The Nexus of Behavioral Biases and Demographic Attributes of Stockbrokers in Investment Decision: New Evidence from One-Way Analysis of Variance (ANOVA)

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A B S T R A C T

This study investigates the risk-taking behavior of stockbrokers and the impact of demographic attributes amid making investment decisions. The current study has employed six demographic attributes, namely, age, gender, religion, education, experience, income level, and their risk-taking behavior has been used while making the investment. The survey forms contained 19 questions related to demographic attributes and the risk-taking behavior of the stockbrokers. Descriptive statistics and One-Way Anova results ascertained that broker's risk-taking behavior has a substantial relationship with the demographic attributes while making investment decisions.

INTRODUCTION

An investment decision always includes the sacrifice of immediate benefits for better future returns. An investment is always made with certain specific objectives in mind. These objectives are primarily classified as primary and secondary objectives. While the primary objectives revolve around the risk and return part of an investment decision, the secondary objectives include the safety against inflation, liquidity, growth, tax benefit, etc. Investment decisions are mostly affected by external as well as the internal factor of the investor itself. Traditional individual characteristic was not considered in investment decision making and preference was given to rational decision making (Bashir, Uppal, Hanif, Yaseen, & Saraj, 2013).

With the study of behavioral finance, the research community also starts taken account of bounded rationality. The decision may be made through intuitive and heuristic. Investment decisions are made by investors but for taking stock investment decisions investors need the assistance of a person called Stockbrokers. A stockbroker is an expert and skillful who deals in buying and selling stocks and also deals with other securities on behalf of stock investors in the stock market (Bashir, Shaheen, Batool, Butt, & Javed, 2014).

In the traditional investment conception, the investors think that they can decrease the risk just by increasing the number of investment instruments they have without considering the relations between the yields of investment instruments (Demirtaş

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and Güngör, 2004). In the traditional investment approach, the investors are recommended to invest in the instruments with a high yield possibility; however, they are not informed about how the risk will be measured. The mean values of yields realized in the past are defended as expected returns (Reilly and Brown, 1999). What is assigned importance in the traditional investment conception is how investors should behave instead of studying how they behave (Sönmez, 2010). This study aims to dig out the effect of an individual broker on investment and his risk-taking ability due to demographic attributes such as age, education, gender, religion, income level, and investment experience of the broker. The current study gives evidence that the demographic attributes are associated with the investment choice and depend on it. Furthermore, this study investigates the impact of demographic characteristics on the risk perception of stockbrokers. Moreover, to examine the impact of demographic attributes on investment decisions by stockbrokers.

Behavioral Biases

The current study focuses on seven identified behavioral biases, namely, market efficiency, prospect theory, regret aversion, cognitive, heuristics, representative heuristics, and overconfidence bias. These biases' effects have been checked and analyzed on the decision-making process of the brokers while making an investment decision. All identified biases are discussed down below:

A market where important ongoing or present information is fully and freely available to everyone and where there is a huge number of profit makers and rational investors who compete actively and also try to forecast the individual market values of securities, is defined as an efficient market. Prospect theory proposes that individuals give more importance to profits rather than losses and thus try to make such decisions that give gains to them. The prospect theory puts risks into two categories: those that contribute to profits and ones that contribute to losses. In order to receive a positive return individual, treat the two categories of risk differently.

Regret aversion is a psychological bias that emerges due to extreme attentions on the feelings of regret by having a faulty or wrong decision, basically due to the results of the alternative which seem better to the investor. The basic cause of this kind of bias is the tendency that individuals dislike to confess their mistakes. Cognitive biases are those biases in which human brain sketches untrue or wrong conclusion. Such biases are thought to be form of cognitive shortcut, often based upon rules of thumb. A cognitive bias is a design of faulty judgment, often prompted by a specific situation.

Heuristic is a rule of thumb for making decision. It explains that people like to make quick decisions and make easy policies for reaching to difficult and limiting data. Availability based heuristics draw that people give more attentions to things and actions they already know. Heuristics are easy economical rules of the thumb that are planned to clarify however individuals build selections, return to judgments and solve issues, usually once facing advanced issues or incomplete data. These rules work well beneath most circumstances, however in bound cases cause systematic psychological feature biases" Kahneman (Parikh, 2011).

The representative heuristics is a cognitive bias in which people underweight the long-term averages usually by putting too much weight to current experience. Overconfidence can be summarized as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities" (Pompian & Wood, 2006). Due to overconfidence, people underestimate the risk they take but overestimate the knowledge they have and overemphasize or overestimate the ability they get just to control the happenings; this is what discovered by psychologists. Due to overconfidence in their ability brokers frequently think that they have the ability to better perform than the market. Some brokers think that they are able to forecast the stock prices movement in the future effectively than others due to the information they have. When the historical development of the

theories on investment activities is examined, it is discovered that the traditional portfolio approach was the dominant approach in the market until the 1950s. Although this approach lacked a scientific base, it is seen that it was the dominant view in the market for a long-time because its feasibility was relatively easy (Civan, 2007).

Literature Review

In the last two decades, the notion of Behavioral finance has established immense recognition; consequently, the researchers are questioning the role of behavioral attributes in the investment decision of individual investors. In this regard, Anwar, Nazir, Khan, and Khan (2013) studied the behavioral and traditional finance theories to describe the equity investors' decision-making process in stock exchanges of Pakistan. 510 survey questionnaire forms were sent to equity investors in which 248 forms were received back and the study concluded that investors were not completely rational individuals as assumed by the traditional theories of finance.

Suman and Warne (2012) investigated the behavior specifically the attitude and perception of investors in the stock market. The study concluded that various factors affect the individual investor's investment behavior such as their investment duration, level of awareness etc.

Zaidi and Tauni (2012) in Lahore Stock Exchange examined the association between overconfidence bias and personality traits with investor's demographics. The questionnaire survey method was used for the purpose of collecting data with the 200-sample size. The outcome of the study proved that there is positive relationship between extroversion, consciousness, and agreeableness with overconfidence bias while on the other hand there is a negative relationship between Neuroticism and overconfidence. The outcomes also showed that the relationship between overconfidence bias and investment experience is positive but on the other hand there is no significant association of age and education level with overconfidence bias.

Tehrani and Gharehkoolchian (2012) recognized the disposition effect determinants in the shareholders. Through the questionnaire method, data were collected from a sample size of 169 investors in Tehran Stock Exchange. Results showed that disposition effect determinants are the gender and education level of the participants.

Jamshidinavid et al. (2012) explored the effect of the personality traits and demographics on the financial behavior biases in 2011 in Tehran Stock Exchange with a sample size of 215 people. Results showed that there is a positive influence of extraversion on overconfidence and Neuroticism has significant and positive associated with disposition effect and herding. Openness is positively and significantly associated with overconfidence and herding. Agreeableness is positively related to herding. Conscientiousness is positively associated with disposition effect and overconfidence. Age is negatively associated with herding while high confidence is positively related to the level of education.

Kabra, Mishra, and Dash (2010) investigated the investment behavior influencing factors. The study concluded that the basic factors which affect the risk-taking ability of investors were the gender and age of the investors. Furthermore, in this regard, Lutfi (2010) ascertained a substantial relationship between demographic attributes, the risk tolerance of the investor, and the selection of financial merchandise. The author further established that risk tolerance and investors' investment choice have a noteworthy association.

Baddeley et al. (2010) examined the herding behavior determinants and effect on an individual's decision in buying a stock, of the mass decisions. The results showed that herding decisions influence the individual's financial decisions and herding behavior changes by gender, age, and types of personality and it is not similar between all individuals.

Anderson, Torben. Bhattacharya, Joydeep (2011) examined the impact of demographic attributes (age, gender, designation, and qualification)of the employees of OIL sector of Indian firms and determined that demographic attributes are imperative for making investment decisions, furthermore, the attribute of age affects equity investment decision significantly. Moreover,

designation and qualification had no contribution in the decision-making process, however, gender had a vital role in investment decisions. Numerous researchers established that in selecting various investment portfolios and willingness to take risks, the demographics of investors play a significant role in this regard.

Fedaei (2013) conducted a study to explore the effect of education level, age, and gender among investors. The study concluded that with age and education level increasing, high-risk action will decrease so with higher education level were taking more risk than those with a lower school degree. Bashir et al. (2013) carried out a study to examine the association among demographics, personality traits, and confidence level. The questionnaire method was used for data collection from a sample size of 100 numbers of employees. The results of the study showed that conscientiousness, agreeableness emotional stability, and experience openness i.e. all personality traits are associated with overconfidence. The outcomes of the study indicated that personality traits and level of confidence have no association with each other.

Methodology

In this study, six demographic attributes, such as, age, gender, religion, education, experience, the income level of broker's and their risk-taking behavior has been used while making an investment. In this study, some items such as market efficiency, prospect theory, regret aversion, cognitive, heuristics, representative heuristics, and overconfidence of the brokers have checked with respect to these six demographic attributes of the brokers while making investments decision. For each bias, different questions have been used and have been filled up by brokers in order to know how these biases affect the decision-making of the brokers while making investments.

The population of the study is 171 brokers registered in the Pakistan Stock Exchange in which a sample size of 61 brokers filled up the questionnaires. The questionnaire was shared via Google doc with all 171 brokers and from time to time reminders were given to them, so they could respond soon. For each bias different question have been used and have been filled up by brokers in order to know how these biases affect the decision-making of the brokers while making investments. For market efficiency, prospect theory, and regret aversion two questions have been used for each bias while three questions have been used for cognitive bias. One question has been included for each bias such as heuristics, representative heuristics, and overconfidence so a total of 12 questions cover these biases while the other seven questions cover age, education, experience, sex, income level, and religion, and the number of clients. The questionnaire is being used for primary data collection where the individual was the unit of analysis. The questionnaire contains 19 questions related to age, gender, religion, education, experience, income level, and risk behavior of the brokers. In the questionnaire, different possible options have been given in order to know the respondents' attitude. Descriptive statistics and One-Way Anova used for the purpose of analysis. The basic idea of one-way Anova is that we have different respondents and their different responses for each question. We make one variable by combining the response of all the respondents with different geographic or educational backgrounds. In a single variable, we cannot differentiate between the reply of different respondents. This job is done by one-way Anova and it tells us whether there is any difference in the responses of different geographic and education respondents.

One Way ANOVA Results

Table 1. *Age*

	Sum of Squares	df	Mean Square	F	Sig.

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	1.033	4	.258	.566	.688
	Within Groups	25.525	56	.456		
	Total	26.557	60			
Market Efficiency 2	Between Groups	3.271	4	.818	1.355	.261
	Within Groups	33.811	56	.604		
	Total	37.082	60			
Prospect Theory 1	Between Groups	8.313	4	2.078	.785	.540
	Within Groups	148.244	56	2.647		
	Total	156.557	60			
Prospect Theory 2	Between Groups	.980	4	.245	.985	.424
	Within Groups	13.938	56	.249		
	Total	14.918	60			
Regret Aversion 1	Between Groups	1.922	4	.481	2.169	.084
	Within Groups	12.406	56	.222		
	Total	14.328	60			
Regret Aversion 2	Between Groups	5.637	4	1.409	2.130	.089
	Within Groups	37.052	56	.662		
	Total	42.689	60			
Cognitive theory 1	Between Groups	2.822	4	.705	1.380	.253
	Within Groups	28.621	56	.511		
	Total	31.443	60			
Cognitive theory 2	Between Groups	5.672	4	1.418	2.007	.106
	Within Groups	39.573	56	.707		
	Total	45.246	60			
Cognitive theory 3	Between Groups	6.530	4	1.633	1.510	.212
	Within Groups	60.552	56	1.081		
	Total	67.082	60			
Heuristic	Between Groups	2.063	4	.516	.866	.490
	Within Groups	33.347	56	.595		
	Total	35.410	60			
Representative Heuristics	Between Groups	16.755	4	4.189	1.820	.138
	Within Groups	128.884	56	2.302		
	Total	145.639	60			

Overconfidence	Between Groups	4.463	4	1.116	1.507	.213
	Within Groups	41.471	56	.741		
	Total	45.934	60			

Table 2. *Gender*

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	.105	1	.105	.233	.631
	Within Groups	26.453	59	.448		
	Total	26.557	60			
Market Efficiency 2	Between Groups	.905	1	.905	1.476	.229
	Within Groups	36.177	59	.613		
	Total	37.082	60			
Prospect Theory 1	Between Groups	11.274	1	11.274	4.579	.037
	Within Groups	145.283	59	2.462		
	Total	156.557	60			
Prospect Theory 2	Between Groups	.965	1	.965	4.081	.048
	Within Groups	13.953	59	.236		
	Total	14.918	60			
Regret Aversion 1	Between Groups	.139	1	.139	.579	.450
	Within Groups	14.189	59	.240		
	Total	14.328	60			
Regret Aversion 2	Between Groups	1.625	1	1.625	2.335	.132
	Within Groups	41.064	59	.696		
	Total	42.689	60			
Cognitive theory 1	Between Groups	.056	1	.056	.105	.747
	Within Groups	31.387	59	.532		
	Total	31.443	60			
Cognitive theory 2	Between Groups	3.503	1	3.503	4.951	.030
	Within Groups	41.743	59	.708		
	Total	45.246	60			
Cognitive theory 3	Between Groups	.037	1	.037	.033	.857
	Within Groups	67.045	59	1.136		
	Total	67.082	60			
Heuristic	Between Groups	4.818	1	4.818	9.292	.003
	Within Groups	30.592	59	.519		

		Sum of Squares	df	Mean Square	F	Sig.
Representative Heuristics	Total	35.410	60			
	Between Groups	.847	1	.847	.345	.559
	Within Groups	144.792	59	2.454		
Overconfidence	Total	145.639	60			
	Between Groups	.434	1	.434	.563	.456
	Within Groups	45.500	59	.771		
	Total	45.934	60			

Source: Author's computations

Table 3. *Religion*

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	.121	1	.121	.271	.605
	Within Groups	26.436	59	.448		
	Total	26.557	60			
Market Efficiency 2	Between Groups	1.603	1	1.603	2.665	.108
	Within Groups	35.479	59	.601		
	Total	37.082	60			
Prospect Theory 1	Between Groups	.077	1	.077	.029	.866
	Within Groups	156.481	59	2.652		
	Total	156.557	60			
Prospect Theory 2	Between Groups	1.170	1	1.170	5.019	.029
	Within Groups	13.748	59	.233		
	Total	14.918	60			
Regret Aversion 1	Between Groups	.118	1	.118	.490	.487
	Within Groups	14.210	59	.241		
	Total	14.328	60			
Regret Aversion 2	Between Groups	2.286	1	2.286	3.339	.073
	Within Groups	40.402	59	.685		
	Total	42.689	60			
Cognitive theory 1	Between Groups	.156	1	.156	.294	.590
	Within Groups	31.287	59	.530		
	Total	31.443	60			
Cognitive theory 2	Between Groups	3.996	1	3.996	5.715	.020
	Within Groups	41.250	59	.699		
	Total	45.246	60			

Cognitive theory 3	Between Groups	.000	1	.000	.000	.989
	Within Groups	67.082	59	1.137		
	Total	67.082	60			
Heuristic	Between Groups	.008	1	.008	.013	.911
	Within Groups	35.402	59	.600		
	Total	35.410	60			
Representative Heuristics	Between Groups	8.929	1	8.929	3.854	.054
	Within Groups	136.710	59	2.317		
	Total	145.639	60			
Overconfidence	Between Groups	.242	1	.242	.313	.578
	Within Groups	45.692	59	.774		
	Total	45.934	60			

Source: Author's computations

Table 4. *Education*

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	.946	4	.237	.517	.723
	Within Groups	25.611	56	.457		
	Total	26.557	60			
Market Efficiency 2	Between Groups	4.949	4	1.237	2.156	.086
	Within Groups	32.133	56	.574		
	Total	37.082	60			
Prospect Theory 1	Between Groups	20.946	4	5.237	2.162	.085
	Within Groups	135.611	56	2.422		
	Total	156.557	60			
	Between Groups	1.451	4	.363	1.509	.212
	Within Groups	13.467	56	.240		
	Total	14.918	60			
Prospect Theory 2	Between Groups	1.128	4	.282	1.196	.323
	Within Groups	13.200	56	.236		
	Total	14.328	60			
Regret Aversion 1	Between Groups	11.555	4	2.889	5.196	.001

		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	31.133	56	.556		
	Total	42.689	60			
Regret Aversion 2	Between Groups	.865	4	.216	.396	.811
	Within Groups	30.578	56	.546		
	Total	31.443	60			
	Between Groups	6.390	4	1.598	2.302	.070
	Within Groups	38.856	56	.694		
	Total	45.246	60			
Cognitive theory 1	Between Groups	15.382	4	3.845	4.165	.005
	Within Groups	51.700	56	.923		
	Total	67.082	60			
Cognitive theory 2	Between Groups	2.832	4	.708	1.217	.314
	Within Groups	32.578	56	.582		
	Total	35.410	60			
Cognitive theory 3	Between Groups	11.417	4	2.854	1.191	.325
	Within Groups	134.222	56	2.397		
	Total	145.639	60			
	Between Groups	2.857	4	.714	.928	.454
	Within Groups	43.078	56	.769		
	Total	45.934	60			

Source: Author's computations

Table 5. *Experience*

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	.633	3	.211	.464	.709
	Within Groups	25.925	57	.455		
	Total	26.557	60			
Market Efficiency 2	Between Groups	5.714	3	1.905	3.461	.022
	Within Groups	31.368	57	.550		
	Total	37.082	60			
Prospect Theory 1	Between Groups	4.134	3	1.378	.515	.673
	Within Groups	152.423	57	2.674		
	Total	156.557	60			
Prospect Theory 2	Between Groups	1.120	3	.373	1.542	.214
	Within Groups	13.798	57	.242		
	Total	14.918	60			
Regret Aversion 1	Between Groups	1.178	3	.393	1.702	.177
	Within Groups	13.150	57	.231		
	Total	14.328	60			
Regret Aversion 2	Between Groups	1.333	3	.444	.612	.610
	Within Groups	41.356	57	.726		
	Total	42.689	60			
Cognitive theory 1	Between Groups	4.258	3	1.419	2.976	.039

		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	27.185	57	.477		
	Total	31.443	60			
Cognitive theory 2	Between Groups	.991	3	.330	.426	.735
	Within Groups	44.255	57	.776		
	Total	45.246	60			
Cognitive theory 3	Between Groups	10.505	3	3.502	3.528	.020
	Within Groups	56.577	57	.993		
	Total	67.082	60			
Heuristic	Between Groups	1.718	3	.573	.969	.414
	Within Groups	33.692	57	.591		
	Total	35.410	60			
Representative Heuristics	Between Groups	10.046	3	3.349	1.408	.250
	Within Groups	135.593	57	2.379		
	Total	145.639	60			
Overconfidence	Between Groups	6.696	3	2.232	3.242	.029
	Within Groups	39.239	57	.688		
	Total	45.934	60			

Source: Author's computations

Table 6. *Income level*

		Sum of Squares	df	Mean Square	F	Sig.
Market Efficiency 1	Between Groups	1.057	2	.529	1.203	.308
	Within Groups	25.500	58	.440		
	Total	26.557	60			
Market Efficiency 2	Between Groups	5.261	2	2.630	4.794	.012
	Within Groups	31.821	58	.549		
	Total	37.082	60			
Prospect Theory 1	Between Groups	.545	2	.273	.101	.904
	Within Groups	156.012	58	2.690		
	Total	156.557	60			
Prospect Theory 2	Between Groups	.097	2	.048	.189	.828
	Within Groups	14.821	58	.256		
	Total	14.918	60			
Regret Aversion 1	Between Groups	.745	2	.372	1.590	.213
	Within Groups	13.583	58	.234		
	Total	14.328	60			
Regret Aversion 2	Between Groups	.236	2	.118	.161	.851
	Within Groups	42.452	58	.732		

	Total	42.689	60			
Cognitive theory 1	Between Groups	.109	2	.055	.101	.904
	Within Groups	31.333	58	.540		
	Total	31.443	60			
Cognitive theory 2	Between Groups	2.329	2	1.165	1.574	.216
	Within Groups	42.917	58	.740		
	Total	45.246	60			
Cognitive theory 3	Between Groups	1.082	2	.541	.475	.624
	Within Groups	66.000	58	1.138		
	Total	67.082	60			
Heuristic	Between Groups	.696	2	.348	.581	.563
	Within Groups	34.714	58	.599		
	Total	35.410	60			
Representative Heuristics	Between Groups	9.627	2	4.814	2.053	.138
	Within Groups	136.012	58	2.345		
	Total	145.639	60			
Overconfidence	Between Groups	1.351	2	.676	.879	.421
	Within Groups	44.583	58	.769		
	Total	45.934	60			

Source: Author's computations

Findings and Conclusion

The objective of this study is to find out the risk-taking behavior of the brokers with respect to the demographic attributes while making investment decisions. In this study six demographic attributes i.e. age, gender, religion, education, experience, the income level of broker's and their risk-taking behavior has been used while making an investment. Some items, such as market efficiency, prospect theory, regret aversion, cognitive, heuristics, representative heuristics, and overconfidence of the brokers have been checked with respect to age, gender, religion, education, experience, income level while making an investment decision.

The One-Way ANOVA table provides significant results for all the items related to the broker Experience. Results of market efficiency 1 and 2, prospect theory 2, heuristic 1 are highly significant values suggesting that brokers having different experiences have a different approach and thinking towards behavioral biases. The above results regarding market efficiency are showing that brokers do not use available information which is in the market and become overconfident by not processing the already available information so due to overconfidence bias brokers neglect the available information and use their information. The results of prospect theory are showing support for the risk-taking tendency of the brokers within the prospect theory structure. Brokers prefer risk-taking behavior by delaying the sale of losing stock and by selling the winning stock to realize the gain, so prospect theory is accepted here because the risk portion is more as compared to profit.

The One-Way ANOVA table provides a difference among broker biases in terms of age. The table provides significant results for all the items related to the broker biases. The results have Regret Aversion shows that the amount of gratification is low which is then the amount of regret which is high as compared to gratification. Here main concern is with the losing stock and risk. Brokers hold losing stock to earn a significant amount but when they lost, they regret it. The One-Way ANOVA table for education provides significant results for all the items related to the broker biases. Results of Cognitive theory 2 and Heuristic 1 are highly significant. It can be further concluded based on results that individual broker irrational behavior changes with education.

The results suggest that the impact of behavioral biases can be reduced by education, incorporating cognitive abilities in decision making, consultation with the experts, social interaction, and discussion on future bright prospects. Furthermore, behavior can be modified by analyzing the standard of living risk of the individual broker and modifying his/her behavior accordingly. Decision-making of the individual broker can also be modified by rationalizing the expected gains and losses in terms of figures to reflect the amount that the investor can either gain or lose.

For better risk management and efficient portfolio management, brokers should be given advanced level training in investment decision making. Traditional finance assumes that the cognitive abilities of brokers, professionals, large investors, small investors, and ordinary investors are the same, meaning that all can analyze the investment options, portfolio development, revision of portfolio in the same way. This is the main flaw of traditional finance. The results of the current study as well as behavioral finance suggest that the cognitive abilities of all levels of investors are different. Thus, for efficient and effective investment and management of portfolio proper investment training and risk management techniques must be learned by brokers and investors. This also suggests that decision making among investors also differs based on cognitive abilities.

Based on the study, an investor can choose a broker that suits him according to his risk-taking behavior. If an investor is a risk taker then will surely go for a broker who takes risk i.e. risk taker but if an investor is risk-averse, then will avoid such a broker who takes the risk and will go for the one who avoids risk. The investor will also keep all studied factors and biases in mind which can affect the broker's decision-making process while investing. Security exchange commission of Pakistan arranges training programs from time to time as a result brokers are less likely to depend on market rumors and thus make their judgment by keeping all psychological biases in mind. Due to high tendency Individual brokers with age, education and experience go towards risk-taking behavior.

Social reality to low degree of openness: The degree of openness play a very important role in the decision-making process. The broker who less open to new information ignores the current reality and trend of the market and invest based on past information and overconfidence. This results in a risker portfolio with a high proportion of low performing securities.

Future prospects to a high degree of risk avoidance: According to the prospect theory investors become risk-averse after earning the profits and develop a less risky investment strategy. This leads to a lower risky portfolio and consequently lower but confirmed returns. It is recommended that after earning profits broker should not totally focus on risk-averse behavior rather should take some risk and incorporate risky securities in the portfolio. To reduce the disposition effect broker should ask themselves whether the decision of holding has any solid quantitative grounding or the broker is trying to hide its previous mistakes (cognitive dissonance). By doing so the broker can revise the decision of holding the losing stock. Brokers are overconfident regarding their estimation and future movement of prices. The broker should not only rely on its estimation but have to refer other experts and brokers for accurate prediction and estimation. Broker easily falls in the trap of heuristics

and takes the wrong decision by keeping in mind only experience with investment. To overcome the heuristics broker should properly analyze the prospects of even the most familiar investment options.

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