Impact of Behavioral Biases on Long Term Financial Decisions and Corporate Performance: An Evidence from Non-Financial Sector of Pakistan

Muhammad Zia-ur-Rehman1, Muhammad Faisal Rizwan2, Zaheer Abbas3

1 Ph.D. Scholar, Faculty of Management Sciences, International Islamic University, Islamabad.
2 Assistant Professor, Faculty of Management Sciences, International Islamic University, Islamabad
3 Assistant Professor, Faculty of Management Sciences, International Islamic University, Islamabad

ABSTRACT

Purpose: In this study, the relationship of managerial biases i.e. mental accounting, optimism and loss aversion with corporate performance is investigated. For path analysis, we explored this relationship through two subdomains of long term financial decisions (capital structure and dividend policy). Moreover, in this study, the mediating role of capital structure and dividend policy was also theorized and tested on the above-stated relationship.

Sample/Methodology/Approach: The sample of the study consisted of eighty-five (n=85) CEOs, CFOs, General Managers and Financial Treasurers of the nonfinancial sector (listed in Pakistan Stock Exchange). Primary data was collected through closed ended questionnaire by using convenience sampling technique. Statistical technique PLS-SEM was applied for data analysis by using SMART PLS 3.2 statistical package.

Findings: The findings of the study depicted that behavioral biases influence corporate performance as managers take a decision under the influence of personal feelings, perceptions, and intuitions. We also inferred from the results that the effect of biases (mental accounting, optimism, and loss aversion) is significant on long term financial decisions. We also found that dividend policy and capital structure mediates the relationship between optimism and mental accounting with corporate performance.

Originality/Value: This research study fills the gap in existing literature by investigating the relationship of managerial biases with corporate performance through the path of long term financial decisions of corporate financial managers. Previously, extensive research work is available on basic topic that how dividend policy and capital structure affect corporate performance, however, we found comparatively quite less discussion on stimulating forces (behavioral biases) for financial decision making and this gap is covered by this study through explaining the impact of behavioral biases on long term financial decisions which further devastate corporate performance. This study as an empirical evidence is helpful for researchers, academicians, and practitioners to understand and implement the notions coined by behavioral finance, regarding the effects of behavioral biases on long term financial decisions.

Keywords: Optimism, Loss Aversion, and Mental Accounting, Long term financial decision, Corporate Performance, Pakistan.

1. INTRODUCTION

Financial economics, the dynamics of stock markets, and the operations of agents therein as a decision maker, are topics which are ultimately investigated with various prospective by myriad researchers. In different research streams, proponents of the...
growing field of behavioral finance argue that behavioral biases affect managerial decisions, and it is increasingly recognized that behavioral science is important to our understanding of economic decision making (Kahneman & Tversky, 1979a).

An important debate has been ongoing for last three decades between two school of thoughts ‘rationalists’ who assume that economic agents behave rationally, against ‘behaviorists’, who assume that they behave in systematically irrational ways. However, in this debate, the subscribers undoubtedly hold excessive views, with many of those advocating a more psychologically realistic view of economics and currently we are in a transition phase between two above stated paradigms (Stiglitz, 2010). Advocates of behavioral finance argued that the financial decision makers are human beings, so they are subjected to some psychological biases in their decision-making process and these decisions have entailing effects on corporate performance. Corporate performance can also be defined as the outcome of strategic, analytical and financial management of corporate activities. Most of the researchers raised discussions and arguments which explain the importance of corporate performance (Kang & Shivdasani, 1995; Nickell, 1996; Zeitun & Tian, 2007; Nickell, 1996; Zeitun & Tian, 2007) Therefore, the ultimate impact of decision making and policies reflected the corporate performance.

Bias is a term that is intended to explain behavior, judgment or habits that are affected by various kinds of prejudice or presumption. Pompian (2006) proposed 50 different types of psychological biases which are important for financial decisions. In which important managerial biases are overconfidence, representativeness, availability, self-control, mental accounting, optimism and loss aversion. Research discussed that mental accounting; optimism and overconfidence are three different dimensions of human behavior that differ with pre-assumed ideas. Previous Studies regarding identifying the relationship between overconfidence, investment decisions, and corporate performance found that Chief Executive Officer who overconfident in investment decisions have a negative effect on company performance (Barber & Odean, 2001; Cheng, 2008). The reason for this negative effect explains that CEO’s personal intuition draw a conclusion that outcome of decision performs better than the optimal level of investment which ultimately plays a negative role for corporate performance. The capital
structure which is one of the sub-domain of the long term financial decision has a negative but significant impact on corporate performance (Zeitun & Tian, 2007).

**Long term financial decisions and Corporate Performance**

The corporate performance of a firm is principally dependent on financial planning. Financial managers who are involved in decisions either long term or short term are needed to optimize the level of financing which is suitable for the corporate performance. The long term financial decision includes the corporate strategies for capital structure and the dividend policy decisions. Capital structure decision is the structure of debt and equity. Debt section is related to external funding which is obtained by firms while equity is consisted of two parts that are raised capital of the firm and selling of equity to outside of firm (Wan, Norwani, Mansor, & Endut, 2016). Sometime managers increase the debt level of financing or equity level for the purpose of better corporate performance (Masulis, 1983; Myers, 1984; Kjellman & Hansén, 1995).

**Behavioral Biases with long term financial decisions**

Mental accounting is a set of cognitive operations used by individual and household to organize evaluate and keep track of financial activities (Thaler, 1999). It deals with recording & summarizing business dealings and financial transactions in books and further analyses it, verifies it & reports the results. Mental accounting is more related to the human psychological analysis of long term financial decisions, as a man always wants to be on safe side of his investments meanwhile risk taking is also an inevitable human phenomenon. For every human being, past experience is the main source of information while making a decision. In totality, a man processes the information that he experienced from his past which further affects his current decisions. Optimism bias is ordinarily characterized as the mixed up conviction that one's odds of encountering a negative occasion are lower (or a positive occasion higher) than that of one's companions. The inclination was initially exhibited by Weinstein (1980), who reported that a greater part of undergrads trusted their odds of occasions. Loss Aversion was the first introduced by Tversky and Kahneman in behavioral finance. Loss Aversion is referring to people strong desire to strongly prioritize of avoids losses to get a return. Loss Aversion is generally cautioned to be responsible for the greatest part of risk
aversion (Köbberling & Wakker, 2005). The relationship between behavioral biases and long term financial decisions has made the study of corporate finance worthwhile. Numerous biases developed a relationship with the corporates financial decisions. The main objectives of the studies so far conducted on the behavioral biases were to make awareness among those persons who are biased in particular circumstances and may make irrational decisions. As all the assumptions of rationality cannot be achieved (Thaler, 1999).

**Purpose of the study**

The purpose of the study is to explore the impact of behavioral biases on long term corporate financial decisions and how these decisions contribute to corporate performance. In this study, the relationship amongst mental accounting, optimism and loss aversion with corporate performance have been explored, our study investigated this mediating relationship through two subdomains of long term financial decisions i.e. capital structure and dividend policy. The objective of this study is to create awareness among those persons who are biased in particular circumstances and makes irrational decisions in the corporate sector.

**Research Questions**

- How behavioral biases (mental accounting, optimism, and loss aversion) influence managers while making long term financial decision in the corporate sector?
- How behavioral biases (mental accounting, optimism, and loss aversion) influence the corporate performance with mediating role of long term financial decisions in the corporate sector?

**Significance of the study**

Our study is focusing on the behavioral aspects of financial decisions. The prior studies have concentrated on the long term financial decisions and corporate performance only. However, the focus of this study is a novel by exploring the impact of behavioral biases on long term financial decisions i.e. capital structure and dividend policy. This study has many characteristics positively differing from the previous studies. Firstly, we focused on these long term financial decisions. Secondly, we analyzed the effect of behavioral biases (Mental accounting, optimism, and loss aversion) on long term
financial decisions. Thirdly, we also analyzed, how these financial decisions impact on corporate performance. Fourthly, we also analyzed, how long a term financial decision mediates the relationship between behavioral biases and corporate performance. The results of our study are helpful to corporate managers, financial decision makers and financial analysts to understand the impact of behavioral biases on decision making and corporate performance. To the best of our knowledge, the comprehensive empirical study based on primary data in the literature of behavioral corporate finance is rare, even no known study can be found in Pakistan. This study is trying to bridge this gap in the previous literature.

**Scheme of study**

The rest of the study is as follows; literature review covering earlier studies, the detailed research methodology covering research design, questionnaire building and finally conclusions followed by analysis and results.

**2. Literature Review**

This section has covered previous related studies to theorize the research model and hypothesis.

**Corporate Financial Decisions**

The primary objective of corporate finance is to increase the value of the corporation to shareholders and all stakeholders. The financial decisions decide the overall performance of the corporation. Hyping the firm’s value depends upon the capabilities of managers for balancing the capital funding among the different projects to achieve the long term profitability and sustainability. The evolutionary progress of corporate finance has passed through several stages of development. In this evolutionary progress, the evolution in the study of corporate finance took place when the behavioral aspects of human nature were associated with the field of finance. The authors began to conduct studies on the corporate finance, associating it with behavioral biases and to define the reasons of the irrationality among the decision makers and its impact on the corporate financial decisions (Barros & da Silveira, 2007; Oran & Perek, 2013; Vasiliou & Daskalakis, 2009). The long-term financial decisions include the capital structure and dividend policy decisions.
Capital Structure

The capital structure is the long term financial policy of a firm, can be defined as the combination of different sources of financing in the capital. Usually, capital structure is formed on the basis of the following three types of financing sources i.e. internal finance, debt, and equity. The capital structure of the corporate firms has been defined by three major theories proposed in the literature of finance (Kraus & Litzenberger, 1973; Modigliani & Miller, 1963; Myers & Majluf, 1984). Apart from the paradigm of rationality, authors have worked to prove a significant relation between the behavioral biases and financial manager’s decision of capital structure. It is argued that entrepreneurial managers are more prone to the overconfidence and optimism bias rather than non-entrepreneurial managers. Entrepreneurial managers are those, who run their own business whereas non-entrepreneurial managers are the hired executives. The firms having overconfident top management tempts to have the more leveraged structure (Barros & da Silveira, 2007). Greater the leverage in a capital structure, greater the cost of bankruptcy would be, thus associating the risk with the firm. The top level managers attribute success with their skills and failure to external factors (Russo & Schoemaker, 1992). Whereas, self-attributed managers will be more overconfident and more overconfident managers will be highly optimistic than non-biased managers (Kafayat, 2014).

Dividend Policy Decision

The second long term financial decision in the corporate sector is dividend policy. This decision includes a set of guidelines which determine whether the managers should pay the dividend or retain the earning. The Residual dividend policy states that the firms rely on the internal sources while financing the new projects. The distribution of dividends is resulted, after the residual or a number of internal funds leftover after financing the projects. The top managers generally focus on balancing the debt to equity ratio and deciding the payment of dividends, if any amount is left over (Baker & Smith, 2006). The dividend stability policy is in contrast of the drawbacks originated from the residual dividend policies. These policies define that the quarterly dividends may decrease the uncertainty for investors and provide them with earnings. The hybrid
dividend policy is generally adopted by firms to maintain equilibrium between the residual and stable dividend policy. This policy is most commonly used by the corporate firms which pay regular dividends to its shareholders. The firms decide a fix proportion of dividend from its earnings which is easily maintainable and they provide an extra dividend in case if their earnings exceed from general level (Lee, 2010).

Ali & Anis (2012) argued that the top level decisions, in general, are driven by emotional biases. The top managers tend to be optimistic when planning for the investment of new projects and they are likely to increase the risk by selecting a high levered dividend policy. Ben-David, Graham, & Harvey (2007) stated that top managers who are optimistic are more prone to the better future performance of the firm than others. However, the decision of optimistic managers differs from others as they acquire a less diversified portfolio because they are more prone to the better future performance (Puri & Robinson, 2007). The results existing in the literature have been contradictory so far. Malmendier & Tate (2005) argued that optimistic managers will be more confident on self-abilities and will rely on the internal financing sources rather than approaching towards external sources. Their study concluded that optimistic managers approach the residual dividend policy while financing the capital for new projects and the dividend payments will be ruled out as the managers will prioritize utilization of the earnings for new financing. If the managers follow residual dividend policy, they will have to skip the dividend distributions for a certain time period, thus decreasing the value of the firm, ultimately increasing the risk for the firm.

Apart from the contradiction of the views of the authors on the nature of impact of behavioral biases on the dividend policy decisions, the literature so far provides a solid evidence for the association of psychological factors influencing the cognitive process of managers while maintaining their dividend policies (Ali & Anis, 2012; Ben-David et al., 2007; Biais, Hilton, Mazurier, & Pouget, 2005; Chang, Lee, & Lee, 2009; Gervais & Odean, 2001; Malmendier & Tate, 2005a).

**Behavioral Biases**

The integration of behavioral biases with long term financial decisions has expanded the attention of perceptible authors (e.g. see Thaler, 1999; Griffin & Tversky,
1992). Literary work on behavioral finance has brought revolutionary changes in the
theories of classical finance. Experimental studies have made the subject more interesting
and motivating for the researchers to explore the area. The literature of the biases relevant
to the financial variables exists in abundance. The brief literature review of the behavioral
biases is as follows:

**Optimism**

Optimism bias is defined as the belief of an individual regarding a probability of
a certain outcome, to be positive. Individuals are said to be optimistic when they believe
that their decision will not fail and future outcomes will not go beyond their expectations,
whilst their probability of a positive outcome is greater than the negative outcome
(Weinstein, 1980).

For capital structure decisions, Meinert (1991) argued that entrepreneurial
managers are highly influenced by optimism bias. The reason for the risky debt
management in today’s corporate firms is due to the highly optimistic approach of top
managers. For capital budgeting decisions, two types of optimistic managers are found in
literature; one believes that firms’ risky securities are undervalued by capital market and
they externally decrease positive net present values (NPV) and the second optimistic
manager believes in over values of their own corporate projects and wish to invest in
negative net present values (Heaton, 2002). Individuals who are more optimistic, work
harder, hope to resign more seasoned (subsequently hope to live more and more content
with his/her occupation), have more ability to do it again and they put more in individual
stocks and spare more (Puri & Robinson, 2007). Optimism bias, in decision making, is
among the heartiest discoveries in exploration on social observations and
comprehensions, in the course of the most recent two decades (Helweg-Larsen &
Shepperd, 2001). Different information recommends that individuals have a tendency to
be unreasonably idealistic about the future (Weinstein, 1980).

Manager’s decision making in the corporate decision is directly influenced by
optimism bias. In any case, McKenna (1993) contended that there was clear confirmation
for the fantasy of control, yet there was no proof for (unlikely) idealism as a consequence
of his exploration. As per De Meza & Southey (1996), if confidence emerges from the
deception of control, it is far-fetched that priors will be legitimately used. As indicated by Manglik (2006), examination on behavioral biases, for example, in money related decision making, idealism started to assemble energy in financial matters just in the seventies. Researchers started to recognize an example of peculiarities in the monetary markets, for example, size impact and energy impact. At first, behavioral finance hypothesis was considered as deficient and 'no hypothesis', while the balanced decision is considered normatively unrivaled by customary financial experts (Manglik, 2006). For instance, Shefrin & Statman (1984) found that mental bookkeeping, misgiving, and discretion are the behavioral biases that motivate the behavior to offer victors too soon and ride failures too long in budgetary markets.

**H1:** There is a relationship between optimism and dividend policy  
**H2:** There is a relationship between optimism and capital structure

**Loss aversion**

Loss aversion bias was first discussed by the Kahneman & Tversky (1979b). In economics and decisions theories, loss aversion is referred to the people’s tendency to avoid the risk and to acquire the gain. Loss aversion is an important concept of the behavioral economics and related to the prospect theory and captures the statement “loses appears greater than gain”. Kahneman & Tversky (1979b) concluded that the pain of loss is psychological and twice as powerful as the pleasure of gain.

Tahir (2014) revealed that women are less overconfident and more risk averse than men, while young investors are overconfident and more risk taker as compare to older. Azouzi & Jarboui (2012) said that there is a negative relation between loss aversion and capital increase. Arora & Kumari (2015) investigates the relationship of how age and gender affect the ability of risk taking in the long term financial decisions to investors through the loss aversion & regret and find out that the age & gender variables impact the ability of risk taking on investors through the loss aversion and regret. This study finds out, that the age and gender directly affect the ability of risk taking. Furthermore, this study investigates that age and gender can affect indirectly the ability of risk taking through the loss aversion & regret. It is also suggested that the individual of age group 41 to 55 year are mores loss averse than individuals falling in the age group 25
to 40. Johnson, Gächter, & Herrmann (2006) find out that both the high riskiness and less riskiness task to loss aversion increase the age, income, and wealth, while the loss aversion decreases through the education.

Kahneman & Tversky (1979b) argued that individuals tend to avoid loss in their decision making. They always prefer such alternatives and decisions which will result in a gain. In conclusion of that, the person exhibiting this bias will always seek to avoid those circumstances in which there will be a risk of loss as a result of their decision. Therefore, we suppose that similar to self-serving bias there is a negative relationship between loss aversion and risk perception of the managers. Therefore, we suppose the following hypothesis:

**H3:** There is a relationship between Loss aversion and Dividend Policy  
**H4:** There is a relationship between Loss aversion and capital structure

**Mental Accounting**

Mental accounting is composed of cognitive operation used by any person, group organizational manager or household. All of them use this (mental accounting) in their organizing, evaluating and making an arrangement of their financial activities. There are three basic elements of mental accounting that are needed to be studied. First can be nominated as how outcomes or consequences are perceived and decisions are evaluated. The second element of mental accounting leads to the assigning the task or activities to the specific segregated account which best explain about the source and use of funds and this is done in both real and mental account. The third and last suggested element is concerned about [or linked with] frequency with which these different assumed and real accounts are balanced which lies under the umbrella of “bracketing” which refers that accounts could be justified or balances on daily weekly, monthly or yearly basis (Thaler, 1999). Hypothetical decisions could be purely rational but as there is a matter of real decision makers they are possibly affected by the prior results or outcomes of their doings.

Investors of all type may be individual; managers or even gamblers are more likely willing to take a risk and to choose a risky option only when they are followed by a prior gain. They are ready to frame their situation by keeping a break-even phenomenon
in their mental account which helps them to justify their risk taking choice and balance it with prior gains. When we check investor decision, whether they put their gains and loss in the same account or they create different mental accounts noticeable results were found. Investors treat winner and losers portfolio differently they are more willing to sell the several stocks when the loss is realized rather than the realization of gains. This makes a clear contradiction to the statement that findings are purely dependent on investor’s characteristics.

**H5:** There is a relationship between mental accounting and dividend policy

**H6:** There is a relationship between mental accounting and capital structure

### Long Term Financial Decisions and Corporate Performance

The primary objective of corporate finance is to increase the value of corporation of shareholder and stakeholders as well. The financial decisions in corporations decide the overall performance of the corporation. A large number of studies have been focusing on the issues of financial (long term) decisions. It is no doubt that rationality has been challenged by several authors in their study. For of instance, it has been said that behavioral issues do influence the financial (long term) decisions. Example, List (2003) finds that gap among the buying and the selling for the experience and inexperience traders or investors of sports equipment and the argued that the loss aversion is disappeared when the traders or investors are experienced for buying and selling. Does it evident that behavioral biases have a direct influence on the financial decisions. There are two main sub-domains of long term long term financial decisions.

i) Dividend Policy

ii) Capital structure

### Dividend Policy with Corporate Performance

The second sub-domain of financial long term decisions is dividend policy decision. This decision includes a set of guidelines which determine whether the managers should pay the dividends or retain the earnings. There are three categories to pay a dividend to share holder

1. Residual dividend policy
2. Dividend stability policy
3. Hybrid dividend policy.
Generally, firms adapt to maintain equilibrium between residual and regular dividend policy. This policy is most commonly used by the firms which pay regular dividends to its shareholders. The firms decide to pay a fix proportion of dividend from its earnings which are easily maintainable and also provide an extra dividend in case if their earnings exceed from general level (S. W. Lee, 2009). Ali & Anis (2012) have claimed that the top level decisions, in general, are driven by emotional biases. There is a positive relationship between dividend policy, the return of assets and also the second school of thought that the performance of the firms is relevant with dividend policy (Amidu, 2007).

**H7**: There is relationship between Dividend Policy and Corporate Performance

**Capital Structure with Corporate Performance**

Capital structure is first sub-domain of long term financial decisions being the long term of a firm which can be defined as the combination of different sources of funds in the capital. There are three types of funds sources in the formation of capital structure i.e. internal finance, debt, and equity. Modigliani & Miller (1958) proposed the theory of capital irrelevance and pretended the firm’s value is not significantly associated with the capital structure of the corporate firms. It is thus associated with the fixed assets and the capital structure is an irrelevance to the firm’s value. Modigliani & Miller (1963) studying the role of taxation they argued that the firms should not rely on the debt financing as there are several disadvantages associated with it in contrast to internal funds. The performance of firms would be affected by the structure of the capital choice and also by the structure of the debt maturity (Zeitun & Tian, 2007). Authors have worked to prove a significant relation between the behavioral biases and financial manager’s decision of capital structure of the corporations. It has been argued that entrepreneurial managers are more prone to the mental accounting and optimism bias rather than non-entrepreneurial managers. Entrepreneurial managers are those who run their own business whereas non-entrepreneurial managers are the one hired executives (Barros & Da Silveira, 2007).

**H8**: There is a relationship between Capital Structure and Corporate Performance
Mental Accounting, Long term Financial Decisions, and Corporate Performance

Anolam, Okoroafor, & Ajaero (2015) have found a relationship between three components of mental accounting and corporate profitability and every economic transaction ought to classify in book accounts irrespective of perception or mentality of the person or organization involved. Studies also discussed that every economic transaction should be separately recorded unlike traditional ways when it was classified on the basis of individual mentality. The study also discussed the link between Components of mental accounting, corporate profitability, and any economic transaction should categories in book accounts regardless of an individual and organization’s personal involvement. Michael Conway illustrated that People struggle for earning of money, also keep saving for future purpose or for long term investment with a hope that one day they will sustain a lifestyle well beyond retirement. The basis of this type of thinking highlighted the general misconceptions about investment strategies for long-term. This psychological preference to spend only income stems from a behavioral finance flaw referred to as mental accounting, whereby we prefer to protect the original asset by only using new money gained (Robichaud, Dugas, & Conway, 2003).

**H9:** Dividend Policy mediates the relationship between Mental Accounting and Corporate Performance.

**H10:** Capital Structure mediates the relationship between Mental Accounting and Corporate Performance.

Loss Aversion, Long Term Financial Decisions, and Corporate Performance

Bodnaruk & Simonov (2016) said that those companies which are involved in managing funds can improve the quality of hiring decisions by screening prospective managers on the degree of their loss aversion bias for the ensuring better match between managerial characteristic and funds objectives. It means the organizations with better funds management are capable to enhance their quality and these organizations can also conveniently appoint good managers which can prove that self-most appropriate in managerial decision making and funds managing. In the broader term risk taking behavior is not only affect financial matters of an organization but it further may disturb and organization’s overall performance decisions and management. Finally, this biases
can defiantly have an impact on overall business performance (Bodnaruk & Simonov, 2016). Also, a debate that personal behavior toward risk is not fully mitigated by funds and also these behaviours have an effect on the quality of decisions and performance of the firms. Behavioral bias like loss aversion support the performance of firms, if manager, CFO, CEO and financial manager etc. take any type of decision regarding performance of firms there must be some biases because according to “Financial Economics” all managers are biased and they make their decision on the basis of their intuitions and perceptions. As Shams and Rezvani (2004) argued that loss aversion can be used as a new index for measuring the performance of the investment.

**H11:** Dividend Policy mediates the relationship between Loss aversion and Corporate Performance.

**H12:** Capital Structure mediates the relationship between Loss aversion and Corporate Performance.

**Optimism, Long Term Financial Decisions, and Corporate Performance**

Hmieleski and Baron (2009) have demonstrated that there is a negative relationship and entrepreneurs’ optimism and performance of their new ventures. Furthermore, the negative relationship between them is stronger for experienced than for inexperienced entrepreneurs and stronger in dynamics than in the stable environment. This means that experienced investor or decisions makers mostly faced that bias because their decisions are not on rational base. If the level of optimism increases among investor then the performance of corporate will be effect highly. And for the better performance of the firm’s investor behave like non-optimistic.

Another Finding of (Lin, Chang, Chen, & Liao, 2013) demonstrated that over optimistic of analyst have a negative impact on the subsequent long run performance of the firms. The firms have greater over-optimistic earnings forecast are associated with more negative long-run abnormal returns. Finally, the suggestion supports the point that the long-run underperformance of really comes from systematic over-optimism on the part of analysts.

**H13:** Dividend Policy mediates the relationship between Optimism and Corporate Performance.

**H14:** Capital Structure mediates the relationship between Optimism and Corporate Performance.
Theoretical Framework

The Figure (1) below explains the flow of the research model. Behavioral biases namely optimism, mental accounting, and loss aversion effect the long term financial decisions.

![Theoretical Model](image)

**Figure 1: Theoretical Model**

## 3. RESEARCH METHODOLOGY

The methodology of our study is based on primary data. The comprehensive description of the methodology is as follows:

### Data Collection Procedure

The total sample of our study is eighty-five (n=85) which consist of CEO, CFO, general managers and financial manager of Pakistan stock exchange listed firms. The simple random sampling technique is used to select the respondent for the data collection. The primary source is used to collect the data of study that will be conducted through a questionnaire which is obtained from previous researcher survey. Questionnaires were mailed in November 2015 and September 2016 to Managers, CEO, and CFO, auditors, finance manager and managing Director with the complimentary letter which explains the purpose of it. All questionnaires were returned back of which 76 were males and 9 were females. Sector wise detail of respondent is, 9.4% from Automobile Assembler, 2.4% from Automobile Assembler Parts, 7.1% from cement, 8.2% from chemical, 3.5% from engineering and fertilizer, 11.8% from Food & Personal Care Products, 2.4% from glass
and ceramics and 32.9 % from textile sector, 1.2% from textile weaving, Oil and Gas Marketing, Paper and Board, Pharmaceuticals, Power Generation & Production and Sugar and Allied etc. contribution involved. Credits ratings of these entire sectors are also involved. The subjects of the experiment were CEO’s, CFO’s, auditors, General manager finance, general manager, director finance and managing directors of well reputed non-financial firms which are listed in Pakistan Stock Exchange.

**Questionnaire**

The questionnaire consists of two basic sections one contains demographic variable and the other have questions related to behavioral factors and financial decisions. In demographic variables, the respondents were categorized in two basic categories on the basis of gender (i) Male (ii) Female. After that respondents were categorized on the basis of age in following pattern (i) 18-25 (ii) 26-35 (iii) 36-45 (iv) 46-55 (v) 56-60(vi) 60 and above. Categorization on the basis of education was on following pattern (i) Graduate (ii) Master (iii) M.S/M.Phil. (iv)PhD (v) CFA (vi) ACMA (vii) ACCA (viii) CA. Respondents were also categorized on the basis of experience within the corporation 3 years to 37 years. All the respondents were selected from non-financial firms of the Pakistan. Firm’s characteristics were also focused in the questionnaire. Characteristics of the firm, like the annual revenue was categorized as (i) < 30 million (ii) 30-99 million (iii) 100-499 million (iv) 500-999 million (v) 1000-1999 million. Also foreign sales as % of total sales were categorized as (i) 0% (ii) 1-24% (iii) 25-49% (iv) 50% and above. Another characteristic of the firms are number of employee that work with firm also categorized into (i) 1-999 (ii) 1000-1999 (iii) 2000-2999 (iv) 3000- 3900 (v) 4000-4999 (vi) 5000-5999. And also include the firm & sector name in a demographical variable. Crediting rating of the firms is also involved. And in second section questionnaire consists of 76 questions, in which 32 questions for measuring of financial decision, 18 items for corporate performance, 8 questions to measure mental accounting, a set of 9 questions were used to measure loss aversion and 9 others were used for optimism.

**Measures**

Variables are measured by using different scales.

Long term financial decision: Long term financial decisions are measured by a
questionnaire. For capital structure, Bancel & Mittoo (2014) and dividend policy questions are adept from Edelman & Farrelly (1983). 5 point Likert scale is used to measure the response of the variables. Mental accounting: For measuring mental accounting, we used the questionnaire of Thaler (1999). Five Likert scales ranging from 1= “Strongly disagree” to 5= “Strongly agree” is used to measure the response of the items.

Optimism: Optimism is measured by questions which are driven by Balasuriya, Muradoglu, & Ayton, 2010 and Pompian (2006). Five points Likert scale ranging from 1= “Strongly disagree” to 5= “Strongly agree” was used to measure the responses. Loss aversion: Loss aversion is measured by using questions which were designed by Ramiah, Zhao, Moosa, & Graham (2014). Items are measured on five Likert scales ranging from 1= “Strongly disagree” to 5= “Strongly agree” of this variable.

Corporate Performance: The Questionnaire of Khalique (2012) and Khan et al (2014) was adapted to measure the corporate performance. These indicators were measured by a differential scale ranging from -2 to +2 (“-2” means much worse, “0” means about the same and “+2” means much better).

4. RESULTS

Model Specification

As we want to forecast a relationship between behavioral biases and corporate performance with the mediating effect of long term financial decisions for this purpose respondents were asked to respond to each statement using five Likert scales. We used partial least square structural evaluation model which is a causal modeling technique. The first step in using PLS-SEM involves creating a path model that connects variables and constructs based on theory and logic (Hair jr., Sarstedt, Hopkins, & Kuppelwieser, 2014). It is important to distinguish the location of the constructs as well as the relationships between them. Constructs are considered either exogenous or endogenous. Whereas exogenous constructs act as independent variables and do not have an arrow pointing at them.
Assessment of Measurement Model

The evaluation of measurement model was based on the reliability and validity of model (Hair jr. et al., 2014). Reliability of the model was decided based on factor loading and composite reliability (Chin, 2010; Mohammad, Quoquab, Rahman, & Idris, 2015). Table 1 demonstrates that all factor loadings and composite reliability exceeded the recommended value of 0.50 and 0.70, respectively Anderson & Gerbing, (1988) and Henseler, Ringle, & Sinkovics (2009) which satisfy the reliability at the item and construct levels. The validity of measurement model was assessed based on discriminant validity and convergent validity (Hair, Sarstedt, Ringle, & Mena, 2012). Where convergent validity is evaluated based on average variance extracted (AVE) and composite reliability (Hair, Ringle, & Sarstedt, 2011). Table 1 shows AVE and CR for all the constructed variables surpassed the threshold value of 0.50 and 0.70 respectively which support the convergent validity (Chin, 2010; Hair Jr et al., 2014).

Table 1: Construct Reliability and Validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach's Alpha</th>
<th>CR</th>
<th>AVE</th>
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<tbody>
<tr>
<td>Capital Structure</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Corporate Performance</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Loss Aversion</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Management Accounting</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Optimism</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Notes: CR= Composite Reliability, AVE=Average Variance Extracted

Discriminant Validity

Discriminant validity is assessed by using criteria of Fornell & Larcker (1981) in which the square root of the AVE of a construct (diagonal values) has to be greater than the correlations between other constructs (off-diagonals values) in row and columns. Discriminant validity is a standard in which every single variable is different from the other, in discriminant validity pair-wise correlations between these factors. Table 2 shows, this condition is satisfied, which confirm the discriminant validity at construct level.
Table 2: Discriminant Validity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>CS</th>
<th>CP</th>
<th>DP</th>
<th>LA</th>
<th>MA</th>
<th>OPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Structure</td>
<td>2.833</td>
<td>1.180</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate Performance</td>
<td>3.885</td>
<td>0.744</td>
<td>-0.391</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>2.918</td>
<td>1.383</td>
<td>-0.184</td>
<td>0.500</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss Aversion</td>
<td>2.955</td>
<td>1.724</td>
<td>-0.050</td>
<td>-0.054</td>
<td>-0.030</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Accounting</td>
<td>2.226</td>
<td>0.854</td>
<td>0.075</td>
<td>-0.030</td>
<td>-0.139</td>
<td>0.006</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>2.214</td>
<td>1.188</td>
<td>-0.471</td>
<td>-0.011</td>
<td>-0.288</td>
<td>-0.031</td>
<td>0.103</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Notes: CS = Capital Structure, CP = Corporate Performance, DP = Dividend Policy, LA = Loss Aversion, MA = Mental Accounting, OPT = Optimism, SD = Standard Deviation

Evaluation of Structural Model

The predictive power of the structural model is decided on the base of a significant level of path coefficients and the amount of explained variance (R2) in the endogenous constructs (Hair jr. et al., 2014). To check its significance and (R2) value, the bootstrapping algorithm of Smart PLS was run with 500 resamples and obtained path coefficients their significance value. (Hair jr. et al., 2014).

Coefficient of determination ($R^2$)

The rule of thumb regarding an acceptable R2, with 0.75, 0.50, 0.25, respectively, describing substantial, moderate, or weak levels of predictive accuracy (Hair et al., 2011; Henseler et al., 2009). As shown in Table 3, the R2 values for capital structure, corporate performance, and dividend policy remained 0.251, 0.342 and 0.096 respectively which indicates the predicate accuracy of capital structure and corporate performance is moderate, while the dividend policy has a weak predicate accuracy.

Table 3: R Square Value of Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>$R^2$</th>
<th>Predictive Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Structure</td>
<td>0.251</td>
<td>Moderate</td>
</tr>
<tr>
<td>Corporate Performance</td>
<td>0.342</td>
<td>Moderate</td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>0.096</td>
<td>Week</td>
</tr>
</tbody>
</table>

The next quality criteria for the inner model are Q2 which determines the predictive relevance of ingenious variables. Table 4 shows the values of Q2 test which was carried out in Smart PLS using blindfolding algorithm. The Q2 values for capital structure, corporate performance, and dividend policy persisted at 0.205, 0.320 and 0.079
respectively which indicates that each following variables have a predicate relevance in the model.

**Table 4: Q² values of path model**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Q²</th>
<th>Predictive Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Structure</td>
<td>0.205</td>
<td>Yes</td>
</tr>
<tr>
<td>Corporate Performance</td>
<td>0.320</td>
<td>Yes</td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>0.079</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The last quality criteria for this model are tested using effect size (f²) values. We used equation suggested by Cohen (1988) to measure the value of f² in our model. Based on the f² value, the effect size of the omitted construct for a specific endogenous construct can be determined 0.02, 0.15, and 0.35 signify small, medium, and large effects, respectively (Cohen, 1988). The effect size can be calculated using the formula below,

\[
f² = \frac{R²_{included} - R²_{excluded}}{1 - R²_{included}}
\]

Table 5 shows the f² values of each path relation between independent and dependent variables. The relationship, capital structure \( \rightarrow \) corporate performance, dividend policy \( \rightarrow \) corporate performance, mental accounting \( \rightarrow \) capital structure and optimism \( \rightarrow \) dividend policy examined with medium effect and their respective f² values are 0.151, 0.288, 0.021 and 0.084.

**Table 5: f² Values of Path Model**

<table>
<thead>
<tr>
<th>Relationship</th>
<th>(f²)</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS -&gt; CP</td>
<td>0.151</td>
<td>Medium</td>
</tr>
<tr>
<td>DP -&gt; CP</td>
<td>0.288</td>
<td>Medium</td>
</tr>
<tr>
<td>LA -&gt; CS</td>
<td>0.006</td>
<td>Small</td>
</tr>
<tr>
<td>LA -&gt; DP</td>
<td>0.002</td>
<td>Small</td>
</tr>
<tr>
<td>MA -&gt; CS</td>
<td>0.021</td>
<td>Medium</td>
</tr>
<tr>
<td>MA -&gt; DP</td>
<td>0.013</td>
<td>Small</td>
</tr>
<tr>
<td>OPT -&gt; CS</td>
<td>0.308</td>
<td>Large</td>
</tr>
<tr>
<td>OPT -&gt; DP</td>
<td>0.084</td>
<td>Medium</td>
</tr>
</tbody>
</table>

*Notes: CS= Capital Structure, CP = Corporate Performance, DP = Dividend Policy, LA=Loss Aversion, MA=Management Accounting, OPT= Optimism. Hypothesis supported at p < 0.10.*
Lastly, the Path coefficients and mediation effects of the model are explained and checked either the hypothesis is supported or not supported. Results are shown in Table 4 demonstrated all path coefficient and p-values. The estimates are provided for the path coefficients, using Bootstrap algorithm of Smart PLS with 5000 resamples. Path coefficient values are standardized on a range from to +1 or -1. The coefficient closer to +1 representing strong positive relationship and coefficients closer to -1 indicating a strong negative relationship. To test the significance of relations standard error must be calculated by using bootstrap (Hair jr. et al., 2014).

Our result reveals that five of eight structural relationships are significant (p ≤ 0.1) the results in table 6 highlights the role of dividend policy and capital structure driving to corporate performance sharing with a path coefficient of (β = 0.443, p=0.000) and (β=-0.310, p =0.000) respectively. In addition, the behavioral biases optimism and mental accounting are significantly impacting on corporate structure with path coefficient of (β = -0.486, p=0.000) and (β=0.126, p= 0.037). The relationship between optimism bias and dividend policy decisions is significant with path coefficient (β = -0.278, p =0.000). Surprisingly, three hypotheses were rejected because their p value does not fall in the prescribed significance level of 0.10.

Figure 2: Path Coefficients in PLS SEM Model
Table 6: Path Coefficients Summary

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relationship</th>
<th>Path Coefficients</th>
<th>P Values</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>OPT → DP</td>
<td>-0.278</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>OPT → CS</td>
<td>-0.486</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>LA → DP</td>
<td>-0.038</td>
<td>0.644</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H4</td>
<td>LA → CS</td>
<td>-0.066</td>
<td>0.340</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H5</td>
<td>MA → DP</td>
<td>-0.110</td>
<td>0.172</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H6</td>
<td>MA → CS</td>
<td>0.126</td>
<td>0.037</td>
<td>Supported</td>
</tr>
<tr>
<td>H7</td>
<td>DP → CP</td>
<td>0.443</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H8</td>
<td>CS → CP</td>
<td>-0.310</td>
<td>0.000</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Notes: CS= Capital Structure, CP = Corporate Performance, DP = Dividend Policy, LA=Loss Aversion, MA=Management Accounting, OPT= Optimism. Hypothesis supported at p < 0.10.

In order to examine the statistical significance of the mediation effect behavioral biases on corporate performance, bootstrapping of the indirect effects with 500 resamples were carried as recommended by Preacher & Hayes (2004). The size of the indirect effect of mediating variables Dividend policy and corporate structure was assessed using the variance accounted for (VAF), which represents the ratio of indirect effect to the total effect (Hair jr. et al., 2014; Iacobucci & Duhachek, 2004; Shrout & Bolger, 2002).

In Table 7, from the value of VAF indicates that dividend policy decisions and capital structure decisions fully mediate the relationship between Optimism bias and Corporate Performance (VAF = 100%), where by 100% of total effect of optimism on corporate performance was explained by indirect effect of dividend policy and capital structure (Hair jr. et al., 2014). Furthermore, capital structures decisions partially mediate the relationship between mental accounting and corporate performance whereby 82%, of total effect, was explained by mental accounting and corporate performance (Hair jr. et al., 2014) The three mediation relationships of LA > DP > CP, LA > CS > CP and MA > DP > CP are not supported significantly.

Table 7: Mediation Effects Summary

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relationship</th>
<th>Indirect effect</th>
<th>Total Effect</th>
<th>VAF</th>
<th>Mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H9</td>
<td>MA &gt; DP &gt; CP</td>
<td>0.151</td>
<td>0.178</td>
<td>0%</td>
<td>No Significance</td>
</tr>
<tr>
<td>H10</td>
<td>MA &gt; CS &gt; CP</td>
<td>0.123</td>
<td>0.151</td>
<td>82%</td>
<td>Partial Mediation</td>
</tr>
<tr>
<td>H11</td>
<td>LA &gt; DP &gt; CP</td>
<td>0.039</td>
<td>0.126</td>
<td>0%</td>
<td>No Significance</td>
</tr>
</tbody>
</table>
4. DISCUSSION

The study is designed to explore the relationship among behavioral biases and the long term financial decisions and corporate performance with the sample of 85 CFO, CEO and financial managers of nonfinancial firms listed in PSE (Pakistan Stock Exchange). The purpose of our study is to investigate, how behavioral biases can affect long term financial decisions and corporate performance and how long term financial decisions mediates the relationship between behavioral biases and corporate performance. For this purpose, we used PLS(SEM) as it is reliable to handle small sample size (Banker, Bardhan, Chang, & Lin, 2006). As it is shown in s, we have hypothesized in H1 and H2 that there is a relation between optimism and long term financial decision, the results of our study shows that optimism has a negative significant impact on dividend policy and capital structure ($\beta=-0.278$ & $\rho=0.000$) and ($\beta=-0.486$ & $\rho=0.000$) respectively it also found in the study of Lin et al. (2013) which implies that an optimistic manager takes financial decisions to maintain low levered capital structure and he/she is less concerned to pay dividend to share holders. It also showed that long term financial decision mediated the relationship between optimism and corporate performance.

The loss aversion has an insignificant relationship with capital structure and dividend policy ($\beta=-0.066$ & $\rho=0.340$) & ($\beta=-0.038$ & $\rho=0.644$) respectively and mediation role of the long term financial decision on the relationship of loss aversion and corporate performance is also not significant. As we discuss earlier, most people act as risk averse for some hazards when they have had a segregated prior loss. There is two possible explanation, first the initial loss can create a negative effect, i.e. Isen, Means, Patrick, & Nowicki (1982) have demonstrated quite strong “effects of mood upon” risk taking behavior. And second is the initial loss can possibly induce a negative “hot hand” effect (Gilovich, Vallone, & Tversky, 1985). Loss aversion holds insignificant influence on dividend policy and capital structure, it was also found in the study of Isen et al.
Mental accounting has a negative insignificant relation with dividend policy, however, positive significant relation with capital structure. Dividend policy partially mediates the relationship between mental accounting and corporate performance. For instance, Kahneman and Tversky (1993) depicted that greater part of subjects declined to pay for another theatre ticket, which they were told would supplant an indistinguishable estimated ticket beforehand purchased and lost. Kahneman and Tversky (1993) inferred that subjects had a tendency to assess the passing of a ticket and the price tag of another ticket in the same Mental accounting; losing a ticket and spending for another one would speak to two misfortunes caused progressively, charged from the same group of advantages. The loss of real money, be that as it may, and the buy of a ticket were charges assessed independently. As discussed above, our results imply that a manager maintains high levered capital structure if he is incorporating last experiences in decision making as mental accounting. Other biases like optimism and mental accounting have a significant effect on dividend policy. Our study also concludes that all long term decisions significantly affect the corporate performance as discussed by Amidu (2007).

5. CONCLUSION

Without a proper awareness of behavioral domain of finance, it is difficult for a CFO to be rational or impartial in his decisions particularly with the presence of any behavioral bias. In Pakistan, our results showed that the listed firm’s CFO is biased in his decisions. Our results explain about the effect of behavioral biases and strongly recommend to consider these factors. Traditional methods of decision making on the basis of only previous experience and intuitions lead a manager toward unsuccessful decisions.

Basically, this study examines the effect of behavioral biases on corporate performance through long term financial decisions and also check how these long term financial decisions affect the corporate performance. The research is planned and designed in an appropriate manner to investigate the relationship of biases with dividend policy and capital structure decisions. Further, it also explored its entailing effect on
corporate performance. The study underlines the importance of inculcating behavioral biases in long term financial decisions for corporate performance. This study has tried to draw a clear picture of biases effect on corporate performance through dividend policy and capital structure decisions.

Our study is important because it provides an overview regarding Pakistan’s local firm’s financial decision making patterns. Modern dimensions of financial decisions like behavioral finance and investigated biases are not yet considered and well-practiced in the decision-making process. This study can help a CFO to make his decision more accurate and informed when an appropriate study of 85 respondents of different companies listed in Pakistan highlighted a strong impact of biases on long term financial decisions and corporate performance. The strong effect of behavioral biases on company performance not only helpful for a decision maker, it will also drag an attention of CFO toward ignored dimension which is very important and can leave a broader effect on overall organization’s performance.

**Limitations and future research:** The sample size is small due to time limitation. Future research should be involved on other variables like overconfidence, risk perception, Confirmation bias, choice paralysis to evaluate the impact on financial decisions either it is long term or short term. One can also check the impact of these biases on the investor decision & corporate performance; the investors can also be included in any future study to increase the scope of research.

6. **REFERENCE**


Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. Journal of Marketing Research, 18(3), 382–388.


