THE INVESTIGATION OF INVESTOR BEHAVIORS IN TERMS OF BEHAVIORAL FINANCE AND INVESTOR PSYCHOLOGY: THE CASE OF SULTANHİSAR DISTRICT

Dr. Yasemin COŞKUN

Aydın Adnan Menderes University, Turkey

yascoskunk@hotmail.com

ABSTRACT

Today, one way of understanding the activity and inactivity of the world of finance passes through understanding human because the investment decisions that individuals make or not are completely related to human, that is to say, to themselves. In this sense, the investment decisions that individuals have made or not are available for research in the field of behavioral finance and striking results have been revealed. Within this context, the aim of this study was to reveal the investor profiles of the farmers working in Sultanhisar district of Aydın province, the distinguished province of Aegean Region and to try to determine which psychological factors they were influenced by while making investment decisions. As a result of the study, investor profiles were revealed and of investor psychological bias, acquaintance delusion, overconfidence delusion, attribution delusion, representation heuristic, predisposition effect, and over optimism delusion was used. At the end of the research, it was determined that there were differences among the sub-dimensions used and suggestions were presented.

Keywords: Investor behavior, behavioral finance, investor, delusion.

1. INTRODUCTION

The world of finance, contrary to ongoing traditional finance models of the last fifty years, give wider publicity to the concepts of human and investor psychology with behavioral finance because investors do not make investment decisions depending only on financial indicators but also on how their own psychologies are effected. Within this context, by examining the concept of behavioral finance, investor psychology and which psychological bias investor psychology is effected and analyzing with SPSS 22 package program in this study, they were interpreted and it was determined that there were differences among the sub-dimensions of delusion used.

2. LITERATURE REVIEW

There are many studies in the world and in Turkey aiming to determine the profiles of the investors in the field of behavioral finance and to investigate how their moods are influenced and thus, they make investment decisions. However, because of the fact that there are no studies on farmers in Turkey until today, this study is the first one on behavioral finance implemented to farmers working in Turkey. Almost all the studies conducted so far are directed to equity share investors and these studies in Turkey are as follows:

In their study, Oran, Yılmaz and Özer (2010) aimed to investigate the presence of some perceptual deviations that are common in the literature (anchoring, reference points, biased probability evaluation and risk trends) in Turkey, which is developing and which has a fluxional environment. The data used in the study was obtained by the survey method and applied to a wide range of participants from university students through employees and retired people. As a result of the study, it was determined that the participants did not exhibit simple anchoring perceptual delusion significantly, yet the reference point effect was encouraging the present option with the existence of a safe alternative, that the perceptual deviation of the biased probability evaluation outweighed in the direction of gambler delusion and the risk tendency was highly effective on individual decisions.

The aim of the study by Kahyaoğlu and Ülkü (2012) was to examine the impact of the risk level individual equity share investors undertook, in other words the impact on their risk-taking tendencies, as a result of the risk level they perceived. In the analysis where real data in terms of the equity share purchase-sale transactions of 31 individual investors in Istanbul Stock Exchange between 1st January 2007 and 31st December 2009 was used, it was determined that

the investment decisions of individual equity share investors were sensitive to their previous performances and that this sensitivity was seen in their last one day returns.

In their study, Çömlekçi, Öncü and Çakır Çömlekçi (2015) questioned the relationship between anomaly perceptions and investor characteristics of the individual investors trading in Borsa Istanbul. The population of the study was composed of all individual investors having made equity share purchase-sale transactions in Borsa Istanbul. Sampling was used in the study and snowball sampling method was preferred. As a result of the research, it was determined that individual investors perceived anomalies as price anomalies, firm anomalies, weekday anomalies and daytime anomalies. Besides, it was concluded that there were differences in the anomaly perceptions of the investors according to their demographic characteristics and investor characteristics.

The aim of the study by Doğan (2016) was to test the relationship between investment fund preferences and behavioral finance tendencies in the private pension system. Risk perception, risk-taking attitude, emotional intelligence, basic financial literacy and advanced financial literacy variables were used as behavioral finance tendencies. In the research, the questionnaire was conducted on 400 employees of the banks in Ankara, Bursa and Mersin provinces. ANOVA, Chi-square, T-test and correlation methods were used in the study. As a result of the analyses performed, it was found that risk perception, risk-taking attitude, emotional intelligence, and basic and advanced financial literacy levels were effective on private pension investment fund preferences.

In their study, Kesbiç and Yiğit (2016) conducted a questionnaire of 36 items on the individual investors living in the urban areas of Manisa province and its districts in order to reveal the demographic characteristics influencing the individuals' investments and the importance of their knowledge about the economic conditions, social-cultural environment they were in and the economic issues. Accordingly, percentage and variance analyses were performed by using SPSS 22 program to measure the risk tendencies of the individuals according to their income, saving rates and demographic characteristics. As a result, it was found that there were significant differences among some demographic and socio-economic groups.

In their study, Angı, Bekçi and Karataş (2016) aimed to reveal whether there was a relationship between the investment decisions of individual equity share investors and demographic characteristics and cognitive bias, which was one of the psychological tendencies, and the level of this relationship, if any. For this purpose, general information was given about the cognitive

bias of the investors first. Then, a questionnaire was applied to the individual investors in the Western Mediterranean Region (Antalya, Isparta and Burdur provinces), the data obtained was tested by frequency analysis, arithmetic mean, standard deviation, two-dimensional factor analysis, T-test analysis and One-Way ANOVA, and it was found that the investment in the equity shares was preferred more by men compared to women. It was also concluded that married people invested more in equity shares.

The aim of the study by Dizarlar and Şener (2016) was to determine the risk-taking behaviors of individual investors. In the theoretical phase of the study, the developments in behavioral finance theories were examined. In the research phase, the relationship between the demographic and social characteristics of individual investors and their risk-taking behaviors was investigated. The questionnaires applied to individual investors in the research through simple random sampling method were interpreted by chi-square and frequency analysis. As a result of the research, individual investors revealed that the most significant element while investing was to be knowledgeable about the securities and the market. Besides, the presence of a "pseudo-certainty effect", which explains the characteristics of the investors who both take risk and avoid risk according to the amount they allocate for investment was also observed. In the research, it was concluded that socio-economic factors and knowledge were influential on the investors' risk-taking behaviors.

In their study, Cihangir, Şak and Bilgin (2016) attempted to examine the factors affecting risk-return preferences of individual investors by means of various demographic characteristics. Based on the individual investors in Osmaniye province, the research was conducted by using survey method on randomly selected individuals from different professions with random sampling method. The data obtained was evaluated using "Multinominal Probit Model" and it was observed that individual investors showed different risk-taking levels according to some demographic characteristics. As a result of the model estimation, it was found that of the demographic factors, gender and marital status variables were effective on the individuals' risk preferences.

The main aim of the study by İstanbullu Dinçer, Dinçer, Kulakoğlu Dilek, Altınay and Ulucan (2017) was to evaluate and argue the individual touristic investors' psychological tendencies in their investment decisions towards Turkey market within the context of behavioral finance theory. In the study, the studies conducted on the insufficiency of traditional finance theories on influencing the decision-making processes of the individuals were given first, and behavioral finance theory, which is an alternative or supplementary approach, was explained in a

comparative manner. The theoretical discussion on how behavioral finance theory takes place within the context of investment and investors in the tourism sector was given and the psychological tendencies influencing the decision-making processes of individual investors were mentioned. Finally, suggestions for future studies were developed to conduct more studies for tourist investors related to behavioral theory, which helps us to acquire how and why individual investors are making investment decisions.

In the study by Asoy and Saldanlı (2017), it was aimed to investigate the bias of overconfidence and over optimism, which are supposed to cause individuals to act irrationally in their investment decisions and which are often handled under the heading of Behavioral Finance. Based on the questionnaire applied to 423 individual investors trading in BİST (Borsa Istanbul), it was aimed to identify both these cognitive bias and the demographic factors that were thought to have impact on these bias. In line with the statistical data obtained as a result of the survey, it was noticed that individual investors trusted in their personal intuitions and analyses and they were optimistic in their expectations of the future. On the other hand, as a result of the multiple regression analysis applied, it was determined that gender, age, sector experience and monthly income were independent variables. Therefore, it was concluded that on the contrary to the assumption that traditional investment theories standardize individuals, they might be said to exhibit different attitudes according to age, gender, sector experience and monthly income.

3. BEHAVIORAL FINANCE

Traditional financial models assume that the individual is rational, expect him to act accordingly and make investment decisions. In other words, it assumes that the rational human acts according to the assumptions of the effective market hypothesis, has enough knowledge, acquires the new information immediately and is an individual who does not repeat his mistakes, which is completely a delusion today since the individual is a whole and is not just financial indicators and knowledge completing this whole. Behavioral finance has emerged in order to understand and interpret human as a whole.

In the Expectation Theory developed by Kahneman and Tversky (1979) and which is the basis of Behavioral Finance, it is suggested that individuals give different significance to income and loss at different probability levels. Contrary to Expected Utility Theory, the Expectation Theory also pays attention to psychological factors. Psychological factors cause investors to deviate systematically in the same way moving away from rationally. The Expectation Theory, which is used as a descriptive model in Kahneman and Tversky's (1979) decision-making process

under risk, and the heuristics of decision theory under uncertainty clarify many issues in the psychological dimension that traditional finance models have trouble with. In Behavioral Finance, it is emphasized that investors should be considered "normal" rather than rational. It is assumed that other variables together with risk and return are also effective in investment decisions and that investors take the decisions that best satisfy themselves instead of maximizing the benefit (Köse & Akkaya, 2016).

Behavioral finance advocates that human psychology should also be taken into consideration as it accepts human as an entity of flesh and blood as well as the knowledge of investment acquired.

Behavioral finance is a relatively new but rapidly evolving field that focuses on how human psychology affects the financial decisions in the direction of certain bias and tendencies by combining behavioral psychology with traditional economics and finance (Tufan, 2008; Bayar, 2011).

4. INVESTOR PSYCHOLOGY AND PSYCHOLOGICAL BIAS INFLUENCING INVESTOR PSYCHOLOGY

Investor psychology, which is the fundamental issue of behavioral finance, is basically related to two sciences. When investor psychology is the subject matter, investor and the science of psychology must be associated. The investor, with the most general definition, can be defined as an individual who decides to buy or sell any financial asset under uncertainty in order to obtain returns. Being a field of science on human, psychology is the most significant scientific discipline that influences the direction and position of the investment decisions that investors will take or have taken. For this reason, the most fundamental aspect of behavioral finance is investor psychology.

Investors are influenced by various factors while taking investment decisions. In addition to the quality and quantity of the investments, the behaviors and psychology of investors are the most significant of these factors. This is also the basis of the fact that many investors with similar data make different decisions (Ede, 2007).

Investors need to learn how to manage themselves as well as their knowledge of investment. While making an investment decision, emotional factors, cognitive factors and shortcuts (heuristic) are of great importance. Many psychological reasons and psychological bias (delusions) that prevent investors from making rational decisions arise (Küden, 2014).

In the study, six shortcuts were used as the shortcuts influencing the investors. Four of them are cognitive and two of them are emotional bias. For this reason, the shortcuts used in the study are as follows.

4.1. Acquaintance Delusion

Investors prefer things they know (they are acquainted with). The individuals do shopping from the shopping center they know, support the local sports team, and purchase the shares of the company they work with or they know because they are acquainted. Individuals prefer the option they have more knowledge about when they are confronted with two risky choices. Individuals sometimes choose the option they are more acquainted with even if it is highly unlikely for them to win (Heath & Tversky, 1991).

Acquaintance delusion is among the cognitive shortcuts influencing the investors.

4.2. Overconfidence Delusion

Overconfidence is a situation in which people tend to value the accuracy of knowledge more than it has to be with their level of knowledge and abilities, or in which they are extremely sure of their abilities to control the future. In other words, overconfidence causes people to overestimate their knowledge, underestimate the risks and exaggerate their ability to control the events (Ackert & Deaves, 2010). In a significant amount of the studies conducted on behavioral finance, people are generally found to feel overconfident and overestimate their abilities compared to those of others (Döm, 2003). There are three main reasons beneath overconfidence delusion, which are cognitive shortcuts in behavioral finance. These are attribution, knowledge and control delusions (Döm, 2003).

4.3. Attribution Delusion

According to the concept of attribution delusion in cognitive psychology, while people link successful outcomes to their own abilities and intense efforts, they attribute failures to external factors such as bad luck (Ansari, 2006). The fact that the individual has attribution delusion can be linked to himself. For example, people who have more arrogant attitudes are more likely to have attribution delusions. On the other hand, factors such as cultural values, gender, and attaching importance to the task undertaken are the indicators of excessive attribution delusion.

4.4. Representation Delusion

Representation delusion is based on the investors' preference of total return without paying attention to its potential by associating good shares concept with good companies. In other words, representation illusion is the illusion that prevents the investors from accurately assessing the investment and market knowledge and thus, is said to be the cause of losses (Nofsinger, 2001) because the investor cannot distinguish between the good company and the investable company. Good companies do not always mean that they are investable companies (Döm, 2003). Representation delusion is also among the cognitive shortcuts in behavioral finance.

4.5. Predisposition Effect

The fact that investors tend to keep the investments of loss for a long time and dispose the investments of profit very quickly is an emotional shortcut. According to predisposition effect, individuals do not behave rationally but act according to what their feelings say and take decisions in that way.

There are three basic points to be emphasized about predisposition effect. These include the point that previous investment returns effect subsequent risk-taking behavior, the bias towards the return expectations such as returning to the average, and the theory of regret (Döm, 2003). Individuals have a tendency to either keep the investment more than it has to be or sell it immediately because of such reasons, and thus, they exhibit predisposition effect.

PSSJ
est. 2018

4.6. Over Optimism Delusion

Over optimism delusion arises in the financial markets in the equity share recommendations of investment counsellors to their investors and in company return forecasting (Orçun, 2016). Over optimism illusion is presumed to be a mood so this delusion is included in behavioral finance as an emotional shortcut.

Banks, which are one of the most important actors of financial markets, increase their loan supply significantly with the influence of inflated balloons during the periods when economy is in a positive phase in over optimism illusion and the more the time that goes by until the

balloon fulminates the wider the loan supply is (Altunöz & Altunöz, 2017). This situation increases the volatility of the investor's emotional state.

5. MATERIAL AND METHOD

5.1. Research Method

The aim of this study was to determine the investor profiles and behaviors of the farmers and by revealing which psychological factors they were influenced by while making investment decisions, to have knowledge about investor psychologies. According to the data obtained from the Directorate of Agriculture in Sultanhisar District, Aydın province, there were 2009 farmers registered in the Farmer Registration System (FRS) in 2017. Therefore, assuming that these 2009 farmers were the population of the research, 10% of them were reached and the questionnaire was applied to 226 farmers. In the research, the questionnaire with a total of 35 questions including demographic characteristics, the questions to determine investor profile and behavior and the questions to determine investor psychology were adapted and applied by transforming from the survey prepared by Döm (2003).

PSSJ

5.2. Research Hypotheses

The hypotheses of the study are determined as follows:

H1 There is a Relationship between the Investors' Educational Status and Delusion Sub-dimensions.

H1.1 There is a relationship between the investors' educational status and acquaintance delusion.

est. 2018

H1.2 There is a relationship between the investors' educational status and overconfidence delusion.

H1.3 There is a relationship between the investors' educational status and attribution delusion.

H1.4 There is a relationship between the investors' educational status and representation heuristic.

H1.5 There is a relationship between the investors' educational status and predisposition effect.

H1.6 There is a relationship between the investors' educational status and over optimism delusion.

H2 There is a Relationship between the Investors' Age and Delusion Sub-dimensions.

H2.1 There is a relationship between the investors' age and acquaintance delusion.

H2.2 There is a relationship between the investors' age and overconfidence delusion.

H2.3 There is a relationship between the investors' age and attribution delusion.

H2.4 There is a relationship between the investors' age and representation heuristic.

H2.5 There is a relationship between the investors' age and predisposition effect.

H2.6 There is a relationship between the investors' age and over optimism delusion.

H3 There is a Relationship between the Investors' Educational Level and Delusion Sub-dimensions.

H3.1 There is a relationship between the investors' educational level and acquaintance delusion.

H3.2 There is a relationship between the investors' educational level and overconfidence delusion.

H3.3 There is a relationship between the investors' educational level and attribution delusion.

H3.4 There is a relationship between the investors' educational level and representation heuristic.

H3.5 There is a relationship between the investors' educational level and predisposition effect.

H3.6 There is a relationship between the investors' educational level and over optimism delusion.

H4 There is a Relationship between the Investors' Bias Level and Delusion Sub-dimensions.

H4.1 There is a relationship between the investors' bias level and acquaintance delusion.

H4.2 There is a relationship between the investors' bias level and overconfidence delusion.

H4.3 There is a relationship between the investors' bias level and attribution delusion.

H4.4 There is a relationship between the investors' bias level and representation heuristic.

H4.5 There is a relationship between the investors' bias level and predisposition effect.

H4.6 There is a relationship between the investors' bias level and over optimism delusion.

H5: There is a Statistically Significant Relationship among the Participants' Delusion Sub-dimensions.

5.3. Findings and Evaluation

In the analysis of the research data; Descriptive statistics were presented with frequency, percentage, mean, and standard deviation values. T-test analysis was performed in order to examine whether the sub-dimensions of delusion differed according to gender. ANOVA test was performed to examine whether the sub-dimensions differed according to age and education variables. So as to identify the different groups, LSD and Sidak paired comparison tests were performed. Correlation analysis was performed to determine the relationship among the sub-dimensions. In addition, chi-square analysis was performed to determine whether the investors' gender, age, and educational distribution differed according to bias state (those who circled option A more according to the question number 35). In the study, p values lower than 0.05 were considered as statistically significant. The analyses were performed by using SPSS 22.0 package program.

PSSJ

5.3.1. Reliability Analysis

In the questionnaire, Cronbach Alpha analysis was performed to test the reliability of the 35 items in the questionnaire regarding the measurement of the participants' financially delusion levels. At the end of the analysis, Cronbach Alpha coefficient was found 0.75. The coefficient obtained indicated that the scale was reliable enough. As the reliability coefficient was found 0.75, which was above the critical value of 0.70, no item was removed from the study.

est. 2018

5.3.2. The Demographic Characteristics of the Investors

It was found that 7% of the investors who participated in the study were female and 93% were male. It was revealed that 4% of the investors were between 21-30 years old, 24% of them were between 31-40 years old, 25% of them were between 41-50 years old, 24% of them were between 51-60 years old, and 24% of them were 61 years old or above.

Table 1: The Demographic Characteristics of the Investors

Gender	n	%
Female	15	6,6
Male	211	93,4
Age	n	%
Between 21-30	8	3,5
Between 31-40	55	24,3
Between 41-50	56	24,8
Between 51-60	54	23,9
61 years old and above	53	23,5
Education	n	%
Primary School	101	44,7
Secondary School	42	18,6
High School	58	25,7
University and Above	25	11,1

It was found that 45% of the investors were primary school graduates, 19% were secondary school graduates, 26% were high school graduates and 11% were university graduates and above.

PSSJ

5.3.3. The Investigation of Delusion Sub-dimensions According to Gender, Age and Educational Level

5.3.3.1. The Investigation of Delusion Sub-dimensions According to the Investors' Gender

Table 2: The Investigation of Delusion Sub-dimensions According to the Investors' Gender

est. 2018

The Sub-dimensions of Delusion	Gender	n	X	sd	p
Investor Profile	Female	15	2,34	0,13	**0,01***
	Male	211	2,54	0,19	
Acquaintance Delusion	Female	15	1,93	0,25	0,06
	Male	211	2,12	0,37	
Overconfidence Delusion	Female	15	4,67	1,63	0,90
	Male	211	4,62	1,42	
	Female	15	2,47	0,55	0,23

Attribution Delusion	Male	211	2,72	0,80	
Representation Heuristic	Female	15	3,67	2,35	**0,01***
	Male	211	2,30	1,86	
Optimism	Female	15	2,70	0,92	**0,03***
	Male	211	2,22	0,81	
Predisposition	Female	15	3,67	2,35	**0,01***
	Male	211	2,30	1,86	

It was found that the participants' investor profile dimension scores differed according to their gender and that investor profile levels of female investors were lower than those of male investors (p=0,01, p<0,05).

It was found that the participants' acquaintance delusion dimension scores did not differ according to their gender and that acquaintance delusion levels of female and male investors were similar (p=0,06, p>0,05).

It was found that the participants' overconfidence delusion dimension scores did not differ according to their gender and that overconfidence delusion levels of female and male investors were similar (p=0,90, p>0,05).

It was found that the participants' attribution delusion dimension scores did not differ according to their gender and that attribution delusion levels of female and male investors were similar (p=0,23, p>0,05).

It was found that the participants' representation heuristic dimension scores differed according to their gender and that representation heuristic levels of female investors were lower than those of male investors (p=0,01, p<0,05).

It was found that the participants' optimism delusion dimension scores differed according to their gender and that optimism delusion levels of female investors were lower than those of male investors (p=0,03, p<0,05).

It was found that the participants' predisposition dimension scores differed according to their gender and that predisposition levels of female investors were higher than those of male investors (p=0,01, p>0,05).

5.3.3.2. The Investigation of Delusion Sub-dimensions According to the Investors' Age

Table 3: The Investigation of Delusion Sub-dimensions According to the Investors' Age

The Sub-dimensions of Delusion	Age	n	X	sd	p
Investor Profile	Between 21-30	8	2,38	0,30	0,08
	Between 31-40	55	2,52	0,19	
	Between 41-50	56	2,51	0,17	
	Between 51-60	54	2,54	0,21	
	61 Years Old and Above	53	2,57	0,18	
Acquaintance Delusion	Between 21-30	8	2,11	0,33	0,67
	Between 31-40	55	2,14	0,37	
	Between 41-50	56	2,04	0,33	
	Between 51-60	54	2,11	0,35	
	61 Years Old and Above	53	2,13	0,41	
Overconfidence Delusion	Between 21-30	8	4,13	2,03	0,48
	Between 31-40	55	4,73	1,50	
	Between 41-50	56	4,84	1,30	
	Between 51-60	54	4,50	1,44	
	61 Years Old and Above	53	4,47	1,41	
Attribution Delusion	Between 21-30	8	2,69	0,65	0,15
	Between 31-40	55	2,72	0,71	
	Between 41-50	56	2,87	0,69	
	Between 51-60	54	2,74	0,83	
	61 Years Old and Above	53	2,48	0,90	
Representation Heuristic	Between 21-30	8	2,75	2,19	0,97
	Between 31-40	55	2,42	2,00	
	Between 41-50	56	2,45	1,95	
	Between 51-60	54	2,30	1,77	
	61 Years Old and Above	53	2,34	2,00	
Optimism	Between 21-30	8	2,25	0,80	0,10
	Between 31-40	55	2,20	0,86	
	Between 41-50	56	2,03	0,83	
	Between 51-60	54	2,36	0,82	
	61 Years Old and Above	53	2,42	0,76	
Predisposition	Between 21-30	8	2,75	2,19	0,97
	Between 31-40	55	2,42	2,00	
	Between 41-50	56	2,45	1,95	
	Between 51-60	54	2,30	1,77	
	61 Years Old and Above	53	2,34	2,00	

It was found that the participants' investor profile dimension scores did not differ according to their age and that investor profile levels of the investors between 21-30 years of age, between

31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,08, p>0,05).

It was found that the participants' acquaintance delusion dimension scores did not differ according to their age and that acquaintance delusion levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,67,p>0,05).

It was found that the participants' overconfidence delusion dimension scores did not differ according to their age and that overconfidence delusion levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,48,p>0,05).

It was found that the participants' attribution delusion dimension scores did not differ according to their age and that attribution delusion levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,15, p>0,05).

It was found that the participants' representation heuristic dimension scores did not differ according to their age and that representation heuristic levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,97, p>0,05).

It was found that the participants' optimism delusion dimension scores did not differ according to their age and that optimism delusion levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,10, p>0,05).

It was found that the participants' predisposition dimension scores did not differ according to their age and that predisposition delusion levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,97, p>0,05).

5.3.3.3. The Investigation of Delusion Sub-dimensions According to the Investors' Educational Level

Table 4: The Investigation of Delusion Sub-dimensions According to the Investors' Educational Level

The Sub-dimensions of Delusion	Educational Level	n	X	sd	p
Investor Profile	Primary School	101	2,53	0,19	**0,04***
	Secondary School	42	2,51	0,17	
	High School	58	2,57	0,20	
	University and Above	25	2,44	0,24	
Acquaintance Delusion	Primary School	101	2,10	0,35	0,75
	Secondary School	42	2,06	0,39	
	High School	58	2,12	0,38	
	University and Above	25	2,15	0,36	
Overconfidence Delusion	Primary School	101	4,69	1,48	**0,02**
	Secondary School	42	4,02	1,39	
	High School	58	4,79	1,31	
	University and Above	25	4,92	1,41	
Attribution Delusion	Primary School	101	2,75	0,81	0,33
	Secondary School	42	2,50	0,85	
	High School	58	2,75	0,76	
	University and Above	25	2,74	0,66	
Representation Heuristic	Primary School	101	2,52	1,85	0,19
	Secondary School	42	1,90	1,64	
	High School	58	2,64	2,10	
	University and Above	25	2,08	2,18	
Optimism	Primary School	101	2,34	0,81	0,23
	Secondary School	42	2,25	0,89	
	High School	58	2,22	0,76	
	University and Above	25	1,96	0,90	
Predisposition	Primary School	101	2,52	1,85	0,19
	Secondary School	42	1,90	1,64	
	High School	58	2,64	2,10	
	University and Above	25	2,08	2,18	

It was found that the participants' investor profile dimension scores differed according to their educational levels and that investor profile levels of the participants that were university graduates and above were lower than those of the participants that had lower educational levels ($p=0,04$, $p<0,05$).

It was found that the participants' acquaintance delusion dimension scores did not differ according to their educational levels and that acquaintance delusion levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar ($p=0,67$, $p>0,05$).

It was found that the participants' overconfidence delusion dimension scores differed according to their educational levels and that overconfidence delusion levels of the participants that were secondary school graduates were lower than those of the participants that were primary school, high school, university graduates and above ($p=0,02, p<0,05$).

It was found that the participants' attribution delusion dimension scores did not differ according to their educational levels and that attribution delusion levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar ($p=0,33$, $p>0,05$).

It was found that the participants' representation heuristic dimension scores did not differ according to their educational levels and that representation heuristic levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar ($p=0,19$, $p>0,05$).

It was found that the participants' optimism delusion dimension scores did not differ according to their educational levels and that optimism delusion levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar ($p=0,23$, $p>0,05$).

It was found that the participants' predisposition dimension scores did not differ according to their educational levels and that predisposition levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar ($p=0,19, p>0,05$).

5.3.4. Attributed Bias and Gender According to the Basic Cause of the Volatility in Investment Tools.

Table 5: Attributed Bias and Gender According to the Basic Cause of the Volatility in Investment Tools

Gender		**According to the Basic Cause of the Volatility in Investment Tools**		**p**
		There is Attributed Bias	There is No Attributed Bias	
Female	n	0	15	**0,01***
	%	0,0%	100,0%	

Male	n	68	143
	%	32,2%	67,8%

It was found that the genders of the participants were effective on attributed bias state and that male participants had higher levels of bias compared to female participants (p=0,01, p<0,05).

5.3.5. Attributed Bias and Age According to the Basic Cause of the Volatility in Investment Tools

It was found that the participants' attributed bias states were similar according to their age and that attributed levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar (p=0,13,p>0,05).

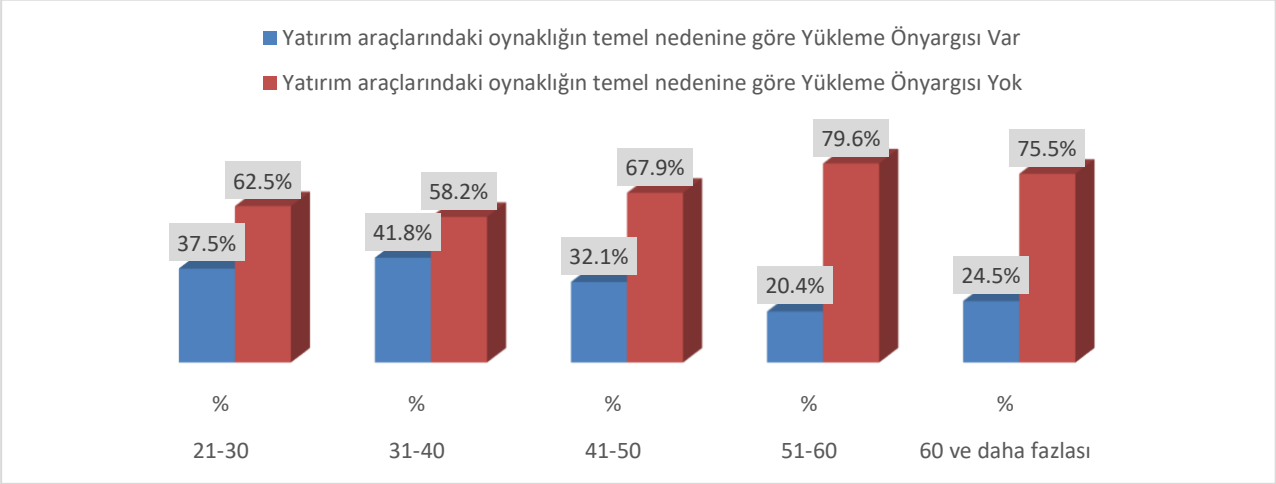

Figure 1: Attributed Bias and Age According to the Basic Cause of the Volatility in Investment Tools

5.3.6. Attributed Bias and Education According to the Basic Cause of the Volatility in Investment Tools

It was found that the participants' attributed bias states were similar according to their education and that attributed bias levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar (p=0,31, p>0,05).

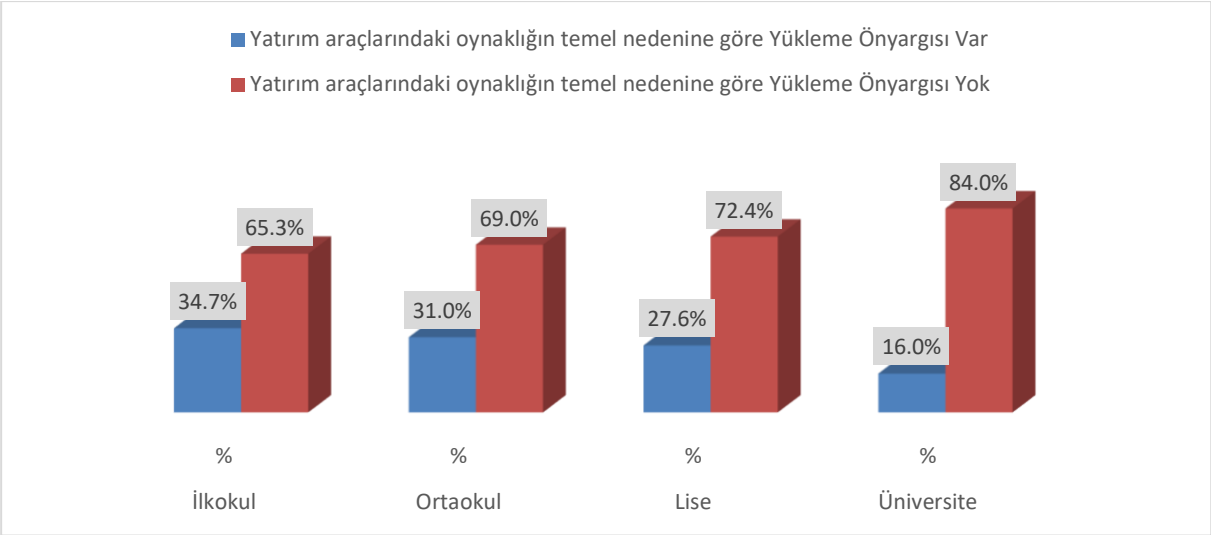

Figure 2: Attributed Bias and Education According to the Basic Cause of the Volatility in Investment Tools

5.3.7. The Investigation of the Sub-dimensions According to Attribution Bias

Table 6: The Investigation of the Sub-dimensions According to Attribution Bias

The Sub-dimensions of Delusion	According to the Basic Cause of the Volatility in Investment Tools	n	X	sd	p
Investor Profile	There is Attribution Bias	68	2,58	0,18	**0,01***
	There is No Attribution Bias	158	2,50	0,20	
Acquaintance Delusion	There is Attribution Bias	68	2,07	0,36	0,38
	There is No Attribution Bias	158	2,12	0,37	
Overconfidence Delusion	There is Attribution Bias	68	4,90	1,20	0,06
	There is No Attribution Bias	158	4,50	1,51	
Attribution Delusion	There is Attribution Bias	68	2,96	0,67	**0,01***
	There is No Attribution Bias	158	2,59	0,81	
Representation Heuristic	There is Attribution Bias	68	2,37	1,92	0,91
	There is No Attribution Bias	158	2,40	1,94	
Optimism	There is Attribution Bias	68	2,13	0,74	0,13
	There is No Attribution Bias	158	2,30	0,85	
Predisposition	There is Attribution Bias	16	1,88	1,50	0,35
	There is No Attribution Bias	38	2,32	1,66	

It was found that the participants' investor profile dimension scores differed according to having bias and that investor profile levels of the participants having bias were lower than those not having bias ($p=0,01$, $p<0,05$).

It was found that the participants' acquaintance delusion dimension scores did not differ according to having bias and that acquaintance delusion levels of the investors with bias and without bias were similar (p=0,38, p>0,05).

It was found that the participants' overconfidence delusion dimension scores did not differ according to having bias and that overconfidence delusion levels of the investors with bias and without bias were similar (p=0,06, p>0,05).

It was found that the participants' attribution delusion dimension scores differed according to having bias and that attribution delusion levels of the participants having bias were higher than those not having bias (p=0,01, p<0,05).

It was found that the participants' representation heuristic dimension scores did not differ according to having bias and that representation heuristic levels of the investors with bias and without bias were similar (p=0,91, p>0,05).

It was found that the participants' optimism delusion dimension scores did not differ according to having bias and that optimism delusion levels of the investors with bias and without bias were similar (p=0,13, p>0,05).

It was found that the participants' predisposition dimension scores did not differ according to having bias and that predisposition levels of the investors with bias and without bias were similar (p=0,35, p>0,05).

5.3.8. The Investigation of the Relationship among the Sub-dimensions

Table 7: The Investigation of the Relationship among the Sub-dimensions

		Investor Profile	Acquaintance Delusion	Overconfidence Delusion	Attribution Delusion	Representation Heuristic	Optimism	Predisposition
Investor Profile	r	1						
	p							
Acquaintance Delusion	r	-0,09	1					
	p	0,16						
Acquaintance Delusion	r	**0,27***	0,04	1				
	p	**0,01**	0,54					
	r	**0,22***	0,01	**0,38***	1			

Attribution Delusion	p	**0,01**	0,88	**0,01**				
Representation Heuristic	r	-0,01	0,01	0,03	0,01	1		
	p	0,86	0,93	0,67	0,96			
Optimism	r	**-0,17***	0,06	-0,12	**-0,28***	-0,11	1	
	p	**0,01**	0,37	0,08	**0,01**	0,09		
Predisposition	r	-0,10	0,12	-0,05	0,11	-0,03	-0,05	1
	p	0,15	0,08	0,50	0,09	0,67	0,50	

It was found that there was not a significant relationship between the participants' investor profile levels and their attribution delusion levels (p=0,88, p>0,05).

It was found that there was a positive, low level and significant relationship between the participants' investor profile levels and their overconfidence delusion levels (p=0,27, p<0,05). It was determined that the increase in the participants' investor profile levels increased their overconfidence delusion levels.

It was found that there was a positive, low level and significant relationship between the participants' investor profile levels and their attribution delusion levels (p=0,22, p<0,05). It was determined that the increase in the participants' investor profile levels increased their attribution delusion levels.

It was found that there was not a significant relationship between the participants' investor profile levels and their representation heuristic levels (p=0,01, p>0,05).

It was found that there was a negative, low level and significant relationship between the participants' investor profile levels and their optimism delusion levels (p=0,22, p<0,05). It was determined that the increase in the participants' investor profile levels decreased their optimism delusion levels.

It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their overconfidence delusion levels (p=0,54, p>0,05).

It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their attribution delusion levels (p=0,88, p>0,05).

It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their representation heuristic levels (p=0,93, p>0,05).

It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their optimism delusion levels (p=0,37, p>0,05).

It was found that there was a positive, low level and significant relationship between the participants' overconfidence delusion levels and their attribution delusion levels (p=0,38, p<0,05). It was determined that the increase in the participants' overconfidence delusion levels increased their attribution delusion levels.

It was found that there was not a significant relationship between the participants' overconfidence delusion levels and their representation heuristic levels (p=0,67, p>0,05).

It was found that there was not a significant relationship between the participants' overconfidence delusion levels and their optimism delusion levels (p=0,08, p>0,05).

It was found that there was not a significant relationship between the participants' attribution delusion levels and their representation heuristic levels (p=0,96, p>0,05).

It was found that there was a negative, low level and significant relationship between the participants' attribution delusion levels and their optimism delusion levels (p=0,01, p>0,05). It was determined that the increase in the participants' optimism delusion levels decreased their attribution delusion levels.

It was found that there was not a significant relationship between the participants' optimism delusion levels and their representation heuristic levels (p=0,09, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their investor profile levels (p=0,15, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their acquaintance delusion levels (p=0,08, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their overconfidence delusion levels (p=0,50, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their attribution delusion levels (p=0,09, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their representation heuristic levels (p=0,67, p>0,05).

It was found that there was not a significant relationship between the participants' predisposition levels and their optimism delusion levels (p=0,50, p>0,05).

6. CONCLUSION

In the study, it was found that 7% of the investors were female and 93% were male, 4% of the investors were between 21-30 years old, 24% of them were between 31-40 years old, 25% of them were between 41-50 years old, 24% of them were between 51-60 years old, and 24% of them were 61 years old or above. It was also revealed that 45% of the investors were primary school graduates, 19% were secondary school graduates, 26% were high school graduates and 11% were university graduates and above.

It was found that the participants' investor profile dimension scores, representation delusion scores and optimism (over optimism delusion) scores differed according to their gender and that investor profile levels of female investors were lower than those of male investors. It was found that the participants' acquaintance delusion dimension scores, overconfidence delusion scores and attribution delusion scores did not differ according to their gender and that acquaintance delusion levels of female and male investors were similar.

It was found that the participants' investor profile dimension scores, acquaintance delusion scores, overconfidence delusion scores, attribution scores, representation heuristic scores, and over optimism scores did not differ according to their age and that investor profile levels of the investors between 21-30 years of age, between 31-40 years of age, between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar.

It was found that the participants' investor profile and overconfidence delusion dimension scores differed according to their educational levels and that investor profile levels of the participants that were university graduates and above were lower than those of the participants that had lower educational levels. It was found that the participants' acquaintance delusion, attribution delusion, representation heuristic and optimism delusion dimension scores did not differ according to their educational levels and that acquaintance delusion levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar.

It was found that the genders of the participants were effective on attributed bias state and that male participants had higher levels of bias compared to female participants.

It was found that the participants' attributed bias states were similar according to their age and that attributed levels of the investors between 21-30 years of age, between 31-40 years of age,

between 41-50 years of age, between 51-60 years of age, and that were 61 years old and above were similar.

It was found that the participants' attributed bias states were similar according to their education and that attributed bias levels of the investors that were primary school graduates, secondary school graduates, high school graduates, and university graduates and above were similar.

It was found that the participants' investor profile dimension scores differed according to having bias and that investor profile levels of the participants having bias were lower than those not having bias. It was found that the participants' acquaintance delusion dimension scores did not differ according to having bias and that acquaintance delusion levels of the investors with bias and without bias were similar. It was found that the participants' overconfidence delusion dimension scores did not differ according to having bias and that overconfidence delusion levels of the investors with bias and without bias were similar. It was found that the participants' attribution delusion dimension scores differed according to having bias and that attribution delusion levels of the participants having bias were higher than those not having bias. It was found that the participants' representation heuristic dimension scores did not differ according to having bias and that representation heuristic levels of the investors with bias and without bias were similar. It was found that the participants' optimism delusion dimension scores did not differ according to having bias and that optimism delusion levels of the investors with bias and without bias were similar. It was found that the participants' predisposition dimension scores did not differ according to having bias and that predisposition levels of the investors with bias and without bias were similar.

It was found that there was not a significant relationship between the participants' investor profile levels and their attribution delusion levels. It was found that there was a positive, low level and significant relationship between the participants' investor profile levels and their overconfidence delusion levels. It was determined that the increase in the participants' investor profile levels increased their overconfidence delusion levels. It was found that there was a positive, low level and significant relationship between the participants' investor profile levels and their attribution delusion levels. It was determined that the increase in the participants' investor profile levels increased their attribution delusion levels. It was found that there was not a significant relationship between the participants' investor profile levels and their representation heuristic levels. It was found that there was a negative, low level and significant relationship between the participants' investor profile levels and their optimism delusion levels. It was determined that the increase in the participants' investor profile levels decreased their

optimism delusion levels. It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their overconfidence delusion levels. It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their attribution delusion levels. It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their representation heuristic levels. It was found that there was not a significant relationship between the participants' acquaintance delusion levels and their optimism delusion levels. It was found that there was a positive, low level and significant relationship between the participants' overconfidence delusion levels and their attribution delusion levels. It was determined that the increase in the participants' overconfidence delusion levels increased their attribution delusion levels. It was found that there was not a significant relationship between the participants' overconfidence delusion levels and their representation heuristic levels. It was found that there was not a significant relationship between the participants' overconfidence delusion levels and their optimism delusion levels. It was found that there was not a significant relationship between the participants' attribution delusion levels and their representation heuristic levels.

It was found that there was a negative, low level and significant relationship between the participants' attribution delusion levels and their optimism delusion levels. It was determined that the increase in the participants' optimism delusion levels decreased their attribution delusion levels. It was found that there was not a significant relationship between the participants' optimism delusion levels and other sub-dimensions.

According to the results obtained from the study, when the cognitive and emotional shortcuts influencing the investor profile and investors were examined, it was determined that gender and educational level variables were not affective and thus, by increasing the investors' financial knowledge levels (training, seminars, courses, etc.), it can be reevaluated by increasing financial awareness and financial literacy levels.

Furthermore, when the investors' delusion sub-dimension scores were examined, it was found that there was not much of a relationship among the sub-dimensions (between investor profile level and attribution delusion level, between investor profile level and representation delusion level, between acquaintance delusion and overconfidence delusion, between overconfidence delusion and optimism delusion, between attribution delusion and representation heuristic, between optimism delusion and representation heuristic), and thus, it is concluded that the personality traits that investors have can be reevaluated by examining them in detail. Together with all these, it was found that there was a positive, low level and significant relationship

between investor profile levels and overconfidence delusion levels. It was determined that the increase in the participants' profile levels increased their overconfidence delusion levels. It was also found that there was positive, low level and significant relationship between the participants' investor profile levels and their attribution delusion levels. It was determined that the increase in the participants' profile levels increased their attribution delusion levels.

REFERENCES

Ackert, L. & Deaves, R. (2010). *Behavioral Finance: Psychology, Decision-Making, and Markets,* Mason: South Western Educational Publishing.

Altunöz, U., & Altunöz, H. (2017). *Davranışsal Ekonomi: Nörofinans (Updated 2nd Ed.).* Ankara: Seçkin Yayıncılık.

Angı, G. G., Bekçi, İ., & Karataş, Ö. N. (2016). Bireysel Hisse Senedi Yatırımcılarının Bilişsel Önyargıları Üzerine Bir Araştırma. *Muhasebe ve Finansman Dergisi, Nisan/2016.*

Ansari, V. A. (2006). Behavioral Finance: A Review. *SCMS Journal of Indian Management, 3*(4), 18-28.

Asoy, E., & Saldanlı, A. (2017). Are Investors Rational? A Survey About Over-Confidence And Over-Optimism Bias In Bist. *Research Journal of Politics, Economics and Management, 5*(1).

Bayar, Y. (2011). Yatırımcı Davranışlarının Davranışçı Yaklaşım Çerçevesinde Değerlendirilmesi. *Girişimcilik ve Kalkınma Dergisi*, *6*(2), 133-160.

Cihangir, M., Şak, N., & Bilgin, Ş. (2016). Bireysel Yatırımcı Demografileri: Osmaniye İlinde Risk Getiri Tercihlerinin Multinominal Probit Modeliyle İncelenmesi. *Muhasebe ve Finansman Dergisi, 70,* 129-142.

Çömlekçi, İ., Öncü, M. A., & Çakır Çömlekçi, S. (2015). The Relation between Characteristics of Investors and Perception of Anomalies in Stock Market: A Study on Individual Investors. *Ege Academic Review, 15*(2), 173-184.

Dizdarlar, H. I., & Şener, Ö. (2016). An implementation on risk-taking behavior of investors. *International Journal of Social Sciences and Education Research Online, 2*(3), 801-814.

Doğan, M. (2016). Davranışsal Finans Eğilimleri İle Bireysel Emeklilik Fon Tercihleri Arasındaki İlişkinin Test Edilmesi: Türkiye'deki Banka Çalışanları Üzerine Bir

Uygulama. *International Journal of Management Economics and Business, 30,* 339-357.

Döm, S. (2003). *Yatırımcı Psikolojisi*. İstanbul: Değişim Yayınları.

Ede, M. (2007). Davranışsal Finans ve Bireysel Yatırımcı Davranışları Üzerine Ampirik Bir Uygulama. *Unpublished Master's Thesis, Marmara Üniversitesi Bankacılık ve Sigortacılık Enstitüsü, İstanbul.*

Heath, C., & Tversky, A. (1991). Preferences and Beliefs: Ambiguity and Competence in Choice under Uncertainty. *Journal of Risk and Uncertainty, 4*, 5-28.

İstanbullu Dinçer, F. F., Dinçer, M. Z., Kulakoğlu Dilek, N., Altınay, M., & Ulucan, E. (2017). Bireysel Turistik Yatırımcıların Psikolojik Eğilimleri: Davranışsal Finans Bağlamında Kuramsal Bir Tartışma, *4th International Congress of Tourism and Management Researchers.*

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica, 47*(2), 263-292.

Kahyaoğlu, M. B., & Ülkü, S. (2012). Effect of Representational Heuristic's On Percieved Risk: A Research On Individual Stock Investors of IMKB. *International Journal of Alanya Faculty of Business,* 4(1), 53-59.

Kesbiç, C. Y., & Yiğit, M. (2016). Bireysel Yatırım Tercihlerinde Risk Faktörünün Önemi: Manisa İli Yatırımcı Profili Analizi. *Finans Politik & Ekonomik Yorumlar, 53*(613).

Köse, A. K., & Akkaya, M. (2016). Beklenti ve Güven Anketlerinin Finansal Piyasalara Etkisi: BIST 100 Üzerine Bir Uygulama. *Bankacılar Dergisi, 99,* 3-15.

Küden, M. (2014). Davranışsal Finans Açısından Bireysel Yatırım Tercihlerinin Değerlendirilmesi. *Unpublished Master's Thesis. Gediz Üniversitesi Sosyal Bilimler Enstitüsü, İzmir.*

Nofsinger, J. R. (2001). *Investment Madness: How Psychology Affects Your Investing… and What to Do About It?*. New Jersey: Financial Times Prentice Hall.

Oran, A., Yılmaz, Ö., & Özer, G. T. (2010). Türkiye'de Algısal Sapmalar. *İşletme Fakültesi Dergisi, 11*(2), 297-307.

Orçun, Ç. (2016). Bireysel Yatırımcı Ne İster?. İzmir: Ekin Basın Yayın Dağıtım.

Tufan, E. (2008). *Davranışsal Finans*. Ankara: İmaj Yayıncılık.