Project Dissertation

on

INVESTOR'S BEHAVIOR ANALYSIS

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CERTIFICATE

This is to certify that the Project Report titled Investor's Behavior Analysis, is a bonafide work carried out by Ms. Vasudha of MBA 2014-16 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

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DECLARATION

I, Vasudha, student of MBA 2014-16 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that Project Report on Investor's Behavior Analysis submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge. This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Vasudha

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ABSTRACT

Expected utility theory views the individual investment decision as a tradeoff between immediate consumption and deferred consumption. But individuals do not always prefer according to the classical theory of economics. Recent studies on individual investor behavior have shown that they do not act in a rational manner, rather several factors influences their investment decisions in stock market. The present study considers this theory of irrationality of individual investors and investigates into their behavior relating to investment decisions. We examine whether some psychological and contextual factors affect individual investor behavior. Extrapolating from previous literature on economics, finance and psychology, we surveyed individual investors to find what and to what extent affects their investment behaviour. Our analysis is based on questionnaire regarding the behavior of investor under different circumstances in Indian Stock Market. We have identified four different factors which have various biases associated with them as Heuristics, Prospect, Market and Herding variables. The findings can be useful in profiling individual investors and designing appropriate investment strategies according to their personal characteristics, thereby enabling them optimum return on their investments. The findings will be useful for investors to understand common behaviors, from which justify their reactions for better returns and also helpful to the financial planners to device appropriate asset allocation strategies for their client

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CHAPTER 1

INTRODUCTION

1.1.   Problem of the study

For a long time, the investors' full rationality was the main hypothesis of the most academic research in finance. In fact, it was mainly supposed that stock prices are fixed by rational investors' anticipations and reactions. But there is a huge number of irrational investors in the market whose behaviour influences the market. This study focuses on the psychological biases influencing individual investors trading in an Indian context.

1.2.   Rationale of the study

Recent studies on individual investor behaviour have shown that they do not act in a rational manner, rather several factors influences their investment decisions in stock market.

We examine whether some psychological and contextual factors affect individual investor behaviour and if yes which factors influences most. Extrapolating from previous literature on economics, finance and psychology, we surveyed individual investors to find what and to what extent affects their investment behaviour. Our conceptual analysis, empirical findings and the perspective framework that we have developed in the present study, provide four major factors that can influence individual investor behaviour in Indian stock market. The data was collected through a structured questionnaire that consisted of indirect questions followed by a set of responses associated with the different predetermined behavioural factors. The findings can be useful in profiling individual investors and designing appropriate investment strategies according to their personal characteristics, thereby enabling them optimum return on their investments.

1.3.   Literature Review

1.3.1. Definition on Behavioural Finance

 "Behaviour of investor is a part of behaviour finance, which seeks to understand and predict systematic financial market implications of psychological decision processes. Behaviour finance closely combines individual behaviour and market phenomena and uses knowledge taken from both the psychological field and financial theory."

1.3.2. Theories and Factors of Behaviour Finance

1.3.2.1.   Heuristics theory

Heuristics are defined as the rules of thumb, which makes decision making easier, especially in complex and uncertain environments (Ritter, 2003, p. 431) by reducing the complexity of assessing probabilities and predicting values to simpler judgments (Kahneman & Tversky, 1974, p. 1124). In general, these heuristics are quite useful, particularly when time is limited (Waweru et al., 2008, p. 27), but sometimes they lead to biases (Kahneman & Tversky, 1974, p. 1124; Ritter, 2003, p. 431). Kahneman and Tversky seem to be ones of the first writers studying the factors belonging to heuristics when introducing three factors namely representativeness, availability bias, and anchoring (Kahneman & Tversky, 1974, pp. 1124–1131). Waweru et al. also list two factors named Gambler's fallacy and Overconfidence into heuristic theory (Waweru et al., 2008, p. 27).

Representativeness refers to the degree of similarity that an event has with its parent population (DeBondt & Thaler, 1995, p. 390) or the degree to which an event resembles its population (Kahneman & Tversky, 1974, p. 1124). Representativeness may result in some biases such as people put too much weight on recent experience and ignore the average long-term rate (Ritter, 2003, p. 432). A typical example for this bias is that investors often infer a company's high long-term growth rate after some quarters of

increasing (Waweru et al., 2008, p. 27). Representativeness also leads to the so-called "sample size neglect" which occurs when people try to infer from too few samples (Barberis & Thaler, 2003, p. 1065). In stock market, when investors seek to buy "hot" stocks instead of poorly performed ones, this means that representativeness is applied. This behaviour is an explanation for investor overreaction (DeBondt & Thaler, 1995, p. 390).

The belief that a small sample can resemble the parent population from which it is drawn is known as the "law of small numbers" (Rabin, 2002, p. 775; Statman, 1999, p. 20) which may lead to a Gamblers' fallacy (Barberis & Thaler, 2003, p. 1065). More specifically, in stock market, Gamblers' fallacy arises when people predict inaccurately the reverse points which are considered as the end of good (or poor) market returns (Waweru et al., 2008, p. 27). In addition, when people subject to status quo bias, they tend to select suboptimal alternative simply because it was chosen previously (Kempf & Ruenzi, 2006, p. 204).

Anchoring is a phenomena used in the situation when people use some initial values to make estimation, which are biased toward the initial ones as different starting points yield different estimates (Kahneman & Tversky, 1974, p. 1128). In financial market, anchoring arises when a value scale is fixed by recent observations. Investors always refer to the initial purchase price when selling or analyzing. Thus, today prices are often determined by those of the past. Anchoring makes investors to define a range for a share price or company's income based on the historical trends, resulting in under-reaction to unexpected changes. Anchoring has some connection with representativeness as it also reflects that people often focus on recent experience and tend to be more optimistic when the market rises and more pessimistic when the market falls (Waweru et al., 2008, p. 28).

When people overestimate the reliability of their knowledge and skills, it is the manifestation of overconfidence (DeBondt & Thaler, 1995, p. 389, Hvide, 2002, p. 15). Many studies show that excessive trading is one effect of investors. There is evidence showing that financial analysts revise their assessment of a company slowly, even in case there is a strong indication proving that assessment is no longer correct. Investors

and analysts are often overconfident in areas that they have knowledge (Evans, 2006, p. 20).

Overconfidence is believed to improve persistence and determination, mental facility, and risk tolerance. In other words, overconfidence can help to promote professional performance. It is also noted that overconfidence can enhance other's perception of one's abilities, which may help to achieve faster promotion and greater investment duration (Oberlechner & Osler, 2004, p. 3). If an investor overestimates his ability to generate information or to identify the significance of existing data that others neglect, he will underestimate his forecast errors; he will tend to be overconfident about the information he has generated but not about public signals. Thus the person who overestimates the precision of his own information signal instead of received publicly information signals is defined as an overconfident investors. The author of the above statement is Kent Daniel, David Hirshleifer and Avanidhar Subramanian (1998). People tend to think that they are better than they really are (Trivers, 1991). Both the psychology and the recent finance literature characterize people with this type of behaviour as being "overconfident." Studies in human behaviour have shown that overconfidence is a major contributing factor to overtrading phenomenon of financial market participants. Barber and Odean (1999) attributed the high volume of trading to investors 'overconfidence, in which makes investors believe their own judgment too definitely and not enough consider others' assessment. The role of overconfidence in the tradingtendency of stock has been studied by Grinblatt and Keloharju (2006). They analyzed and found that overconfident investors tend to trade more frequently.

Availability bias happens when people make use of easily available information excessively. In stock trading area, this bias manifest itself through the preference of investing in local companies which investors are familiar with or easily obtain information, despite the fundamental principles so-called diversification of portfolio management for optimization (Waweru et al., 2003, p. 28).

1.3.2.2.   The Prospect Theory

"Prospect theory, which was developed by Kahneman and Tversky (1979), is one of the most often quoted and best-documented phenomena in economic psychology. The theory states that we have an irrational tendency to be less willing to gamble with profits than with losses." Tvede (1999, p. 166) prospect theory showed human behaviour when they face with risk and uncertainly. In particular, people are prone to certainty, therefore people overweight on the outcomes that are perceived more certain than that are considered mere probable. This called certainty effect that human beings are not consistently risk-averse; rather they are risk-averse in gains but risk-takers in losses (Kishore, 2004). In other words, traders are most inclined to take subsequent risks if they have already experienced losses. By contrast, trader who have experienced profit, usually their exposure to the next risk. Therefore, people respond differently, depending on whether the choices are framed in terms of gains or in term of losses. The most famous example of framing effects was illustrated by Tversky and Kahneman (1981).

Loss aversion refers to the difference level of mental penalty people have from a similar size loss or gain (Barberis & Huang, 2001, p. 1248). There is evidence showing that people are more distressed at the prospect of losses than they are pleased by equivalent gains (Barberis & Thaler, 2003, p. 1077). Moreover, a loss coming after prior gain is proved less painful than usual while a loss arriving after a loss seems to be more painful than usual (Barberis & Huang, 2001, p. 1248). In addition, Lehenkari and Perttunen (2004, p. 116) find that both positive and negative returns in the past can boost the negative relationship between the selling trend and capital losses of investors, suggesting that investors are loss averse. Risk aversion can be understood as a common behaviour of investor, nevertheless it may result in bad decision affecting investor's wealth (Odean, 1998a, p. 1899).

Mental accounting is a term referring to "the process by which people think about and evaluate their financial transactions" (Barberis & Huang, 2001, p. 1248). Mental accounting allows investors to organize their portfolio into separate accounts (Barberis & Thaler, 2003, p. 1108; Ritter, 2003, p. 431). From own empirical study, Rockenbach

(2004, p. 524) suggests that connection between different investment possibilities is often not made as it is useful for arbitrage free pricing.

 An important thing is that prospect theory is suggested an alternative model of expected utility theory following Von Neumann Morgenstern rationality. It differs from expected utility theory in a number of important respects. First, the value maximization the function of the prospect theory is value which is different from that of the value maximization function of expected utility theory is utility (Plous, 1993). This mean whereas wealth maximization of the prospect theory is values between gains and losses, rather than over the final wealth position as in expected utility theory. Moreover, the value function is normally concave for gains, commonly convex for losses, and is generally steeper for losses than for gains (Kahneman & Tversky, 1979). These differences lead to several noteworthy results. Plous (1993) noted that because the value function for losses is steeper than that for gains, losses or loom larger than gains. For instance, a loss of 500 is felt more than a gain of 500.

1.3.2.3.   Market Factor

DeBondt and Thaler (1995, p. 396) state that financial markets can be affected by investors' behaviours in the way of behavioral finance. If the perspectives of behavioral finance are correct, it is believed that the investors may have over- or under-reaction to price changes or news; extrapolation of past trends into the future; a lack of attention to fundamentals underlying a stock; the focus on popular stocks and seasonal price cycles. These market factors, in turns, influence the decision making of investors in the stock market. Waweru et al. (2008, p. 36) identifies the factors of market that have impact on investors' decision making: Price changes, market information, past trends of stocks, customer preference, over-reaction to price changes, and fundamentals of underlying stocks.

Market Efficiency (Luu, 2012a), in the sense that market prices reflect fundamental market characteristic and that excess returns on the average are leveled out in the long run, have been challenged by behaviour finance. There have been the numbers of studies

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pointing to market anomalies that cannot be explained with the help of standard financial theory, such as abnormal price movements in connection with IPOs, mergers, stock splits and spin-off. Throughout the 1980s and 1990s statistical anomalies have continued to appear which suggests that the existing standard finance models are, if not wrong, probably incomplete. Investors have been shown not to react logically to new information but to be overconfident and to alter their choices when given superficial changes in the presentation of investment information (Olsen, 1998). During the few years there has, for example, been a media interest in technology stocks. Most of the time, as we know in retrospect, there was a positive bias in media assessments, which might have lead investors in making incorrect investment decisions. These anomalies suggest that the underlying principles of rational behaviour underlying the efficient market hypothesis are not entirely correct and that we need to look, as well, at other models of human behaviour, as have been studies in other social sciences (Shiller, 1998).

Normally, changes in market information, fundamentals of the underlying stock and stock price can cause over/under-reaction to the price change. These changes are empirically proved to have the high influence on decision-making behaviour of investors. Researchers convince that over-reaction (DeBondt & Thaler, 1985, p. 804) or under-reaction (Lai, 2001, p. 215) to news may result in different trading strategies by investors and hence influence their investment decisions.

Waweru et al. (2008, p. 36) conclude that market information has very high impact on making decision of investors and this makes the investors, in some way, tend to focus on popular stocks and other attention-grabbing events that are relied on the stock market information. Moreover, Barber and Odean (2000, p. 800) emphasize that investors are impacted by events in the stock market which grab their attention, even when they do not know if these events can result good future investment performance. Odean (1998a, p. 1887) explores that many investors trade too much due to their overconfidenceThese investors totally rely on the information quality of the market or stocks that they have when making decisions of investment. Waweru et al. (2008, p. 37) indicate that price change of stocks has impact on their investment behaviour at some level. Odean (1999,

p. 1292) states that investors prefer buying to selling stocks that experience higher price changes during the past two years. Change in stock price in this context can be considered as an attention-grabbing occurrence in the market by investors. Additionally, Caparrelli et al. (2004, p. 223) propose that investors are impacted by herding effect and tend to move in the same flow with the others when price changes happen. Besides, investors may revise incorrectly estimates of stock returns to deal with the price changes so that this affects their investment decision-making (Waweru et al., 2008, p. 37).

Many investors tend to focus on popular stocks or hot stocks in the market (Waweru et al., 2008, p. 37). Odean (1999, p. 1296) proposes that investors usually choose the stocks that attract their attention. Besides, the stock selection also depends on the investors' preferences. Momentum investors may prefer stocks that have good recent performance while rational investors tend to sell the past losers and this may help them to postpone taxes. In contrast, behavioral investors prefer selling their past winners to postpone the regret related to a loss that they can meet for their stock trading decisions (Waweru et al., 2008, p. 30). Besides, past trends of stocks are also explored to impact the decision making behaviour of the investors at a certain level by Waweru et al. (2008, p. 37). In this concept, investors usually analyze the past trends of stocks by technical analysis methods beforedeciding an investment.

In general, market factors are not included in behavioral factors because they are external factors influencing investors' behaviours. However, the market factors influence the behavioral investors (as mentioned above) and rational investors in different ways, so that it is not adequate if market factors are not listed when considering the behavioral factors impacting the investment decisions. Together with the research of Waweru et al. (2008), this research treats the market factors fairly as behavioral factors influencing the decisions of investors in the stock market.

1.3.2.4.   Herding Effect

Herding effect in financial market is identified as tendency of investors' behaviours to follow the others' actions. Practitioners usually consider carefully the existence of

herding, due to the fact that investors rely on collective information more than private information can result the price deviation of the securities from fundamental value; therefore, many good chances for investment at the present can be impacted. Academic researchers also pay their attention to herding; because its impacts on stock price changes can influence the attributes of risk and return models and this has impacts on the viewpoints of asset pricing theories (Tan, Chiang, Mason & Nelling, 2008, p. 61). In the perspective of behaviour, herding can cause some emotional biases, including conformity, congruity and cognitive conflict, the home bias and gossip. Investors may prefer herding if they believe that herding can help them to extract useful and reliable information. Whereas, the performances of financial professionals, for example, fund managers, or financial analysts, are usually evaluated by subjectively periodic assessment on a relative base and the comparison to their peers. In this case, herding can contribute to the evaluation of professional performance because low-ability ones may mimic the behaviour of their high-ability peers in order to develop their professional reputation (Kallinterakis, Munir & Markovic, 2010, p. 306).

 In the security market, herding investors base their investment decisions on the masses' decisions of buying or selling stocks. In contrast, informed and rational investors usually ignore following the flow of masses, and this makes the market efficient. Herding, in the opposite, causes a state of inefficient market, which is usually recognized by speculative bubbles. In general, herding investors act the same ways as prehistoric men who had a little knowledge and information of the surrounding environment and gathered in groups to support each other and get safety (Caparrelli et al., 2004, p. 223). There are several elements that impact the herding behaviour of an investor, for example: overconfidence, volume of investment, and so on. The more confident the investors are, the more they rely on their private information for the investment decisions. In this case, investors seem to be less interested in herding behaviours. When the investors put a large amount of capital into their investment, they tend to follow the others' actions to reduce the risks, at least in the way they feel. Besides, the preference of herding also depends on types of investors, for example, individual investors have tendency to follow the crowds in making investment decision more than institutional investors (Goodfellow, Bohl & Gebka, 2009, p. 213). Waweru et al. (2008, p. 31) propose that herding can drive stock

trading and create the momentum for stock trading. However, the impact of herding can break down when it reaches a certain level because the cost to follow the herd may increase to get the increasing abnormal returns.

Previous studies report that investors decrease the selling decisions of assets that get a loss in comparison to the initial purchasing price, a trend called the "disposition effect" by Shefrin and Statman (1985, p. 778). Odean (1998b, p. 1795) confirms the same conclusion that individual investors tend to sell stocks which their values, in comparison to their original buying price, increase rather than sell the decreasing stocks. However, it is difficult to demonstrate this phenomenon in the rational ground. It is not really reasonable to conclude that investors rationally sell winning stocks because they can foresee their poor performance. Besides, Odean also recognizes that the average return of sold stocks is greater than that of the average return of stocks that investors hold on. Genesove and Mayer (2001, p. 19) state that investors who sell their assets at the price less than original purchase price usually expect the selling price is more than other sellers' asking price. It is not only the expectation of the sellers, but also the correction of market decides the selling price: investors encountering aloss often do the transaction at the relatively higher price than others. Coval and Shumway (2000, p. 3) find that investors, according to prospect theory, having gains (losses) in the first half of trading day tend to take less (more) risk in the second half of trading day. Grinblatt and Han (2001, p. 1) claim that the behaviour of investors which is described as the disposition effect can be considered as a puzzling characteristic of the cross-section of average returns, called momentum in stock returns. In which, investors prefer selling a stock that has helped them to gain capital.

The selling pressure can firstly slow down the stock price, and then create higher returns. In contrast, if the stockholders are experiencing capital losses, they may merely make decision of selling when an expected price is given. In this case, the price may be initially increased, leading to lower returns later.

Odean (1999, p. 1293) provides several understandings about the preferable stocks that individual investors would like to buy. As mentioned above, selling decisions mainly prioritize winning stocks; whereas, buying decisions are related to both prior winning

and losing stocks. Odean states that the buying decisions may be a result of an attention effect.

When making a decision of stock purchase, people may not find a good stock to buy after considering systematically the thousands of listed securities. They normally buy a stock having caught their interest and maybe the greatest source for attention is from the tremendous past performance, even good or bad.

According to Barberis and Thaler (2003, p. 1103), individual investors seem to be less impacted by attention-grasping stock for their selling decisions because the selling decision and the buying decision are differently run. Because of short-sale restraints, when deciding to choose a stock for selling, they can only focus on the stocks that currently belong to them. Whereas, with a buying decision, individuals have a lot of chances to choose the wanted stocks from the wide range of selective sources, this explains why factors of attention impact more on the stock buying decisions than the selling decisions.

Barber and Odean (2002, p. 2) already prove that the selling decisions are less determined by attention than buying decisions in case of individual investors. To give this conclusion, they create the menu of attention-grasping stocks with several criteria: unusually high trading volume stocks, abnormally high or low return stocks, and stocks including news announcements. Eventually, the authors explore that the individual investors in their sample are more interested in purchasing these high-attention stocks than selling them. As such, from the viewpoints of behavioral finance, the investor behaviours impact both selling and buying decisions at different levels, and then they also impact the general returns of the market as well as the investment performance of individuals.

As mentioned in the literature review above, it is that behavioral factors impact the investment decisions of investors in the financial markets, especially in the stock markets. This study explores the influence levels of the behavioral variables on the individual investors' decisions and at the Ho Chi Minh stock market, as in the following research model.

1.4. Objective

Unlike institutional investors, individual investors are believed to be less informed, have psychological biases and also thought of as the proverbial noise traders in the stock market. The researchers in finance tend to give more importance to the behaviour of institutional investors rather than that of their individual counterparts as far as their respective role in affecting stock prices is concerned. It is believed that trading behaviour of individual investors rarely influences the stock prices. But here we focus on individual behaviour.

Despite the growing interests of finance researchers in this upcoming and relatively new stream popularly known as behavioural finance, very few studies in India have been undertaken with reference to the behaviour of individual investors. Individual investors are said to be influenced by some psychological biases. These biases tend to affect their behaviour in financial decision making and subsequently their trading behaviour in stock market. It is, therefore, important to identify the factors most influential to individual trading behaviour. Identifying psychological factors affecting individual trading behaviour and then confirming the presence of these factors among Indian individual investors will help establish the fact that Indian individual investors tend to make trading decisions under the influence of specific psychological biases, and that their trading behaviour is further having a significant relationship with stock price movements.

This study has defined certain objectives as:

    (i)   to identify the psychological biases which determine individual investor trading behaviour;

    (ii)   to examine the extent to which these psychological biases are responsible for individual investment behavior;

    (iii)   to check which factors induces the investment behavior among Indian individual investors

One of the above-mentioned objectives of this study is to explore the factors influencing the Indian individual investor behaviour. Examination of factors influencing the individual investor behaviour is important for all the stakeholders of the stock market, as

an understanding of what affects investor behaviour and how investors respond to market movements would affect their future plans and help them/their financial advisors devise appropriate asset allocation strategies to reap the benefits of equity investments. Even for companies, identifying the most influencing factors on their investors' behaviour would affect their future policies and strategies.

1.5. Methodology

1.5.1. Data

We were interested with the attitude and behaviour of individual equity investors that might be influenced by psychological biases. These data cannot come from the prices of the stocks, but should come from investors. The data was collected in the form of questionnaire from the Indian equity investors. The sample size was 100, and the survey was conducted in Rohini area, Delhi. Convenience sampling was used to collect the data, so people with different demographics were used.

1.5.2. Instrument

In the questionnaire are included simple and direct questions in order to avoid any confusion on the part of the respondents; each question is based on some specific scenario relating to stock market investing and equity investment decision-making. These scenarios are very much similar to the situations faced by investors while investment decision-making in stock market. Such scenario-based questions help respondents relate themselves to hypothetical situations in stock market and thus, it would be easier to mark their responses. Since, respondents' orientation may be reflected in their answers, they are asked direct questions covering all the shortlisted behavioral factors. The survey questionnaire consists of five parts, one each for personal information, use of heuristics, use of prospect theory, market, and herding behaviour. Personal information segment asks the respondents to give details about their age, gender, annual income, annual investment, modes of investment, and media to obtain information. This information will help the researcher draw some conclusion on the basis of demographic profile of investor respondents. Second segment, i.e., the use of

heuristics includes questions covering representativeness, overconfidence, anchoring, gambler's fallacy, and availability biases. While third segment on the use of prospect theory covers loss aversion, regret aversion, and mental accounting biases. Fourth segment discusses the impact of market and fifth one the impact of family and friends on decision making.

All the sections except first one are based on the five-point Likert scale which seems appropriate and ideal for the survey instrument used in the present study. In fact, the sample respondents were given scenario based questions to which they were asked to mark their response in a range from 1 (strongly disagree) to 5 (strongly agree).

1.5.3. Techniques

The questionnaire was designed and circulated amongst people in two forms, online through google forms and in hard copies. People were asked to fill the forms according to their convenience. Anonymous forms were asked to be filled as not necessarily everyone wants to share this type of information.

People were asked about their age, gender, annual income, annual investment, their information source and type of investment. Once the data was collected, MS Excel was used for the analysis. We calculated the mean and standard deviation of each of the factor to conclude how much impact each factor has on investor's behaviour.

1.6. Plan of the study

This study is one of the few studies on investor's behaviour conducted in India. It is to know how Indian investors behave in different situations, about their psychological biases. This study may be useful in understanding the Indian stock market. As previous studies say, irrational investors play a significant role in price changes.

CHAPTER 2

INVESTOR'S PROFILE AND INVESTMENT PATTERN

Under the profile of investor, we gathered information like Investor's age, gender, annual income, annual investment, kind of investment, and source of market information.

Based on the sample population, we have gathered this information about the demographics.

Age(years)	Percentage of people	Risk Taking
22-28	43%	Low
29-45	35%	Moderate
Above 46	22%	High

Table 2.1

Gender	Percentage
Male	57%
Female	43%

Table 2.2

Annual Income (INR)	Percentage of Investment
Less than 6,00,000	12%
6,00,000-15,00,000	18%
15,00,000-25,00,000	23%
Above 25,00,000	15%

Table 2.3

Based on the tables above, people in their twenties invest in larger number, followed by others and men invest in shares more than women. As the focus was largely on the behaviour of people investing in shares, 83% people here invested in shares

And based on the annual income and investment of people, it was seen that youngsters were spending higher percentage of their income in shares and at the same time they were lesser risk averse than others. Although they fell in lesser income slab but invested more. This may be because expenses are less in early age and lesser responsibilities are there. But as they age they have more expenses and can't risk their money.

It was also seen that people of lesser age were more alert regarding the market news, although they do not react immediately but utilizes the opportunities.

CHAPTER 3

INVESTOR'S BEHAVIOUR ANALYSIS

The questionnaire was based on different behaviour factors. They are identified for different questions in the table below.

3.1. Evaluation of Behavioral Factors

Because 5-point scales are used to measure the impact levels of these variables, the mean values of these variables can decide their impact levels on the investment decision as the following rules:

1. Mean values are from 1 to 2 shows that the variables have low.
2. Mean values are from 2 to 3 shows that the variables have moderate.
3. Mean values are from 3 to 4 shows that the variables have high.
4. Mean values are more 4 shows that the variables have very high.

3.1.1. Impact of Heuristics Variables on the Investment

3.1.1.1. Anchoring

Has high impact (Mean=3.72)

This reflects that many people use techniques to analyze and predict the changes of stock prices in the future based on the previous prices while others prefer other information rather the price, which can be available information

3.1.1.2. Prudence and Precaution

Has high impact (Mean=3.27)

This means investor tends to choose a target price first, so that a precaution is taken previously and as its impact is high, mostly it is done.

S.No	Approach	Behaviour	Variable Code	Scenario
1	Heuristic	Anchoring	V1	Forecast Changes
		Overconfidence	V2	Skills help to outperform in market
		Prudence and Precaution	V3	Choose Target Price
2	Prospect	Regret Aversion	V4	Buy shares if rumor of price increase
		Loss Aversion	V5	Sell if price go down
		Conservatism	V6	Abstain and wait, if good news
			V7	Reduce position if bad news
		Self-Attribution Bias	V8	Buy if perceived increase
			V9	Sell if perceived decrease
			V10	Personal needs influence
3	Market	Market Information	V11	Carefully consider the price changes
			V12	Reputation of the firm
			V13	Keep check on firm's information
		Past Trends	V14	Frequently use media
			V15	Frequently check past trends
4	Herding	Volume of Stock	V16	Volume of stock traded by others
		Choice of Stock	V17	Other's buying and selling of stocks
		Speed of Herding	V18	React quickly to others decision

Table 3.1

Variable	Mean	Standard Deviation
V1	3.72	0.7
V2	2.45	1.01
V3	3.27	0.88
V4	3.227	1.067
V5	3.318	0.893
V6	2.36	0.9
V7	2.72	0.827
V8	2.954	0.898
V9	2.72	0.827
V10	2.63	1.048
V11	3.18	1.006
V12	3.27	0.985
V13	3.227	0.812
V14	3.27	0.767
V15	3.72	0.767
V16	2.7727	0.869
V17	2.54	0.8
V18	2.7727	0.812

Table 3.2

3.1.1.3.   Overconfidence

Has moderate impact (Mean=2.45)

This factor has moderate impact with high standard deviation that means people tend to behave in a rapid manner before actually considering all the factors.

3.1.2. Impact of Prospect Variables on the Investment

3.1.2.1 Regret Aversion

Has high impact (Mean=3.23)

It infers that investors seem to be more willing to sell shares increasing in value than decreasing ones. Many people think that they do not lose until they sell the losing stocks, thus, they refuse to sell them although selling may be the best solution at this time.

3.1.2.2. Loss Aversion

Has high impact (Mean=3.32)

In terms of loss aversion, the result demonstrates that to some extent, after a gain, the investors become more risk seeking whereas after a loss, they tend to be more risk averse. These are normal reactions of investors because the prior investment success encourages them so much whereas the failure surely depresses them a lot. However, loss aversion is not always a good strategy because of the principle "high risk–high return". Odean (1998a, p. 1899) also argues that loss aversion may produce bad decisions, which influences investors' wealth

3.1.2.3. Conservatism

Has moderate impact (Mean=2.54)

This means people tend to utilize the opportunities completely. They are not afraid of losses and are giving time to different investment and not having conservative behaviour.

3.1.2.4. Self Attribution Bias

Has moderate impact (Mean=2.73)

People are not influenced by their personal needs and perceived results immediately. They take rational decisions. But as the result is moderate only they sometimes behave irrationally too.

3.1.3. Impact of Market Variables on the Investment

3.1.3.1 Market Information

Has high impact (Mean=3.23)

Market information has the highest influences on the investment decision of the investors with the means of market variables from 3 to 4. The individuals tend to consider the information of stock market: general information and current stock price changes carefully before making their investment. The standardized deviations of these variables, which are relatively high in comparison to the mean values, show that there may be some investors strongly focusing on the market variables whenever they decide to invest in stocks. In this case, market factor include the market information (about the customers, company's performance, and so on), the price changes of stocks in the market, and the past trends of stocks.

3.1.3.2 Past Trends

Has high impact (Mean=3.45)

This market variable is important to the investors and usually taken under their considerations for the making investment decisions. The high influences of market variables can be linked to the respondents' profiles, which show that most of them have been keen to know about the market.

3.1.4. Impact of Herding Variables on the Investment

All the three variables of herding have moderate impacts: Volume of Stock (Mean=2.77), Choice of Stock (Mean=2.54), and Speed of Herding (Mean=2.77)

This moderate impact of herding factor can be explained by the fact that investors may have knowledge and skills to make use of different information from different sources before making investment decision; hence, the herding is less. However, people are not very independent while making decision hence it is moderate only.

3.2. Factor Analysis

The result of factor analysis is mainly focused on combining all the psychological and behavioural factors considered in the survey instrument in order to reduce them into few behavioural factors that should describe and lead the Indian individual investor behaviour. Each factor will regroup all the correlated psychological and behavioural factors. To achieve this factor analysis, the Principal Components Analysis was run on the data collected through the survey of sample investors.

Determining the Number of Meaningful Components to Retain : The PCA approach suggests that the number of components extracted is equal to the number of variables being analyzed, necessitating that it is to be decided just how many of these components are truly meaningful and worthy of being retained for rotation and interpretation. In general, it is expected that only the first few components will account for meaningful amounts of variance, and that the later components will tend to account for only trivial variance. The next step of the analysis is, therefore, to determine how many meaningful components should be retained for interpretation. Among others, following three criteria may be used for the purpose (Cattell, 1966, Stevens, 1986): the eigen value-one criterion, the scree test, and the proportion of variance accounted for. First, in the Principal Components Analysis, the eigen value-one criterion, also known as the Kaiser criterion is one of the most commonly used criteria for solving the number-of-components problem. With this approach, any component with an eigen value greater than 1.00 is retained for rotation and interpretation. Second, with the scree test (Cattell, 1966), the eigen values associated with each component are plotted and observed for a "break" between the components with relatively large eigen value and those with small eigen values. The components that appear before the break are assumed to be meaningful and are retained for rotation; those appearing after the break are assumed to be unimportant and are not retained. A third criterion in solving the number-of-factors problem involves retaining a component if it accounts for a specified proportion (or percentage) of variance in the data set.

Following the above mentioned criteria for solving the number-of-components problem in this study, the components matrix is formed for further orthogonal rotation using Varimax rotation algorithm which is standard rotation method (Kaiser, 1958). The multivariate analysis extracts obviously 18 behavioural components, but only six components were retained for rotation and interpretation, as these six components were judged sufficient to explain the significant data variance and also qualified the above mentioned criteria for solving the number-of-components problem. In fact, all the six components so selected seem to explain above 74% of total data variance, and the remaining variance is explained by other variables.

Scree Plot
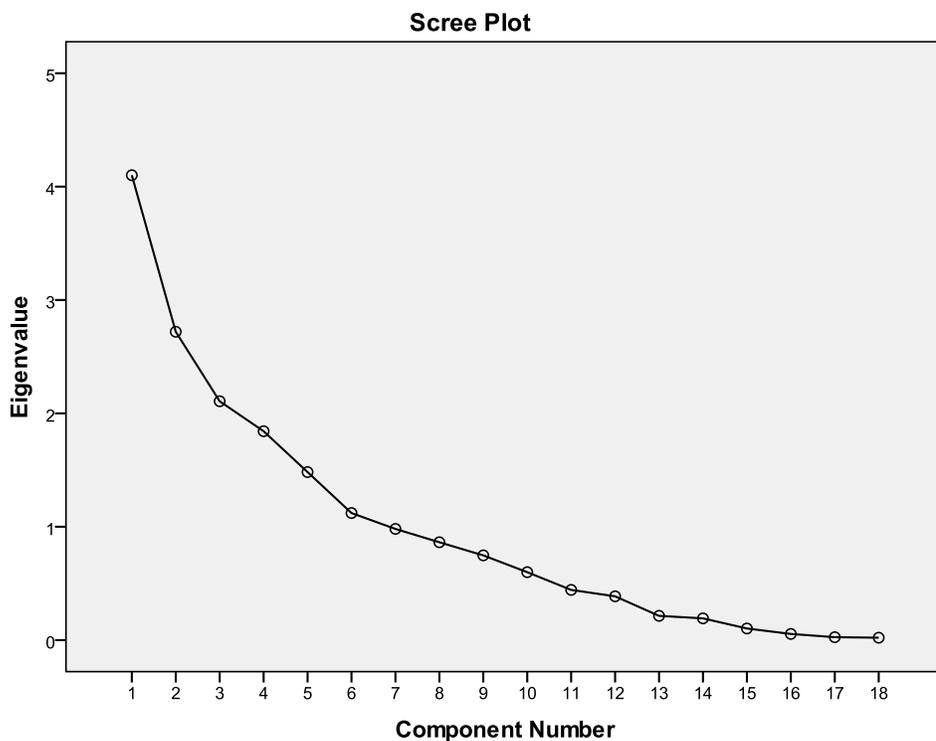
The Behavioural Factors Defined : According to the extracted coefficients these five pertinent behavioural components were named as follows: anchoring, prudence and precaution attitude, overconfidence, regret aversion, loss aversion and conservatism. The total variance accounted for, by all the six factors with eigen value greater than 1 is 74.29% which sufficiently significant, and the remaining variance is explained by the other variables. Among the six factors, the first factor accounts for around 20.99% of variance which is the prime factor influencing individual investor's behaviour.

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.100	22.780	22.780	3.777	20.986	20.986
2	2.720	15.109	37.889	2.457	13.652	34.638
3	2.107	11.704	49.593	2.165	12.026	46.663
4	1.842	10.235	59.829	2.057	11.427	58.090
5	1.482	8.233	68.062	1.472	8.178	66.268
6	1.121	6.226	74.288	1.443	8.019	74.288
7	.981	5.447	79.735			
8	.863	4.795	84.530			
9	.747	4.152	88.681			
10	.599	3.328	92.010			
11	.443	2.459	94.469			
12	.386	2.145	96.614			
13	.214	1.189	97.803			
14	.192	1.065	98.868			
15	.102	.569	99.437			
16	.054	.302	99.739			
17	.026	.143	99.882			
18	.021	.118	100.000			

Table 3.4 (Extraction Method: Principal Component Analysis.)

Following are the detailed analysis for each of the six components extracted from the Principal Components analysis:

Anchoring: First component is Anchoring that means it's a very important factor. It accounts for 22.78% of data variance. Even after rotation this accounts for more than 20% of data variance. This means users forecast changes based on previous trends or from any sort of information that they get through any media.

Prudence and Precaution Attitude: The second component is prudence and precaution attitude as the statements or variables included under this component are related to it. This component is an important factor because it accounts for more than 15% of data variance. Even after rotation, this component represented by these variables accounts for 13.65% of data variance. This variable underlines the symmetric behavioural attitude of risk aversion and calculated trading decisions. So, in summary this behavioural factor traduces the prudent and cautious attitude of Indian individual investors in the stock market.

Overconfidence: Overconfidence means investors believe that they know about the changes that can occur in the stock market. And it accounts for 11.7% of data variance that makes it the third important factor. It means people sometimes believe that the decision they have taken is correct, they are biased with the decision they have taken.

Regret Aversion: This accounts for 10.23% of data variance. And it means people don't want to regret for not taking an opportunity so they tend to behave in this manner, they would react to rumours. They will buy shares if the rumour is about price going up and would sell them if they believe price would be decreasing.

Loss Aversion: Loss aversion accounts for 8.23% of data variance. This means people don't want to make loss. They would try to save themselves from making loss if there is a possibility of making loss or making profit. They tend to react on price changes.

Conservatism: According to the multivariate analysis results, the sample investors seem to be conservative rather than adaptive. This behavioural component accounts for about 6.226% of data variance explained. It is, therefore, evident that this component is one of the most influential factors in case of Indian individual investor behaviour in stock market. The underlying variables underline the investor behavioural tendency to be attached to the past data and/or events and also the traditional approaches to take trading decisions by a layman investor.

CHAPTER 4

CONCLUSION AND RECOMMENDATIONS

Unlike the classical theory of finance, investors do not behave rationally in the stock market. To explore the investors" behaviour, the most appropriate manner is to interact directly with the investors in an attempt to extract their opinions and analyze them. Therefore, we adopted the questionnaire survey technique and we made questions based on these psychological biases. Since investors are found to be subject to several psychological and cognitive biases which play a key role in their decision-making processes, we have attempted to check the extent to which four psychological biases, among some others, have an effect on investors' behaviour. We have also examined the interaction between demographic as well as financial behavioral factors in terms of investment decision making.

This study shows that behaviour factors play a significant role in decision making process of investors. The impact is moderate to high for different variables. Various psychological biases like anchoring, overconfidence, loss aversion, regret aversion, market variables, and herding variables affects the decision making of investors.

The responses collected through the survey has been analysed by factor analysis. The principal components analysis technique method was primarily used for multivariate analysis of data collected. The results of the principal components reveal the six underlying psychological axes that appear driving the Indian individual investor behaviour. These six pertinent factors are named anchoring, prudence and precaution attitude, overconfidence, regret aversion, loss aversion and conservatism. These psychological components seem to be influencing individual investors' trading behaviour in Indian stock market. This can be the reason of unforeseen price fluctuations in the stock market as many individual investors are there in Indian stock market.

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QUESTIONNAIRE

Investor's Behaviour

On a scale of 1 to 5, fill your preference.
1 is Strongly Disagree and 5 is Strongly Agree

Age: Gender:

Annual Income: Investment Income:

Kind of Investment

1. Mutual Funds
2. Debentures
3. Shares

Which means of information do you use to know about shares?

1. Newspapers
2. Magazines
3. Social Media
4. Internet
5. News Channel

Q1: Do you forecast the changes in stock prices in the future based on the recent stock prices?

Q2: Do you believe that your skills and knowledge of stock market can help you to outperform the market?

Q3: Do you choose the target price for buying/selling for a particular security?

Q4: Do you buy the shares immediately when you hear that price might go up?

Q5: Do you sell the shares immediately when you hear that the price might do down?

Q6: Do you abstain and wait for market reaction when you receive good news concerning some stock?

Q7: Do you reduce your position when you receive bad news regarding some stock?

Q8: Do you buy shares for a perceived increase in a given stock?

Q9: Do you sell shares for a perceived decrease in a given stock?

Q10: Does your personal financial needs influence the buying and selling of shares?

Q11: Do you consider carefully the price changes of stocks that you intend to invest in?

Q12: Does your investment decisions are influenced by market capitalization and reputation of the firm?

Q13: Do you keep a check on accounting and financial information provided by the company in the form financial statements?

Q14: Do you get the information through various media quite often?

Q15: Do you put the past trends of under consideration for your investment quite often?

Q16: Does the volume of stocks traded by others have influence on you?

Q17: Does other investors' decisions of buying and selling stocks have impact on your investment decisions?

Q18: Do you usually react quickly to the changes of other investors' decisions and follow their reactions to the stock market?

ADHERENCE SHEET

Particulars	Last Date	Signature of Mentors	
Title of the Project/Area of Topic Finalization	21-Jan-16		
Literature Review/Objectives of the study	02-Feb-16		
Methodology	18-Feb-16		
Questionnaire/Data Collection tools	03-Mar-16		
Data Collection	17-Mar-16		
Analysis	24-Mar-16		
Conclusion and Recommendations	01-Apr-16		
First Draft	15-Apr-16		
Final Report/Binding and Submission	03-May-16		