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TOP-MANAGEMENT-TEAMS' COMPENSATION PACKAGES

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Abstract

The purpose of this work is to study on compensation packages for top management teams. The analysis focuses on the annual pay plus change in equity portfolio value, how its level, pay-performance sensibility and structure vary across managerial categories, and the impact of these variations on corporate performance. Using a multilevel mixed-model approach on 589 companies from the S&P 1500 between 1998 and 2005, the evidence shows that CEO compensation packages are not isomorphic to those of non-CEO executives, while on average no significant differences are found between divisional and corporate executives. Despite this, the random effects show that differences between two categories vary across companies, with shareholder return been lower for companies where differences between corporate and divisional managers are greater.

El propósito del presente trabajo es estudiar los paquetes de incentivos para ejecutivos de la alta dirección. El análisis focaliza en el pago anual más el cambio en el valor del portafolio, cómo el valor, sensibilidad pago-performance y estructura de compensación varían a través de las categorías de ejecutivos, y la importancia de estas variaciones en la performance de la empresa. Aplicando un modelo de efectos mixto para datos anidados sobre 589 compañías del S&P 1500 entre los años 1998 y 2005, la evidencia muestra que los paquetes de compensación de los CEOs no son similares a los de otros ejecutivos, mientras en promedio no se detectan diferencias significativas entre ejecutivos divisionales y corporativos. A pesar de esto, los efectos aleatorios muestran que las diferencias entre estas categorías varían a través de las diferentes compañías, con el retorno para los accionistas siendo menor en compañías donde las diferencias entre ejecutivos corporativos y divisionales son mayores.

Keywords: Executives, Incentives, Performance, Divisional Firms
JEL codes: L25, M12, M4, M52

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1. Introduction

As large corporations grow in the business world, management has increasingly become a “shared activity, extending well beyond the chief executive” (Hambrick, 1995 p.111). Top Management Team (TMT) members, as a result, have become more prominent. The characteristics of their jobs differ from those of CEOs and among themselves. These differences among members sometimes create fragmentation within TMTs, making them more of a “group” than a “team” because of their low level of coordination, interdependency (Hambrick, 1994; 1995) and how they deal with the necessary conflicts (Eisenhardt & Bourgeois III, 1988; Eisenhardt, Kahwajy & Bourgeois III, 1997). Characteristics of the compensation system for this group, such as individual measures of performance or differences in compensation level between echelons, might enforce this fragmentation. The research question for this paper is how compensation packages vary among TMT members, whether corporate characteristics moderate these differences, and how differences among TMT members’ compensation package affect corporate performance.

This study contributes to the literature on executive compensation and more specifically adds to the research on TMT rewards. While there is substantial research on executive compensation, mainly at the CEO level, the subfield of TMT is considered still in its infant stage and therefore has not been extensively explored (Ang, Lauterbach & Schreiber, 2002a; Bebchuk, Cremers & Peyer, 2007; Brown, Matolcsy & Wells, 2007; Carpenter & Sanders, 2004; Carpenter & Sanders, 2002; Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005). TMTs are also as an “importantly and often debated component” of the literature on corporate governance (Core, Guay & Larcker, 2003a p. 27). Lambert, Larcker and Weigelt (1993) emphasize the need to develop basic knowledge on internal wage structure, while Hambrick (1995) encourages the development of further research on TMTs, highlighting incentives as key to understanding their fragmentation. Both empirical studies and development of formal models are needed (Ang et al., 2002a; Carpenter & Sanders, 2002). Extensions from tournament and agency theories predict that differences in compensation level and links to corporate performance among top executives increase corporate performance, but these arguments do not take into account the fact that executives are nested in an interdependent team (Carpenter & Sanders, 2002).

Practitioners also highlight the importance of TMT compensation. In a survey study, Hambrick (1995) found that teamwork deficiencies such as destructive rivalries and groupthink are among the five most important problems for CEOs. Empirical evidence also shows economic implications of TMT compensation such as aggregate compensation of the top-five executives increasing from 5 percent to 10 percent of annual earnings between 1993 and 2003 (Bebchuk & Grinstein, 2005). Further evidence suggests that while TMT compensation, rather than CEO compensation, has been the factor determining future performance (Carpenter & Sanders, 2002; Henderson & Fredrickson, 2001), the CEO's proportion of aggregate TMT compensation has continued to increase during the last decade (Bebchuk et al., 2007).

This study extends the previous academic literature in several ways. It contributes by analyzing the potential impact of corporate characteristics on corporate and divisional managers' compensation. This paper also contributes by using multilevel models which become an excellent tool for analyzing nested models such as executive level compensation within TMTs. While multilevel research began to be more prevalently used in the mid-1990s, it was rarely utilized in prior corporate incentive literature (Ang, Slaughter & Ng, 2002b; Loeb, 2003). This methodological contribution explicitly shows the possible fixed and random effects, as well as the cross-level characteristics of executives and companies that explain the variance in TMT compensation across companies. Methodologically, previous works evaluated differences in compensation level, structure and sensitivity across companies by comparing the members from one category to the members of another category (e.g., Ang et al., 2002a; Carpenter & Sanders, 2004; Siegel & Hambrick, 2005). Aggarwal and Samwick (2003) and Murphy and Oyer (2001) have extended this analysis by taking into account the executive or company effect but did not consider the nested characteristic of both effects simultaneously.

The sample for this study was obtained from a new disclosure of information on business segments (SFAS 131) that allows for better disclosure of information based on a managerial approach (Berger & Hann, 2003; Berger & Hann, 2007; Botosan & Stanford, 2005). Finally, in addition to bonuses or other partial compensation (Ang et al., 2002a; Bushman, Indjejikian & Smith, 1995; Carpenter & Sanders, 2004; Siegel & Hambrick, 2005), this study follows Core, Guay and Verrecchia (2003b) and considers the total compensation package, which includes the change in portfolio value held by the executive.

This is important because of the increasing use of equity-based compensation (Bebchuk & Grinstein, 2005; Core et al., 2003b; Hillegeist & Penalva, 2003).

The evidence in this study shows significant compensation differences between the CEO and other members of the TMT, but not significant differences between corporate and divisional managers. Moreover, consistent with prior behavioral studies, the results suggest that the greater the difference between these two categories, the lower the market performance of the company.

The following section describes the theoretical background of and develops the main hypotheses for this study. Next, the section on research design details the selection of the samples, the variable measurements and statistical methodology, and follows with the findings. This paper closes with a summary of the results and conclusions, as well as recommendations for further research.

2. Theoretical background and hypothesis

The TMT is comprised of the most influential executives in the company. The TMT is responsible for the formulation and implementation of the corporate strategy. There is no predetermined number of members, although it usually ranges from five to twenty, with a mean of ten members including the CEO (Hambrick, 1995; Siegel & Hambrick, 2005). TMT members are usually classified as the CEO, those with oversight authority of the entire firm—corporate managers (CFO, CIO, etc)—and those with divisional responsibility—divisional managers (Aggarwal & Samwick, 2003; Hambrick, 1995; Main, O'Reilly III & Wade, 1993; Murphy & Oyer, 2001). Main, O'Reilly and Wade (1993) find that 28% of the executives who reported to the SEC as “officers of the company” are divisional managers and following 23 interviews with chief executives, Hambrick (1995) concludes that TMT members are equally distributed between corporate and divisional managers. Aggarwal and Samwick (2003) use similar classifications and identify 19% of reported executives as divisional managers and 26% as corporate managers. All of these classifications recognize that there is an overlap among executives holding both types of positions.

As organizational goals cascade down the hierarchical structure, the incentive system has to align the interests of the TMT with those of the CEO and the shareholders (Carpenter & Sanders, 2002), while simultaneously accounting for individual job characteristics.

Previous research indicates that the compensation system might be characterized by pay level, pay structure and performance measurement (Murphy, 1998). Murphy (1998) shows that the total amount of reward, compensation structure, and weight allocated to each performance measure can vary significantly based primarily on job characteristics. This paper analyzes how each of these three elements of the incentive system differs across the three categories of executives and how these differences affect corporate performance.

Pay level

The most important issue related to pay is not so much the absolute level but the differences between hierarchies. This gap affects the sociopolitical dimension of the company with consequences for status, power and influence. It affects how people pursue their own interest and contribute to organizational goals (Henderson & Fredrickson, 2001; Mahoney, 1979).

The literature on tournaments (Lazear & Rosen, 1981; Rosen, 1986) considers hierarchical organization to be an effective incentive system (Ritter & Taylor, 1997). The idea is that the difference in income between one echelon and the next boosts competition so that managers exert greater effort to be promoted to a higher-paid position (Conyon, Peck & Sadler, 2001). Furthermore, this theory predicts that the greater the gap, the higher the effort made by the agents and, consequently, the better the corporate performance. Previous empirical literature on the TMT supports this prediction (Bingley & Eriksson, 2001; Eriksson, 1999; Heyman, 2005; Main et al., 1993; Prendergast, 1999).

In contrast, the political economy and behavioral theories show that the disparity of incomes reduces performance because it discourages cooperation and promotes self-serving efforts and sabotage (Akerlof & Yellen, 1990; Balkin & Swift, 2006; Carpenter & Sanders, 2004; Dye, 1984; Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005). Additionally, if the executives perceive their compensation as unfair, they decrease their efforts, thereby negatively impacting corporate performance (Akerlof & Yellen, 1990). This team player model has its disadvantages, however, because it offers fewer incentives for increased executive effort (Ang, Hauser & Lauterbach, 1998).

While the argument in favor of wider or narrower gaps may be disputed based on the previous arguments and is probably contingent upon coordination needs of each company

(Henderson & Fredrickson, 2001), the fact that there is a gap between hierarchies, such as between CEOs and non-CEO executives, is broadly accepted and not exclusive property of tournament theory (Main et al., 1993 :629). Thus, CEOs are expected to have a higher compensation than other TMT (Aggarwal & Samwick, 1999b; Ang et al., 2002a; Ang et al., 1998; Carpenter & Sanders, 2002; Conyon et al., 2001; Lambert et al., 1993; Main et al., 1993; Murphy, 1985).

When considering the impact on future performance, the variation in pay among non-CEO members of the TMT is even more important than the gap between CEOs and non-CEOs (Carpenter & Sanders, 2002; Henderson & Fredrickson, 2001), although the research on this pay disparity is still underdeveloped (Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005). Rigorous pyramid structures are not common in large business organizations, and corporate positions in one company, such as treasurer or general counsel, might be equivalent to divisional managers (Mahoney, 1979). Conyon, Peck and Sadler (2001), working with one hundred of the largest publicly traded companies in the UK between 1997-1998, consider divisional manager as a higher level than corporate manager but report only weak evidence of higher total compensation for divisional managers over corporate managers. Thus, the relationship between corporate and divisional managers still remains an empirical question.

Previous literature considers diversification as a key contextual variable that affects not only the compensation for divisional managers but also for CEOs (Geletkanycz, Boyd & Finkelstein, 2001). The literature on tournament theory considers the number of segments as a proxy for numbers of participants and predicts that the gap between CEO and other executives will increase with the number of business segments (Henderson & Fredrickson, 2001; Main et al., 1993). The literature on information-processing demand suggests that the CEO's pay level can be explained by the information-processing skill required for the job. This demand is measured by the number of subordinates and divisions for which the CEO is in charge (Henderson & Fredrickson, 1996). The degree of diversification has been similarly used as a proxy for managerial complexity (Cordeiro & Veliyath, 2003; Finkelstein & Hambrick, 1989). These approaches indicate that, for a fixed number of segments, the degree of diversification will be positively related to the gap between CEOs

and other TMT members. Finally, behavioral theory predicts that greater unrelated diversification widens the gap between the CEO and other executives because the lower coordination needs diminish the consequences of uncooperative behavior (Henderson & Fredrickson, 2001).

H1a The pay level for TMT members becomes smaller compared to the CEO's level as the degree of company diversification increases.

H1b The pay level for TMT members becomes smaller compared to the CEO's level as the number of company segments increases.

A subsequent hypothesis suggests that the number of segments and the degree of diversification can be considered determinants of the corporate and divisional managers pay gap. On the one hand, Talent screening models (Darrrough & Melumad, 1995) show that more skilled and better paid executives are hired for more diversified divisions, while managers in charge of businesses more related to the CEO's background are less skilled. Following the screening models, it is understood that the pay level of divisional managers is higher in more diversified companies and the likelihood that corporate managers have responsibility for their respective functional areas across all the segments is lower. Consequently, the pay level gap between divisional and corporate managers increases as the degree of diversification increases. On the other hand, building on the compensation-size sensibility argument and the information-processing argument (Henderson & Fredrickson, 1996; Kostiuk, 1990), given the degree of diversification, the higher the number of segments, the greater the compensation for the corporate manager with responsibilities across more segments, and the lower the compensation for the divisional manager with divisions of relatively smaller size.

H2a The pay level for divisional managers compared to that of corporate managers is positively related to the degree of diversification.

H2b The pay level for divisional managers compared to that of corporate managers is negatively related to the number of segments.

Performance Measurement

Another important characteristic of any compensation system is the performance measurement to which compensation is tied. Jensen and Meckling (1998 p. 1) define performance evaluation as “the process of attaching value weights to various measures of performance to represent the importance of achievement on each dimension”. A poorly

defined measurement mechanism might harm the organization (Barnett & Cahill, 2006; Hauser, 1998), and if there are no appropriate performance metrics, it is usually better to pay a fixed salary (Holmstrom & Milgrom, 1991).

Unlike compensation-level predictions, which are basically grounded in tournament theory, predictions from the economic field highlighting to which performance measure the incentive system is tied are based mainly on agency theory. In this sense, the performance measurement system helps the principal understand the agent's behavior and determine whether performance is low because the agent wants to minimize effort, there is an exogenous shock, or the incentive contract is not attractive enough (Lambert, 2001). As a result, any performance measure that provides incremental information on agent actions should be considered when evaluating an agent (Feltham & Xie, 1994; Holmstrom, 1979).

Performance can be evaluated based on objective or subjective assessment, but it is rare to find mechanisms based only on one of these assessments. Most cases combine objective financial and non-financial measures with subjective assessment (Murphy & Oyer, 2001). Of the two, financial measures are more frequently used. Perry and Zenner (2001) find that 97% of companies use some financial measure of performance.

Previous studies distinguish financial performance measures at the divisional and corporate level (Abernethy, Bouwens & van Lent, 2004; Aggarwal & Samwick, 2003; Bushman et al., 1995; Keating, 1997; van Lent & Bouwens, 2006). As the purpose of this paper is to compare divisional and corporate managers, pay-performance sensibility will be assessed based on corporate performance measures that should be significant for managers at all levels (Aggarwal & Samwick, 2003; Ang et al., 2002a; Conyon et al., 2001).

Corporate measures are classified as accounting or market-based (Aggarwal & Samwick, 2003; Keating, 1997; Lambert & Larcker, 1987; Sloan, 1993). Accounting-based measures are considered an important shield against non-controllable events in the market (Sloan, 1993) but are criticized because they are easily manipulated (Healy, 1985). Market-based measures, also known as price-based measures, are not only considered forward-looking, but also summarize the opinion of a large number of analysts and investors, and so are considered less manipulatable. Following a broad set of prior literature (Aggarwal & Samwick, 2003; Core et al., 2003b; Davila & Peñalva, 2006; Sloan, 1993), both types of performance measure are being considered for this study.

Corporate performance is a good indicator of CEO performance because the CEO is responsible for the whole organization. This measure, however, becomes a noisier indicator of executive performance as one moves further down the organization where managers have responsibilities for smaller parts of the company and thus are more focused on their own performance (Bushman et al., 1995; Core et al., 2003a; Hambrick, 1995) or when a CEO monitoring the non-CEO executives on a daily basis relies more on subjective evaluation (Murphy & Oyer, 2001). The CEO must assign responsibilities to the TMT members through a division of labor. It is difficult to evaluate corporate managers based on their marginal contribution to the company because they are only partially responsible for the whole organization. Further, individual performance is better evaluated based on other non-financial measures or subjective assessments. Divisional managers, however, have primary responsibility for their own business, from which principals can obtain a more precise signal of performance. Consequently, empirical evidence supports that CEO incentives are more related to overall corporate performance (Aggarwal & Samwick, 2003; Ang et al., 2002a; Ang et al., 1998; Conyon et al., 2001), while divisional managers are more closely tied to their respective division's performance (Bushman et al., 1995; Hambrick, 1995; Murphy & Oyer, 2001). Despite this, it is noteworthy to mention that corporate performance retains some conditional information for corporate and divisional managers (Bushman et al., 1995; Hambrick, 1995) while at the same time reducing TMT fragmentation (Hambrick, 1995).

Regarding the comparison between corporate and divisional managers, Conyon and Sadler (2001) show divisional managers to have greater pay-performance sensitivity than corporate managers, but Aggarwal and Samwick (2003), working with ExecuComp information between 1993-1997, show the opposite relationship. Finally, Ang, Lauterbach and Schreiber (2002a) are not able to find a sizeable difference among executives below the CEO. Based on the controllability principle as previously mentioned (Aggarwal & Samwick, 2003; Bushman et al., 1995; Lambert et al., 1993), and despite the ambiguous results on pay sensibility of divisional versus corporate managers, it is possible to predict that the pay-corporate performance relationship will be lower for divisional managers than for corporate managers. This is because divisional managers have a more precise indicator of performance in their own business while corporate managers have broader

responsibility, and for most of them their unique financial measure is corporate performance.

H3a The pay-corporate performance elasticity is lower for the non-CEO than for the CEO.

H3b The pay-corporate performance elasticity is lower for divisional than for corporate managers.

In a survey-based study, Keating (1997) shows that the relative size of the division is positively related to the divisional manager's sensitivity to corporate performance in both market and accounting-based measures. It is logical to assume that, on average, the more segments in the company, the smaller the relative size of the divisions, and the lesser their link to corporate performance (Bushman et al., 1995). This suggests that the pay-corporate performance sensitivity for divisional managers will be negatively related to the number of segments. Additionally, as a mechanism to promote cooperation, previous literature predicts and shows a negative relationship between the divisional interdependencies and the use of divisional performance measures (Abernethy et al., 2004; Bushman et al., 1995; Murphy, 1985; Murphy & Oyer, 2001). Following these arguments it is expected that the more diversified the company, the lower the relationship between divisional compensation and corporate performance.

The pay-corporate performance sensitivity is lower for divisional than for corporate managers as the number of segments becomes larger.

H4a The pay-corporate performance sensitivity is lower for divisional than for corporate managers as the degree of diversification increases.

Pay structure

A final characteristic of compensation for this analysis is the structure of the compensation package. Many papers highlight the importance of considering the compensation structure for understanding executive behavior (Ang et al., 2002a; Jensen & Meckling, 1976; Lambert et al., 1993; Mehran, 1995; Sanders, 2001), and for understanding its relationship to organizational strategy and performance (Holthausen, Larcker & Sloan, 1995; Mehran, 1995). Executive compensation is generally comprised of six components: base salary, annual bonus, restricted shares and stock options granted during the year, long-term incentive plans, other benefits and shares, and stock-options held by the executive (Core et al., 2003b). Although most of these components are included in executive compensation package, not all of them are used in every case (Murphy, 1985; 1998).

It is important to note that there is not a mechanical relationship between prior pay-performance sensitivity and the proportion of fixed salary in the total package. Alternatively, low sensitivity to corporate performance for one category could be the result of a higher percentage of the compensation package attached to divisional or non-financial performance and discretionary evaluations.

Agency models between shareholders and CEOs assume delegation of decision rights to an executive who has greater skills, is better informed, and is more specialized. The problem arises because the principal cannot observe whether the manager is performing the required actions, and in many cases the principal does not know which actions are paramount to maximizing company value. As the asymmetry of information increases, the contract relies more on output-based mechanisms of control (Ouchi 1979; 1998), enabling the agent to choose the mechanisms that better contribute to the organizational goals. Empirical data suggests that the proportion of fixed salary in total compensation is inversely related to information asymmetry problems (Ang et al., 2002a; Bebchuk et al., 2007; Core et al., 2003a).

Information asymmetry is less for lower organizational levels where managers are closely monitored by CEOs and peers and have less discretion over their own activities. Incentives are viewed by agency theory as substitutes for monitoring (Holmstrom, 1982). Thus, increasing the level of monitoring reduces the performance-based components of compensation and, consequently, increases the proportion of fixed salary to total income. Based on these assumptions and evidence from empirical literature (Ang et al., 2002a), it can be predicted that the proportion of fixed salary to total income will be lower for CEOs than for corporate and divisional managers.

Although previous research on the banking industry is not able to find significant differences among executive compensations below the CEO level (Ang et al., 2002a), when comparing corporate managers to divisional managers, the latter have more specific information about their line of business or geographical area, increasing information asymmetry and reducing the possibility of close monitoring. Furthermore, corporate managers are generally staff positions, while CEOs or divisional managers retain decision rights, thereby reducing the amount of control that corporate managers have over their own

performance. Based on the previous arguments, I predict that fixed salary as a percentage of total income is lower for divisional managers than for corporate managers.

H5a The ratio of fixed salary to total income is lower for CEOs than for divisional managers.

H5b The ratio of fixed salary to total income is lower for divisional managers than for corporate managers.

3. Research design

Sample selection

I obtain the sample from Wrds-Compustat, specifically from Compustat Segments and Compustat Executive Compensation (ExecuComp). The Compustat Segments database includes all companies that file with the SEC. Information for the period of this analysis is reported under SFAS No. 131 (from 1998 to 2005). This statement requires companies to report segment information based on the "management", or operating segment, approach rather than the "industry segment" approach required under SFAS No. 14. Furthermore, SFAS No. 131 requires disclosures about the company's products and services, major customers and geographic areas. Thus, the information on Compustat Segments is reported for business and geographical diversification.

ExecuComp includes the S&P 1500 plus companies removed from the index that are still trading, as well as others included at the client's request. The S&P 1500 contains larger firms, with stronger returns and smaller growth opportunities than the population of firms in the capital market. See Cadman, Klasa and Matsunaga (2006) for a review of possible consequences of these characteristics. Executive compensation reported by companies includes only the five highest-paid executives each year, thus the definition of TMT is restricted to these five executives but is commonly considered a representative sample of a TMT (Carpenter & Sanders, 2002; Henderson & Fredrickson, 2001; Main et al., 1993).

The sampling process is reported in TABLE 1. It starts with the sample of companies in Compustat Segments. The query requests all the information for fiscal years (YEAR) 1998 to 2005. This produces 12,220 companies. In order to avoid changes in segment definition due to restatements, the fiscal year of information (YEAR) is made equal to the fiscal year of the source used to collect segment data (SRCYR). Next, I remove segments with ID (SID) equal to "99" and segments with negative sales to eliminate the information about

eliminations, adjustments and unallocated information. The final step for this first stage is to delete all the companies that reported less than two segments in both diversification types, i.e. companies with one segment in both diversification type or one segment in one type of diversification and no reported segments in the other type. This process yields 214,979 Firm-Segment-Year observations that derive from 69,957 Firm-Segments in 10,220 firms.

The next query required collecting information from ExecuComp for the original 12,220 companies (GVKEY) during the same period. The data from multiple grants in the same year is aggregated obtaining a unique annual observation for each executive in each company. This yields information on 18% (2,213) of companies in the Compustat Segment database, and after removing managers without IDs it results in 81,627 Firm-Manager-Year observations, which involves 21,054 Manager-Firm observations in 2,175 companies.

With both Segment and ExecuComp databases cleaned, the combination yields a dataset of multi-divisional companies with information in ExecuComp. This dataset was composed of 69,342 Firm-Segment-Year observations and 81,207 Firm-Manager-Year observations in 2,081 firms.

The next step is to identify those managers who are CEOs, those in a corporate position - CFO, general counsel, CIO, etc – and those in charge of a specific segment. This classification scheme is similar than that used by Aggarwal and Samwick (2003) and Conyon and Sandler (2001). CEOs are already identified by year in ExecuComp (CEOANN), thus the first step is to manually identify all the other managers' titles (TITLEANN) that most likely belong to corporate managers (Aggarwal & Samwick, 2003).

There is no database link between a specific segment and the executive in charge of it. Thus, the next step consists of manually reviewing all the annual reports for segments and executives. When the segment name (SNAME) matches the manager's title description (ANNTITLE), the manager-company identification code (CO_PER_R) is assigned to the segment linking the ExecuComp and Compustat Segment databases at the segment level. In addition, a dummy variable is created for cases where there is doubt about the match between the title and the segment name or there is more than one manager potentially in charge of the segment. Additional corporate managers are also identified during this

manual review by considering the information about the companies and its segments. This process produces a new dataset of executives in multi-divisional companies that can be identified as CEOs (12,607 annual observations), corporate managers (19,777) and divisional managers (3,141), taking into account only managers classified unequivocally and in charge of no more than one segment.

A final refinement process is run on this new dataset. The first criterion removes executives with repeated executive codes (EXECID), executives with repeated executive code within the company (COPERR), and executives switching categories across the annual observations. In order to have a more balanced sample, the final step removes company-year observations without information on one of the executive categories – CEO, Corporate or divisional, thus at least three executives must be identified in order to include the company in the study (Ang et al., 2002a).

The final sample is comprised of 6,517 executive-year observations. Decomposition shows that CEOs account for 25% (1,649), corporate managers 39% (2,524) and divisional managers 36% (2,344) of the observations. These proportions display small changes when observing the executive levels without taking annual observations into account. For executives it produces 3,235, from which 21.5% are CEOs, 41% are corporate managers and 37.5% are divisional managers. These results are slightly higher than the almost 30% of divisional managers found in TMT literature (Main et al., 1993). These observations belong to 589 companies.

TABLE1-TABLE 1Panel B shows the distribution of the annual observations across years. The percentage distribution remains stable, with an increasing number of observations probably due to a more accurate reporting under the new SFAS 131 (Berger & Hann, 2003; Botosan & Stanford, 2005). Finally, the smaller sample in 2005 might be attributable to information not yet uploaded to ExecuComp and is not likely to affect the present findings and conclusions.

TABLE 2 analyzes the characteristics of the companies in the final sample versus companies without identified divisional managers. It shows that companies for which it is possible to identify a specific segment with an executive are usually larger, with higher returns and more diversification than the other companies reporting segments.

Incomplete data insignificantly reduces the number of observations for each analysis.

Variable measurement

APPENDIX 1 shows a summary of the main variables used in this study, including name, description, information's source, algorithm and unit of measurement.

The dependent variable of analysis is the compensation a manager receives during a year. Specifically, my interest is in how compensation level, structure and relationship to performance vary across managerial categories and impact of these variations on corporate performance. Similar to Core, Guay and Verecchia (2003b) this paper works with three level of compensation: The first is the sum of salary and bonus, which represents the "Total Cash Compensation" (TCC). TCC plus the value of restricted stock grants, stock option grants, long-term incentives paid and all other annual compensation gives the "Total Compensation" (TC). This is similar to the third level of compensation used by Conyon, Peck and Sadler (2001). The third measure is the "Change in Wealth" (CW), which involves the previous TC plus the change in portfolio value held by the executive. The change in portfolio comprises the number of shares and stock options at the beginning of year multiplied by the change in stock and stock option values during the year (Core et al., 2003b). The price of the stock options for each year is the value of the portfolio of stock options divided by the number of stock options.
$$\frac{([INMONEX]+[INMONUN])}{([UEXNUMEX]+[UEXNUMUN])}$$

To compare CW across categories and assess whether it is significantly different, CW is scaled by the CW of the corporate CEO (CW_scale) (Carpenter & Sanders, 2002; Henderson & Fredrickson, 2001). This construct is similar to the concept of pay disparity (Siegel & Hambrick, 2005). This new measure is more stable across companies and reduces the need to control for corporate characteristics that might affect the total amount of compensation for each category but not the relationship between them (e.g., corporate size). It is expected that the CW_scale is significantly different from the one for non-CEO members of TMT and is not significantly different when comparing divisional and corporate managers. This variable is positive and censored at zero, and this paper uses all the observations under the 99th percentile (Core et al., 2003b).

Hypotheses 3a and 3b deal with the relationship between CW and corporate performance. For this analysis, following Sloan (1993), Core, Guay and Verrecchia (2003b) and Davila and Peñalva (2006), the dependent variable is the unexpected change in wealth (UCW), the unexpected percentage change between actual and expected change in wealth. The expected compensation is assumed to be equal to the previous year's compensation for TCC and TC (Ang et al., 2002a; Core et al., 2003b; Davila & Peñalva, 2006), while for the CW, the lagged price performance is not a good proxy for portfolio expectation (Core et al., 2003b). Thus, "Expected Change in Wealth" (ECW) is the portfolio at the beginning of the year multiplied by an expected return of 10% (Core et al., 2003b). The assumption is that the difference in UCW should be related to changes in performance. For TCC and TC, the unexpected change is transformed using $\ln(1+\text{unexpected change})$. An alternative estimate for ECW is generated decomposing the expected return into a free rate of 4% plus a market premium of 6% times the company's stock β reported by the Center for Research in Security Prices (CRSP) at the beginning of the year. When the company's stock beta is not reported, it is assumed to equal one. However these are not reported because there is no significant difference between these measures and those using a fixed 10% return.

Hypotheses 5A and 5B predict behavior related to the fixed part of compensation. The dependent variable used for this analysis is the fixed salary of the executive divided by the ECW, TC and the TCC for the executive (Ang et al., 2002a; Murphy, 1998).

With respect to the explanatory variables, this research focuses on corporate measures of performance, executive categories, degree of diversification, number of segments, and across-level product terms.

Corporate financial measures of performance are usually classified as market-based or accounting-based. Market-based performance is usually approximated by shareholders' return (MktRtn) and is measured as the $\ln(1+\text{Annual Return})$ (Core et al., 2003b; Davila & Peñalva, 2006; Davila & Venkatachalam, 2003). "Annual Return" is the one-year total return to shareholders, including the monthly reinvestment of dividends (Canyon et al., 2001; Siegel & Hambrick, 2005). This figure is obtained from ExecuComp (TRS1YR). Accounting-based measures used in the literature are numerous: change in sales (Aggarwal & Samwick, 2003), return on assets - ROA (Ang et al., 2002a; Brown, Sturman &

Simmering, 2003; Campbell, Johnston, Sefcik & Soderstrom, 2007; Carpenter & Sanders, 2002; Conyon et al., 2001; Cordeiro & Veliyath, 2003; Davila & Peñalva, 2006; Henderson & Fredrickson, 1996; Lambert et al., 1993; Sloan, 1993), return on equity (Ang et al., 2002a; Henderson & Fredrickson, 1996; Lambert & Larcker, 1987), and change in earnings per shares scaled over the stock price (Core et al., 2003b). ROA is most widely used for managers (van Lent & Bouwens, 2006). Consequently, ROA is the accounting-based measure of performance in this paper and is estimated as Income before extraordinary items divided by average total Assets (from Compustat DATA18/((DATA6_t+DATA6_{t-1})/2)). Following prior literature (Core et al., 2003b; Davila & Peñalva, 2006; Sloan, 1993), rather than ROA change in ROA (ROA_Ch) is used because the dependent variable for the relationship between compensation and performance is the change in compensation.

At the executive level, the focus is on executive categories. Two dummy variables distinguish the three categories of executives. Following Murphy and Oyer (2001), the dummy variable (nonCEO) equals zero when the executive is either a corporate or divisional manager, while the dummy variable (DIV) equals one when the executive is a divisional manager. These categories are identified through the process described in the “Sample Selection” section.

At the corporate level, the hypotheses focus on the number of segments and the degree of diversification. The number of segments is just the count of segments reported by each company, for both business (BusSeg) and geographical (GeoSeg) segments in a given fiscal year. Regarding the degree of diversification, multiple diversification indexes are used in previous research to capture different aspects of diversification: the entropy index (Jacquemin & Berry, 1979), the concentric index (Caves, Porter & Spence, 1980; Montgomery & Wernerfelt, 1988), and the Hirschman-Herfindahl index. The Hirschman-Herfindahl index is the one used in this paper as it measures concentration of the corporate segments. The index is the sum of squares of each segment’s contribution to corporate sales, where this contribution is measured as segment’s sales divided by corporate sales. Degree of diversification (BusDiv) is assessed as one minus the Hirschman-Herfindahl index in order to transform the index into a diversification, instead of concentration, index. BusDiv takes a value of zero when a company is completely specialized in its primary industry and is asymptotic to one as the number of segments and its distribution of sales

increase. The approach of this paper is to work with the degree of diversification as a proxy of organizational complexity and distance from the core business. Thus, it works with unrelated diversification, using aggregate sales within the same two SIC codes. Geographical diversification is not used because of the difficulty in measuring cultural distance between geographical markets and because many geographical segments are reported together such as “Middle East, South America, Mexico” or “Europe, Canada, Other Foreign”. As all these measures are time variant, the average of all the annual observation during the period of analysis is used to characterize the corporate profile.

It is also important to consider an array of control variables frequently used in the literature that belong to the three levels of analysis: annual observation, executives and companies.

Two variables are taken into account at the executive level. The first measure refers to the degree of influence of a corporate or divisional manager on the board (ExeDir). Previous research shows managing directors use their influence to increase their compensation level and to reduce pay-performance sensitivity (Conyon & Peck, 1998). ExeDir is the average of the annual observations of each executive for a dummy variable equal to one when the corporate or divisional manager is on the board. The second control variable is the executive’s gender because of the possible “glass ceiling” for women’s compensation levels (Renner, Rives & Bowlin, 2002). When dummy variable ExeWoman equals one, the executive is a woman. It is not possible to control for executives’ age and experience in the company due to the low number of observations in the sample related to this information.

At the corporate level it is important to control for growth opportunities, relative noise in performance measures, business risk, financial policies and corporate governance characteristics.

Growth opportunities affect the choice of performance measures. Previous literature shows that new ventures, with their higher growth opportunities, differ from small companies regarding the level and mix of pay (Balkin & Swift, 2006). Companies with higher growth opportunities are associated with more market-based performance measures and less accounting-based assessments for both CEOs (Baber, Janakiraman & Sok-Hyon, 1996; Murphy, 1985; Ryan & Wiggins, 2001; Smith Jr. & Watts, 1992) and divisional managers (Balkin & Swift, 2006; Keating, 1997; Smith Jr. & Watts, 1992). Growth opportunity set is estimated as the market-to-book value of assets at the beginning of the year (MktBkRat)

(Baber et al., 1996; Bushman et al., 1995; Core et al., 2003b; Keating, 1997; Murphy, 1985; Murphy & Oyer, 2001). Specifically, the ratio is obtained from Compustat ($(DATA6 - DATA60 + DATA199 * DATA25) / DATA6$).

Relative noise in performance measures (AccNoise) is a widely used measure to model variation in the weight allocated to market versus accounting performance because these weights would be distributed to reduce risk (Core et al., 2003b; Davila & Peñalva, 2006; Sloan, 1993). This paper uses the ratio of variance of ROA_Ch during the last five years divided by the variance of MktRtn during the same period (Davila & Peñalva, 2006). Due to the distribution of this ratio, AccNoise was transformed as $\log(1 + \text{Var}(\text{ROA_Ch}) / \text{Var}(\text{MktRtn}))$.

Business risk increases the difficulty in determining whether lower performance is a product of inferior managerial performance or events beyond managerial control (Bloom & Milkovich, 1998). Evidence shows business risk to be negatively related to pay-performance sensitivity (Aggarwal & Samwick, 1999b; Bloom & Milkovich, 1998; Cichello, 2005; Govindarajan, 1984; Miller, Wiseman & Gomez-Mejia, 2002). Consequently, business risk is found to increase the base salary as a mechanism to reduce risk-averse behavior (Bloom & Milkovich, 1998; Cordeiro & Veliyath, 2003). The proxy for business risk (BusRisk) is $\text{Log}(1 + \text{business volatility})$ where business volatility is the Black and Sholes volatility as reported by ExecuComp (BS_VOLAT) (Davila & Venkatachalam, 2003).

Financial policies such as increasing debt and dividend payout are shown to be substitutes for the need to monitor and provide of incentives to employees (Aggarwal & Samwick, 2003; Begley & Feltham, 1999; Garvey, 1997). These policies reduce available cash flow and the possibility of managerial involvement in non-value maximization activities such as perquisite consumption. Next, the motivational role of incentives is diminished as well as the corporate need to pay for the risk imposed to the manager (Gul & Tsui, 2001; Jensen, 1986; Smith Jr. & Watts, 1992). Debt policy (Debt) is measured as the ratio of total debt to debt plus market value of equity (Crutchley & Hansen, 1989), with Compustat information $(DATA6 - DATA60) / (DATA6 - DATA60 + DATA25 * DATA199)$. Dividend payout (Dividends) is represented by the dividend yield (Smith Jr. & Watts, 1992) as reported in ExecuComp (DIVYIELD).

Corporate governance profile is becoming a frequent construct to explain variation across companies in executive compensation (Boyd, 1995; Collins, Gong & Li, 2007; Conyon & Peck, 1998; Cordeiro & Veliyath, 2003; Davila & Peñalva, 2006). In organizations where the executives are more involved on the board, the compensation system increases the weight of accounting measures at the expense of market measures of performance (Davila & Peñalva, 2006). Based on this literature, this study uses four measures of corporate governance: CEO duality (Boyd, 1995; Collins et al., 2007; Cordeiro & Veliyath, 2003; Davila & Peñalva, 2006), CEO and internal members on the compensation committee (Collins et al., 2007; Conyon & Peck, 1998; Cordeiro & Veliyath, 2003) and participation of internal members on the board (Collins et al., 2007; Conyon & Peck, 1998; Davila & Peñalva, 2006). CEO duality (CEOChr) measures the degree of possible influence of the CEO on the board due to having been the CEO and chairman of the board. This construct is measured as the average of annual company observations for a dummy variable that equals one when the CEO is also the Chairman of the Board. Similarly, the degree of possible influence by the CEO on the compensation committee is measured by the average of the annual dummy variable that equals one when the CEO is a member of the compensation committee (CEOComp). The measure of internal members in the compensation committee (IntComp) is the average of an annual dummy variable equal to one when at least one internal director other than the CEO is a member of the compensation committee. Finally, participation of internal members (IntRatio) is the average of the annual proportion of directors who are employees of the company. All of this information is collected from IRRC. The expectation in previous literature is that these variables increase the compensation level while at the same time reduce the link between pay and performance (Conyon & Peck, 1998; Cordeiro & Veliyath, 2003).

Year is also considered to control for possible macroeconomics trends.

Size is a time variant variable measure, widely used as a control variable in previous research both on executive incentives (Aggarwal & Samwick, 1999a; Balkin, Markman & Gomez-Mejia, 2000; Brown et al., 2007; Core et al., 2003b; Davila & Venkatachalam, 2003; Finkelstein & Hambrick, 1989) and segment reporting (Berger & Hann, 2003; Keating, 1997). Although this study uses dependent variables that could be considered stable across company size, corporate size is reported in the descriptive statistics to gain a better idea of sample profile. Size is traditionally measured through market value (Baker &

Hall, 2004; Brown et al., 2007; Cichello, 2005; Schaefer, 1998), assets (Baker & Hall, 2004; Cichello, 2005; Schaefer, 1998), sales (Cichello, 2005; Davila & Venkatachalam, 2003; Smith Jr. & Watts, 1992) or number of employees (Cichello, 2005). The proxy used in this paper is market value of assets (MktVal) (Baker & Hall, 2004) and is measured as the value of the outstanding shares at the end of the fiscal year plus the book value of debt estimated as the value of assets minus the value of common equity $(DATA199*DATA25)+(DATA6-DATA60)$.

Statistical Methodology

A common practice in previous papers in the field is to compare statistics across categories without considering the nested effect of the company and the manager to whom the information belongs (Ang et al., 2002a; Conyon et al., 2001; Siegel & Hambrick, 2005). Even controlling for these fixed effects--both company and executive--most studies control for one of them at a time instead of considering both at the same time. Despite the fact that this procedure is used in prior literature, the problem is that it does not completely control for the nested character of the information and could deliver biased results for unbalanced samples (Raudenbush & Bryk, 2001).

Instead, to compare categories but consider the nested effects, this paper uses multilevel mixed-effects linear regressions. This methodology not only considers the executive and company effects at the same time, but also treats the intercept or the slope of a variable as random and decomposes the variance and covariance components between levels. More specifically, this study uses a three-level hierarchical model. The first level considers annual compensation and performance measurement for each executive in a specific company. The second level includes the executive's characteristics described in the variable measurement section that potentially explains the relationship between the dependent and the independent variables at the first level. Finally, the third level is related to the corporate characteristics that potentially moderate all previous relationships.

Combining analysis of variance and linear regressions, a multilevel mixed-effects linear regression runs a linear model where second and third level variables interact with first level variables or the intercept to explain variation in the dependent variable. Finally,

similar to an analysis of variances, the mixed-effects linear regression reports the random effect for the previous coefficients at each of the three levels, indicating whether the mean of a specific coefficient obtained in the fixed model is stable across individuals at each level.

An incremental four-stage process is used (Ang et al., 2002b), building on each former stage. In the first stage no explanatory variables are considered. Next the non-CEO dummy variable considers the difference between CEOs and other executives. In the third stage, the dummy variable for divisional managers (DIV) is included to assess the differential effect for those managers. Finally, the corporate variables are included to model all prior relationships. As an example, the final model for the first hypotheses is represented by:

$$\begin{aligned}
 CW_Scale_{i,jk} = & \beta_0 + \beta_1 nonCEO_{jk} + \beta_{11} nonCEO_{jk} * CEOChr_k + \beta_{12} nonCEO_{jk} \\
 & * CEOComp_k + \beta_{13} nonCEO_{jk} * IntRatio_k + \beta_{14} nonCEO_{jk} * BusDlv_k \\
 & + \beta_{15} nonCEO_{jk} * BusSeg_k + \beta_{16} nonCEO_{jk} * GeoSeg_k + \beta_2 DIV_{jk} \\
 & + \beta_{21} DIV_{jk} * BusDlv_k + \beta_{22} DIV_{jk} * BusSeg_k + \beta_{23} DIV_{jk} * GeoSeg_k \\
 & + \beta_3 ExeDtr_{jk} + \beta_4 ExeWoman_{jk} + \beta_c X_{i,jk}^c + u_{00k} * DIV_k + u_{00k} + r_{0jk} \\
 & + e_{i,jk}
 \end{aligned}$$

In this model **CW_Scale** is the dependent variable and represents the year *i* executive *j* change in wealth scaled by the corporate CEO's change in wealth in company *k*. The β coefficients correspond to the fixed-effect part and they are the regression intercept and the slope of the explanatory variables. The assumption is that these parameters are the same for all companies and executives and time invariant. The coefficients β_1 and β_2 respectively correspond to the executive level variables **non_CEO** and **DIV** and are the coefficient to support the difference between CEOs and other corporate managers as well as the difference between corporate and divisional managers. The product terms of these two variables with **BusDivers**, **BusSegments** and **GeoSegments** show how the corporate level variables model the effect of **non_CEO** and **DIV** across companies. The other executive level variables and product terms with other corporate variables are the

control variables for this model. Finally, to obtain unbiased estimators I also include as explanatory variables in each model a vector of components of any product term used in the model (X_{ijk}^c) where c represent the number of components not considered previously (Whisman & McClelland, 2005). Only the product terms of interest are reported. For example, the model includes the product term of Div and BusDiv. Thus, the mixed model uses Div, BusDiv and the product term Div*BusDiv as explanatory variables but only Div and the product term Div*BusDiv are reported. Because this analysis does not focus on the annual variation of the corporate profile, the only independent variable that varies annually in this model is the control variable YEAR. It is possible to say that this is a between regression where the mean of the dependent variable after controlling for the annual trend is regressed on the mean of the independent variables. Instead, the model on performance also includes the corporate performances varying annually.

The random effect part is comprised of the γ , u and e terms. The e_{ijk} represents the error term for each annual observation's prediction within the same executive after controlling for the annual trend on the dependent variable. The random effect considers the possibility that β coefficients vary across executives or companies. The γ_{0jk} represents the executive effect. The figures reported are the standard deviations of considering the β s varying across executives and is the parameter that expresses the magnitude of the executive effect. Similarly, the u_{00k} shows the company effect and the standard deviation of the random term across companies is reported. This model allows the **DIV** effect to vary between companies. The figure u_{02k} shows the standard deviation of the random **DIV** term across companies. This is important because prior ambiguous results might be the result of variation between companies but no significant differences in a fixed model. Thus, while the β_{020} might not be significantly different from zero in the fixed effect part of the model, the u_{02k} might be very close to zero reinforcing the idea of no significant differences for divisional manager or it could be large enough to indicate large differences in any direction for specific companies.

Following previous literature using this methodology, continuous explanatory variables are centered in relation to each variable's grand mean. This transformation facilitates interpretation of coefficients and reduces the collinearity between variables and product terms effects (Aiken, West & Reno, 1991; Jaccard, Turrisi & Wan, 1990; McClelland & Judd, 1993).

4. Empirical Results

Descriptive Statistics

TABLE 3 reports descriptive statistics for observations between the 1st and 99th percentiles of CW. PANEL A provides the general statistics across executive categories and the total sample, while PANEL B reports the statistics for companies. These statistics involve 6,196 annual observations between 1999 and 2005, for 3,083 executives in 588 companies. For each category in PANEL A, the differences in observation numbers result from whether the variable is observed annually or aggregated at the executive level for the whole period while in PANEL B the aggregation is at the company level.

As expected, the mean compensation for CEOs is higher than for any other executive, no matter which measure of compensation is used. Specifically, the CW for a CEO is \$8.4 million, which is more than four times the mean for other executives in TMTs. This gap is significantly narrower between corporate and divisional managers. Corporate managers earn an average of \$1.9 million that is 4.6% above the \$1.8 million for divisional managers. The negative values for CW at the 1st percentile are the result of losses from the executives' portfolio that are larger than the TC.

More corporate managers participate on boards than their divisional colleagues, (ExeDir is 0.08 and 0.05, respectively). Women represent 8% of corporate managers, but only 5% of divisional managers and 2% of CEOs.

The annual observations for companies in the sample (TABLE 3 - PANEL B) show that these companies earn an average return in the stock market (MktRtn) of 5% and an accounting return (ROA) of 3% (consider that the statistics for MktRtn belong to its natural logarithm transformation). The average company in the sample has a market value of assets (market capitalization plus debt) of \$14,534 million. Regarding diversification, on the one hand, companies have a larger number of business segments (3.5) than

geographical segments (2.9), while on the other; these companies have a Hirschman-Herfindahl index of unrelated business diversification (BusDiv) of 0.19 with large variability across companies.

TABLE 4 reports the Pearson correlation matrix. I calculate three correlation matrices, because variables are measured at the annual, executive and corporate level. However, only the corporate level is reported since all significant correlations at lower levels remain significant at the corporate levels. Additionally, the model for pay-performance sensitivity uses the change in ROA (ROA_Ch) instead of the ROA level, so the correlation matrix reports the change measure.

It is important to note that almost all of the absolute values for the correlations are below 0.5, suggesting that the variables considered capture different characteristics of the companies and the executives. The few cases that exceed 0.50 were expected and appear predominantly between dependent variables used in different analyses such as TC and TCC.

Hypothesis testing

TABLE 5 reports several models related to compensation level gaps. The first column is the full unconditional model for the CW_scale. The intercept (0.53) means that the average CW for all executives in the sample is 53% of their corporate CEO's CW.

The second model (Column 2) considers the dummy variable nonCEO (0.65), as well as the dummy variable ExeWoman that controls for the possible impact of the executive's gender and the variables ExeDir and YEAR. Now the intercept coefficient is 1 by construction for all the CEOs. The coefficient for nonCEO is the percentage difference for non-CEO executives with respect to CEO change in wealth. This coefficient strongly supports the expectations of non-CEO executives having a CW that is lower (65%) than that of corporate CEOs. As expected, this difference is smaller (.16) when the executive is a board member. ExeWoman does not seem to have any impact on the model while YEAR reports an annual reduction of 1% per year and significantly different from zero.

Next, the dummy variable for divisional managers is added to the model (Column 3). The coefficient for DIV shows that the CW_scale for divisional managers is not significantly different from that of other non-CEO TMT members, in this case corporate managers.

Considering the DIV parameter as varying randomly across companies provides additional information. Based on the fixed-effect model it is possible to assume that the average difference between corporate and divisional managers is zero. The benefits of the multilevel mixed-effects linear regression is the information provided by the random effects that show how these coefficients vary across companies. The standard deviation for the DIV random effect (0.101) indicates that there are companies where a divisional manager's CW is below and above a corporate manager's for 20% of CEO change in wealth ($0 \pm 1.96 * 0.101$). This difference indicates that, considered as percentage of non-CEO compensation, the difference between divisional and corporate managers might exceed the rule of thumb of 30% considered in prior literature as indicative of different hierarchical levels (Canyon et al., 2001; Mahoney, 1979; Main et al., 1993)

The full model of the CW_scale (Column 4) takes into account the corporate characteristics that might moderate the previous coefficients. The evidence shows that including these characteristics reduces the variance of the random parameter DIV across companies in 30% ($0.083^2 / 0.1^2 - 1$). However, hypotheses 2a and 2b are not supported because the corporate characteristics considered in this model are not significantly different from zero after interacting with DIV. When interacting the nonCEO dummy variable with corporate characteristics, counter to predictions of hypothesis H1b the coefficient for GeoSeg is positive, although it is very close to zero and just significant at 10%. Moreover, it should be considered cautiously because this significance disappears in the subsequent models. The coefficients on BusSeg, also related to Hypotheses H1b, are not significantly different at zero in any model, neither is the coefficient on BusDiv related to Hypotheses H1a. These results do not support the arguments from tournament theory or information demand for TMT. Carpenter and Sander (2002) do not find significant support for product and geographical diversification either.

The product term of nonCEO with CEOChr is negatively and significantly related to CW-scale, meaning that CEO duality increases the gap between CEO and non-CEO executives. This is consistent with prior literature (Bebchuk et al., 2007). Moreover, ExeDir accounts for the fact that executives who are members of the board have more responsibilities and are consequently higher paid. Thus, the negative coefficient for the product term between nonCEO and IntRatio, together with the coefficient for ExeDir, indicate that CEOs

increase their influence for obtaining higher compensations when more internal members are on the board. A competing argument would be that members other than the CEO also exercise their bargaining power individually and not for the rest of the TMT. The results is consistent with Conyon and Peck (1998), who couldn't find support for their hypothesis regarding the proportion of internal executives on the board inflating TMT compensation.

The next three columns consider models very similar to the one previously discussed. The dependent variable in each case is the same ratio of executives to CEO but estimated on ECW, TC and TCC, respectively. The corporate explanatory variables gain significance as the analysis proceeds toward dependent variables with less overall model error (see standard deviation in the descriptive statistics for the dependent variables). This effect is consistent with literature on the methodology of product term effects, where less noise means that reliable effects are easier to detect (McClelland & Judd, 1993). For example, the ECW model (Column 4) runs under more controlled conditions, where change in stock and stock option value is fixed at 10% annual return (Core et al., 2003b). In this case, the two characteristics of corporate governance related to CEO power (CEOChr and CEOComp) are significant and consistent with CEOs using their political position to increase their expected compensation (74% and 8%, respectively). In the TC (Column 5) model, divisional managers seem to receive 2% more in compensation than corporate managers, but this result is not strong. The TCC model (Column 6) yields more significant product terms. This model highlights that divisional managers seem to have a significantly higher TCC than corporate managers (3% of CEO's TCC). Although these results are in line with Conyon and Peck (Conyon et al., 2001) in direction and significance, the magnitudes of this paper are not as high as theirs and cannot be considered as a signal for different categories. Finally, the gender effect seems to weakly appear only for the cases of ECW and TCC.

Evidence also exists that suggests that divisional managers receive higher incomes than corporate managers for two measures of compensation (TC and TCC). The large standard deviations for the random effect in both the TC and TCC models show that the effect reported in the fixed-effect model might change from one company to another. Divisional managers' TC could range from 27% above to 23% below corporate managers' TC based on corporate characteristics not considered in this paper. For the TCC, the range is from 26% above to 19% below ($0.03 \pm 1.96 * 0.114$)

Thus, the first result supports the hypothesis that CEOs receive higher total compensation than other TMT members. It fails to show significant differences between corporate and divisional managers in this regard. It is important to note that while on average no difference is expected between these categories, by treating slopes as random across companies, it is possible to find differences in CW_scale of 20% of CEO compensation, a value that could not be considered a signal for hierarchical categories. Contrary to previous studies based on tournament theory (Canyon et al., 2001) and information demand (Henderson & Fredrickson, 1996) that find the number of segments positively related to compensation, the hypotheses relating corporate characteristics of diversification to nonCEO and DIV gaps are not supported in this paper.

TABLE 6 has a similar structure to the previous table, but now the dependent variable is the UCW and the most important explanatory variables are MktRtn and ROA_Ch at the annual level, which subsequently are related to executive and corporate characteristics. To obtain comparable coefficients for MktRtn and ROA_Ch, these variables are introduced in the model not only centered but also standardized. Consequently, the coefficients should be interpreted as related to their standard deviations with regards to the grand mean of each variable.

The first column in this table is the unrestricted model where the intercept (0.55) means that when taking all the executives in the sample, CW is 55% higher than ECW. The second column shows a model including MktRtn and ROA_Ch, as well as YEAR as a continuous variable, to distinguish possible macroeconomic trends. Additionally, nonCEO and ExeDir are considered at the second level. This model shows a positive and significant coefficient only for MktRtn (1.69). The coefficient for the product term of MktRtn and nonCEO (-1.02) supports Hypothesis 3a, with non-CEO executives significantly less tied to MktRtn than CEOs. The no significant coefficient for ROA_Ch extends to no significant conclusions for differences between executives. The lower relationship between corporate performance and non-CEO executives might indicate that these executives are not linked to corporate performance, but an unreported analysis considering only non-CEO executive shows these executives positively and significantly related to MktRtn. The next column includes the dummy variable for divisional manager. When interacting with MktRtn, this

dummy variable has the sign predicted in hypothesis 3b, but the effect is not statistically different from zero, as is the case in An, Lauterbach and Schreiber (Ang et al., 2002a). Once more the standard deviation of the random parameter DIV at the company level shows significant differences among companies.

Finally, the previous relationships are modeled based on corporate characteristics (Column 4). Now the coefficient indicates that the unexpected change is only 24% higher than the ECW. This is the result of including the executive and corporate characteristics to explain the variation. No changes were evident regarding the support for Hypotheses 3a and 3b. There is significant support for the non-CEO executives less tie to MktRtn than CEOs but no significance on the product term between divisional managers and MktRtn or ROA_Ch. The product terms to support hypotheses 4a and 4b on BusDiv and BusSeg, when modeling the link to performance for divisional managers, are not significant either.

The model also includes many control variables from prior literature in order to obtain non-spurious results. As expected, the link between market return and UCW is significantly higher when the MktBkRat increases (0.04). Contrary to theoretical predications, the effect of AccNoise reduces its link to MktRtn as the variance of ROA_Ch increases (-0.47), and this evidence is consistent with previous empirical studies (Core et al., 2003b). The proxies for managerial power have many product terms with significant effects consistent with expectations. The case of internal members of the board is interesting. Regarding MktRtn, the coefficient for IntRatio indicates that internal members increase the pressure for performance of their CEO, but when interacted with non-CEO members, it shows internal members reducing the pressure for performance of the rest of the TMT.

In summary, this second analysis supports Hypothesis 3a with a stronger link to corporate performance for CEOs than non-CEOs, but there is no evidence supporting Hypothesis 3b, which states that divisional managers' compensation is less sensitive to corporate performance than that of their corporate colleagues. This analysis also fails to support Hypotheses 4a and 4b, as the products terms for degree of diversification and the number of business segments are not significantly different from zero to model the difference in link to corporate performance between corporate and divisional managers.

Regarding the 5 hypotheses, TABLE 7 reports mixed models for fixed salary scaled by different measures of compensation as proxies for compensation structure. The model is developed incrementally for ECW, while the full model is presented for TC and TCC. There is strong support for Hypothesis 5a, with the proportion of ECW composed by fixed salary for non-CEO executives being 2500Bp greater than for CEOs (Column 2). This coefficient remains positive and strongly significant when considered as a percentage of TC and TCC while the difference does falls to 700 and 600Bp, respectively.

The evidence for Hypothesis 5b suggesting that corporate managers hold a higher proportion of fixed salary than divisional managers is not very conclusive, as it is significant only for TCC (Column 6).

The results for random effects for DIV show that the reliability of the coefficient across companies increases when moving from ECW (Column 4) to TCC (Column 6). The standard deviation of the random term between companies when considering salary as a percentage of ECW (0.105) indicates that the proportion for divisional managers varies from -1900Bp to +2200Bp of the proportion for corporate managers ($0.01 \pm 1.96 * 0.105$). While the standard error based on TCC shows no variation across companies, it confirms that the proportion of TCC composed by fixed salary is significantly lower for divisional than for corporate managers no matter what company is considered. Including the corporate characteristics in the full model for ECW (Column 4) explains the variance of the company effect for DIV in 12% ($.105^2 / .113^2 - 1$).

Regarding the control variables, as expected, this table shows BusRisk and Dividends positively related to the ratio of fixed salary to executive income, no matter which measure of compensation is used. Surprisingly, there is strong evidence of women having significantly higher proportions of fixed salary as a percentage of ECW (7%). This effect disappears in the TC and TCC models, and this change could be the result of a lower proportion of compensation in stock and stock options. Finally, YEAR has a modest effect, but is still negative and significantly different from zero. This indicates that bonuses, long-term plans, stocks and stock options are increasing in proportion of TC, perhaps reflecting prior recommendations to increase pay based on performance.

Compensation Package and Performance

The different results among companies reflected in the random effects of the previous analyses deserve further investigation. TABLE 8 – PANEL A shows possible implications of the differences between divisional and corporate managers' compensation packages on MktRtn. For the pay level, the link to corporate performance, and the compensation structure; I estimate the annual compensation differences between an average divisional and average corporate manager in each company. Specifically the differences are measure for CW_scale, fixed, and a new measure of sensitivity that, similar to Ang, Lauterbach and Schreiber (2002a), indicates the effect of market corporate performance on compensation $(1+UCW)/(1+MktRtn)$. Based on each difference (level, structure and sensitivity) the sample is divided into three categories: the first group represents the companies where the difference falls between the 1st and 21st percentile, the second group includes companies within the 40th and 60th percentile, and the third group is for companies between the 79th and 99th percentile. Thus, a company might always belong to group 1 or to group 1 based on CW_scale, group 3 based on sensitivity, and group 2 based on Fixed. Companies with MktRtn below the 1st and above the 99th percentile are removed. These sample refinements allow for comparison of polar types of companies without the influence of possible outliers.

The first table shows along the horizontal axis the difference between divisional and corporate managers regarding pay level while the difference concerning sensitivity is shown on the vertical axis. The second table similarly combines pay level with structure, and the third table considers structure versus sensitivity. For each intersection, MktRtn is shown.

In the first table, the row "TOTAL" for differences in level and the column "TOTAL" for differences in sensitivity show a curvilinear relationship where MktRtn is higher when the differences are smallest (7.2% and 14.4% respectively). Additionally, in both cases the returns are higher than the return grand mean (5.6%). Moreover, considering the intersections between both categories, the middle group has the slightest differences and the highest returns (16%). This path is stable across the three tables, adding to the literature that demonstrates the lower pay disparity associated with higher performance (Akerlof & Yellen, 1990; Balkin & Swift, 2006; Carpenter & Sanders, 2004; Dye, 1984; Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005).

The final analysis regress MktRtn on the three measures of differences to obtain a better assessment of significance (TABLE 8 – PANEL B). Because of the curvilinear relationship observed previously, the variables used in this analysis are squares of the differences used previously to create the groups. This analysis takes into account not only the differences between corporate and divisional managers but also the differences between CEOs and the other members of the TMT. Because previous literature considers that the impact of this difference might vary depending on industry characteristics, this model considers the nested effect of annual differences in a company within a specific industry identified by the first two SIC codes (Balkin & Swift, 2006; Siegel & Hambrick, 2005). An unreported test shows that the company effect is stronger than the industry effect and that company characteristics such as BusRisk, BusDiv and MktBkRat are not significant to explain the effect of these differences on Market Return, thus this analysis considers the random effect of the corporate versus divisional manager differences only at the company level, while the constant is allowed to vary across companies and industries.

The first column of PANEL B shows an unconditional model for MktRn, while the second column explains variation in MkkRtn based on the differences described above for CW. It is possible to see that almost all these variables have negative signs. The coefficients for pay level (-0.094) and link to performance (-0.00003) are strongly significant for the difference between CEOs and other executives. Moreover, the impact of differences in the CW level between corporate and divisional managers is also negative and significant with a much higher magnitude (-1.283) than between CEOs and other executives. This indicates that extreme differences negatively impact performance. Because of the possible mechanical relationship between MktRtn and the value of the executive's portfolio, columns 3 and 4 show the same model for differences related to TC and TCC. Also for these models the significant coefficients are always negative. The same mixed model was also estimated for lagged performance with the MktRtn of the next year. In this case the coefficients are not negative but not significantly different from zero either; this not only refutes the idea of differences between executives promoting concurrent or future performance, but it is also consistent with a general equilibrium in which it is not possible to trade based on compensation differences. These results are consistent with prior literature that could not find a positive relationship between gaps and performance except for sole ownership firms (Ang et al., 1998; Bloom, 1999; Conyon et al., 2001).

Overall, these results might be considered supporting arguments for organizational justice where a lower pay disparity was associated with higher performance (Akerlof & Yellen, 1990; Balkin & Swift, 2006; Carpenter & Sanders, 2004; Dye, 1984; Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005). Additionally, compensation packages with very different weights for corporate performance among TMT members do not seem to be efficient, as might be predicted by agency theory. All the results on this paper are robust to control for industry fixed effect at 2 SIC codes.

5. Summary and conclusions

The purpose of this study is to analyze TMT members' compensation packages, specifically their level, link to corporate performance, and structure. Compensation is measured as total change in wealth, which includes not only the annual salary, bonus, grants and long-term incentives, but also the change in value of corporate stocks and stock options held. The sample involves CEOs and corporate and divisional managers from S&P1500 companies between 1998 and 2005.

The evidence in this paper shows that CEO compensation packages are not isomorphic with those of other members of TMTs, consistent with previous literature stating that "findings and theory applicable to the CEO will not generalize directly to the members of the team" (Carpenter & Sanders, 2002 p.510). In addition, consistent with Ang, Lauterbach and Schreiber (2002a) and contrary to Aggarwal and Samwick (2003), evidence here shows that, on average, there are no significant differences between divisional and corporate managers compensation packages. When considering random effects across companies, however, it is still expected to find a large difference in one direction or the other based on corporate characteristics not identified by this study. Taking the example of total change in wealth, while the fixed-effects model shows that on average it is not possible to predict differences between divisional and corporate managers, allowing the divisional manager effect to vary across companies, it is possible to see that there are companies where this difference reaches 20% in favor of divisional or corporate managers.

A final analysis of differences between category compensation packages shows that large differences do not promote higher performance. Indeed, it seems that performance is higher when the compensation package is more isomorphic among TMT members.

Overall, the evidence in this paper might be interpreted as not supporting tournament theory, in the sense that even when previous literature considered divisional managers to be at a higher hierarchical level (Conyon et al., 2001), the gap between divisional and corporate managers is insignificant and a larger gap between categories does not increase performance. In contrast the results in this paper add to the literature suggesting that agency theory does not always apply to real situations (Core et al., 2003b), and supporting arguments in organizational justice, not only because the difference between corporate and divisional managers is insignificant, but also because the performance seems to be higher as the difference decreases (Akerlof & Yellen, 1990; Balkin & Swift, 2006; Carpenter & Sanders, 2004; Dye, 1984; Henderson & Fredrickson, 2001; Siegel & Hambrick, 2005). This is in line with arguments suggesting that an integrated TMT enables a rapid adaptation to changes in competitive environments (Carpenter & Sanders, 2002).

Caveats of the present study are related to sample bias that precludes generalizing conclusions to smaller, less diversified and least performing companies, although there is no reason to consider that the present findings cannot extend to other firms. Another challenge is that identification of TMT members based on the five highest-paid executives not only omits members but also is probably biased towards higher compensation levels, with smaller gaps and higher elasticity regarding corporate performance.

For future academic research, an important implication of this study is the application of multilevel analysis for information that is naturally nested, as is the case in most studies in business research. But even more important is that further research on characteristics of the company that explain differences across members of the management team is needed, as well as empirical studies to test how agency theory predictions about the use of performance applies to divisional managers.

6. References

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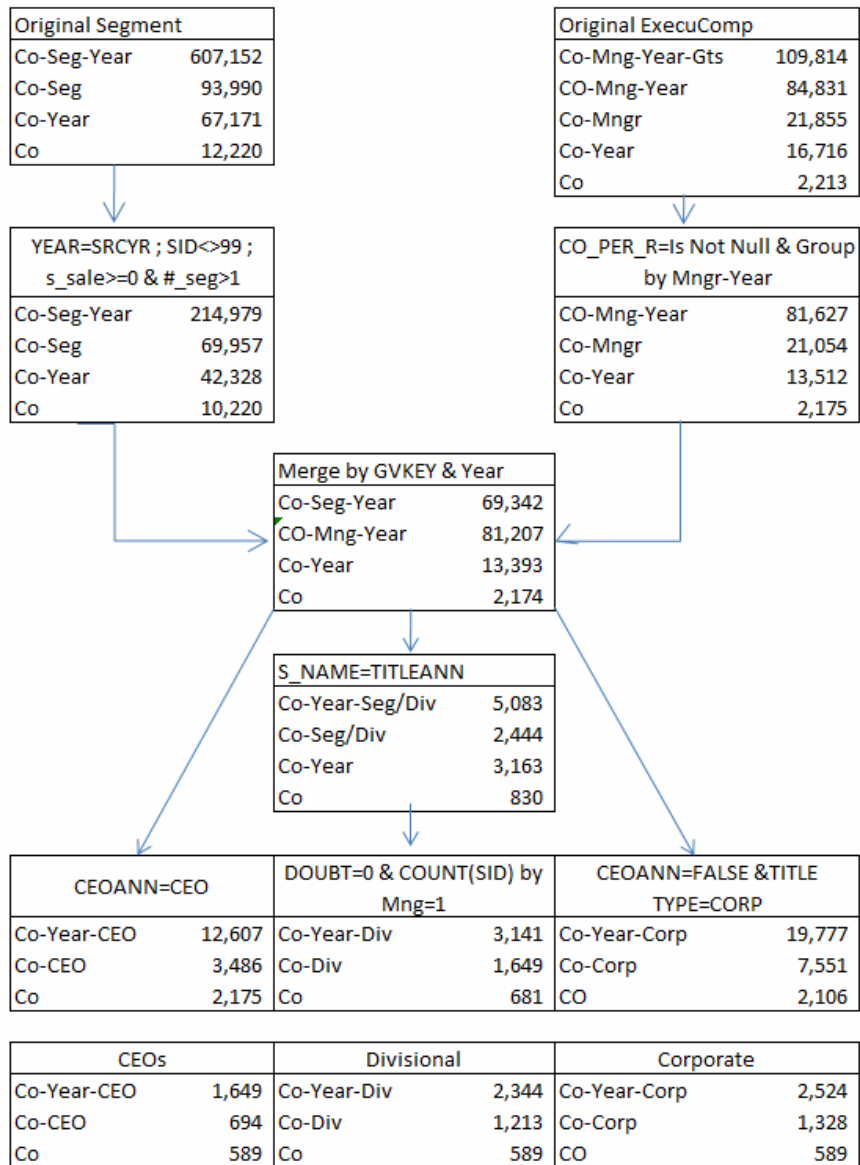
APENDIX 1

Panel A Variable Description

<u>VARIABLE</u>	<u>LEVEL</u>	<u>Description</u>	<u>Source</u>	<u>Estimation</u>	<u>Units</u>
SALARY	Annual	Amount of fixed salary	ExecuComp	SALARY	(000)
TCC	Annual	Cash compensation is Fixed salary plus bonus	ExecuComp	SALARY+BONUS	(000)
TC	Annual	Total compensation is cash compensation plus restricted stock grants, stock option grants, long term incentives paid and all other annual compensation	ExecuComp	TCC+RSTKGRNT+BLK_VALU+LTIP+OTHANN+ALLOTHTO	(000)
ECW	Annual	Expected Amount of Total Compensation plus change in portfolio		$TC_{t-1} + \text{Portfolio}_{t-1} * 10\%$	(000)
CW	Annual	Actual Amount of Total Compensation plus change in portfolio	ExecuComp+Comustat	$TC_t + (\text{Number of shares and stock options})_{t-1} * \text{Change in Price}_t$	(000)
UCW	Annual	Unexpected change in wealth		CW_t / ECW_t ; for TC is $\log(TC_t / TC_{t-1})$; for TCC is $\log(TCC_t / TCC_{t-1})$	ratio
CW_scale	Annual	Executives's ECW scaled by corporate CEO's expected change in wealth		CW_t / Ce_CW_t ; similar is the ratio for ECW, TC and TCC	ratio
MktRtn	Annual	Annual Return to shareholders, including the monthly reinvestment of dividends	ExecuComp	$\ln(1+TRS1YR)$	
ROA	Annual	Corporate Income before extraordinary items divided by total Assets	Compustat	$DATA18 / ((DATA6_T + DATA6_{T-1}) / 2)$	ratio
ROA_Ch	Annual	Difference between actual an previous ROA	Compustat	$ROA_t - ROA_{t-1}$	ratio
MktVal	Annual	Corporate Market Value of assets	Compustat	$(DATA199 * DATA25) + (DATA6 - DATA60)$	Million
YEAR	Annual	Fiscal year of Company and Segment data	ExecuComp	YEAR	units
non_CEO	Executive	members of TMT who are corporate or divisional managers	ExecuComp	0 if CEOANN=CEO	dummy
DIV	Executive	members of TMT who are divisional managers	ExecuComp+Compustat	SNAME=TITLEANN	dummy
ExeDir	Executive	Proportion of years in which Executive is director of the company	ExecuComp+IRRC	$\text{Avg}(\text{Annual dummy}=1 \text{ if Executive is in IRRC})$	
ExeWoman	Executive	Executive's gender	ExecuComp	1 if PGENDER=FEMALE	dummy
BusDiv	Corporate	Avg Business Herfindahl index of diversification, higher is more diversified	Compustat Segment	$1 - \text{sum} ((\text{Seg_SALE} / \text{Corp_SALE})^2 \text{ if STYPE=BUSSEG})$	
BusSeg	Corporate	Avg Corporate number of Business segments	Compustat Segment	$\text{Avg}_{1998-2005} (\text{count}(\text{SD if STYPE=BUSSEG}))$	units
GeoSeg	Corporate	Avg Corporate number of Geographical segments	Compustat Segment	$\text{Avg}_{1998-2005} (\text{count}(\text{SD if STYPE=GEOSEG}))$	units
MktBkRat	Corporate	Avg Corporate Market to Book ratio of Assets at the beginning of fiscal year	Compustat	$\text{Avg}_{1998-2005} ((\text{DATA199}_{t-1} * \text{DATA25}_{t-1}) + (\text{DATA6}_{t-1} - \text{DATA60}_{t-1}) / \text{DATA60}_{t-1})$	ratio
BusRisk	Corporate	Log of 1+Avg Corp Black & Shoels Volatility	ExecuComp	$\text{Log}(1 + \text{Avg}_{1998-2005} (\text{BS_VOLAT}))$	
AccNoise	Corporate	Relative noise of Accounting-based over Market-based performance		$\text{Avg}_{1998-2005} (\text{var}(\text{ROA_ch}) / \text{Var}(\text{TRS1YR}))$	ratio
Debt	Corporate	Avg Corporae debt to market value of assets ratio	Compustat	$\text{Avg}_{1998-2005} ((\text{DATA6} - \text{DATA60}) / (\text{DATA6} + \text{DATA199} * \text{DATA25}))$	ratio
Dividends	Corporate	Avg Corporate Dividends yield over the past 3 years	ExecuComp	$\text{Avg}_{1998-2005} (\text{BS_YIELD})$	ratio
CEOChr	Corporate	Proportion of years in which CEO is chairman of the Board	IRRC	$\text{Avg}_{1998-2005} (\text{dummy}=1 \text{ if CEO}=1 \ \& \ \text{CHAIRMAN}=1)$	
CEOCmp	Corporate	Proportion of years in which CEO is member in the compensation committee	IRRC	$\text{Avg}_{1998-2005} (\text{dummy}=1 \text{ if CEO}=1 \ \& \ \text{COMPMBR}=1)$	
IntComp	Corporate	Proportion of years in which an Internal is member in the compensation committee	IRRC	$\text{Avg}_{1998-2005} (\text{dummy}=1 \text{ if count}(\text{DIRTYPE=E} \ \& \ \text{COMPMBR}=1) > 1)$	
IntRatio	Corporate	Average Proportion of internal members in the Board	IRRC	$\text{Avg}_{1998-2005} (\text{count}(\text{DIRTYPE=E}) / \text{count}(\text{DIRTYPE}))$	ratio

TABLE 1

Panel A Process of Executives' Category Identification



Panel B Final Sample Distribution

	CEO	CORP	DIV	Total
1998	132	189	174	495
1999	173	238	242	653
2000	209	319	281	809
2001	214	331	311	856
2002	242	367	347	956
2003	255	412	366	1,033
2004	246	387	359	992
2005	178	281	264	723
Total	1,649	2,524	2,344	6,517
Executives	694	1,328	1,213	3,235
Companies	589	589	589	589

TABLE 2

Panel A Comparison of Divisionalized Firms with vs. without identified Divisional Manager

	Div Executive			Non Div Executive			t	Prob Equal Population	
	Obs.	Mean	Std Err	Obs.	Mean	Std Err		Pr(T > t)	Kruskal Wals Test
mktvalue	6,587	19,640	74,212	47,868	4,618	34,400	-16.19	0.000	0.000
f_sales	6,688	6,210	17,401	50,423	1,516	7,457	-21.80	0.000	0.000
roa	6,688	2.5%	18.6%	50,078	-13%	65%	-42.60	0.000	0.000
mktbookratio	6,562	1.65	2.57	47,521	2.1	6.5	11.30	0.000	0.000
debt	6,587	41%	24%	47,536	40%	29%	-2.26	0.024	0.000
busdiver	6,162	0.18	0.21	38,301	0.11	0.17	-25.51	0.000	0.000
bussegments	6,821	3.26	1.47	53,831	2.10	1.35	-61.78	0.000	0.000
geosegments	6,816	2.92	1.64	53,011	2.51	1.40	-19.51	0.000	0.000

MktVal is the Corporate Market Value of assets. F_Sales is the reported value of the net sales. ROA represents Corporate Income before extraordinary items divided by total Assets. MktBkRat is Market-to-Book ratio of Assets at the beginning of fiscal year. Debt is the ratio of Corporate debt to market value of assets. BusDiv is 1 - Herfindahl index of business diversification, higher is more diversified. BusSeg and GeoSeg represent the number of segments reported by the company for each diversification type

TABLE 3

Panel A Descriptive Statistics for Executives

Executives	Variable	N	mean	sd	p1	p50	p99	skewness	kurtosis
CEO	SALARY	1,612	726	336	99	689	1,735	2	11
	TCC	1,612	1,561	1,520	100	1,146	6,211	6	61
	TC	1,612	5,460	9,318	337	2,919	37,287	8	94
	ECW	1,567	9,907	19,429	489	4,284	91,096	6	54
	CW	1,612	8,453	32,347	(72,268)	3,209	164,156	3	27
	ExeWoman	686	0.02	0.13	0	0	1	7	55
Corporate	SALARY	2,381	336	147	103	306	811	2	8
	TCC	2,381	598	526	142	467	2,208	6	80
	TC	2,381	1,638	2,868	191	948	10,816	11	194
	ECW	2,251	1,738	3,782	81	915	11,699	13	223
	CW	2,381	1,968	4,121	(5,349)	963	24,057	4	29
	ExeDir	1,246	0.08	0.24	0	0	1	3.03	10.72
ExeWoman	1,246	0.08	0.27	0	0	1	3.15	10.93	
Divisional	SALARY	2,203	354	162	127	320	907	2	20
	TCC	2,203	670	719	173	506	2,884	9	127
	TC	2,203	1,673	2,182	207	1,039	11,840	5	33
	ECW	2,038	1,572	2,175	85	933	11,236	5	43
	CW	2,203	1,881	2,973	(3,220)	1,047	15,830	3	18
	ExeDir	1,151	0.05	0.19	0	0	1	4.07	18.53
ExeWoman	1,151	0.05	0.21	0	0	1	4.24	18.98	
TOTAL	SALARY	6,196	444	274	112	365	1,401	2	14
	TCC	6,196	874	1,029	158	580	4,805	7	101
	TC	6,196	2,645	5,497	201	1,237	21,755	12	229
	ECW	5,856	3,866	11,020	96	1,295	48,290	11	160
	CW	6,196	3,624	17,028	(25,768)	1,195	60,436	7	100
	ExeDir	3,083	0.05	0.20	0	0	1	4.01	17.92
ExeWoman	3,083	0.05	0.22	0	0	1	3.98	16.85	

SALARY: Actual Amount of fixed salary (000); TCC: Actual Amount of Total Cash Compensation (000); TC: Actual Amount of Total Compensation (000); ECW: Expected Amount of Total Compensation plus change in portfolio (000); CW: Actual Amount of Total Compensation plus change in portfolio (000)

Panel B Descriptive Statistics for Companies

Companies	Variable	N	mean	sd	p1	p50	p99	skewness	kurtosis
Annual	MktRtn	5,488	0.05	0.50	-1.50	0.10	1.14	-1.13	11.57
	ROA	5,551	0.03	0.13	-0.37	0.04	0.23	6.79	137.41
	MktVal	6,192	14,534	48,089	146	2,958	252,843	9.84	133.66
	YEAR	6,196	2002	2.12	1998	2002	2005	0	2
Period Avg.	BusDiv	588	0.19	0.21	0.00	0.10	0.67	0.79	2.33
	BusSeg	588	3.53	1.42	1.00	3.50	7.50	0.55	4.01
	GeoSeg	583	2.96	1.65	1.00	2.38	9.25	2.00	9.36
	MktBkRat	588	1.97	1.57	0.94	1.52	7.85	6.17	66.73
	BusRisk	588	0.38	0.16	0.16	0.33	1.06	1.94	9.08
	AccNoise	500	0.05	0.13	0.00	0.01	0.63	7.49	73.72
	Debt	588	0.42	0.22	0.05	0.40	0.92	0.35	2.31
	Dividends	588	0.02	0.20	0.00	0.01	0.09	22.12	511.81
	CEOChr	504	0.81	0.30	0.00	1.00	1.00	-1.50	4.08
	CEOCmp	504	0.00	0.03	0.00	0.00	0.19	9.48	102.49
	IntComp	504	0.00	0.04	0.00	0.00	0.20	9.19	92.79
	IntRatio	504	0.19	0.10	0.06	0.16	0.53	1.75	6.76

MktRtn: Log of 1+Corp Shareholders' annual return; ROA: Corp Return on Assets; MktVal: Corp Market Value of assets; YEAR: Fiscal year of Company and Segment data; BusDiv: Avg Corp Business Herfindahl index of diversification-higher is more diversified; BusSeg: Avg Corporate number of Business segments; GeoSeg: Avg Corp number of Geographical segments; MktBkRat: Avg Corp Market to Book ratio of Assets value for the beginning of fiscal year; BusRisk: Log of 1+Avg Corp Black & Shoels Volatility; AccNoise: Log of 1+Avg Accounting Relative noise; Debt: Avg Corp firm debt to market value of assets ratio; Dividends: Avg Corp Dividends yield; CEOChr: Proportion of years in which CEO is chairman of the Board; CEOComp: Proportion of years in which CEO is member in the compensation committee; IntComp: Proportion of years in which an Internal is member in compensation committee; IntRatio: Average Proportion of internal members in the Board

TABLE 4

Panel A Correlation matrix

	SALARY	TCC	TC	ECW	CW	MktRtn	ROA_Ch	MktVal	YEAR	ExeDir	ExeWoman	nonCEO	DIV	BusDiv	BusSeg	GeoSeg	MktBkRat	BusRisk	AccNoise	Debt	Dividends	CEOChr	CEOCComp	IntComp	
TCC	0.667																								
TC	0.577	0.701																							
ECW	0.493	0.492	0.654																						
CW	0.274	0.458	0.419	0.490																					
MktRtn	0.034	0.166	0.032	0.009	0.335																				
ROA_Ch	0.009	0.039	-0.008	0.044	0.032	0.145																			
MktVal	0.456	0.513	0.548	0.265	0.255	0.074	-0.007																		
YEAR	0.106	0.076	-0.101	0.043	0.008	0.191	0.081	-0.113																	
ExeDir	0.129	0.105	0.139	0.087	0.086	-0.030	-0.033	0.245	-0.122																
ExeWoman	0.027	0.049	-0.013	-0.024	-0.002	0.020	-0.042	-0.016	0.080	-0.047															
nonCEO	-0.127	-0.132	-0.057	-0.132	-0.006	0.028	0.002	0.072	0.014	0.125	0.050														
DIV	0.105	0.005	0.026	0.009	-0.007	0.072	0.093	0.128	-0.016	0.066	-0.092	0.308													
BusDiv	0.100	0.101	0.131	0.026	0.036	0.069	-0.051	0.136	-0.080	0.071	-0.062	0.120	0.075												
BusSeg	0.289	0.272	0.189	0.059	0.133	0.080	-0.019	0.254	-0.013	0.085	-0.073	0.166	0.159	0.412											
GeoSeg	0.065	-0.005	0.058	0.000	-0.040	-0.066	-0.056	0.088	0.010	0.041	-0.056	0.026	0.050	0.029	-0.011										
MktBkRat	0.002	0.014	0.197	0.288	0.086	0.002	0.146	0.036	0.025	-0.045	0.171	0.003	0.007	-0.166	-0.196	0.060									
BusRisk	-0.309	-0.224	-0.055	-0.009	-0.107	-0.156	0.154	-0.164	0.027	-0.030	0.034	0.001	-0.084	-0.234	-0.327	0.183	0.270								
AccNoise	-0.040	-0.043	-0.035	-0.044	-0.045	-0.060	0.537	-0.035	0.024	-0.072	0.048	0.002	0.014	-0.114	-0.072	0.003	0.141	0.180							
Debt	0.191	0.237	0.056	-0.043	0.075	0.047	-0.019	0.155	-0.045	-0.008	-0.105	-0.035	-0.008	0.146	0.288	-0.153	-0.548	-0.272	-0.135						
Dividends	0.133	0.046	-0.067	-0.129	-0.026	0.043	-0.032	0.073	-0.039	-0.073	-0.062	-0.018	-0.020	0.110	0.253	-0.195	-0.242	-0.527	-0.015	0.447					
CEOChr	0.229	0.180	0.128	0.054	0.028	0.040	-0.072	0.094	-0.018	-0.042	-0.006	0.042	0.121	0.084	0.117	0.094	-0.147	-0.143	-0.003	0.189	0.158				
CEOCComp	-0.035	-0.051	-0.042	0.043	-0.023	0.003	0.004	-0.029	0.032	0.162	-0.038	-0.067	-0.090	0.016	-0.030	-0.092	-0.037	-0.045	-0.014	0.005	0.018	-0.155			
IntComp	-0.041	-0.056	-0.010	-0.047	-0.030	0.014	-0.007	-0.029	-0.022	0.044	0.063	-0.084	-0.061	0.011	-0.019	-0.052	-0.017	-0.044	-0.033	-0.034	0.005	-0.147	0.301		
IntRatio	-0.062	-0.081	-0.058	0.085	-0.029	-0.060	-0.001	-0.047	0.098	0.526	-0.015	-0.072	-0.040	-0.142	-0.141	-0.013	0.027	0.165	0.007	-0.159	-0.237	-0.222	0.375	0.262	

SALARY: Actual Amount of fixed salary (000); TCC: Actual Amount of Total Cash Compensation (000); TC: Actual Amount of Total Compensation (000); ECW: Expected Amount of Total Compensation plus change in portfolio (000); CW: Actual Amount of Total Compensation plus change in portfolio (000); MktRtn: Log of 1+Corp Shareholders' annual return; ROA_Ch: Annual change in Return on Assets; MktVal: Corp Market Value of assets; YEAR: Fiscal year of Company and Segment data; ExeDir: Proportion of years in which Executive is director of the company; ExeWoman: Dummy equal to 1 if the executive is gender a woman; nonCEO: Dummy equal 1 if executive is Corporate or Divisional Manager; DIV: Dummy equal to 1 if the executives is in charge of a Segment; BusDiv: Avg Corp Business Herfindahl index of diversification-higher is more diversified; BusSeg: Avg Corporate number of Business segments; GeoSeg: Avg Corp number of Geographical segments; MktBkRat: Avg Corp Market to Book ratio of Assets value for the beginning of fiscal year; BusRisk: Log of 1+Avg Corp Black & Shoels Volatility; AccNoise: Log of 1+Avg Accounting Relative noise; Debt: Avg Corp firm debt to market value of assets ratio; Dividends: Avg Corp Dividends yield; CEOChr: Proportion of years in which CEO is chairman of the Board; CEOComp: Proportion of years in which CEO is member in the compensation committee; IntComp: Proportion of years in which an Internal is member in compensation committee; IntRatio: Average Proportion of internal members in the Board

TABLE 5

Panel A Compensation Level Gap

Fixed Effects (with robust std errors)			CEO vs TMT	CEO vs Corporate and Divisional		CEO vs Corporate and Divisional					
L1	L2	L3	Pred	CW_scale	CW_scale	CW_scale	CW_scale	ECW_scale	TC_scale	TCC_scale	ECWB
				0.53 ***	1.00 ***	1.00 ***	1.00 ***	1.00 ***	1.01 ***	1.00 ***	1.00 ***
		nonCEO	-		(0.65) ***	(0.65) ***	(0.66) ***	(0.74) ***	(0.59) ***	(0.56) ***	(0.74) ***
		CEOChr	-				(0.11) ***	(0.08) ***	(0.08) ***	(0.05) **	(0.08) ***
		CEOComp	-				0.19	(0.46) **	(0.31)	(0.34)	(0.47) **
		IntComp	+				(0.56)	0.16	(0.31)	(0.22)	0.27
		IntRatio	+				(0.25) **	(0.27) ***	0.41 ***	0.32 ***	(0.26) ***
		BusDiv	-				0.04	0.03	(0.02)	(0.09) **	0.03
		BusSeg	-				(0.00)	(0.00)	(0.01)	0.00	(0.00)
		GeoSeg	-				0.01 *	(0.00)	0.00	0.00	(0.00)
		DIV	?				(0.00)	(0.01)	0.00	0.02 *	0.03 ***
		BusDiv	+				(0.02)	(0.05)	(0.02)	0.05	(0.05)
		BusSeg	-				0.00	(0.00)	(0.01)	(0.01)	(0.00)
		GeoSeg	-				0.00	(0.00)	(0.00)	(0.01)	(0.00)
		ExeDir	+		0.16 ***	0.16 ***	0.20 ***	0.23 ***	0.13 ***	0.18 ***	0.22 ***
		ExeWoman	-		0.03	0.03	0.05 **	(0.04) ***	(0.02)	(0.03) **	(0.04) ***
		YEAR	?		(0.01) ***	(0.01) ***	(0.01) ***	0.00	(0.00) ***	0.00	0.00
Random Effects											
			Level	Var. CW_scale		Std. Err. CW_scale	Std. Err. CW_scale	EO vs Corporate and	Std. Err.	Std. Err.	Std. Err.
		DIV	Between Comp			0.101	0.085	0.086	0.127	0.114	0.085
		Deviance (-2 Log Likelihood)		4,999	2,959	2,955	2,681	(4,738)	(1,190)	(4,700)	(4,683)
		Number of parameters		4	8	10	27	27	27	27	27
		Annual Observations		5,648	5,648	5,648	5,016	5,140	5,523	5,507	5,140
		Executives		2,889	2,889	2,889	2,485	2,464	2,650	2,639	2,464
		Compaies		588	588	588	501	496	501	500	496

L1: Variables measured at annual level; L2: Variables measured at the Executive level and interacted with the annual variables reported above, L3: Variables measured at the corporate level and interacted with the variables in the previous levels reported above.

CW_scale: Change in Wealth scaled by Corporate CEO CW; ECW_scale: Expected Change in Wealth scaled by Corporate CEO ECW; TC_scale: Total Compensation scaled by Corporate CEO TC; TCC_scale: Total Cash Compensation scaled by Corporate CEO TCC; nonCEO: Dummy equal 1 if executive is Corporate or Divisional Manager; CEOChr: Proportion of years in which CEO is chairman of the Board; CEOComp: Proportion of years in which CEO is member in the compensation committee; IntComp: Proportion of years in which an Internal is member in compensation committee; IntRatio: Average Proportion of internal members in the Board; BusDiv: Avg Corp Business Herfindahl index of diversification-higher is more diversified; BusSeg: Avg Corporate number of Business segments; GeoSeg: Avg Corp number of Geographical segments; DIV: Dummy equal to 1 if the executives is in charge of a Segment; ExeDir: Proportion of years in which Executive is director of the company; ExeWoman: Dummy equal to 1 if the executive is gender a woman; YEAR: Fiscal year of Company and Segment data

TABLE 6

Panel A Compensation and Performances

Fixed Effects (with robust std errors)			Unrestricted	CEO vs TMT	CEO vs Corporate and Divisional		
L1	L2	L3	Pred sign	UCW	UCW	UCW	UCW
		Intercept		0.55 ***	0.31 ***	0.31 ***	0.24 ***
		BusRisk	+				1.58 ***
		Debt	-				0.00
		Dividends	-				(1.18)
		MktRtn	+		1.69 ***	1.69 ***	1.97 ***
		MktBkRat	+				0.04 **
		AccNoise	+				(0.47) ***
		CEOChr	-				0.17
		CEOComp	-				0.95
		IntComp	-				5.85 ***
		IntRatio	-				3.66 ***
		nonCEO	-		(1.02) ***	(0.91) ***	(1.04) ***
		CEOChr	+				0.20
		CEOComp	+				(0.49)
		IntComp	-				(2.81)
		IntRatio	-				(4.74) ***
		DIV	-			(0.04)	(0.11)
		BusDiv	-				(0.08)
		BusSeg	-				(0.05)
		ExeDir	-		0.83 ***	0.73 ***	0.82 ***
		ROA_Ch	+		(0.03)	(0.03)	(0.09)
		MktBkRat	-				0.04
		AccNoise	-				0.08
		CEOChr	-				0.04
		CEOComp	-				(4.08)
		IntComp	-				(14.61) ***
		IntRatio	-				(2.43) **
		nonCEO	-		0.05	0.02	0.06
		CEOChr	+				(0.06)
		CEOComp	+				5.44
		IntComp	-				2.73
		IntRatio	-				2.57 *
		DIV	-			0.03	0.24
		BusDiv	-				0.43
		BusSeg	-				0.23
		ExeDir	-		(0.04)	0.23	0.57
		YEAR	?		(0.03) **	(0.03) **	(0.04) ***
Random Effects							
		Coefficient	Level	Std. Err. Unrest.	Std. Err. UCW	Std. Err. UCW	Std. Err. UCW
		Div_MktRtn				0.641	0.731
		Div_ROA_Ch				0.721	1.335
		Deivance (-2 Log Loikelohod)		23,967	19,530	19,416	16,781
		Number of parameters		4	13	18	63
		Annual Observations		5,859	5,207	5,207	4,592
		Executives		2,897	2,601	2,601	2,225
		Compnaies		587	535	535	447

L1: Variables measured at annual level; L2: Variables measured at the Executive level and interacted with the annual variables reported above, L3: Variables measured at the corporate level and interacted with the variables in the previous levels reported above.

UCW: Unexpected percentage of variation for Change in Wealth; UCW: Unexpected percentage of variation for Change in Wealth; TC_Ch: log of 1+ Change in Total Compensation; TCC_Ch: log of 1+ Change in Total Cash Compensation; BusRisk: Log of 1+Avg Corp Black & Shoels Volatility; Debt: Avg Corp firm debt to market value of assets ratio; Dividends: Avg Corp Dividends yield; MktRtn: Log of 1+Corp Shareholders' annual return; MktBkRat: Avg Corp Market to Book ratio of Assets value for the beginning of fiscal year; AccNoise: Log of 1+Avg Accounting Relative noise; CEOChr: Proportion of years in which CEO is chairman of the Board; CEOComp: Proportion of years in which CEO is member in the compensation committee; IntComp: Proportion of years in which an Internal is member in compensation committee; IntRatio: Average Proportion of internal members in the Board; nonCEO: Dummy equal 1 if executive is Corporate or Divisional Manager; DIV: Dummy equal to 1 if the executives is in charge of a Segment; BusDiv: Avg Corp Business Herfindahl index of diversification-higher is more diversified; BusSeg: Avg Corporate number of Business segments; ExeDir: Proportion of years in which Executive is director of the company; ROA_Ch: Annual change in Return on Assets; YEAR: Fiscal year of Company and Segment data

TABLE 7

Panel A Salary as proportion of compensation

Fixed Effects (with robust std. errors)			Unrestricted	CEO vs TMT	CEO vs Corporate and Divisional		CEO vs Corporate and Divisional		
L1	L2	L3	Pred	Salary / ECW	Salary / ECW	Salary / ECW	Salary / ECW	Salary / TC	Salary / TCC
				0.38 ***	0.20 ***	0.20 ***	0.24 ***	0.32 ***	0.65 ***
			+				0.18 **	0.13 *	0.43 ***
			+				0.03	0.01	(0.11) ***
			+				2.68 ***	2.39 ***	2.35 ***
			+				(0.11) ***	(0.06) **	(0.05) **
			+				(0.07)	0.94 ***	0.45 **
			+				0.09	0.01	0.26
			+				(0.11)	0.26 ***	0.16 **
			+		0.25 ***	0.24 ***	0.24 ***	0.07 ***	0.06 ***
			-				(0.01)	0.00	0.02
			-				(0.06)	(0.28) *	(0.31) *
			+				0.19	0.05	0.19
			+				0.46 ***	(0.09) *	(0.03)
			-			0.01	0.01	(0.00)	(0.02) ***
			-				0.05	(0.01)	0.01
			+		(0.17) ***	(0.17) ***	(0.21) ***	(0.00)	(0.02)
			?		0.07 ***	0.07 ***	0.07 ***	0.01	0.01
			?		(0.02) ***	(0.02) ***	(0.02) ***	(0.00) **	(0.01) ***
Random Effects									
Coef	Level			Var. Salary / ECW		Std. Err. Salary / ECW	Std. Err. Salary / ECW	CEO vs Corporate and	Std. Err.
DIV	Between Comp					0.113	0.105	0.002	0.000
Deviance (-2 Log Likelihood)				2,301	1,646	1,634	1,424	(5,102)	(4,001)
Number of parameters				4	8	10	23	23	23
Annual Observations				5,863	5,863	5,863	5,226	5,535	5,565
Executives				2,889	2,889	2,889	2,512	2,672	2,680
Companies				587	587	587	503	503	504

L1: Variables measured at annual level; L2: Variables measured at the Executive level and interacted with the annual variables reported above; L3: Variables measured at the corporate level and interacted with the variables in the previous levels reported above. Fixed: Ratio of fixed SALARY over Expected change in wealth; Fixed_TC: Ratio of Fixed SALARY over Total Compensation; Fixed_TCC: Ratio of Fixed SALARY over Total Cash Compensation; BusRisk: Log of 1+Avg Corp Black & Shoels Volatility; Debt: Avg Corp firm debt to market value of assets ratio; Dividends: Avg Corp Dividends yield; CEOChr: Proportion of years in which CEO is chairman of the Board; CEOComp: Proportion of years in which CEO is member in the compensation committee; IntComp: Proportion of years in which an Internal is member in compensation committee; IntRatio: Average Proportion of internal members in the Board; nonCEO: Dummy equal 1 if executive is Corporate or Divisional Manager; DIV: Dummy equal to 1 if the executives is in charge of a Segment; BusDiv: Avg Corp Business Herfindahl index of diversification-higher is more diversified; ExeDir: Proportion of years in which Executive is director of the company; ExeWoman: Dummy equal to 1 if the executive is gender a woman; YEAR: Fiscal year of Company and Segment data

TABLE 8

Panel A Corporate performance vs. Differences between corporate and divisional managers

		Change in Wealth scaled by CEO CW Divisional - Corporate Managers				
		1	2	3	TOTAL	
Pay-Performance Elasticity Divisional - Corporate Mgrs		-21%	-1%	18%		
	1	(1.2)	13.5%	10.5%	-29.1%	3.0%
	2	(0.0)	8.7%	16.0%	7.7%	14.4%
	3	1.3	-24.9%	-9.0%	12.1%	-2.6%
TOTAL		-0.9%	7.2%	2.8%	5.6%	

		Change in Wealth scaled by CEO CW Divisional - Corporate Managers				
		1	2	3	TOTAL	
Salary as percentage of ECW Divisional - Corporate Mgrs		-21%	-1%	18%		
	1	-25%	-5.8%	10.6%	0.7%	3.8%
	2	-1%	5.5%	8.8%	-4.0%	8.8%
	3	23%	-10.4%	-9.1%	9.2%	1.1%
TOTAL		-0.9%	7.2%	2.8%	5.6%	

		Salary as percentage of ECW Divisional - Corporate Mgrs				
		1	2	3	TOTAL	
Pay-Performance Elasticity Divisional - Corporate Mgrs		-25%	-1%	23%		
	1	(1.2)	5.5%	3.3%	-36.9%	3.0%
	2	(0.0)	11.7%	13.1%	26.3%	14.4%
	3	1.3	-67.0%	-39.0%	2.2%	-2.6%
TOTAL		3.8%	8.8%	1.1%	5.6%	

Panel B Regression of Corporate Performance on Compensation Package Characteristics

Fixed Effects (with robust std errors)			MktRtn		
L1	Pred	Unrestricted CW	CW	TC	TC
Intercept		0.056 ***	0.019 ***	0.013 ***	0.005 ***
d_Level_dc2	-		(1.283) ***	(0.788)	0.282
d_Perf_dc2	-		(0.000)	0.000	(0.262) ***
d_Fix_dc2	-		(0.518)	(2.274)	(0.035)
d_Level_CEO2	-		(0.094) ***	(0.000)	(0.007)
d_Perf_CEO2	-		(0.000) ***	(0.000) ***	(0.006) ***
d_Fix_CEO2	-		0.085 *	(0.007)	(0.565) ***
Random Effects					
Coefficient	Level	Std Error	Std Error	Std Error	Std Error
Constant	Between Obs	0.411	0.351	0.353	0.353
	Between Comp	0.000	0.138	0.136	0.000
	Between SIC	0.000	0.047	0.057	0.000
	TOTAL Varaince	0.169	0.145	0.147	0.124
	Reduction		-14%		
Between SIC	d_Level_dc2		2.491	6.648	0.000
	d_Perf_dc2		0.000	0.000	0.237
	d_Fix_dc2		2.674	9.960	0.000
Deviance (-2 Log Likelihood)		1,455	1,528	1,529	1,271
Number of parameters		4	13	13	13
Number of Observations		1366	1,366	1,359	1,357
Companies		544	544	538	538
Industries		59	59	57	58

d_Level_dc2: Squared Difference between Divisional and Corporate Managers on Compensation Scaled by Corporate CEO; d_Perf_dc2: Squared Difference between Divisional and Corporate Managers on Pay Performance Elasticity; d_Fix_dc2: Squared Difference between Divisional and Corporate Managers on proportion of fixed salary over compensation; d_Level_CEO2: Squared Difference between CEO and NonCEO executives on Compensation Scaled by Corporate CEO; d_Perf_CEO2: Squared Difference between CEO and NonCEO executives on Pay Performance Elasticity; d_Fix_CEO2: Squared Difference between CEO and NonCEO executives on proportion of fixed salary over compensation