the tour. This mistake is not unique to gamblers. It is common in almost all areas of life. With this trend, investors tend to predict the outcome of market returns as good or bad.

CHAPTER 5: THEORIES, MODELS AND HYPOTHESES FOR TRADITIONAL FINANCE AND BEHAVIORAL FINANCE APPROACHES

In this section, theories, models and hypotheses regarding traditional finance and behavioral finance approaches are examined.

5.1. Traditional Finance Theory and Models

The acceptance that people are rational and regard information as rational forms the basis of traditional finance theories. Accordingly, the behavior of investors, the functioning of financial markets, and the development of financial instruments are the main areas of interest in traditional finance (Çilingiroğlu and Sefil, 2011).

Traditional finance theories define investors as "rational assets" and assume that they can always make the most useful decision in investment decisions and act consistently and rationally. Traditional finance has tried to explain the rationality of people with various theories and hypotheses, but in some cases it could not explain why they could not act rationally.

5.1.1. Expected Utility Theory

The foundations of the expected utility theory were first introduced by Daniel Bernoulli in the 1700s. In the 1940s, mathematicians John Von Neumann and Oscar Morgenstein made significant contributions to this theory, which developed the game theory. The validity of the theory continued until 1979, when Kahneman and Tversky introduced the theory of expectation. Morgenstein and Neumann assume that people have decided to purchase by considering the benefits they will obtain after consumption of goods and services. The expected benefit concept here is obtained by multiplying the possible benefit that results from a decision made in case of uncertainty by the probability of the event happening. This benefit is also expressed cardinally and is based on the assumption that people act rationally (Altunöz and Altunöz, 2017).

The expected utility theory begins by arguing that investors will decide their expected benefits to the highest level. All decisions taken in finance contain uncertainty by nature, so the expected benefit theory defines how people will make decisions under uncertainty and risk.

The expected utility theory is based on the following assumptions (Bailey and Hatton, 2002).

- When people are faced with an uncertainty, they identify an objective possibility of this situation.
- If X brings more benefits than Y, the person chooses X between X and Y. So much is better than less.
- X brings more benefits than Y, Z in Y, the person chooses X in case of preference between X and Z. So, decisions are consistent.
- In determining the possibilities in cases of uncertainty, the person first calculates the expected benefit of the situations and then ranks them in his own utility function. The purpose of the person is to obtain maximum benefit.
- Finally, the utility function is dish-shaped and complies with the diminishing marginal utility rule.

It is assumed that individuals make these choices in an environment in which they have full knowledge, without reflecting their feelings in the decision-making phase, within rational limits, after realizing the cost-benefit comparison. From this point of view, the expected benefit theory is an approach to how the individual should behave rather than how he behaves.

Briefly, it envisages rational behavior without limits in case of uncertainty. However, it is known that this "unlimited rationality" assumption that the theory accepts is not related to human behavior in the real world (Bostancı, 2003).

5.1.2. Capital Asset Pricing Model

The financial assets pricing model was first introduced in 1964 by William Sharpe with the Capital Asset Pricing Model (CAPM) study. This model indicates the relationship between the expected return and risk of financial assets.

The first of the two main models used in pricing assets in traditional finance approaches, CAPM is as follows; it is a balance model that emerged as a result of independent work by William Sharpe in 1964, John Lintner in 1965, Jan Mossin in 1966 and Fischer Black in 1972 (LeRoy and Werner, 2001).

In another definition; In the Capital Asset Pricing Model, an attempt is made to find a balance value by looking at the relationship between the expected return of any securities and the degree of risk (Altınırmak Gökbel, 2003).

CAPM reveals that in the event of equilibrium, the price of the security can be determined by its contribution to the total risk. In other words, total risk is

measured by the return of the market portfolios of all assets and the covariance of the risk of the said security (Parasız, Başoğlu, and Ceylan, 2001).

5.1.3. Modern Portfolio Theory

Modern Portfolio Theory was first introduced by Harry Max Markowitz in 1952. This theory, which emerged with the study of Harry Portowitz's "Portfolio Selection", is based on the calculation of the expected return and expected risk of a portfolio formed with financial assets in the light of various assumptions (Çilingiroğlu and Sefil, 2011).

Modern portfolio theory is based on investors demanding the highest return on their investments at a certain risk level. In other words, in line with such a request, the investor will consider the risk factor when choosing between the two financial assets and invest in the low-risk financial asset (Böyükaslan, 2012). In other words, modern portfolio theory; It explains how investors should choose the portfolio that best suits their profits by calculating the risk of the securities that they expect to generate in the future from the securities they plan to invest.

According to Markowitz; individual investors make different portfolio sets that provide the highest expected return in case of information and risk, and the lowest risk in case of expected return. Thus, investors can maximize their expected returns with the diversification they make while creating their portfolio sets (Parasız, Başoğlu, and Ceylan, 2001).

The main assumptions of the Modern Portfolio Theory are as follows (Baker and Nofsinger, 2010):

- Investing people make their investment decisions based on expected returns and risks only.
- The capital market is assumed to be effectively.
- All investors prefer higher returns at equal risk levels.
- Finally, it is assumed that all investors think rationally.

In order to apply the Modern Portfolio Theory; Three important characteristics of each potential investment need to be identified. The first is the expected return on investment. The second is the level of risk measured by the standard deviation of the return. The third is the correlation between the returns of each investment. Correlation expresses how each investment interacts with other investments.

5.1.4. Efficient Market Hypothesis

The efficient markets hypothesis assumes that securities reflect all available information and that prices do not change with information entry. So price changes are completely random (Parasız, 2005). The "Efficient Markets Hypothesis", which gained pace in the 1970s, was widely accepted in the economy and financial circles in securities analysis. The efficient market hypothesis considered the perfect competition market as the starting point and adapted these market rules to the capital markets. Within the framework of this approach, if any information is transferred to the market, the market price of the security at any given moment will be equal to the real value of that security.

Effective markets hypothesis is based on certain assumptions (Kocaman, 1995):

- The main purpose of the investor is to maximize its economic benefit.
- Investors make choices based on risk and return.
- Risk and return expectations of investors are homogeneous.
- Investors have the same horizon of each other.
- Information can be obtained freely.

Apart from these simplifying assumptions, the effective markets hypothesis includes three basic assumptions (Shleifer, 2000):

i. Investors are rational and evaluate securities rationally.

ii. Even if some investors are not rational, the behavior of investors who do not act rationally is mutually exclusive, so prices are not affected.

iii. If investors display irrational behavior in the same direction, rational arbitrage players in the market prevent these behaviors from affecting prices.

Investors calculate the basic values of stocks by reducing them to their present value by using a discount rate that they will find according to the risk status of the future cash flows. In the equilibrium of the market, this price is equal to the price of the stock in the market. The market is very sensitive to news that will affect cash flows and risk status, and it reflects these news to stock prices instantly. As a result, securities prices instantly combine the information available and reveal the result by calculating net present value (Shleifer, 2000).

Fama organized these empirical studies based on the effective markets hypothesis, most of which are based on the "Random Walk" hypothesis, and put these studies into a theoretical structure and divided the market into three in terms of effectiveness (Fama, 1970).

a) ***Weak Form:*** The weakly effective markets hypothesis is for testing the random motion model. Based on historical price information, it is not possible to predict future price changes. Price changes take place purely randomly. Thus, price changes in one period act independently from price changes in the other period.

b) ***Semi-Strong Form:*** Semi-strong efficient markets are very sensitive to all kinds of information inputs that are open to the public and comply with these information entries in a short time. For this reason, any publicly disclosed information such as past prices and volumes of stocks, general economic data, and economic data related to the sector and the company has been fully reflected in the securities prices. In semi-active markets, it is not possible to gain additional earnings by using publicly disclosed information and basic technical analysis methods.

c) ***Strong Form:*** This hypothesis assumes that securities prices reflect all public or non-public information. According to this hypothesis, nobody can benefit from this by having special knowledge. However, nowadays, it is observed that no capital market is at full strength.

As the investor rationality, Fama suggests, it makes it impossible to achieve excessive returns adjusted for risk. However, the presence of irrational investors in the markets does not eliminate the effective markets hypothesis. Even if some investors are not rational, the behavior of investors who do not act rationally excludes each other, and so prices are unaffected, as the assumption suggests, even when some investors are not entirely rational, the assumption of effectiveness is preserved. The most commonly suggested idea is that irrational investors are traded randomly in the market. When there are many such investors and their trading strategies are not correlated, the effects of their transactions will eliminate each other. In this type of market, irrational investors will have high trading volumes as they will trade with each other. Prices will be formed close to the basic value. This result is based on the assumption that the correlation in irrational investors' strategies is weak. However, according to the efficient markets

hypothesis, the assumption that investors' trading strategies are related with each other does not violate the efficient markets hypothesis. This situation is based on arbitrage. According to the efficient markets hypothesis, while the securities purchased by irrational investors at a certain level are over-priced, the securities they sell are low-priced. For this reason, irrational investors get lower returns and lose money compared to passive investors or arbitrage.

5.1.5. Arbitrage Pricing Model

Arbitrage is explained as the whole of the transactions of simultaneous buying and selling of economic assets such as goods or production factor, foreign currency or securities to take advantage of the simultaneous price differences (Seydioğlu, 1994). In another definition, arbitrage; It is explained as an investment strategy without net investment and in which the possibility of a negative return is not expected.

The arbitrage pricing model, which is among the tools used by individual investors and portfolio managers, is also one of the economic models. Arbitrage pricing model; is a return-risk relationship that uses the weighted average of risk factors related to purchasing power risk, non-payment risk, interest rate risk, management risk and any valuation. This model shows how the risk factors can be found to find the appropriate rate of return in finding the present value of any asset (Güçlü, 2006).

5.1.6. Fundamental Analysis

Basic analysis is defined as the research of the value of a business by making use of the information provided to the public. The basic analysis also allows measuring the value of the firm, based on all data and financial evaluations disclosed to the public regarding the business. In the basic analysis, which is based entirely on real data, criticisms are directed to the basic analysis as the balance sheet data reaches the investors with a delay of 2-3 months (Karan, 2011).

By calculating the real value of the stocks of the companies they are interested in and comparing them with the prices in the market, the basic analysts make their buying or selling decisions accordingly. Accordingly, the real value of the stock is found by reviewing and interpreting the firm's financial statements and items, the company's management's past and future profit and dividend figures and risks.

Basic analysis reports; It consists of studies involving research and analysis on sectors and companies within the scope of stocks. As an example of these studies; discounted cash flow analysis, comparative ratio valuation and net asset methods are counted. This analysis is also one of the most used methods in the selection of securities. However, since too much information is collected, it is also called laborious and tiring technique (Civan, 2010).

5.1.7. Technical Analysis

The Dow Theory, compiled from the articles published in Charles Dow's The Wall Street Journal, published between 1900-1902, is the oldest and most researched technical analysis. Technical analysis based on this theory has been accepted as a type of analysis that tries to predict the future by looking at the price and transaction amount formed in the past (Karan, 2011).

In another definition; "It is explained as a method of recording any stock, index, commodity, exchange rate or futures contract, the purchase and sale prices previously realized in the market, generally as a graphic and estimating the trend of the future from this historical information (Günak, 2007).

The basic assumptions of technical analysts are listed below:

- There are many factors that determine supply and demand in financial markets.
- The value of the stock is adjusted according to the supply and demand of the market.
- Current fluctuations in stocks are often continuing as a particular trend.
- Shifts in supply and demand can cause changes in the trend.
- The price and volume of the stock affect the critical points of the trend.

5.1.8. Bayesian Decision Theory

The uncertainty of the future is the main problem faced in decision making. One of the efforts to overcome this problem belongs to British accountant and mathematician Thomas Bayes. Bayesian logic; It is a method of decision making by making use of the science of probability and statistics, using the knowledge of events that took place beforehand to predict future events. According to Bayesian logic, probability distribution is calculated to measure any situation with an uncertain result (Tufan, 2008).

Bayesian statistics go back to 1763. But it lost its reputation in the 19th century. Bruno de Finetti tried to keep statistics alive in Italy and Harold Jeffreys in England. Jimmy Savage in the USA and the UK and Dennis Lindley started the modern Bayesian movement in the second half of the 20th century. The computer systems developed have enabled the development of the Bayesian learning system and have been used in various application fields such as astrophysics, weather forecasting, health policy and criminal law, and these practices were mostly in the post-1990 period (Bayesian.org, 2014).

An example can be given to Bayesian Theory: Let's assume that we have an invisible basket and three balls in the basket. Each of these balls can be green or red. Let us imagine that we have inserted our hand into the basket without looking at it, we have chosen a random ball and this ball is in red color, throwing the ball back into the basket again, repeating this process twice and pulling the red ball again. In this case, we can develop a hypothesis that all balls are red. In this case, we can calculate probability by using Bayesian theory. Accordingly, all the balls are red (A) and all the selections made are red (B) and let's calculate the probability (p). In all possible possibilities (RRR, RRG, RGG, GGG), all balls have a red chance of 1/4, whereas all balls are red and the probability of all selections is 1/8. Bayesian theory calculates the probability that all balls in the basket will be red, the probability that all selections will be red, as 50% (Tufan, 2008).

5.2. Behavioral Finance Theory and Models

Daniel Kahneman and Amos Tversky; Contrary to the expected utility theory, they developed the prospect theory and made a breakthrough not only in the science of psychology, but also in the science of science, suggesting that individuals assign different probability values to gain and loss due to psychological factors. Kahneman and Tversky, who advocate that individuals should take into consideration the perceived risk instead of the expected risk in their investment decisions, provided a basis for behavioral finance studies with these approaches (Çilingiroğlu and Sefil, 2011).

5.2.1. Prospect Theory

The emergence of decision making in psychology as a research topic coincides with the 1950s, Edwards, 1954; Allais, 1953; Simon, 1956. But the

understanding of the applicability of these studies in economics or finance was through the publication of Kahneman and Tversky's articles called "Prospect Theory" in Econometrica in 1979. It is the argument of the theory of expectation to reconcile a positive economic thought compatible with the subjective judgments of the human, based on the perceptual traces in mind (Abaan, 1998). The theory of expectation in behavioral finance has been replaced by the expected utility theory, which forms the basis of classical economics. In the expected utility theory, individuals anticipate unlimited rational behavior in case of uncertainty, while the expectation theory advocates the opposite. Although it is beneficial to make simplifying assumptions in this way while creating economic models, it is known that the concept of "unlimited rationality" advocated by the theory is far from explaining individuals in real life (Shiller, 2003). Normative analysis is concerned with the logic and nature of decision making. It is tried to produce rational solutions to the decision problem. On the other hand, descriptive analysis emphasizes what people's beliefs and preferences should be, not what they should be (Kahneman and Tversky, 1984). Descriptive analysis is about determining people's behavior and tendencies in making their decisions.

Kahneman and Tversky stated that the generalizations in the models of classical economic theory were systematically violated when making decisions in uncertainty and that the assumptions presented could not be explained by the Expected Utility Theory (EUT). In addition, they have made some criticisms to the classical models that ignore human psychology and have put forward the Expectation Theory as an alternative theory with their work (Kahneman and Tversky, 1979). In uncertainty, the theory that tries to explain human behavior based on a measurable utility function is called the Expected Utility Theory. People do not know exactly the result of this decision when they make a decision. The development of models that will explain human behavior in case of uncertainty in economic theory has emerged from the necessity to make a decision in advance about doing this action without knowing the outcome of an action.

The Expected Utility Theory is a generally accepted theory of decision making at risk. EUT predicts that decision makers will make their choices among risky options by comparing the expected benefits. Accordingly, the individual will choose the option that provides the highest benefit to him. The benefit of any option to the individual is measured by weighting the probable results of the option

in question, and the option with the highest weighted sum will be chosen by the individual. On the basis of the theory of expectation, it is based on the assumption that the severity of the pain that occurs as a result of a certain loss is greater than the severity of the happiness that the same level of gain will bring. From this point of view, it can clarify the early disposal of the stocks observed in the financial markets, reducing the cost by making purchases with the decrease of the stock prices and other irrational behaviors (Şen, 2003). Since it was formulated by Kahneman and Tversky in 1979, the theory of expectation has been the main alternative to the "Expected Utility Theory" as a decision-making theory in case of risk. The element that emphasizes the theory of expectation is its descriptive power. Some of the main assumptions of the expected utility theory are received serious criticism and these violations are revealed through experimental studies.

5.2.2. Representative Agent- Model

In this model, the representative investor falls into two types of judicial errors: conservatism and representativeness.

Conservatism; It is the tendency of investors not to change their previous beliefs and attitudes easily when faced with new findings and information.

Representativeness; When investors make their judgments, it is the tendency to overestimate the most prominent and unusual elements and ignore the statistical characteristics of the distribution population.

In the representative investor model, insufficient reaction is explained by conservatism and overreaction is represented by bias for representation. In the model, although the company profits that the investors have taken as a change in their decisions regarding the investment in question actually have a time series character in accordance with the random walk hypothesis, as a result of these two perceptions (conservatism and representativeness bias), the investors are surprised in the same direction. They believe that the company's profits will tend to return to the average at first, and after a while it has entered the train. This perception of change in investors' minds is modeled as a Markow process (Barberis, Shleifer, and Vishny, 1998). In this model, an insufficient reaction occurs when investors believe they will return to an average when there is a change in profits. The overreaction occurs when investors believe that a trend has begun, after several successive surprises in the same direction.

5.2.3. Hong and Stein Model Based on Interactive Relationship between Heterogeneous Investors

While this model has the same purpose as the other two models mentioned above, it emphasizes the interactive relationship between heterogeneous investors rather than explaining representative investor behavior. The model is based on the cognitive biases, some of which are present in individual investors, and a larger part in the interactive relationship between heterogeneous investors. Model; it is assumed that there are two types of investors in the market: "newswatchers" and "Momentum investors" and these investors have a limited rational structure that can use only one type of information. So both types of investors are not entirely rational. Newswatchers can make estimates using the information they receive specifically about the public information set available in the future, and cannot use current or past prices as a source of information. News hunters can be considered a basic analyst. Momentum investors, on the other hand, use past prices as the only source of information, not considering basic information, and decision models can be expressed in a regression whose only independent variable is the price change in the last period.

One of the most important assumptions in this theory is that private information is slowly spreading among the population of newswatchers. The following conclusions were reached in the solution of this model. Only in the presence of newswatchers, inadequate reaction is observed, but never excessive reaction. When momentum investors are included in the model, by arbitrage the reaction left by newswatchers, they ensure that the price adapts to new information faster, assuming that they have sufficient risk tolerances, that is, they increase the market efficiency. But this causes overreaction at some point. Because momentum investors do not use basic information, they cannot distinguish whether the price exceeds the required price. As a result, early moment momentum investors make a profit by creating a cost over the late ones. Another striking result resulting from the application of this model; It is anticipated that as the momentum period of the momentum investors increases, the period in which autocorrelation will turn from positive to negative will increase.

5.2.4. Daniel, Hirshleifer and Subrahmanyam Model

This model is based on two psychological findings: overconfidence and biased self-attribution. The source of the hypothesis about investors' overconfidence is the evidence and data revealed by cognitive experiments (psychological experiments on understanding and comprehension) and research.

Overconfidence; is that the investor has more confidence in the private information he has. Biased self-attribution; is the relationship between the investor's confidence in his knowledge and investment performance and this trust is associated with investment performance (Ülkü, 2001). Excessive trust and tendency to attribute false self are a psychological attitude and cause negative autocorrelation in stocks in the long run.

Although this model is based on different psychological perception errors than the Representative Agent Model, it has been found that it produces results in the same direction as the Representative Agent Model. In this model, ultra-secure investors with special information, when trading against those who do not have rational but private information, give too much weight to their private information signals based on the price they create based on the market's announced information set, thus causing the prices to overreact to their private information.

Here, they argue that the positive autocorrelation of the Representative Agent Model is not the result of an inadequate reaction, but a result of excessive overreaction. In other words, since investors revise their trust upwards as they earn, their confidence increases even more when an information confirming their views is disclosed. In the long run, this process ends sooner or later, resulting in long-term negative autocorolation. The correction process can be slow here. A few information may not be available until the prices reach the required value. Because, when information that does not fit their opinions is reached, extremely secure investors revise their views a little. This slow process results in a separate positive autocorrelation sample during the correction period.

The main theme of this model is that stock prices show an overreaction to personal private information and a low reaction to public signals. In other words, while overreaction arises from personal private signals, incomplete / insufficient reaction occurs as a result of public signals (Daniel, Hirshleifer, and Subrahmanyam, 1998).

5.2.5. Mental Accounting

Richard Thaler earned the term behavioral finance. According to Thaler, people tend to categorize money based on where it came from, where it was stored and how it was spent. For example, people who gamble regularly think that when they lose the money they earn from gambling, they have no losses. On the other hand, while establishing businesses, managers or company owners are often not paid too much attention to the money spent, but after starting business life, they can be more stingy than necessary. Sometimes people can make decisions that are essentially related to each other independently. All organizations, from large businesses to individuals, have accounting systems. Businesses monitor monetary transactions through their accounting accounts. Individuals record their decisions in separate mental accounts, similar to businesses. Once an option's result is recorded in the mental account, it affects the evaluation of that result. Thus, the presence of mental accounts affects the decisions of individuals (Thaler, 1985). Rational accounting is concerned with how investors evaluate the results of their financial decisions. The existence of mental accounting systems can cause investors to make irrational financial decisions. Saving different transactions in different mental accounts and evaluating mental accounts independently of each other may lead investors to make erroneous decisions on issues such as timing and security selection.

CHAPTER 6: FACTORS AFFECTING THE BEHAVIOR OF INDIVIDUAL INVESTORS REVIEW OF BEHAVIORAL FINANCING: IZMIR SAMPLE

While investors make investment decisions, many factors play a role in the formation of these decisions. The quality and quantity of investments are effective in making these decisions. In addition, investors' behavior, thoughts and psychology are also important.

6.1. Purpose and Importance of the Research

Investors are affected by many factors when making investment decisions. In addition to the quality and quantity of the investment, investors' behavior and psychology are the most important of these factors. This is the basis of the fact that many investors with similar data make different decisions. Investor behavior is affected by non-economic factors that affect investors mentioned in the second part of the study within the scope of behavioral finance.

The aim of the study is to evaluate the relationship between the individual investors' financial investment tool preferences and the investor's financial profile and the behavioral profile of the investor, which consists of cognitive and emotional shortcuts that have an impact on the formation of this financial profile. For this purpose, a field study was conducted using the survey method. The questionnaire was conducted with 517 subjects by random sampling method based on 95% confidence interval and 5% sampling error. The survey was created to determine the investor's financial and behavioral profile.

6.2. Research Methodology

Questionnaire method was used to obtain the necessary data for investigations. The questionnaire was implemented over the internet to allow more individual investors to participate in the survey. The data were analyzed and evaluated through the SPPS Statistical Package Program.

In the first part of the survey study; In order to reveal the socio-demographic characteristics of the individual investors in Izmir, gender, age,

marital status, educational status, occupation and monthly income questions were asked.

In the second part of the survey study; In order to determine the financial investments of individual investors in İzmir province, it was asked which type of financial investment purpose they prefer, who influenced them in their investment decisions, and how often they followed the financial markets. They were asked to mark their answers by providing appropriate answer options.

In the third part of the survey study; In order to measure the extent to which participants carry their behavioral finance trends, propositions of these trends are presented. These propositions are gathered under the titles of overconfidence, regret aversion, and herd psychology. It was coded as Disagree (3), Undecided (2), Agree (1) using the 3-point Likert Scale to determine the degree of weight.

In the last part of the survey study; the participants were asked psychological questions within the scope of behavioral finance. They were asked to mark their answers by providing appropriate answer options.

6.3. Research Findings and Evaluation of Results

The survey questions prepared were prepared to determine the profile of individual investors in Izmir, to measure their investment preferences, and to reveal investor psychology and behavior.

In this section, a general evaluation of the answers given to the survey questions is made.

6.3.1. Findings of Demographic Features

Table 1: Demographic Features

	Frequency	**Valid Percent**
GENDER	***516***	***100%***
Female	278	53.8%

Table 1 (cont'd)

Male	238	46.0%
AGE	***516***	***100%***
18-25	67	13.0%
26-35	116	22.4%
36-45	146	28.2%
46-55	130	25.1%
55+	56	10.8%
MARITAL STATUS	***517***	***100%***
Single	207	40.0%
Married	310	60.0%
EDUCATION LEVEL	***517***	***100%***
Primary School	17	3.3%
Middle School	20	3.9%
Elementary Education	24	4.6%
High school	130	25.1%
University	207	40.0%
Master / Doctorate	119	23.0%
PROFESSION	***505***	***100%***
Public	148	28.6%
Private Sector	163	31.5%
Self-employment	82	15.9%
Retired	64	12.4%
Other	48	9.3%

Table 1 (cont'd)

MONTHLY INCOME	***516***	***100%***
0-2000 TL	79	15.3%
2000-4000 TL	180	34.8%
4000 TL +	257	49.7%

Table 1 gives the distribution of participants by gender. 53.9% of the respondents are women and 46% are men. There is a person who does not answer the question.

Table 1 presents the distribution of participants by age. A significant portion of the survey participants are between 36-45 years old with 28.2%. 13% of the participants are between the ages of 18-25, 22.4% between the ages of 26-35, 25.1% are between the ages of 46-55 and 10.8% are aged 55 and over. One of the participants did not answer this question.

Table 1 shows the distribution of the participants according to their marital status. While 60% of the respondents answered married, 40% gave the single answer.

Table 1 shows the distribution of the participants according to their educational status. While 40% of the participants are undergraduate graduates, the rate of graduate and doctorate students is 23%. The proportion of high school graduates is 25.1%. The total rate of primary, secondary and primary school graduates is 11.8%.

Table 1 shows the distribution of the participants according to their occupational status. The majority of the participants work in the private sector with 31.5%. While the percentage of people with public personnel is 28.6%, 15.9% of the participants marked the self-employment option. 12.4% of the participants are retired and there are 9.3% of participants who mark the other option. Twelve people among the respondents did not answer this question.

Table 1 shows the distribution of the participants by monthly income level. Among the participants, there are those with monthly income of 49.7% and 4000 TL and above. While 15.3% of the participants have monthly income between 0-2000 TL, 34.8% have monthly income between 2000-4000 TL per month. One of the respondents did not answer this question.

6.3.2. Investment Decisions Findings

Table 2: Investment Tools Preferred by the Participants

	Frequency	**Valid Percent**
INVESTMENT 1	***516***	***100%***
Stocks	41	7.9%
Profit share	42	8.1%
Foreign currency	90	17.4%
Gold	95	18.4%
Treasury bond	38	7.4%
Real estate	39	7.5%
Cash	171	33.1%
INVESTMENT 2	***516***	***100%***
Social environment	160	30.9%
Spouse	63	12.2%
Print media	82	15.9%
Television	89	17.2%
Internet	120	23.2%
INVESTMENT 3	***517***	***100%***
Very closely	85	16.4%
Closely	124	24%
Sometimes	208	40.2%
Never follow	100	19.3%

Table 2 shows the distribution of the participants according to their investment tool preferences. Most of the respondents preferred to keep their money in cash with 33.1%. The closest rate was those who invested gold with 18.4%. While 7.9% of the participants invest in stocks, 8.1% invest in dividends and 7.4% invest in treasury bills. While 17.4% of the participants invest in foreign currency, 7.5% invest in real estate. There is a person among the respondents who does not answer this question.

Table 2 presents the distribution of the participants according to the factors affecting their investment decisions. The vast majority of the participants invest in their social environment with 30.9%. 23.2 and participants make their investment decisions based on information on the internet, while 17.2% make their decisions based on television news. While 12.2% have an investment decision with the recommendation of the spouse, 15.9% people make an investment decision according to the written press. Three among the survey participants did not answer this question.

In Table 2, the distribution of the participants according to the status of following the financial markets is given. In the responses given by the participants regarding the frequency of following the financial markets; they marked 16.4% very closely, 24% closely, 19.3% not following at all. The most marked option is the expression I follow as it corresponds to 40.2%.

6.3.3. Findings of Propositions about Behavioral Trends

In this part of the study, the propositions of behavioral finance trends directed to the participants were evaluated in order to measure the extent to which the participants carried the trends subject to the behavioral finance approach. In the studies in the literature, it was aimed to reveal the behavioral tendencies of the investors in İzmir province based on the proposals prepared differently in proportion to the trends shown by the investors.

Table 3: Behavioral Trends

	Frequency	**Valid Percent**
CONFIDENCE1	***517***	***100%***

Table 3 (cont'd)

I agree	109	21.1%
Undecided	65	12.6%
I do not agree	343	66.3%
CONFIDENCE2	***517***	***100%***
I agree	133	25.7%
Undecided	58	11.2%
I do not agree	326	63.1%
CONFIDENCE3	***517***	***100%***
I agree	365	70.6%
Undecided	54	10.4%
I do not agree	98	19%
REGRET1	***516***	***100%***
I agree	143	27.7%
Undecided	104	20.1%
I do not agree	269	52%
REGRET2	***516***	***100%***
I agree	306	59.2%
Undecided	84	16.2%
I do not agree	127	24.6%
REGRET3	***517***	***100%***
I agree	309	59.8%
Undecided	94	18.2%
I do not agree	114	22.1%
REGRET4	***517***	***100%***
I agree	211	40.8%

Table 3 (cont'd)

Undecided	104	20.1%
I do not agree	202	39.1%
HERD1	***516***	***100%***
I agree	255	49.3%
Undecided	107	20.7%
I do not agree	154	29.8%
HERD2	***517***	***100%***
I agree	338	65.4%
Undecided	77	14.9%
I do not agree	102	19.7%
HERD3	***517***	***100%***
I agree	101	19.5%
Undecided	66	12.8%
I do not agree	350	67.7%

Table 3 shows the distribution of the participants according to the overconfidence status. In the responses of the participants regarding overconfidence; 21.1% agree, 12.6% undecided, 66.3% disagree. The most marked option is the disagree with 66.3%.

Table 3 gives the distribution of the participants according to the overconfidence status. In the responses of the participants regarding overconfidence; 25.7% agree, 11.2% undecided, 63.1% disagree. The most marked option is the disagree with 63.1%.

Table 3 shows the distribution of the participants according to the overconfidence status. In the responses of the participants regarding overconfidence; 70.6% agree, 10.4% undecided, 19% disagree. The most marked option is the statement I agree with 70.6%.

Table 3 shows the distribution of the participants according to the regret aversion status. In the responses of the participants about regret aversion; 27.7% agree, 20.1% undecided, 52% disagree. The most marked option is the disagree with 70.6%.

Table 3 shows the distribution of the participants according to the regret aversion status. In the responses of the participants about regret aversion; they marked 59.2% agree, 16.2% undecided, 24.6% disagree. The most marked option is Agree with 59.2%.

Table 3 shows the distribution of participants according to the regret aversion status. In the responses of the participants about regret aversion; 59.8% agree, 18.2% undecided, 22.1% disagree. The most marked option is Agree with 59.8%.

Table 3 presents the distribution according to the state of regret aversion participants. In the responses of the participants about regret aversion; 40.8% agree, 20.1% undecided, 39.1% disagree. The most marked option is I agree with 40.8%.

Table 3 shows the distribution of participants by herd psychology. In the responses of the participants about herd psychology; they selected 49.3% agree, 20.7% undecided, 29.8% disagree. The most marked option is I agree with 49.3%.

Table 3 shows the distribution of participants by herd psychology. In the responses of the participants about herd psychology; they marked 65.4% agree, 14.9% undecided, 19.7% disagree. The most marked option is Agree with 65.4%.

Table 3 shows the distribution of participants by herd psychology. In the responses of the participants about herd psychology; they marked 19.5% agree, 12.8% undecided and 67.7% disagree. The most marked option is 67.7% with disagree.

6.3.4. Findings Related to Behavioral Finance

Table 4: Behavioral Finance

	Frequency	**Valid Percent**
BEHAVIORAL1	***517***	***100%***

Table 4 (cont'd)

Yes	315	60.9%
No	202	39.1%
BEHAVIORAL2	***517***	***100%***
Yes	168	32.5%
No	349	67.5%
BEHAVIORAL3	***517***	***100%***
Yes	126	24.4%
No	391	75.6%
BEHAVIORAL4	***517***	***100%***
Yes	315	60.9%
No	202	39.1%

Table 4 presents the distribution of the participants according to their behavioral financial status. In the responses of the participants regarding behavioral finance; they marked 60.9% yes, 39.1% no.

Table 4 shows the distribution of participants by behavioral financial status. In the responses of the participants regarding behavioral finance; they marked 32.5% yes, 67.5% no.

Table 4 shows the distribution of participants by behavioral financial status. In the responses of the participants regarding behavioral finance; they marked 24.4% yes, 75.6% no.

Table 4 shows the distribution of participants by behavioral financial status. In the responses of the participants regarding behavioral finance; they marked 60.9% yes, 39.1% no.

6.3.5. Chi-Square Analysis of Demographic and Financial Features

GENDER ANALYSIS

H_0: Gender has no effect on investment decisions.

H_1: Gender has an effect on investment decisions.

In this analysis, it was investigated whether the gender factor had an impact on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 5: The effect of gender on investment decisions

H_0	Pearson Chi-Square	df	Asymp. Sig.
Gender has no effect on what to invest.	**19.857**	**6**	**0.000**
Gender has no effect on who is effective in investment decisions.	**23.717**	**4**	**0.000**
Gender has no effect on interest in financial markets.	**21.268**	**3**	**0.000**

χ^2 (chi-square) value (19.857) is significant. (d.f. = 6, p = 0,000) H_0 is rejected, therefore, gender has an effect on investment decisions. Men invest more in women in

proportions, shares, dividends and treasury bills. Women evaluate their investment in foreign currency, gold and cash.

Table 6: Investment preferences of gender

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**
Which one do you invest in?	**69** **9.2%**	**69** **9.2%**	**148** **19.7%**	**131** **17.4%**	**63** **8.4%**	**54** **7.2%**	**218** **29%**
Women	13	15	32	59	13	22	124
Men	56	54	116	72	50	32	94

χ^2 (chi-square) value (23.717) is significant. (d.f. = 4, p = 0,000) H_0 is rejected, therefore, gender has an effect on investment decisions. While men make investment decisions according to social environment and television news compared to women, women mostly invest in internet and spouse advice.

Table 7: Investment factors of gender

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**226** **30.2%**	**82** **10.9%**	**117** **15.6%**	**144** **19.2%**	**180** **24%**

Table 7 (cont'd)

Women	92	44	47	34	60
Men	134	38	70	110	120

χ^2 (chi-square) value (21.268) is significant. (d.f. = 3, p = 0,000) H_0 is rejected, therefore, gender has an effect on investment decisions. Men follow financial markets more closely than women. Women have marked more and more I do not follow.

Table 8: Investment tracking of gender

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**140** **18.6%**	**184** **24.4%**	**291** **38.6%**	**139** **18.4%**
Women	30	64	123	61
Men	110	120	168	78

H_0: Gender has no effect on overconfidence.

H_1: Gender has an effect on overconfidence.

In this analysis, it was investigated whether the gender factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 9: The effect of gender on overconfidence

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Gender has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**21.663**	**2**	**0.000**
Gender has no effect on the answer given to: "I only get information about my financial investment from my environment".	**14.618**	**2**	**0.001**
Gender has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**18.696**	**2**	**0.000**

χ^2 (chi-square) value (21.663) is significant. (d.f. = 2, p = 0,000) H_0 is rejected, therefore, gender has an effect on the overconfidence. “I do not receive information

from other people about financial investment, my own knowledge is correct." In response to her testimony, men marked more I agree, while women marked more I disagree.

χ^2 (chi-square) value (14.648) is significant. (d.f. = 2, p = 0,001) H_0 is rejected, therefore, gender has an effect on the overconfidence. All participants answered "I disagree" to this question in general. However, the "I agree" rate of men is much higher than that of women.

χ^2 (chi-square) value (18.696) is significant. (d.f. = 2, p = 0,000) H_0 is rejected, therefore, gender has an effect on the overconfidence. In response to the statement "I do not want to make a mistake about financial investment, I get information from everyone", while women chose the more undecided option than men, the men mostly stated that I agree.

Table 10: Gender and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**168** **22.3%**	**82** **10.9%**	**504** **66.8%**
Women	48	48	182
Men	120	34	322
I only get information about my financial investment from my environment	**194** **25.7%**	**74** **9.8%**	**486** **64.5%**
Women	72	42	164
Men	122	32	322

Table 10 (cont'd)

I do not want to make mistakes about financial investment, I get information from everyone	**543** **72%**	**67** **8.9%**	**144** **19.1%**
Women	187	41	50
Men	356	26	94

H_0: Gender has no effect on regret aversion.

H_1: Gender has an effect on regret aversion.

In this analysis, it has been investigated whether gender factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dispose of it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have any financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents said, "The investment tool preferred by the majority of investors always provides the highest return." That statement was asked.

Table 11: The effect of gender on regret aversion

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**

Table 11 (cont'd)

Gender has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**0.093**	**2**	**0.955**
Gender has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**4.007**	**2**	**0.135**
Gender has no effect on the answer given to: "If I have a loss in financial investment, I expect to sell it at the purchase cost".	**2.105**	**2**	**0.349**
Gender has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**28.265**	**2**	**0.000**

χ^2 (chi-square) value (0.093) is insignificant. (d.f. = 2, p = 0.955) H_0 cannot be rejected, therefore, gender has no effect on regret aversion. In the first question, most

of the men and women marked the statement “disagree”. Gender does not affect this situation, as it has the same view on both sides.

χ^2 (chi-square) value (4.007) is significant. (d.f. = 2, p = 0.135) H_0 cannot be rejected, therefore, gender has no effect on regret aversion. In the second question, most of the men and women marked the statement "I agree" with the proposition. Gender does not affect this situation, as it has the same view on both sides.

χ^2 (chi-square) value (2.105) is significant. (d.f. = 2, p = 0.349) H_0 cannot be rejected, therefore, gender has no effect on regret aversion. In the third question, most of the men and women marked the statement "I agree". Gender does not affect this situation, as it has the same view on both sides.

χ^2 (chi-square) value (28.265) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, gender has an effect on regret aversion. In the fourth question, most of the women marked “I agree”, while most of the men marked “I disagree”. As a result of the four propositions, the answers were the same, except for the final one. When we compare this proposition with women's investment decisions in the previous analysis, there is a situation related to men's investment decisions.

Table 12: Gender and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**210** **27.9%**	**151** **20.1%**	**392** **52.1%**
Women	76	57	144
Men	134	94	248
If I have a loss in financial investment, I keep it until my loss is covered	**445** **59%**	**117** **15.5%**	**192** **25.5%**

Table 12 (cont'd)

Women	165	51	62
Men	280	66	130
If I have a loss in financial investment, I expect to sell it at the purchase cost	**447** **59.3%**	**136** **18%**	**171** **22.7%**
Women	171	52	55
Men	276	84	116
The investment tool, which is preferred by the majority of investors, always provides the highest return	**310** **41.1%**	**132** **17.5%**	**312** **41.4%**
Women	112	74	92
Men	198	58	220

H_0: Gender has no effect on herd psychology.

H_1: Gender has an effect on herd psychology.

In this analysis, it has been investigated whether the gender factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority ".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 13: The effect of gender on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Gender has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**18.559**	**2**	**0.000**
Gender has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**15.870**	**2**	**0.000**
Gender has no effect on the answer given to: "I do not take into account the preferences of other investors".	**11.531**	**2**	**0.003**

χ^2 (chi-square) value (18.559) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, gender has an effect on herd psychology. Most of the women in the proposition in the first question marked the phrase "I agree". Among male participants, the expression “disagree” is more than double compared to women.

χ^2 (chi-square) value (15.870) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, gender has an effect on herd psychology. While most women see the statement “I agree” to the proposition in the second question, we can say that men are not affected by the decisions of other investors.

χ^2 (chi-square) value (11.531) is significant. (d.f. = 2, p = 0.003) H_0 is rejected, therefore, gender has an effect on herd psychology. While most of the men use the statement “disagree” in the third question, the proportions of women are close to each other in all three cases.

Table 14: Gender and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**380** **50.5%**	**139** **18.5%**	**234** **31.1%**
Women	130	73	74
Men	250	66	160
I consider the preferences of other investors and shape the investment I want to make accordingly	**494** **65.5%**	**100** **13.3%**	**160** **21.2%**
Women	182	52	44
Men	312	48	116
I do not take into account the preferences of other investors	**148** **19.6%**	**86** **11.4%**	**520** **69%**
Women	52	46	180
Men	96	40	340

H_0: Gender has no effect on behavioral finance.

H_1: Gender has an effect on behavioral finance.

In this analysis, it has been investigated whether gender factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will bring you to change your mind?" statement was asked.

Table 15: The effect of gender on behavioral finance

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Gender has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**38.728**	**1**	**0.000**

Table 15 (cont'd)

Gender has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**25.713**	**1**	**0.000**
Gender has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**1.355**	**1**	**0.244**

Table 15 (cont'd)

Gender has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**7.811**	**1**	**0.005**

χ^2 (chi-square) value (38.728) is significant. (d.f. = 1, p = 0.000) H_0 is rejected, therefore, gender has an effect on behavioral finance. While most of the women answered "yes" to the proposition in the first question, the majority of the men answered "no".

χ^2 (chi-square) value (25.713) is significant. (d.f. = 1, p = 0.000) H_0 is rejected, therefore, gender has an effect on behavioral finance. While most of the women answered "no" to the proposition in the second question, men answered "yes-no" almost half.

χ^2 (chi-square) value (1.355) is significant. (d.f. = 1, p = 0.244) H_0 cannot be rejected, therefore, gender has no effect on behavioral finance. In the third question, the majority of both men and women answered "no". . Gender does not affect this situation, as it has the same view on both sides.

χ^2 (chi-square) value (7.811) is significant. (d.f. = 1, p = 0.005) H_0 is rejected, therefore, gender has an effect on behavioral finance. While the majority of women answered "yes" to the proposition in the fourth question, men's answers are very close to each other.

Table 16: Gender and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**429** **56.9%**	**325** **43.1%**
Women	199	79
Men	230	246
Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**269** **35.7%**	**485** **64.3%**
Women	67	211
Men	202	274
Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**189** **25.1%**	**565** **74.9%**
Women	63	215
Men	126	350

Table 16 (cont'd)

Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**447** **59.3%**	**307** **40.7%**
Women	183	95
Men	264	212

AGE ANALYSIS

H_0: Age has no effect on investment decisions.

H_1: Age has an effect on investment decisions.

In this analysis, it has been investigated whether the age factor has an effect on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 17: The effect of age on investment decisions

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Age has no effect on what to invest.	**166.900**	**24**	**0.000**

Table 17 (cont'd)

Age has no effect on who is effective in investment decisions.	**128.955**	**16**	**0.000**
Age has no effect on interest in financial markets.	**63.173**	**12**	**0.000**

χ^2 (chi-square) value (166.900) is significant. (d.f. = 24, p = 0.000) H_0 is rejected, therefore, age has an effect on investment decisions. According to the results of the survey, survey participants between the ages of 18-35 do not invest in stocks, treasury bills, and dividends. This age group mostly prefers cash, gold and foreign currency.

Table 18: Investment preferences of age

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**
Which one do you invest in?	**130** **8.4%**	**149** **9.7%**	**278** **18%**	**279** **18.1%**	**120** **7.8%**	**129** **8.4%**	**457** **29.6%**
18-25	2	1	10	13	2	2	36
26-35	26	14	36	38	18	18	84
36-45	27	45	81	87	42	24	132

Table 18 (cont'd)

46-55	40	24	96	116	28	60	160
55 +	35	65	55	25	30	25	45

χ^2 (chi-square) value (128.955) is significant. (d.f. = 16, p = 0.000) H_0 is rejected, therefore, age has an effect on investment decisions. According to the results of the research, participants aged 36 and over take more attention to print media, television and the social environment in terms of investment than other participants.

Table 19: Investment factors of age

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**463** **30.2%**	**194** **12.7%**	**267** **17.4%**	**293** **19.1%**	**314** **20.5%**
18-25	22	3	5	7	30
26-35	86	26	32	32	58
36-45	126	81	69	87	72
46-55	144	64	116	72	124
55 +	85	20	45	95	30

χ^2 (chi-square) value (63.173) is significant. (d.f. = 12, p = 0.000) H_0 is rejected, therefore, age has an effect on investment decisions. According to the results of the

research, participants between the ages of 18-35 follow the financial markets as they coincide.

Table 20: Investment tracking of age

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**262** **17%**	**396** **25.7%**	**615** **39.9%**	**270** **17.5%**
18-25	8	11	26	22
26-35	38	46	98	52
36-45	84	108	171	75
46-55	72	156	240	56
55 +	60	75	80	65

H_0: Age has no effect on overconfidence.

H_1: Age has an effect on overconfidence.

In this analysis, it was investigated whether the age factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 21: The effect of age on overconfidence

H_0	Pearson Chi-Square	df	Asymp. Sig.
Age has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**33.120**	**8**	**0.000**
Age has no effect on the answer given to: "I only get information about my financial investment from my environment".	**47.230**	**8**	**0.000**
Age has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**30.955**	**8**	**0.000**

χ^2 (chi-square) value (33.120) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on the overconfidence. According to the results of the research, the survey participants between the ages of 18-35 marked the statement "disagree", while the other participants turned to "I agree-undecided".

χ^2 (chi-square) value (47.230) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on the overconfidence. According to the results of the

research, participants aged 36 and over marked the "I agree" statement. Getting information from the environment is more common in this age range.

χ^2 (chi-square) value (30.955) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on the overconfidence. According to the results of the research, while the survey participants between the ages of 18-35 marked the statement "I agree", the other participants turned to "I do not agree-I am undecided".

Table 22: Age and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**353** **22.9%**	**186** **12.1%**	**1004** **65.1%**
18-25	8	12	47
26-35	50	32	152
36-45	81	42	315
46-55	124	60	340
55 +	90	40	150
I only get information about my financial investment from my environment	**379** **24.6%**	**173** **11.2%**	**991** **64.2%**

Table 22 (cont'd)

18-25	21	7	39
26-35	58	30	146
36-45	141	48	249
46-55	84	48	392
55 +	75	40	165
I do not want to make mistakes about financial investment, I get information from everyone	**1106** **71,7%**	**144** **9,3%**	**293** **19%**
18-25	43	12	12
26-35	154	32	48
36-45	324	27	87
46-55	400	48	76
55 +	185	25	70

H_0: Age has no effect on regret aversion.

H_1: Age has an effect on regret aversion.

In this analysis, it is investigated whether the age factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dispose of it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have any financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents said, "The investment tool preferred by the majority of investors always provides the highest return." That statement was asked.

Table 23: The effect of age on regret aversion

H_0	Pearson Chi-Square	df	Asymp. Sig.
Age has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**50.956**	**8**	**0.000**
Age has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**46.022**	**8**	**0.000**
Age has no effect on the answer given to: "If I have a loss in financial investment, I expect to sell it at the purchase cost".	**49.473**	**8**	**0.000**
Age has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**33.976**	**8**	**0.000**

χ^2 (chi-square) value (50.956) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on regret aversion. According to the results of the research, the survey participants between the ages of 18-35 marked the statement "disagree", while the other participants turned to "I agree-undecided".

χ^2 (chi-square) value (46.022) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on regret aversion. According to the researches, when the age range increases, the option of "I agree" has increased.

χ^2 (chi-square) value (49.473) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on regret aversion. According to the researches, when the age range increased, the “I disagree” option increased.

χ^2 (chi-square) value (33.976) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on regret aversion. According to the research, survey participants aged 36 and over marked the statement "I agree" to this question according to other participants.

Table 24: Age and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**447** **29%**	**275** **17.9%**	**818** **53.1%**
18-25	16	20	31
26-35	68	58	108
36-45	93	84	258
46-55	160	88	276
55 +	110	25	145

Table 24 (cont'd)

If I have a loss in financial investment, I keep it until my loss is covered	**898** **58.2%**	**235** **15.2%**	**410** **26.6%**
18-25	37	17	13
26-35	154	30	50
36-45	270	75	93
46-55	292	88	144
55 +	145	25	110
If I have a loss in financial investment, I expect to sell it at the purchase cost	**941** **61%**	**257** **16.7%**	**345** **22.4%**
18-25	38	15	14
26-35	116	52	66
36-45	294	84	60
46-55	328	76	120
55 +	165	30	85

Table 24 (cont'd)

The investment tool, which is preferred by the majority of investors, always provides the highest return	**666** **43.2%**	**279** **18.1%**	**598** **38.8%**
18-25	21	20	26
26-35	82	62	90
36-45	183	75	180
46-55	240	72	212
55 +	140	50	90

H_0: Age has no effect on herd psychology.

H_1: Age has an effect on herd psychology.

In this analysis, it is investigated whether the age factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority ".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 25: The effect of age on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Age has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**38.067**	**8**	**0.000**
Age has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**42.134**	**8**	**0.000**
Age has no effect on the answer given to: "I do not take into account the preferences of other investors".	**23.427**	**8**	**0.003**

χ^2 (chi-square) value (18.559) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on herd psychology. According to the results of the research, the survey participants between the ages of 18-35 marked the statement "disagree", while the other participants turned to "I agree-undecided". As age increases, the effect of conformity increases.

χ^2 (chi-square) value (18.559) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, age has an effect on herd psychology. According to the results of the research, while the survey participants between the ages of 18-35 marked the statement "I agree", the other participants turned to "I do not agree-I am undecided".

χ^2 (chi-square) value (18.559) is significant. (d.f. = 8, p = 0.003) H_0 is rejected, therefore, age has an effect on herd psychology. According to the research, survey participants aged 36 and over marked the statement "disagree" to this question, according to other participants. Young investors take less consideration of other investors' preferences.

Table 26: Age and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**817** **53.1%**	**288** **18.7%**	**435** **28.2%**
18-25	20	23	24
26-35	98	52	84
36-45	231	84	120
46-55	308	84	132
55 +	160	45	75
I consider the preferences of other investors and shape the investment I want to make accordingly	**1049** **68%**	**207** **13.4%**	**287** **18.6%**
18-25	37	14	16
26-35	130	44	60
36-45	297	66	75
46-55	400	48	76
55 +	185	35	60

Table 26 (cont'd)

I do not take into account the preferences of other investors	**296** **19.2%**	**182** **11.8%**	**1065** **69%**
18-25	13	13	41
26-35	56	38	140
36-45	75	36	327
46-55	92	60	372
55 +	60	35	185

H_0: Age has no effect on behavioral finance.

H_1: Age has an effect on behavioral finance.

In this analysis, it has been investigated whether the age factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will win, will you change your mind?" That statement was asked.

Table 27: The effect of age on behavioral finance

H_0	Pearson Chi-Square	df	Asymp. Sig.
Age has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**41.501**	**4**	**0.000**
Age has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**96.595**	**4**	**0.000**

Table 27 (cont'd)

Age has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**43.460**	**4**	**0.000**
Age has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**2.001**	**4**	**0.736**

χ^2 (chi-square) value (38.728) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, age has an effect on behavioral finance. According to the results of the research, the survey participants between the ages of 18-35 answered "yes" to this question, while the other participants answered "no" to this question.

χ^2 (chi-square) value (38.728) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, age has an effect on behavioral finance. According to the results of the research, survey participants aged 46 and over responded to this question as "no", while young investors marked the "yes" option.

χ^2 (chi-square) value (38.728) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, age has an effect on behavioral finance. According to the results of the research, the answer of "no" increases as the age of the survey participants increases.

Young investors can invest more easily in line with the information received from the immediate environment.

χ^2 (chi-square) value (1.355) is significant. (d.f. = 4, p = 0.736) H_0 cannot be rejected, therefore, age has no effect on behavioral finance. According to the results of the research, while the survey participants between the ages of 18-35 answered "yes" to this question, the answer to the "no" stands out in the table in which the age range increases.

Table 28: Age and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**906** **58.7%**	**637** **41.3%**
18-25	46	21
26-35	144	90
36-45	288	150
46-55	308	216
55 +	120	160
Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**528** **34.2%**	**1015** **65.8%**

Table 28 (cont'd)

18-25	19	48
26-35	80	154
36-45	120	318
46-55	144	380
55 +	165	115
Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**384** **24.9%**	**1159** **75.1%**
18-25	17	50
26-35	56	178
36-45	105	333
46-55	96	428
55 +	110	170
Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**950** **61.6%**	**593** **38.4%**
18-25	39	28
26-35	136	98
36-45	276	162
46-55	324	200

Table 28 (cont'd)

55 +	175	105

MARITAL STATUS ANALYSIS

H_0: Marital status has no effect on investment decisions.

H_1: Marital status has an effect on investment decisions.

In this analysis, it has been investigated whether the marital status factor has an effect on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 29: The effect of marital status on investment decisions

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Marital status has no effect on what to invest.	**19.694**	**6**	**0.003**
Marital status has no effect on who is effective in investment decisions.	**44.370**	**4**	**0.000**
Marital status has no effect on interest in financial markets.	**24.273**	**3**	**0.000**

χ^2 (chi-square) value (19.694) is significant. (d.f. = 6, p = 0.003) H_0 is rejected, therefore, marital status has an effect on investment decisions. According to the

research results, while married people invest in gold, foreign currency and real estate, single people accumulate more cash.

Table 30: Investment preferences of marital status

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**
Which one do you invest in?	**62** **7.5%**	**63** **7.6%**	**149** **18%**	**166** **20.1%**	**59** **7.1%**	**64** **7.7%**	**263** **31.8%**
Single	20	21	31	24	17	14	79
Married	42	42	118	142	42	50	184

χ^2 (chi-square) value (44.370) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, marital status has an effect on investment decisions. According to the results of the research, single participants are investing on television and internet news, while married participants are mostly investing on social environment, spouse advice.

Table 31: Investment factors of marital status

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**250** **30.4%**	**124** **15.1%**	**127** **15.5%**	**140** **17%**	**181** **22%**
Single	70	2	37	38	59
Married	180	122	90	102	122

χ^2 (chi-square) value (166.900) is significant. (d.f. = 24, p = 0.000) H_0 is rejected, therefore, marital status has an effect on investment decisions. According to the results of the research, married people follow financial markets more closely than single people.

Table 32: Investment tracking of marital status

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**137** **16.6%**	**212** **25.6%**	**335** **40.5%**	**143** **17.3%**
Single	33	36	81	57

Table 32 (cont'd)

Married	104	176	254	86

H_0: Marital status has no effect on overconfidence.

H_1: Marital status has an effect on overconfidence.

In this analysis, it was investigated whether the marital status factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 33: The effect of marital status on overconfidence

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Marital status has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**13.024**	**2**	**0.001**
Marital status has no effect on the answer given to: "I only get information about my financial investment from my environment".	**0.100**	**2**	**0.951**

Table 33 (cont'd)

Marital status has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**13.256**	**2**	**0.001**

χ^2 (chi-square) value (13.024) is significant. (d.f. = 2, p = 0.001) H_0 is rejected, therefore, marital status has an effect on the overconfidence. According to the results of the research, single people chose the expression "I agree" in this question, while the preference of married people in this question was "I disagree".

χ^2 (chi-square) value (0.100) is insignificant. (d.f. = 2, p = 0.951) H_0 cannot be rejected, therefore, marital status has no effect on the overconfidence. According to the results of the research, both parties deemed "disagree" to this question. In this case, there is no difference for this question.

χ^2 (chi-square) value (13.256) is significant. (d.f. = 2, p = 0.001) H_0 is rejected, therefore, marital status has an effect on the overconfidence. According to the results of the research, while most of the married people answer "I agree", the answers of single people "I am indecisive-disagree" are very close to each other.

Table 34: Marital status and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**161** **19.5%**	**102** **12.3%**	**564** **68.2%**

Table 34 (cont'd)

Single	57	28	122
Married	104	74	442
I only get information about my financial investment from my environment	**214** **25.9%**	**93** **11.2%**	**520** **62.9%**
Single	52	23	132
Married	162	70	388
I do not want to make mistakes about financial investment, I get information from everyone	**600** **72.6%**	**80** **9.7%**	**147** **17.8%**
Single	130	28	49
Married	470	52	98

H_0: Marital status has no effect on regret aversion.

H_1: Marital status has an effect on regret aversion.

In this analysis, it is investigated whether the marital status factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question

expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dispose of it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have any financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents said, "The investment tool preferred by the majority of investors always provides the highest return." That statement was asked.

Table 35: The effect of marital status on regret aversion

H_0	Pearson Chi-Square	df	Asymp. Sig.
Marital status has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**3.784**	**2**	**0.151**
Marital status has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**2.322**	**2**	**0.313**

Table 35 (cont'd)

Marital status has no effect on the answer given to: ".If I have a loss in financial investment, I expect to sell it at the purchase cost".	**15.331**	**2**	**0.000**
Marital status has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**2.987**	**2**	**0.225**

χ^2 (chi-square) value (3.784) is significant. (d.f. = 2, p = 0.151) H_0 cannot be rejected, therefore, marital status has no effect on the regret aversion. According to the results of the research, both parties found the option "disagree" to this question appropriate. In this case, there is no difference for this question.

χ^2 (chi-square) value (2.322) is significant. (d.f. = 2, p = 0.313) H_0 cannot be rejected, therefore, marital status has no effect on the regret aversion. According to the results of the research, both parties found the option "I agree" to this question appropriate. In this case, there is no difference for this question.

χ^2 (chi-square) value (15.331) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, marital status has an effect on the regret aversion. According to the results of the research, while most of the married people marked the "I agree" option, most single people chose the "I disagree-I am undecided" option. Married people expect to sell at a much higher cost than single people.

χ^2 (chi-square) value (2.987) is significant. (d.f. = 2, p = 0.225) H_0 cannot be rejected, therefore, marital status has no effect on the regret aversion. According to the results of the research, married people deemed “agree” and “disagree” with the same number of people. People who say “I am indecisive” are half of this figure. The "agree" and "disagree" complaints of single people to this question are very close to each other. In this case, there is no difference for this question.

Table 36: Marital status and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**221** **26.8%**	**165** **20%**	**439** **53.2%**
Single	65	43	99
Married	156	122	340
If I have a loss in financial investment, I keep it until my loss is covered	**496** **60%**	**134** **16.2%**	**197** **23.8%**
Single	116	34	57
Married	380	100	140

Table 36 (cont'd)

If I have a loss in financial investment, I expect to sell it at the purchase cost	**509** **61.5%**	**151** **18.3%**	**167** **20.2%**
Single	109	37	61
Married	400	114	106
The investment tool, which is preferred by the majority of investors, always provides the highest return	**338** **40.9%**	**160** **19.3%**	**329** **39.8%**
Single	84	48	75
Married	254	112	254

H_0: Marital status has no effect on herd psychology.

H_1: Marital status has an effect on herd psychology.

In this analysis, it has been investigated whether the marital status factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority ".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 37: The effect of marital status on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Marital status has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**18.348**	**2**	**0.000**
Marital status has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**16.066**	**2**	**0.000**
Marital status has no effect on the answer given to: "I do not take into account the preferences of other investors".	**13.869**	**2**	**0.001**

χ^2 (chi-square) value (18.348) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, marital status has an effect on herd psychology. According to the results of the research, while married individuals answer "I agree" to this question, single people are unstable in this question. The results are very close for all three options.

χ^2 (chi-square) value (16.066) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, marital status has an effect on herd psychology. According to the results of the research, while married individuals answer "I agree" to this question, single people are unstable in this question. The results are very close for all three options.

χ^2 (chi-square) value (13.869) is significant. (d.f. = 2, p = 0.001) H_0 is rejected, therefore, marital status has an effect on herd psychology. According to the results of

the research, while married individuals answered "I don't agree" to this question, single people answered "I agree" to this question.

Table 38: Marital status and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**429** **52%**	**162** **19.6%**	**234** **28.4%**
Single	81	52	74
Married	348	110	160
I consider the preferences of other investors and shape the investment I want to make accordingly	**555** **67.1%**	**124** **15%**	**148** **17.9%**
Single	121	30	56
Married	434	94	92
I do not take into account the preferences of other investors	**148** **17.9%**	**104** **12.6%**	**575** **69.5%**
Single	54	28	125
Married	94	76	450

H_0: Marital status has no effect on behavioral finance.

H_1: Marital status has an effect on behavioral finance.

In this analysis, it has been investigated whether the marital status factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will bring you to change your mind?" That statement was asked.

Table 39: The effect of age on behavioral finance

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Marital status has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**7.402**	**1**	**0.007**

Table 39 (cont'd)

Marital status has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**22.718**	**1**	**0.000**
Marital status has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**7.595**	**1**	**0.006**
Marital status has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**3.559**	**1**	**0.059**

χ^2 (chi-square) value (7.402) is significant. (d.f. = 1, p = 0.007) H_0 is rejected, therefore, marital status has an effect on behavioral finance. According to the research

result, while married people answered “yes” to this question, most single people answered “no”.

χ^2 (chi-square) value (22.718) is significant. (d.f. = 1, p = 0.000) H_0 is rejected, therefore, marital status has an effect on behavioral finance. According to the research result, while married people answered “yes” to this question, most single people answered “no”.

χ^2 (chi-square) value (7.595) is significant. (d.f. = 1, p = 0.006) H_0 is rejected, therefore, marital status has an effect on behavioral finance. According to the research result, while married people answered “yes” to this question, most single people answered “no”.

χ^2 (chi-square) value (3.559) is significant. (d.f. = 1, p = 0.059) H_0 cannot be rejected, therefore, marital status has no effect on behavioral finance. According to the results of the research, both parties found the option "yes" to this question appropriate. In this case, there is no difference for this question.

Table 40: Marital status and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**517** **62.5%**	**310** **37.5%**
Single	113	94
Married	404	216

Table 40 (cont'd)

Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**247** **29.9%**	**580** **70.1%**
Single	89	118
Married	158	462
Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**190** **23%**	**637** **77%**
Single	62	145
Married	128	492
Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**513** **62%**	**314** **38%**
Single	117	90
Married	396	224

EDUCATION LEVEL ANALYSIS

H_0: Education level has no effect on investment decisions.

H_1: Education level has an effect on investment decisions.

In this analysis, it has been investigated whether the educational status factor has an effect on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 41: The effect of education level on investment decisions

H_0	Pearson Chi-Square	df	Asymp. Sig.
Education level has no effect on what to invest.	**321.521**	**30**	**0.000**
Education level has no effect on who is effective in investment decisions.	**389.170**	**20**	**0.000**
Education level has no effect on interest in financial markets.	**328.502**	**15**	**0.000**

χ^2 (chi-square) value (321.521) is significant. (d.f. = 30, p = 0.000) H_0 is rejected, therefore, education level has an effect on investment decisions. According to the results of the research, undergraduate / graduate / doctorate graduates invest more than high school and primary school graduates.

Table 42: Investment preferences of education level

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**
Which one do you invest in?	**184** **7.7%**	**156** **6.5%**	**446** **18.6%**	**435** **18.2%**	**168** **7%**	**178** **7.4%**	**826** **34.5%**
Primary school	3	5	0	2	3	2	2
Middle School	6	4	0	8	4	2	16
Primary education	6	21	18	12	0	0	15
High school	36	72	56	104	60	48	144
University	55	30	240	225	35	90	355
Master / PhD	78	24	132	84	66	36	294

χ^2 (chi-square) value (389.170) is significant. (d.f. = 20, p = 0.000) H_0 is rejected, therefore, education level has an effect on investment decisions. According to the results of the research, high school and primary school graduates make their investment decisions according to television news, while other participants get more information about investment from the print media, internet and social environment.

Table 43: Investment factors of education level

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**765** **32.1%**	**264** **11.1%**	**389** **16.3%**	**357** **15%**	**608** **25.5%**
Primary school	4	5	2	5	1
Middle School	6	8	6	12	8
Primary education	9	3	9	48	3
High school	164	88	100	116	52
University	360	130	110	110	310
Master / PhD	222	30	162	66	234

χ^2 (chi-square) value (328.502) is significant. (d.f. = 15, p = 0.000) H_0 is rejected, therefore, education level has an effect on investment decisions. According to the research results, undergraduate / graduate / doctorate graduates follow financial markets more closely than high school and primary school graduates.

Table 44: Investment tracking of education level

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**408** **17%**	**603** **25.1%**	**972** **40.5%**	**415** **17.3%**
Primary school	5	3	5	4
Middle School	6	0	18	16
Primary education	0	0	27	45
High school	96	128	176	120
University	85	310	500	140
Master / PhD	216	162	246	90

H_0: Education level has no effect on overconfidence.

H_1: Education level has an effect on overconfidence.

In this analysis, it was investigated whether the education level factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 45: The effect of education level on overconfidence

H_0	Pearson Chi-Square	df	Asymp. Sig.
Education level has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**141.476**	**10**	**0.000**
Education level has no effect on the answer given to: "I only get information about my financial investment from my environment".	**67.708**	**10**	**0.000**
Education level has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**138.087**	**10**	**0.000**

χ^2 (chi-square) value (13.024) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the overconfidence. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I disagree" to this question, while high school and primary school graduates answered "I agree" to this question.

χ^2 (chi-square) value (13.024) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the overconfidence. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I disagree" to this question, while high school and primary school graduates answered this question as "I agree-undecided".

χ^2 (chi-square) value (13.024) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the overconfidence. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I agree" to this question, while high school and primary school graduates answered "I disagree" to this question.

Table 46: Education level and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**451** **18.8%**	**307** **12.8%**	**1640** **68.4%**
Primary school	7	2	8
Middle School	18	4	18
Primary education	30	3	39
High school	144	48	328
University	150	190	695
Master / PhD	102	60	552
I only get information about my financial investment from my environment	**587** **24.5%**	**267** **11.1%**	**1544** **64.4%**
Primary school	5	4	8

Table 46 (cont'd)

Middle School	16	4	20
Primary education	42	9	21
High school	132	40	348
University	230	120	685
Master / PhD	162	90	462
I do not want to make mistakes about financial investment, I get information from everyone	**1743** **72.7%**	**251** **10.5%**	**404** **16.8%**
Primary school	8	3	6
Middle School	22	4	14
Primary education	42	0	30
High school	356	40	124
University	715	150	170
Master / PhD	600	54	60

H_0: Education level has no effect on regret aversion.

H_1: Education level has an effect on regret aversion.

In this analysis, it has been investigated whether the educational status factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dismiss it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have a financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents say, “The investment tool preferred by the majority of investors always provides the highest return.” That statement was asked.

Table 47: The effect of education level on regret aversion

H_0	Pearson Chi-Square	df	Asymp. Sig.
Education level has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**115.476**	**10**	**0.000**
Education level has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**136.337**	**10**	**0.000**
Education level has no effect on the answer given to: ".If I have a loss in financial investment, I expect to sell it at the purchase cost".	**183.045**	**10**	**0.000**
Education level has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**52.366**	**10**	**0.000**

χ^2 (chi-square) value (115.476) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the regret aversion. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I disagree" to this question, while high school and primary school graduates answered "I agree" to this question.

χ^2 (chi-square) value (136.337) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the regret aversion. According to the results of the research, undergraduate / graduate / doctorate graduates answered "I agree" to this question, while high school and primary school graduates answered "I disagree" to this question.

χ^2 (chi-square) value (183.045) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the regret aversion. According to the results of the research, undergraduate / graduate / doctorate graduates answered "I agree" to this question, while high school and primary school graduates answered "I disagree" to this question.

χ^2 (chi-square) value (52.366) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the regret aversion. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I disagree" to this question, while high school and primary school graduates answered "I agree" to this question.

Table 48: Education level and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**600** **25.1%**	**498** **20.8%**	**1296** **54.1%**
Primary school	11	1	5
Middle School	22	2	16

Table 48 (cont'd)

Primary education	24	12	36
High school	172	104	240
University	245	265	525
Master / PhD	126	114	474
If I have a loss in financial investment, I keep it until my loss is covered	**1468** **61.2%**	**409** **17.1%**	**521** **21.7%**
Primary school	3	1	13
Middle School	22	2	16
Primary education	48	3	21
High school	268	76	176
University	635	225	175
Master / PhD	492	102	120
If I have a loss in financial investment, I expect to sell it at the purchase cost	**1467** **61.2%**	**450** **18.8%**	**481** **20.1%**
Primary school	9	2	6
Middle School	24	4	12
Primary education	39	3	30
High school	284	76	160
University	565	275	195

Table 48 (cont'd)

Master / PhD	546	90	78
The investment tool, which is preferred by the majority of investors, always provides the highest return	**965** **40.2%**	**487** **20.3%**	**946** **39.4%**
Primary school	9	3	5
Middle School	24	4	12
Primary education	30	18	24
High school	216	88	216
University	350	260	425
Master / PhD	336	114	264

H_0: Education level has no effect on herd psychology.

H_1: Education level has an effect on herd psychology.

In this analysis, it has been investigated whether the educational status factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority ".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 49: The effect of education level on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Education level has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**29.896**	**10**	**0.001**
Education level has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**93.997**	**10**	**0.000**
Education level has no effect on the answer given to: "I do not take into account the preferences of other investors".	**112.776**	**10**	**0.000**

χ^2 (chi-square) value (52.366) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the herd psychology. According to the results of the research, undergraduate / graduate / doctorate graduates gave the answer "I agree" to this question, while high school and primary school graduates answered "I disagree" to this question.

χ^2 (chi-square) value (52.366) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the herd psychology. According to the results of the research, undergraduate / graduate / doctorate graduates answered "I agree" to this question, while high school and primary school graduates answered "I disagree" to this question.

χ^2 (chi-square) value (52.366) is significant. (d.f. = 10, p = 0.000) H_0 is rejected, therefore, education level has an effect on the herd psychology. According to the

results of the research, undergraduate / graduate / doctorate graduates gave the answer "I disagree" to this question, while high school and primary school graduates answered "I agree" to this question.

Table 50: Education level and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**1189** **49.7%**	**506** **21.1%**	**699** **29.2%**
Primary school	8	3	6
Middle School	22	4	14
Primary education	36	12	24
High school	248	96	172
University	485	265	285
Master / PhD	390	126	198
I consider the preferences of other investors and shape the investment I want to make accordingly	**1604** **66.9%**	**366** **15.3%**	**428** **17.8%**
Primary school	8	2	7
Middle School	26	4	10
Primary education	36	12	24
High school	324	56	140

Table 50 (cont'd)

University	670	190	175
Master / PhD	540	102	72
I do not take into account the preferences of other investors	**413** **17.2%**	**304** **12.7%**	**1681** **70.1%**
Primary school	7	3	7
Middle School	16	4	20
Primary education	24	9	39
High school	140	60	320
University	160	150	725
Master / PhD	66	78	570

H_0: Education level has no effect on behavioral finance.

H_1: Education level has an effect on behavioral finance.

In this analysis, it has been investigated whether the educational status factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new

information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will win, will you change your mind?" That statement was asked.

Table 51: The effect of education level on behavioral finance

H_0	Pearson Chi-Square	df	Asymp. Sig.
Education level has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**156.240**	**5**	**0.000**
Education level has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**289.809**	**5**	**0.000**

Table 51 (cont'd)

Education level has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**140.839**	**5**	**0.000**
Education level has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**14.158**	**5**	**0.015**

χ^2 (chi-square) value (156.240) is significant. (d.f. = 5, p = 0.000) H_0 is rejected, therefore, education level has an effect on behavioral finance. According to the results of the research, undergraduate / graduate / doctorate graduates answered "yes" to this question, while high school and primary school graduates answered "no" to this question.

χ^2 (chi-square) value (289.809) is significant. (d.f. = 5, p = 0.000) H_0 is rejected, therefore, education level has an effect on behavioral finance. According to the results of the research, undergraduate / graduate / doctorate graduates answered "no" to this question, while high school and primary school graduates answered "yes" to this question.

χ^2 (chi-square) value (140.839) is significant. (d.f. = 5, p = 0.000) H_0 is rejected, therefore, education level has an effect on behavioral finance. According to the results of the research, undergraduate / graduate / doctorate graduates answered "no" to this question, while high school and primary school graduates answered "yes" to this question.

χ^2 (chi-square) value (14.158) is significant. (d.f. = 5, p = 0.015) H_0 is rejected, therefore, education level has an effect on behavioral finance. According to the results of the research, undergraduate / graduate / doctorate graduates answered "no" to this question, while high school and primary school graduates gave the average "yes-no" answers to this question.

Table 52: Education level and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**1525** **63.6%**	**873** **36.4%**
Primary school	5	12
Middle School	12	28
Primary education	27	45
High school	264	256
University	785	250
Master / PhD	432	282
Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**676** **28.2%**	**1722** **71.8%**

Table 52 (cont'd)

Primary school	14	3
Middle School	26	14
Primary education	60	12
High school	228	292
University	180	855
Master / PhD	168	546
Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**512** **21.4%**	**1886** **78.6%**
Primary school	11	6
Middle School	18	22
Primary education	39	33
High school	164	356
University	160	875
Master / PhD	120	594
Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**1455** **60.7%**	**943** **39.3%**
Primary school	9	8

Table 52 (cont'd)

Middle School	24	16
Primary education	57	15
High school	328	192
University	605	430
Master / PhD	432	282

PROFESSION ANALYSIS

H_0: Profession has no effect on investment decisions.

H_1: Profession has an effect on investment decisions.

In this analysis, it has been investigated whether the profession factor has an effect on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 53: The effect of profession on investment decisions

H_0	**Pearson Chi-Square**	**Df**	**Asymp. Sig.**
Profession has no effect on what to invest.	**141.217**	**24**	**0.000**

Table 53 (cont'd)

Profession has no effect on who is effective in investment decisions.	**85.142**	**16**	**0.000**
Profession has no effect on interest in financial markets.	**113.681**	**12**	**0.000**

χ^2 (chi-square) value (141.521) is significant. (d.f. = 24, p = 0.000) H_0 is rejected, therefore, profession has an effect on investment decisions. According to researches, while people working in the private sector invest more in foreign currency and gold than people working in the public sector, those who retire and self-employed are more likely to hold their investment in cash.

Table 54: Investment preferences of profession

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**
Which one do you invest in?	**93** **7.7%**	**112** **9.2%**	**192** **15.9%**	**223** **18.4%**	**87** **7.2%**	**102** **8.4%**	**402** **33.2%**
Public	13	6	28	28	7	10	56
Private sector	20	26	68	64	34	22	92
Self-employment	27	42	39	30	30	21	57
Retired	28	28	32	56	16	24	72

χ^2 (chi-square) value (85.142) is significant. (d.f. = 16, p = 0.000) H_0 is rejected, therefore, profession has an effect on investment decisions. According to research, public personnel and self-employed people make their investment decisions influenced by the social environment, private sector employees receive information from the internet, while retirees invest more according to television news.

Table 55: Investment factors of profession

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**362** **29.9%**	**152** **12.5%**	**199** **16.4%**	**225** **18.6%**	**274** **22.6%**
Public	56	18	15	23	36
Private sector	86	34	64	48	90
Self-employment	57	30	57	63	39
Retired	88	20	48	56	44

χ^2 (chi-square) value (113.681) is significant. (d.f. = 12, p = 0.000) H_0 is rejected, therefore, profession has an effect on investment decisions. According to research, private sector employees and self-employed people follow financial markets more closely than retirees and public personnel.

Table 56: Investment tracking of profession

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**180** **14.8%**	**307** **25.2%**	**469** **38.6%**	**260** **21.4%**
Public	26	36	58	28
Private sector	66	64	146	50
Self-employment	45	63	87	51
Retired	28	104	88	36

H_0: Profession has no effect on overconfidence.

H_1: Profession has an effect on overconfidence.

In this analysis, it was investigated whether the profession factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 57: The effect of profession on overconfidence

H_0	Pearson Chi-Square	Df	Asymp. Sig.
Profession has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**52.022**	**8**	**0.000**
Profession has no effect on the answer given to: "I only get information about my financial investment from my environment".	**31.330**	**8**	**0.000**
Profession has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**44.730**	**8**	**0.000**

χ^2 (chi-square) value (52.022) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the overconfidence. According to the researches, self-employed and public personnel responded to this proposition as "I agree", while the other participants replied "I do not agree".

χ^2 (chi-square) value (31.330) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the overconfidence. According to the researches, while private sector employees and self-employed responded to this proposition as "disagree", those with public personnel and retirees concentrated on "I agree-undecided".

χ^2 (chi-square) value (44.730) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the overconfidence. According to the researches, self-employed and public personnel answered "disagree" to this proposition, while other participants answered "I agree".

Table 58: Profession and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**267** **22%**	**168** **13.8%**	**781** **64.2%**
Public	22	17	109
Private sector	80	36	210
Self-employment	57	15	174
Retired	68	40	148
I only get information about my financial investment from my environment	**325** **26.7%**	**132** **10.9%**	**759** **62.4%**
Public	43	18	87
Private sector	68	34	224
Self-employment	63	27	156
Retired	56	28	172

Table 58 (cont'd)

I do not want to make mistakes about financial investment, I get information from everyone	**840** **69.1%**	**126** **10.4%**	**250** **20.6%**
Public	112	19	17
Private sector	230	26	70
Self-employment	177	30	39
Retired	156	16	84

H_0: Profession has no effect on regret aversion.

H_1: Profession has an effect on regret aversion.

In this analysis, it was investigated whether the profession factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dispose of it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have any financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents said, "The investment tool preferred by the majority of investors always provides the highest return." That statement was asked.

Table 59: The effect of profession on regret aversion

H_0	Pearson Chi-Square	df	Asymp. Sig.
Profession has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**80.471**	**8**	**0.000**
Profession has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**76.732**	**8**	**0.000**
Profession has no effect on the answer given to: ".If I have a loss in financial investment, I expect to sell it at the purchase cost".	**22.320**	**8**	**0.004**
Profession has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**42.204**	**8**	**0.000**

χ^2 (chi-square) value (80.471) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the regret aversion. According to the researches,

while private sector employees and self-employed responded "do not agree", public personnel and retirees are concentrated on "agree-undecided".

χ^2 (chi-square) value (76.732) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the regret aversion. According to the researches, while private sector employees and self-employed responded "I agree", public personnel and retirees are focused on "I disagree-I am undecided".

χ^2 (chi-square) value (22.320) is significant. (d.f. = 8, p = 0.004) H_0 is rejected, therefore, profession has an effect on the regret aversion. According to the researches, while public personnel and self-employed responded "I agree", private sector staff and retirees are focused on "disagree-undecided".

χ^2 (chi-square) value (42.204) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the regret aversion. According to the researches, while private sector employees and self-employed responded "I agree", public employees and retirees are focused on "I agree-I am indecisive".

Table 60: Profession and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**392** **32.3%**	**222** **18.3%**	**601** **49.5%**
Public	27	42	78
Private sector	78	48	200
Self-employment	75	51	120
Retired	92	36	128
If I have a loss in financial investment, I keep it until my loss is covered	**688** **56.6%**	**203** **16.7%**	**325** **26.7%**

Table 60 (cont'd)

Public	88	28	32
Private sector	218	36	72
Self-employment	150	33	63
Retired	152	36	68
If I have a loss in financial investment, I expect to sell it at the purchase cost	**707** **58.1%**	**220** **18.1%**	**289** **23.8%**
Public	95	26	27
Private sector	196	68	62
Self-employment	138	39	69
Retired	148	32	76
The investment tool, which is preferred by the majority of investors, always provides the highest return	**499** **41%**	**266** **21.9%**	**451** **37.1%**
Public	56	24	68
Private sector	130	72	124
Self-employment	117	45	84
Retired	116	40	100

H_0: Profession has no effect on herd psychology.

H_1: Profession has an effect on herd psychology.

In this analysis, it is investigated whether the profession factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority ".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 61: The effect of profession on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Profession has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**82.770**	**8**	**0.000**
Profession has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**22.832**	**8**	**0.004**
Profession has no effect on the answer given to: "I do not take into account the preferences of other investors".	**64.395**	**8**	**0.000**

χ^2 (chi-square) value (82.770) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the herd psychology. According to the researches, while private sector employees and self-employed responded "I agree", public employees and retirees are focused on "I agree-I am indecisive".

χ^2 (chi-square) value (22.832) is significant. (d.f. = 8, p = 0.004) H_0 is rejected, therefore, profession has an effect on the herd psychology. According to the researches, while public personnel and self-employed responded "I agree", private sector staff and retirees are focused on "disagree-undecided".

χ^2 (chi-square) value (64.395) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, profession has an effect on the herd psychology. According to the researches, while public personnel and self-employed responded as "disagree", private sector personnel and retirees focused on "agree-undecided".

Table 62: Profession and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**583** **48%**	**280** **23%**	**352** **29%**
Public	87	25	35
Private sector	136	68	122
Self-employment	144	39	63
Retired	136	48	72
I consider the preferences of other investors and shape the investment I want to make accordingly	**774** **63.7%**	**182** **15%**	**260** **21.4%**

Table 62 (cont'd)

Public	106	20	22
Private sector	208	48	70
Self-employment	162	27	57
Retired	168	32	56
I do not take into account the preferences of other investors	**247** **20.3%**	**171** **14.1%**	**798** **65.6%**
Public	24	17	107
Private sector	66	36	224
Self-employment	54	24	168
Retired	68	24	164

H_0: Profession has no effect on behavioral finance.

H_1: Profession has an effect on behavioral finance.

In this analysis, it has been investigated whether the profession factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new

information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will bring you to change your mind?" That statement was asked.

Table 63: The effect of profession on behavioral finance

H_0	Pearson Chi-Square	df	Asymp. Sig.
Profession has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**38.848**	**4**	**0.000**
Profession has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**71.509**	**4**	**0.000**

Table 63 (cont'd)

Profession has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**35.451**	**4**	**0.000**
Profession has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**21.228**	**4**	**0.000**

χ^2 (chi-square) value (38.848) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, profession has an effect on behavioral finance. According to the researches, while public employees and retirees answered "yes" to this question, private sector employees and self-employed responded "no" to this question.

χ^2 (chi-square) value (71.509) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, profession has an effect on behavioral finance. According to the researches, while public and private sector employees answered "no" to this question, self-employed people answered "yes" to this question.

χ^2 (chi-square) value (35.451) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, profession has an effect on behavioral finance. According to the researches, while the private sector employees and self-employed people largely answered "no" to this question, the rate of "yes" answers given by public personnel and retirees to this question is higher.

χ^2 (chi-square) value (21.228) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, profession has an effect on behavioral finance. According to the researches, while self-employed and retirees mostly answer "yes", the rate of "no" answer given by private sector employees and public personnel to this question is high.

Table 64: Profession and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**724** **59.5%**	**492** **40.5%**
Public	101	47
Private sector	188	138
Self-employment	108	138
Retired	172	84
Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**437** **35.9%**	**779** **64.1%**
Public	36	112
Private sector	86	240
Self-employment	141	105
Retired	84	172

Table 64 (cont'd)

Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**334** **27.5%**	**882** **72.5%**
Public	31	117
Private sector	62	264
Self-employment	87	159
Retired	64	192
Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**775** **63.7%**	**441** **36.3%**
Public	89	59
Private sector	180	146
Self-employment	159	87
Retired	172	84

MONTHLY INCOME ANALYSIS

H_0: Monthly income has no effect on investment decisions.

H_1: Monthly income has an effect on investment decisions.

In this analysis, it has been investigated whether the monthly income status has an effect on investment decisions. In the question expressed as Investment1, the participants of the questionnaire were asked which one they invested. Options include stock, dividend, currency, gold, treasury bill, real estate and cash options.

In the question expressed as investment2, the questionnaire was asked who was effective in investment decisions. Options include the social environment, spouse, print media, television and the internet.

In the question expressed as investment3, questionnaire participants were asked about the levels of following the financial markets. Options include very closely, closely, sometimes, never follow-up.

Table 65: The effect of monthly income on investment decisions

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Monthly income has no effect on what to invest.	**33.831**	**12**	**0.001**
Monthly income has no effect on who is effective in investment decisions.	**50.849**	**8**	**0.000**
Monthly income has no effect on interest in financial markets.	**57.589**	**4**	**0.000**

χ^2 (chi-square) value (33.831) is significant. (d.f. = 12, p = 0.001) H_0 is rejected, therefore, monthly income has an effect on investment decisions. According to the researches, those who earn between 0-2000 TL monthly keep the money in cash, while those who earn 2000-4000 TL monthly invest the most. Those who earn 4000 TL or more per month invest in foreign currency.

Table 66: Investment preferences of monthly income

	Stock	**Profit share**	**Foreign currency**	**Gold**	**Treasury bond**	**Real estate**	**Cash**

Table 66 (cont'd)

Which one do you invest in?	**98** **8.1%**	**95** **7.9%**	**230** **19%**	**215** **17.8%**	**90** **7.4%**	**97** **8%**	**384** **31.8%**
0-2000 TL	6	6	9	17	4	2	34
2000-4000 TL	26	38	44	66	32	32	122
4000 TL +	66	51	177	132	54	63	228

χ^2 (chi-square) value (50.849) is significant. (d.f. = 8, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on investment decisions. According to the researches, those who earn between 0-2000 TL monthly make their investment decisions according to the social environment and television news, while those who earn 2000-4000 TL monthly take into account the internet news. Those who earn 4000 TL or more monthly make an investment decision according to the press reports.

Table 67: Investment factors of monthly income

	Social environment	**Spouse**	**Print media**	**Television**	**Internet**
Which is more effective in your investment decisions?	**375** **31.2%**	**141** **11.7%**	**204** **17%**	**188** **15.6%**	**294** **24.5%**

Table 67 (cont'd)

0-2000 TL	25	10	8	19	17
2000-4000 TL	110	56	46	82	64
4000 TL +	240	75	150	87	213

χ^2 (chi-square) value (57.589) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on investment decisions. According to the researches, those who earn between 0-2000 TL monthly do not follow the financial markets at all, while those who earn 2000-4000 TL monthly follow them as they come. Those who earn 4000 TL or more monthly follow financial markets more closely.

Table 68: Investment tracking of monthly income

	Very closely	**Closely**	**Sometimes**	**Never follow**
What is your level of following financial markets?	**217** **17.9%**	**320** **26.4%**	**479** **39.6%**	**194** **16%**
0-2000 TL	7	10	31	31
2000-4000 TL	48	64	160	88
4000 TL +	162	246	288	75

H_0: Monthly income has no effect on overconfidence.

H_1: Monthly income has an effect on overconfidence.

In this analysis, it was investigated whether the monthly income factor had an effect on overconfidence. The triple likert scale was used in all three questions. In the question expressed as Confidence1, the questionnaire asked the participants, "I do not

receive information from other people about financial investment, my own knowledge is correct." proposition was asked.

In the question expressed as Confidence2, the questionnaire asked the participants "I only get information about financial investment from my environment." proposition was asked.

In the question expressed as Confidence3, the questionnaire responded to the question "I do not want to make mistakes about financial investment, I get information from everyone." proposition was asked.

Table 69: The effect of monthly income on overconfidence

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**
Monthly income has no effect on the answer given to: "I do not receive information from other people about financial investment. My own information is correct".	**57.589**	**4**	**0.000**
Monthly income has no effect on the answer given to: "I only get information about my financial investment from my environment".	**10.080**	**4**	**0.039**
Monthly income has no effect on the answer given to: "I do not want to make mistakes about financial investment, I get information from everyone".	**55.349**	**4**	**0.000**

χ^2 (chi-square) value (57.589) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the overconfidence. According to the researches, those who earn 4000 TL or more per month answer "I disagree" to this question, while the answers of other participants are on "I agree-I am undecided".

χ^2 (chi-square) value (10.080) is significant. (d.f. = 4, p = 0.039) H_0 cannot be rejected, therefore, monthly income has no effect on the overconfidence. According to the researches, those who earn 4000 TL or more per month answer "I disagree" to this question, while the answers of other participants are on "I agree-I am undecided".

χ^2 (chi-square) value (55.349) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the overconfidence. According to the researches, those who earn 4000 TL or more per month answer "I agree" to this question, while the answers of other participants are on "I do not agree-I am undecided".

Table 70: Monthly income and overconfidence relationship

	I agree	**Undecided**	**I do not agree**
I do not receive information from other people about financial investment. My own information is correct	**225** **18.6%**	**143** **11.8%**	**842** **69.6%**
0-2000 TL	26	12	41
2000-4000 TL	100	50	210
4000 TL +	99	81	591
I only get information about my financial investment from my environment	**297** **24.5%**	**132** **10.9%**	**781** **64.5%**

Table 70 (cont'd)

0-2000 TL	26	12	41
2000-4000 TL	100	36	224
4000 TL +	171	84	516
I do not want to make mistakes about financial investment, I get information from everyone	**892** **73.7%**	**117** **9.7%**	**201** **16.6%**
0-2000 TL	41	14	24
2000-4000 TL	236	34	90
4000 TL +	615	69	87

H_0: Monthly income has no effect on regret aversion.

H_1: Monthly income has an effect on regret aversion.

In this analysis, it has been investigated whether the monthly income factor has an effect on regret aversion. The triple likert scale was used in four questions. In the question expressed as Regret1, the questionnaire was asked the statement "If I have any financial investment loss, I will immediately dispose of it".

In the question expressed as Regret2, the questionnaire was asked the statement "If I have a financial investment loss, I will hold it until my loss is met".

In the question expressed as Regret3, the participants were asked the statement "If I have any financial investment loss, I expect to sell it at the purchase cost".

In the question expressed as Regret4, the questionnaire respondents said, "The investment tool preferred by the majority of investors always provides the highest return." That statement was asked.

Table 71: The effect of monthly income on regret aversion

H_0	Pearson Chi-Square	df	Asymp. Sig.
Monthly income has no effect on the answer given to: "If I have any financial investment loss, I will immediately dispose of it".	**34.921**	**4**	**0.000**
Monthly income has no effect on the answer given to: "If I have a loss in financial investment, I keep it until my loss is covered".	**29.618**	**4**	**0.000**
Monthly income has no effect on the answer given to: ".If I have a loss in financial investment, I expect to sell it at the purchase cost".	**26.729**	**4**	**0.000**
Monthly income has no effect on the answer given to: "The investment tool, which is preferred by the majority of investors, always provides the highest return".	**14.875**	**4**	**0.005**

χ^2 (chi-square) value (34.921) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the regret aversion. According to the researches, those who earn 4000 TL or more per month answer "I disagree" to this question, while the answers of other participants are on "I agree-I am undecided".

χ^2 (chi-square) value (29.618) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the regret aversion. According to the researches, those who earn 4000 TL or more per month answer "I agree" to this question, while the answers of other participants are "I do not agree-I am undecided".

χ^2 (chi-square) value (26.729) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the regret aversion. According to the researches, those who earn 4000 TL or more per month answer "I agree" to this question, while the answers of other participants are "I do not agree-I am undecided".

χ^2 (chi-square) value (14.875) is significant. (d.f. = 4, p = 0.005) H_0 is rejected, therefore, monthly income has an effect on the regret aversion. According to the researches, those who earn 4000 TL or more per month answer "I agree" to this question, while the answers of other participants are "I do not agree-I am undecided".

Table 72: Monthly income and regret aversion relationship

	I agree	**Undecided**	**I do not agree**
If I have any financial investment loss, I will immediately dispose of it	**309** **25.6%**	**238** **19.7%**	**661** **54.7%**
0-2000 TL	32	16	31
2000-4000 TL	112	84	162
4000 TL +	165	138	468
If I have a loss in financial investment, I keep it until my loss is covered	**748** **61.8%**	**188** **15.5%**	**274** **22.6%**
0-2000 TL	32	19	28
2000-4000 TL	206	52	102

Table 72 (cont'd)

4000 TL +	510	117	144
If I have a loss in financial investment, I expect to sell it at the purchase cost	**750** **62%**	**219** **18.1%**	**241** **19.9%**
0-2000 TL	36	14	29
2000-4000 TL	204	70	86
4000 TL +	510	135	126
The investment tool, which is preferred by the majority of investors, always provides the highest return	**505** **41.7%**	**231** **19.1%**	**474** **39.2%**
0-2000 TL	31	18	30
2000-4000 TL	132	90	138
4000 TL +	342	123	306

H_0: Monthly income has no effect on herd psychology.

H_1: Monthly income has an effect on herd psychology.

In this analysis, it has been investigated whether the monthly income factor has an effect on herd psychology. In three questions, the triple likert scale was used. In the question expressed as herd1, the respondents were asked the statement "The preferences of other investors are important to me and I fit the majority".

In the question expressed as Herd2, the participants were asked the statement "I take into account the preferences of other investors, I will shape the investment I want to make".

In the question expressed as Herd3, the participants were asked the statement "I do not take into account the preferences of other investors".

Table 73: The effect of monthly income on herd psychology

H_0	Pearson Chi-Square	df	Asymp. Sig.
Monthly income has no effect on the answer given to: "The preferences of other investors are important to me and I fit the majority".	**38.954**	**4**	**0.000**
Monthly income has no effect on the answer given to: "I consider the preferences of other investors and shape the investment I want to make accordingly".	**44.553**	**4**	**0.000**
Monthly income has no effect on the answer given to: "I do not take into account the preferences of other investors".	**47.795**	**4**	**0.000**

χ^2 (chi-square) value (38.954) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the herd psychology. According to the research, the participants of the survey, who earned 4000 TL or more per month, answered "I agree" to this question, while other participants answered "I do not agree-I am undecided" to this question.

χ^2 (chi-square) value (44.553) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the herd psychology. According to the research, the participants of the survey, who earned 4000 TL or more per month,

answered "I agree" to this question, while other participants answered "I do not agree-I am undecided" to this question.

χ^2 (chi-square) value (47.795) is significant. (d.f. = 4, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on the herd psychology. According to the surveys, the participants of the survey, who earned 4000 TL or more per month, answered "I disagree" to this question, while other participants answered "I agree-I am undecided" to this question.

Table 74: Monthly income and herd psychology relationship

	I agree	**Undecided**	**I do not agree**
The preferences of other investors are important to me and I fit the majority	**637** **52.7%**	**236** **19.5%**	**335** **27.7%**
0-2000 TL	25	22	32
2000-4000 TL	156	82	120
4000 TL +	456	132	183
I consider the preferences of other investors and shape the investment I want to make accordingly	**830** **68.6%**	**169** **14%**	**211** **17.4%**
0-2000 TL	35	17	27
2000-4000 TL	222	56	82
4000 TL +	573	96	102
I do not take into account the preferences of other investors	**206** **17%**	**148** **12.2%**	**856** **70.7%**

Table 74 (cont'd)

0-2000 TL	27	11	41
2000-4000 TL	86	50	224
4000 TL +	93	87	591

H_0: Monthly income has no effect on behavioral finance.

H_1: Monthly income has an effect on behavioral finance.

In this analysis, it is investigated whether the monthly income factor has an effect on behavioral finance. There are yes-no options in all four questions. The questions referred as Behavioral1, survey participants "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?" That statement was asked.

In the question expressed as Behavioral2, the survey responded to the participants, "Let's assume that you have bought some of your stocks on the advice of others. When the value of those stocks falls, do you consider the person who helps you to buy it as your own success when the value increases?" That statement was asked.

In the question expressed as Behavioral3, the questionnaire asked the participants, "Do you make financial investments immediately in line with the new information you have acquired about the investments coming from your neighborhood?" That statement was asked.

In the question expressed as Behavioral4, the questionnaire responded, "Let's assume that if you start losing an investment tool that you believe will bring you to change your mind?" That statement was asked.

Table 75: The effect of monthly income on behavioral finance

H_0	**Pearson Chi-Square**	**df**	**Asymp. Sig.**

Table 75 (cont'd)

Monthly income has no effect on the answer given to: "Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?"	**9.119**	**2**	**0.010**
Monthly income has no effect on the answer given to: "Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?"	**37.112**	**2**	**0.000**
Monthly income has no effect on the answer given to: "Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?"	**26.901**	**2**	**0.000**

Table 75 (cont'd)

Monthly income has no effect on the answer given to: "Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?"	**1.718**	**2**	**0.424**

χ^2 (chi-square) value (9.119) is significant. (d.f. = 2, p = 0.010) H_0 is rejected, therefore, monthly income has an effect on behavioral finance. According to the researches, those who earn 4000 TL or more per month answer "yes" to this question, while other participants largely answered "no" to this question.

χ^2 (chi-square) value (37.112) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on behavioral finance. According to researches, those who earn 4000 TL or more per month answer "no" to this question, while other participants answered "yes" to this question.

χ^2 (chi-square) value (26.901) is significant. (d.f. = 2, p = 0.000) H_0 is rejected, therefore, monthly income has an effect on behavioral finance. According to the researches, those who earn 4000 TL or more per month answer "no" to this question, while other participants largely answered "yes" to this question.

χ^2 (chi-square) value (1.718) is significant. (d.f. = 2, p = 0.424) H_0 cannot be rejected, therefore, monthly income has no effect on behavioral finance. According to the research, the survey participants largely answered "yes" to this question. In this case, there is no difference for this question.

Table 76: Monthly income and behavioral finance relationship

	Yes	**No**
Let's assume that you are rich and your sister lands in present-day conditions of Turkey came to the door, separated from her husband. Would you donate a land to her?	**753** **62.2%**	**457** **37.8%**

Table 76 (cont'd)

0-2000 TL	43	36
2000-4000 TL	206	154
4000 TL +	504	267
Let's assume that you bought some of your stocks on the advice of others. When those stocks drop in value, you hold the person responsible to help you buy it, and when the value grows do you see it as your own success?	**356** **29.4%**	**854** **70.6%**
0-2000 TL	43	36
2000-4000 TL	124	236
4000 TL +	189	582
Do you make financial investments immediately on your newly acquired information about investments from your immediate environment?	**267** **22.1%**	**943** **77.9%**
0-2000 TL	31	48
2000-4000 TL	98	262
4000 TL +	138	633
Suppose that if you start losing an investment tool that you believe will bring you, would you change your mind?	**730** **60.3%**	**480** **39.7%**
0-2000 TL	52	27
2000-4000 TL	222	138

Table 76 (cont'd)

4000 TL +	456	315

CHAPTER 7: CONCLUSION

Much of the economic and financial theory is based on the principle that individuals act rationally and take into account all the information available in decision-making processes. In this framework, models have been produced for the economy and finance theory for years. Both together, it was revealed in a significant number of studies that individuals do not act rationally and do not fit the market when financial models exist. This behavior improved the behavioral finance and filled the gap and tried to better understand and explain how emotions and comprehension errors affect investors and decision-making processes. Although behavioral finance is still a controversial subject, it is the discussion of some social anomalies, market bubbles and collapses in financial markets, as well as other social sciences related to psychology and human behavior, effective markets hypothesis.

Existing traditional and modern methods such as firm value analysis, fundamental analysis, technical analysis, rational expectations theory, effective market hypothesis and modern portfolio theory used in investment analysis are inadequate to explain the abnormal situations occurring in the markets. The main reason for this situation is the assumption that the investors in the market are completely rational in the current methods and the methods were created based on this assumption. Among the traditional methods mentioned here, technical analysis is closer to behavioral finance discipline than other traditional methods. The reason for this situation is that the technical analysis takes into account the investor's investment decisions that change under the economic, monetary, political and psychological effects in the formation of the price trend in the markets. These methods neglect the sociological and psychological aspects of the investor.

It is difficult to say that today's financial markets operate in a fully effective structure. Under these circumstances, the psychology and perception of the investor significantly affects the investment decisions and therefore the market development. It consists of two dimensions: behavioral finance, limited arbitrage and investor psychology. On the one hand, the restriction of arbitrage opportunities prevents price differences between markets, at least in the short term, from being eliminated; On the other hand, the decisions that investors make with the influence of their past experiences and the environment they live shape the market. Behavioral finance does not see man as a purely rational entity and suggests that some financial events can be

better explained in this way. It provides the understanding of how psychological factors affecting human decisions and how investors actually behave, by establishing the basis of behavioral finance in the field of cognitive psychology, and by understanding how to get away from the assumptions of the expected benefit theory, especially when making decisions in risky situations.

Briefly, understanding and emotional factors play an indispensable role in financial markets. Understanding this role through behavioral finance and taking appropriate measures will contribute not only to the investment decisions of individuals, but also to the power of the general market. Therefore, the improvement of the investor's education on behavioral tendencies and deviations, improvement of public disclosure and financial reporting rules and the understanding of investor individuals will give more positive results in individuals' choices.

A field study was conducted on the evaluation of investment tools in terms of behavioral finance using the survey method. The aim of the study is to evaluate the relationship between the individual investors' financial investment tool preferences and the investor's financial profile and the behavioral profile of the investor, which consists of cognitive and emotional shortcuts that have an impact on the formation of this financial profile. For this purpose, the survey was carried out with 517 subjects by random sampling method on the basis of 95% confidence interval and 5% sampling error. The data obtained in the study were analyzed using the SPSS Statistical Package Program using chi-square test and cross tables. As the research results point out, psychological prejudices affect the behavior of individual investors. Contrary to the assumptions of the traditional approach, many investors make systematic mistakes or do not implement this even though they know the rational solution. In addition, media, friends and similar environmental factors affect investors' choices, and these processes that turn into herd behavior cause anomalies, excessive or insufficient reactions in the markets. Different suggestions have been made to prevent individual investors from being exposed to these prejudices or at least to reduce their effects. It is suggested that learning significantly eliminates psychological prejudices. In many developed capital markets, investors are tried to be trained through direct information.

Cognitive and emotional factors play an indispensable role in the financial markets. Understanding this role through behavioral finance and taking appropriate measures will contribute not only to the investment decisions of individuals, but also to the power of the general market. Therefore, the improvement of the investor's

education on behavioral tendencies and deviations, the improvement of public disclosure and financial reporting rules and the understanding of the investor individuals will yield more positive results in individuals' choices.

In summary, individual investors can show irrational behaviors in investment decisions by being influenced by psychological prejudices, which reduces the effectiveness of markets. Both the training of investors and the strategy proposals are not solutions that can completely eliminate the irrational behavior of individual investors, given the current situation. In fact, there is no need for such a definitive solution. Because, regardless of the field, human existence will always be a barrier on a standard scale. The important thing here is that investors' non-standard behaviors do not integrate. The most important work that can be done for this purpose is to comprehend the value of accumulation, the meaning of investment to communities, starting from childhood and not after being an investor. This kind of education can make a great contribution to economies especially in developing countries.

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