An Evaluation of Investment Behavior of Individual Investors and its Impact on Investment Decision making

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ARTICLE INFORMATION

ABSTRACT

Purpose: Efficient market hypothesis (EMH) holds that the recent stocks prices reflect all the available information, so the proponents of EMH suggest a passive investment tactics of indexing that makes no attempt to beat the market. This research investigates the determinants of investment behavior of individual investors and their relative importance in shaping overall investment behavior. The impact of investment behavior on investment decisions is also examined.
Methodology/Design: Primary data was collected in two phases: first, preliminary interviews were conducted with 25 brokers listed with Pakistan Stock Exchange (PSX), and then quantitative data was collected from 246 individual investors having their brokerage accounts maintained with brokers listed with PSX. Categorization of individual investors was done on the basis of investment objectives, level of investment and demographics.
Findings: Statistical analysis reveals that the investment behavior has significant relationship with decision making process. These results also suggest that the dimensions of investment behavior "Involvement and Overconfidence" are significantly related with the "Market Sentiments", "Involvement" with "Technical Analysis" and "Risk attitude and Overconfidence" with the "Fundamental Analysis".
Implications: These results hold significant implications for the brokers and individual investors in their decision making in increasing the rationality by considering the factors of individual behavior in the stock market.

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INTRODUCTION

Market participants have for a long time relied on the notion of efficient markets and rational investor behavior when making financial decisions. However, people tend to be irrational due to misleading effect of their moods, emotions, beliefs and limited cognitive and computational capabilities. Consequently, the idea of investors who are fully rational, exhibiting perfect self-control and maximizing their utility is becoming inadequate. Behavioral finance concentrates on irrational behavior that can affect investment decisions and market prices. It attempts to better understand and explain how emotions and cognitive errors

influence investors in the decision making process. Behavioral finance does not contribute by diminishing the fundamental work of proponents of efficient market hypothesis, rather, it examines the importance of relaxing unrealistic behavioral assumptions and make it more realistic by adding more individual aspects of the decision making process in financial markets as contemporary researches reveal the aspect that the investment selection process is more human than analytical (Bird et al., 2017).

Despite the importance of individuals' investment decisions, we know little about the factors that influence them (Kengatharan and Kengatharan, 2014; Heena, 2015; Kavita **&** Mohanraj 2016; Kimeu et al., 2016). Behavioral aspects of individual investor's decision making are often ignored by financial researchers.

A number of studies (e.g. Lim, 2012; Wamae, 2013; Kengatharan and Kengatharan, 2014) have identified that the factors of investor behavior do have influence on the individual investor's decision making. However, there are very few studies including Qadri and Shabbir (2014) in the Pakistani context. Investor's behavior and its relevant impact of decision making is required to be investigated in Pakistan as addressed in this paper.

The study is aimed at addressing the causes of investment behavior of individual investors. It examines the decision making styles opted by individual investors. It also addresses the relative importance of different decision making styles in decision making process, and investigates the impact of determinants of investment behavior on decision making processes. It is in these research areas where the role of behavioral finance comes in as the modern finance theory fails to explain the phenomenon.

In this study, we see investor behavior in terms of four broad behavioral dimensions of risk attitude, overconfidence, optimism and investor involvement that are subdivided into various factors. This paper not only aims to identify the relative importance of each of the behavioral dimensions but also examines the relative importance of the sub-factors in shaping the broad behavioral dimensions. Moreover, three possible ways of reaching an investment decision, opted by the investors, are also discussed: technical analysis, fundamental analysis and market sentiments; and identifies the relative importance of each decision making technique in investment decisions.

Additionally, present research addresses the impact of investment behavior of individual investor on decision making process by validating the relationship between these two. It aims to create a fuller understanding of investor behavior and decision making process. By understanding the human behavior, attitude and psychological mechanisms involved in financial decision making, standard financial models may be developed further to better explain the reality in today's developing markets. In the following sections, we first explain the literature on emergence of behavioral finance and review investment behavior as well as behavioral biases; then summarize the fieldwork comprising of quantitative and qualitative data. Next, data is analyzed and conclusions are presented, followed by limitations and implications.

THEORETICAL FRAMEWORK

Emergence of Behavioral Finance

Financial economics is perhaps the least behavioral of the various sub disciplines of economics (Huang and Litzenberger, 1988; LeRoy and Werner, 2014). Finance literature reveals little interest in investor decision processes or in the quality of judgment. As a result, it is nearly devoid of 'people'. But because of the presence of variations in financial markets that are unexplained by modern finance theory; the advent of behavioral concerns in finance has

become inevitable (Thaler, 2010; Andrikopoulos, 2005).

In modern finance, it is assumed that unlimited computational and cognitive capabilities are posed by the economic agent who is a super mind taking all likely choices and their consequences into consideration and only valuing money or consumption to maximize self-interest and the value so assigned is not prejudiced by factors as temper, familiarity with a particular state of affairs, unexpected increases in fear or regret etc. (Simon, 1955; Kahneman and Tversky, 1979; Simon 1957). Moreover, people possess limited attention capabilities and give more value to social considerations (Kahneman and Tversky, 1973). In addition, the rational traders are bounded in their possibilities such that markets will not always rectify irrational behavior, (Barberis and Thaler, 2003). Hence, traditional theories may give an incomplete and deceptive description of financial behavior. So, we need not have waited decades for this insight as the limitations of efficient market theory have ever been quite visible to those who wanted to look into it.

Finance as a discipline is undergoing major changes and some aptly term it as a paradigm shift (Fama 1970; Muth, 1961; Anderson et. al., 1988; Arthur, 1995; Arthur et al., 1997; Tesfatsion and Judd, 2006). Behavioral finance is a new paradigm of finance theory, which seeks to understand and predict systematic financial market implications of psychological decision making. Shefrin (2000) wrote a book on behavioral finance and EMH titled "Beyond Greed and Fear" which conveys key concepts that people are "imperfect processor" of information and are usually biased, commit mistakes and have perceptual problems.

Understanding Investment Behavior

The proponents of the traditional paradigm are of the view that it is quite possible that few agents in the economy can make less-than-optimal investment decisions. However, it does not affect the overall efficiency of the market as long as marginal investors that is, "the investor, who is making the specific investment decision at hand, is rational", exist in the market. Recent market trends imply an increased participation by individual investors in the investment process. As financial markets become more 'peopled', their behavior, actions, reactions and perceptions have a continuous impact on the stock prices that cannot be explained by traditional models. Not only do markets not behave neatly as dictated by the traditional market theories, but also there is a strong evidence in the field of psychology and financial research that individual decision makers do not behave in accordance with the tenets of expected utility while making decisions under uncertainty (Kahneman and Taversky, 1979; Machina, 1982).

Most of the financial decisions are made in situations with a high degree of uncertainty and complexity. However, psychological work suggests that people have limited abilities and capabilities to solve especially complex problems (Simon, 1957, 1959, 1979; Arthur, 1994; Miller, 1956; Kahneman, 1973; Conlisk, 1996). Therefore, simplifying rules-of-thumb, or heuristics, may result in behavior that is not fully rational (Simon, 1955; Newell and Simon, 1972; Tversky and Kahneman, 1974; Gabaix and Laibson, 2000). People have limited information processing capacity as they have limited working memory, attention capacity and computational capabilities, therefore, are unable to execute multiple tasks simultaneously (Kahneman, 1973).

Miller (1956) states, "we can process only seven (plus or minus two) pieces or chunks of information at the same time" (p. 85). Therefore, the cognitive load required for complex decision problems often exceeds people's cognitive capabilities. To deal with such problems people generally adopt simplifying rules-of-thumb, or

heuristics, that may result in behavior that is not fully rational (Simon, 1979; Newell and Simon, 1972; Tversky and Kahneman, 1974; Gabaix and Laibson, 2000). Motivated in part by the above evidence, theories incorporating cognitive biases have found a prominent niche in the recent finance literature.

Theoretical Evidence on Behavioral Biases

Social psychology provides confirmation of a variety of societal effects that help better understand the behavior of investors in context of equity markets. Individual investors appear to invest in a manner that is inconsistent with the traditional paradigm. Specifically, they are under diversified (Benartzi and Thaler 2001), loss averse (Odean, 1998), and overconfident (Odean, 1999). Barber and Odean (2000) document that individuals trade too much and tend to hold on to loser stocks too long while selling winners too early. Grinblatt and Keloharju (2001) find that traders are reluctant to realize losses, and often trade for non-rational reasons, exhibited by reference price effects. There is even evidence that investor moods, as influenced by cloud cover or number of hours of daylight, affect financial markets (e.g. Hirshleifer and Shumway, 2003; Kamstra, Kramer, and Levi, 2003). Apparently, many investors have the tendency to believe that their perception is superior to others (Shiller, 1998) which results in overconfidence and an excessive trade activity that can affect the stock prices.

It is argued that investors are found to be involved in excessive trading because of their behavioral trait of overconfidence and that ultimately resulted in diminished returns (Barber and Odean, 1999, 2000; Odean, 1999). Asch (1956) highlights the tendency of people to conform to the judgment and behavior of others while making an investment decision. It is conformity bias that results in herding behavior, which in turn has been proposed as the source of endogenous fluctuations (bubbles and crashes) in financial markets (Topol, 1991). Moreover, Oberlechner and Hocking (2004) derived from news information sources and rumors that the pace of information is rated higher than trustworthiness of source and precision of source. DeBondt and Thaler (1985) stated that, "people systematically overreacting to unexpected and dramatic news events results in sizeable inefficiencies in the stock market" (p. 797). Similarly, it is argued that some pessimistic issue highlighted in media can result in a momentary negative impact on the asset returns that are reversed later, and trade volume can be abnormally high or low during media pessimism (Tetlock, 2007). Grinblatt and Keloharju (2000, 2001), observed that sell trades of individual investors are responsive to high past returns more as compared to buy trades.

As such, investors have scares capabilities and time unlike homo-economicus that has limited use in making formal decisions, therefore, complex problems remain unsolved. Lim (2012) found strong positive relationship between overconfidence and regret in the decision making process, while moderate impact of overconfidence, anchoring, herding, loss aversion and regret aversion has been found on investor's decision making (Luu, 2014). Qadri and Shabir (2014) have identified positive affect of overconfidence and illusion of control on the decisions of investors and Wamae (2013) concluded that the risk aversion has the least effect among the studied factors on investment decision. Some researchers (Mbaluka et al., 2012; Lim 2012; Bashir et al., 2013, Hardiesa et al., 2013; Lodhi, 2014; Suzaida and Amelia, 2016) found no relationship between some psychological factors and decision making process.

METHODOLOGY/DESIGN

Pakistan Stock Exchange was selected to study investment behavior. In terms of sampling the

brokerage houses affiliated with PSX have been divided into four major clusters, Karachi, Lahore, Islamabad and Multan, on city basis. Respondents were selected from each cluster on the basis of simple random sampling method. The units of analysis comprise of two parts:

(i)   Primary unit of analysis is individual investor having an investment account maintained with the broker listed with PSX,
(ii)   Secondary unity of analysis is the brokers who are listed with PSX.

Primary data was collected through mixed methods. Qualitative data was collected through open-ended interviews with brokers and quantitative data was collected from investors through a structured questionnaire, as explained below.

Preliminary In-Depth Interviews

The focus of these preliminary interviews was to identify a comprehensive set of factors that are likely to influence investor sentiment and investment decisions. A group of 25 participants, 20 average individual investors and 5 brokers in stock market, were interviewed on face-to-face basis. The format was mostly open-ended, allowing the participants to freely associate. A "funnel technique" was used to elicit information and to generate a list of factors and anecdotal

information to develop a quantitative survey that was tested on a larger sample. The underlying objective was to probe into the characteristics and behavioral aspects of the individual investors and that how they reach their investment decisions. The survey gave insight about the irrational decision making process and different heuristics adopted by the most of the individual investors.

These preliminary interviews with individual investors and brokers were useful for the development of the research instruments used in the second phase related to individual investors and brokers.

Based on preliminary in-depth interviews, previous research literature and interviews with brokers we developed the theoretical framework which is given in figure 1.

The following hypotheses were developed based the previous literature and preliminary interviews;

H1: There is no significant relationship between Behavioral factors and Decision Making

H2: There is no significant relationship between Behavioral factors and Technical Analysis

H3: There is no significant relationship between Behavioral factors and Fundamental Analysis

H4: There is no significant relationship between Behavioral factors and Market sentiments.
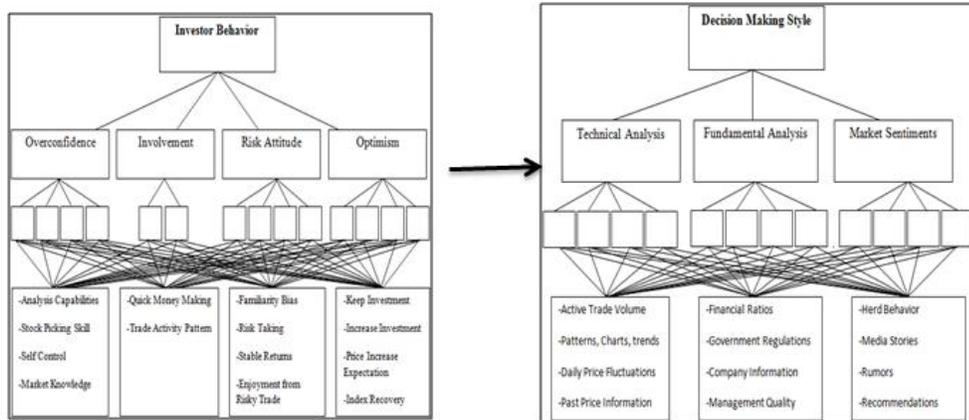
Figure 1. *Theoretical Framework*

Investor survey

The survey instrument was developed for individual investors, and consisted of structured questions focusing on recurring themes identified in the previous qualitative phase as given in figure 1. Demographic and sociological factors were included in the questionnaire survey. A total of 500 questionnaires were distributed to individual investors between June 2016-August 2017. In few cases, the survey was self-administered while in most of the cases the respondents were facilitated to get responses from them. 290 individual investors responded, for a response rate of 58 percent. However; several self-administered questionnaires were incomplete as many questions had been left unanswered. Consequently, these incomplete responses were dropped from the analysis. Total 246 complete survey responses from individual investors have been used for analysis purpose. Different statistical tools and techniques e.g. Regression Models, AHP and ANOVA are used for data analysis.

DATA ANALYSIS

This section presents the detailed discussion and analysis of the questionnaires administered to brokers and individual investors. Analytical Hierarchy process (AHP) was used to find the relative importance of different behavioral traits of the investors in defining overall investment behavior and relative importance of different decision making styles. AHP is multi criteria decision making method, which was originally developed by Saaty (2008). It derives ratio scales from paired comparisons. Regression analysis was also conducted to validate the relationship between investor behavior and decision making styles.

Determinants of Investment Behavior of Individual Investor

The in-depth interviews and secondary research identified four broad dimensions of investor behavior that are Investor Optimism, Risk Preferences, Overconfidence, Investor Involvement, which have been further divided into different sub-factors. On the basis of the overall responses of the investors, AHP priorities dimensions in terms of their pair wise comparisons and level of contribution in the formation of behavior of the investor. The results of priorities of the dimensions and sub dimensions of investment behavior are listed in figure 2. These results show that overconfidence is the most important behavioral dimension
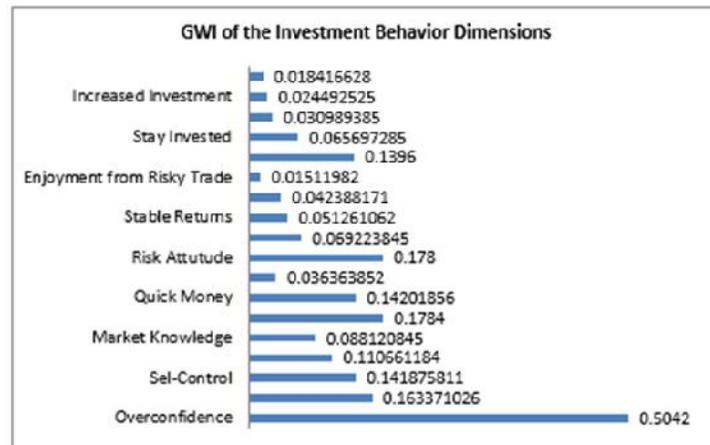

Figure 2: *Global Weighted Index of the dimensions of investment behavior*

among all. Within the overall dimension of overconfidence, the most prominent factor is the confidence on specific skills that result in successful investment, while on second rank is self-control. On third rank is the stock picking ability while on fourth rank is confidence on market knowledge.

The second most important dimension is the level of involvement in terms of tendency to make quick money. The third rank dimension of the investment behavior is Risk Attitude. We found that investors have greater fear of un-known and uncertainty, to avoid which they make investments in the stocks of the familiar companies. The factor of familiarity bias gets the highest rank among all four factors.
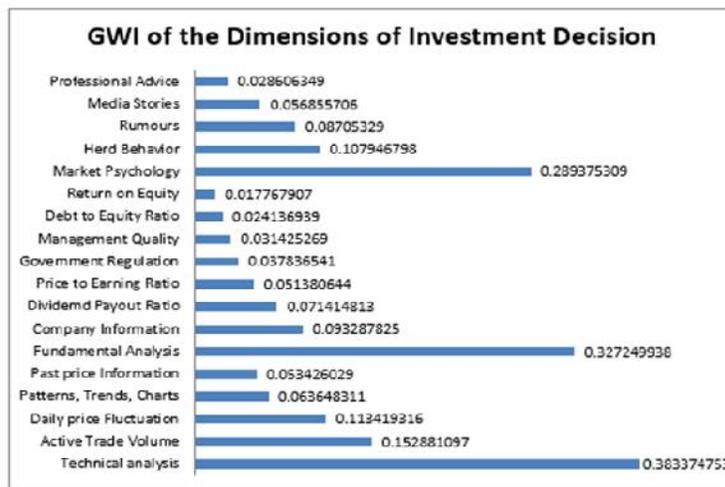
The analytical hierarchical process assigns second rank to the tendency of investing in stocks with stable returns. aversion of the investor. While the other two factors that are assigned with third (risk taking) and fourth (enjoying risky trade) measures the risk loving attitude of the investors. The low weights of these factors reveals that investors are not risk loving, instead, the tendency of risk aversion is higher among the investors as compared to risk loving attitude. Investors are not found to be much interested in

increasing their investments and not much hopeful about the recovery of the index in case of a down fall.

Investment Decisions

As a result of preliminary interviews and secondary research, three ways of making an investment decision are identified in this study; namely, Technical Analysis, Fundamental Analysis and Market Sentiments/Psychology. Analytical hierarchical process helped us determine the relative weights of the three decision making styles in the formation of overall investment decision. Relative weights for the factors of each dimension are also determined using AHP. These results are listed in figure 3.

The dimension of technical analysis is ranked at number one, while fundamental analysis and market sentiments are at second and third ranks respectively. It basically reveals the aspect that investment decision did not base on fundamental analysis solely nor on technical analysis or market sentiments, rather all these three dimensions help investor reach at an investment decision. AHP helped us determine that in technical analysis the factor that is contributing

GWI of the Dimensions of Investment Decision

Professional Advice	0.028606349
Media Stories	0.056855706
Rumours	0.08705329
Herd Behavior	0.107946798
Market Psychology	0.289375309
Return on Equity	0.017767907
Debt to Equity Ratio	0.024136939
Management Quality	0.031425269
Government Regulation	0.037836541
Price to Earning Ratio	0.051380644
Dividemd Payout Ratio	0.071414813
Company Information	0.093287825
Fundamental Analysis	0.327249938
Past price Information	0.053426029
Patterns, Trends, Charts	0.063648311
Daily price Fluctuation	0.113419316
Active Trade Volume	0.152881097
Technical analysis	0.383374753

Figure 3: *Global Weighted Index of the dimensions of investment decision*

Table 1. *Regression Results (Relation among Determinants of Behavior & Investment Decision)*

Explanatory variables	Unst. Coefficients	SE of Coeff.	Beta	*t* value	*p* value
Intercept	3.010	.248	12.153	.000	
Involvement	.085	.023	.214	3.749	.000
Risk. Attitude	.092	.039	.136	2.383	.018
Optimism	.039	030	.074	1.303	.194
Overconfidence	.195	.032	.356	6.062	.000

*R square = .273
*F value = 22.499
*Adjusted R square = .261
*Durbin-Watson = 1.601
*Degrees of freedom = 245

Note: Significant at 5% level.

the most is the active trade volume and turnover.

On second rank is daily price fluctuation while past patterns, charts and trends at third and past price information of the company at fourth rank. By using AHP, we ranked the factors of fundamental analysis on the basis of their level of importance to the investors and found the hierarchical order as Financial Ratios, Company Information (financial statements), Government Regulations and Management Quality respectively in order of priority. This hierarchical order reveals that in fundamental analysis investors give more importance to the financial ratios as compared to other factors.

The factor of Financial Ratios is further divided into four sub-factors. Again, we used AHP to determine the relative weights and level of importance of each ratio to the investor. AHP helped us determine the ranking of the ratios as Dividend per share, Price to Earning Ratio, Debt to Equity Ratio and Return on Equity. Market sentiments are measured in terms of four factors that are prioritized in hierarchical order; Herd Behavior, Rumors, Media Stories and Recommendations.

Impact of Investor behavior on Investment decisions

To analyze the impact of the determinants of investor behavior on decision making style, we fitted regression model. Regression model helped

us identify those dimensions of investor behavior that are most closely related to the investment decision, and those behavioral dimensions that have a greater impact on the overall decision making process of an individual investor. Regression model (Table 1) revealed that the behavioral dimensions of investor overconfidence, involvement, risk attitude are three dimensions that are significantly associated with the investment decision making process (*p* values .000, .000 & .018 respectively) that supports our argument that investor behavior has greater impact on investment decision (H1, H2 & H3 are supported). Moreover, if we look into the values of R square and adjusted R square we can state that investor behavior contributes up to 26 to 27 percent on the overall investment decision making process.

The results of relationships of the different dimensions of investment behavior and different decision making methods are listed in table 2. Regression result of table 2 suggests that out of four broad dimensions of investor behavior the dimension of Investor Involvement has significant relationship with the technical analysis (p value .001) that supports our argument about the influence of investor behavior on technical analysis. This finding basically shows that investors who have greater level of involvement tend to conduct technical analysis more as compared to the rest. Moreover if we look into the values of R square and adjusted R square, we can state that 7 to 9 percent is the

influence of investor behavior on the phenomena of conducting technical analysis.

The Regression model suggests that out of four broad dimensions of investor behavior, two dimensions - investor's overconfidence and risk preferences - have a significant relationship with the fundamental analysis because p values for the dimensions of overconfidence and risk preferences (.000 & .019 respectively) that support our argument about the influence of investor behavior on fundamental analysis. This finding essentially shows that investors who have a greater level of risk aversion and those with a high level of overconfidence tend to conduct fundamental analysis more as compared to the rest. Moreover, if we look into the values of R square and adjusted R square, we can state that 17 to 19 percent is the influence of investor behavior on the phenomena of conducting fundamental analysis.

Regression model suggests that out of four broad dimensions of investor behavior, two dimensions - investor involvement and overconfidence - have a significant relationship with the market sentiments (p values .000 & .005 respectively) that supports our argument about the influence of investor behavior on making investment decision by taking market sentiments into consideration. Findings also show that investors who are highly involved and those with a high level of overconfidence tend to make investment decision on the basis of market sentiments as compared to the rest. Additionally, if we look into the values of R square and adjusted R square, we can state that 11 to 12 percent is the influence of investor behavior on making investment decision by looking into market sentiments.

RESEARCH FINDINGS

This paper studies the individual investors investment behavior in four behavioral dimensions namely optimism, risk attitude, overconfidence and investor involvement.

Different sub-factors are used to measure all these dimensions. According to our findings an important role is played by overconfidence dimension to determine the overall behavior. Optimism, involvement and risk preferences follow.

Four factors were used to measure overconfidence that are market knowledge, self-control, stock selection and specific skills. Stock investors in majority believed that their stock picking ability is better than others. They were confident in their skills that would lead them to earn profit. Investors with numerous years of experience believed that they had good market knowledge. Tendency to make quick money and trade activity was used to measure investor's involvement dimension and we found that investors with objectives of earning short term loans had a high level of involvement when compared with long term objectives because they had the tendency to make quicker money in shorter time. Investors were not found to be very optimistic in terms of the future market conditions and they look to keep their investment intact because they did not want to sell their stocks at loss. Risk averse behavior was observed while measuring risk preferences of individual investors who preferred to invest in companies that were familiar and had stable returns. In contrast, some investors showed a preference for taking risk. Results identified that the behavior of the investors is not in accordance with financial theories.

While studying three possible way in which individual investors would react to the investment decision i.e. market sentiments, technical analysis and fundamental analysis. They used all three while making investment decision but their intensity varied depending on the investment horizons, investment objectives, investment experience and level of investment. The selection of different investment decisions along with their importance depends upon the behavioral traits

Table 2. *Regression Results showing the Relationship between Determinants of Investment Behavior and different   Investment Decision methods.*

Explained Variables	Explanatory Variables	Adjusted R sq.(%)	Coeff.	S.E of Coeff.	*Beta*	Df	*t value*	F value	*p* value	DW
Technical Analysis	Involvement		.11	.03	.21		3.32		.00	
	Risk Attitude		.08	.05	.09	24	1.4		.14	
	Optimism	7.40	.03	.04	.04		.69	5.90	.48	1.79
	Overconfidence		.07	.04	.11		1.68		.09	
Fundamental Analysis	Involvement		.01	.04	.01		.275		.78	
	Risk Attitude		.18	.07	.14		2.36		.01	
	Optimism	18.70	.03	.05	.03	24	.606	13.85	.54	1.50
	Overconfidence		.07	.06	.36		5.91		.00	
Market Sentiments	Involvement		.13	.03	.01		3.85		.00	
	Risk Attitude		.00	.06	.14		.120		.90	
	Optimism	11.10	.05	.04	.03	245	1.14	8.62	.25	1.57
	Overconfidence		.14	.05	.36		2.84		.00	

Note: Significant at 5% level.

which was also highlighted by the brokers in the interviews.

Our findings suggested that people generally emphasize more on technical analysis which may be accredited to the short term profit goals, giving more importance to the daily trade volume, market turnover, daily price fluctuations and trends. This study has established the relationship between dimensions of investment decision and investment behavior as results indicated that risk attitude overconfidence and involvement are significantly correlated with investment decision. This is consistent with the previous research (Suzaida and Amelia, 2016; Qureshi et al., 2012; Qadri and Shabbir, 2013; Lim, 2012; Bashir et al., 2013).

The results of this study also suggest that investors give more importance to the technical analysis look for active trade volume and daily price fluctuations. Fundamental analysis was given importance by investors who had large investment and had long term objectives in terms of financial ratios price earnings and dividend per share. Overconfidence and risk attitude were found to be significantly related to fundamental analysis in the regression models that we ran.

Herd behavior was found to have a great impact on market sentiments in our study. The investing behavior of big investors is observed by several investors to make an investment decision and it is followed by the media reports and rumors circulating in the market. Consultancy is also acquired by investors from family, peers, friends, analysts, brokers and professionals. The majority of the investors trust professional recommendations while only a few consider the advice of family or friends in this matter. Market sentiments were significantly related to investment behavior dimensions of overconfidence and investor involvement revealing that high level of overconfidence and high level of involvement self-control and better

stock picking ability take market sentiments into account for investment decision. **DIISCUSSION**

The results of our study suggest that the behavior of individual investors is, to some extent, irrational when considered from a standard finance point of view. We found that individual investors have a high level of involvement and overconfidence while they are not much optimistic about the future outlook of market. Moreover, we found that they have an aversion to risk. Findings also revealed that technical analysis is given more importance as compared to fundamental analysis and market sentiments to make an investment decision. Finally, we found that investors do follow all the three ways in making their investment decisions but investor behavior plays an important role in choosing a particular decision making style.

Behavioral findings relating to personal financial issues have a number of practical implications. Professional investors could use knowledge of the biases and mistakes of individual investors in attempts to "get on the other side of the trade" and make profits at the expense of the individual investors. Alternatively, financial services firms could use knowledge of such biases to inform their product development and marketing departments. Finally, regulators could apply the knowledge to informing regulation and education that can be used to mitigate the biases and improve the welfare of individual investors. Moreover, the individual investors themselves can learn from their mistakes and behavioral biases and may avoid repeating them and thus by doing so can reach optimal investment decisions. In future some comparative studies can be conducted where more than one class of investors can be studied at a time to better analyze their behavioral differences and decision making styles, portfolio management behavior and that how they affect the overall market. Moreover future researches on the issue in hand can drive interesting results with the help of both the

primary data and secondary data on trade activity in order to analyze that what investors say and what they really do.

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