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Behavioral factors influencing investment decisions of institutional investors: Evidence from asset management industry in Pakistan

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Abstract- The purpose of this study is to investigate behavioral factors influencing investment decisions of institutional investors at asset management Industry in Pakistan. Behavioral factors investigated in current study are disposition effect, overconfidence behavior, mental accounting and diversification heuristic bias. In order to achieve objectives of the study survey data has been collected from 244 institutional investors through a self-administered structured questionnaire. The analysis was conducted by applying Partial Least Square Structural Equation Model (PLS-SEM) using SmartPLS 3.2.2 software. The findings revealed that disposition effect, overconfidence behavior, mental accounting and diversification heuristic bias have a significant influence on investment decisions of institutional investors. The article provide novel insight on the role of behavioral factors in investment decisions of institutional investors in Pakistan. Further, it enhance body of knowledge in understanding the behavioral aspects of investment decision in emerging market.

Keywords: Behavioral finance, Disposition effect, overconfidence, Investment decisions

I. INTRODUCTION

Stock market performance and its fluctuation has been studied and considered a mysterious puzzle in the field of finance. Numerous theories and models have been developed to predict stock market movement; however they all proved to be ineffective due to some reasons. Classical theories of economics and finance consider that investors' investment decisions are based on rational thinking and they account for all the relevant aspects of assets in decision making process(kim&Nofsinger, 2008). Whereas, financial behavior of investors are based on cognitive and intellectual model that include factors from psychology, sociology and finance. Farlin (2006) concluded that agents of behavioral finance do not consider rational thinking because perception and frame of preference lead investors to act irrationally. The basic factors for irrational behavior of investors are culture, values, emotion and ideology which they possess while dealing in different situations (Macgoun, 1992). Various studies have been conducted in the field of behavioral finance, but certain people are still unaware of the area and factors that lead to irrational behavior in the stock market and significantly affect the performance of their investment decision (Montier,2007).

The traditional economics and financial theories based on the efficient market hypothesis (EMH) that assume that individual investors are rational in processing information for financial decision and that irrational aspect of noise traders is exploited by potential arbitrageurs. However, the empirical literature on the validity of EMH suggests that rational investors (arbitrageurs) could not completely nullify the effect of noise traders in the stock market (Shleifer, 2000). Moreover, the arbitrage opportunities created by irrational asset prices cannot exploit by the arbitrageurs due to the existence of limits to arbitrage (Barberis and Thaler 2003).

The occurring of stock market anomalies revealed that individual's investors are no more rational economic agents in financial decisions (Babajide & Adetiloye, 2012; and Bashir et al. 2013). Stock market anomalies results in financial bubbles in the stock market, that ultimately busts in an uncontrolledmanner.Behavioral finance as the new area explain these anomalies and studies how investors fall short of the assumption of rationality in their financial decision and how financial markets are, to some extent, not more efficient. Actually, the traditional financial theories do not consider the effect of human psychology on their economic decision. Behavioral finance studied that how various psychological characteristics influence investors' decision making as individual or group, analyst and portfolio managers. Basically, it tries to study and explore how emotions and cognitive biases affect investors' behavior in the financial market and corporate finance (Kengatharan 2014). These psychological biases comprised of five major categories: prospect theory, misperceiving randomness, heuristics theory, overconfidence and herding. This issue has become the focus of researcher that either investors trade in rational market, or irrational investors trade in rational market or both or there (Subrahmanyam,2007).

The basic purpose of this study is to explore the underlying determinants that affect investmentdecision of institutional investors in Pakistan stock market. Although, various studies have beenconducted to study investors' investment decision behavior, and found that behavioral factorssignificantly influence investment decision of investors in financial markets (Kengatharan andKengatharan, 2014; Nofsingera and Varmab, 2013).

However, there are still gaps in the literatureof behavioral finance to explore the influence of behavioral factors on investmentdecisions particularly in institutional investors in Pakistan. Therefore, the present study examinesand explores the presence of behavioral biases among institutional investors' investment decisionsin Pakistan stock market. Pakistan stock market is chosen as a case to study behavioral biases,because it is argued that Asian market are tends to be higher in terms of inefficiency (Kim &Nofsinger, 2008).

The factors influencing investment decision, caused by psychological and biological factors, faultycognitive reasoning and feeling and emotions has been the interest of researchers in the field ofbehavioral finance. Psychology literature identified large numbers of biases embedded in humanbehavior. However, to understand the influence of biases on investment decisions and asset pricesin stock market, we focus on those biases that are systematic in nature. Whereas, the biases thatare less important or can cancel out in aggregate are of least concern. Since, the biases that effectinvestment decision and are systematic in nature; are significant. Thus, the current study exploresthe influence of behavioral factors such as overconfidence, disposition effect, and mental accountingand diversification biases.

II. Literature Review and Hypothesis Development

Empirical evidence in the field of behavioral finance highlights that investors' investment decision in financial markets are influenced by various psychological, behavioral, and biological factors (Ahmad et al., 2017). The psychological and behavioral factors are internal factors that are produced within the two systems of human thinking, and leads to biases in decision making. Carmerer et al., (2005) indicates this two thinking systems, as "decision-making is a dual cognitive–affective Process". Further, he added that this two system of thinking (dual cognitiveeffective process); stimulate biases in individual decision making process. The cognitive systems of dual cognitive-effective process; stimulate biases that are refers to as cognitive heuristics. Cognitive heuristics are "rules of thumb" or other mental shortcuts, which individual uses in complex and uncertain situation (Ritter, 2003) to make decision easily. However, sometimes these cognitive heuristics leads to cognitive biases which results in irrational decisions (Pompian, 2006). Whereas, effective system of dual cognitive-effective process; stimulate biases in decision making that are emotions, moods and sentiments (Summers and Duxbury, 2012).

2.1 Disposition Effect

In financial markets, investors are appeared to be reluctant in realizing losses and willing to realize gains. It is observed, that investors prefer to sell winning security too early and hold the losers security for too long. This pattern termed as disposition effect by Shefrin and Statman (1985), for which conventional finance does not provide sufficient explanations. In this regards, Prospect theory has been proposed as possible explanation

that provide an insight into disposition effect (Shefrin and Statman, 1985; Dhar and Zhu, 2002).
Prospect theory developed by Kahneman and Tversky (1979) is a framework of decision making under uncertainty. Prospect theory criticizes the classical expected utility theory based on two scenarios; certainty effect and isolation effect. According to certainty effect people often underweight the outcomes with low probability value compared to the certain outcomes. As a result, people become risk averse for sure gains, while for loss they become risk seeking. Isolation effect explains that people attach more value to gains and losses than to the net income they have gained. In addition, the probability of occurrence of an event is replaced by decision weights.
This phenomenon has been the focus of many researchers; since both experimental and empirical evidences has found the presence of disposition effect both in sophisticated and unsophisticated investors (Shapira and Venezia, 2001; Covel and Shumway, 2005; Frazzini, 2006; Barberis and Xiong, 2009) and worldwide (Griffen et al., 2005). According to disposition effect investors in stock market keeps losing securities with the expectation of price recovery that will generate gains.

2.1.1 Disposition Effect and Investment Decision

Disposition effect is the most common and pervasive behavioral bias exhibit in investors' investment behavior. Its pervasiveness has been acknowledge by a number of renowned authors such as Shefrin and Statman (1985); Weber and Camerer (1998) amd Barberis and Xiong (2009). Disposition effect refers to the propensity of investors to sell assets immediately which are increased in values and hold assets for too long which have decreased in value based on the some reference point, typically the purchase price (Henderson 2012). Investors in financial markets are easily prone to disposition effect, because it relates to normal decision making of buying and selling assets (Zahera and Bansal, 2019). Lee, Yen, & Chan (2013) empirically found the evidence of disposition effect for Taiwan mutual fund investors. They further found that investors redeem their funds more in bear market conditions compared to bull market. On the basis of these argument we hypothesize that:
H_1: There is a significant influence of disposition effect on investment decisions of institutional investors in Pakistan.

2.2 Overconfidence Bias

Overconfidence has been considered widely accepted common cognitive bias that makes market participants too much confident in their own skills and knowledge and ignores the potential risk associated with investment outcomes. Empirical studies in the area of investment decision found that overconfidence bias influence rational decision making process. Pompian (2006) defines overconfidence as ""In this most basic form, Overconfidence can be summarized as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities". Psychologist and behaviorist identified that overconfident individual overestimates their knowledge, underestimates the associated risk with events and exaggerate their skills and abilities in controlling events. Further, they have determined that self-attribution induce overconfidence behavior.

2.2.1 Overconfidence Behavior and Investment Decision

Overconfidence is a well-established and widespread misconception that gives people too much confidence in their knowledge and abilities, and ignores the risk of investing. Empirical studies in this field have revealed that overconfidence influence investors rational judgment of decision making. Zaidi and Tauni (2012) found that overconfidence bias has a positive and significant relationship with investors' type and their investment decision making process. Similarly, Rostami and Dehaghani (2015) also found the existence of overconfidence bias in investment decisions of investors in stock market. Mushinada and Veluri (2018) studied self-attribution and overconfidence bias at Bombay Stock exchange across stock of various market capitalization. Their findings revealed the presence of these biases across various market capitalization stocks. Similarly, Qasim et al. (2019) observed the bias significantly explain investment decisions of investors in Pakistan stock market. On the basis of these argument we hypothesize that:

H_2: There is a significant influence of overconfidence and self-attribution bias on investment decisions of institutional investors in Pakistan.

2.3 Mental Accounting

Richard Thaler proposed the mental accounting concept and defined by Thaler (1999) as the "set of cognitive

operations used by individuals and households to organize, evaluate, and keep track of financial activities." Mental accounting is the cognitive heuristic in which people break down their complex financial decision into smaller parts for easy monitoring and effective management. In mental accounting people allocate financial decisions and outcome into several different mental accounts. Every mental account is monitored separately from each other. Since, these mental accounts are not fungible, thus, success or failure in one mental account does not affect other mental account. Further, gains and losses are evaluated relative to a reference point in each mental account separately instead of tracking total wealth.

Similarly, mental accounting implied that investors in stock market divide their investment in several portfolios on the basis of different mental categories they have. Followed by this process, investors then define different investment policies for each mental account. Further, they also assign specific purpose to each mental account for the purpose to earn maximum return with minimum risk. This in turn leads to the composition of under-diversified portfolio, which are not profitable; however, satisfy the investors' feeling and emotions (Zahera, 2019).

2.3.1 Mental Accounting and Investment decision

Mental accounting is a cognitive operation in which investors organize, analyze and keep track of different investment choices and financial activities (Liu & Chiu, 2015; Thaler, 1999). According to Ritter (2003) mental accounting is the obvious reason of people irrational behavior.

They sometimes take decisions separately which in principle should be taken jointly (Ritter, 2003). Investors in financial markets categorize their portfolio into different assets groups, and then evaluated each element separately of the portfolio, which effect their portfolio performance. Das, et al. (2010) also found that investors mostly develop their portfolio based on various mental accounts that are related to different target goals. More recently, Ratnadi et al. (2020) used students as a sample to study factors influencing investment decisions. They also find that mental accounting bias effect investment decisions. On the basis of these argument we hypothesize that:

H_3: There is a significant influence of mental accounting on investment decisions of institutional investors in Pakistan.

2.4 Portfolio Diversification Bias

Portfolio composition theory in financial market have been studied extensively in economics and finance literature, however, little attention has been given to the behavioral aspects of portfolio composition choice of investors. The study of Kahneman and Tversky (1979), have attracted many researchers to explore the psychological aspects on individual, effecting investment and portfolio composition of investors in financial markets.

The neoclassical economic and financial theories considered a well-diversified portfolio, which is developed based on mean variance optimization principle of (Markowitz, 1952). However, in reality, portfolio composition is not well diversified; rather it is under-diversified. For example, when investors hold a small number of risky assets among available risky assets in their portfolio, then this portfolio is considered as under-diversified. Further, in extreme situation of anti-diversification; investors either does not hold any risky asset, or they hold a single risky asset in their portfolio that yields to under-diversified portfolio. Numerous researchers have found empirical evidences of under-diversification portfolio (Guidolin & Liu, 2016).

The possible explanation for under diversification portfolio is cognitive heuristics biases namely familiarity bias and home bias. The equity home bias heuristic also known as local bias, is the situation, in which investors or institutions prefers to holds domestic assets instead of foreign assets in their portfolio composition. Hnatkovska (2010) found empirical evidence of equity home bias in investors' portfolio development.

Familiarity heuristic bias is another factor that results in under-diversification portfolio compositions. Familiarity bias is the tendency of investors to invest in the assets of those companies that investors are more familiar with (Baker & Nofsinger 2002). For example, when different alternatives are presented to people, they generally select the more familiar alternative instead of unfamiliar. Fox and Tversky (1995) argue that this propensity is also highlighted in investor behavior while selecting stock for portfolio diversification.

2.4.1 Diversification Heuristics Bias and Investment Decisions

Extensive empirical evidences have found the presence of diversification bias in investment decisions of investors that yields to lack of diversification (Bateman et al., 2016; De Vries et al., 2017). Diversification and risk management are the most critical factors in portfolio theory. However, research in behavioral finance demonstrate that investors fails to diversify, because they measure risk and return at individual stock level rather than comparing it at portfolio level (De Bondt, 1998). Further, researchers have explored various behavioral factors that influence portfolio diversification such as mental accounting, holding familiar and local stock in portfolio and 1/N diversification heuristics (Benartzi and Thaler, 2001; Hnatkovska, 2010).

Based on the empirical evidence from previous studies (Baker & Nofsinger 2002; Foad 2010; De Vries, et al., 2017), it is expected that diversification bias in form of home bias, familiarity bias is also be evident in the investment decisions of institutional investors in Pakistan. On the basis of these argument we hypothesize that:

H_4: There is a significant influence of diversification bias on investment decisions of institutional investors in Pakistan.

III. Research Methodology

3.1 Research Design

As Pakistan stock market have specified rules and regulation governed by Security Exchange Commission of Pakistan (SECP). All the listed companies and investors are required to act as per the regulations, rules and policies enacted by SECP. Therefore, investment behaviors of investors are the results of these rules and regulation; so, quantitative approach using survey method employed to investigate behavioral factors influencing investment decisions of institutional investors.

3.2 Participants of the study

Since, the aim of study is to investigate behavioral factors in investment decision behavior of investors at asset management industry in Pakistan. Therefore, population of the present dissertation is comprised of institutional investors trading in Pakistan stock exchange (PSX). Further, the survey data was collected from a sample of 244 institutional investors using simple random sampling. The sample size is selected on the recommendations of Kock and Hadaya(2018) for using PLS-SEM.

3.3 Instrumentation

An adopted survey questionnaire has been used to collect data from institutional investors. The survey questionnaire comprised of two sections. Section 1 consist of questions related to demographic characteristics of the respondents. Whereas, section 2 of the survey consist of questions related to the construct of the study. The disposition effect is measured with four items scales. Two items were adopted from Kudryavtsev, Cohen and Hon-Snir (2013) and two itemHas were constructed from existing literature addressing the same problem such as Waweru et al. (2008), Nikiforow (2010). Overconfidence behavior was measured with six items scales, which is adopted from Babajide and Adetiloye (2012) and Mouna, and Jarboui, (2015). The mental accounting was measured with 5 items and were adopted from Waweru, et al., (2008) and Baker et al., (2019). Furthermore, To measure diversification bias the author follow the work of Mouna, and Jarboui, (2015), and Ahmad et al.,

(2017).Whereas, investment decisions, which is dependent variables was measured with 7 items and were adopted from Mayfield (2008). All the items were measured using 5-point likert scale of 1 for strongly disagree to 5 for strongly agree.

3.4 Data Analysis

The partial least square structural equation model (PLS-SME) have been applied on the data set to analyze the propose hypothesis of the study. In conducting the analysis first, the model was assessed to ensure measurement quality of models' constructs by analyzing internal consistency reliability, convergent validity and discriminant validity. After that the structural model was evaluated for its predictive capability and path

coefficient. Further, the significance of path coefficients for hypothesis testing was estimated using 5000 bootstrap subsamples at the significance level of 5 percent (Hair, et al., 2017).

IV. RESULTS

4.1 Demographic Profile of Respondents

Table 4.1 shows the demographic profile of respondents. According to statistics the male respondents are 76.6 percent and female respondents are 23.4 percent participated in filling survey questionnaire.
Regarding to the age distributions of respondents; 11.1 percent respondents are with the age of below 25 years, respondents with age of between 26-35 years are 34.4 percent; respondents with the age of between 36-45 years are 35.7 percent; respondents with the age of between 45-55 years are 14.3 percent; and respondents with the age of s above 55 years are 4.5 percent.
The qualification level of the respondents is; 2.9 percent are having doctorate degree, 54.9 percent are masters; 42.2 percent respondents possess bachelor degree; whereas, no respondents have an intermediate qualifications. This indicates that all the respondents have higher qualification and enough literacy about the stock market investment.
As per investment experience the statistics in the table below depicts that respondents with experience level of less than 1 year are 4.5 percent; respondents with experience level of 2-5 years are 35.7 percent; respondents with experience level of 6-9 years are 34.8 percent; and respondents with experience level of more than 10 years are 25 percent. This indicates that all the respondents have enough experience to have thorough understanding of investment in financial markets.

Table 4.1 Demographic Distribution

Characteristic	Frequency	Percent
Gender		
Male	187	76.6
Female	57	23.4
Age		
Below 25 years	27	11.1
26-35 years	84	34.4
36-45 years	87	35.7
46-55 years	35	14.3
55 years or above	11	4.5
Education		
Intermediate	0	0
Bachelor	103	42.2
Master	134	54.9
Doctor	7	2.9
Investment Experience		
Less than 1 year	11	4.5
2-5 years	87	35.7

6-9 years	85	34.8
10 or more year	61	25

4.2 Reliability and Validity

Traditionally internal consistency reliability of data instrument is assessed with Cronbach's alpha. However, in case of PLS-SEM the Cronbach's alpha value is very sensitive to the number of items of the construct (Werts, Linn, & Joreskog, 1974). Therefore, along with Cronbach's alpha the Composite reliability is also assessed to insure the internal consistency reliability of the items' construct. Previous research suggest that threshold value of greater than 0.70 for Cronbach's alpha and Composite reliability is acceptable and indicating a good internal consistency reliability (Nunnally & Bernstein, 1994).

Table 4.2 represents statistic regarding Cronbach's alpha and Composite reliability of the construct of the study. According to statistic the Cronbach's alpha value for all the scales are greater than 0.70 ranging between (0.744-0.882) hence indicating a good reliability of the items' construct. Similarly, the Composite reliability value for all constructs are also ranged between (0.840-0.919), which is greater than the acceptable value of 0.70; demonstrating an excellent internal consistency reliability.

Convergent validity measure the ability of the model to explain variance of the indicators. The average variance extracted value AVE is assessed to determine the convergent validity of models' construct (Fornell and Larcker, 1981). The AVE value of 0.5 and above are considered as the threshold value for the presence of convergent validity.

Table 4.2 report statistic of AVE for the model's construct. According to statistic all the constructs have AVE value of greater than 0.5, therefore showing the evidence of convergent validity.

Table 4.2 Construct Reliability and Validity

Constructs	Cronbach's Alpha	CR	AVE
Disposition Effect	0.744	0.840	0.568
Diversification Bias	0.844	0.870	0.532
Investment Decision	0.835	0.879	0.549
Mental Accounting	0.795	0.859	0.550
Overconfidence	0.827	0.872	0.533

Note: AVE represents Average Variance Extracted; CR represents Composite Reliability

4.3 Discriminant Validity

In order to examine the discriminant validity of the model's construct, the most commonly used approach is Fornell-Larcker criterion (1981).According to this criterion the square root of AVE of each construct should be greater than latent variable correlation of the same construct to ensure discriminant validity of the model's construct. In table 4.3 the diagonal value represents the square root of AVE. The statistic in the table clearly shows the evidence of discriminant validity of the model's construct, since the diagonal value for all the construct are greater than their latent variable correlation of same construct.

Table 4.3 Fornell-Larcker Criterion

	Disposition Effect	Diversification Bias	Investment Decision	Mental Accounting	Overconfidence
Disposition Effect	**0.754**				
Diversification Bias	0.510	**0.729**			
Investment Decision	0.598	0.542	**0.741**		

Mental Accounting	0.335	0.230	0.350	**0.742**	
Overconfidence	0.183	0.151	0.358	-0.016	**0.730**

4.4 Assessment of R Square

Coefficient of determination (R2) measures the predictive accuracy of the model or in more simple words; indicating the variation in exogenous dependent variables by endogenous independent variables. According to statistics presented in Table 4.4;the investment decisions has R^2 value of 0.514; indicating that 51.4 percent of variation in investment decision is explained by selected independent variables.

Table 4.4 Assessment of R Square

	R Square	R Square Adjusted
Investment Decision	0.514	0.506

4.5 Structural Equation Model: Hypotheses Testing

Table 4.5 showing hypothesize path, coefficient values, standard errors and corresponding significant values. The significant value are further highlighted with asterisk "*" sign for convenience.

Hypothesis 1 of the study examine the influence of disposition effect on investment decisions of institutional investors. The study proposes a significant relationship between disposition effect and investment decisions. The results indicates a positive and significant influence of disposition effect on investment decisions of institutional investors. Because, the coefficient value is significant at 5 percent significance level (β = 0.348; p = 0.000), therefore, hypothesis 1 is supported.

Hypothesis 2 of the study investigates the influence of diversification bias on investment decisions. The study hypothesize that diversification bias has a significant influence on investment decisions of institutional investors. The results reveal a positive and significant influence of diversification bias on investment decisions. Because, the path coefficient value is significant at 5 percent level of level of significance (β = 0.287; p = 0.000), which provide evidence in support of hypothesis 2.

Hypothesis 3 investigates the relationship between mental accounting bias and investment decisions. A significant influence of mental accounting on investment decisions have been hypothesized in the present study. The analysis demonstrates a positive and significant influence of mental accounting on investment decisions of institutional investors. Since, the path coefficient is significant (β = 0.0.171; p = 0.002), thus lending support to the acceptance of hypothesis 3 of the study.

Hypothesis 4 analyze the influence of overconfidence and self-attribution bias on investment decisions. It is hypothesized that overconfidence and self-attribution has a significant influence on investment decisions of institutional investors. The results shows that the influence of overconfidence and self-attribution bias on investment decisions is positive and statistically significant (β = 0.253; p = 0.000), hence providing evidence to the acceptance of hypothesis 4.

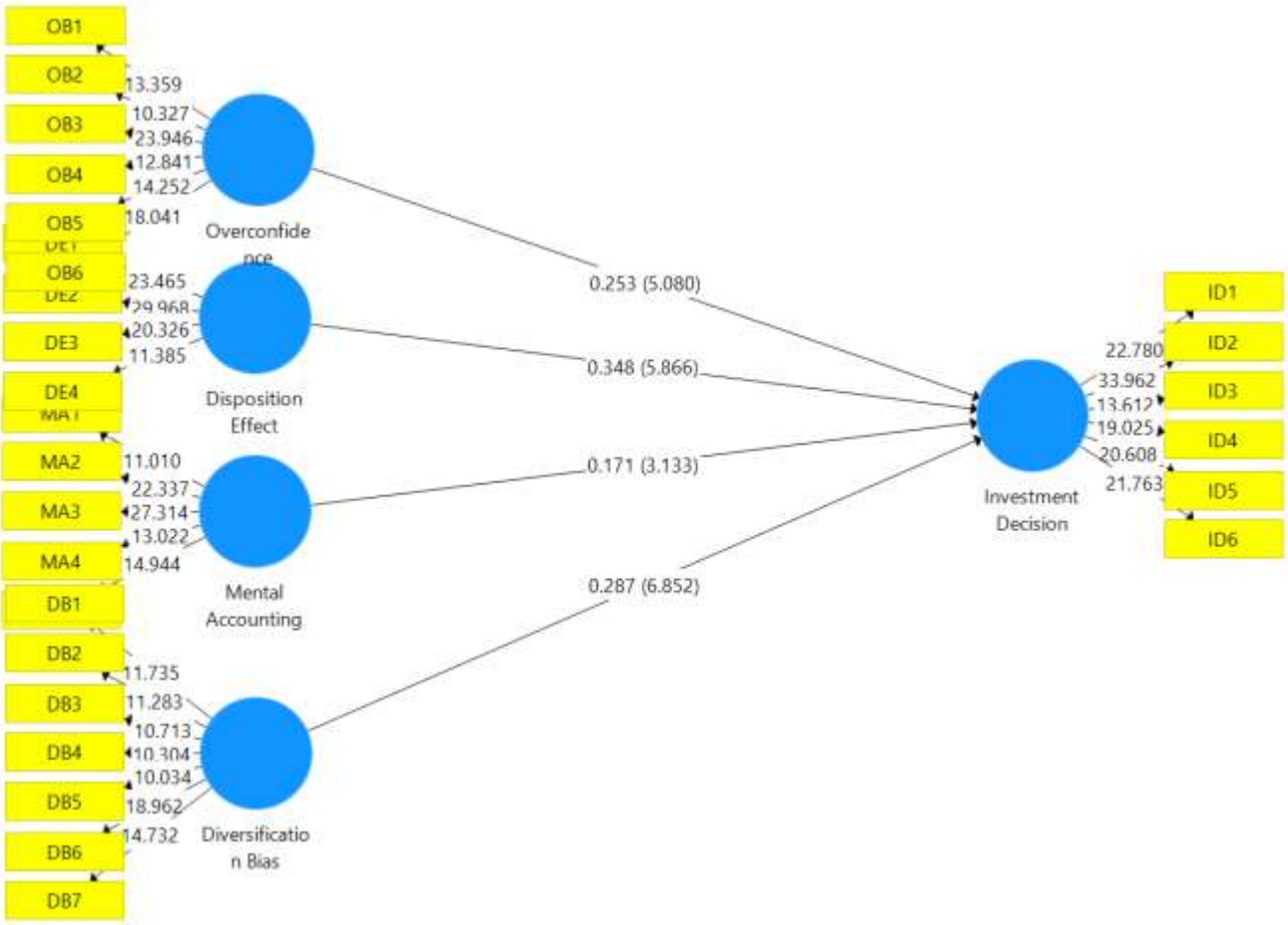
Table 4.5 Structural Equation Model

Hypothesize Path	Path Coefficient	STDEV	T Statistics	P Values
Disposition Effect -> Investment Decision	0.348**	0.059	5.866	0.000
Diversification Bias -> Investment Decision	0.287**	0.042	6.852	0.000
Mental Accounting -> Investment Decision	0.171**	0.055	3.133	0.002
Overconfidence -> Investment Decision	0.253**	0.050	5.080	0.000

**Path Coefficient is significant at 1 percent

*Path Coefficient is significant 5 percent

Figure 4.1: PLS-SEM Model showing Path Coefficient and T Statistics
Source:Smart PLS Output



V. CONCLUSION AND DISCUSSION

Investors rationality and financial market efficiency has been considered a topic of special interest among the academia since long. The traditional finance theories developed based on the assumption of "Homo Economicus": investors in financial markets are rational economic man and always make optimal investment decisions that maximize wealth. Whereas, behavioral finance oppose the assumptions of perfect rationality and believe that investors in financial market are bounded rational. Theories presented by traditional fiancé are based on idealized investment behavior, whereas, behavioral finance explain investors behavior on actual observable behavior. Behavioral finance postulate that investment behavior of investors are influenced by various psychological and behavioral factors, which leads to irrational investment decisions. The theory of limit to arbitrage, presented as a counter argument to the arbitrage opportunity created by these irrational behavior; thus opposing market efficiency. Moreover, behavioral finance also implies that share prices in financial markets are not only determined by information but also by changes in investors' expectations and sentiments that are not logically justified by information. Investors being as a bounded rational may overreact or underreact to any event or information, which results in deviation in security prices and stock market as a whole. Behavioral finance helps to understand investors' investment behavior by application of psychology to finance. By contributing to behavioral finance literature, the present article study the influence of behavioral factors and on investment decisions of institutional investors in Pakistan. The behavioral factors studied in this paper are disposition effect, overconfidence, mental accounting and diversification bias. To achieve these objectives survey data has been analyzed by applying descriptive statistics and PLS-

SEM through SPSS and Smart-PLS software.

The results shows evidence of the influence of behavioral biases on investment decisions. Further, it has been observed that institutional investors significantly prone to behavioral biases such as disposition effect, overconfidence bias, mental accounting, and diversification bias. These findings is in line with majority of previous studies such as the study of Qasim et al., (2019), found the evidence of overconfidencein investors' investment decisions. Further, for mental accounting our results lend supports to the behavioral portfolio theory of Shefrin and Statman (2000), (Thaler, 1998) and regarding diversification bias the present study is consistent with Frieder and Subrahmanyam (2003), Huberman, (2001), and (Thaler, 1998). However, regarding disposition effect our analysis revealed conflicting results with the argument of Dhar and Zhu (2006) and Shapira and Venezia (2001); since the analysis shows the presence of disposition effect. Institutional investors tends to sell the share when the prices are increasing and when the prices fall below the purchase price they hold the shares for a longer period.

These findings lends support to the evidence that institutional investors in Pakistan are not perfectly rational economic agents. Instead, behavioral factors and personality factors are associated with their investment decisions which make them bounded rational. Therefore, for investment analysis investors should not only considers the fundamental theories and models, but also considers behavioral factors during investment decisions, which may results in optimal investment decisions.

The present dissertation have certain limitations, which can be addressed in future research. First, since, the study has been conducted on institutional investors in the context of Pakistan; therefore, the generalizability of the findings to other regions needs to be considered. Second, this study, investigates the influence of four behavioral factors on investment decisions. Many other factors that have a significant role in investment decisions such as heuristic driven biases, gambler fallacy, and illusion of control, emotions and moods of investors should be considered in future research.

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