

# Impact of RISK on BEHAVIOURAL Biases across the Stock Market Investors: Evidence from Pakistan

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## Abstract

The study aimed at exploring the major behavioural factors that affect the investment decision of individual investors of Lahore Stock exchange. The objective was also to gain the insight of both type of behavioural finance and standard finance and see where standard finance theories fail to address market anomalies. This research was conducted in Lahore stock exchange with the help of structured and closed ended questionnaires survey. Data was analysed using quantitative technique. The empirical investigation was carried out by using two statistical techniques. First exploratory factor analysis was used to find out the most influential factors that affect the investment decision. Then discriminant analysis is used to identify the relationship between the independent variables and dependent variables. Conclusion of this study helps the investors and broker sitting in stock exchange and new investors coming in the market. It is also helpful to others to investigate the other factors that affect the investment decision of investors.

**Keywords:** Disposition Effect, Overconfidence, Herding, Gambler Fallacy

## Introduction

Behavioural finance is the study that explains why investors make systematic errors in the process of making investment decision. Cognitive and emotional factors influence the decision of investors so these errors affect the price of stocks and returns and ultimately result in the market inefficiency. Behavioural finance highlights inefficiencies such as investor's under and overreaction to the information. This reaction attributes as overconfidence, herding behavior of investor and over optimism. It also studies the financial markets and gives explanations of the markets anomalies, speculative market bubbles and market crashes (e.g. 1929 and 1987 crashes). Behavioural finance is of interest because it helps to explain "why" and "how" markets might be inefficient. The purpose of this study is to create an understanding about the behavioural finance and behavioural biases like overconfidence, disposition effect, herding behavior, gambler fallacy and hot hand fallacy and to see the impact of these biases on individual's investment decision of investing in the stock market. In the next section the background of this research study is given. Then, the chapter provides the research problem. Objectives of study and significance of study are also discussed.

Investment decision making is a complex process which includes analysis of many factors that should be considered and it follows many steps. Decision making process is basically divided in four steps. First, a person recognizes the present situation or state in which he is going to make the decision. Secondly, all the available options are evaluated in terms of how much reward or punishment each choice would give. In the third stage, the option is evaluated in terms of personal need. In the end, the chosen option is re-evaluated in terms of the outcome (Doya, 2008). Although, these four steps may not always be followed but these are useful for analysis. The models in which these steps are followed assume that all outcomes are known already. Most of the theories of standard finance are based on the assumption that every investor gathers all publically available information. However, problem arises when persons are uncertain about the outcome of choices and have imperfect knowledge about the choices and they have to make the decision in an uncertain environment. The fact is that people frequently act irrationally. With a simple example of lottery ticket it would be clear that many people buy lottery tickets in hope of hitting the big jackpot. Tversky and Kahneman, (1974), cited in Shanmugsundaram and Balakrishnan (2011) identified that in decision-making process people make mental shortcuts. Decision making process is not carried out in fully rational way where all relevant information is collected and objectively evaluated. Simon (1986) believed that investors make irrational decisions and do not behave rationally because they have limited information.

A new area of finance is developed, which incorporates the physiological factors in the decision making process called the *behavioural finance*. Behavioral finance explains how the investors actually behave while making investment decision not according to what standard finance theories says. According to behavioural finance theories, investors make irrational decisions while standard finance theories says investors' decisions are rational.

Fama (1970) indicated that in an efficient market all the information available in the financial market is fully reflected in the prices of stocks. This gives a signal to the investors to act rationally and incorporate all the

information which are publically available in the decision making process. According to the literature findings, investor's decision making process is not fully and perfectly rational. The decisions are effected by investor's believes and emotions and these create anomalies in the financial markets which are not justified by the economic fundamentals. This raises a big question on the efficient market hypothesis (EMH) which was widely accepted till the 1990's. EMH is unable to explain certain anomalies detected in the financial market. Rabin and Thaler (2004), cited in Adel and Mariem (2013) defined the anomalies as "an empirical result difficult to rationalize or require unrealistic assumptions to be explained". When investors face uncertain conditions, for benefit, they make different decisions and follow relevant information so that they make profits from optimal investment decisions. This is how the new research domain of "behavioral finance" emerged.

Through developing an understanding about the behavior of market and individual it would be helpful in modifying the behaviors and adapt to these changes so that market output can be improved. Shefrin (2000) says that behavioral finance is a rapidly growing area, psychology influence on the behavior of financial practitioners and behavioral finance deals with this phenomenon.

Ricciardi and Simon (2000) say that a person who wants to understand the behavioral finance must understand the basic concepts of psychology, sociology and finance because these are interrelated with each other. It combines the behavioral and psychological theories with the conventional financial theories to explain why people make irrational decision. It also explains the market anomalies.

Hence, there is a need to explore this new paradigm of finance in the context of Pakistan because few research studies have been done in this field considering the scenario of Pakistan. This study explores behavioral factors that influence the behavior of investors in Lahore stock exchange (LSE). To the best of our knowledge, no such study has been conducted so far.

### **Problem Statement**

After a careful review of the literature that explores the behaviour of investors, it can be stated that to the best of my knowledge, no study has been conducted so far that explores the behaviour of investors who specifically invest in LSE. It is important to explain the behaviour of investors in Lahore because through the preliminary research conducted in Lahore stock exchange and literature study it has been observed that decisions of investors are influenced by the behavioural factors and investors of Lahore stock exchange don't confirm the principles of rationality while making investment decision. We cannot ignore the behavioural aspect of human nature while explaining the stock market functioning and volatility. To understand the investors' behaviour it is important to find out which specific behavioural factors influence the decisions of LSE investors when they are categorized on the basis of age (young and old investors), income (low and high levels of income) and professionalism (brokers and investors). This research study fills in this gap.

#### **Objective of Research**

- 1) To explore the behavioural factors that affects the investment decision across the investors of Pakistan stock exchange.
- 2) To investigate whether all type of investors are equally affected by behavioural biases.
- 3) To investigate the most influential behavioural factor for each type of investors.

### **Research Question:**

1. What are the behavioural factors that influence the investment decision of Lahore stock exchange investors?
2. What are the most important influential behavioural factors?
3. Which categories of investors are influenced by which behavioural factors?

### **Significance**

In Pakistan, few research studies have been conducted in the field of behavioural finance. Intensive research is needed in this area because it explains why markets are inefficient. Such inefficiencies cause instabilities in the financial markets. Therefore, it is important to factors that attribute market instability. That's why I decided to gain the insight of behaviour factors that causes market inefficiency.

My aim is to conduct the research in the scenario and culture of Pakistan. At what level, different type of Pakistani investors (categorized as experienced, professionalism, age and level of income) are effected by the behavioural biases like herding behaviour ,disposition effect, overconfidence and effect of heuristic while making investment decision and find out that financial literatures support the result of study conducted in Pakistan. Secondly, I will analyse what category of investors (categories on the basis of age, income, and professionalism) are more likely to be effected by the behavioural biases. The present study makes an effort to fill this gap in the scenario of Pakistan. And to my best knowledge this is not discussed at all in previous researches conducted in Pakistan.

## Literature Review

Dictionary definition of heuristics is that by trial-and-error people find out things for themselves. Through this, trial-and-error people develop a rule of thumb but this process lead to many errors. Heuristics also defined as a process in which people through experience and practice improve performance (Hede, 2012). Ritter (2003) define heuristics as a rule of thumb that is used in the decision-making process under complex and uncertain environment. Sevil, Sen and Yalama (2007) found that heuristic effect the decision of investors of the stock exchange.

Qureshi and Hunjra (2012) investigated the effect of behavioral factors such as heuristics, risk aversion, use of financial tools and firm level corporate governance on the decision making of equity fund managers of Pakistan. The results show that there is positive and significant relationship between these factors. Prospect theory explains the disposition effect. Framing and mental accounting is also part of the prospect theory.

## Disposition Effect

Loss aversion in prospect theory explains the tendency of investors to hold onto the losers' stock and sell the winner stock. Shefrin (2000) called this the disposition effect. Shefrin and Statman (1985) stated that the propensity to avoid regret and seek pride causes investors to sell winners too early and keep losers too long. This bias is based on the mental accounting framework called disposition effect. Odean (1998) analysed the 10,000 accounts of large discount brokerage house and concluded that investors keep the losers for the median of 124 days while winners for 104 days.

## Overconfidence

Bashir et al (2013) concluded that, the overconfidence, confirmation, illusion of control and excessive optimism biases have a direct impact on the decision of investors in Pakistan. Data was collected through the questionnaire with the sample size of 150 respondents. Correlation and linear regression model techniques were used. Data was collected from the teachers, finance students and bank managers. Glaser and Weber (2003) argued that miscalibration, the better-than-average effect, and illusion-of-control are the three aspect of overconfidence. They conclude that all but miscalibration lead to high trading. March and Shapira (1987) demonstrated that when the portfolio manager thinks themselves as an expert, they overestimate the probability of their success.

## Herding

Lin (2011) argued that herding is a behavior that follows the decision of majority investors rather than relying on stock price moments that ultimately influence the investor risk and return characteristics.

## Gambler Fallacy

Psychological studies see the gambler fallacy as a cognitive bias which is produced by the psychological heuristic named as the representativeness heuristic. Law of the small number applies into this e.g. people believe short sequences of a random event should be the representative of longer event (Rabin, 2002). Rakesh (2013) found that there are various types of gambler fallacy in Bombay stock exchange that affect the expectations of investors investing in stocks, which adversely affect the outcomes of investing decision. The gambler's fallacy is thought to be caused by the representativeness bias, or the "Law of Small Numbers" (Tversky and Kahneman, 1971).

## Representativeness

Due to the limited time and cognitive resources individual make biased judgment under uncertainty. Which lead them to apply heuristics like representativeness (Hirshleifer, 2001). De bondt and Thaler (1995) defined representativeness as a degree of an event similar to its parent population. Tversky and Kahneman (1974) stated that people often predict the future value of a stock based on representativeness.

## Familiarity

People are more comfortable with familiarities. Investors prefer similarities over ambiguity and look to avoid the unrewarded risk (Hede, 2012). French & Poterba (1991) reported that although preferences may change, but it is the fact that domestic investors overweight the domestic securities. Most of the domestic investors hold domestic securities, for example, germane investors keep German securities while Japanese investors hold Japanese securities.

## Status Quo Bias

Samuelson and Zeckhauser (1988) argued that people try to maintain their current or previous position rather than the new position and they term this as Status Quo Bias.

### **Some Other Researches on Behavioral Biases**

Shafi (2014) reviewed the literature and identified that there are some factors that majorly influence the behavior of investors and other have a slight impact on the behaviors of investors. He categorized these factors in social, psychological, economic and demographic in nature. The most common factors that influence the behavior of investors are the over-reaction, irrational thinking, over confidence, cognitive bias (psychological factors) age, gender, education, income, (demographic factors) herding (social factor) and past performance of the company, accounting information, bonus payments, ownership structure, dividend earnings, expected corporate, get rich quick (economic factors).

Kartasova (2013) identified the factors forming irrational individual investors' behavior on the Lithuanian stock market and illustrated the logical relationship between these factors and individual investors' personal characteristics such as gender, age, investment experience and profession. He found that overconfidence, anchoring, mental accounting and herd behavior made the strongest influence on their financial decision-making process. And these are highly depended upon the personal characteristics.

Ahmed, Ahmad and Khan (2011) investigated the phenomena that stock market investors act according to rationalism. They found that decisions of small investors in Lahore stock exchange are influenced by the behavioral finance theory than conventional finance theory. Their findings confirm the prospect theory and regret aversion theory. Heuristics also plays a role in the decision-making process of small Lahore stock exchange investors.

Chen, Kim, Nofsinger, & Rui, (2007) found that emerging-market investors are more prone toward the cognitive biases. Chinese investors make poor trading decision, and they are affected by disposition bias, representative bias and are more overconfident. Chinese investors are more overconfident than the U.S. investors. They categories the investors as middle-aged investors, active investors, wealthier investors, experienced investors, and those from cosmopolitan cities and showed that investors who consider the savvier investors are also prone toward the cognitive biases.

In this section theoretical framework, explaining the impact of behavioral biases on investment decision of Lahore stock exchange investors has been discussed. Major behavior factors and others are taken from the literature and preliminary research to develop the theoretical framework. The framework defines the variables and the relationship between independent variables and dependent variable.

### **Overconfidence**

Overconfidence is the behavioral phenomenon where investors overly estimate their own capabilities, level of knowledge, future estimations and overstate their ability to control events (Odean, 1998). The psychologists have discovered that people more or less get affected by the overconfidence bias. The overconfident investors trade often (Odean, 1998). According to Shefrin (2000), overconfidence "pertains how well the people understand their own abilities and the limits of their knowledge."

Daniel, Hirshleifer and Subrahmanyam (1998) defined the investor is one who overestimate the precision of his private knowledge than the information which is publically available. They also concluded that two major psychological biases overconfidence on their precision of private information and self-attribution, which causes the asymmetric, shift I investor confidence, which ultimately causes securities market to under and over react.

Odean (1998) said that people overestimate their capabilities than others. Investor's overconfidence leads the excessive trading in stock market. Overconfident investors and traders believe that they are better than others do in choosing the best time to enter in the market and exit and in the selection of best stock. Greater is the investor's confidence more likely he or she trade frequently and increase market debt but ultimately receive lower yield because they believed on their capabilities that they are accessing the right informational signal.

Other research studies find that overconfidence behavior unconsciously increase prediction error and ultimately result in adverse trading, buy stock too expensive or sell too cheap.

Overconfidence leads the investors to invest in those stocks, which do not provide benefits, and overconfident investors underestimate the risk. It is also confirmed by the Odean (1998)

Graham, Harvey and Huang (2009) find that investors who are more educated and wealthier are more affected by overconfidence bias. Alrabadi AL-Gharaibeh and Ziad (2011) concluded that Experience investors are more affected by the overconfidence bias. Data were collected through the questionnaire distributed to investors on trading floor in ASE with the sample size of 100 respondents. Regression analysis technique was used and their result is consistent with the result of Kirchler and Maciejovsky (2002) and Glaser et al. (2005, 2007).

### **Disposition Effect**

Disposition effect is another more striking behavior phenomenon that refers to the tendency of people to sell "winners" (stocks that gained value) too early and hold "losers" (stocks that lost value) too long. This behavior is puzzling because it cannot be explained by standard finance theories. Mostly people make decision through

considering the gains and losses. Losses have deep emotional impact on investors. As loss aversion, theory says that People are risk averse toward the gains and risk seeking toward the losses. People take winning stock as a gain that is why investors sell the stock while losers are consider as a loss that's why investors hold it. However, rational investors do it opposite and get the benefit of tax. Shefrin and Statman (1985) support this in their research. Shefrin and Statman (1985) were the first who provide the formal analysis on disposition effect. According to this study, disposition effect combines these four major concepts namely, Prospect Theory, Mental Accounting, Regret Aversion and Self-Control. Prospect theory says that investors make choices in terms of gain and losses relative to a reference point and regret aversion says investors are reluctant to realize losses. These concepts lead to the disposition effect where investor realized the gains and avoid to realized the losses

Rational investors realized their stocks that lost value for the tax purpose. Shefrin and Statman (1985) also find that at the end of the year disposition effect is less because investors are more concerned in minimizing their taxes. Odean (1998) analyzed that investors realizes their profits more readily than the losers do and investors sell their stocks in the month of December for the tax purposes. He explained why people sell their winners too early and keep losers too long. Investors rationally or irrationally, believe that losers will outperform in the future and they sell winners to rebalance the portfolio. Alternatively, they keep losers due to the higher transaction cost of trading at lower price.

### **Herding Behaviour**

In financial markets, herding is usually described as the tendency of market participants to mimic the observed actions of others or the movements of market ignoring their own private information. There are two main type of explanation for the herding behavior. One is 'rational explanation based on Bayesian updating assumptions, and 2<sup>nd</sup> 'irrational explanation.

Rational herding occurs when "the investor follows the majority believing that they possess superior information or analytical skills" in this way it is positively related to the decision making.

Many research studies have confirmed the phenomenon that people change their behaviors, attitudes and believe simply to confirm of that large group. When market is in stress and they feel that they do not make investment decision accurately then they follow the behaviors of others.

In addition, it provides the psychological benefits to the investors. It is human behavior that people usually take those action which create feelings of pride while avoid those action which stimulate the regret. Herding behavior mitigates the feelings of regret and people feel comfort even decision goes wrong by knowing that others are facing the same results.

Baddeley et al. (2010) identified the determinants of herding behavior and impact on the individual investor's decision of buying and selling. The results show that the financial choices are affected by the herding behavior. Herding is not homogeneous in all investors type rather varies according to the age, gender and personality traits.

Bashir et al. (2013) investigates the impact of demographics traits like residential area, education background age, marital status, gender and personality traits like , neuroticism, extraversion, openness, conscientiousness, and agreeableness on the financial behavioral biases (herding/mass behavior ,overconfidence, and disposition effect) and risk taking behavior in Pakistan. The results indicate that big five personality traits have a significant relationship with overconfidence, herding/mass behavior and risk taking except disposition effect.

### **Gambler Fallacy**

Sundali and Croson (2006) defined "The gambler's fallacy is as an (incorrect) belief in negative autocorrelation of a non-auto correlated random sequence." For example, gambler's fallacy can be explained by considering the repeated toss of a fair coin. Outcome of every toss is independent and probability of occurrence of head and tail is 50 50 %. If in 5 tosses head is landed, under gambler fallacy, person will predict that next will be tail.

According to the theory of gambler's fallacy, its effect the investment decision of investors. Investors believe that the security that made profit for last few years will depreciate and probability of stock to make the profits in future will reduce and the stock which loss value will be appreciated in future. Shefrin and Statman (1985) and Odean (1998) confirm this.

Investors are willing to sell the winning stock too early and hold on the loser too long. Shafrin explains this in the second part of his research that investor think that winner stock will not remain profitable in future and they sell and loser will be profitable in future that's why they hold on. Gambler fallacy causes the disposition bias.

Hon-Snir et al. (2012) finds that professional and non-professional investors are affected by the behavioral pattern (disposition effect, herding behavior, gambler fallacy, hot hand fallacy,) while more experienced investors are less affected by the behavioral pattern.

### **Hot Hand**

Hot hand is a “belief in positive autocorrelation of a non-auto correlated Random sequence” (Sundali and Croson, 2006). Mean it is a fallacious believes that if a person who is experiencing the success in guessing from the random event is more likely thinks that he will be successful in next attempt as well. For example, if a person is flipping a coin 5 times and before landed the coin he/she guesses the outcome correctly then in next attempt his/her probability of guessing the outcome correctly would be higher than 50%.

Gambler fallacy and hot hand are not only opposite to each other rather in gambler fallacy outcomes is hot e.g. if coin landed head in 3 flipping, is more likely come up with tail in next flip. While hot hand believe look at the outcomes like gains and losses here person is hot not outcome .e.g. if person successfully guesses the head, in next attempt his/her chances of success in guessing the correct will be high.

Hot hand effect the investment decision e.g. If a certain stock or the performance of fund manager in past was the outstanding then in future investors are likely to buy the same stock and maintain their stocks with that particular manager. Many Researches have demonstrated that the purchases pattern of consumers mutual funds are depend upon the past performance of the mutual fund manager although the fund manager’s performance is independent event.

Sirri and Tufano (1998) mention that the past performance of the equity fund is criterion for the future cash inflows because a stock which give highest return from past few years attract more customers because customers think that it will generate more returns in future as well.

Hon-Snir et al. (2012) finds that professional and non-professional investors are affected by the behavioral pattern (disposition effect, herding behavior, gambler fallacy, and hot hand fallacy) while more experienced investors are less affected by the behavioral pattern.

### **Demographic Factors**

Demographic factors influence the investment decision. Jain and Mandot (2012) conducted a research to investigate that whether demographic factors influence the investment decision in Rajasthan. They concluded that demographic factors like income level, age, gender, market knowledge, city, occupations and qualifications, marital status have an impact on investment decision and Gender and City have no impact on the investment decision of investors in Rajasthan.

Hassan Al-Tamimi and Anood Bin Kalli (2009) examined the relationship between the financial literacy and the factors that influence the investment decision. They conclude that financial literacy is far from the need level. Secondly financial literacy level is highly affected by income level, work place activity and education level. Level of literacy is significantly different among the man and women. Women have lower level of financial literacy than man does. They identified that the factors that most influence the investment decision were, reputation of the firm, perceived ethics of the firm, religious reasons and diversification purpose, whereas the least four influencing factors were rumors ,family member opinions, ease of obtaining borrowed funds, and friend recommendations. Kaleem, Wajid and Hussain (2009) investigated the factors and found that age, income, language and orientation of education have a significant role in determining the investment style of an investor.

### **Economic Factors**

Obamuyi (2013) found that past performance of the company stock, expected stock split/capital increases/bonus, dividend policy, expected corporate earnings and get-rich-quick influence the decision of investors in Nigeria capital market. In addition, investment decision is influenced by socio economic (age, gender, marital status and educational qualifications) characteristic of investors.

Azam and Kumar (2011) identified the factors that influence the behaviors of investors in Karachi Stock Exchange in Pakistan and found that the foreign direct investment, earning per share, and Gross domestic product growth rate have a significant impact on stock prices.

Sultana and Pardhasadhi (2012) investigated factors that influence the investment decision of equity investors and concluded that wealth maximization, brand perception, social responsibility, financial expectation, accounting information, risk minimization, government and media, economic expectation and advocate recommendation factors are the most influencing factors.

### **Market Factors**

Waweru, Munyoki, and Uliana (2008) identified the market factors that influence the investment decision. Price changes, market information, past trends of stocks, customer preference, over-reaction to price changes, and fundamentals of underlying stocks. They also indicate that price changes of stocks has impact on the behaviour of the stock market investors and investors focus on the popular stocks and attention grabbing events that relied on the new information of market.(p.36)

### **Preliminary Research**

Through the deep study of literature review, I have identified several factors that influence the investor's behaviors and effect their decision making process. They are categories as the psychological factors like Overconfidence, Anchoring, Cognitive Dissonance, Regret Aversion, Gamblers' Fallacy, hot hand, Mental Accounting, Representativeness, Herding, disposition effect and Hindsight Bias. Demographic factors which include income level, age, gender, market knowledge, city, occupations and qualifications, marital status, Economic factors like company stock, dividend policy, expected corporate earnings and get-rich-quick influence and the social factors.

Theoretically, above mention factors influence the decision of the investors. However, practically, to identify what are those major factors that influence the behaviors of the investors in the culture and scenario of Pakistan I have conducted the interviews of three people who are brokers in the Lahore stock exchange. These brokers have experience of more than 25 years.

Interviews were started in a very light mood. First, I gave my introduction and purpose of coming here then I asked about their professions and experience then gradually moved toward the topic. In Lahore stock exchange, approximately 700 to 800 companies are registered whose shares are traded on the LSE. Market is so sensitive that we cannot generalize anything about the market and the behavior of investors e.g. we cannot say that investors show more rational behaviors or irrational and vice versa.

### **Savings**

Saving is one of the major factors that shape the behavior of an investor. As people have more surplus money, they invest more. It also effect on the selection of the assets. As a person has more surplus money, he can invest in the risky asset and earn the more profits. Similarly, if a person has surplus money he can invest in long-term asset as well.

### **Income Level**

Income defined as monthly earning of the individual. Income acts as a source of investment. As investors have higher income level, they invest more. Their ability to take the risk will increase. Higher income level lead the people to take the more risk than the low income. A person with a higher income level has a variety of investment choices than the lower income group. Here the higher income we mean more than 80,000. Because Pakistan is a developing country and facing high population and unemployment problem and majority of people are salaried person that is why in the scenario of Pakistan 80,000 is consider a higher income level.

Ali, Shafeeq and Ali (2012) found that people of Pakistan are less prone toward the investment in stock market due to the certain factors that affect their investment decision. The Results show that there is a positive relationship between the investment in stocks and income level. They found that there is an increasing trend in stock ownership with the increasing levels of income. Their investment in stocks are depends upon the income level.

### **Risk Level**

Risk level means that how much an investor is able to tolerate the risk. Every person has different ability to tolerate the risk. Ability to bear the risk highly depends upon the person's financial responsibilities, personality traits and their environment. For example a young person can take more risk than an old citizen can because a young man have less responsibilities, he is physically strong to bear any loses. Bashir et al. (2013) found that man and having higher income households have high risk tolerance as compared to the women and household with lower income level. If there is higher level of risk aversion in households, they invest less in stocks (Shum and Faig, 2006). A person who has ability of high-risk tolerance can invest in more risky stock to earn superior returns.

### **Actively Trading Shares**

Those shares, which are high in demand and trade frequently, attract the investors' attention. New investors usually invest in those shares which are actively trading on the stock exchange because they think these shares perform well that's why trading of these shares are high. In addition, there is less liquidity risk in investing actively trading shares.

### **Growing Companies' Shares**

Growth stocks are the shares of the company whose earnings are growing faster than overall market. Investors who want to get future benefits like capital gain usually prefer to invest in growing companies shares. Although growing companies pay fewer dividends because company reinvests their earning back into the company so it is worth more in the near future. These companies use this money to start a new projects purchase a new asset, buy another company. Investors get the bonuses, and the capital gain. Earnings of the growth company directly

translate in to the price of the stocks. Because they think that growing companies have potential to grow in the future.

### **Past Performance of the Company**

Financial position of a company also majorly contributes in shaping investor's investment behaviors. Big players of market usually use the balance sheet data and past performance of the companies to predict the performance and use for investment decision:

### **Source of Information**

Source of information is another factor that affects the behavior of an investor. If this source is reliable like information from the brokers or any insider information investors usually use that information and behave accordingly. Sometimes investors change their investment decision if their opinion conflict with the opinion of the brokers or experts. Herding behavior has also been observed in the stock market.

### **Taxes**

Here we mean taxes on the capital gain. Tax level is not majorly influence their behaviors. Because in the market majority traders trading on the daily basis and 5 to 10% investors hold stocks for long term purposes.

In general, market factors, economic factors and other factors are not included in the behavioral factors because they are external factors influencing the behavior of investors. However, these factors affect the behavior of the investors and ultimately influence the investment decision so to get the best results we have to incorporate those factors as well which influence the behavior of investors. Based on this information we developed a schematic diagram.

### **Research Methodology:**

Sampling represents the population. Two sampling techniques are commonly used probability and non-probability. Where the statistical conclusions are draw, the probability sampling is use (Hair et al., 2003). Convenient sampling is use in this study. Convenient sampling enables the researcher to collect data, which is convenient. It identifies and differentiates the need of group. It produces a sample where the included group are selected having specific characteristics considered to be important. The reason for choosing the convenient sampling is that this study requires the experience, specified skills individuals to give response. As discussed in problem statement that that banking sector facing the problem of loyal customers. Convenient sampling is use to collect the data, the customer who are easily available selected for this study. According to Tabachnick and Fidell (2001) that sample size would be i.e  $N \geq 50 + 8M$  (where M is the number of predictor variable. There are five important factors, which guide us to select the sample from population. First is to determine the goals. Second is to consider the desired precision value. Third is to determine the confidence level.

### **Questionnaire**

Close-ended questions were prepared for the data collection. This questionnaire was developed after intensive study of literature and through the preliminary research which included the discussion with the experts sitting in the LSE to find out the factors which effect the individual investment decision so that these factors must be incorporated in developing the questionnaire. Five-point Likert Scale was employed in questionnaire, ranging from strongly agree (SA), agree (A), neutral (N), disagree (DA) to strongly disagree (SDA). The questionnaire is divided in two sections. First section consists of five items covering the demographic profile of respondents and second section consists of 41 items covering all the major dimensions of the theoretical framework. Following is the detail of the second section.

Three questions (1, 2, 3) are related to overconfidence, three questions (4, 5, 6) are related to Disposition effect, four questions (7, 8, 10, 11,) are related to the Irrational herd behaviour, one question (9) is related to the Rational herd behaviour, three questions (12, 13, 14) are related to Gambler fallacy, four questions (15, 16, 17, 18) are related to the Hot hand fallacy. One question (19) is related to the actively trading shares and irrational herd behaviour

One question (20) is related to the Past performance, three questions (21, 22, and 23) are related to the Taxes, one question (24) is related to the Income level, two questions (25, 26) are related to the Savings level, three questions (27, 28, and 29) are related to the Risk level, three questions (30, 31, 32) are related to the Source of information, two questions (33, 34) are related to the Growing companies shares, one question (35) is related to Affordability, one question (36) is related to Dividend, one question (37) is related to Liquidity, one question (38) is related to Reputation, two questions (39, 40) are related to the Price movement, one question (41) is related to the Future need. In the end, blank space was provided for email id of the respondent, which was optional.



### Data Collection

The main aim of this research was to target the investors and brokers investing in Lahore stock exchange. Initially, the questionnaire was pilot tested. 10 questionnaires were distributed to the participants to check any ambiguity or problem in understanding the statements by the participants. The ambiguities identified were cleared, and then 200 questionnaires were distributed among the investors present on different floors of Pakistan stock exchange. Many difficulties had to be faced during the data collection process. The main difficulty faced in data collection was that investors and brokers were so busy in trading that they even don't listen. Secondly, some investors kept the questionnaire with them and asked to come after some time and gathered the questionnaires. But after some time many participants even did not fill the questionnaire then again I had to request them to fill the questionnaires. Some of the investors returned half-filled questionnaires. But some participant did show interest and ask about the details of my study. I was able to fill up in total 188 questionnaires out of 200 questionnaires. After that, collected data was entered into the SPSS 20 software for the analysis.

### Data Analysis Method

First exploratory factor analysis has been conducted on IBM SPSS Statistics 20 to filter the most important variables that effect our research and find out the correlation among the independent variables and also examine its internal reliability. Orthogonal rotation (varimax) has been used for loadings of variables to maximize the dispersion of loading within factors. It loads a smaller number of variables on to each factor so those clusters of factors become more interpretable. To check the reliability of factors Cronbach's Alpha is calculated on all the factors. To check the relationship among the dependent variables and independent variables discriminant analysis has been conducted using MANOVA technique.

### Demographics of the Respondents

Data on demographics of participants is given below. Demographics of respondents include the age, gender, experience, income level and profession.

#### Demographical Description of the Respondents

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	31	16.5	16.5	16.5
	31-40	43	22.9	22.9	39.4
	41-50	42	22.3	22.3	61.7
	51-60	34	18.1	18.1	79.8
	above 60	38	20.2	20.2	100.0
	Total	188	100.0	100.0	
Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	181	96.3	96.3	96.3
	Female	7	3.7	3.7	100.0
	Total	188	100.0	100.0	
Experience		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 3 years	22	11.7	11.7	11.7
	3 to 5 years	61	32.4	32.4	44.1
	5 to 10 years	53	28.2	28.2	72.3
	more than 10 years	52	27.7	27.7	100.0
	Total	188	100.0	100.0	
Income level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below 40,000	79	42.0	42.0	42.0
	40,000-50,000	49	26.1	26.1	68.1
	50,001-60,000	15	8.0	8.0	76.1
	60,001-70,000	4	2.1	2.1	78.2
	70,001-80,000	25	13.3	13.3	91.5
	above 80,000	16	8.5	8.5	100.0
	Total	188	100.0	100.0	
Profession		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	portfolio manager(broker)	74	39.4	39.4	39.4
	market investor	114	60.6	60.6	100.0
	Total	188	100.0	100.0	

Table shows that maximum respondents were belong to the age group of 31 to 40 and 41 to 50 i.e. 22.9% and 22.3% respectively. It shows that participants who are between the age of 30 to 50 are more interested in investment and are more concern about their future expenditures.

As Table 4.1 shows that maximum respondents are males i.e. 96.3% whereas only 3.7 % were females. This is largely because of the fact that females less invest in the stocks. In terms of experience, respondents who have experience between 3 to 5 years were 32.4 %. 5 to 10 years were 28.2 % and above 10 were 27.7% respectively. It is largely due to the face that they feel with the experience they make better investments and earn profits. Concerning income level, 42.6% participants earned income below Rs.40, 000 and 26.1% earned monthly income between Rs.40, 000 to 50,000. This may be largely because of the fact that participants who earned income below Rs.50, 000 were more interested in investment and savings of income to make their future expenditures. Whereas 8% participants earned income Rs. 50 001 to 60,000, only 2.1 % participants earned monthly income between Rs.60, 001 to 70,000 and above Rs.80, 000 monthly income group participants were only 8.5 %. Most of the participants were market investors i.e. 60.6% whereas 39.4% were portfolio managers.

### **Factor Analysis**

Exploratory factor analysis is multivariate statistical technique used to examining the correlation among the variables. It identifies the clusters of the inter-correlated variables called a factor. These factors explain the large amount of variance of many variables. It is used to simplify the data by revealing the underlying factor and eliminate or identify the items to get the better data structure.

Correlation matrix is a first step in conducting a factor analysis. To check the factorability of the correlation matrix mean how suitable data is for the factor analysis we use the correlation matrix, anti-image matrix Bartlett's test and KMO. Correlation matrix tells us the correlation between the variables. If all items of our questionnaire measure the same underlying dimension then it must significantly correlate with each other. Variables which are perfectly correlate with each other( $r = .9$ ) or which are not relating with each other both create problems. So these variables should be eliminated. If all variables in the correlation matrix are not correlated with each other in other words variables are independent with each other then it is an identity matrix. Bartlett's Test is used to check that whether our matrix is an identity matrix or not. Factor analysis is looking for the cluster of variables that measure the same thing that's why identity matrix creates a problem. Bartlett's test should be significance (value should be less than .05) that tells us that correlation matrix is different from identity matrix. Multicollinearity (variables which perfectly correlate) can be detected by looking at the determinants of the correlation matrix. In multicollinearity, it becomes impossible to determine the unique contribution of the variables that's why it creates problem. This test should be significant enough so that it is different from the singular matrix. Value of determinant should be less than the 0.00001.

KMO values fall between 0 to 1. If KMO's value is closer to zero, factor analysis is inappropriate, but if value is closer to 1, analysis generate reliable factors. Kaiser (1974) recommends that values greater than 0.5 is acceptable while below this value lead you to collect more data. According to Hutcheson & Sofroniou (1999), the values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb. Communalities are a portion of the variance explained by the extracted factor of each variable. Its ranges lie between 0 to 1 And value should be above 0.5 The low value of communalities shows that extracted factor explain low level of variance of each variable so need to extracted more factors to explain the variance or remove these items.

### **Suitability of Data for Factor Analysis**

Table shows that for these data the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.673 which is above the bare minimum of 0.5 that shows the sample size is adequate for factor analysis. Bartlett's Test of Sphericity is also highly significant [ $\chi^2$  (276) = 1276.356,  $p < 0.05$ ] indicating the correlations are sufficiently large and also supporting the factorability of the correlation matrix so factor analysis is appropriate for this data.

### **Factors loading**

Table identifies the variables that are measuring the same thing and combine them to make factors that will be used in further analysis.

### Rotated Component Matrix

Factors		Component						
		1	2	3	4	5	6	7
Self-judgment of Saving and Risk	risk level 2	.737	.067	-.032	-.070	-.177	.083	-.148
	savings 2	.735	-.077	-.017	-.010	-.009	.169	.091
	savings 1	.685	-.074	.143	-.026	.130	.098	.074
	overconfidence 1	.606	.042	.091	-.244	.127	-.388	.047
	self -attribution and overconfidence	.561	.005	-.173	-.006	.155	-.372	.177
	reputation of company	.554	.309	-.014	.103	.244	.037	-.276
Self-judgment of Price and Profit	disposition effect 2	-.011	.816	.051	.037	.103	.216	.007
	disposition effect 1	-.072	.739	.188	.078	-.141	.145	.023
	overconfidence 2	.258	.687	-.239	.099	.089	-.275	-.029
	gambler fallacy 3	-.041	.627	.263	.009	-.421	-.087	.030
	rational herd behavior 1	-.014	.529	.369	.313	-.066	-.045	.172
Reliance on Expert's Opinion	source of information 1	.063	-.022	.828	.041	-.018	-.003	-.051
	source of information 2	-.023	.252	.802	.193	-.016	-.038	.117
	source of information 3	.072	.198	.533	.119	.434	.098	.008
Irrational herd behavior	irrational herd behavior 2	-.059	.034	.068	.827	-.152	-.046	-.002
	irrational herd behavior 1	.012	.255	.109	.754	.179	.001	.115
	irrational herd behavior 3	-.204	.012	.355	.551	-.300	-.090	-.012
Self-judgment based on past performance	R GM1	-.015	-.062	-.029	.023	.710	.090	-.092
	hot hand fallacy 3	.114	-.061	.080	-.192	.620	.081	.023
Rational Investment Behavior	affordability of shares	-.027	.181	.046	-.087	-.010	.694	.009
	growing company shares 1	.176	-.112	.047	-.190	.292	.625	-.076
	actively trading shares and herd behavior	.113	.003	-.229	.232	.334	.569	-.068
Fear of taxes	taxes 1	-.108	.201	.016	-.051	-.158	.088	.787
	taxes 3	.175	-.113	.045	.172	.072	-.216	.723
Eigenvalues		3.783	3.071	2.187	1.799	1.447	1.233	1.107
% of variance		15.763	12.794	9.112	7.498	6.030	5.137	4.613
Reliability ( $\alpha$ )		0.730	0.767	0.703	0.666	0.408	0.544	0.404

Table shows that total 7 factors are extracted, 6 questions loaded on to the factor 1, 5 questions on to the factor 2, 3 questions on to the factor 3, 3 questions on to the factor 4, 2 questions on to the factor 5, 3 questions on to the factor 6 and 2 questions on to the factor 7

There are 7 factors whose eigenvalues are greater than 1 (Kaiser's criteria). This Eigenvalues column shows that few factors explain relatively large amounts of variance whereas subsequent factors explain only small amounts of variance. Self-judgment of Saving and Risk (Factor 1) explains 15.763% of total variance, Self-judgment of Price and Profit (Factor 2) explains 12.794% of total variance, Reliance on Expert's Opinion (Factor 3) explains 9.112% of total variance, Irrational herd behavior (Factor 4) explains 7.498% of total variance, Self-judgment based on past performance (Factor 5), Rational Investment Behavior (Factor 6) explains 6.030% and 5.137% total variance respectively and Fear of Taxes (Factor 7) explains 4.613% of total variance. In combination these 7 factors explained 60.948% of the variance. So these 7 components are retained and used in the subsequent analysis. This table also shows that most of the factors have the reliabilities above the 0.5. The 24 items were subjected to a principal component analysis (PCA) with orthogonal rotation (varimax) using SPSS

version 20.

### **Findings and Conclusion**

The study aimed at exploring the major factors that affect the investment decision of investors in Pakistan. After thorough review of literature, research was conducted in Lahore stock exchange with the help of structured and closed ended questionnaires survey. Data was analysed using quantitative technique

We used two analyses for our data. First, exploratory factor analysis is used to find out the most influential factors then these factors is used in further analysis to find out most important factor by using discriminant analysis. The findings of study are given below

### **Factors of Investment Decision**

Exploratory factor analysis is carried out on the 41 items to identify the variables that are measuring the same things and combine them to make factors so that these factors can be used in the further analysis. It was found that there were 7 factors consisting of 24 items that were proposed as the most influential factors of investment decision. And those factors are Self-judgment of Saving and Risk, Self-judgment of Price and Profit, Reliance on Expert's Opinion, Irrational herd behavior, Self-judgment based on past performance, Rational Investment Behavior and Fear of taxes. These factors are used in the further analysis to find out the most important factor that influences the investment decision of investors.

### **Discriminant Analysis**

Discriminant analysis is used to estimate the relationship between the categorical variable (dependent) and the independent variable. It is used to determine whether there are significance differences between the average score profile of dependent variables and find out the most important independent variable that accounts the most for the differences in the dependents groups.

In our study discriminant analysis is carried out for the dependent variables age, income and profession. Age is categorized as younger and older investors, income is divided in to low income level and high income level and profession is categorised as investors and brokers for the further study.

### **Age**

For age there is only one significant discriminant function which needs to be interpreted because there are only two categories of age (dependent variable).

The finding of the study shows all seven factors differently influence the decision of the younger and older investors and but the Self-judgment of saving and Risk is the only factor out of 7 factors which has a strong relationship with the younger and older investors groups. The findings shows that Self-judgment of saving and Risk has a greater importance to older investors in other words decision of older investors are highly influenced by the Self-judgment of saving and Risk

### **Income:**

For the income variable there is only one significant discriminant function which needs to be interpreted because there are only two categories of income (dependent variable).

The finding of the study shows that all seven factors differently influence the decision of the low level income group investors and high level income group investors but Self-judgment of Saving and Risk and Self-judgment of Price and Profit are the two factors out of 7 factors which have a strong relationship with the low level income group and the high level income group. The findings also shows that Self-judgment of Saving and Risk and Self-judgment of Price and Profit has a greater importance to low level income group in other words, decision of the investors who belongs to the low level income group are highly influenced by the Self-judgment of Saving and Risk and Self-judgment of Price and Profit

### **Profession**

For the profession, there is only one significant discriminant function which needs to be interpreted because there are only two categories of profession (dependent variable).

The findings of the study show that Reliance on Expert's Opinion is the only factor out of 7 factors which has a strong relationship with the portfolio manager and market investors groups. The result shows that Reliance on Expert's Opinion has a greater importance to market investors. In other words, market investors rely on Expert's Opinion while making investment decision. But due to the fact that model accuracy is lesser than accuracy by chance and the value of Press Q test is also lesser than the critical value so we conclude that this model does not fit and reject the hypotheses H16 to H 22. Another reason is that Pakistani market is not technically very developed that is why a significant difference between the two types of investors has been obtained. Hence, there is not difference in the opinion of investors and brokers related to the behavioural biases.

Finally, we conclude that behavioural factors have a strong influence on the decision of investors of stock market and these 7 factors differently influence the decision of younger investors, older investors, low level and high level income group investors.

### Results of Hypothesis

Hypothesis No.	Hypothesis	Accepted / Rejected
H1	Behavioral factors have a strong influence on the investment decisions of Stock market investors	Accepted
H2	The impact of Self-judgment of Saving and Risk (Factor 1) is not the same for young and old investors	Accepted
H3	The impact of Self-judgment of Price and Profit (Factor 2) is not the same for young and old investors	Accepted
H4	The impact of Reliance on Expert's Opinion (Factor 3) is not the same for young and old investor	Accepted
H5	The impact of irrational herd behavior (Factor 4) is not the same for young and old investors	Accepted
H6	The impact of Self-judgment based on past performance (Factor 5) is not the same for young and old investors	Accepted
H7	The impact of Rational Investment Behavior (Factor 6) is not the same for young and old investors	Accepted
H8	The impact of Fear of Taxes (Factor 7) is not the same for young and old investors	Accepted
H9	The impact of Self-judgment of Saving and Risk (Factor 1) is not the same for low and high income investors	Accepted
H10	The impact of Self-judgment of Price and Profit (Factor 2) is not the same for low and high income investors	Accepted
H11	The impact of Reliance on Expert's Opinion (Factor 3) is not the same for low and high income investors	Accepted
H12	The impact of irrational herd behavior (Factor 4) is not the same for low and high income investors	Accepted
H13	The impact of Self-judgment based on past performance (Factor 5) is not the same for low and high income investors	Accepted
H14	The impact of Rational Investment Behavior (Factor 6) is not the same for low and high income investors	Accepted
H15	The impact of Fear of Taxes (Factor 7) is not the same for low and high income investors	Accepted
H16	The impact of Self-judgment of Saving and Risk (Factor 1) is not the same for portfolio managers (brokers) and market investors	Rejected
H17	The impact of Self-judgment of Price and Profit (Factor 2) is not the same for portfolio managers (brokers) and market investors	Rejected
H18	The impact of Reliance on Expert's Opinion (Factor 3) is not the same for portfolio managers (brokers) and market investors	Rejected
H19	The impact of irrational herd behavior (Factor 4) is not the same for portfolio managers (brokers) and market investors	Rejected
H20	The impact of Self-judgment based on past performance (Factor 5) is not the same for portfolio managers (brokers) and market investors	Rejected
H21	The impact of Rational Investment Behavior (Factor 6) is not the same for portfolio managers (brokers) and market investors	Rejected
H22	The impact of Fear of Taxes (Factor 7) is not the same for portfolio managers (brokers) and market investors.	Rejected

### Research Implications:

The significance of study can be explained by highlighting its contribution to the both academia and individual investors.

- **Field of behavioural finance:** This study will contribute in exiting literature and this study will help others to investigate other behavioral biases that effect investment decision which help to explain the

market anomalies and causes of market inefficiency because this area is growing rapidly and need to explore it more.

- **Individual investors:** This study also helpful to the existing and new investors of Lahore stock exchange. They use this information to get better insight the market; analyses the market trend before investing and understand the market anomalies and make the optimal investment decision.

### Research limitations and Future Study

Our study has also some limitations like other social study.

- Due to time and resources constraints questionnaires were surveyed only in the Lahore stock exchange.
- A total of 200 questionnaires were distributed out of which 188 were received. Tabachnick and Fidell (2001) argued that for the factor analysis there must be at least 300 cases but our analysis is done on 188 cases due to time and other constraints.
- This study is cross sectional (one time). Stock market fluctuates and result can be varied, longitudinal study gives average result by encounter these changes.

Regardless of the limitations mentioned above, there are few recommendations for the future research.

For future research other stock exchanges in Pakistan like Islamabad stock exchange and Karachi stock exchange can be consider for collecting and gathering the data to increase the quality of data making it more generalized. the sample size can be increased for the future research so more desirable results can be achieved and can be more generalized depict the true picture of the population. This study also carried out in different time periods so that fluctuation in the market can be encounter.

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