

## Managerial Optimism, Overconfidence and Board Characteristics: Toward a New Role of Corporate Governance

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**Abstract:** The aim of this paper is to discuss the effect of corporate governance mechanisms on controlling CEOs' emotions and some behavioral biases. Departing from a sample of 40 public traded Tunisian firms, we test the impact of the board of directors on managing CEO's irrationalities. Our results highlight strong evidence on the role of the board characteristics, especially the board independence, a small size and the absence of duality of posts on reducing some well documented biases such as managerial optimism and overconfidence. Our study contributes to the literature of corporate governance since it constitutes the basis of the new role of corporate governance as a power factor that can eliminate or reduce distortions in corporate decision caused by behavioral factors other than those of the traditional corporate governance. Corporate governance should include a new original mission; it should resolve the observable distortions that it may arise from managerial psychology.

**Key words:** Behavioral Corporate governance, Board of directors and behavioral biases.

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### INTRODUCTION

In corporate governance literature, we insist on the emergence of new mission of internal corporate governance mechanisms. This is highly motivated by the emergence of new direction of research of the behavioral corporate finance. This approach criticizes the rationality hypothesis of managers and investors and its explore the effect of such criticisms on the firms' decisions.

Beyond the standard corporate finance literature, managers are not fully rational and they may present optimism or overconfidence biases (Heaton, 2002, Malmendier and Tate 2005a, 2005b). These behavioral biases may explain why CEOs don't opt for optimal investment level and so they will always been under their hypothetical value.

In behavioral corporate finance literature, the optimism bias and the overconfidence one may have different meaning. The optimism bias as it introduced by Weinstein (1990) can be defined as an over estimation of the return while the overconfidence bias can be defined as an underestimation of the variance. While, in the majority of investment cash flows literature under behavioral corporate finance we can admit that these two biases has the same effect. In Malmendier and Tate (2005a) paper, we can find an explicit association between optimism and overconfidence.

The managerial irrationalities caused by CEOs behavioral biases represent a great challenge to corporate governance literature. While the role of corporate governance mechanisms in a the standard corporate governance literature is derived from agency costs and asymmetric information theory and their effect on firm's decisions, with optimistic or overconfident managers its role should be oriented to govern such behavioral biases and so limit their potential effect on corporate strategies.

The corporate governance should integrate a new dimension; the CEOs' psychological traits and emotions. Parades (2005) argue that corporate governance should reformulated in order to enlarge its aims and can succeed to control the existence and level of CEOs optimism or overconfidence. We essay to investigate if the corporate governance mechanisms can succeed to control for the existence and the persistence of managerial optimism or overconfidence biases.

In the best of our knowledge, there is no empirical published paper that establishes the relationship between corporate governance mechanisms and these biases. We tend to investigate whether the internal mechanisms of corporate governance and especially the board of directors' characteristics are able to reduce or eliminate these behavioral biases.

We assume here that only CEOs are irrational so that we can detect the effect of rational board on managers' optimism or overconfidence. Following previous research papers on the board effectiveness (Jensen 1993, Yarneck, 1990) we will focus especially on three characteristics of the board of directors: the size, independence and duality. These characteristics are supposed to have a great impact on board capacity to absorb distortions that may arise from agency conflicts or asymmetric information problems. We tend to prolong this role in order to control for optimism bias and his/her overconfidence.

Hence, our research question addressed in the current paper is intended to focus researchers' interest on the new role of corporate governance on controlling managerial psychological biases.

This paper proceeds as follows: (i) section one presents a literature review concerning behavioral corporate governance. (ii) Section two will be oriented to hypothesis development. (iii) Section three introduces our empirical models, data description and variables measures. (iv) Section four will be oriented to present our results. (iv) Finally, section five offers concluding remarks and discuss implications of our empirical findings.

### **1. Literature Review:**

The behavioral corporate governance is a new paradigm imposed by the emergence of behavioral corporate finance as it grounded on the papers of Heaton (2002), Malmendier and Tate (2005a, 2005b, 2008). Literature in this new area of finance shows that emotions and psychological biases can have a great impact on firms' decisions.

Optimism and overconfidence are well documented biases in the behavioral corporate finance literature (Malmendier and Tate, 2005a, 2005b, 2008, Heaton, 2002, Campbell *et al*, 2011, Huang *et al.*, 2011). These works demonstrate that such psychological biases may cause distortions especially in investment and financing decisions. Optimism and overconfidence can lead to investment cash flow sensitivity and so CEOs will never invest in optimal way under the effect of such biases.

Heaton (2002) initiates a debate concerning the effect of managerial optimism on investment and internal liquidity relationship. He theoretically approve that optimistic or overconfident managers make their corporate investment sensitive to the availability of internal cash flow because they will perceive external sources of financing as very costly under the effect of these psychological biases.

According to Robert and Prentice (2012), surveys show that most people have the tendency to be overconfident in their abilities. They evoke the case of people who believe that they are better drivers, better teachers, better auditors and better pretty much everything-else than their peers. The human mind is assimilated to an "overconfident machine" according to Brooks (2011). In the American context, Jennings (2005) proves that 92% of the American populations are comfortable with their character and most of them believe that they are more ethical than their peers.

Discussing the Enron case, Langevoort (2010) affirms that the types of people who rise to the top of corporate organizations are often particularly confident in their abilities and their character.

Weinstein (1980) introduce the optimism bias. Departing from an experimental result that shows that the majority of college students believed their chances of events such as divorce and having a drinking problem to be lower than that of other students and that their chances of events such as owning their own home and living past 80 years of age to be higher than that of other students. He talks about the unrealistic optimism. Beyond the studies in cognitive and experimental psychology and those concerning personality studies, Roll (1986) discusses the potential impact of managerial optimism on acquisitions decision. Heaton (2002) theoretically predicts that the managerial optimism can affect firm decisions. Departing from a simple corporate finance model, he demonstrates that managerial optimism induces investment cash flow sensitivity a thing that can explain why a firm does not absorb all available opportunity growths offered by its market.

In Heaton (2002), the optimism bias can be reduced into a psychological error that makes managers perceiving that their firms are under valued by the stock markets. The optimism bias prohibits CEOs to correctly evaluate their own firms. They have always the tendency to overestimate the expected return of their firms and investment projects. Heaton work open the door to other studies that enlarge the corporate finance literature in order to integrate the potential effect of CEOs psychological biases in explaining distortions at different level of decision process. His work is firstly oriented to detect the effect of optimism bias on investment decision but it is also strongly related to the financing decision.

The optimism bias can serves also as one of the determinant of financing decision. Since optimistic CEOs will perceive the external financing, especially equity financing decision as very costly they will make their investment strategy depending to internal funds availability and level.

In behavioral corporate finance literature, we can find other works that theoretically discuss the potential effect of optimism and overconfidence biases on corporate policies. Hackbarth (2007) demonstrate that such biases can largely explain the decision of CEOs in the term of financing their investment projects. Malmendier and Tate (2005a) develop a theoretical model similar to Heaton (2002) model. In their work, they suppose the absence of agency conflicts and information asymmetry problems so that distortions can just only derive from managerial overconfidence. Theoretical implication of their model show that optimistic managers will never invest at the first best investment level. Due to difficulties in computing the first best investment level they just predict that if managers are optimistic then they will run investment cash flow sensitivity. This means that, in the case of optimistic CEOs, firm investment will increase with the existence of ample cash flows while optimistic managers will refuse to invest in positive NPV in the case of shortfall cash flows. Some empirical validations of these theoretical predictions come from Malmendier and Tate (2005a, 2005b, 2008), Lin *et al*, (2005), Campbell *et al* (2011) and Huang *et al*, (2011). A key feature in the behavioral corporate finance literature is that the majority of the studies consider that the optimism and the overconfidence have the same effect.

The behavioral corporate governance finds its foundations in the empirical implications of the majority of cited papers in the domains of managerial optimism and corporate policies. In Malmendier and Tate (2005b) we can see a full discussion about the potential role of corporate governance mechanisms, especially the internal one, on managing managerial optimism or overconfidence.

In their paper, they suggest that the firm corporate governance should take care about the bad role of managerial optimism and overconfidence on their corporate policies. In Huang *et al.*, (2011) we can find also some signals that we can exploit to basis this new approach of behavioral corporate governance where CEOs are irrational and corporate governance mechanisms are full rational. In their work they empirically find that the effect of managerial overconfidence can just affect firm with high agency conflicts. This also means that there is an optimal corporate governance structure that can arrive to eliminate or reduce the effect of optimism or overconfidence biases.

The research of such optimal structure of corporate governance mechanisms that allow as overcome managerial psychological biases is for interest. In this paper, our primary goal is to detect the effect of internal governance mechanisms on the existence of an optimism or overconfidence bias into CEOs. We concentrate here only on the effect of board of director characteristics on optimism and overconfidence biases.

As it mentioned before, in this paper we assume that the board members are rational and only CEOs are irrational because they are frapped by optimism and/or overconfidence biases. This is the beginning of a second approach in behavioral corporate governance, the irrational manager approach. In this approach the board member are assumed to act in a rational way and they have the power to act in effective way.

Rational board however may not succeed to control the managerial psychological biases if it suffers from independence problems and some criteria of effectiveness as described by Jensen (1993). The board size and the duality should be also evoked here in order to explore their possible impact on the existence of such bias. Regarding the lack of literature in behavioral corporate governance, we will essay to test the impact of some well documented characteristics on managerial optimism and overconfidence biases.

The lack of literature in this approach of corporate finance makes it difficult to develop a solid hypothesis concerning the possible relationship between CEOs psychological biases and the board characteristics. In the best of your knowledge, there is no published paper that empirically investigates the considered relationship.

We will follow the empirical implication of existence literature especially those of Malmendier and Tate (2005a, 2005b) and Huang *et al.* (2011). Such paper contains signals that we can exploit to build the irrational manager approach of behavioral corporate governance. One major source of this research is derived from Paredes (2005) theoretical paper.

In his paper, Paredes (2005) highlights that corporate governance should integrate a new dimension which is managerial overconfidence. The choice of this bias is highly motivated by the vast literature that focuses on the study of this bias. Lambert *et al.*, (2012) affirms that the human tendency to be overconfident has been widely documented in psychology and has become a central feature in economics and behavioral finance.

In what follow, we essay to develop some testable hypothesis. We will only focuses on the potential role of board of directors to delimit the existence of a managerial optimism or overconfidence bias.

## **2.Hypothesis Development:**

The optimism and overconfidence biases can be exploited to explain distortions in different level of firm's decisions. Acquisitions, financing and risk management. The development of the financial theory should be accompanied by an evolution of the role of corporate governance. It should evaluate in order to integrate the psychological dimension (Paredes 2005, Ben Mohamed, Fairchild and Bouri 2012).

We can talk about two approaches in behavioral corporate governance. The first approach departs from the assumption that managers are full rational while the boards of directors are affected by their emotions and psychological biases (Chuang *et al.*, 2009, Goel and Thakor, 2008). The second one is a new approach that aims to discuss the capacity of rational corporate governance mechanisms to control irrational managers.

In the finance literature, we can find some essays around the first approach, the second one still undeveloped. We can find prior literature in the paper of Paredes (2005) who essay to reformulate the corporate governance in order to take the potential effect of CEOs psychological biases. The overconfidence bias was in the center of his interest.

The study of corporate governance and managerial psychology constitutes one important bloc of empirical corporate finance literature. As it is well documented, corporate governance presents two mechanisms: internal and external. We are interested in internal mechanisms such as the board of directors. We investigate the size of the board, the independence of the board and the duality of CEOs in the board of directors.

The behavioral corporate finance is a new theory and it is very younger since it is jointly developed by the emergence of behavioral corporate finance. As it mentioned before, the behavioral corporate governance is a potential solution to govern the managerial psychological biases. Adam and Li (2012) present an original essay where we find an empirical tentative to explore the effect of board independence and size on reducing CEOs overconfidence. We exploit his results and the theoretical advise of previous works (Malmendier and Tate,

2005a, 2005b, 2008), Pardes (2005) and Huang *et al.*, (2011) works. We will base also our work on the Adam and Li (2012) empirical evidences.

Our aim is to explore the effect of board characteristics on optimism and overconfidence biases, mainly three characteristics will be explored: the board independence, its size and board duality.

## **2.1 The Board Of Directors:**

The board of directors is a control mechanism of “professional referees” (Fama and Jensen, 1983a), designated to discipline the top management of the firm and, if need be, to replace it with more effective individuals (Benjamin E. Hermalin and Michael S. Weisbach, 2003).

Boards of directors are a crucial part of the corporate structure. They are the link between the people who provide capital (the shareholders) and the people who use that capital to create value (the managers). This means that boards are the overlap between the small, powerful group that runs the company and a huge, diffuse, and relatively powerless group that simply wishes to see the company run well. The board’s primary role is to monitor management on behalf of the shareholders.

Literature on corporate governance recognizes the board structure to encompass the board size (Dalton *et al.*, 1999; Pfeffer, 1973; Pfeffer and Salancik, 1978; Singh and Harianto, 1989), board composition (Baysinger *et al.*, 1991; Kosnik, 1987; Schellenger *et al.*, 1989) and board independence (Fama and Jensen, 1983, Brickley *et al.*, 1997).

### **2.1.1 Board Independence:**

According to Coase (1937) study of the nature on the firm, an extensive literature has been generated to determine the best corporate structure. Jensen and Meckling's (1976) developed the agency theory that has a very clear vision of the problems that exist in the company to know the divergence of interests between shareholders and managers. A considerable literature suggested that boards should consist of a majority of non-executive directors in order to alleviate the problems of moral hazard arising from the separation of ownership and control (Weisbach, 1988; Brickley *et al.*, 1997; Tosi *et al.*, 1997; Conyon and Peck, 1998). Peasnell *et al.* (2002) find that it is not necessary for all directors to be independent. Their findings confirm that independent boards contribute towards the integrity of financial statements. We can conclude that after some work literature suggests that boards should consist of a majority of non executive directors to alleviate the problems of moral hazard arising from the separation of ownership and control (Weisbach, 1988; Brickley *et al.*, 1997; Tosi *et al.*, 1997; Conyon and Peck, 1998).

Our problematic here is to explore the ability of the independence of the board of directors to control managerial psychological biases that can push CEOs to undertake optimal decision.

Our aim is to investigate if the independence of the board can affect managerial optimism, overconfidence and some well-documented behavioral biases.

Parades (2005) argues that the new role of corporate governance is to control managerial psychology especially the overconfidence or the optimism one while there is no theoretical development concerning the potential effect of board directors characteristics and managerial psychological biases. The road that we adopt here is to suppose that the new mission of the board will be affected in the same manner to that of previous mission: controlling agency conflicts.

The board independence can have an impact on managerial optimism and overconfidence. Departing from results of Adam and Li, (2012), we can predict a negative correlation between board independence and managerial psychological biases. In other terms, when the board is dominated by independent directors, this will reduce the probability of emergence of CEOs psychological biases. Even if these biases are present in CEOs personalities, independent members will increase the degree of control against managers. This can explain our prediction that stipulates the existence of negative effect of board independence on managerial optimism and overconfidence.

Referring to prior researches of board independence as it mentioned above, the independence is an important characteristic that make the board more effective. Independent directors will hardly work and they will act as if they are external experts. This is because they aim to obtain an additional mandate.

Our proposition is that if managers are optimistic and/or overconfident, they may act in less rational way (Malmendier and Tate, 2005a, 2005b, 2008; Lin *et al.*, 2005, Campbell *et al.*, 2011, Huang *et al.*, 2011, Adam and Li, 2012, Fairchild 2005, 2007) but with strong boards they will adjust their decision and tends to reproach from the rationality in their corporate decision making a thing that help creating shareholders value.

This board characteristic can be considered as a moderator that leads to reduce excessive optimism and/or overconfidence. Adam and Li (2012) empirically validate such evidence in their work. Malmendier and Tate (2008) argue that the adverse effects of CEO overconfidence might be mitigated if independent directors play more active role in project assessment and selection.

In sum, we can predict that independent directors in board of directors will positively affects the board effectiveness and so it will be able to control the psychological biases of CEOs and its effects on corporate

decisions. So, we advance the next hypothesis concerning the effect of independent board on psychological biases:

*H<sub>1.1</sub>: The independence of the board of directors reduces the probability of emergence of CEOs optimism.*

*H<sub>1.2</sub>: The independence of the board of directors reduces the probability of emergence of CEOs overconfidence.*

### **2.1.2 CEO Duality:**

In this level of our investigation, we aim to test the effect of board duality on the existence of optimism or/and overconfidence biases into CEOs. The literature in standard corporate governance has developed a wave of essays around the CEOs duality and its effect on board effectiveness while the behavioral corporate governance as young approach still silent about the potential effect of CEOs duality on controlling managerial optimism or overconfidence.

Two works can be used to develop our proposition the Adam and Li (2012) work and Ben Mohamed *et al*, (2012) paper. In order to predict the relationship between board duality and managerial optimism and/or overconfidence, we review the effect of CEO duality among the standard corporate governance literature then we introduce two essays from the behavioral corporate governance literature.

CEO duality is defined as the occupation of the post of the executive manager and the chairman of the board of directors at the same time. According to Jensen and Meckling (1976), Fama and Jensen (1983), separation of ownership and management in modern corporations has led to different arguments regarding the relationship between the principal and the agent. The agency theory advance that the agent in this relationship will be a self-interest optimizer. In other words, executive managers will take decision in order to optimizing their wealth and to minimizing their risk at the expense of the shareholders value. Therefore, it has been argued that internal and external monitoring mechanisms need to be implemented to lessen divergence in interests between shareholders and the management. The fundamental question in this part of research work is "it is better to have one person to fulfill the CEO position and at the same time to be the chairman of the board of directors (CEO duality), or is it preferable to give the two positions to different agent? Different theoretical arguments have been used either to support or to challenge CEO duality. Drawing on agency theory, the opponents (e.g. Levy, 1981; Dayton, 1984) suggest that CEO duality reduces the monitoring role of the board of directors over the executive manager, and this in turn may have a negative effect on corporate performance. In other words, as Alchian and Demsetz (1972) state, "who monitors the monitor?". On the other hand, advocates of CEO duality (e.g. Anderson and Anthony, 1986; Donaldson and Davis, 1991; Davis *et al.*, 1997) assert that corporate performance can be enhanced, when executive manager has the full authority over his corporation by serving also as the chairman, as less conflict is likely to happen. Other authors such as Brickley *et al.* (1997) argue that there is no one optimal leadership structure as both duality and separation perspectives have related to costs and benefits. As such, duality will benefit some firms while separation is likely to be advantageous for others. In our survey, we were found that 23 Tunisian firms have a CEO duality and this indicates that CEO is always the chairman of the board of directors.

When CEO duality occurs, there is an absence of separation between decision management and decision control (Fama and Jensen, 1983). In sum, we can conclude that the CEO duality of the board in the standard finance is still an unresolved question. Some research papers affirm that CEO duality can positively affect its decisions and performance, while some authors argue that a small size of the board is a sign of its effectiveness.

Our problematic here is to explore the ability of the CEO duality to control managerial psychological biases that can push CEOs to undertake optimal decision. This means, we essay to investigate if the CEO duality of the board can affect managerial optimism, overconfidence and some well documented behavioral biases. If this will be the case, our goal will be precise: what size is the most adequate to control such biases

We do not have large theoretical arguments that can make easy hypothesis development here. Ben Mohamed *et al*, (2012) test the board duality on managerial optimism and they find that the separation between the CEO title and the chairman of the board can reduce the probability of emergence of an optimistic bias into managers in the American context. They argue that the separation between the CEO and chairman titles can increase the board effectiveness and the quality of control exerted against managers will be stronger.

A CEO duality of the board will negatively affect the board effectiveness and so it will be unable to control the psychological biases of CEOs and its effects on corporate decisions. So, we advance the next hypothesis concerning the effect of board duality on psychological biases:

*H<sub>2.1</sub>: The CEO duality of the board increases the probability of the existence and the level of CEOs managerial optimism.*

*H<sub>2.2</sub>: The CEO duality of the board increases the probability of the existence and the level of CEOs managerial overconfidence.*

### **2.1.3 Board Size:**

The effect of board size on its performance has been largely studied in the financial literature (Lorch, 1992; Jensen, 1993). Much of the literature on board size has called for smaller boards. These arguments are based on the notion that smaller groups are more cohesive, more productive, and can monitor the firm more effectively. Bigger groups are fraught with problems such as social loafing and higher co-ordination costs, and hence are not good monitors. Lipton and Lorsch (1992) argue that boards of 8 or 9 members are most effective. According to them, when the board is bigger than this, it becomes hard for all the board members to express their ideas and opinions in the limited time available at board meetings. Jensen (1993) concurs with this view, and states that board of more than 7 or 8 members function less effectively, and are easier for the CEO to control.

The earliest literature on board size is by Lipton and Lorch (1992) and Jensen (1993). Jensen (1993) argued that the preference for smaller board size stems from technological and organizational change which ultimately leads to cost cutting and downsizing. Hermalin and Weisbach (2003) argued the possibility that larger boards can be less effective than small boards.

Board size has also been the subject of a number of studies related to group decision-making. Larger group sizes have been associated with decisions being made that are somewhat less risky and more conservative than had such decisions been made individually (Sah and Stiglitz, 1991). This is because larger groups making decisions are the result of a compromise between the individuals (Moscovici and Zavalloni, 1969).

In line with these studies, a number of empirical studies have consistently documented a negative association between board size and firm performance (Yermack, 1996; Eisenberg *et al.*, 1998; Mashayekhi and Bazaz, 2008). Lipton and Lorch (1992) and Jensen's (1993) studies constitute the base of the board size effect on its effectiveness literature. Lorch (1992) propose to limit the board size into seven or eight members, while Malmendier and Tate (2005) assume that a board with less than twelve members can act in an effective way.

More recently, Cheng (2008) provides empirical evidence that larger board size is significantly associated with lower variability of corporate performance. More specifically, this author finds that there is a negative association between board size and the variability of monthly stock returns, Tobin's Q, accounting accruals, return on assets, extraordinary items, analyst forecast accuracy, R&D spending including the level of such expenditure, and the frequency of acquisition and restructuring activities.

This evidence is consistent with the suggestion that decisions made within larger boards are arrived by following compromises being made by directors to reach a consensus that, in turn, results in such decisions tending 'to be less extreme, leading to less extreme corporate performance' (Cheng, 2008). In summary, this previous literature provides a strong argument that board size has negative effects when it comes to firm performance. Boards should be large enough to complete their work effectively (without overburdening members), to provide continuity, and to ensure quorums for meetings. That said, boards should be small enough for the group to work together to make substantive decisions.

A large board could result in less meaningful discussion, since expressing opinions within a large group is generally time consuming and difficult and frequently results in a lack of cohesiveness on the board (Lipton and Lorch, 1992).

In addition, the problem of coordination outweighs the advantages of having more directors (Jensen, 1993) and when a board becomes too big, it often moves into a more symbolic role, rather than fulfilling its intended function as part of the management (Hermalin and Weisback, 2003). On the other hand, very small boards lack the advantage of having the spread of expert advice and opinion around the table that is found in larger boards. Furthermore, larger boards are more likely to be associated with an increase in board diversity in terms of experience, skills, gender and nationality (Dalton and Dalton, 2005). Expropriation of wealth by the CEO or inside directors is relatively easier with smaller boards since small boards are also associated with a smaller number of outside directors. The few directors in a small board are preoccupied with the decision making process, leaving less time for monitoring activities.

In sum, we can conclude that the board size in the standard finance is still an unresolved question. Some research papers affirm that a large size of board of directors can positively affect its decisions and performance, while, in the other hand some authors argument that a small size of the board is a sign of its effectiveness.

Parades (2005) argues that the new role of corporate governance is to control managerial psychology especially the overconfidence or the optimism one while there is no theoretical development concerning the potential effect of the board of directors characteristics and managerial psychological biases. The road that we adopt here is to suppose that the new mission of the board will be affected in the same manner to that of previous mission; controlling agency conflicts.

Literature on behavioral corporate governance is still young. We only find two essays that can be used here in order to predict the size effect on the emergence of CEOs optimism and/or overconfidence. Adam *et al.*, (2012) argues that a firm with a moderate size between 4 and 12 can succeed to reduce the effect of CEOs overconfidence on acquisition decisions. Ben Mohamed *et al* (2012) test directly the effect of board size on managerial optimism bias in the American context and they conclude that the large board may decrease the quality of board control exerted against managers and it can fail to reduce an excessive managerial optimism.

A large size of the board will negatively affect the board effectiveness and so it will be unable to control the psychological biases of CEOs and its effects on corporate decisions. So, we advance the next hypothesis concerning the effect of board size on psychological biases:

*H<sub>3.1</sub>: Board size is positively correlated with the existence and the level of CEOs managerial optimism.*

*H<sub>3.2</sub>: Board size is positively correlated with the existence and the level of CEOs managerial overconfidence.*

## **2.2 Control Variables:**

### **2.2.1 CEO's Education:**

In this study we introduce the CEOs education as a control variable. Due to the lack of literature concerning the determinants of managerial optimism we will just here advance a prediction on the potential impact of CEOs education on the presence of managerial optimism and/or overconfidence biases. We follow Ben Mohamed *et al*, (2012) paper that initiates a debate concerning the determinants of managerial optimism. In their paper, they argue that CEOs education may have a great impact on the emergence of CEOs optimism bias.

They distinguish between the technical and financial level. Logically, CEOs with financial education may be more rational when they make corporate decisions. Optimism or overconfidence biases may be attenuated if CEOs have financial education. Ben Mohamed *et al*, (2012) empirically validate this prediction in among NYSE manufacturers firms. Regarding the existent literature in this domain, we predict a negative correlation between CEOs financial education and the emergence of managerial optimism.

*H<sub>4.1</sub>: CEOs financial education may reduce managerial optimism.*

*H<sub>4.2</sub>: CEOs financial education decrease managerial overconfidence.*

### **2.2.2 CEOs' age:**

Malmendier and Tate (2005a) investigate the impact of managerial optimism on corporate investment. They also study the effect of some other CEOs characteristics on investment cash flow sensitivity when managers are also optimistic. They suggest that the effect of managerial optimism on corporate investment caused by managerial overconfidence may be influenced by the interactions of CEOs optimism and other personal characteristics such as age.

Ben Mohamed *et al*, (2012) empirically find that the CEOs optimism bias can be affected by CEOs ages. Departing from manufacturers listed firms at the NYSE stock exchange; they find that managerial optimism decrease with managers' age. Optimism bias may be reduced with older managers who will essay to be more rational because their experience will increase with their age and tenure. We formulate the next hypothesis around the potential effect of CEO age on his managerial optimism bias.

*H<sub>5.1</sub>: Managerial optimism decrease with CEOs age.*

*H<sub>5.2</sub>: Managerial overconfidence decrease with CEOs age.*

### **2.2.3 Firm age:**

In other possible determinant of managerial optimism or overconfidence is firm age. This paper make original contribution since it investigates the firm age effects on managerial optimism and overconfidence. We propose that the firm age will be positively correlated with optimism and overconfidence since older firms should have a good reputation and they may have an easy access to external financing and opportunity growths. CEOs of older firms can present optimism or/and overconfidence since they have enormous resources. Regarding this logic, we propose that:

*H<sub>5.1</sub>: Managerial optimism will increase with firm age.*

*H<sub>5.2</sub>: Managerial overconfidence increase with firm age.*

## **3. Data and Methodology**

### **3.1 The Survey Design, Optimism And Overconfidence Measures:**

In order to investigate the relationship between CEO optimism and overconfidence bias and the board characteristics, we will directly regress CEO optimism measure and overconfidence to the board characteristics. We use two data sources: a survey composed of 19 questions distributed to CEOs Tunisian stock exchange (BVMT) and the annual reports of these firms.

Annual reports are an easy way to collect information concerning the board structure of firms from our sample. The survey is oriented to detect if managers presents an optimism or overconfidence bias. The survey here seems to be an obligation since we do not have the possibility to construct proxies for managerial overconfidence or optimism bias. Our data sets consist of 40 Tunisian listed firms at the Tunisian stock exchange (BVMT).

We use a quasi random sampling procedure when choosing our sample. We develop a questionnaire in the basis of behavioral corporate finance literature. We use implicit and explicit questions in order to detect if CEO is affected or not by optimism and/or overconfidence bias.

Our questionnaire is addressed to managers of listed Tunisian firms. We started to remainder that the questionnaire has only an academic objective and all information will be treated in total anonymity. A preliminary version of the questionnaire was presented to few Tunisian managers to assess the proposed questionnaire's coherence and clarity.

Our survey is composed of 3 sections. Section one deals with CEOs personal characteristics, especially the age, the education level and nature. We aim here to detect the CEO education nature; it means if he/she has a financial education. Managers are invited to choose between four items when answering the question that stipulates that "We are invited to precise our education nature." CEOs will choose between the finance education, technical education, general management and other to precise it.

Section 2 is oriented to capture the potential existence of an optimism bias. This section is composed from two questions. In the first question, CEOs are asked to choose the alternative that best describes their earnings estimates. We give them four items A, B, C and D.

**A-**Your earnings estimates are always higher achievements.

**B-**Your earnings estimates are in most cases higher achievements.

**C-**Your earnings estimates are always lower than achievements.

**D-**Your earnings estimates are always lower than achievements.

These items are inspired from Lin *et al*, (2005) work. In their paper, they propose a new measure of managerial optimism based on CEOs earning errors. They simply compare the difference between CEOs earning estimation and the realized result at the end of the year. If the sold between the estimated earning and the realized one is positive then the CEO will be classified as optimistic.

In our case, we define an optimistic CEO a manager that choose A or B among C and D. We use a proxy of managerial optimism (Optimism 1) that is a dichotomy variable which takes 1 if CEO chooses alternative A or B and 0 elsewhere.

Then, second question suppose two possible events  $E_1$  and  $E_2$  where occurrence of probability are respectively  $P_1$  and  $P_2$  with  $E_1$  is a favorable event and  $E_2$  is a unfavorable event. We propose two alternative A and B.

**A-**You will accord over weighting to  $E_1$

**B-**You will accord under weighting to  $E_2$

Our logic here is similar with that of Weinstein (1980) who argues that individual have the tendency to overestimate the good event because they have a rosy view to the world. Due to their optimism bias, optimistic CEOs will always overweight the probability of high return or success while they underweight the probability of bad events. We define here an optimistic CEO, manager that chooses alternative one over the second one. We define a second proxy of managerial optimism (Optimism2) which is also a dichotomy variable which takes 1 if a manager choose alternative A and 0 elsewhere.

We also advance two other measures of managerial optimism. Optimism 3 is a dichotomy variable that takes 1 if a manager chooses alternative A or B as an answer of the first question and he/she chooses alternative A for the second question. This third proxy can be considered as a proxy for high optimism. In their work Campbell *et al*, (2011) talk about the possibility of constructing proxies for managerial optimism or overconfidence that capture not only the existence of such biases but also their intensity.

Finally, measure four (Optimism 4) is a proxy for managerial optimism computed at the basis of measure 1 and 2. This proxy will takes 1 if manager choose at least alternative A or B in the first question or alternative A in the second question. This measure can reflect a low optimism level since it will take 1 if he/she only seems optimistic when answering at question 1 or 2.

Our goal here is to assure robustness tests. Normally if the board characteristics have an influence on managerial optimism, then this relationship should be robust even with when we vary the optimism proxies.

Section three is oriented to capture the existence of managerial overconfidence. By definition, the overconfidence bias is an underestimation of the variance. It means that an overconfident manager will overestimate the risk of his/her project investment. We use an explicit question in order to see if a manager presents an overconfidence bias or not.

We use the next question: "***In your corporate decisions***":

**A-**You always underestimate the risks

**B-**You underestimate in most cases the risks

**C-**You sometime overestimate the risks

**D-**You always overestimate the risks.

We define an overconfident CEOs those who choose alternative A or B while those who choose C or D are not. Our proxy for CEO overconfidence is (Overconfidence). It is a dummy variable that takes one if manager choose alternative 1 or 2 (it means that he/she is optimistic) and 0 elsewhere.

### 3.2. Sample Description:

Our data collection is done through a survey that was sent to Tunisian listed companies' Chief Executives Officer (CEO) from a Google document, by direct contact with company executives, in some cases by fax and by telephone communications. The homogeneity of our data is guaranteed by the presence of the age of managers, educational level, nature of the trainers and tenure occupation. Most of the managers completed the questionnaire with pleasure and sympathy, others were busy with their work and others have been off work.

Our survey is addressed to Chief Executives Officers (CEO) of companies with board directors in listed and none listed Tunisian Firms. We started by reminding that the survey has only an academic objective and all information will be treated in a total anonymity.

Our data set consists of 40 Tunisian public firms that are traded at the Tunisian stock exchange (BVMT). In a first step we choose to work on the totality of these firms. Regarding the topic of our thesis, we jointly include the financial and non-financial firms. The choice of this sample is highly motivated by the existence of free information and details about corporate governance mechanisms and other financial variables.

The data base was manually constructed and it contains all information that we need in order to answer our problematic. The data that we collect jointly includes information about the Chief Executive Officer and its firm. It also provides information concerning his/her behavioral biases. It can also be used also to construct proxies for corporate decisions' rationality.

According to this survey, it was concluded that the age of CEO is between 29 and 57, which gives an average of 41. Respects to level of study, most CEOs have a level of master and bachelor diploma, only 3 have a level of BAC+2. Twenty two CEOs specialized in finance, 9 in management, 5 in technical trainers and 4 in other specialties. The duration of tenure of CEO is between 2 and 5 years; 15 CEO have a tenure of 2 years, 9 have a tenure of 3 years, 8 have a duration of 4 years and 6 have a tenure of 5 years.

### **3.3 Descriptive Statistics:**

Starting with the general criteria, for after our survey, we found that most of the CEOs have an age between 40 and 50, most of them have a high education level, most of them have a finance academic education and most of them have occupied tenure about 1 and 5 years. To explain the impact of each bias through the psychology of CEOs, we found that most of them who estimate their benefits, in most cases, outweigh the achievement; this shows us that CEOs in Tunisian firms are mostly optimist. By way of loss aversion, a number of very important CEOs are averse to losses. By way of prospect theory, most CEOs accept minimal fluctuations and they prefer to invest in safe investments with the lowest load. In investment decision, most CEOs are based, in most cases on scientific criteria and the study's preliminary, most of them prefer to choose the project they feel closer to their area of expertise and their psychology. In financing decision, the majority of CEOs are based essentially on scientific criteria and studies on the costs of capital in their choice of one or more financing method. When CEOs are in the situation of choice between equity and debt to finance an investment project, most of them prefer to compare between these two modes of funding based on scientific models and partially based on their emotions.

In the choice of time of announcement of dividend distribution, the majority of CEOs determines the timing of dividend distributions by using research and sound scientific criteria.

### **3.4 Measures Of Variables And Tested Models:**

The objective of this study is to explain the influence of internal mechanisms of corporate governance here we focus on board of directors on psychological biases : optimism and overconfidence.

In the context of our search for the model analysis, the method that best fits our case is logistic regression. Thus, the choice of the binary logistic regression is justified by the impossibility of implementation of the linear regression for two reasons: Firstly, the linear regression can be extended to infinity when the value of the independent variable increases to infinity, while a probability, by definition must be between 0 and 1. Secondly, regression with a binary variable would not respect the principle of normal distribution, because all values are equal 0 or 1.

We propose to explain each managerial psychological bias, optimism and overconfidence through the size of the board of directors, the independence of the board of directors and the duality of managers. We also include some other control variables such as CEO financial education, CEO age and firm size. Our models can be simply described by the next models:

$$Optimism1_i = \alpha_0 + \alpha_1 BSIZE + \alpha_2 BIND + \alpha_3 DUALITY + \alpha_4 CEOEduc + \alpha_5 CEOAGE + \alpha_6 FIRMAGE + \varepsilon_i \quad (1)$$

$$Optimism2_i = \alpha_0 + \alpha_1 BSIZE + \alpha_2 BIND + \alpha_3 DUALITY + \alpha_4 CEOEduc + \alpha_5 CEOAGE + \alpha_6 FIRMAGE + \varepsilon_i \quad (2)$$

$$Optimism3_i = \alpha_0 + \alpha_1 BSIZE + \alpha_2 BIND + \alpha_3 DUALITY + \alpha_4 CEOEduc + \alpha_5 CEOAGE + \alpha_6 FIRMAGE + \varepsilon_i \quad (3)$$

$$\text{Optimism}_i = \alpha_0 + \alpha_1 \text{BSIZE} + \alpha_2 \text{BIND} + \alpha_3 \text{DUALITY} + \alpha_4 \text{CEOEduc} + \alpha_5 \text{CEOAGE} + \alpha_6 \text{FIRMAGE} + \varepsilon_i \quad (4)$$

In the same manner, we propose the next model for the managerial overconfidence:

$$\text{Overconfidence}_i = \alpha_0 + \alpha_1 \text{BSIZE} + \alpha_2 \text{BIND} + \alpha_3 \text{DUALITY} + \alpha_4 \text{CEOEduc} + \alpha_5 \text{CEOAGE} + \alpha_6 \text{FIRMAGE} + \varepsilon_i \quad (5)$$

In these models, Optimism 1, optimism 2, optimism 3 and Overconfidence are binary variables that take 1 if CEOs are optimistic or overconfident and 0 elsewhere. The rest of variables are related to (i) the board characteristics (ii) CEOs others personal characteristics and (iii) one firm characteristic. These variables are handily collected from the annual rappers of firms from our sample.

The BSIZE represent the board size and it is directly measured by the number of the board members. The BIND indicates the number of independent directors in the board of director of a given firm. Duality is a dichotomy variable that takes 1 if the CEO is always the chairman of the board of directors.

As other personal characteristics of CEOs we choose two variables: CEOeduc and CEOage. The first one is a dummy variable that takes one if CEO has a financial education and 0 elsewhere. Finally, we use the firm age as control variable. Following the majority of studies in corporate finance literature, we use the logarithm of total assets to compute firm size.

#### 4. Empirical Findings:

Table 2 reports the regressions results of the four first models that focus on the impact of the board characteristics on managerial optimism and overconfidence biases. Ours models includes also the effect of three control variables: CEOeducation, CEOage and Firmage.

A key feature in our results is that the Board independence seems having a strong explanatory power and it can explain the emergence of an optimism bias. Using Optimism 1 as a proxy for managerial optimism, we find that the correlation coefficient between managerial optimism and board independence is strong but not significant at this level ( $\alpha_2 = -5.97$  t-statistic = -1.54) one potential explanation is that the independent directors can take strong decisions against the irrationality of optimistic CEOs. They will act as if they are experts and optimistic CEOs can be more rational face to their dominance in the board of directors. Our finding support suggestions by Malmendier and Tate (2005a, 2005b) who affirms that the board independence can reduce managerial irrationalities caused by managerial optimism on investment cash flows sensitivity.

CEO's education affects managerial optimism and overconfidence bias. Our results report a negative correlation between education and optimism ( $\alpha_4 = -0.89$ , t - statistic = 1.86). We find a negative correlation between financial education and CEOs optimism bias and our result is significant at the ten percent level. As it predicted in our theoretical development, CEO with financial education may be more rational since they are well cultivated in the financial domain. This may reduce the effect of managerial optimism and other psychological biases on corporate decisions rationality.

The duality and the board size are positively associated with managerial optimism. This means that a large size of the board and the association between the posts of CEOs and the chairman of the board can represent a favorable environment to the emergence of CEOs irrationalities that derives from psychological biases. For example, the board size can negatively affect the board effectiveness. As it mentioned before a large board size can reduce its ability to exert a strong control against irrational managers, here who are affected by their psychological biases. Our results are in coherent with Malmendier and Tate (2005a, 2005b) predictions that argue that a firm with moderate size can reduce the effect of managerial investment decisions. This study also argues that small boards can influence the emergence of managerial optimism and overconfidence bias as well documented by Adam and Li (2012) who empirically demonstrate that a moderate size of the board can arrive to reduce the effect of managerial overconfidence on firm acquisition decisions.

Our second model substitute Optimism one by a second proxy of managerial optimism (optimism 2). This second measure gives us a direct measure of managerial optimism. CEOs can be considered as optimistic if they systematically overweight the probability of the realization of good events while they will underweight the probability of bad events. As it reported by model 1, our results show that the effect of the board on CEOs optimism bias still negative and highly significant ( $\alpha_2 = -13.02$  t-statistic = -2.44). CEOs with financial education can be more rational since the existence of negative association between managerial optimism and CEO's financial education ( $\alpha_4 = -2.06$ , t - statistic = -2.89).

The CEO age can increase the probability of the emergence of CEOs irrationalities that derives from optimism bias. This is because we find that a positive correlation between CEO age and his optimism bias ( $\alpha_5 = 0.08$ , t - statistic = 2.05). Our empirical findings are different of those of Ben Mohamed *et al*, (2012) who find that the CEOs age is positively correlated with managers' ages. Our finding may be explained by the fact that CEOs who are older can feel that they have an experience that they make them able to opt for a smart

management style. They for example will be optimistic because they have a large knowledge that they construct around them firms and their environment.

Another interesting result is that the firm age can reduce managerial optimism. Our result infirm our previous hypothesis concerning the impact of firms age on managerial optimism. The coefficient that relays managerial optimism and firms' age is negative and significant at the ten percent level

Even if CEOs will be overconfident, an independent board can reduce the effect of managerial irrationalities by increasing the effect of their overconfidence bias. Overconfident CEOs will be aware that if they will follow their psychological bias and overconfidence, they can opt for suboptimal decisions and so a strong internal corporate governance mechanism as education, independence board of directors can participate in their revocation, ( $\alpha_6 = -0.03$  t-statistic = -1.91).

In the best of our knowledge, there is no previous paper that focuses on the effect of firm age on managerial optimism. This is an essay and even the interpretations are mainly only based on personal efforts. Here we can justify this negative relationship by the fact that if firm has a large size then it will be necessary to opt for a strong control against managers since there is a separation between the decision and propriety. Shareholders can motivate in such firm to exercise strong control because normally they can receive high return when managers act in the firm interest.

Regressions results of model 3 where managerial optimism is measured by (Optimism 3). In this case, we can talk about a high optimism level. Managers that are classified here as optimistic present a high optimism level since the proxy of CEO optimism is only equal to one if managers are optimistic in the sense of the first and the second measure. A CEO can be classified as optimistic according to the first or the second proxy and as not optimistic in the sense of this third measures.

The effect of board independence, CEOs financial education, CEO age and firm age are still stable, a new result emerges using this third proxy. The board duality can increase the managerial optimism bias ( $\alpha_3 = 1.78$  t-statistic = 2.18). This means that the association between the title of CEO and the chairman of the board can increase the probability of the emergence of an optimism bias into managers.

A manager with a duality has a large probability to be more optimistic. The interpretation can be seen from two coins: the first one can suggest that the duality increase the optimism bias since CEOs with two titles can feel that he has a power a thing that may logically creates an optimism bias. The second interpretation comes from the idea that board with a duality may be not effective since there is an association between the decision and control function. The model with optimism 4 as proxy of managerial optimism gives similar results.

A surprising result is that the effect of the board characteristics on managerial overconfidence is not pronounced as in the case of managerial optimism. Even if the sense of correlation is still valid results are not significant. For example the effect of the board independence seems having a negative correlation with managerial overconfidence but this result isn't significant. The board size and duality can increase the probability of the emergence of an overconfidence bias into managers but the result is also insignificant. These results may due to the size of our sample.

The CEOs financial education has a great impact on reducing managerial overconfidence. As it justified above here, financial education can make managers more rational and it can reduce the effect of managerial overconfidence as it prescribed by Malmendier and Tate 2005a.

Our results are robust even when we estimate model 5 in different ways. We estimate in a first step the effect of only the board characteristics on managerial optimism. Then, we introduce each time a control variable. Finally, we re-estimate our model with all control variables and our results still unchangeable. In some, this essay shows that the board of directors can succeed to reduce managerial optimism. The CEO financial education can also affect his/her overconfidence bias.

### **5. Discussions and Managerial Implications:**

This study is an endeavor to isolate the potential effect of the board of directors' catachrestic on managing CEOs psychological biases. Our results indicate that board independence can reduce managerial optimism while a large size of the board and the duality of the titles of CEO and chairman of the board can increase the probability of emergence of managerial psychological biases.

Firms should pay a great attention to their corporate governance mechanisms in order to avoid managerial irrationality especially those that derive from optimism and overconfidence biases. They should architect their corporate governance structure in a way that may reduce the negative effects of managerial optimism and overconfidence biases.

It will be an easy task now that firms can adopt effective boards that are able to reduce the negative impact of CEOs optimism and overconfidence on corporate policies. Firms should advance the independence of their board in a special manner in order to guarantee their performances and so they will be able to align the interest of managers to that of shareholders. Our results imply that independent boards are able to reduce managerial optimism bias and overconfidence bias, so they may also reduce its undesirable effects.

In other words, to overcome the negative effect of managerial optimism especially in the domain of corporate governance is to reduce the size of the board of directors. Regarding the corporate governance literature, small boards can be effective and they may resolve some problems related to asymmetric information problems or agency conflicts and also an effective board can succeed to overcome the emergence of managerial optimism and overconfidence bias.

This paper presents an original essay on the new role of corporate governance mechanisms on managing CEOs psychological biases. We only concentrate at this level on the role of the board of directors on managerial optimism and overconfidence biases. We test three board characteristics such as independence, duality and size. We introduce also CEOs financial education, CEOs age and firm age as control variables that may affect these biases.

Departing from a sample of Tunisian listed firms, we demonstrate that the board characteristics can have great impact on governing CEOs optimism and overconfidence biases. This means also that firms can adjust their board characteristics in order to overcome the negative effect of CEOs irrationalities deriving from his psychological biases.

Firms should reinforce their independence and opt for a small board size. They are also invited to separate between CEOs and Chairman of the board titles. This is in order to reduce managerial optimism and overconfidence and so to alleviate their effects in corporate policies. For example, firms can succeed to eliminate investment cash flow sensitivity caused by optimism or overconfidence. With an optimal board structure they will escape from the negative effect of managerial psychological biases on corporate investment and so firm will arrive to touch its hypothetical value.

**Table 1:** Summary of descriptive statistics

	Observation	Mean	Median	Maximum	Minimum	S.D
BOARDSIZE	40	9.07	9	12	5	2.65
BOARD INDEPENDENCE	40	1.68	2	2	0	0.52
CEO DUALITY	40	0.58	2	1	0	0.49
EDUC	40	5.35	0	0	1	0.62
CEOage	40	41	42	57	26	8.42
Optimism 1	40	0.66	1	1	0	0.47
Optimism 2	40	0.51	1	1	0	0.50
Optimism 3	40	0.41	0	1	0	0.49
Optimism 4	40	0.46	0	1	0	0.50
Overconfidence	40	0.64	1	1	0	0.48

*Variables notes: Board of directors' characteristics: size of board of directors is measured by the number of its directors, board independence is measured by the number of independent directors, and duality is measured by a dummy variable that indicates if the CEO is always the chairman of the board of directors.: EDUC is a dummy variable that indicates if CEO has a financial education and 0 elsewhere.*

**Table 2:** Board characteristics, CEO age, education, firm age and Managerial Optimism

Variables/ variables	Independent	Optimism 1	Optimism 2	Optimism 3	Optimism 4
Intercepts		1.66 (1.07)	-4.98 (-1.96)**	-5.98 (-1.75)**	1.63 (1.09)
Board Indep.		-5.97 (-1.54)	-13.02 (-2.44)**	-19.66 (-2.87)***	-6.74 (-1.74)**
Boardsize		0.64 (1.07)	0.98 (1.15)	0.71 (0.70)	0.79 (1.33)
duality		0.26 (0.55)	0.89 (1.43)	1.78 (2.18)**	0.13 (0.28)
Educ.		-0.89 (-1.86)*	-2.06 (-2.89)***	-3.32 (-3.36)***	-0.96 (-1.95)**
CEOage		0.0006 (0.02)	0.08 (2.05)**	0.11 (2.07)**	-0.02 (-0.81)
Firmage		-0.01 (-1.19)	-0.03 (-1.91)*	-0.05 (-2.02)*	-0.01 (-0.64)
LR- Statistics		6.13	18.77	26.03	7.18
Prob (LR statics)		0.40	0.004	0.0002	0.304
Mc Fadden R-squared		0.12	0.34	0.49	0.13

, \*\* and \* denote that results are significant at the 1%, 5% and 10% level

*Variables notes: Board of directors' characteristics: size of board of directors is measured by the number of its directors, board independence is measured by the number of independent directors, and duality is measured by a dummy variable that indicates if the CEO is always the chairman of the board of directors.: EDUC is a dummy variable that indicates if CEO has a financial education and 0 elsewhere*

**Table 2:** Board characteristics, CEO age, education, firm age and Managerial Overconfidence

Variables/ Independent variables	Overconfidence Without control	Overconfidence With control educ	Overconfidence With control fage	Overconfidence With all control
Intercepts	0.11 (0.13)	0.74 (0.99)	-0.35 (-0.40)	-0.01 (-0.06)
Board Indep.	-0.29 (-0.08)	-1.24 (-0.36)	-1.59 (-0.42)	-0.08 (-0.02)
Boardsize	0.03 (0.05)	0.19 (0.35)	0.12 (0.21)	0.19 (0.32)
duality	0.58 (1.35)	0.46 (1.04)	0.67 (1.61)	0.55 (1.25)
Educ.		-1.01 (-2.32)***		-0.91 (-1.99)**
CEOage				0.01 (0.33)
Firmage			0.02 (1.54)	0.01 (1.13)
LR- Statistics	1.89	6.92	4.90	8.67
Prob (LR statics)	0.59	0.14	0.29	0.19
Mc Fadden R-squared	0.03	0.13	0.09	0.17

\*\*\*, \*\* and \* denote that results are significant at the 1%, 5% and 10% level

*Variables notes:* Overconfidence: a dummy variable which takes 1 if a CEO is classified as overconfident and 0 elsewhere. Board of directors' characteristics: size of board of directors is measured by the number of its directors, board independence is measured by the number of independent directors, and duality is measured by a dummy variable that indicates if the CEO is always the chairman of the board of directors.: EDUC is a dummy variable that indicates if CEO has a financial education and 0 elsewhere. Fage: is firm age. CEO age is directly measured by CEO age.

### Conclusion:

In this paper we advance an original endeavor that aims to discuss especially the effect of corporate governance mechanisms and some CEOs personal characteristics on the existence of managerial optimism and overconfidence biases. Departing from a sample of listed and non listed Tunisian firms, we have demonstrated that effective internal corporate governance's mechanisms can exert a great impact on the existence of managerial optimism and overconfidence. If corporate governance mechanisms are strong enough, they can prohibit CEOs to be affected by their optimism and overconfidence biases.

Our study is of interest since it is the first paper that tries to discuss that the optimal corporate governance structure that can manage reduces the probability that CEOs will show optimism and overconfidence biases. This will be an interesting way to architect corporate governance mechanisms in a manner that assures its effectiveness. This may reduce the probability that firms opt for sub-optimal corporate strategies and reduce distortions.

To ameliorate this work, we should discuss the effect of corporate governance mechanisms on the level of managerial optimism and overconfidence. An excellent way to achieve such a task is to refer to the work of Campbell *et al.*, (2011) who classify CEOs into those having high, moderate or low optimism and overconfidence level.

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