

*Full Length Research Paper*

# Effect of corporate governance on the top management team compensation

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**This paper has explored the determinants of the top management team (TMT) compensation. Specifically, it has examined the influence of ownership structure and the board of directors' effectiveness on the TMT compensation in a sample of 274 most admired American firms of fortune magazine. When panel data methodology was applied, the results have shown that TMT pay level has not been affected by the supervisory effectiveness of the board and the ownership concentration. These results have contradicted the classic suppositions of the agency theory and have supported the cognitive approach expectations. Furthermore, the results have indicated that the TMT compensation has been significantly influenced by the size, the performance of firms, the age and the tenure of the top managers. But, the size of the firm has been the most significant factor in determining the level of TMT compensation (managerial hegemony theory). It should be noted that this study has envisaged various components of compensation and different measures of performance to ensure the robustness of the results.**

**Key words:** Top management team (TMT), compensation, corporate governance, performance.

## INTRODUCTION

The main purpose of the present paper is to study the effect of firms' governance (composition of the board of directors and ownership structure) on the compensation of their top managers. The two main concepts of this paper are: corporate governance and top management team compensation. The top management team (TMT) contains the five best paid managers.

Corporate governance is a set of processes and policies which have impact on the way a company is controlled. It guarantees that a firm is monitored in a responsible and transparent manner with the purpose of promoting its long-term success. Among the internal mechanisms of control, the board of directors is supposed to play the most relevant role according to the agency theory (Eisenhardt, 1989; Fama, 1980; Jensen and Meckling, 1976). In fact, it has the responsibility of endorsing the organization's strategy, appointing, supervising and remunerating senior executives and ensuring accountability of the organization to its investors and authorities. His effectiveness depends essentially on his

composition and the ownership structure of the firm.

In the other hand, the compensation is generally, the total amount of the monetary and non-monetary pay provided to an employee by an employer in return for work performed as required. Globally, the compensation of managers is composed by the basic salary and the incentive compensation: bonus and stock based compensation which depend respectively on firm's profitability and market value. In this respect, the incentive compensation of TMT seems to have a great importance. In effect, if the TMT compensation is based on the firms' performance, it will encourage the managers to maximize the firm value and the shareholders' welfare.

The purpose of the article is to investigate the four main determinants of the TMT compensation which are the governance, the performance, the size of firms and the human capital (TMT age and tenure). The study attempts to test the effectiveness of the governance mechanisms. It also seeks to know the factor that influences more strongly, the TMT compensation: the size or the performance of the firm? Generally, we will try through our survey to better understand the issue of the TMT compensation.

The importance of our problem comes from the growing

interest of firm's governance and the emergent controversy in the compensation field. The corporate governance issue is not recent because it has appeared since the work of Berle and Means (1932). However, there has been renewed interest in the corporate governance practices of modern companies since 2001, particularly due to the collapses of a great number of large corporations (Enron, WorldCom...). Thus, we have noted over the latter years the emergence of new theories in this field after the succession of several financial scandals.

Also, nowadays, the TMT compensation is a major concern of the economic world. This subject draws the attention of the researchers and the practitioners' community after having pointed out the extravagance of the amounts of compensation granted to top managers. The compensation of managers is not justified always by the level of the firm's performance. The managerial hegemony theory may partly explain this phenomenon by criticizing the board's role (Mace, 1971). Furthermore, the empirical results testing the relationship between compensation, governance and performance are not convergent. These results are contradictory and they depend likely on the measures used and the mechanisms of control envisaged. The problem of our paper is not easy, because the compensation contains several components; the performance has different facets and the corporate governance combines a variety of mechanisms. Moreover, our study differs from previous works because it contemplates the compensation of the TMT and not only of the chief executive officer (CEO).

In order to respond to the problem, the current work mobilizes two main perspectives of corporate governance theory: these are especially the contractual approach and the cognitive approach. The contractual perspective is based fundamentally on the agency theory and the stakeholder theory. A basic conclusion of agency theory is that the value of a firm cannot be maximized because managers possess discretions which allow them to expropriate value to themselves. Therefore, the firm must establish certain control mechanisms (internal and external) to monitor the TMT behavior and save the shareholders interests. The stakeholder view of a firm considers that investors, employees, suppliers, customers and stakeholders, generally, both contribute and receive benefits from a firm. In addition, other parties may be involved in relationships, such as unions, trade associations, government and even political groups (Clarke, 2004).

The modern cognitive perspective is based essentially on the stewardship theory and the human capital theory. In the stewardship model, 'managers are good stewards of the corporations and diligently work to attain high levels of corporate profit and shareholders returns' (Donaldson and Davis, 1997). According to the human capital theory, the managers' competence is the key resource of firms. The TMT are not necessarily opportunists

and their qualification is the guarantor for the firms' competitiveness.

In order to test the different hypothesis, we will deploy a set of linear regressions for panel data (274 American firms from the most admired of the "Fortune" magazine and 8 years running from 2003 to 2010). This paper will be divided into three parts. The first will present the relevant literature and the hypotheses to be tested which are based on the theoretical arguments of different approaches of governance. The second will be devoted to the description of the research models and the results which will be the subject of a detailed interpretation in the last part.

## CONCEPTUAL FRAMEWORK AND HYPOTHESIS

### Conceptual framework

#### *Corporate governance history in United States (US)*

The first work in this matter was elaborated by Berle and Means (1932) after the Wall Street crash of 1932. This pioneer work continues to have a profound influence in scholarly debates today. Then, Coase (1937) introduced the notion of transactions' costs in order to understand why firms are founded and how they continue to behave. Forty years later, Jensen and Meckling (1976); Fama and Jensen (1983) established agency theory as a way of analyzing corporate governance: the firm is seen as a series of contracts. Williamson (1985) postulated that the costs of transaction depend on the assets' specificity. Later, Morck et al. (1988) presented the entrenchment theory and supposed that the managers seek always to enhance their discretionary power. In the first half of 1990s, the issue of corporate governance in US received considerable press attention due to the wave of CEO dismissals, the TMT hegemony and the cozy relationships between directors and managers. Over the 2000 years, the massive bankruptcies of a great number of multinational firms led to the increase of political interest in corporate governance (Enron, Worldcom, AOL, Arthur Anderson, Tyco...). This explains the passage to Sarbanes-Oxley Act in 2002. This latter describes general principles around which companies are expected to operate to assure proper governance.

#### *Board of directors as a key mechanism of corporate governance*

A board of directors is expected to play a key role in monitoring the managers. It has a legal authority to hire, fire and compensate top management. Board of directors should safeguard invested capital and must ensure financial transparency and information disclosure and develop directional and strategic policy. The board needs

sufficient relevant skills to review management performance. It also needs adequate size and appropriate levels of independence and commitment.

### ***TMT compensation issue***

The resource based theory (Barney, 1991), highlights the relevance of internal resources and particularly the managers' commitment and competence. In this respect, the compensation seems to be very important, because it may influence the TMT motivation: namely extrinsic motivation (Sigler, 2011).

Also, the agency theory is the main financial theory in this matter. Several problems (TMT opportunism, power conflicts) are raised due to the information asymmetry between investors and managers and the nature of contract which is incomplete. One of the means in resolving these problems is to link the managers' remuneration to those of shareholders. This is the principle of incentive compensation. The latter (bonus and stock options) is expected to incite the managers to reduce agency costs and managers' opportunistic behavior and to maximize the firms' competitiveness and the shareholders' wealth.

### **Board of directors and TMT compensation: Relevant literature and hypotheses**

The relationship between governance and TMT compensation may be studied according to two main approaches: contractual and cognitive approach.

#### ***Contractual approach***

**Relevant theories:** The contractual approach is based fundamentally on the agency, the stakeholder, the hegemony and the entrenchment theories.

**Agency theory:** As a result of separation of ownership and management, the firm must set up a system of control intended to help align managers' interests' with those of shareholders and to reduce the inefficiencies that arise from moral hazard and adverse selection. The agency view supposes that the investors should entrust the TMT to act properly in the sense of performance maximization. But the managers can use their decision power to serve themselves, which may deteriorate the performance of firms. Thus, the governance mechanisms and essentially the directors' board can play a key role in monitoring and inciting the managers.

**Stakeholder theory:** This theory is wider than the agency theory because it considers the entire stakeholders and not only the shareholders. Thus, the board should play an arbiter role in sharing fairly the incomes of firms between the stakeholders.

### **Managerial hegemony and entrenchment theories:**

The passive CEO of agency theory (who is strictly monitored by the governance mechanisms) is substituted by the active CEO of transactions costs theory (who is able to manipulate the information in order to fulfill his self interests). The TMT domination results from their informational privilege and their specific position in the firms. In the same line of ideas, the entrenchment theory describes the deviant strategies of TMT and their influence on firms' performance. In fact, the managers have the tendency to:

1. Enhance their compensation (particularly the short term one), their prestige, their control of firms' strategic resources and their investments in specific assets: via these actions, the top managers seek to increase their value and their replacement cost.
2. Reduce the risky investments of R & D in order to maximize their rents. But, the risky investments are likely the most profitable.

Moreover, the most important determinants of TMT entrenchment are the age, the seniority in the current post and in firm.

### **Hypotheses**

#### **A. Board composition**

According to the agency theory, the managers who hold a dual position have an unmeasured power which allows them to maximize the cash part of their compensation. By contrast, the theory of normal succession assumes that the duality allows a better strategic decision and does not systematically lead to harmful activities (Vancil, 1987). The agency theory assumes also that the boards of small size are more effective and able to link the TMT compensation to the firms' performance.

Furthermore, the same theory advocates "the effectiveness of the outsiders" hypothesis which attributes to the outsiders three advantages: the opening of prospects, the experience and the independence (Fama, 1980; Fama and Jensen, 1983). The outsiders seek to diminish the expropriation of the shareholders' wealth by decreasing excessive amounts of TMT compensation. This is true only if the managers do not dominate the board of directors (Lin and Hsing, 1997; Monks and Minow, 1995). In the other hand, the insiders may be more likely to make the best decisions, because they have easy access to reliable information (Crepsi, 2004).

**Hypothesis 1:** The level of the TMT compensation depends on the board composition (duality, size of board and percentage of outsiders).

#### **B. Ownership structure**

The ownership structure of the firm affects the board

effectiveness. Therefore, a strong ownership of the managers, the blockholders (individual or institutional) and the outsiders influences the amount and the structure of the TMT compensation (Sanchez-Marin et al., 2011).

According to the entrenchment theory, the managers who possess bigger share capital can take advantage of their supremacy to influence the remuneration policy by stressing the bonus and reducing stock options' amount. This is opposed by the theory of the interests' convergence (Salancik and Pfeffer, 1980). According to the thesis of the "neutrality of the ownership structure", the TMT property has no effect on the compensation policy. Finally, Harley and Roy (2002) suggested that there may be a substitution effect between the ownership and the compensation of managers. Therefore, the company does not need to use the stock options to align the interests of managers (owners) with those of the shareholders.

According to the agency theory, the "Block holders" reinforce the effectiveness of the board. Thus, the managers of firms which are individually controlled (including at least an investor who owns more than 5% of the capital) are less paid than their counterparts in managerial firms (controlled by managers and characterized by a thin and emaciated ownership) (Finkelstein and Hambrick, 1995; Shleifer and Vishny, 1997). Thus, the concentration of capital will be negatively associated with the party cash of the remuneration and positively to stock options.

The agency theory supposes that the institutional investors are likely to reduce the managerial supremacy (Gompers et al., 2003). According to the dominant "efficient control" hypothesis, the institutional bloc holders urge the managerial coalition to act in the interest of shareholders (Pound, 1988) and to support the stock options' component (Harley and Roy, 2002). This is not valid if the institutional investors have business relationships with the managers (strategic alignment assumption). The majority of the previous studies have confirmed the relevant role of institutional investors in regulating the compensation policy (Chaganti and Damanpour, 1991; Mallette and Fowler, 1992).

Finally, we note that the more important their ownership in the company is, the more attentive the outsiders become in controlling the managers in order to regulate their remuneration (Filatotchev and Bishop, 2002).

**Hypothesis 2:** The level of the TMT compensation depends on the firm's ownership structure (ownership of managers, bloc holders, institutional and outsiders).

### ***Cognitive approach***

**Relevant theories:** The cognitive approach is based essentially on the stewardship, the positive entrenchment, the human capital and the power circulation theories.

The cognitive approach defends a form of governance which is based on the competence, innovation and development. It recommends a dynamic efficiency (inventiveness) and not a static efficiency (discipline in order to resolve the conflicts of interest). Unlike the financial vision, the system of governance is a mean of protecting the value of the human capital of managers (Zingales and Rajan, 1998).

The power circulation model stated that the CEO cannot maintain its power due to the obsolescence of his programs (Ocasio, 1994). The theory of human capital and the theory of stewardship consider that the TMT are honest. They manage properly the firm's resources and they provide the most important input: the "know how". So, the senior and homogenous TMT seem to have the highest qualification and cohesion. The pessimistic vision of entrenchment is contested by Castanias and Helfat (1992) who consider that the managers are wealth creator and value producer. The entrenchment may eliminate the short term constraints and gives to managers the opportunity to carry out long-term investments. In this vein of ideas, the board effectiveness cannot be measured in terms of control but in terms of cognitive and intellectual contribution.

### **Hypothesis**

The human capital theory assumes that the tenure is an indicator of managers' competence. The levers of entrenchment (age and seniority) are considered as vehicles of skills acquisition. The "stewardship theory" and the "model of power circulation" presume that the managers are not opportunists and they are not able to hold the power for a long period because their programs will be certainly obsolesces. So, the board must not play his disciplinary role. They stipulate also that the insiders are able to exercise an effective control over the TMT. They seem, like to the stakeholder theory, to favor the boards of great size, because they generate cognitive conflicts and alternative political coalitions which are able to defy the TMT. These conflicts should create a fruitful organizational learning.

On the other hand and with reference to the "CEO succession theory", duality does not systematically damage the companies' performance. By contrast, the common supervision can improve the quality of decision-making and reassure the investors.

According to these theories, the relationship between the TMT and the boards is not hostile but friendly. The managers and the directors cooperate in order to maximize the firms' incomes and equally share them. In this context, the board should develop the organizational learning, help the management coalition and stimulate the innovation to adapt the firms to their environment (external vision). It must exercise a strategic control and not a restrictive financial control. Thus, the composition of directors' board and the ownership structure of the

company (supposed to reflect the power of the board and the magnitude of the financial interests of directors), do not necessarily have a significant effect on TMT compensation. It does not seem necessary to follow the governance standards (in the shareholder meaning) so that the company can eliminate the opportunistic behavior of managers who not seek only to maximize their salary but also to improve the competitiveness of firms.

**Hypothesis 3:** The TMT compensation is not necessarily related to the effectiveness of firm's governance (in the contractual meaning).

### ***Other determinants of the TMT compensation***

In addition to the governance mechanisms, there are also other factors which affect the compensation structure: namely, the performance, the size and the human capital of the firm (Laing and Weir, 1999; Matthew, 2006).

According to the agency theory, compensation is the main spur of motivation which allows the aligning of the managers interests with the owners' (Ueng and Wells, 2000). The main way of solving the interests' conflicts would be to reward the managers according to the shareholders' income which is the basis of incentive compensation designed to limit the agency costs that are related to "moral hazard" and "adverse selection" problems (Jensen and Murphy, 1990; Jensen and Meckling, 1976). Therefore, in accordance with the agency theory and the various studies that validate the traditional argument of "maximization of shareholder wealth" of the agency theory, performance and compensation are expected to be positively and significantly correlated (Attaway, 2000; Kulik, 2001; O'Connor and Rafferty, 2010). However, the importance of such correlation depends on the performance and compensation measures (Elayan et al., 2000).

**Hypothesis 4:** The TMT compensation is linked to the firms' performance.

Since 1967, Baumol has found a positive and strong relationship between remuneration and the firm's size. Thus, he has advanced his "maximization of sales" hypothesis. In fact, the managers are usually eager to enlarge the size of the companies in order to diversify the resources under their control, profit from strong remuneration and enhance their prestige. More recently, Morck et al. (1988), according to their hypothesis of "Management entrenchment" have proven that the managerial coalition can use its authority to benefit from excessive compensation (attributed to the growth of sales and not to shareholders wealth). The pioneering studies of the 1980s have shown that the compensation of managers is more strongly related to the size of firms rather than to their performance (Ciscel and Carrol, 1980;

Coughlan and Schmidt, 1985; Drucker, 1984; Loomis, 1982; Murphy, 1985). In accordance with the assumptions of "maximization of sales" and "Management entrenchment", it is expected that the compensation of TMT is more important in the bigger firms.

**Hypothesis 5:** The TMT compensation is positively associated with the firms' size.

The fourth and last conceptual guide explaining remuneration is the theory of "human capital" which establishes a link between the level of TMT human capital and that of compensation. It is suggested that the age and tenure of the TMT positively affect remuneration since they reflect the proficiency and the power of the managers (Becker, 1964; Jeongchul, 2000; Mincer, 1970). Accordingly, the latter are inclined to increase their salaries and reduce the long term incentive compensation (Finkelstein and Hambrick, 1996).

**Hypothesis 6:** The TMT age and tenure are positively associated with their remuneration (global and cash) and negatively related to the stock options' amount.

### **RESEARCH METHODOLOGY**

We will present here, the models, the research variables, the methodological approach and the main results obtained.

In order to test the range of the hypotheses displayed, we need to clarify the determinants of the TMT compensation. This is done by using a set of linear regressions for panel data (274 American firms from the most admired of the "Fortune" magazine and 8 years running from 2003 to 2010). Our basic model is as follows:

TMT compensation =  $f^\circ$  (Governance, Performance, Sales, TMT Demographic Features, Control variables).

### **RESULTS**

The Table 1 describes the variables used in the regressions. The descriptive statistics are indicated in the Table 6. To perform our regressions, we applied a specific procedure for the panel regression<sup>1</sup>. We will present the adopted estimations after detecting and solving the eventual problems in Table 2.

Table 2 illustrates the results of the principal models where the dependent variable is the natural logarithm of

<sup>1</sup> We have applied the following approach:

- Perform the test of VIF to detect a potential problem of collinearity
- Analyze the type of relationship (linear, quadratic or cubic) between the dependent variable and each independent variable
- Estimate the model by individual fixed effects (test of Fisher)
- Estimate the model by individual random effects (Lagrange Multiplier Test of Breusch & Pagan)
- Specify the model (fixed or random effects) by using the Hausman Test
- Conduct the "post - estimation tests" to reveal the potential problems of heteroskedasticity and auto correlation of errors
- And finally correct the detected problems by performing the Least Squares Quasi Generalized

**Table 1.** Description of the variables used in the regressions.

Variable	Measure
<b>Dependent variable</b>	
<b>TMT compensation</b>	
Inrem	Napierian Logarithm of the total remuneration paid to the TMT
salr	The proportion of salary (granted to TMT) compared to their total remuneration
bonusr	The proportion of the bonus (granted to TMT) compared to their total remuneration
cashr	The proportion of the cash (granted to TMT) compared to their total remuneration
bsoptr	The proportion of options (granted to the TMT) compared to their total remuneration
<b>Independent variable</b>	
<b>Governance</b>	
Board Size	Number of directors in the board (insiders + outsiders)
Duality (Binary variable)	1 if the chairman of the board is the CEO and 0 otherwise
Percentage of outsiders in the board	Number of outsiders / Board Size
Percentage of majority individual shareholders in the board	Number of individual blockholders / Board Size
Percentage of institutional shareholders in the board	Number of institutional blockholders / Board Size
Outsiders' ownership	Number of shares held by the outsiders / Total number of shares in circulation
Managerial ownership	Number of shares held by the managers and directors / Total number of shares in circulation
Majority ownership (Majority shareholders ownership exceeds 5%)	Number of shares held by the individual blockholders / Total number of shares in circulation
Institutional ownership	Number of shares held by the institutional blockholders / Total number of shares in circulation
<b>Performance</b>	
ROA	Return on Assets [(Income Before Extraordinary Items / Total Assets) * 100].
NPM	Net profit margin (Income Before Extraordinary Items / Revenues) * 100
MTOB	Market to Book (Unitary Price – Monthly – Close / Ordinary Equity divided by Common Shares Outstanding)
<b>TMT demographic characteristics</b>	
Age	Average TMT Age
Tenure in position	Average TMT Tenure in current position
Tenure in firm	Average TMT Tenure in the firm
<b>Control variable</b>	
Firm size	Napierian logarithm of number of employees
Revenues	Napierian logarithm of sales
Debt	The value of the debt reported to the value of total assets
<b>Activity sector</b>	
isect1	It takes the value 1 if the firm belongs to the sector "Basic materials" and 0 otherwise
isect2	It takes the value 1 if the firm belongs to the sector "Conglomerates" and 0 otherwise
isect3	It takes the value 1 if the firm belongs to the sector "Consumer Goods" and 0 otherwise

**Table 1.** Contd.

isect5	It takes the value 1 if the firm belongs to the sector "Healthcare" and 0 otherwise
isect6	It takes the value 1 if the firm belongs to the sector "Industrial Goods" and 0 otherwise
isect8	It takes the value 1 if the firm belongs to the sector "Technology" and 0 otherwise

The technology sector (8) is omitted in the different regressions in order to eliminate the problem of Collinearity. The interpretation will be conducted relatively to this sector. The financial sector (4) is eliminated because it is subject to specific regulations and the services' sector (7) containing a single firm in our sample is reclassified and assigned to the sector 2 of the conglomerates.

remuneration and the independent variables reflect the main determinants of the managers' compensation (board of directors' characteristics, performance variables, indicators of human capital (age and tenure in the post and in the firm), revenues and control variables (the size of the firm and the level of debt)).

To refine the analyses, we considered three items that reflect remuneration and obtained, therefore, three main models whose endogenous variables are the relative measures of remuneration (salr, bonusr and bsoptr). Then, and in order to enrich the analysis, we introduced for each principal model (corresponding to the three items of compensation) three performance indicators that reveal the market value (MTOB) and the firms profitability (return on assets (ROA) and net profit margin (NPM)). At the end, we have nine regressions to test [3 items of remuneration  $\times$  3 performance indicators]. The estimation of these models allows us to assess the contingency of the results. The Table 3 presents the results of the models related to the different components of TMT compensation.

## DISCUSSION

### Effect of governance

The institutional investors' rate, the managerial and the outsiders' ownership have a limited effect on the TMT compensation. The managers and the

directors who possess a considerable capital share tend to maximize the shareholders' wealth as it is the basis of their revenues ("interests' convergence hypothesis"). This is done by controlling more effectively the compensation policy, ( $\beta = -0.39$  in model 1 and 2 and  $-0.30$  in model 3,  $P < 0.01$  in all). Whilst outsiders are thought to be more independent, they may not always result in more effective boards. In fact, a board that is dominated by the outsiders is not rigorous systematically if these outsiders have small parts in the capital. Moreover, the executive directors can be more efficient because they possess superior knowledge of the decision making process. They are likely to look beyond the financial criteria.

However, a more detailed analysis in terms of the different components of the compensation will refine our interpretations and reveals that only the managerial ownership and the institutional investors' rate in the board have a significant effect on compensation. But for the other mechanisms of control, the results are not conclusive. The results also show that a strong managerial ownership and a relevant presence of institutional investors in the board are associated with higher levels of salaries and bonuses and low levels of stock options. These results contradict the agency theory which asserts the effectiveness of the governance mechanisms in reducing short term incentive compensation and enhancing that of long term. In fact, the stock options which engage the managers for long periods are not preferred. The

managers are known for their appreciation of the short time horizon. The share option plans should direct managers' energies and extend their decision horizons toward the long-term, (rather than the short-term) performance of the company. Thus, the effectiveness of the board (in the contractual sense) does not seem to affect the compensation policy in accordance with the interests of shareholders.

### Effect of firm size

The effect of the revenues and the firm size on compensation is positive and significant ( $\beta = 0.29$  in model 1;  $0.28$  in model 2 and  $0.30$  in model 3,  $P < 0.001$  in both). This supports the argument of the managerial theory which stipulates that the managers are usually tempted to expand the firm's size in order to obtain exorbitant amounts of compensation (Amihud and Lev, 1981; Hill and Snell, 1988). The strategy of expansion and diversification is not always beneficial for the companies. Furthermore, the firms of big sizes are more difficult to manage and therefore require high qualifications and great effort. These qualifications and this effort should be the subject of greater compensations ( $H_5$  validated).

### Effect of performance

The results show that profitability and market value have a positive effect on the TMT compensation,

**Table 2.** Determinants of TMT compensation.

Independent variable	Model		
	Model 1	Model 2	Model 3
Size of board	0.02	0.02	0.02
Duality	0.04	0.04	0.05
Outsiders' percentage	0.08	0.07	0.03
Majority shareholders percentage	-0.13	-0.13	-0.13
Institutional percentage	-0.38***	-0.39***	-0.33***
Managerial ownership	-0.39**	-0.39**	-0.30**
Outsiders' ownership	-0.16***	-0.16***	-0.18***
Institutional ownership	0.04	0.03	-0.04
ROA	0.02***	-	-
Revenues	0.29***	0.28***	0.30***
Age	-0.02	-0.02	0.02
Tenure in position	-0.02**	-0.03***	-0.02***
Tenure in firm	0.02***	0.02**	0.02**
Firm Size	0.04**	0.05***	0.05**
Debt	-0.02	-0.02	-0.02
isect1	-0.65***	-0.66***	-0.64***
isect2	-0.49***	-0.48***	-0.47***
isect3	-0.20***	-0.19***	-0.20***
isect5	-0.62***	-0.63***	-0.61***
isect6	-0.48***	-0.48***	-0.47***
NPM	-	0.02***	-
MTOB	-	-	0.02***
Constant	8.36***	8.53***	8.11***
N	2190	2190	2190

<sup>1</sup>All models have for endogenous variable the total remuneration of TMT but the performance indicators are different (we introduce among the independent variables respectively in the three models: ROA, NPM and MTOB). <sup>2</sup>Significance levels: \*P < 0.10; \*\*P < 0.05; \*\*\*P < 0.01; \*\*\*\*P < 0.001. P-values greater than 0.05 but less than 0.10 are considered marginally significant. P-values greater than 0.10 are considered insignificant. First review of the estimations shows the sturdiness of results that are similar in all the models.

which confirms the argument of maximizing the performance advocated by the proponents of the agency theory ( $\beta = 0.02$  in all models,  $P < 0.001$ :  $H_4$  validated).

In this respect, it is possible to raise the following questions: what is the most important factor in the TMT compensation? Is it the performance of the firm or its size? To answer these questions, we must compare the sales and performance elasticity of compensation<sup>2</sup>. Table 4 shows the superiority of the sales elasticity as compared to the performance elasticity in the three models. Therefore, the assumption of the managerial theory ("maximization of sales") is more consistent than that of the agency theory ("maximization of the

performance"). Despite the emergence of several new forms of compensation (incentive schemes, stock based and individual remuneration), the classic element (salary) which is based on the firm size seems to be usually the more dominant.

In order to identify the effect of the various performance measures on the different components of compensation, we have brought together, in the same Table 5, the regression coefficients we need<sup>3</sup>. We compared the regression coefficients of the independent variables (performance measures) in the sub-models which have it as dependent variables, the amount of salaries, bonus and stock options granted to the TMT. According to the comparative analysis between the rows and columns of Table 5, we can say that the amount of salaries is not positively related to performance while the levels of the bonus and options closely and respectively depend on

<sup>2</sup> Since our exogenous variables do not have the same form (the variable *Inrev* is in natural logarithm while ROA (NPM or MTOB) is a ratio), then we must use the elasticity. The regression coefficient of *Inrev* corresponds to the sales elasticity of remuneration. So we must determine the performance elasticity of remuneration. To do this, we generate a new variable "elas" which is equal to the multiplication of the mean of ROA in the sample by the regression coefficient of ROA.

<sup>3</sup> Extracts of the results for the various models relating to the various components of compensation (Table 3)



**Table 3.** Determinants of the different components of the TMT compensation.

Model	1 Salary ROA	2 Bonus ROA	3 Options ROA	4 Salary NPM	5 Bonus NPM	6 Options NPM	7 Salary MTOB	8 Bonus MTOB	9 Options MTOB
Size board	0.002	0.006***	-0.006**	0.002	0.006***	-0.006**	0.002	0.006***	-0.006**
Duality	-0.005	0.013	-0.002	0.005	0.012*	0.002	-0.005	0.018**	0.002
Outsiders' percentage	-0.009	-0.036	0.087*	0.008	-0.044	0.090*	-0.007	-0.052	0.074
Majority shareholders percentage	0.097**	0.057	-0.067	0.096**	0.059	-0.068	0.085*	0.043	-0.057
Institutional shareholders percentage	0.099***	0.059*	-0.156***	0.1***	0.060*	-0.153***	0.076**	0.061	-0.139***
Managerial ownership	0.183***	0.073*	-0.337***	0.179***	0.078*	-0.341***	0.199***	0.104***	-0.329***
Outsiders' ownership	0.017	-0.008	-0.014	0.018*	-0.006	-0.014	0.019	-0.01	-0.016
Institutional ownership	-0.02	-0.02	0.077	0.016	-0.02	0.078	-0.003	-0.029	0.087*
Performance	-0.003***	0.004***	-0.003***	0.002***	0.003***	-0.002***	-0.002***	0.002	0.002**
Revenues	-0.038***	0.014***	0.02***	0.038***	0.013**	0.03***	-0.04***	0.013**	0.022***
Age	0.004***	0.004***	-0.008***	0.004***	0.003**	-0.008***	0.004***	0.004***	-0.008***
Tenure in position	0.004	-0.003***	-0.003	0.004***	-0.003**	-0.003	0.004***	-0.003**	-0.004*
Tenure in firm	-0.002	-0.002	-0.002	0.002	-0.002	-0.002	-0.002	-0.002	-0.002
Firm size	0.004	-0.024**	0.029***	0.004	-0.024***	0.028***	0.004	-0.025***	0.04***
Debt	0.002	0.002	-0.002	0.002	0.002	-0.002	0.003*	0.002	-0.002
isect 1	0.099***	0.069***	-0.119***	0.1***	0.068***	-0.159***	0.097***	0.076***	-0.166***
isect 2	0.097***	0.094***	-0.199***	0.098***	0.094***	-0.2***	0.09***	0.092***	-0.198***
isect 3	0.044***	0.03	-0.045*	0.043***	0.022	-0.046*	0.04***	0.035**	-0.058**
isect 5	0.116***	0.086***	-0.244***	0.119***	0.083***	-0.242***	0.115***	0.092***	-0.242***
isect 6	0.087***	0.089***	-0.178**	0.088***	0.090***	-0.179***	0.083***	0.095***	-0.181***
Constant	0.780***	-0.090	0.334**	0.756***	-0.058	0.315**	0.815***	-0.054	0.256*
N	2190	2190	2190	2190	2190	2190	2190	2190	2190

Significance levels: <sup>†</sup>P < .10; \*P < 0.05; \*\*P < 0.01; \*\*\*P < 0.001. Model 1: dependent variable: Salary ("salr") and performance indicator (independent variable): ROA. Model 2: dependent variable: Bonus ("bonus") and performance indicator (independent variable): ROA. Model 3: dependent variable: Stock Options ("bsopr") and performance indicator (independent variable): ROA. Model 4: dependent variable: Salary ("salr") and performance indicator (independent variable): NPM. The same thing for the other models.

the profitability and the market evaluation. These findings support the definition of bonus and stock options and thus confirm our expectations.

### Effect of human capital

As expected, the older managers are more inclined

to maximize the "cash" part of their compensation and limit their stock options. This result supports the assumption of both the managerial and the agency theories. Salary is usually linked to the size and not to the firm performance. It is the less risky component of compensation for the managers, while the other components depend on the external factors and the economic situation of

the country (H<sub>6</sub> validated).

### Control Variables

The level of debt has no significant effect on the amount of TMT compensation. Finally, the high-tech firms seem to rely on the "stock options"

**Table 4.** Sales and performance elasticity of compensation.

Model	Model 1	Model 2	Model 3
Revenues (Inrev)	0.29	0.28	0.30
ROA	0.0968 = (0.02 × 4.84)		
NPM	0,0994 = (0.02 × 4.97)		
MTOB	0,1058 = (0.02 × 5.29)		

In the 1st model: "0.02" is the regression coefficient of "ROA" and "4.84" is the average value of "ROA" in the sample.

**Table 5.** Effect of the performance on the various compensation components.

Independent variables	Dependent variables		
	Salary	Bonus	Stock-options
ROA	-0,003***	0,004***	-0,003***
NPM	-0,002***	0,003***	-0,002***
MTOB	-0,002***	0,002	0,002**

Significance levels: †P < .10; \*P < .05; \*\*P < .01; \*\*\*P < .001. P-values greater than 0.05, but less than 0.10 are considered marginally significant. P-values greater than 0.10 are considered insignificant.

**Table 6.** Descriptive statistics.

	N	Minimum	Maximum	Mean	Standard deviation
Ln (compensation)	2192	12,15	18,68	14,60	0,83
Ln (salary)	2192	11,28	15,18	13,16	0,37
Ln (bonus)	2192	0,00	16,72	12,23	3,25
Ln (options)	2192	0,00	18,53	12,58	4,21
Size board	2192	5	22	10,84	2,59
Duality	2192	0	1	0,77	0,43
Percentage of outsiders in the board	2192	0,34	0,96	0,79	0,11
Percentage of individual blockholders in the board	2192	0,00	0,63	0,04	0,09
Percentage of institutional blockholders in the board	2192	0,00	0,89	0,19	0,17
Outsiders' ownership	2192	0,00	0,99	0,29	0,29
Managerial ownership	2192	0,00	0,95	0,08	0,12
Majority ownership	2192	0,00	0,85	0,05	0,13
Institutional ownership	2192	0,00	0,97	0,18	0,16
MTOB	2083	0,12	109,15	5,29	8,28
ROA	2190	-67,42	53,67	4,84	7,99
NPM	2191	-109,30	71,09	4,97	10,18
Age	2192	38,7	70	53,29	4,25
Tenure in position	2192	0	30,5	3,75	3,56
Tenure in firm	2192	0	39,4	10,86	6,25

component when paying their TMT (more than the firms belonging to other sectors).

## Conclusion

The objective of this work is to apprehend the effect of the firms' ownership structure and the directors' board

characteristics on the TMT compensation.

To do this, we have conceptually mobilized the two main governance approaches (contractual and cognitive) and empirically tested a set of multiple linear regressions for panel data. In addition to the governance variables, other exogenous factors were considered: the performance, the size of firms and the indicators of human capital. In order to enrich the interpretations, we have

subdivided the compensation and we have varied the measures of the performance. The results appear to be reliable because they do not depend on the proposed measures.

They indicate that the TMT compensation is influenced both by the firm size and the firm performance. But the size of the company seems to have a greater effect. In addition, the amount of salaries, bonus and options are respectively determined by the firm size, the profitability and the market value. Then, the older managers tend to strengthen the party cash of their remuneration.

Nevertheless, the more surprising result is the remarkable absence of the disciplinary effect of governance mechanisms on the TMT compensation. The results show that only two factors (institutional investors' rate and managerial ownership) influence significantly the TMT compensation. But their effects are negative on the TMT stock options and positive on the salaries and bonuses. The best governed firms (in the contractual sense) do not seem to regulate more effectively the compensation policy of their top managers. Two explanations can be provided at this level. The first asserts the assumption of the "managerial hegemony" and rejects the agency theory presumptions which highlight the effectiveness of governance mechanisms in linking the TMT compensation to the firm performance. The second explanation supports the ideas of the cognitive theory of governance and refutes the arguments of the financial theory ( $H_3$  verified). The modern approaches of governance seem to be more suitable in explaining the compensation policy.

Our study has contributed in the explanation of the gap between the theory (the compensation and the performance are interdependent) and the practice (conflicting results). This study has shown the inability of the contractual theory to interpret the results. The board of directors can be a misleading façade. So, firms must focus on the cognitive role of boards and not only on their disciplinary role. Finally, we note that the research can be more relevant if we consider other mechanisms of governance or the non-linear relationship between the TMT compensation and the governance levers.

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