

Corporate Board and Upper Echelons: The Case of the American Most Admired Firms

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Received: December 20, 2017

Accepted: February 7, 2018

Online Published: March 18, 2018

doi:10.5539/ijbm.v13n4p245

URL: <https://doi.org/10.5539/ijbm.v13n4p245>

Abstract

The purpose of the paper is to study the effect of board effectiveness on the Top Management Team demographic characteristics of 274 American firms. The research mobilizes theoretically the upper echelons, the agency and the cognitive theories and empirically the clustering and the discriminating analysis. The results indicate that the TMT demographic attributes are not tied systematically to the board efficiency according to contractual approach of corporate governance. The relationship between the board characteristics and the TMT traits is not linear. The study contributes to corporate governance knowledge by highlighting the strategic role of the boards dealing with the TMT choice.

Keywords: board of directors, top management team, cognitive theory, clustering and discriminating analysis

JEL codes: G34; J82; G41; C38.

1. 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 of firms) on their human capital.

To measure the human capital, the demographic attributes of Top Management Team (TMT) are used as indicators of the managers' experience in accordance with the "Upper Echelons" theory of Hambrick and Mason (1984) and like a multitude of previous works (Beckman *et al.*, 2007; Beckman and Burton, 2008; Certo *et al.*, 2006; Jaw and Lin, 2000; Hitt *et al.*, 2006). In this regard, the TMT demographic characteristics can be perceived as proxies of qualification. They can be also considered as power and entrenchment vehicles (entrenchment theory). The TMT is the most dominant coalition in the firm. It is the group of top executives with overall responsibility for the organization (Finkelstein *et al.*, 2009). In our research, it contains the five best paid managers.

The current work will investigate two main perspectives of corporate governance in the Human Capital field: these are especially the contractual and the cognitive approaches. We seek to investigate the determinants of TMT attributes. The study attempts to test the effectiveness of the governance mechanisms in the TMT choice and the limitation of the managers' entrenchment. To do this, we will deploy the clustering and the discriminating analysis.

Our study differs from the precedent works because it contemplates the TMT attributes and not only of the CEO ones. Also, it links two themes belonging to different fields (Human Resource Management and Corporate Finance). In the one hand, the Human Capital is the stock of competencies, knowledge and personality attributes embodied in the ability to perform labor so as to produce economic value.

On the other hand, Corporate Governance includes the relationships among the stakeholders involved and the goals for which the corporation is governed. It is intended to increase the confidence of shareholders and capital-market investors and it try to decrease the principal-agent problem. At this regard, the board of directors is expected to play a key role in monitoring managers. The board has a fiduciary duty of appointing the CEO. Also it may use its formal and informal power to fire the whole managerial coalition. So we can deduct clearly that the board composition should has an impact on the TMT characteristics. Therefore, it is expected that the boards which are conform to the instructions of the good governance tend to limit the power of managers by nominating young, recent and heterogeneous TMT (according to the contractual approach).

Over the latter years, there is a renewed interest in the governance and the human capital issues. The importance of our problematic comes from the emergence of new theories in corporate governance after the succession of several financial scandals since the Enron affair in 2001 (Arthur Anderson, Tyco, World Com, Xerox...). The collapses of the Anglo-Saxon model of governance and the increase of irregularities and fraud have renewed the interest of the public and the media to the governance issue (Laszlo *et al.*, 2015; Taylor, 2003)

Furthermore, the human capital is a major concern of the economic world. Nowadays, this subject draws the attention of the researchers and the practitioners' community (Finkelstein *et al.*, 2009; Marvel *et al.*, 2016). We know well that the intangible capital became today the main source of the firms' competitiveness and the human capital is an integral part of the intangible capital (Bontis, 1998).

Our research investigates two themes which are topical and in vogue: human capital and corporate governance. Also, the paper envisages the main dominant coalitions in the firms: which are the TMT and the board of directors. In addition, it has the merit of going beyond the classical approach of agency in order to elucidate the arguments of the strategic and the cognitive perspective.

The paper will be divided into three sections. The first will present 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 section.

2. Literature Review and Hypothesis

2.1 Board of Directors: A Key Internal Mechanism of Corporate Governance

The Corporate Governance objective is to establish systems that delimit the decision-making power of the top managers. The theoretical framework of governance found its origin mainly in the works of Alchian and Demsetz (1972), Jensen and Meckling (1976), Fama (1980), Williamson (1985) and Shleifer and Vishny (1986). The major agency assumptions underlying to the governance theory argue that the managers have a tendency to pursue their self interests (enhancing compensation and power). Also, they benefit from the asymmetry of information to develop entrenchment strategies and they are risk and effort averse.

Given the opportunistic managerial behavior, multiple mechanisms of control have been suggested by the Corporate Governance. Among these mechanisms, the board of directors is the most well known. It is an intentional and internal mechanism. It is supposed to play a relevant role. It should participate in the strategic decisions and ensure the transparency. Also, its main mission is to evaluate the performance, hire and fire the TMT: Hence the link between the board and the Upper Echelons. Thus, the TMT attributes seem to depend on the boards' characteristics.

2.2 Upper Echelons Theory: Our Main Theoretical Reference in the Human Capital Field

The use of the Human Capital term in the modern neoclassical economic literature dates back to Mincer's article "Investment in Human Capital and Personal Income Distribution" in *The Journal of Political Economy* in 1958. The best-known application is that of Becker. His book entitled *Human Capital*, published in 1964, became a standard reference for many years. The Human Capital reflects the employees' competence, skills, knowledge and abilities.

The importance of the Human Capital is stressed by the economists (Palacios, 2015; Rumberger, 1987; Tsang, 1987), the Resource-Based Theory (Barney, 1991; Daily *et al.*, 2000; Finkelstein and Hambrick, 1996; Peterson *et al.*, 2003) and the Human Resource Management (Hogan and Kaiser, 2005; Karamiet *et al.*, 2006). The Human Capital has gained in importance since the organizational knowledge has become the most critical ingredient in maintaining a solid competitive advantage in this new era of modern economy ("Knowledge Based Theory").

The researches in the framework of the Human Capital field have insisted on the active role of TMT (Buyl *et al.*, 2011; Carpenter *et al.*, 2004; Mihalache *et al.*, 2014). In effect, the TMT are supposed to establish firms' strategy, detect environmental opportunities and threats, stimulate progress and create value. In the vein of these ideas, the work of Hambrick and Mason (1984) seems to be the most well known. This study has established the "Upper Echelons Theory" and has demonstrated the effect of TMT demographic characteristics on firms' performance. It is frequently used since it is based on objective and rich indicators. The figure 1 shows the reasoning of the Upper Echelons' theory.

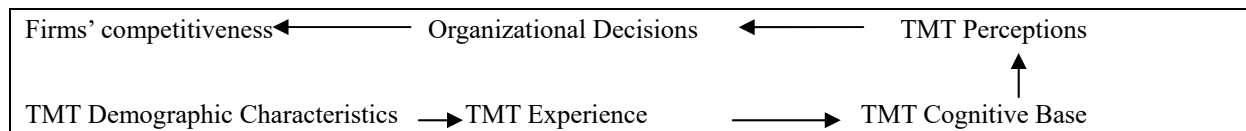


Figure 1. Upper Echelons' theory thread (Hambrick & Mason, 1984)

In this respect, the TMT age and tenure are the most relevant indicators (Hitt *et al.*, 2006). They reflect at the same time the competence (experience stocks), the attitude and behavior (risk aversion, conservatism) and psychological processes (TMT cohesion and continuity). The TMT age and tenure are also indicators of Human Capital stability (Sveiby, 1997).

In order to understand the role of the TMT, we must distinguish between the effect of TMT demographic traits and that of the demographic heterogeneity. This latter reflects the diversity of TMT perspectives and points of view. It implies a greater ability of firms' creativity and adaptability. It stimulates the innovation but it can reinforce the affective conflicts which may harm the TMT harmony (Haynes and Hillman, 2010). The theoretical bedrock of this paper is the demographic approach. The research treats specifically the resources' effect (demographic attributes: TMT age and tenure) and the structural effect of TMT (TMT demographic heterogeneity: Jian *et al.*, 2016).

2.3 Board of Directors and Upper Echelons' Characteristics

The relationship between the board structure and the TMT attributes may be studied according to two points of view: the contractual approach and the cognitive approach. The contractual approach assumes that the older TMT with longer tenure have a great power and they are characterized by a high level of entrenchment (Charreaux, 2000; Daily and Dalton, 1997; Morck *et al.*, 1990; Zerni *et al.*, 2010). In addition, the homogeneous TMT are more powerful than the heterogeneous ones since the homogeneity increases teamwork and consensus (Keck, 1997). These assumptions have been overturned by the cognitive theory that asserts that the older managers are not opportunists. Thus, the age and the seniority are synonyms of competence and skill (Human Capital Theory, Positive Entrenchment Theory). Also, the homogeneity of the managers' coalition is not systematically injurious (Castanias and Helfat, 1992; Garvey and Swan, 1994). In fact, the homogeneity reflects the solidarity and the coherence of the TMT (Carpenter, 2004). Furthermore, the homogeneity facilitates the decision-making process particularly for the firms operating in a competitive environment (Murray, 1989).

2.4 Board Composition and TMT Characteristics

According to the agency theory, the managers who benefit from a dual position have a great power. They are able to impose their choice and to pursue their self interests. By contrast, the theory of normal succession assumes that the duality allows a better strategic decision and does not systematically harmful (Vancil, 1987).

Also, the agency theory asserts that the small boards are more powerful. Therefore, the smaller boards tend to recruit younger and more heterogeneous group of managers in order to avoid the opportunistic behavior of the rooted TMT (Yermack, 1996).

On the other hand, the agency theory advocates "the effectiveness of the outsiders" (Kaymak and Bektas, 2008; Osma, 2008). The outsiders present a triple advantage: the opening of prospects, the experience and the independence (Fama, 1980; Fama and Jensen, 1983). In this respect, Kosnik (1990) affirms that the outsiders are more likely than the insiders to perform the shareholders' interests by decreasing the TMT entrenchment. This will not be true if the boards are dominated by the managers ("the managerial hegemony hypothesis": Lin and Hsing, 1997).

Hypothesis 1: The TMT characteristics depend on the composition of firm's board of directors (Duality of CEO, size of board and percentage of outsiders). More specifically, the TMT of firms with smaller boards, not dual and dominated by the outsiders are younger, less tenured and more heterogeneous.

2.5 Ownership Structure and TMT Characteristics

Four factors may have an impact on the TMT characteristics: the presence of block holders, the managerial ownership, the outsiders' ownership and the institutional ownership.

According to the agency theory, the concentration of capital reflects the effectiveness of the board. Thus, the TMT entrenchment of firms which are individually controlled (including at least one block holder) is lower than that of managerial firms (the ownership is dispersed among a large number of owners) (Finkelstein and Hambrick, 1995; Shleifer and Vishny, 1997).

Furthermore, the entrenchment theory assumes that the managers who possess bigger share capital have a great power. So, they can use their power to orient the firms' policies in the direction of their self interests. This is opposed by the theory of the interests' convergence (Salancik & Pfeffer, 1980).

In other hand, the outsiders who have a great ownership are more attentive in controlling the managers (Filatotchev & Bishop, 2002). Thus, they seem to be able to decrease the TMT entrenchment.

Finally, the institutional ownership is considered as an effective mean of governance (Gompers, Ishii, & Metrick, 2003). According to the dominant "efficient control hypothesis", the institutional investors who are also block holders can limit the TMT power (Pound, 1988). This is not true if the institutional investors have business relationships with the managers ("strategic alignment assumption"). But the "institutions' myopia theory" attests that the institutional investors are a transitional shareholders who are looking for short-term profits (Bushee, 1998).

Thus, we expected (according to contractual theory) that the best governed firms (with more effective board) are chaired by the less entrenched TMT (who are younger, recent and heterogeneous).

Hypothesis 2: The TMT characteristics depend on the firm's ownership structure (ownership of block holders, institutional investors, managers and outsiders).

2.6 Beyond the Contractual Approach

The theoretical framework of the cognitive approach is based essentially on Stewardship Theory, Human Capital Theory, Resource and Competence Based Theory, Positive Entrenchment Perspective and Power Circulation Model.

The Stewardship Theory supposes that managers act as responsible stewards of the assets they control. This theory is an alternative view of agency theory, in which managers are assumed to act in their own self interests at the expense of shareholders (Barney & Hesterly, 2008, Davis et al., 1997, Donaldson & Davis, 1991). According to the stewardship theory, the insiders exercise effective control on the managers because they have easy access to crucial information and they know deeply the company conditions and partners. In addition, the CEO who are at the same time chairman of the board, are not necessarily opportunists. On the contrary, they may be able to improve decision quality and to reassure the investors (via the common vision and the unity of supervision).

The Human Capital Theory developed by Becker (1964) is a modern extension of Adam Smith' explanation of wage differentials between employees. In practice, education, experience and tenure are the principal indicators of human capital.

The Resource Based Theory claims that the firm possesses a bundle of valuable resources which confer it a competitive advantage (Penrose, 1959; Rumelt, 1984; Wernerfelt, 1984). The key resource is the TMT competence. This latter is neither imitable nor substitutable (Barney, 2001; Grant, 1991).

The positive entrenchment perspective affirms that the entrenchment strategies are not destructive of the firm value. The entrenchment allows evading the short-term constraints imposed by the shareholders. Also, the entrenchment can provide the necessary serenity for managers to make long term investments and to increase their social networks which are beneficial for the firms (Castanias and Helfat, 1992; Garvey and Swan, 1994).

The power circulation model assumes that the managers may not hold for long period their power due to the obsolescence of their programs (Ocasio, 1994).

Moreover, the cognitive theory favors the board of great size because they generate cognitive conflicts and competitor political coalitions which are able to limit the CEO power. In this regard, the cognitive conflicts should develop the firms' organizational learning.

According to the cognitive approach, the TMT age and tenure are no longer considered as entrenchment vehicle but as TMT firm-specific human capital (Le et al., 2012). The entrenchment indicators can be regarded as vehicles of skills acquisition (Zingales and Rajan, 1998).

According to the stewardship theory, the oldest, tenured and homogenous TMT are not necessarily opportunists. Indeed, the relationship between the TMT and the shareholders is not hostile anymore but friendly. Their objectives are convergent. They aim to ameliorate the firms' competitiveness. The origin of the conflicts between managers and shareholders can result from the difference of mental and cognitive perceptions: this difference can be translated into organizational learning: source of efficiency (O'Sullivan, 2000; Wirtz, 1999). The board is no longer supposed to control the managers but to support and help them. The board's role is to develop the human capital and to promote the best work conditions and not to constrain the managers (Tainio, 2001). The resource dependence theory suggests that boards are in a prime position to contribute to the strategic decision

making process by providing links with external environments and access to valuable resources (Hillman & Dalziel, 2003)

Thus, board composition and ownership structure which are supposed to reflect the board power; do not necessarily have a significant effect on the TMT characteristics. At this level, the managers' attributes are analyzed from the point of view of human capital and not from the entrenchment perspective. The governance effectiveness must not be perceived in terms of board characteristics but in terms of his contribution in developing human capital. Thus, it's not necessarily to fulfill the standards of good governance (in the sense of contractual approach) so that the company can enhance his human capital. The older, more tenured and homogenous TMT may have a high level of qualification which positively affects the companies' incomes. Also, the younger, recent and heterogeneous TMT may be preferred when referring to the cognitive considerations. In fact, these managers are generally more adventurous and innovators. So, they can provide a rich cognitive contribution for their firms.

In sum, the TMT tenure and heterogeneity have double edged cognitive implications. The long tenure may be associated with efficiency, reduced conflict, stronger social networks and greater knowledge of organizational resources (Chen, 2011). In the same time, the longer tenure has some negative effects like the status quo, the passive decision making and the disconnection from the outside sources of information (Chen et al., 2010). On the other hand, compared to older managers who are less risk oriented and more greatly concerned with financial and carrier security, the younger managers are associated with better learning ability and reasoning memory (Hermann & Datta, 2005). Also and regarding the cognitive considerations, heterogeneity enhances cognitive resources, problem solving capacity and ability to change but may increase potential conflict and slows down decision making (Keck, 1997).

Based on the presumptions of the cognitive theory, we can issue our third hypothesis:

Hypothesis 3: The TMT characteristics are not necessarily related to the board effectiveness (in the contractual meaning).

3. Research Methodology and Results

To determine the effect of the board on the TMT characteristics, we propose to employ a quantitative approach that consists in two stages: First the K-Means Clusters are used to get homogeneous groups of TMT starting with their demographic features. Second a discriminating analysis is performed by regressing the discrete variable generated by the typology (in the first step) on the variables of governance (Groups of TMT = f (Variables of governance)). The data relate to 274 Most Admired American firms (Note 1)

Table 1 describes the firms' sectors and Table 2 presents the variables used in the analysis.

Table 1. Sectors of activities of firms

Sector	Number of firms	Percentage	Cumulative Percentage
Basic Materials	128	5,8	5,8
Conglomerates	296	13,5	19,3
Consumer goods	224	10,2	29,6
Healthcare	552	25,2	54,7
Industrial Goods	680	31,0	85,8
Technology	312	14,2	100,0
Total	2192	100,0	

It's clear that the industrial goods sector is the most frequent, then come the healthcare and the technology sectors.

Table 2. Variables of the study

<i>Variables</i>	<i>Measures</i>
Dependent Variables: TMT Attributes	
Demographic characteristics	
	Average TMT Age
	Average TMT Tenure in current position
	Average TMT Tenure in the firm
Demographic Heterogeneity	
	Heterogeneity of age in the TMT (age max - age min)
	Heterogeneity of tenure (in current position) in the TMT
	Heterogeneity of tenure (in firm) in the TMT
Independent Variables : Board Characteristics	
Board Composition	
Board Size	Number of directors in the board
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 majority individual shareholders / Board Size
Percentage of institutional shareholders in the board	Number of institutional shareholders / Board Size
Ownership Structure	
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 majority investors / Total number of shares in circulation
Institutional ownership	Number of shares held by the institutional investors / Total number of shares in circulation

Step 1: Results of Non Hierarchical Classification (K – Means Clusters)

The K–Means Clusters is one of the non hierarchical typology. It is suitable for the large samples (> 200 observations). It is faster and more economic than the hierarchical classification. In general, the objective of the typology is to classify the TMT in homogeneous groups starting with a set of metric variables (demographic characteristics). The typology provides groups of TMT with similar demographic attributes. Thus, it will be possible to create a new qualitative variable indicating for each TMT its group membership. This new variable will be the dependent variable in our later discriminating analysis.

With reference to the demographic attributes of TMT (age, tenure in the current position and in the firm) a classification into dynamic groups yields the results indicated in table 3 and 4.

Table 3. Final cluster centers

	<i>Cluster</i>	
	1	2
Age	52,7	55,5
Tenure in current position	3,0	6,7
Tenure in firm	8,3	21,0
Number of cases	1754	438

Table 4. ANOVA

	<i>Cluster</i>	<i>Error</i>	<i>F</i>	<i>Signification</i>		
	<i>Mean Square</i>				<i>DF</i>	<i>Mean Square</i>
Age	2729,71	1	16,76	2190	162,91	0,00
Tenure in current position	4720,41	1	10,49	2190	449,99	0,00
Tenure in firm	55883,18	1	13,48	2190	4146,59	0,00

The algorithm converged and led to the emergence of two classes on the basis of the three demographic attributes of managers. This algorithm has significantly contributed to the typology (according to the table 4 of the ANOVA). Table 3 shows that the 1st class includes the younger and the less tenured managers while the older managers with a longer tenure belong to the 2nd class.

The same method of classification is adopted but this time we started with the demographic heterogeneity attributes (heterogeneity in terms of the age, tenure in the current position and tenure in the firm). The TMT are then classified into two main classes: the 1st class includes more heterogeneous TMT than the second (Table 5). Table 6 shows the relevance of variables used.

Table 5. Final cluster centers

	<i>Cluster</i>	
	1	2
Heterogeneity of the age (1)	17	14
Heterogeneity of tenure in the post (2)	13	6
Heterogeneity of tenure in firm (3)	27	10
Number of cases	598	1594

Table 6. ANOVA

	<i>Cluster</i>		<i>Error</i>		<i>F</i>	<i>Signification</i>
	<i>Mean square</i>	<i>DF</i>	<i>Mean square</i>	<i>DF</i>		
(1)	4591,34	1	37,29	2190	123,11	0,00
(2)	22445,82	1	40,85	2190	549,48	0,00
(3)	132656,05	1	31,61	2190	4196,68	0,00

We suggest, then, to create two new qualitative variables that indicate the group membership of each TMT. The 1st variable reflects the managers' experience and the second one their level of heterogeneity. These two variables are named respectively "exp" and "het". The former takes the value 1 if the TMT belongs to class 1 of the first classification and takes the value of 2 otherwise. Similarly, "het" takes the value 1 if the TMT belongs to the class 1 resulting from the second classification and takes the value 2 otherwise.

Finally, we proceeded to create a third interactive discrete variable named "exphet" which is the product of the two qualitative variables resulted from the classifications previously undertaken ("exp" and "het"). Evidently "exphet" presents three modalities: 1, 2 or 4. The 1st class corresponds to the younger, more recent and heterogeneous TMT. The 4th comprises the older, more tenured and homogeneous one while the 2nd includes the moderate values.

Step 2: Results of Discriminating Analysis

The fundamental principle of the discriminating analysis is to regress the qualitative variable generated by the typology ("exphet") on the quantitative variables of governance. It demonstrates the board characteristics which have a discriminating power: in other terms which maximize the separation between the groups of TMT.

We will present the discriminating analysis outputs which used the synthetic variable "exphet" as an endogenous variable and the variables of governance as descriptors.

First and in order to determine the discriminating variables, equality tests of Mean scores between the three groups are used (Table 7).

Table 7. Tests of equality of group means

<i>Board characteristics & Ownership Structure</i>	<i>Wilks' Lambda</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig</i>
Board Size	0,99	3,53	2	2189	0,03
Duality	1,00	0,39	2	2189	0,67
Percentage of outsiders in the board	0,99	6,33	2	2189	0,00
Percentage of majority individual shareholders in the board	0,98	23,64	2	2189	0,00
Percentage of institutional shareholders in the board	1,00	0,03	2	2189	0,97
Outsiders' ownership	0,99	2,38	2	2189	0,09
Managerial ownership	0,981	21,45	2	2189	0,00
Majority ownership	0,99	15,94	2	2189	0,00
Institutional ownership	1,00	0,52	2	2189	0,59

Table 7 shows that most of the board characteristics (regardless of duality and the presence of institutional investors in the board and in the capital) play a key role in discriminating between the different classes and therefore in selecting the demographic attributes of TMT.

In order to identify the characteristics of the different groups of TMT, we resorted to the descriptive statistics of the predictor discriminating variables (incorporated in Table 8).

Table 8. Univariate statistics for each group

	<i>Mean</i>	<i>Standard Error</i>
"exphet"		
1		
Size board	10,53	2,89
Outsiders' Percentage	,79	,10
Majority shareholders percentage (individual)	,06	,10
Outsiders' ownership	,31	,31
Managerial ownership	,11	,14
Majority ownership	,08	,14
2		
Size board	11,24	2,91
Outsiders' Percentage	,80	,09
Majority shareholders percentage (individual)	,03	,07
Outsiders' ownership	,28	,28
Managerial ownership	,06	,10
Majority ownership	,04	,11
4		
Size board	10,83	2,58
Outsiders' Percentage	,77	,12
Majority shareholders percentage (individual)	,049	,10
Outsiders' ownership	,25	,25
Managerial ownership	,09	,13
Majority ownership	,07	,14

4. Discussion

4.1 Comparison between Class 1 and the Other Two Classes (2 and 4)

According to the descriptive statistics, it seems that class 1 (the younger, less tenured and heterogeneous TMT) compared to the other classes (2 and 4) is characterized by:

- A more reduced size of board
- A more noticeable presence of outsiders and majority investors
- A more pronounced ownership of the outsiders, managerial ownership and majority ownership.

We conclude that class 1 is the best governed. In other words, the less entrenched TMT run the firms which correspond to the standards of good governance as determined by the contractual theory.

We can also note the non-discriminating role of duality and institutional investors which seem to be inactive in the choice of managers. This contradicts the assumption of activism and the effective control of the institutional investors (Pound, 1988). In addition, the results show the neutral effect of separating the functions of the CEO and the chairman of the board on the TMT demographic characteristics.

Apart from these three parameters, all the other mechanisms of governance are proved to be discriminating. The relevant presence of outsiders in the board and in the capital seems to be one of the levers that reduce the large scale of the managers' power ($F = 6, 33$; $F = 2, 38$; $p = 0$).

A smaller size of the directors' board is associated with a less powerful TMT (younger, less tenured and heterogeneous: $F = 3, 53$; $p < 0,05$). This corroborates the agency theory ideas which privileged the small board because they are more vigilant in the control and they involve lower coordination expenses.

The majority shareholders have a significant explanatory power ($F = 23, 64$; $F = 15, 94$; $p < 0, 01$). The Block holders seem to intervene seriously in choosing the TMT. They are more inclined to promote less entrenched managers (Jensen and Meckling, 1976; Shleifer and Vishny, 1986).

Finally, the ownership of directors and managers has a discriminating role in favor of the less powerful TMT, which support to the theory of convergence of interests ($F = 21, 45$; $p < 0, 01$). This theory stipulates that the managers who invest in the capital tend to maximize the wealth of investors since they themselves make a profit.

According to empirical results, we can confirm H_1 and H_2 which assume that the way how to govern firms has an impact on the demographic features of the managers, and that the more efficient the board of the firm is, the lower the chance of the TMT would be to strengthen their position. The board in a firm regarding better governance may consider choosing TMT who are younger, heterogeneous and have shorter tenures because these TMT are easier to control (Paquerot, 1997).

However, this conclusion must be carried out with vigilance because these results did not have a great confirmatory power since they are derived from general trends based on descriptive and exploratory statistics. In addition, we do not assume that class 1 corresponds to the standards of good governance while the other classes do not but we pointed out that class 1 seems to be the most consistent as it has characteristics which head towards the right direction.

Generally speaking and at this level, the results are consistent with the assumptions of the classical theory of agency. However, it is certainly unfair to reject categorically the ideas of cognitive approaches. It may be the case that the firms which afford better conditions of governance opt for TMT of class 1 for cognitive reasons and not for considerations of entrenchment as assumed by the agency theory. In fact, these boards prefer young, recent and heterogeneous TMT because they are more innovative, open and flexible.

4.2 Comparison between Class 2 and Class 4

The arguments advanced by the contractual theory of governance explain perfectly the results which are related to the transition from group 1 to groups 2 and 4. But they are unable to explain that from group 2 to group 4. Seemingly, the relationship between governance and human capital is not monotonous and it is not linear since the best governed firms correspond to the extreme cases (group 1 and 4) while the moderately powerful TMT are associated with the lowest level of governance. The comparison between class 2 and class 4 supports rather the cognitive theories. Thus, the best controlled firms can allow and even enhance higher levels of entrenchment and managers' power (oldest, tenured and homogenous TMT).

In sum, the theoretical arguments of both the contractual and cognitive approaches may be used to interpret our results. The effect of the board efficiency on the degree of managers' entrenchment seems to be of quadratic form. Firstly (the transition from class 2 to 4), the ideas of the cognitive, human capital, stewardship and the positive entrenchment theories may be appropriate. Secondly (the transition from class 1 to class 2 and 4), however, the arguments of the detrimental entrenchment theory prevail.

5. Conclusion

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

To do this, an empirical approach of two stages has been conducted. Firstly, we extract via the clustering method, three groups of TMT which have different demographic attributes. Secondly, we use a discriminating analysis to determine the main characteristics of the board which influence the choice of the TMT features. The 1st step leads to three different classes: a first class which comprises the youngest, less tenured and heterogeneous TMT, a second class that consists in average values and a third class which includes to the oldest and most

homogeneous and tenured TMT. The discriminating analysis revealed the significant effect of governance variables (excluding the duality and institutional investors) in the separation between these three groups already identified. A review of the descriptive statistics revealed the following trend: the more the firms comply with the principles of good governance (according to the contractual theory), the more their TMT would be young, recent and heterogeneous. Thus, the assumptions of the classical agency theory of entrenchment seem to be valid. But a more detailed analysis of our results highlights the probable "non-linearity" of the effect of governance on TMT attributes. Therefore, we must also pay a close attention to the cognitive considerations to understand the TMT issue. The results confirm the third hypothesis that assumes that the TMT demographic traits are not tied systematically to the board effectiveness. Only, the contractual approach failed to explain the TMT structure. Whereas, the strategic and the cognitive arguments can provide undeniable lesson to understand the TMT issue.

6. Research Contribution

The difficulty and at the same time the contribution of this paper that it has considered two fields of research: the financial literature (the "corporate governance" concept) and the strategic management (the "TMT" issue). Then, this paper has emphasized the relevance of the cognitive approach assumptions. Also, it proposed a relationship of quadratic form between the governance structure and the TMT attributes.

The main contribution of this paper for corporate governance and management is that: the board choice of TMT is not systematically based on entrenchment arguments but also on cognitive considerations. In other words, independently of governance efficiency according to disciplinary approach criteria, the board may prefer the more tenured and homogenous managers because they are more efficient and united in competitive environment (Keck, 1997). Also, the board may be inclined to favor the younger and heterogeneous managers who are less entrenched with more knowledge and skills to solve complex problems in dynamic environment (Castro *et al.*, 2009, Li and Harrison, 2008). In fact, the more diverse TMT have a broader range of perspectives and they are able to access to external resources and to enhance the capabilities in dealing with complexity and ambiguity (Haynes and Hillman, 2010).

7. Research Limits

However, this paper presents certain limits. In spite of the obvious contribution of the demographic approach, several authors consider it as limited and unable to measure with precision the TMT competence. Measures focusing on the process and the cognitive models may be more reliable in this respect (Markoczy, 2000; Carpenter *et al.*, 2004; Oppong, 2014). Therefore, it would be interesting to enrich the measurement of human capital by considering other demographic attributes (such as education, experience and functional specialty). Also, adding other governance characteristics can provide better insights in this matter. Furthermore in the future researches, the results will be more reliable if we introduce some moderating factors such as the type of environment or the firm objective and strategy in dealing with the relationship between the TMT attributes and the board characteristics.

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Note

Note 1. It is a random sample. It is constituted by the Most Admired American Firms of "Fortune Magazine" for which all data are available.

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