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## THE EFFECT OF COGNITIVE AND EMOTIONAL BIASES ON THE CAPITAL STRUCTURE DECISIONS: A LITERATURE REVIEW

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**Abstract:** *Each decision-making process is an important cognitive and emotional process which is open to the emotional effect. Individuals make a decision about a future uncertainty either to feel good or maximizing gain by minimizing the loss ratio. Recently, researches in finance have criticized that the capital structure decisions and firms' funding and strategic choices deviate from the traditional neoclassical paradigm. Furthermore there is a nascent empirical literature that has exposed interesting evidence of the effects of managerial behavioral biases. Managers' decisions, that to create the capital structure, have a vital importance for the company. The behavioral finance (BF) approach may be revealed useful results in the process of solving decision-makers' behaviors and thoughts. In this context the purpose of this study is to reveal if the managers are affected by their behavioral characteristics in the process of the financing decision-making, based on the findings of studies in the literature. From this point of view behavioral finance literature, which is about the financing and capital structure decisions, is investigated. As a result, theoretical and empirical analyses, which discussed in the literature, show that managers' biases play an important role in explaining the capital structure choice.*

**Key Words:** *Capital Structure Decisions, Behavioral Finance, Behavioral Biases, Decision Making*

**JEL Codes:** *G32, G02*

## INTRODUCTION

Managers how finance their firm operations? How should they do? What are the factors that influence managers' decisions? How these decisions affect to economic wealth? These are important questions and must be answered carefully for the firm sustainability. In connection with this, especially the capital structure decisions are important factors in financing firm's operations.

Capital structure one of the most controversial issues in corporate finance. According to finance literature there are various approaches that constitute of the capital structure theories. Nevertheless none of them are constant accuracy. The researches as for the validity of each approach, give us conflicting results. Furthermore all of these approaches rely upon a common important implicit assumption that financial market participants like investors and managers make decisions rationally (Vasiliou, 2009:19). When we look at the studies in Turkey we see that they are based on traditional finance theories, too.

However, the psychology science literature is wide and continues to expand day by day. This literature which is about human psychology and behavior draws our attention to that most people, including investors and managers, are subject to important limits in their cognitive processes and tend to develop behavioral biases that can significantly influence their decisions. Indeed, individual reasons are cognitive shortcuts that influence the position, irrational decisions making and non-optimal sides of traditional financial theories. These biases have been identified and classified and grouped as follows: The means of representation, reasoning analog bias of conservatism and confirmation, but also emotions such as loss aversion, optimism and the overconfidence (Azouzi and Jarboui, 2012:48). So leading researchers to focus deeper into the real factors that determine capital structure in practice.

Psychology has found that humans tend to have unwarranted confidence in their decision making. In essence, this means having an inflated view of one's own abilities. This trait appears universal, affecting most aspects of our lives. Researchers have asked people to rate their own abilities, for example in driving, relative to others and found that most people rate themselves in the top third of the population. Few people rate their own abilities as below average although obviously %50 of all drivers are below average. Many studies of company CEOs, doctors, lawyers, students, and doctors' patients-have also found these individuals tend to overrate the accuracy of their views of the future (Byrne and Utkus, 2013).

Behavioral Finance (BF) is an emerging discipline that represents a collection of alternative approaches to refine the classical finance definition of economic rationality. In particular, BF draws on the psychology and cognitive science literatures to examine why individual decision-making often deviates from rational choices in systematic ways (Chira, Adams and Thornton, 2008).

BF studies are the psychology of financial decision-making. Most people know that emotions affect financial decisions. BF extends this analysis to the role of biases in decision making, such as the use of simple rules of thumb for making complex investment decisions. In other words, BF takes the insights of psychological research and applies them to financial decision-making (Byrne and Utkus, 2013).

As Gene Epstein stated in “The Myth of Rationality: What Really Drives Economic Decisions” when referencing Kaufman (1994), “it is the nature of human behavior to try to escape discipline”. When traditional finance fails to explain our lack of rationality, BF offers alternative explanations of what motivates economic decision-making. Do human beings think the past when developing their strategy for the future? Do they let themselves be influenced by the belief that they have control over a situation when there is no way to assess the amount of control? (Chira et al., 2008).

On the other hand most of the studies that related with BF have focused on investor behavior but the actors are not only investors but also managers in the financial markets. To be considered managers’ behavioral characteristics that have an impact on their decisions, ensure taking more consistent and realistic results. Concordantly recent studies show that managerial behavioral biases are receiving growing attention in corporate finance. Recent theories have illuminated how biases like overconfidence and optimism can affect various corporate decisions (Azouzi and Jarboul, 2012). As defined Hersh Shefrin, bias is nothing else but the “predisposition towards errors” (Shefrin, 2007). In other words, a bias is a prejudice or a propensity to make decisions while already being influenced by an underlying belief (Chira, et al., 2008). There is also a nascent empirical literature that has exposed interesting evidence of the effects of managerial behavioral biases (Azouzi and Jarboul, 2012).

In this study BF literature has investigated in the context of psychological and behavioral biases’ effects on the financial decisions especially capital structure decisions. The study is organized as follows; after this introductory section in which the reader is referred to the research topics, follows the next chapter in

which focuses on the capital structure and its behavioral aspects. The next section deals with the studies in the literature that examines the effects of psychological and behavioral factors' on the financial decisions especially on the process of determining to capital structure. The paper ends with the concluding remarks.

## **THEORETICAL BASE**

Since the Modigliani and Miller's first study that is about the theory of capital structure, an extensive literature has occurred on this subject. This literature has experienced the transition from Miller's (1977) postulate of tax neutrality which is refused later by DeAngelo and Masulis (1980) with their concept of non-debt tax shields, to the static theory that postulates the optimum debt level as a consequence of a trade-off between the tax advantages of borrowed money and financial distress costs (Miguel and Pindado 2001).

Until the publication of Modigliani-Miller theory of capital structure, there were traditionally prevailed view that there is a direct interdependence between capital structure and corporate value. Such independence stemmed from the perceived financial risk exposure causing that for companies with higher debt levels there were required higher rates of return on debentures as a compensation for risk. On the other hand, there is the cost of equity financing which is higher than a cost of debt financing. As the total cost of financing is obtained as a sum of cost of equity financing and debt financing (Uckar, 2012:169).

A large portion of the financial economics and corporate finance literature has been concerned with building on the MM propositions with the addition of capital and managerial labor market imperfections, and testing the implications of the theories arising from such additions (Sanvicente, 2011).

Many studies have been done on the theories of capital structure so far. Theories like trade-off theory, pecking order theory, agency costs theory has seen wide acceptance in practice. In this sense, the existing traditional financial theories of capital structure factors are based on the basic data- oriented like agency costs, asymmetric information and transaction costs. Although companies have the same basic data, different financing preferences of firms are explained by behavioral theories. In the traditional finance theory, an individual is considered to be rational. In these studies, the effect of the decision maker's personality is neglected. However, behaviorists tend to emphasize the bounded rationality due to cognitive limitations (Tomak, 2013).

As mentioned above, academic research work on capital structure, both theoretical and empirical, has generated many discussions and studies seeking to explain why firms do what they do with regard to choosing debt or equity (Soufani, Tse, Cole and Aboulamer, 2012). All of these researches hold in common one important point, namely, the implicit assumption that financial market participants as well as company managers always act rationally. However, an extensive and growing literature on human psychology and behavior shows that most people, including investors and managers, are subject to important limits in their cognitive processes and tend to develop behavioral biases that can significantly influence their decisions (Azouzi and Jarboui, 2012).

The psychological fact known as bias and its presence in human decision making provide the additional insight on the subject of individual irrationality and broaden the ideals of irrationality (Bashir, Rasheed, Raftar, Fatima and Maqsood, 2013)

Capital structure literature contains most of the theoretical and empirical studies that has identified the determinants of capital structure. And also recent arguments about the financial decisions are on the subject that if the behavioral or psychological factors effect on the capital structure decisions. These discussions lead us to the science of BF.

BF is the paradigm where financial markets are studied using models that less narrow than those based on Von Neumann-Morgenstern (1947) expected utility theory and arbitrage assumptions. BF uses models in which some agents are not fully rational, either because of preferences or because of mistaken beliefs (Ritter, 2003).

According to another view BF is a field of finance that proposes psychology-based theories to explain anomalies. Several studies in the field of BF has shown how individual emotions and biases cloud over rational thinking and decision-making. Some emotional and cognitive biases such as loss aversion, optimism, overconfidence etc. impact the decision making (Suresh, 2013).

Ricciardi and Simon (2000) say that BF attempts to explain the what, why, and how of finance and investing from a human perspective. Baker, Ruback and Wurgler (2004) state that behavioral corporate finance replaces traditional rationality assumptions with potentially more realistic behavioral assumptions. Shefrin (2001) denotes that there are two key behavioral impediments to the process

of value maximization. The first impediment, which he calls “behavioral costs”, is internal to the firms and tends to undermine value creation. These costs are associated with errors of managers because of cognitive imperfections and emotional influences (Vasiliou and Daskalakis, 2009:20).

Managers must be a choice between debt and equity while making financing decisions. The psychological biases, in managers regarding financing decisions, do not necessarily result in decisions that are consistent with the expected preferences of investors.

When we look at the BF's issues that related with the capital structure, seen that as mentioned in the next section the studies concentrated to the effects of psychological biases on the process of financing decision-making especially determining the capital structure. In the next part of the study these studies and researches will be examined.

## **A REVIEW OF LITERATURE ON THE BEHAVIORAL ASPECTS OF CAPITAL STRUCTURE**

Ever since the seminal work by Modigliani and Miller (1958) many studies attempted to explain how firms choose their capital structure and whether an optimal capital structure actually exists, which contains both debt and equity, but as mentioned before most of these studies based on traditional finance. Nevertheless recent studies or researches in BF show that the behavioral characteristic of a manager is an important factor that in the process of determining capital structure. This is exactly where behavioral corporate finance emerges. It replaces the traditional rationality assumptions with potentially more realistic behavioral assumptions concerning the various financial decisions.

Behavioral analysis considers the elements of human perception and evaluation of outside situation and events, and most importantly, the emotions associated, both *ex ante* and *ex post* with any financial decision. This new field of modern finance refers to neuroscience debate and assertion that the motivations, emotions, and feelings are indispensable to any human decision, including the financial ones; emotions are essential to any decision and course of action (Mitroi and Oproiu, 2014).

Uckar (2012), in his study of literature review, says that BF has completely different starting point. They arise from empirical studies of behavior of investors and

participants in financial markets. In doing so, through the establishment of certain psychological patterns, they seek to detect behavior that is inconsistent with the assumptions of investor rationality and market efficiency (Uckar, 2012:170).

In his research Uckar gives information about the Shefrin (2001) and Heaton's (2002) studies. In Shefrin's study of BF, he states that overconfidence may induce a manager to adopt an over indebted and sub-optimal capital structure. In similar research Heaton (2002) analyzed the effect of overconfidence on financing decisions in the absence of asymmetric information or moral hazard problems. According to Uckar if the manager is overconfident, he believes that firm shares are valued under the market value, which opens the mispricing problem. In such circumstances where the cost of capital is not properly defined, errors are possible in decisions about the viability of investment projects. That is, due to managerial overconfidence, the managers make project with negative present value that he mistakenly believes to be positive. Also, because of the belief that stocks are underpriced, the manager will select the issue of debt securities as a source of financing for such investment projects. As a result of managerial overconfidence it comes to the excessive use of debt, high debt ratio and thus a high probability of financial distress (Uckar, 2012:174).

Impact of behavioral elements in the formation of capital structure can be observed during merger and acquisition procedures as well. In their model, Shleifer and Vishny (2003) argue that mergers and acquisition decisions and decisions about methods of financing deals are driven by misvaluations of the participating companies. Since the stocks are mispriced as a result of irrational investors, rational managers recognize this opportunity to arbitration and respond to the mispricing. Their model suggests that acquisitions for stock are made by overvalued companies and target companies tend to be less overvalued. In such condition when valuations are high, acquisitions will involve payment in stocks rather than in money (Uckar, 2012:173).

In their study Ben-David, Graham and Harvey (2007) measures the overconfidence of managers in a unique sample of over 6,500 stock market forecasts made by top U.S. financial executives. Their measure of overconfidence is based on miscalibration of beliefs, and operationalized using a method drawn from laboratory experiments of overconfidence. They link their estimate of executive overconfidence to firm-level archival data and study how miscalibration is reflected in corporate policies. Each quarter, from March 2001 to March 2007, we surveyed hundreds of U.S. Chief Financial Officers (CFOs) and asked them

to predict expected one- and ten year market equity returns as well as the tenth and ninetieth percentiles of the distribution of market returns. They use the narrowness of the individual probability distributions for stock market returns as proxy for each respondent's confidence. By evaluating the same forecasting task across all executives, they assess whether CFOs are miscalibrated and disentangle this bias from any potential bias in the mean estimate, optimism (Ben-David, Graham and Harvey, 2007).

They examine the time series and cross sectional determinants of overconfidence and analyze the relation between our overconfidence measure and a range of corporate policies including investment, mergers and acquisitions, financing, payout, market timing and compensation (Ben-David, et al., 2007).

And finally they said that firms with overconfident CFOs invest more and engage in more acquisitions, and the market reaction to their acquisitions is negative. They also find a positive relation between managerial overconfidence and financial structure: firms of overconfident CFOs have higher debt leverage, rely more on long-term debt, and pay fewer shares following price run-ups. Another finding from their research is that executive compensation in firms with overconfident CFOs is tilted towards performance-based pay (Ben-David, et al., 2007)..

In Hachbarth's (2008) capital structure model, higher debt levels, and hence managerial optimism and overconfidence, are beneficial for shareholders. Since manager attempts to act in the interest of shareholders, ie. To maximize the perceived value of the company, he will try to optimize the capital structure in such a way as to achieve greater tax savings in relation to agency and distress costs (according to trade-off theory of capital structure). Usually, an overconfident manager perceives debt as more undervalued than equity, so he issues higher level of debt than a rational manager (Uckar, 2012:174)

Vasiliou and Daskalakis (2009) investigate that whether capital structure decisions and actual firm financing in general deviate from the traditional neoclassical paradigm. That is, they investigate whether capital structure determination is based on other than rational decisions. These decisions are called rational under the neoclassical paradigm. Their research results show that firms avoid using long-term debt, thus their capital structure consists mainly of equity. The main reason seems to be the big boom of the stock exchange during 1998-2000. In their research they found that there is strong evidence that Greek firms have followed the market timing approach of financing by issuing new stock during



1999-2000 when the prices in the ATHEX were high. So this result questions the BF approach and specifically the irrational investors-rational managers approach (Vasiliou and Daskalakis, 2009).

According to their opinion most of the managers believe that a new stock issue announcement will either lead to an increase or to no effect in the stock price, cancelling the signaling theory and raising questions as to why managers have these opinions (Vasiliou and Daskalakis, 2009).

And they continue to explain their findings like that; one way argue that we are using a nonrepresentative sample period where managers could well be biased by the bubble and subsequent decline of the stock markets around the world, not just in Greece. They explain the word of "biased". They say that "biased situation" first presupposes a "correct-nonbiased situation" and second should be caused by an anomaly. In other words, there can be no bias unless something happens to provoke it. Furthermore, it is the assumptions set in every situation that lead to a bias or to a correct situation. The bubble and subsequent decline of the stock markets around the world could bias managers under the neoclassical paradigm. Because a bubble and subsequent decline of a stock market are anomalies under the neoclassical paradigm, they could bias managers in their opinions. Managers could be biased under the neoclassical theory, but the neoclassical theory does not seem to hold (Vasiliou and Daskalakis, 2009).

They say that if individual managers are indeed responsible for corporate decisions, then they affect corporate behavior and performance and their decisions and behavior are the firm's decisions and behavior (Vasiliou and Daskalakis, 2009).

According to Uckar (2012) the last area where it is possible to isolate the impact of behavioral elements on the formation of capital structure lies in the primary issues of securities. On market for IPO's it is the common occurrence of high first-day return. That imply that the issues are underpriced at the offering price or that managers and pre-IPO shareholders are irrational since that are satisfied with a smaller inflow of new capital than would be possible. Laughran and Ritter (2002) seek to overcome this phenomenon through a model based on prospect theory in which issuers are likely to net the amount of money "left on the table" by an underpriced offering together with the "gain" in their wealth that comes from the rise in the price of the shares that they retain in the company (Uckar, 2012:173).

Uckar has also mentioned that the net amount will often be a positive sum with the increase in value of the retained holdings exceeding the difference between the offer price and the market price for the shares sold in the IPO. Therefore, the original pre-IPO shareholders can offset the loss of the underpricing with the good news that their total wealth is higher than was previously expected. According to him, in this way, the previous hypothesis that the managers and pre-IPO shareholders are irrational was disproved. And also he has mentioned Ljungvist and Wilhelm's study (2005) as an example to support for this conclusion. In their research Ljungvist and Wilhelm state that issuers of underpriced offerings often use the same IPO underwriter for following equity issues, suggesting they are not unhappy through a larger inflow of capital, they would not choose the same underwriter (Uckar, 2012:174).

The second path of Uckar's research about the impact of behavioral elements in the domain of corporate finance is one that assumes that corporate managers can be subject to behavioral biases and that some of the corporate finance transactions they undertake are the result of those biases. This second line of research that assumes "irrational managers" is a somewhat less presented in researches (Baker, Ruback and Wurgler, 2007), but in any case worth studying (Uckar, 2012:174).

Azouzi and Jarboui's (2012) research examine the determinants of firms' capital structure introducing a behavioral perspective. In their research a theoretical analysis has made and results presented that CEO emotional biases highlights role (optimism, loss aversion, overconfidence) to explaining capital structure choice. Data analyses revealed CEO emotional biases importance in explaining capital structure choice. Indeed, empirical relationship analysis between optimism and capital structure choice shows behavioral dimension role in the explanation. CEO optimism level is positively correlated with a preference for internally generated resources and debt but negatively associated with capital increase. CEO optimistic is reluctant to ask the market to avoid the being evaluated risk. They prefer to fund projects primarily through internal capital debt and then finally external equity (Azouzi and Jarboui, 2012).

And also they found that CEO loss aversion level is negatively correlated with firms' leverage ratios and capital increase. CEO recognizes firms' operational risk level and loss aversion seeks to reduce its firms' total risk by using low of external funding including debt. CEO of high operational firms try to control the total risk by limiting the financial risk introduced by debt and the issuance of new shares. He prefers to

finance its investment projects through internal funds (Azouzi and Jarboui, 2012).

The other finding, in their research, is that overconfidence negatively affects internally generated choice, debt and equity but it is positively correlated with the choice of debt and cash flow couple, and with the cash flow and debt and equity combination choice. Overconfidence implies CEO alignment their choice with the shareholders' interests. Thus, CEO overconfidence overestimates his skills to reduce risk. This led him to choose high projects risk which is in the interest of shareholders and increases firms value (Gervais et al, 2007). To finance its investment choices, this overconfidence leader considers his company undervalued by the market limits its emissions securities risky. He prefers first internally generated resource (cash flow) and uses capital structure combinations to minimize its firm's risk (including internally generated resource and debt combination) (Azouzi and Jarboui, 2012).

Another research was made by Kremer, Lee, Robinson and Rostapshova (2013). In their research they show that acceptance of small risky gambles and scores on math tests is associated with inventory accumulation among Kenyan shopkeepers. They argue that loss aversion may be one factor helping explain the broader puzzle of why high rates of return on capital among small firms in developing countries are both arbitrated away and do not lead to the high growth rates of consumption that the Euler equation would predict. Many Kenyan shopkeepers fail to make small inventory investments with high expected returns. In their papers they examine the determinants of inventory investments and show that shopkeepers who invest one standard deviation more into a risky asset in a laboratory-style game have 10-16 percent larger inventories. Consistent with the view that math skills may be useful in debasing, those with one-standard deviation higher math scores have 14-18 percent larger inventory levels. And finally their results are that, loss aversion can potentially help explain a series of puzzles related to the persistence of unrealized high-return investment opportunities. Since a loss-averse firm owner may turn down small, highly positive expected return investments if they carry risk, loss aversion offers a potential explanation for several puzzles and recent empirical findings. Their findings are that small business owners behave as if they are loss averse raise the possibility that social safety nets might increase investment among small business owners more generally. Their works also suggest that at least some of the heterogeneity in returns to capital identified by Hsieh and Klenow (2009) may be due to differences in management quality across firms, as opposed to the impact of tax and regulatory distortion across firms (Kremer, et al., 2013).

Another study that examines the effect of bias on the financing decisions belongs to Tomak (2013). In her study Tomak investigates the effect of manager's confidence level on capital structure decisions. For this purpose firstly she has revealed the determinants of capital structure from the finance literature. According to her, generally accepted as the core factors for the market leverage are industry median leverage, tangibility, profits, firm size, market-to-book assets ratio and expected inflation. These fundamental variables and confidence factor that influence leverage are used in this model specification. The model used in her study is as follows;

$$LEVERAGE_{i,t} = a_0 + a_1 CONF_{i,t-1} + a_2 MB_{i,t-1} + a_3 SIZE_{i,t-1} + a_4 TNG_{i,t-1} + a_5 PRF_{i,t-1} + a_6 GDP_{i,t-1} + a_7 INF_{i,t-1} + \varepsilon_{it}$$

In this model CONF means the Management Confidence, MB is Market to Book, SIZE is Firm size, PRF is Firm Profitability, GDP is Gross Domestic Product and INF is Inflation Rate. In this research Tomak make two analysis that one of them descriptive analysis and other one is regression analysis. The descriptive statistics on different variables in the model during the period of 2001 to 2012 for the Turkish manufacturing firms. As a result; although most of the previous studies document that overconfident managers tend to use high level of debt in capital structure decisions, according to Tomak there is not clear and enough evidence for the idea of overconfident managers tend to use more debt level therefore management confidence and leverage relation is uncertain. In addition to this, firm size, tangibility of firms and GDP measure indicate insignificant impacts on leverage. However Tomak found some evidence in her research for firm specific determinants like size and profitability. While firm size yields a positive impact on leverage, the firm profitability effects in the negative way. As the firm size increases, the impact of leverage also increases in the firm and finally profitability of the firm effects debt level in the negative way as the profitability decreases, firms prone to use more debt in the firm (Tomak, 2013).

Soufani, Tse, Cole and Aboulamer (2012) examine the relationship between anchoring as a behavioral bias exhibited by managers and their decisions on whether to issue debt or equity. They investigate whether anchoring captured by a number of proxies including market to-book ratios, the proportion of shares sold off that are held by managers, the exercising of stock options held by managers long before their expiration dates, share repurchases, stock returns, bond yields, 52-week share price highs, and share prices at last equity issue and last debt issue, sufficiently explains the changing levels of debt or capital structure mix adopted

by firms (Tse et al., 2012).

Another research belongs to Filbeck, Gorman and Preece (1996). They hypothesize that firms may actually make financial decisions based on the financing decisions of some industry leader. In their research they tested the Patel et. al hypothesis that firms have a tendency to keep their capital structures in line with the industry and find virtually no support for herding behavior of firms and next they tested the hypothesis that firms base capital structure decisions on following some industry leader. They find stronger, but still weak support for this hypothesis as well (Filbeck, et al., 1996).

Mefteh and Oliver (2010) consider the impact of manager confidence as a determinant of capital structure in a sample of French firms. They find that traditional determinants of capital structure are significant for French firms, as they are for firms in many countries. Also they find that manager confidence, as proxied by industry sentiment indices (described later), is highly negatively significant in explaining French firm financing decisions. They said that this result not support the hypothesis that managers are acting according to their expected psychological bias- a preference for debt when they are confident. They also decompose their measure of industry sentiment in to a common consumer confidence component and a unique manager confidence component and the as a result they find that the manager component does have the expected positive relation with leverage. According to their research investor confidence is negatively related to leverage and that the unique component of manager confidence is positively related to leverage. This finding supports the manager confidence bias of their preference for debt. Furthermore they say that the investor confidence component dominates manager confidence, resulting in an overall negative effect of industry sentiment with leverage (Mefteh and Oliver, 2010).

In his study Fowler (2013) try to investigate and understand if finance managers are emotionally impacted by an economic outlook, either in a positive or negative way, and if that emotional impact is a factor in their budget recommendations. For this purposes Fowler make interview with the 77 California municipal finance managers using a Likert-scale to gather self-reported data about attitudes and behaviors related to emotions and decision-making. As a result Fowler proposes that, finance managers rely on valid forecast instruments, experience and the opinions of trusted people to develop their recommendations. Finance managers are affected emotionally by the implications of economic data but are able to effectively put their feelings aside to make sound recommendations for adop-

tion by elected officials. (Fowler, 2013).

In the study of entitled heterogeneous beliefs, moral hazard and capital structure, Bigus (2003) says that heterogeneous beliefs are possible even when there is symmetric information but individuals evaluate the same information differently. His paper shows that the form of financing matters when there are heterogeneous beliefs. When heterogeneous beliefs and moral hazard exist, a debt-equity mix might outperform pure debt or pure equity. When there is no moral hazard problem, an optimal contract should ensure that the party who attaches a higher probability to certain revenue or a certain range of revenues, that is, the party who values it more, should keep the revenue in its entirety. And he continues to say that an optimal contract is typically highly nonlinear and may induce the entrepreneur to behave opportunistically after having signed the contract, by for example, influencing the distribution of revenues. For these he analyzes how well standard financial contracts, such as pure debt, pure equity and mixed debt-equity financing (hybrid financing), may be suited to address the issue of heterogeneous beliefs. And Bigus analyzed the investor associates a higher risk with a project (e.g., a venture) than does the entrepreneur. Assuming risk neutrality, heterogeneous beliefs on risk favor equity financing, because then risk does not matter. And also Bigus says that hybrid financing can often be the optimal form of financing and may strictly outperform pure equity financing (Bigus, 2003).

The study of on the subject that Manager's irrational behavior, made by Shao and Wang (2013). Their research purpose is to explore manager's irrational behavior and reasons for it in corporate capital investment decision-making. The authors present the approach to discovering manager's irrational behavior in corporate capital investment decision-making; classify the irrational behavior by the steps in decision-making; propose hypotheses on reasons for each irrational behavior; conduct empirical test through hypothesis testing and questionnaires; summarize the real reasons for each irrational behavior according to the empirical results. In their research they find that when estimating cash flow, managers will use heuristics for lack of clear frame of mind so cognitive bias and psychological factors take place in heuristics. And they say that the main reason causing irrational behavior in the determination of discounted rate is the deficiency in financial literacy. Since most managers are confused with the concept of cost of capital, method of risk management and models of discounted rate, cognitive bias and psychological factors function in this step. They say, managers behave irrational while making decision for the reason that cognitive biases effect on their behavior (Shao and Wang, 2013).

Ullah, Jamil, Qamar and Waheed (2012), in their research, show that managers are risk averse, whereas size and profitability are positively related to the capital structure. Their study explains that do the managers adjust their capital structure in accordance with business risk and how the profitability, size of the firm and sales growth are contributing to the capital structure formation. Their study cover five years from 2006 to 2010 and using the data from five sectors of nonfinancial listed companies on Karachi Stock Exchange. Briefly their study is contributing in research by analyzing the effect of risk on debt equity mix of the firm listed on Karachi Stock Exchange. Their paper is using the data of the Motor Vehicles, Trailers and Auto parts sector of Karachi Stock Exchange from the period of 2006-2010. They apply panel data technique to the 19 firms. They apply two analysis, one of them descriptive analysis and other one is regression analysis. They also make collinearity analysis because of observing the factor of multi-collinearity. The variables that used in their analysis are capital structure business risk, profitability, size and sales growth (Ullah, et al., 2012).

When we look at the Malmendier, Tate and Yan's (2010) research they say that the measurable managerial characteristics have significant explanatory power for corporate financing decisions beyond traditional capital-structure determinants. In their paper they study the role of managerial traits in explaining the remaining variation. They measure capital-structure relevant beliefs revealed by CEOs' personal portfolio choices (overconfidence) and identify formative personal experiences early in life ( Great Depression, military). In the research they derive specific implications for financial decision-making and confirm the importance of managerial traits in explaining observed variation in corporate capital structure (Malmendier, et al., 2010).

In their research they show that overconfident managers view external financing to be unduly costly and prefer to use cash or riskless debt. And they identified the two biggest shocks that are likely to be formative experiences and that affect a significant portion of our sample CEOs early in life: growing up during the Great Depression and serving in the military. These traits may later manifest themselves in more aggressive capital structure choices (Malmendier, et al., 2010).

They use data on CEO option-holdings to measure overconfidence. The data is taken from large U.S. companies. The research covers from 1980 to 1994. In their research CEOs have a strong incentive to diversify their personal portfolios since they receive substantial equity-based compensation and since the

value of their human capital depends on firm performance (Malmendier, et al., 2010).

As a result, they provide evidence that managers' belief and early-life experiences significantly affect financial policies, above and beyond traditional market, industry and firm-level determinants of capital structure (Malmendier, et al., 2010).

According to the Barros and Silveria (2007) differences in opinion style and perception of reality related to managers' personal traits can significantly impact observed corporate decisions. And they say that there is evidence that managerial overconfidence/optimism can be an important determinant of firms' capital structure (Barros and Silveria, 2007).

Their study examines the possible influence of two closely related cognitive biases that are extensively documented in behavioral research, optimism and overconfidence, on a firm's capital structure decisions. Their study offers one of the first empirical tests of this hypothesis and, at the same time, presents new evidence about the factors that better explain observed leverage levels, using a sample of Brazilian public companies. They use a sample of 153 non-financial Brazilian firms listed in the Sao Paulo Stock Exchange (Bovespa) with data from 1998 to 2003. In this research the information that belongs to top managers was collected from the Brazilian Securities Commission Annual Information forms filled out by all firms authorized to publicly trade their stocks from 1998 onwards. The information is consist of manager's name, year of birth, year when he or she took up the job, gender, education (financial, general or technical), status (company founder, heir and/or controlling shareholder) and number of preferred or common stock of the firm owned by its manager (Barros and Silveria, 2007).

When we look at the Fairchild's (2009) study we show that he analysis the effects of managerial overconfidence on financing decisions and firm value when investors face managerial moral hazard. Fairchild focuses on the combined effects of managerial overconfidence and moral hazard on capital structure decisions. He develop a financing model in which managerial overconfidence and agency problems combine to affect the manager's debt decision and firm value.

In the study two caseare taken into consideration that one of them the manager may have an incentive to exert an inefficiently low level of effort in running the business. An overconfident manager overestimates his ability, and underestimates



financial distress costs. The first model predicts a positive relationship between overconfidence and debt. In the second case, the manager has an incentive to use free cash flow to invest in a new pet project that may be value-reducing (the free cash flow problem). Fairchild says that in this case overconfidence may result in a decrease in debt and the effect of overconfidence on firm value is ambiguous, since a project that may have been value-reducing under a rational manager may indeed be value-increasing under an overconfident manager, as the overconfident manager exerts higher effort. First model supports the existing empirical research that finds a positive relationship between managerial overconfidence and debt. And second model derives a novel result, not previously found in the theoretical or empirical research; managerial overconfidence may result in a decrease in debt, as the overconfident manager overestimates future investment opportunities, and hence reduces debt, compared to the rational manager, in order to invest in these new projects (Fairchild, 2009).

Eichholtz and Yönder (2014) measure CEO overconfidence through their exercise of corporate stock options, and distinguish Real Estate Investment Truths (REITs) led by overconfident CEOs from other REITs. They combine the REIT information with a sample of almost 8000 commercial real estate transactions and generated predicted values for all the properties in the sample, and subsequently they compare these predictions with the actual purchase and sales prices. They develop a hedonic valuation model of commercial properties to generate predicted prices for all the real estate transactions done by REITs, and then relate the actual purchase and sales prices to these predictions, distinguishing the transactions of REITs led by overconfident CEOs from others. They also calculate the difference between the actual transaction price and the expected price calculated from a joint regression of REIT transactions and a control sample by other types of buyers and sellers, including REITs for which they cannot determine overconfidence. Then they compare the means of the residual transaction prices for REITs with overconfident managers and their non-overconfident counterparts and do a second stage regression analysis. Their research sample consist of 11758 transactions. The research covers the years of between 2001-2012 (Eichholtz and Yönder, 2014).

## CONCLUSION

Although this paper in its structure does not represent an empirical research in the narrow sense, its scientific contribution is reflected in the review of available literature on the effect of psychological biases on the financial decisions, especially on the capital structure decisions. In other words this research examines

the determinants of firms' capital structure introducing a behavioral perspective.

There are very few studies on psychological biases' for managers' capital structure decisions in finance literature. Little attention is given on this subject in the literature. And also when we look at the past decade we see that the studies about the effect of the biases on firms' capital structure decisions have been increased.

So refer to the lately researches they show that analyzing the process of managers' decision-making have based on these biases. As seen above the theorists have included the behavioral aspects to the subject when they do their capital structure analysis. Theoretical and empirical analyses show that there is an effect of emotional and cognitive biases (overconfidence, optimism, loss aversion, anchoring etc.) on the financial decisions. Managers are affected by their behavioral biases when they are making decisions. However, biased managers should make realistic forecasts.

As a result of the studies above, the findings are summarized as follows;

- Managers usually are affected by their behavioral characteristics and behavioral biases in decision-making process.
- Irrational managers mean that affected by their behavioral characteristics.
- Biased managers use their internal resources firstly and then secondly they use debt and finally equity.
- When we look at the literature that consist of examined the psychological and behavioral biases, we see that the overconfident bias is more subjected than the others.
- Overconfident managers believe that their firms are valued under the market value and they also value the risk of debt lower than equity. This situation causes their debt level higher than the rational managers.
- Overconfident managers estimate the cost of the investment projects undervalued and estimate the value of the projects overvalued.

This study is a due diligence and a qualitative study. A summary of previously conducted empirical and qualitative studies in the finance literature. The purpose, to draw researchers' attention to studies that take into account the human factor and to emphasize the importance of this factor in funding or financing, especially capital structure decisions. We hope that this research will be used as a resource for future studies which will be related with same subject.

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