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Do Institutional Investors Get Affected by Biases in Their Individual Investments?

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Abstract

This study focuses on the individual investments of employees of Turkish finance sector in capital markets. The study has two main objectives. One of these is to investigate whether or not institutional investors show "rational investor behaviors" also in relation to their individual investments. For this reason, it is aimed to reveal whether or not the institutional investor deviates from their mindset employed while they are doing their job professionally and is affected by biases when their own individual investments are in question. Another purpose of the study is to find the bias or biases among representativeness, conservatism and overconfidence biases by which Turkish institutional investors are influenced in their individual investments. For this purpose, institutional investors in Istanbul (Turkey) who could be reached by using the method of convenience sampling were directed questions on their representativeness, conservatism and overconfidence biases in their individual investment decisions, 2 hypotheses were formed for each type of bias, and these hypotheses were tested using Pearson chi-squared test. As a result of the analyses, it was observed that Turkish institutional investors were not influenced by overconfidence bias in their individual investments. On the other hand, institutional investors were found to be affected by conservatism bias. Additionally, no precise conclusion could be made regarding whether or not representativeness bias was effective on the decisions of the institutional investors about their individual investments. In the study, in general, it was concluded that the institutional investors were influenced by behavioral biases by showing normal investor behaviors under certain conditions regarding their decisions on their individual investments, rather than showing rational investor behaviors.

Keywords: Institutional investor, rational-irrational investor, representativeness bias, conservatism bias, overconfidence bias

1. Introduction

Previous studies have focused on whether individual or institutional investors get affected by behavioral biases (Barber and Odean, 2000). Chen et al. (2007) state that sophisticated investors display rational behaviors while individual investors are less sophisticated and tend to display irrational behaviors. What is wondered here is that how much the institutional investor, who is envisioned as the rational investor, can reflect his/her acquisitions like experiences and education on his/her individual investment decisions. In other words, it is whether "professional traders" (Chen et al., 2007) get affected by some biases in their individual investments by moving away from rationality.

Chen et al. (2007) assume that institutional and individual investors have different behaviors. The investment style, mindset, investment amount, and expectations of individual investors are different from institutional investors. Sharma (2006) state that professional investors make investment at greater amounts than individual investors. Additionally, institutional investors allocate more resources to look for opportunities in capital markets (Grinblatt and Keloharju, 2000). Shapira and Venezia (2001) determined that individual investors trade in capital markets less frequent than institutional investors or professionals. Some individual investors, who want to invest their savings in the capital markets but do not have sufficient knowledge, experience and time, namely, those who cannot make optimal investment decisions (Barber and Odean, 2000), prefer to trade in portfolios they have created while some others invest in financial assets created by institutional investors and use their portfolio diversification. Institutional investors direct the funds of both the individual investors and other institutional investors funds based on certain principles. De Bondt (1998) states that many individual investors have difficulty in identifying good stocks in the market and make false investment decisions due to charming behaviors of companies. Additionally, De Bondt (1998) determined that very few individual investors act in line with their financial

knowledge while making investments and very few of them are competent in using the valuation methods proposed by the finance literature.

Field and Lowery (2009) state that institutional investors may have better performance than individual investors due to their informational advantages. Institutional investors are advantageous in this situation due to the asymmetrical information disadvantage of individual investors or private information that institutional investors can easily access, their way of evaluating publicly available information, their ability to observe and education. Therefore, individual investors may not have similar performances to institutional investors. Individual investors' disadvantages in accessing information and biases affect their trading behaviors (Han and Chung, 2013). Odean (1998) determined that individual investors evaluate and interpret the information they have accessed incorrectly. Furthermore, Barber and Odean (2008) stated that individual investors trade in attractive and familiar stocks unlike professional investors. Rational professional investors are not expected to make such decisions (Field and Lowery, 2009; Barber and Odean, 2008). On the other hand, Jaiyeoba (2020) explained that it would be wrong to consider that institutional investors will make totally rational decisions. Chen et al. (2007) studied Chinese investors and found that both individual and institutional investors are affected by biases; however, individual investors were found to be affected more by biases compared to institutional investors.

This study examined the presence of three biases in the individual investments of institutional investors in relation to the individual portfolios or investments of institutional investors. In other words, this study sought answers to the questions "Do institutional investors get affected by biases in their individual investments and move away from the mentality they apply while doing their professional work?" or "How close do institutional investors get to behavioral finance in their individual investment decisions?".

This study allowed to test the approaches to the behavioral finance of institutional investors, who are rational investors, in their individual investments. The representativeness, conservatism and overconfidence biases were examined in this study. Data were collected from investors, who were institutional investors in Istanbul (Turkey) and had individual investments, using the survey method. In the introduction section of the study, the differences between individual and institutional investors and their mindset about making investments were mentioned. The remainder of the paper is organized as follows. Institutional investors, who are "professional traders" (Chen et al. 2007), are introduced in Section 2. Additionally, the literature review and hypotheses development processes are presented in Section 2. Section 3 discusses the testing of the hypotheses and includes their analyses. Finally, Section 4 provides the conclusions of the study and discusses recommendations for future research.

2. Conceptual Framework and Development of Hypotheses

Rational and irrational investor

Thaler (1999) determined that institutional or professional investors generally display rational behaviors while individual investors act like irrational investors and make predictable mistakes in their investment decisions. Many studies showed that individual investors get affected by behavioral biases in their investment decisions (Kumar and Goyal, 2016).

The decisions that investors must make may contain both normative and descriptive structures. The normative aspect of the decision is associated with predictability and rationality for institutional investors. The descriptive aspect, on the other hand, is associated with behavioral biases and can be connected to personal preferences and ideas (Kahneman and Tversky, 1984). Accordingly, Kumar and Goyal (2016) stated that rational investors follow a process while making rational investment decisions and that according to this process, they first identify the demand, then search for the necessary information and evaluate the alternatives that emerged. While conventional finance considers investors as rational (Simon, 1955), behavioral finance advocates that investors may display irrational or normal behaviors. Pompian and Longo (2004) state that rational investors (homo economicus or rational economic man) only pay attention to returns and risks while building their portfolio (Mishra and Metilda, 2015; Statman, 2005) and do not concern about behavioral biases (Barber and Odean, 2000). Investors should have correctly determined the purpose, target, decision criteria, stakeholders and measures to be taken of the investment while making their decision on asset selection (Saaty, 2008). However, this mindset is generally suitable for rational investors. Since the cognitive skills of people are different, decisions to be taken may not be rational (Kumar and Goyal, 2016). Thus, normal investors (irrational investors) are affected by and pay attention to some biases other than risks and expected return while making investment decisions (Statman, 2005). In such situations including intuitions and various psychological factors, some steps and evaluation criteria might be skipped in decision-making processes (Barber and Odean, 2001). Irrational or semi-rational investors make predictable mistakes believing that they have made a good investment decision (Thaler, 1999). Thus, irrational investors trade with less expected return compared to rational investors (Barber and Odean, 2001). Odean (1998) states that irrational investors believe in the accuracy of their knowledge on the value of the security too much; thus, exaggerating their estimations about the value of the security. Pompian and Longo (2004) stated that investors are often unaware of their tendency to make mistakes.

Do biases affect investor behaviors?

Behavioral finance models have been formed as a result of many numeric findings and many models try to explain the investor behavior. The representativeness, conservatism and overconfidence biases and their influence on investors are mentioned in the following parts.

Most psychological studies determined that individuals are affected by cognitive biases instead of rational factors while making decisions. Shefrin (2007) defines "bias as predisposition towards error." (Mishra and Metilda, 2015, p.229). He reasons this with the limited capacity of people to analyze information. Thus, investors want to quickly eliminate some of the options while evaluating the options and easily and inexpensively reach the conclusion that is considered plausible. Therefore, they consult to heuristics (bias) that are not perfect but shorten the decision-making process (Daniel et al.,2002).

There are two common situations in empirical studies on finance, which are underreaction and overreaction. Investors' overreaction and underreaction behaviors contradicts with the efficient market hypothesis. Fama and French (1996) explain overreaction in the three- factor model but they cannot explain underreaction. Behavioral finance allows explaining how both underreaction and overreaction shape individuals' ideas (Barberis et al.,1998**).** Barberis et al. (1998) formed a model about the representativeness and conservatism biases in the formation of asset prices with overreaction or underreaction to new information (Luo, 2012). Thus, securities with good news in the market for a long time go up in price with the representativeness heuristic and then, drop back to their mean return. In other words, securities with long-lasting good performance reach high values and come back to average return (Barberis et al.,1998). Poteshman (2001) determined that investors' underreaction to information in common stock market is related to short period of time while investors' overreaction to information on securities is related to long period of time.

Representativeness bias

The representativeness bias is that investors or individuals evaluate the situation superficially and do not make in-depth analyses on the main source of events. (Byrne and Brooks, 2008). According to Tversky and Kahneman (1974), the representativeness bias is a judgment or decision based on stereotype. For instance, if common stocks had a successful performance in the past, investors expect same success for the future assuming that the past performance of the common stocks is the representative of future expectations. Dreman and Berry (1995) state that investors get affected by various factors in transferring past information to future, and these factors can be listed as the attractiveness of good stocks, repulsiveness of bad stocks, the thought that positive or negative expectations will last for a long time, and experts' consensus on a subject or stocks.

De Bondt and Thaler (1985), and Luo (2012) state that individuals with the representativeness bias focus more on near past or current information. Baker and Nofsinger (2002) mention that investors avoid investing in the security in question considering that the negative situation in the past will continue in the future. Shiller (2001) reported that professional investors, namely institutional investors, expect the continuation of past price movements with the representativeness heuristic. However, such behavior patterns are not expected from institutional investors due to their education (Shiller, 2001). Additionally, investors have an optimist approach to past accomplishments of companies and a pessimist approach to negativities while making evaluations regarding the future with the representativeness bias (Baker and Nofsinger, 2002). In this regard, investors can display overly pessimistic behaviors about securities that caused them to lose money with the representativeness bias; thus, they will underprice the security even if there are good news about the company. For a security with a past full of good news, investors will cause overpricing of the security with the representativeness bias. Both behaviors do not reflect the real situation. Thus, the security will change into its proper price in time (De Bondt and Thaler, 1985). Representativeness bias is sometimes beneficial but it mostly contains excessive bias (Barberis and Thaler, 2002). The representativeness bias cause investors to pay more attention to some developments or some reports than necessary (Fromlet, 2001).

De Bondt (1998) and Chen et al. (2007) state that individuals are more prone to get affected by biases than institutional investors. Chen et al. (2007) also found that representativeness bias is only valid for individual investors and not for institutional investors. Chandra and Kumar (2012) mention that biases like overconfidence and representativeness are greatly effective on the investment decisions of individual investors. In addition, Chen et al. (2007) expressed that the level of affection from the representativeness bias of institutional investors is low.

Accordingly, whether institutional investors get affected by the representativeness bias in their individual investments was examined with the following hypotheses including the survey questions.

H1: There is a significant relationship between the question "Does media coverage about top gainer/top loser stocks affect your investment decisions?" and the judgment "The past performance and historical returns of stocks should be considered in stock investments" (Q22-Q23).

H2: There is a significant relationship between "When I examine a company's stock, although I see that it is usually dividend but its stock performance is not stable, my decision about this stock" and the judgment "I use external information sources about the company when making personal investment decisions" (Q14-Q24).

Conservatism bias

Having too many asset options is just as negative as having too few options when choosing between assets (Saaty, 2008). Baker and Nofsinger (2002), and Hilbert (2012) state that human brain groups things with similar features and facilitate evaluation. The behavior of associating the expectations about something with a known situation or adapting it into basic patterns direct people towards conservatism behavior (Shiller, 2001). Investors will make cognitive errors when they incline towards such behavioral biases. These cognitive errors are due to the use of heuristics by human brain (Chen et al., 2007). Hilbert (2012) stated that investors evaluate situations with high probability of occurrence as low probability with the conservatism bias, and they over-exaggerate or overestimate those with low values.

According to Barberis et al. (1998), conservatism is the gradual adaptation of investors' views to the new information as acquire new information. Individuals, who get affected by this bias, do not change their current knowledge about common stocks immediately. Thus, their behaviors cannot easily be adapted to new information (Barberis et al., 1998). The conservatism bias is especially based on underreaction behavior (Barberis et al., 1998). Doukas and McKnight (2005) found similar results as Barberis et al. (1998). Investors with conservatism bias cause a little rise in prices due to underreaction (Doukas and McKnight, 2005). Ritter (2003, p.432) stated that "The conservatism bias is at war with the representativeness bias". Because these two behaviors display opposite attitudes. As in the analysis of the representativeness bias, the following hypotheses were formed to test the conservatism bias regarding the individual investments of institutional investors in the sample using some survey questions.

H3: There is a significant relationship between the judgment "I observe a stock that I have determined, for a while and purchase it a while after the price of the stock starts to rise." and "holding period of purchased financial assets" (Q20-Q44).

H4: There is a significant relationship between the frequency of reviewing investments and the holding period of financial assets on which invested (Q15-Q20).

Overconfidence bias

Overconfident investors consider themselves superior and more talented than others by exaggerating their skills. Barber and Odean (2001) state that investors are overconfident about their skills, knowledge, and future expectations.

According to Daniel et al. (1998), investors with overconfidence bias predict securities as more valuable than they really are, and this causes them to underestimate the risk of investments. Studies determined that investors with the overconfidence bias tend to retain their portfolio without diversifying it (Daniel et al.1998; Odean 1998; Baker and Nofsinger, 2002). Barber and Odean (2001) state that investors display an overconfident attitude by relying excessively on the accuracy of the information they have on the value of a financial asset.

Gervais and Odean (2001), Gloede and Menkhoff (2014) found that institutional investors are overconfident at the beginning of their career when they have little experience, and then their overconfidence decreases as they gain more experience. Additionally, inexperienced but successful traders are more overconfident than experienced traders (Mishra and Metilda, 2015). Menkhoff et al. (2010) support this view. According to them, the level of overconfidence decreases as the investment experience and age increase.

Menkhoff et al. (2010) found significant differences between finance professionals (in two groups as institutional investors and investment advisors) and individual investors in terms of overconfidence. Glaser et al. (2005) determined that individual investors have lower overconfidence levels than institutional investors. Similarly, Kourtidis et al. (2011) state that professional investors are more overconfident than individual investors. Gloede and Menkhoff (2014), on the other hand, express that finance professionals can be considered overconfident on average but studies on individual investors found that the overconfidence level of institutional investors will be lower than individual investors.

Overconfident investors consider securities more valuable than they are, and the analyses they make are more accurate than analyses that other investors make (Barber and Odean, 2001; Odean, 1998). As overconfident investors believe that they make accurate analysis, they trade more than other investors (Barber and Odean, 2000) but acquire lower amount of return in the end. In fact, overconfident investors trade believing that the expected returns will be maximum (Odean, 1998). Benos (1998) showed that returns that can be obtained by overconfident investors might be higher than those of rational investors. Wang (2001) states that overconfident individual investors tend to trade more in capital markets and expect higher returns than individual investors who are not overconfident. This result may indicate that individual investors have higher possibility of losing than rational investors (Wang, 2001). Rational investors, on the other hand, set the trade volume according to the expected earnings and obtained

information (Barber and Odean, 2001). Gervais and Odean (2001) state that being overconfident does not enable investors to acquire high returns but high returns urge investors to display overconfident behaviors (Gervais and Odean, 2001). Financial markets provide frequent and finalized feedbacks to market participants to prevent investors becoming overconfident. However, individual investors have low level of skills to evaluate such feedback (Gloede and Menkhoff, 2014).

According to the abovementioned literature, the following hypotheses were formed to test experience, frequent trade and diversification matters in related to individual investments of institutional investors.

H5: There is a significant relationship between "the investment experience" and "the holding period of financial assets on which invested" (Q10-Q20).

H6: There is a significant relationship between "the investment experience" and the judgment "it would be more effective to have a portfolio including one type of financial assets" (Q10-Q16).

3. Data and Methodology

3.1 Data Collection and Analysis Method

This study examined whether institutional investors get affected by biases in their individual investments, or which biases they get affected by. The data collected from Turkish institutional investors were used in the analysis. The sample included 346 institutional investors with individual investments in specifically to Turkey - Istanbul. The participants in the sample included employees of the finance sector who were receiving master's or doctoral education at Marmara University and other finance sector representatives who were reached with the help of the former. Although the sample was formed through personal contacts, attention was paid to include employees from various institutions in the sector to prevent a uniform distribution. One sample inclusion criterion was being an institutional investor who has individual investments or experience of individual investment in capital markets. Table 1 summarizes the demographic characteristics of the sample.

Demographic characteristics	Turkish finance sector employee	%
Current profession	commercial bank	39
	bank branches	15
	portfolio management company	1.1
	investment company	5.1
	mutual fund	0
	venture capital fund and real estate investment company	1.4
	insurance company	17
	pension fund	0.8
	investment bank	0
	private equity company	0
	participation bank	9.6
	others[a]	11
Gender	female	40
	male	60
	nonbinary	0
Age	21-30	44
	31-40	39
	41-50	16
	51-60	1.4
	61 and over	0.3
Educational level	high school	2.5
	some colleges and bachelor's	71
	master and/or Ph.D.	27
Educational field	economy, finance, business	77
	engineering	8.1
	mathematics, statistics, others[b]	15

Table 1. Summary of the Respondents

[a] financial and economy consulting, fintech company, risk management companies.
[b] banking and insurance, actuary, mathematics, international relations, labor economics, politics, political sciences, communication, law, faculty of art of science, public administration.

The primary data were collected via the internet, e-mail or directly giving the survey to the participants using the survey method. For the analysis, first of all, a decision was made on the matter of which questions in the survey were related to which bias. After this, the judgments in the questions were combined, and hypotheses were created. Each bias was tested with 2 hypotheses. The significance of the hypotheses was tested by using Pearson's chi-squared analysis, which allows us to understand the presence of absence of a systematic relationship between two variables (Prosad et al., 2015). As shown in Table 2, to test the presence of representativeness bias, the hypothesis H1 was established with the 22nd and 23rd questions, whereas H2 was formed with the 14th and 24th questions. For conservatism bias, the 20th and 44th questions were combined to create the hypothesis H3, and the 15th and 20th questions were combined to produce H4. In the analysis of overconfidence bias, the hypotheses H5 and H6 were formed by combining the 10th and 20th questions and combining the 10th and 16th questions, respectively. As a result of the chi-squared analysis that was conducted, by determining that the p-values for the 6 hypotheses were smaller than 0.05, the H0 hypotheses regarding the examined biases were rejected. Therefore, it was established that the judgments in the hypotheses were significantly related to each other (Appendix 3). Cross-tabulations were utilized in the detailed interpretation of the judgments in the hypotheses that were formed. Additionally, the survey questions used in the hypotheses are presented in Appendix 1.

Question no	Hypothesis no	Bias examined
22-23	H1	Representativeness bias
14-24	H2	Representativeness bias
20-44	H3	Conservatism bias
15-20	H4	Conservatism bias
10-20	H5	Overconfidence bias
10-16	H6	Overconfidence bias

Table 2. Hypotheses

Institutional investors with experience and individual investments at relatively large amounts in the sample draw attention in the analysis of the survey results. As can be seen in Appendix 2, there was an accumulation on institutional investors with individual investments of 7,000 or more Turkish Liras and 5 or more years of experience in the sample. Thus, the analysis became more statistically significant when the sample were re-analyzed with a coefficient created concentrating on such investors. The sample size became 3,930 with the new coefficient. It is considered that more satisfying results were obtained with this new sample size.

3.2 Data Analysis and Findings

Examining the Representativeness Bias

The influence of the information of "top winner and top loser common stocks published on media everyday" was asked to institutional investors regarding their individual investments in Question 22 with the thought proposed by Barberis et al. (1998) and Barber and Odean (2008) that remarkable and eye- catching elements will be taken as a basis by investors and will be effective in their investment decisions. Question 23 was formed based on the idea that investors make decisions with certain patterns (Tversky and Kahneman, 1974). In the presence of the representativeness bias, investors will consider the past performance of the common stock in their evaluations regarding the future and use it in the future forecast (De Bondt and Thaler, 1985; Luo, 2012).

***H1**: There is a significant relationship between the question "Does media coverage about top gainer/top loser stocks affect your investment decisions?" and the judgment "The past performance and historical returns of stocks should be considered in stock investments." (Q22-Q23).*

According to this hypothesis (H1), in cases where institutional investors participating in the survey answered Question 22 as "very often" or "usually" and Question 23 as "completely agree" or "agree", it will be decided that they are affected by the representativeness bias in their individual investments.

It was found as a result of the chi-square analysis performed that the rate of those deciding with the representativeness bias was **12.8%** in the sample while the rate of those deciding without the representativeness bias was *5.2% (2.6% +2.6%).* Thus, institutional investors in the sample are affected by the representativeness bias in their individual investments (Table 3).

Q23			agree and st.agree[a]	neither agree nor disagree	disagree and st.disagree[b]	Total
Q22	very often and usually[c]	Count	505	34	11	550
		% of Total	**12.80%**	0.90%	0.30%	13.90%
	sometimes	Count	892	184	90	1166
		% of Total	22.60%	4.70%	2.30%	29.60%
	rarely	Count	762	112	101	975
		% of Total	19.40%	2.80%	***2.60%***	24.80%
	nor affect	Count	927	216	101	1244
		% of Total	23.60%	5.50%	***2.60%***	31.60%
Total		Count	3086	546	303	3935
		% of Total	78.40%	13.90%	7.70%	100%

Table 3. The First Hypothesis of Representativeness Bias

Q22. Does media coverage about top gainer/ top loser stocks affect your investment decisions?
Q23. "The past performance and historical returns of stocks should be taken into account in when investing stocks"
[a] The options of "agree" and "strongly agree" were combined in the Question 23.
[b]The options of "disagree" and "strongly disagree" were combined in the Question 23.
[c] The options of "very often" and "usually" were combined in the Question 22.

The representativeness bias was examined once more with H2 hypothesis.

H2: *There is a significant relationship between "When I examine a company's stock, although I see that it is usually dividend but its stock performance is not stable, my decision about this stock" and the judgment "I use external information sources about the company when making personal investment decisions". (Q14-Q24).*

In H2 hypothesis where the presence of the representativeness bias was examined, the institutional investors' "application to external information sources (media, professional connections, researching papers, all of them)" while making decisions in Question 14, and the institutional investors' "decision to purchase the stock even though it is seen that the stock was steadily dividend in the past and does not have a steady stock performance today" in Question 24 were revealed as the representativeness bias. (Tversky and Kahneman, 1974; De Bondt and Thaler, 1985; Luo 2012; Shiller, 2001). Unlike these two judgments, it was predicted in this study that "the representativeness bias has no influence." It was assumed that the representativeness bias had an influence in the decisions of those who answered as yes to Question 24 and those who chose external resources (media, professional connections, researching papers/reports, all of them) in Question 14 (Questions related to the hypotheses are presented in Appendix 1).

As can be seen in Table 4, **8.7%** (1.7%+1.7%+1.8%+3.5%) of the institutional investors got affected by the representativeness bias while the majority (*10.1% =3.3%+6.8%)* made their decisions without getting affected by the representativeness bias. According to H2 hypothesis, the institutional investors in this sample did not get affected by the representativeness bias in their individual investments.

Q24		yes		no		I'm interested in other characteristics of this stock (not only dividend)		no idea	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
Q14	Media	64	**1.70%**	159	4.10%	345	8.90%	114	2.90%
	Professional connections	65	**1.70%**	183	4.70%	267	6.90%	108	2.80%
	Researching papers/Reports	68	**1.80%**	356	9.20%	386	10.00%	95	2.50%
	All of them	136	**3.50%**	345	8.90%	993	25.70%	188	4.90%
	None of them & others	42	1.10%	128	***3.30%***	264	***6.80%***	230	6.00%

Table 4. The Second Hypothesis of Representativeness Bias

Q14. Which sources of information do you use when making personal investment decisions?
Q24. Would you invest in a stock with volatile past returns which makes generally dividend payments?

Examining the Conservatism Bias

H3 and H4 hypotheses were used to examine the conservatism bias.

***H3**: There is a significant relationship between the judgment "I observe a stock that I have determined, for a while and purchase it a while after the price of the stock starts to rise." and "holding period of purchased financial assets" (Q20-Q44).*

The conservatism bias was examined with Question 20 and 44 in H3 hypothesis. It was assumed that the investor makes an investment by following the stock for a while, observing the positive information and progress about the stock, in other words, by not reacting to every information immediately under the influence of the conservatism bias with Question 44 (similar to the idea on Question 20). (Barberis et al.,1998**;** Doukas and McKnight, 2005). The presence of the conservatism bias was indicated with the answers of the professionals participating in the survey as "completely agree" or "agree" to this question. The holding period of assets in the portfolio was examined with Question 20. Holding the assets purchased in the portfolio "for 60 days or longer" indicates that the investor reacts to the market not immediately but after a while.

According to the chi-square analysis performed, **28.8% (**7.0%+3.7%+15.4%+2.7%) of the institutional investors in the sample got affected by the conservatism bias while the rate of those who did not get affected by it was *6.6%.* The rate of institutional investors who did not make decisions under the influence of the conservatism bias was *6.6%* (Table 5).

Q20			up to 60 days[a]	61-90 days	91-120 days	more than 120 days	others	Total
Q44	st.agree/agree	Count	785	276	144	609	104	1918
		% of Total	20%	7.00%	3.70%	15.40%	2.70%	48.80%
	neither agree nor disagree	Count	427	224	138	295	54	1138
		% of Total	10.80%	5.70%	3.50%	7.50%	1.40%	28.80%
	st.disagree/disagree	Count	262	81	85	335	131	894
		% of Total	***6.60%***	2.10%	2.20%	8.50%	3.30%	22.60%
Total		Count	1474	581	367	1239	289	3950
		% of Total	37.40%	14.70%	9.30%	31.4	7.30%	100%

Table 5. The First Hypothesis of Conservatism Bias

Q20. What is the holding period for your investments?
Q44. "After deciding on which stock(s) to buy, I observe the stock(s) for a while. When the stock price starts to rise, I buy."
[a]The options of "less than 1 week", "between 2-4 weeks" and "between 30-60 days" for Question 20 were put together and presented as "up to 60 days" on the table.

The presence of the conservatism bias in the individual investments of institutional investors was analyzed once more with the H4 hypothesis.

***H4:** There is a significant relationship between the frequency of reviewing investments and the holding period of financial assets on which invested (Q15-Q20).*

In this hypothesis, institutional investors, who review their investments frequently, in other words, those who selected one of the options of "everyday", "every other day" and "once in a week" to Question 15 were taken into account. Accordingly, I wanted to reveal the investors who are informed about the developments in the market by often reviewing their investments with Question 15, and investors who underreact to the information provided by the market with Question 20. Wu et al. (2009) also argued that due to conservatism bias, investors gradually adapt their portfolios to the information they have obtained about a stock. Thus, institutional investors who get affected by the conservatism bias are expected to select the option of "60 days or longer" for the holding period of financial assets in Question 20. The late response (selling/purchasing/holding) of the investor, who sustains their portfolio for a long time, to the developments in the marked even though they often review their investments was described as "the influence of the conservatism bias".

Those who are not under the influence of the conservatism bias are those who immediately respond to the information they have obtained. Rational investors, who are not under the influence of the conservatism bias, evaluate the information they have obtained and do as required in line with the developments in the market. In other words, rational investors are investors who decide to purchase or sell in line with the information they have obtained from the market considering the expected return and risks when suitable conditions occur.
In the chi-square analysis performed on the sample, the rate of institutional investors who made decisions under the influence of the conservatism bias was **35.1%** (10.3%+5.3%+15.7%+3.8%) while the rate of those who did not get affected by it was *25.7%.* Accordingly, it was found that the institutional investors got affected by the conservatism bias in their decisions by acting like a "normal" investor in their individual investments (Table 6).

Q20			up to 60 days[a]	60-90 days	90-120 days	more than 120 days	others	Total
Q15	up to one week[b]	Count	1034	415	212	629	154	2444
		% of Total	***25.7%***	**10.3%**	**5.3%**	**15.7%**	**3.8%**	60.8%
	once a month	Count	244	81	86	232	30	673
		% of Total	6.0%	2.0%	2.1%	5.8%	0.7%	16.8%
	every other month	Count	6	2	21	90	28	147
		% of Total	0.1%	0.0%	0.5%	2.2%	0.7%	3.7%
	I look at often but I could not say a certain time	Count	220	100	48	327	57	752
		% of Total	5.4%	2.5%	1.2%	8.1%	1.4%	18.7%
Total		Count	1504	598	367	1278	269	4016
		% of Total	27.4%	14.9%	9.1%	31.8%	6.7%	100%

Table 6. The Second Hypothesis of Conservatism Bias

Q15. How often do you review your investments?
Q20. What is the holding period for your investments?
[a]The options of "less than 1 week", "between 2-4 weeks" and "between 30-60 days" for Question 20 were put together and presented as "up to 60 days" on the table.
[b] The options of "everyday", "every other day" and "once a week" for Question 15 were put together and presented as "up to one week" on the table.

Examining the Overconfidence Bias

The presence of the overconfidence bias in the individual investment decisions of institutional investors was examined with H5 and H6 hypotheses.

H5: *There is a significant relationship between "the investment experience" and "the holding period of financial assets on which invested" (Q10-Q20).*

Question 20 was included in the hypothesis in terms of overconfidence bias. Accordingly, it was predicted that those who make short-term ("less than 1 week" or "2-4 weeks" or "30-60 day") get affected by the overconfidence bias. Because it was assumed that institutional investors kept the financial assets in their individual portfolio for a short time and make constant purchases and sales and increased their trade volume under the influence of the overconfidence bias (Barber and Odean, 2000). Moreover, the element of experience in the hypothesis was revealed with Question 10. Considering the literature, (Gervais and Odean, 2001; Gloede and Menkhoff 2014; Menkhoff et al., 2010; Mishra and Metilda, 2015) determined that institutional investors with long-term investment experience did not act under the influence of overconfidence bias. When the presence of the overconfidence bias in relation to Question 10 was examined, it was assumed that investors with 3 years or less experience made investment decisions with the overconfidence bias.

As can be seen in Table 7, **8.2%** of the institutional investors in the sample got affected by the overconfidence bias in their individual investment decisions while *53.8% (4.2%+1.9%+ 4.2%+1.4%+8.5%+5.9% +22.6%+5.1%)* did not get affected by the overconfidence bias according to the chi-square analysis results.

Q20			up to 60 days[b]	61-90 days	91-120 days	more than 120 days	other	Total
Q10	up to 3 years[a]	Count	340	89	51	192	33	705
		% of Total	**8.2%**	2.2%	1.2%	4.7%	0.7%	17.4%
	3-4 years	Count	304	172	76	172	56	780
		% of Total	7.5%	***4.2%***	***1.9%***	***4.2%***	***1.4%***	19.2%
	more than 4 years	Count	865	345	240	915	205	2570
		% of Total	21.3%	***8.5%***	***5.9%***	***22.6%***	***5.1%***	63.4%
Total		Count	1509	606	367	1279	294	4055
		% of Total	37.2%	14.9%	9.1%	31.5%	7.3%	100%

Table 7. The First Hypothesis of Overconfidence Bias

Q10. How long have you been investing for?
Q20. What is the holding period for your investments?
[a] The options of "less than 1 year", "between 1-2 years" and "between 2-3 years" for Question 10 were put together. The investors with 3 years and less experience were considered as inexperienced investors.
[b] The options of "less than 1 week", "between 2-4 weeks" and "between 30-60 days" for question 20 were put together and presented as "up to 60 days" on the table.
The overconfidence bias was tested for the second time with the H6 hypothesis.

H6: *There is a significant relationship between "the investment experience" and the judgment "it would be more effective to have a portfolio including one type of financial assets" (Q10-Q16).*

Considering the phrase of experience included in Question 10 used in the H5 hypothesis, it was assumed that institutional investors with 3 years or less experience and individual investments were inexperienced and got affected by the overconfidence bias. The same assumption was continued in the H6 hypothesis. De Bondt (1998) stated that households did not make diversification even though modern portfolio management can avoid from high risks with diversification. Accordingly, the investors who got affected by the overconfidence bias in Question16 in the H6 hypothesis were assumed to avoid diversifying their portfolios and invest on one type of assets (Odean, 1998). On the contrary, if they do not get affected by the overconfidence bias, they will prefer making diversification.

According to the explanations above, investors who invested on one type of financial assets under the influence of the overconfidence bias in Question 16 are expected to choose the options "completely agree" or "agree". Thus, investors who avoid diversification, perceive risks lower than they really are with the overconfidence bias (Barber and Odean 2001; Pompian, 2006).

The sample was analyzed and it was found that the majority of the institutional investors (*58%*) did not get affected by the overconfidence bias while managing their individual investments. The rate of those who made decisions under the influence of the overconfidence bias was **2.8%** (Table 8).

Q16			str.agree/ agree	neither agree nor disagree	str.disagree/disagree	Total
Q10	1-3 years	Count	116	131	451	698
		% of Total	**2.8%**	3.2%	11.2%	17.4%
	more than 3 years	Count	520	459	2324	3303
		% of Total	13.0%	11.5%	***58.0%***	82.6%
Total		Count	636	590	2775	4001
		% of Total	15.9%	14.7%	69.3%	100%

Table 8. The Second Hypothesis of Overconfidence Bias

Q.10 How long have you been investing for?
Q.16 "It is more effective to have a portfolio of financial instruments of the same asset class" (e.g. many kinds of stocks or many kinds of bonds)

4. Conclusions and Future Research

This study examined whether the representativeness, conservatism and overconfidence biases affect the decisions of institutional investors with regards to their individual portfolios. The researcher' expectations about the result to be obtained in the study was that institutional investors will not move away from rationality thanks to things they have learned and experienced. Because "making investments" is the expertise and profession of institutional investors (Grinblatt and Keloharju, 2000). It was expected that they would apply what they learned in the direction to "be/stay rational" both in their individual investments and their jobs. Shiller (2001) also expect institutional investors to make investments considering the expected return and risk criteria according to the conventional finance hypothesis and that they make investment decisions without getting affected by cognitive biases. Jaiyeoba et al.(2020) also stated that institutional investors should not be assumed to display fully rational behaviors in their investment decisions.

Many studies have examined the influence of behavioral biases in investment decisions of only individual investors or institutional investors. Investors form shortcuts using biases and heuristics to facilitate making decisions in difficult and uncertain situations (Chen et al., 2007). Dhaoui et.al. (2013), determined that investors act in line with their psychology (biases) more instead of their rationality (in French stock market). Many studies have found that individuals are more inclined to get affected by biases than institutional investors (De Bondt,1998; Chen et al.,2007). Jaiyeoba et al. (2020), on the other hand, found that there is no significant difference between individual and institutional investors in terms of especially the overconfidence and representativeness biases.

This study examined that whether institutional investors in the Turkey act rational in their individual investment decisions. It was tried to be revealed by associating it with whether the influence of biases exist in their individual investment decisions. Gonzalez-Igual (2017) stated that cognitive and emotional biases lie behind investors' deviations from perfect rationality.

As a result of the analysis performed, in general, it was determined that the institutional investors moved away from rationality in their individual investment decisions. It was observed that the institutional investors may get affected by a bias in their decisions about their individual portfolio while they may not get affected by another bias. Chen et al. (2007) found that investors may get affected differently by biases in decisions about their investments, in other words, they may get affected by one bias and not get affected by another.

Hypothesis	Sample
H1:Q22-Q23	Got affected by the representativeness bias.
H2:Q14-Q24	Did not get affected by the representativeness bias.
H3: Q44-Q20	Got affected by the conservatism bias.
H4: Q15-Q20	Got affected by the conservatism bias.
H5: Q10-Q20	Did not get affected by the overconfidence bias.
H6: Q10-Q16	Did not get affected by the overconfidence bias.

Table 9: Results

As can be understood from Table 9, the institutional investors did not get affected by only the overconfidence bias among the abovementioned three biases in decisions about their individual investments and that they made decisions without getting affected by this bias. In other words, institutional investors acted rational in their decisions about the capital market by not getting affected by the overconfidence bias. Chen et al. (2007) determined that Chinese investors do not diversify and trade very often and observed the influence of the overconfidence bias. Chandra and Kumar (2012) mentioned that biases like overconfidence and representativeness are greatly effective on the investment decisions of individual investors.

The same situation does not apply to the conservatism bias. The professional investors in the sample got affected by the conservatism bias in their individual investments. In other words, they made decisions under the influence of the conservatism bias and moved away from their rational investor identity while managing their individual portfolios. This study determined using the hypotheses examining the conservatism bias that the investors responded late to developments in the market and acted in line with the conservatism bias.

Considering the representativeness bias, no precise result was obtained about the institutional investors in this sample in this regard. From the perspective of the institutional investors, Chen et al. (2007) found that the level of influence on institutional investors by the representativeness bias was lower that of individual investors. Tekce et al. (2016) found that Turkish individual investors did not get affected by the representativeness bias. In the analysis of Turkey performed by Dom (2003), it was revealed that individual investors were under the influence of the representativeness heuristic.

The reasons why institutional investors do not get affected by biases may vary. Future studies should examine how demographic characteristics of institutional investors affect their individual investment decisions. Because Bhandari and Deaves (2006) showed that demographic characteristics affect the behaviors of finance professionals. Billet and Qian (2008) stated that it is innate for executives to be overconfident, when considered more complex, overconfidence is developed with experience.

Which demographic characteristics of the investor reveal the influence of biases in their individual investment decisions. The following question should be asked at this moment; If the institutional investor gets affected by biases, which demographic characteristics are effective in making such decisions? As it was determined that institutional investors get affected by some biases while making individual investment decisions, what demographic characteristics are these biases affected by?

The most important difficulty in this study was reaching the sufficient sample mass for whole country. Moreover, the use of the convenience sampling method in the selection of the participants brought about some limitations. Nevertheless, as the province of Istanbul has the ambition of becoming the financial center of Turkey, this study that included employees of the finance sector in Istanbul will be guiding for other researchers.

Note

The bold values in tables (3,4,5,6,7,8) and relevant texts indicate those who were influenced by the specified bias, while the italicized and underlined values indicate those who were not.

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Appendix 1: Survey questions in the hypotheses

Representativeness Bias

Q14. Which sources of information do you use when making personal investment decisions? (Select all that apply)

☐1. Media

☐2. Professional connections

☐3. Researching papers/ reports

☐4. All of them

☐5. None of them

☐6. Others (please specify) …….

Q22. Does media coverage about top gainer/top loser stocks affect your investment decisions?

☐1. Very often
☐2. Usually
☐3. Sometimes
☐4. Rarely
☐5. Nor affect

Q23. "The past performance and historical returns of stocks should be taken into account in when investing stocks"

☐1. Strongly agree
☐2. Agree
☐3. Neither agree nor disagree
☐4. Disagree
☐5. Strongly disagree

Q24. Would you invest in a stock with volatile past returns which makes usually dividend payments?

☐1. Yes
☐2. No
☐3. I'm interested in other characteristics of this stock (not only dividend)

Conservatism Bias

Q15. How often do you review your investments?

☐1. Every day
☐2. Every other day
☐3. Once a week
☐4. Once a month
☐5. Every other month
☐6. I look at often, but I couldn't say a certain time.

Q20. What is the holding period for your investments?

☐1. Less than 1 week
☐2. 1-4 weeks
☐3. 31-60 days
☐4. 61-90 days
☐5. 91-120 days
☐6. More than 120 days
☐7. Others (please specify) ……

Q44. "After deciding on which stock(s) to buy, I observe the stock(s) for a while. When the stock price starts to rise, I buy.

☐1. Strongly agree
☐2. Agree
☐3. Neither agree nor disagree
☐4. Disagree
☐5. Strongly disagree

Overconfidence Bias

Q10. How long have you been investing for?

☐1. Less than 1 year ☐ 2. 1-2 years ☐ 3. 2-3 years ☐ 4. 3-4 years ☐ 5. 4 years and more

Q16. "It is more effective to have a portfolio of financial instruments of the same asset class"(e.g. many kinds of stocks or many kinds of bonds)

☐1. Strongly agree
☐2. Agree
☐3. Neither agree nor disagree
☐4. Disagree
☐5. Strongly disagree

Q20. What is the holding period for your investments?

☐1. Less than 1 week
☐2. 1-4 weeks

☐3. 31-60 days
☐4. 61-90 days
☐5. 91-120 days
☐6. More than 180 days
☐7. Others (please specify) ……

Appendix 2: Concentrations in experience and investment amount in the sample

Q11		**500-1,000 ₺**	**1,000-2,000 ₺**	**2,000-5,000₺**	**5,000-7,000 ₺**	**7,000 ₺ and more**
		Count	Count	Count	Count	Count
Q10	less than 1 year	29	14	8	3	5
	1-2 years	18	10	14	2	10
	2-3 years	13	7	4	2	12
	3-4 years	8	8	11	6	23
	4 years and more	19	19	22	8	**72**

Q10.How long have you been investing for?
Q11.How long funds do you use in your personal investments?

Appendix 3: Test Statistics

Q22-Q23	value	df	asymptotic significance (2-sided)
Pearson Chi-Square	337.785	16	.000
Likelihood Ratio	363.174	16	.000
Linear-by-Linear Association	20.664	1	.000
N of Valid Cases	3935		

Pearson Chi-Square Tests		
Q14-Q24		Q24
Q14	Chi-square	612.898
	df	20
	Sig.	0.000

Q20-Q44	value	df	asymptotic significance (2-sided)
Pearson Chi-Square	486.799	24	.000
Likelihood Ratio	454.572	24	.000
Linear-by-Linear Association	50.359	1	.000
N of Valid Cases	3950		

Q15-Q20	value	df	asymptotic significance (2-sided)
Pearson Chi-Square	660.048	30	.000
Likelihood Ratio	674.173	30	.000
Linear-by-Linear Association	176.883	1	.000
N of Valid Cases	4016		

Q10-Q20	value	df	asymptotic significance (2-sided)
Pearson Chi-Square	425.723	24	.000
Likelihood Ratio	366.739	24	.000
Linear-by-Linear Association	85.903	1	.000
N of Valid Cases	4055		

Q10-Q16	value	df	asymptotic significance (2-sided)
Pearson Chi-Square	307.451	20	.000
Likelihood Ratio	307.679	20	.000
Linear-by-Linear Association	39.411	1	.000
N of Valid Cases	4001		