

Behavioral Finance: The Explanation of Investors' Personality and Perceptual Biases Effects on Financial Decisions

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Abstract

One of the important factors on investors financial decisions are perceptual errors which affect their decisions while buying and selling stock. The good of this study is to recognize the popular perceptual errors among investors and its connection with their personality. Therefore, 200 of the investors in Tehran's stock market were taken randomly as samples and the needed data was gathered through questions, using the parametric analysis and correlation we have tried to check the accuracy of the hypotheses. The finding demonstrates that the offered perceptual errors have got a significant correlation with the investors' personality. The conclusions exhibit that there is direct correlation between extroversion and openness with hindsight bias and over confidence bias, between neuroticism and randomness bias, between escalation of commitment and availability biases. Also, there is a reverse correlation between conscientiousness and randomness bias, between openness and availability bias.

Keywords: Behavioral finance, Investing decisions, Perceptual errors and biases, Big five personality model

1. Introduction

A main concept in financial management is risk taking and output. People usually like to invest highly output cases. In order to improve their efficiency, but as we know achieving the high output needs taking the proportional risks. Most economical and financial theories believe that the investors are really rational while deciding (Kim et al; 208). This agrees with the "rational economic man" theory. Investors consider all the side effects while investing and take the most rational decision. But sometimes some factors which come from financial markets inefficiency cause in rational behaviors and affect their way of decisions. Therefore not having an appropriate knowledge results in perceptual errors, so, we can offer programs through recognizing investors' personality and deviations to reduce the effects of these deviations, and also to reduce the deviation of long term decisions and help the investors to achieve their long term financial goals. This research had tried to review the connection of personality and perceptual errors of the investors and guide them to the right decisions in stock markets.

The field behavioral science in financial disputes is a new incident in financial market studies. This incident discusses that against standard financial discussions and theories, behaviors and cognition can affect the financial properties. Such financial decisions and investments are preceded by perceptions and predications and are the effects of psychological decisions on financial markets.

Indeed studying financial behavior refers to the significant role that psychology plays in financial science. In addition to the large number of studies in this area, still there are lots of people who are ignorant of covert concept of financial behavior. (Montier; 2002)

The studies done by Shiller and Andri Shifler are among the studies in their area. Also Roll (1986), Barberies and Thaler (2003), Line and et al., (2008) have studied on various perceptual errors and how they affect the investors

financial decisions in financial markets and have concluded that investors are damaged through some misplaced (Kim and Nolsinger; 2008,2)

Some other researchers in their area were Kahneman and Tversky (1992) who offered the theory of expecting which helped a lot in developing this science, also Schneider (1992), Weiss and Budescu (1989) and Thomas (1988) were among the researchers who published articles on financial behavior that played an important role in financial management and have a significant part in guiding investors for tacking financial decisions (Filbect et al.; 2005). In general financial behavior is an intellectual model in which financial markets are studied using the compound models of sociological, psychological, financial and other related sciences and most important of all is that against neoclassic theories economical agents in behavioral models are not rational, but because of their preference or the result of their perceptual errors they do not behave rationally (Farlin, 2006). Irrational factors like; emotion, culture, religion and ideology are the elements which play an important role on people's behavior in different deciding situations. (Macgoun, 1992).

Financial behavior paradigm reveals how the investors behave and how might their behavior affect the Financial markets (Kim and Nogsinger: 2008) and help them learn to behave rationally (Bhatla; 2009). In fact the conformity between investors' emotion and decisions is the base of financial behavior.

Financial behavior models are ranges of individual investor's behavior and the market results. Financial behavior has divided into two head categories: Massive and minor financial behavior. Indeed these two areas, review the both financial behavior and standard finance. Minor financial behavior deals with questions like: do individual investors behave, rationally or the perceptual errors and emotion affect them?

However in major financial behavior the question under investigation is; to what percent the efficient hypothesis can explain the Financial markets 'behavior and how are the market deficiencies explained (Eslami Bidgoli, 2009)

This paper concentrated on minor Financial behavior, is studied the investor's individual behavior and distinguishes the psychological mistakes and investigates their effect on investors decisions so that to be able to reduce the amount of mistakes.

Basically the standard financial science is constructed on the investors' behavioral way to distinguish the man's psychologically active phenomena in financial markets. However, the standard financial sciences construct its hypotheses based on an ideal financial behavior though the financial behavior hypothesis is based on the observed financial behavior.

According to Phama (1991) in an efficient market, the prices reflect the existing market news. An efficient market can be defined as one in which most of the rational investors are trying individually to maximize the stock profit.

Lots of studies have been done referring to the evidences which support the efficient market hypothesis. But one of the decision making difficulties is that the investors cannot acquire the complete information (Hirshleifer 2001). So inefficiency of the market causes in irrational decisions. However researchers have documented lots of stable anomalies which contradict with the efficiency hypothesis. There are three major types of market anomalies: fundamental hypothesis, technical anomalies and calendar anomalies. Getting to know these anomalies and trying to reduce them can help the investors to take rational decisions.

2. Rational decisions (unreal) investing and real investing

Investing decisions are supposed to be rationally decided. Although we can decide various element bases, but generally thinking, rational decision making is the best way of deciding. Therefore, it is recommended to decide rationally without the emotions and personal feelings interferences, to decide rationally and on real bases (Harrison, 1975). But the problem is that the concept of rational person is not clear enough and the persons decisions may deviate the standard presuppositions (Bolhuis: 2005). There might be a situation which takes away the rational behavior of the decider (Khoshnoud, 2004).

The investors' personality and his perception is an element to be considered in this way.

There have been lots of researches on investor's behavior and the parameter which may affect their benefits ; they have concluded that if the dealers could merge their portfolio well, it means that they could sell it to a higher price and buy in a lower price, this can be claimed as a rational behavior (Masonson ; 2007). Economic methodology is a proof in understanding man's behavior and his nature, this means the way he treats, not the way he has to and it is somehow related with financial behavior (Frankfurter ; 2004). Basically a rational economic person is someone who tries to achieve his goals with the minimum expense. (Fridson; 2007). Considering the importance of this model among economists, it was exposed to criticism by other economists like Thorstein Veblen and John Maynard Keynes. They think that no one can be aware of the whole events and maximize his expected desire every time through determining

his expectations. They suppose "limited rationality" instead in which all the trials for their decisions depend on organizing the personal information and limitation (Frankfurter; 2004). Simon's limited rationality considers that the person's choices are rational but are limited as man's limited knowledge and perception capacity. Limited rationality is related with methods in which the final choice is taken by decision. As logic contains a wide range of man's behavior, even though we consider the whole behaviors as rational and the decisions as intellectual we are still faced with errors which leave the concept of rationality in doubt. (McGoun, 1992).

Financial behavior management investigates that how managers gather the information, interpret and analyze it. The area mainly concentrates on perceptual and cognitive prejudgments. Such prejudgments can interfere in decisions and cause results lower than the optimized level because the emotions overcome the person's control and reshape his behavior (Rizzi ; 2008).

Behavioral scientists have got that people are involved with mental errors in their judgments under special conditions, which come to wrong expectations and wrong evaluation of the stock and finally results in irrational decisions (Fuller; 2000). On the other hand we know that perceptual abilities play an important role in man's decisions. Those who have a high perceptual ability and have a highly analyzing ability, behave rationally in their decisions. A group of scientists believe those elements and the emotions which are in person's unconscious affect his mind and shape his thoughts. So while it is possible that unconscious issues and their effect be the main reason for decision; the reasons which he uses in his consciousness may be just excuses for his decisions (khoshnoud, 2004). In relation with this subject we concentrate on systematic errors which cover investors' thoughts. Since it is supposed that people act rationally, that is always a contradiction between what they think and what they understand. So their contradiction results in psychological errors and it is joined with the story that most investors think they are the best decision makers. Furthermore they are looking for some data to confirm this idea which itself results in wrong decisions (Sheleifor; 2000) As their received information is not efficient.

Feeling (sense) is a psychological and physiological state of interaction between an object, a person or an event (Gholipour, 2008). Changing risk preference, media, society, linking illusion and overcoming illusion and similar cases affect peoples' emotion (Sheleifor; 2000).

Emotion changes to perception after analysis but the perceptions are not always according to reality; because there are lots of interfering issues which we will be discussed later on.

3. Perceptual errors of investing decisions

Perception is a process with which we organize and explain the environmental stimuli in order to get to expressive experiences. But what causes the investor to get into trouble in his decisions is his misperception of reality.

For explaining perceptual errors which are the effects of psychological status in normal and abnormal situations (McGoun; 1992) over confidence bias, availability bias, hindsight bias, Escalation of commitment, randomness bias, are considered in this paper. These errors cause most of the investors to have a special concern over their investing funds. As the investors spend most of their funds on stock market, such errors can be connected with their way of investing and funds and properties. This paper tries to reduce these errors in investing (Down; 2003). Understanding such mistakes as investing cognitive errors and trying the best to remove them, reduces their effect on investing decisions and potentially improve the investing results (Shefrin ; 2000).

3.1 Overconfidence bias: in its simplest way could be defined as an inopportune belief toward a witnessed reasoning, judgment and the person's cognitive abilities. Over confidence bias has an important role on stock business. Over confidence models have covered most of the psychological studies. These theoretical models are predicting that over confidence investors deal (invest) more than those who follow the logic (Gervis and Odean ; 2001).

Shiller clarifies the model in a way that the investor thinks he knows more than he needs and such a misbelief happens when people respect their personal information more than ever, over confidence indeed is person's desire to exaggerate his judgment and predictions (Razzi ; 2008).

Therefore, the investors who are looking for efficiency are more confident about future. This desire takes them to buy stocks with higher price and as they lack knowledge, it results in price reduction of the stock market and their potential efficiency decreases. Generally, pretended confidence causes the investor to buy an expensive stock and sell it in a low price (Zhu; 2003). This increases the amount of dealings and results in bubble price in financial markets (Johnsson et al., 2002).

3.2 Availability bias: The availability deviation is a general rule or a mental shortcut which lets people guess the probability of a result and to what percent it may appear in their daily life. Those who commit such a deviation consider the easily recalled events more probable than those they can hardly imagine or perceive.

Availability bias could be an effective stimulus in portfolio decisions. (Kim and Nofsinger; 2004). Availability bias declares the person's tendency toward deciding and judging based on available and easily accessible data. (Tversky and Kahneman ; 1982). Man's mind tends to decide quickly based on available data. Humans mind can recover the inspirational and recent events quickly. Evaluating the end of year or month events, those which are near to the end are more available than those at the beginning of the month, so affect the perception (Gholipour, 2007).

The information which are literally in access and those which are daily published are not available cognitively. Therefore when the sufficient information is not practically available, the investors decisions face deficiency (Montier, 2002).

3.3 Escalation of commitment: Another deviation which may occur in decisions is escalation decision. It occurs when there are successive decision making processes. Escalation of commitment refers to the argument that even if there is a wrong decision and the consequences confirm this, still there is an insist for continuing and it intensifies the case. Even when the person is responsible for his failure insistence on precious commitment increases to show that his initial decision was not wrong (Gholipour, 2007).

Part of this escalation is due to cognitive sunk costs that the person feels a pile of investing have been done on the decision.

Justifying the wrong decisions for keeping a positive face on wrong organization and evaluation at beginning of the project and estimating low risk and failure and estimating exceeding success, perception defense and ignoring negative data are of the causes for escalation of commitment (Schoorman and Holahan, 1996).

3.4 Randomness bias: the man's perception is more or less affected by luck and superstitions. But it differs in different cultures for example; believing in superstitions is high in the east. This is related to control center. People who have got an external control center believe in luck and superstitions more than those whose control center is internal. Those who have an internal control center think that they have control over their fate and world and can shape their future through rational decisions (Gholipour, 2007). These people even think that some events happen as the result of luck. It happens a lot in stock market when selling and buying stock. What causes the result of these superstitions on decision so inefficient is that the person implies those lucks and coincident differently. (Janes and Wells, 2002).

3.5 Hindsight bias: simply describing, deviation after an incident insists that "I knew it all long" when an event is over, those who are accustomed to perceiving deviation after occurrence often tend to suppose the event predictable even though it was not so. Hindsight is against insight and prediction. Sometimes people tend to believe that they can predict the consequences of an incident correctly but after the incident had happened. When an incident happens and the person follows the right way on the consequences, he can easily conclude that it was as obvious as he has predicted. Those who predict the winner in a football team are usually more than those who had predicted it before the match (Gholipour, 2008). So hindsight should over weigh in comparison to prediction (Anderson; 1993). Person's mind acts selectively in such situations and restores its prediction according to what has happened (Christensen, 1991)

4. The role of personality on investing decisions

As the decision makers perception is an important factor in his investing decisions, his personality is also interfering (Fromelt, 2001). Dealing is so mingled with psychological features which studying one is not possible without the other. Characteristic features like intellect and temper, point of view, all interfere in making decisions. In their models ideologists have always tried to avoid the decision makers personality and private values in his decisions. In spite of this, efforts for rationalizing the decision are an active key element in his decision makings. Person's opinion, their risk potential, his experience is important in his way of deciding (Khoshnoud, 2004).

Financial literature is important for investors' behaviors in deciding. In addition to sociological factors like age, gender, output, personality play an important role in behavioral deviations.

4.1 Big Five model

One of the most popular models on personality is the big five model. Lots of studies and researches have been done to improve the popularity of the model and it is considered as the base of other models (Nichelson et al., 2005).

4.1.1 Extroversion: An extroverted person usually focuses on external elements and is under their influence. Extroverted people consider a lot on the external elements and do not take their personal deeds as the result of intellectual evaluation but the result of external element. Extroverts are warm blooded, friendly, sociable, they consider tangible and intangible they easily fall in love and fall out of love, they decide easily and live in present time, they are not bounded to principles. They are not tended to control themselves or have self – restraint. Low intellectuality, declaring weaknesses, poor endurance and resistance, rashness, carelessness, poor ambitious,

flexibility, sense of humor, simulation, easily trusting, easily deciding, living in present, esteeming his social success and his properties, unfaithfulness characteristic their are (Gholipour, 2007).

First hypothesis: there is a significant correlation between being extroverted and investors' perceptual errors.

4.1.2 Agreeableness: Agreeableness reflects the person's differences in relation with social co operations. This refers to person's tendency to respect the others; they can easily attract people's reliance (Gholipour, 2007, 2009). They are really sincere and honest and deceiving people is hard for them and they have limited their needs and show priority toward other people's needs. These people like to be flexible toward others desires. Agreeableness manners are: trust, straight forwardness, modesty (Farzanepey, 2006).

Second hypothesis: There is a significant correlation between conscientiousness and the investors' perceptual errors in stock market.

4.1.3 Conscientiousness: This depends on the people's trustfulness and is related with the way we control and adjust our motivation. Conscientious people are responsible, sable, struttred and trusted. Unconscientious man is structure less unreliable and ill-structured (Gholipour, 2007, 2009). Conscience a tendency for improvement person's risk potential (Nichelson, 2005, 161), Conscientiousness manners are: competence, order, dutifulness, self-discipline, neuroticism, and cautious in deciding (Farzanepey, 2006).

Third hypothesis: there is a significant correlation between agreeableness and the investors' perceptual errors in stock market.

4.1.4 Neuroticism: Neuroticisms are those who lack enough and efficient methods for solving their personal goals, are self-centered and selfish and are looking for superior goals. So, to achieve this, they act flexibly and for their lack of social desire, they like to be praised .Neuroticism manners include: anxiety, angry, depression, impulsiveness and vulnerability (Farzanepey, 2006).

Fourth hypothesis: There is a significant correlation between the neuroticism and the investors' perceptual errors.

4.1.5 Openness to experience: This refers to flexibility and desire for new elements (Gholipour, 2007). A flexible person tends agree on new ideas and uncommon values and are susceptible to receive new political, social and ethnic beliefs. These people have got limited area of interest but are more stable on their domain and activities. They prefer simplicity and clarity to complexity and vagueness. Flexibility manner are: fantasy, feelings, ideas (Farzanepey, 2006).

Fifth hypothesis: There is a significant correlation between openness and investors' perceptual errors.

5. Research method

The aim of this paper is to study the relation among five characteristics with the investors' perceptual errors and trying to reduce the investors' errors in stock markets. The present study is practically aimed and the data is gathered descriptively and correlatively.

5.1 *Population and sample*: Population includes all the investors, experts and specialists of investing institution, fund ensuring institutions, common investing funds, stock market against, stock market organization and Tehran's stock market. Determining sample numbers has been done through 200 samples was chosen trough simple random sampling.

5.2 *Data gathering tools*: For gathering data two questions have been used. The standards five parameter charter (extroversion, agreeableness, conscientiousness, neuroticism and openness) has got 44 questions and the investors' perceptual errors (over confidence bias, availability, hindsight, escalation of commitment, randomness) contained 44 questions either.

5.3 *Validity and reliability of inquiry*: for testing the currency we have used the financial and behavioral experts' ideas and any vagueness of the questions have been removed and corrected. For determining the reliability of the paper we have use Chronbakh's Alpha model. Reliability of the characteristic questionnaire was 0.79 and the reliability of the investors perceptual errors questionnaire was 0.79.

5.4 *Data analysis*: The method of descriptive and correlation is used for analyzing the data. For describing the population research variants we have used methods of descriptive statistics like amplitude and rate and diagram, for investigating the research hypothesis we have used exploratory factor analysis and spearman's correlation analysis.

For the analysis of the present research questionnaires we have used the transient matrix with the Varimax rotation methods which are used for explaining and recognizing parameters. Generally, five main characteristic parameters explained %43 of the variants. Despite the primary expectations perceptual illusion questions were department on eight factors rather than five because of the errors similarity and their over lapping.

The result of parametric analysis shows that the research variables have been measured efficiently using the proper research tools. Spearman's correlation coefficient of extroversion and hindsight bias equals 0.191 and the observed significant on numerical value equals 0.020 which is lower than the standard numerical value ($\alpha = 0.05$). So there is a significant relation between extroversion and hindsight bias in 0.95 reliability level, considering the positive sign of correlation coefficient in the followed variables, so we can say that these variables are in the same direction and are direct.

Spearman's correction coefficient between dutifulness and randomness bias equals -0.226. The observed numerical value sign was 0.003 which is a significant ($\text{sig} < 0.01$) and it is lower than standard ($\alpha = 0.01$). Therefore, there is a significant relation between these two variables in the reliability level 0.99. Considering negative sign of correlation coefficient between these two variables, we can argue that the direction of those two variables is in the reverse direction

Spearman's correction coefficient between neuroticism and randomness bias equals 0.277. the observed numerical value (sign) for the two test equal 0.000 that is ($\text{sig} < 0.01$) and it is lower than the standard numerical value of the standard level ($\alpha = 0.01$), so the two variable have got a significant relation in the reliability level of 0.99.

Furthermore the Spearman's correction coefficient between the neuroticism and the escalation of commitment is 0.179 and it is 0.159 between neuroticism and availability bias and the observed neuroticism value ($\text{sig} < 0.01$) and it is lower than the numerical value of the standard level ($\alpha = 0.05$), so there is a significant relation between neuroticism and the escalation of commitment in the reliability level of 0.95. Considering the positive sign of the coefficient between these two variables, so we can argue that variety direction of these are at the same direction and direct.

Spearman's correction coefficient between the openness and hindsight equals 0.259 and is 0.441 for openness and over confidence and -0.153 for openness and availability. The observed numerical values are 0.010, 0.000 respectively in which ($\text{sig} < 0.01$) and 0.048 in which ($\text{sig} < 0.05$) that they are lower than the standard reliability level ($\alpha = 0.01$) and ($\alpha = 0.05$). So there is a significant relation between openness and hindsight and also between openness and over confidence at the relational level of 0.99 and between openness and availability at the reliability level of 0.95. considering the positive sign in openness and over confidence bias and also the one in openness and hindsight bias, we can argue that the direction of the two variables are same and is direct. Finally there is a reverse relation between openness and availability bias.

6. Conclusion

Considering the above hypotheses we can conclude that there is a strong relation between the investors' personality and the perceptual errors in Tehran's stock market and these results agree with the research literature. Four of the offered hypotheses were confirmed and one was rejected. The results agreed with Andersons studies on personality and its effect on investors' behavioral errors. The results from the first hypothesis show that there is a relation between extroversion and hindsight bias which is positive. So it is suggested that there should be a transparency in order to reduce the errors in the stock market and help the investors to make the best decisions. Also holding training courses can improve the investors rationally state of mind.

On the basis of the results the second hypothesis was rejected and there was no relation between the investors' agreeableness and perceptual errors.

The results from the third hypothesis show that there is a reverse relation between dutifulness and randomness bias, so we suggest holding workshops for improving the investors' sense of conscientiousness. The fourth hypothesis results show that there is a straight relation between neuroticism and randomness bias, and between hindsight bias and availability. So it is suggested that by training the investors to overcome stress and anxiety using the educational software's for reducing the self delusion and using the informative systems which facilitated the information accessing, will reduce the errors, less but not most, in order to overcome the accessibility bias, the investors need to think and study the investing decisions beforehand. If we consider availability bias

The results of fifth hypothesis show that there is a direct relation between openness and hindsight and over confidence bias and there is a reverse relation between openness and availability bias. So the curious, creative and flexible investors face with hindsight which intensifies over confidence.

The possibility of availability bias in them is less. So it is suggested that public notice through media in various investing fields should be done to reduce the investing biases.

The following suggestion seems necessary for future studies: Some other personality models like, MBTI index to be studied for investors perceptual errors; The relation between the investors' views and values with perceptual errors should be studied; Investigating investors' emotions and perceptual errors; Investigating some other errors like negative perceptions halo effect (generalizing a company's positive state to other parameters) which can affect on

investors behavior; Studying the relation of culture, personality and perceptual errors of the inventors, as personality is influenced by culture.

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