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Division Director Versus CEO Compensation:

New Insights Into the Determinants of Executive Pay

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Abstract

The authors highlight the importance of firm structure for the optimal compensation contracts of upper-management positions. Making use of task similarity between CEOs of undiversified firms and division directors within larger corporations, the authors analyze trade-offs between monitoring and incentive pay at below-CEO levels. Because division directors are subject to an additional layer of monitoring by upper management, they should receive less incentive pay and lower compensation than do CEOs of undiversified firms, whereas added complexity because of higher levels of diversification will predictably alter these relationships. Matched pair regressions on a unique data set support the authors' hypotheses.

Keywords: monitoring; incentive pay; compensation structure; strategic business unit managers

Introduction

A head of a business unit belonging to a large diversified corporation carries tasks and responsibilities that are not so different from those of a CEO who presides over a single business unit company of comparable size. This task similarity poses a few interesting questions, for example, whether these similar positions should also receive a similar level of compensation and a comparable structure of incentives or whether structural differences, notably a naturally higher degree of monitoring for division directors who are facing an added layer of "corporate" control, alter these relations. We use strict agency-based reasoning to explore the impact of these structural differences on the optimal trade-off between monitoring and incentive pay to enhance our understanding of the determinants of compensation policies across hierarchies.

The existing literature on managerial compensation practices is extensive but has focused for the most part on deriving the determinants of CEO pay level or structure (e.g., Zajac & Westphal, 1994) or whether optimal agency contracts have an impact on firm performance (see the metastudy in Tosi, Werner, Katz, & Gomez-Mejia, 2000) or strategies (e.g., Jenkins & Seiler, 1990; Sanders, 2001a, 2001b). A smaller set of studies has concentrated on the question of whether the compensation practices for top management team (TMT) members adhere to the same principles as those for CEOs (e.g., Carpenter & Sanders, 2002) or have an impact on performance or strategies (e.g., Ang, Hauser, & Lauterbach, 1998). Much of this work has focused on the pay gap between CEO and TMT (e.g., Ang et al., 1998; Sanders, 2001a, 2001b), mostly from a tournament theory perspective (e.g., Henderson & Frederickson, 1996, 2001; Lambert, Larcker, & Weigelt, 1993).

Another, even smaller set of studies has also attempted to find the determinants of business unit manager compensation (e.g., Balkin & Gomez-Mejia, 1990; Fisher &

Govindarajan, 1992; Galbraith & Merrill, 1991; Lambert et al., 1993). Yet we have found no prior work that addresses these issues from the point of view of the difference between independent units (i.e., CEOs of single business firms) and dependent units (i.e., managers who head a business unit of a larger corporation).

In fact, the previous literature has usually studied managerial compensation either within hierarchies (e.g., in testing tournament theory—see Lambert et al., 1993; Rosen, 1986) or across firms but for the same hierarchy level (e.g., studies of the determinants of CEO compensation—e.g., Beatty & Zajac, 1994; Zajac & Westphal, 1994), but to our knowledge this article is the first that simultaneously addresses both dimensions by comparing managerial compensation across firms as well as for different layers in the hierarchy (but similar jobs). However, it is precisely this comparison that allows for an analysis of the effect that basic structural issues, such as additional levels of hierarchy, have on the trade-off between different corporate governance mechanisms such as monitoring and incentive pay across various jobs (for an analysis of this trade-off at the CEO level, see Zajac & Westphal, 1994).

Specifically, we compare the compensation level and structure of the heads of independent, nondiversified firms with the compensation practices employed for managers of business units of larger corporations. The latter, by definition, have an added layer of corporate control (upper-level or "corporate" management) that provides an additional monitoring function as compared to the situation faced by the CEO of the nondiversified firm. We exploit this situation by analyzing what implications this additional layer of monitoring has on managerial compensation and find that this difference indeed helps to predict variations in the composition and, as a corollary, the level of compensation.

A failure to take these simple structural effects into account will likely contribute to a misattribution of compensation policies to more commonly applied perspectives such as tournament (Rosen, 1986) or managerial power theories (Finkelstein, 1992). Accordingly, structural characteristics of particular positions within a firm ought to be considered alongside other explanations to derive a better understanding of optimal compensation policies.

This line of inquiry and our particular results regarding compensation policies across (upper) managerial levels are of considerable interest on at least two dimensions. First, it is important to analyze the compensation practices that firms apply not only to their CEO but also to other top and middle managers throughout their organization. As Hambrick and Mason (1984) suggested, not the CEO alone but the entire top team is responsible for organizational performance, and Gupta (1987: 477), for instance, observed that "perhaps the most salient topic in analyses of how multibusiness firms should be managed has been relations between corporations and their strategic business units (SBUs)." The way that strategic business unit (SBU) directors are paid surely counts among such "relations," and, as Ang et al. (1998: 336) put it, "an ill-conceived pay structure may have undesirable value reducing consequences, e.g. diverting senior executives' time to engage in office politics, or losing the best CEO candidates to other firms."

Yet an equally important contribution of our study relates to the recent debate about "say on pay" (e.g., Asci, 2008; Deutsch, 2008; Tse, 2008) and the ongoing public controversy regarding the compensation practices of large firms, and in particular the very generous compensation packages extended to CEOs and other top managers. Authors such as Moriarty (2005) and Bogle (2008), for example, asked (and vehemently denied) whether there is any philosophical or economical rationale for paying CEOs US$8 million per annum (the average

CEO of a comparatively small, undiversified firm in our sample received US$4.5 million, the average division director still US$1.9 million per year). Other writers, however, have taken quite the contrary position. Kaplan (2008), for instance, provided evidence that CEOs' real compensation declined from 2000 to 2006 and that—from a long-term perspective—CEO compensation has performed no better than that of similar groups such as hedge fund managers or professional athletes. Kaplan even went as far as arguing that CEOs are, in fact, underpaid.

Essentially, this public debate is raising the question of whether firms act responsibly or not in making pay decisions. Although our study cannot address the issue of whether the average CEO really deserves in excess of $4 million, what we do show in this article is that firms are actually quite prudent in adjusting the salary level and structure of higher managers when the structural conditions of the firm allow for this. This suggests that challenges leveled against firms ought to be more differentiated. Firms can apparently act very responsibly in "fine-tuning" salary structures and levels within the hierarchy—whether the base level from which such fine-tuning departs is "responsible," however, may be a very different question.

Theory and Related Literature

Below-CEO-Level Compensation

Previous research on below-CEO managers has focused on the TMT, usually defined as the four or five highest paid executives below the CEO. Carpenter and Sanders (2002), for instance, demonstrated the importance of incentive alignment between the TMT and the CEO—yet they did not look specifically at business unit directors or the specific characteristics of these organizational segments. Another line of inquiry in the early 1990s, however, more directly

focused on the determinants of subunit pay structures (Balkin & Gomez-Mejia, 1990; Fisher & Govindarajan, 1992; Galbraith & Merrill, 1991).

Fisher and Govindarajan (1992), for example, looked at the determinants of profit center manager compensation and identified market, political, and human factors that influence a complex pay structure for these managers. Their study focused on the determinants of cash versus bonus compensation. In this respect, it is similar to our study although without taking into account the structural characteristics of management positions in terms of differences in the extant level of monitoring that exist between different levels of the hierarchy.

Galbraith and Merrill (1991), on the other hand, studied small business units (SBUs) and focused on the question of whether different compensation program types change SBU managers' strategic behavior. Their article did not address the determinants of SBU manager pay, however. By contrast, Balkin and Gomez-Mejia (1990) examined the impact of organizational strategies on pay strategies and the effectiveness of the compensation system. Using survey responses from HR managers in business units of larger firms, they found that both corporate and business unit strategy were significant predictors of pay structure, level, and administrative rules. These authors suggested that the effectiveness of compensation systems depends in part on the fit between pay and organizational strategies—a theme picked up repeatedly by Carpenter and colleagues (e.g., Carpenter & Wade, 2002) and other, more recent work as well.

Although these studies have focused explicitly on middle management levels, a somewhat broader stream of research has analyzed the relationship among compensation practices at different managerial levels from a tournament logic perspective (Rosen, 1986). Here, the focus is on explaining the inter-rank spread of compensation among different positions as "prizes" in a series of sequential elimination tournaments leading to the final position of the

CEO. Specifically, Rosen (1986) showed that to motivate managers to provide the optimum levels of effort, the pay levels necessarily need to increase in each stage, and hence compensation is an increasing function of organizational level.

Lambert et al. (1993), for instance, used a proprietary database to demonstrate that the increase in salary between plant manager, divisional CEO, group CEO, and corporate CEO can indeed to a large extent be explained by this logic. One particular finding of their study is that firms do provide an especially high price to the CEO to make up for the fact that at this last stage in the tournament the option value of future prizes is zero. Conyon, Peck, and Sadler (2001) and Eriksson (1999) tested similar ideas on British and Danish firms, respectively.

Yet although several studies have also compared tournament theory with the explanatory power of other theories such as managerial power and simple agency concepts (e.g., Lambert et al., 1993) or behavioral and information-processing theories (e.g., Henderson & Frederickson, 1996, 2001), work in this area usually focuses on the comparison of positions within firms and movement along a career ladder that is defined by the tournament. More important, these studies focus on the level of compensation, as the tournament logic suggests that it is the "prize" of attaining a higher salary at the next career level that motivates managers to perform; questions regarding the structure of compensation (cash salary, equity- or non-equity-based incentives, etc.) or alternative governance instruments such as monitoring have not been directly addressed in this literature.

Trade-Offs Between Governance Elements

The combination of these different governance instruments, however, may be critical in terms of ensuring effective and, in particular, efficient governance. Zajac and Westphal (1994),

for example, demonstrated that especially monitoring and incentive pay are substitutes—as the cost of one increases, corporate governance should optimally rely more on the respective other instrument. Similarly, Prendergast (2002) developed a formal model (based on work by Brickley, Smith, & Zimmerman, 2001) that focuses on the distinction between instances in which a principal tells an agent what to work on and situations in which the agent is given discretion over the activities on which he or she spends time. Prendergast's model predicts a positive relation between the delegation of tasks from the principal to the agent and the use of pay-for-performance compensation schemes as the efficient way to boost the agent's effort. This larger degree of delegation is equivalent to a lower degree of control (monitoring) by the principal.

Evidently, the reason that firms award (cash or stock-based) incentive pay in the first place is to motivate managers to engage in or repeat activities that are beneficial for the firm (e.g., Ducharme & Podolsky, 2006; Heneman, 1992). However, pay-for-performance compensation schemes shift additional risk to managers to the extent that the "outcomes" for which they are rewarded are uncertain and linked to external industry or macroeconomic shocks that are not controlled by the manager. Assuming risk-averse executives, a larger reliance on incentive pay therefore needs to be compensated for with a higher total level of compensation (Bloom & Milkovich, 1998; Gray & Cannella, 1997; Milgrom & Roberts, 1992). Accordingly, using incentives to ensure managerial performance is comparatively expensive, and simply monitoring the behavior of executives to ensure that they fulfill the desired tasks would therefore be the "first choice" governance mode (Zajac & Westphal, 1994).

A sensible compensation structure would consequently provide incentives specifically when monitoring is not possible or too difficult and, hence, costly. Establishing what drives this trade-off between incentives and monitoring in a given situation is therefore an important task

that has partially been addressed in prior work. Zajac and Westphal (1994), in particular, focused on job intrinsic issues as well as firm structural aspects that make monitoring more or less costly and thus require the firm to use more or less incentive pay as a result. These authors found robust support for the existence of such trade-offs at the level of CEO compensation, where, for instance, more knowledge intensive firms, or those with intermediate levels of diversification and complex, and thus difficult to monitor, strategic control mechanisms (structural issue), use less monitoring and more incentive pay. Bloom and Milkovich (1998), furthermore, focused on "risk" as another structural aspect and analyzed its impact on pay structure across various managerial positions. In line with the arguments discussed above, Bloom and Milkovich (looking at random managerial positions within firms) found that firms that are exposed to greater risk use less, rather than more, incentive pay.

In the current study, we extend this reasoning further by focusing on yet another structural issue, which results from the specific situation found in multidivisional firms where heads of entire businesses face another layer of control that simply does not exist in the context of single business firms. Using the same agency-based logic as these previous authors, we expect that the internal structure of a firm (i.e., whether or not an additional layer of monitoring exists) has an effect on the design of compensation policies for the otherwise rather similar task environments for CEOs of independent firms and directors of divisions of larger corporations. Matching these otherwise similar jobs, where one has by construction an added layer of monitoring, allows us to draw out the implicit trade-offs rather clearly. In effect, we are looking across different hierarchies to isolate the effects that higher levels of "existing" monitoring have on pay structures (and levels) within a hierarchy.

Ideally, we would like to compare the compensation of a CEO of a nondiversified company to the compensation of a division director in an M-form multidivisional corporation who manages a business unit of similar characteristics as the CEO's company. The only difference between both positions would consist of the fact that the division director is subordinated to a corporate CEO who monitors the strategy and performance of the division, whereas the CEO of the nondiversified company reports directly to the board of directors. That is, the division director faces an additional layer in the hierarchy that—among other things—monitors the director's performance.

Clearly, the fact that the division director faces two separate monitoring bodies (i.e., the corporate CEO as well as the board itself) does not necessarily mean that division directors are subject to exactly twice as much monitoring as a given CEO because it is unlikely that the board directors will focus as much monitoring attention on division directors as they do on the CEO. However, it seems quite reasonable to assume that the board will pay at least a considerable degree of attention to the behavior of division directors—who in many cases count among firms' highest paid executives as well—so that we can state that, ceteris paribus, division directors will be subject to more monitoring than CEOs. However, before we proceed to derive specific hypotheses from the presence of this structural difference, it is essential that we first establish whether these two positions are indeed similar.

Task Similarity

The starting point of our theory is the presumption that the CEO of a nondiversified firm and the director of a (major) product division of a larger, diversified firm have actually rather similar jobs as both are responsible for overseeing and directing the operations of a sizable

business. In fact, Watson and Wooldridge (2005) and Wooldridge and Floyd (1990), drawing on the process theory of Bower (1970) and Burgelman (1983), argued and showed that business unit managers are involved not just with implementing their own business unit strategy (i.e., the question of "how to succeed in this market") but also with defining corporate strategy itself (i.e., the question of "what businesses are we in"; for the definition of business vs. corporate level strategies, see Hofer & Schendel, 1978). As such, these division directors perform pretty much the same task as the CEO of an undiversified firm who is responsible for precisely those same two questions: how to succeed in the current business and what business the firm is or should be operating in. Hence, it appears quite reasonable to assume that leaders of business units face similar challenges and tasks in terms of implementing and formulating strategy for one specific business. This concern with the totality of single business operations is, in fact, what distinguishes the two job positions we are focusing on (division head and head of an independent undiversified firm) from that of the CEO of a larger, diversified firm (i.e., the boss of the division director), whose job consists to a large extent of orchestrating the activities of multiple businesses, be it by moving capital from one division to another, by explicitly monitoring division managers, or by exercising strategic control over the various units (e.g., Hoskisson & Turk, 1990; Stein, 1997, 2002; Williamson, 1975).

Moreover, Watson and Wooldridge (2005) showed that the more senior the business unit manager is (e.g., reporting directly to the corporate CEO or running a larger unit), the more likely he or she will influence strategic decisions. In our empirical design (below), we indeed pick only such senior managers, for whom the presumption that their job is equivalent in task to that of an independent CEO is thus fairly valid.

A separate argument in favor of task similarity between division directors and CEOs of single-business firms comes from the literature that focuses on the range and magnitude of information-processing requirements that are associated with different types of jobs. Henderson and Frederickson (1996), in particular, have identified these requirements as important drivers of pay structures and levels. On the level of a CEO, these requirements are generally believed to increase as the degree of firm diversification goes up (Chandler, 1962; Hoskisson & Hitt, 1990). CEOs in very diversified firms, however, may actually enjoy comparatively low degrees of information-processing requirements. This occurs as they use simple means of financial controls to oversee a multitude of business units within an internal capital market (Williamson, 1975) rather than engaging in highly demanding and time-consuming strategic control of each unit (e.g., Henderson & Frederickson, 1996; Hill & Hoskisson, 1987; Zajac & Westphal, 1994).

Yet for the CEO of a nondiversified firm, there is obviously no point in moving to such an internal capital market, and the effect of relieving this manager of the direct, strategic control of his or her operations therefore does not accrue. Moreover, the initial progression of information-processing needs with diversification also does not apply to a single-business CEO. Accordingly, there is little reason to assume that the information-processing requirements of a CEO of an undiversified firm differ much from those of a director of a division of comparable size. Overall, we thus reiterate our assumption that the CEO of a single business firm and the director of a large corporate division are facing rather similar jobs. Finally, in our empirical specification, we strive to further reduce task differences between division directors and CEOs of undiversified firms by creating a sample that matches these positions on several dimensions.

Hypotheses

Basic Effects of Structural Monitoring

Based on the assumption that division directors and CEOs of undiversified firms indeed perform rather similar tasks, we can now rely on the arguments and findings supporting a trade-off between monitoring and pay-for-performance financial incentives discussed above (Brickley et al., 2001; Prendergast, 2002; Zajac & Westphal, 1994) to propose that the presence of an additional (structural) layer of monitoring will be associated with a lower use of incentive pay. The basic intuition is simply that if two managers can be motivated to achieve a given level of performance by providing them with a specific level of incentives, then if one of them becomes subject to a higher degree of monitoring, ceteris paribus, we only need to offer this person a lower level of incentives to obtain the same results. More formally, the higher degree of monitoring translates into better information about the quality and performance of the division director and therefore a better control of potential managerial slack on the part of this director. This better control of the division director's slack decreases the need for providing expensive financial incentives linked to the performance of the firm or division, leading to a similar trade-off between monitoring and incentives as demonstrated in Zajac and Westphal (1994). Therefore, we propose,

Hypothesis 1: The proportion of pay-for-performance incentives over total pay will be larger for CEOs of nondiversified firms than for division directors who manage comparable business units.

This first hypothesis, however, implies a larger risk exposure for CEOs than for division directors because, as discussed above, pay-for-performance compensation schemes link total compensation to factors that are not entirely under the control of the executive. Because this

extra risk needs to be compensated for, one direct corollary of the influence of firm structure on salary composition is that the overall level of the salary also has to go up (e.g., Gray & Cannella, 1997). Thus, as incentives substitute for monitoring, there is a second order effect in terms of an increase in the riskiness of compensation, which implies that not only the structure but also the level of compensation should systematically change with the internal structure of a firm. Hence,

Hypothesis 2: Total compensation will be larger for CEOs of nondiversified companies than for division directors who manage comparable business units.

It is important to stress that this hypothesis specifically focuses on the comparison between division directors and CEOs of similar (matched) businesses rather than on compensation-level differences between division directors and their own corporate CEOs. In the latter case, the expectation of higher salary levels for the more senior position is quite obvious and backed by numerous theories of compensation. In fact, from the perspective of managerial tasks and information-processing requirements (Henderson & Frederickson, 1996) as well as from a consideration of managerial power (Finkelstein, 1992), it is quite clear that the corporate CEO would be entitled to a higher remuneration. Likewise, a central tenet of tournament theory (Rosen, 1986) is that compensation levels monotonically increase within a hierarchy and that especially the CEO position receives a particularly high prize (e.g., Lambert et al., 1993).

Yet these theories actually fail to make clear predictions for our focal case of division directors versus CEOs overseeing comparable businesses. Specifically, we have argued above that these two positions are indeed rather similar, which suggests that there are hardly any task or information intensity reasons for differential pay levels (the use of a matching algorithm in our empirical analysis below serves to further emphasize the comparability of positions).

Similarly, although a tournament logic has clear predictions for salary levels within a hierarchy, there is, in fact, no a priori argument one could derive from tournament theory of why the CEO of a smaller firm should have a higher salary than the division director of a business unit in a larger firm. Because, according to tournament theory, salary levels increase with the number of organizational levels, larger firms with more hierarchical levels will have higher compensation levels at the top than smaller firms (Gomez-Mejia, Tosi, & Hinkin, 1987). Similarly, the salary level of the top positions is usually considered to be a function of the size of the firm (e.g., Jensen & Murphy, 1990; Murphy, 1999; Tosi et al., 2000). Accordingly, because the CEOs in our sample are, by definition, working for firms that are overall much smaller than the corporations within which division directors work, it is entirely plausible that the salary level of a CEO of an undiversified firm could even be lower than that of a division director of a sufficiently large corporation, even accounting for a potentially large prize that this CEO receives within his or her own organization.

Furthermore, the task similarity between the two positions also reduces the applicability of managerial power explanations. To the extent that managerial power is based on control over organizational resources (e.g., measured by the size of the organizational unit a manager controls; Lambert et al., 1993), having very similar units under their control implies that power differentials between division directors and CEOs of single business firms are low on this score and thus not apt to explain differences in pay levels. Other bases of power, however, include personal equity holdings, board seats, and so on (e.g., Finkelstein, 1992; Lambert et al., 1993), which are manager specific and thus also do not allow for a priori predictions as to how our two focal positions vary in salary (we control for several of these variables in our empirical approach).

Hence, as traditional theories fail to predict salary differentials between division directors and CEOs of comparable businesses, we submit that this question is indeed an interesting one to study. The ability of our simple structural perspective to develop this hypothesis therefore underscores the potential power of our approach.

Effects of Diversification

Additional evidence for the importance of structural issues comes from an analysis of how the degree of firm diversification (another structural element) changes the proposed effects of having an additional layer of monitoring within a diversified firm. In particular, increasing degrees of diversification are assumed to lower the monitoring efficiency in a given context (e.g., Zajac & Westphal, 1994). This should reduce the ability of firms to use the extra layer of monitoring to control division directors and thus predictably lower the effects we have so far hypothesized. Finding such a pattern would suggest that our arguments have a high degree of consistency and provide additional evidence in favor of the suggestion that structural elements play an important role, above and beyond tournament or other considerations, in setting compensation practices.

Zajac and Westphal (1994), for instance, argued that the cost of monitoring can be understood in terms of the efforts involved in overcoming information asymmetry—the higher such asymmetry between a principal and an agent, the costlier it is to monitor that agent. They applied this information asymmetry framework to the relationship between board of directors and CEOs. Complex corporate strategies, such as diversification, are costlier for the board to monitor given the limited ability of board members to understand multiple industries well enough to properly supervise a firm's top management.

If monitoring is thus harder in conglomerates that are composed of a large number of divisions, then the effective level of monitoring of the CEO's behavior decreases and the alternative instrument of providing costly incentives to align interests will be emphasized. Yet this argument should apply not only to the monitoring of CEOs by the board of directors but also, in turn, to the monitoring of the division directors by the CEO.

In fact, CEOs may have a limited ability to monitor the behavior of many different divisions that operate in industries that could differ in fundamental characteristics such as growth opportunities, volatility, market structure, or key strategic resources (e.g., Stein, 1997). As this makes the CEO monitoring of division directors both more demanding and complex, we should expect that CEOs reduce such costly monitoring in favor of more delegation of authority to division directors together with more reliance on financial incentives.

In short, we extend Zajac and Westphal's (1994) reasoning from the CEO to other managerial levels within the firm. Although they suggested that different degrees of diversification affect the complexity of the firm and the CEO's task and thus the ability of the board to monitor the CEO, we suggest that the same changes in levels of diversification also, in turn, affect the ability of the CEO to monitor division directors.

Accordingly, this argument suggests a positive relation between the use and proportion of pay-for-performance mechanisms for division directors and the extent of diversification of the firm to which their division belongs. However, a second question is what type of incentives is, in fact, likely to increase with diversification. Specifically, because divisions do not trade in the stock market, using equity-based instruments to provide financial incentives to division directors would de facto link director compensation to a measure of performance to which directors only partially contribute and that furthermore depends on the contributions of other firm top

executives (and their respective subordinates) who are not under the division director's control or supervision.

Yet basic tenets of reinforcement theory (Heneman, 1992; Skinner, 1948) suggest that the motivating effects of variable pay are (much) stronger if, among other things, the reward is clearly dependent on the behavior of the rewarded employee. Because an increasing level of diversification would tend to further separate the outcome of equity-based incentives from the control of an individual division director, we should expect a negative relationship between this type of incentives and the degree of diversification.

Cash-based financial incentives, on the other hand, would maintain a direct link between managerial responsibility and outcomes and should therefore be the preferred option to compensate division directors even under conditions of high diversification. Accordingly, we propose two separate effects of how increases in diversification affect our first hypothesis that division directors will receive overall lower levels of incentive pay than CEOs of single business firms. First, the need to provide more incentives and to simultaneously match these incentives to managers' actual responsibilities results in a higher proportion of cash-based variable pay for division directors, which will tend to close the proposed incentive gap at least for this type of compensation. Second, we expect that higher levels of diversification will further decrease equity-based incentives for division directors, which will tend to widen the gap on this compensation element even further. Thus,

Hypothesis 3a: Differences in the proportion of non-equity-based incentives between division directors and CEOs of nondiversified comparable companies will narrow when these division directors are part of more highly diversified firms.

Hypothesis 3b: Differences in the proportion of equity-based incentives between division directors and CEOs of nondiversified comparable companies will widen when these division directors are part of more highly diversified firms.

Following the same argument as above, however, any increased reliance on incentives, cash or equity based, will likely require an offsetting increase in total pay. In the case of Hypothesis 3a, if division directors receive comparatively more cash-based incentives as the diversification level of their corporation goes up, they should therefore receive a pay premium as well. Conversely, in Hypothesis 3b, we predict that equity-based pay will actually decline, which implies that the corresponding pay premium is no longer necessary and that the pay level will decline as a consequence. To address the implications of these opposing tendencies, we will separately analyze their effects on total cash-based compensation and total compensation including equity-based elements.

With respect to cash-based compensation, the first effect is that additional cash-based incentives, as well as the pay premium given to the manager to accept the risk associated with this incentive pay, will drive up this compensation measure. This, however, is somewhat countered by a decrease in pay premium because of lower equity-based incentives and thus a lower risk exposure on that count. Because we expect that higher degrees of diversification lead to overall more incentive pay, we expect the first effect to be stronger. Therefore, we predict a somewhat higher pay level (excluding equity elements) for these directors and a resulting narrowing of the expected pay gap relative to CEOs. Hence, as a corollary of the primary effect of the hypothesized shift toward more incentive pay resulting from the reduction of (structural) monitoring because of diversification, we propose,

Hypothesis 4a: Differences in total nonequity compensation between division directors and CEOs of nondiversified comparable companies will narrow when these division directors are part of more highly diversified firms.

Finally, in terms of total compensation including equity elements, we have the same effects as just described, plus the fact that a lower level of equity-based pay will cause a further decline in this measure. However, as before, we do expect that diversification leads to an overall higher degree of incentive pay—thus, we expect that the decline in equity-based pay will not fully compensate for the increase in pay level because of higher cash-based incentives and the associated cash salary premium for the risk inherent in these incentives. Accordingly,

Hypothesis 4b: Differences in total compensation—including equity incentives—between division directors and CEOs of nondiversified comparable companies will narrow when these division directors are part of more highly diversified firms.

Method

Data and Variable Construction

We construct our data set by combining information from Compustat on both industry and segment characteristics with information on individual characteristics of executives from ExecuComp. As described above, we intend to compare the level and structure of compensation for CEOs of independent and nondiversified firms (in the following referred to as CEOs) with the level and structure of the managerial compensation that directors of comparable divisions receive (in the following division directors). ExecuComp provides this type of data for the CEO as well as for the top five executives of large U.S. corporations.

Prior research has used these data, for instance, to compare CEO and TMT compensation (e.g., Carpenter & Sanders, 2002), but there has thus far been no attempt made to identify specific types of managers within this top group. In our study, however, we are precisely interested in isolating those executives who identifiably act as division heads to test our hypotheses. Thus, we are using the ExecuComp data in a novel way by filtering out those information that pertain directly to division directors who head business units of larger firms and data that pertain to CEOs of nondiversified firms, respectively. This process of identifying business unit heads—as explained below—is done manually and therefore is quite time-consuming, and it is for this reason that we restrict our sample to just the year 2002.

For the CEO, it is comparatively easy to isolate the appropriate data in ExecuComp and combine them with firm-level information from Compustat. Essentially, we identify CEOs of those firms in ExecuComp for which the Compustat segment database does not list any separate divisions. We thus assume that the CEO presides over a single business firm and match the data with Compustat firm data. However, it is less trivial to identify directors of divisions of larger firms and then match these with information on characteristics of the division that they manage such as industry membership, size, or profits. To accomplish this matching, we have applied the following procedure:

1. We browse the ExecuComp listing of top managers and select those executives who do not hold a top corporate position such as CEO, chief operating officer, or chief financial officer.

2. Using the corporate Web page of each firm, we check if the executives selected in Step 1 are directors of a particular division. If we do not find this information on the corporate Web page, the observation is deleted. If we do find it, we attempt to match the

name of the division as given on the corporate Web page to the name of the segment in the Compustat segment data set. If the segment name is not identical in Compustat and on the corporate Web page, the observation is deleted.

3. We match the executive compensation information of directors from Steps 1 and 2 with the segment information of the Compustat segment database.

4. We add to the data set created in Step 3 firm information at the corporate level from Compustat as well as compensation information in the ExecuComp database for all CEOs who manage uni-segment companies. The result of this procedure leaves us with a total of 826 executives, 508 CEOs and 318 directors of divisions. However, in our regressions we use information of just 313 division directors because 5 of them have missing values for the executive compensation variables.

It is important to note that our approach of identifying division directors from among the small set of executives captured in ExecuComp necessarily limits our sample to the most highly paid and arguably most senior division directors of any given corporation. However, although it may limit the final size of the sample, this sampling strategy harmonizes rather well with our overall approach of identifying a set of division directors that perform similar tasks as a CEO of an independent firm. Identifying very senior division directors ought to fit this description rather well, particularly when compared to creating a sample with more junior managers who may head smaller divisions. In fact, for the identified set of (senior) division directors, we find it a rather reasonable assumption that observed differences in pay level and, in particular, pay structure are because of the discussed structural differences of their position rather than other characteristics such as talent or seniority. In this way, the sampling strategy acts, to a certain extent, as a natural

control for individual characteristics of executives and thus for the possible influences of human capital on pay levels (see, e.g., Leonard, 1990).

Dependent Variables

Because our hypotheses revolve around the level as well as the structure of executive compensation, we develop two sets of dependent variables that reflect these two basic issues. Moreover, to facilitate a more fine-grained analysis, we consider a number of different ways to calculate pay level and structure, depending on which elements of long-term or equity-based pay are included.

For compensation level, the first variable is "total current compensation," which simply consists of a manager's base cash salary plus (nonequity) long-term compensation items and cash bonuses. This variable is readily available from ExecuComp ("tcc" item) and by construction does not include any equity compensation. One additional pay level variable we compute is "total compensation," which simply adds to the first variable the total value of restricted stock grants and the Black-Scholes value of new option grants (this is the "tdc1" item in ExecuComp). These variables are similar to those used in prior work that has focused on explaining differences in compensation levels (e.g., Jensen & Murphy, 1990; Lambert et al., 1993).

For compensation structure we form three different ratios. For the first ratio ("total incentive ratio") we use the same measure as in Zajac and Westphal (1994) and calculate the sum of both nonequity (value of bonus and long-term incentive plans) and equity-based incentives (value of restricted stock grants and Black-Scholes value of option grants) over "total compensation." In addition, because Hypotheses 3a and 3b require differentiating between cash and equity incentives, we compute the "cash incentive ratio" as the ratio of non-equity-based

long-term incentives and bonuses divided by "total current compensation." This variable captures the proportion of pay-for-performance compensation over total pay without taking into account equity incentives. The second ratio ("equity incentive ratio") uses the sum of the value of option and stock grants in the nominator, whereas the denominator consists of subtracting from total compensation the value of bonus and long-term incentive plans. With this variable we try to isolate the strength of equity incentives as a pay-for-performance incentive device.

Independent Variables

Our primary goal in this article is to analyze how the various pay level and structural variables defined above are affected if a manager occupies either a division director or a CEO position. However, instead of employing an explicit independent variable (e.g., a dummy variable for division directors) to measure the effects of position on pay, we essentially integrate this independent variable into the various dependent variables by employing a matched-pair empirical design. Specifically, as we explain in detail in the section on "Empirical Strategy" below, using this matched-pair empirical approach leads us to define as dependent variables the differences between the observation for a given division director and the observation for his or her matched CEO for each compensation measure. The main implication for interpreting our results is that the information of primary interest, that is, how the position of division directors as compared to that of the CEOs affects the dependent variable, is contained in the intercept.

Furthermore, to address Hypotheses 3 and 4, we develop two standard measures of diversification. One is the total number of divisions ("segments") of the firm based on a count of segments in the Compustat segment database, whereas the second is the "entropy index," E,

computed as in Palepu (1985) as $E = \Sigma P_i \log(1/P_i)$, where P_i is the proportion of firm sales accounted for by segment i.

Control Variables

Both level and structure of managerial compensation will likely vary systematically across industries. Ideally, we would like to control by industry using an industry definition as detailed as the four-digit SIC code classification. Yet we have only 313 observations, and if we do so we find a large number of industries with just a single company. As a result, we use a more aggregated industry definition and control for industry effects with dummies at the two-digit SIC code level.

Previous literature has extensively reported that managerial compensation is strongly associated with firm size (for a survey, see Murphy, 1999; Rosen, 1986). The more resources that managers control, the higher their compensation. Because individual divisions are generally smaller than independent firms, omitting a control for the size of the unit that the manager is in charge of, the division for division directors, and companies for CEOs, respectively, might bias our results. To avoid finding level and structural wage differences that are just because of differences in the total size of organizational units, we control for "size" by the logarithm of firm sales if the observation is for a CEO and by the logarithm of segment sales if it is a division director.

Both level and structure of executive compensation also likely vary with firm investment opportunities (Baber, Janakiraman, & Kang, 1996). Because of this variation we are following Baber et al. (1996) and include a control for the ratio of firm market value to book value of assets ("market to book ratio"). However, although this measure is straightforward to compute for

CEOs, we cannot compute the market to book ratio at the divisional level because divisions do not have a market value. As a consequence, for division directors we use the average market to book ratio of the industry (two-digit SIC code) in which the given division is competing.

Furthermore, executives differ in the amount of company stock they possess. This difference might be relevant because executives who hold a relatively large number of company shares already have financial incentives to improve firm performance independently of the structure and level of their compensation. Aware of the presence of this incentive, the corporate board committees may adjust executive compensation practices. With this rationality in mind, we control in our regressions the "percentage of shares held by the individual executive." This variable is computed as the ratio of the number of shares held by the individual executive—the division director or the CEO—as reported in ExecuComp, divided by the total number of shares outstanding for the company, as given in Compustat.

In addition, this variable also serves a second purpose in terms of controlling for some of the effects of managerial power, which, as several authors (e.g., Bebchuk & Fried, 2005; Bebchuk, Fried, & Walker, 2002; Finkelstein, 1992) have strongly argued, may manifest itself in terms of executives' ability to affect the design and level of their own compensation. In addition to personal equity holdings, which may apply primarily to power at the CEO level (Lambert et al., 1993), we also try to account for differences in power for our division directors by adding a control regarding whether the executive sits on the board of directors or not. Finally, we also account for potential gender issues in compensation by adding a dummy equal to one if the executive is a woman.

Empirical Strategy

Our goal is to study both the compensation level and structure of division directors in comparison to those of CEOs running comparable nondiversified firms. In this subsection, we explain the econometric procedure we follow to find a "comparable" nondiversified firm for each division in our sample. Specifically, we utilize a direct matching method that is expressly designed to find CEOs of specialized firms that are comparable with divisions belonging to diversified firms according to a set of several observable characteristics such as the industry in which they operate and the size of their business unit.

Traditional matching methods estimate the difference between a "treated" and a "control" group, where the control group is formed by matching each unit in the treated group based on one or more characteristics. In our analysis, the treatment group consists of our sample of division directors whereas the control group is composed of a matched sample of CEOs of nondiversified firms. Yet these traditional matching methods generally suffer from the problem that partial matches based on one or a few characteristics may not provide the most relevant group for comparison, whereas on the contrary matching on all the possible characteristics in which division directors and CEOs differ is simply unattainable.

The propensity score matching method (initially proposed by Rosenbaum & Rubin, 1983) solves this curse of dimensionality problem by performing all matches based on just one dimension, the propensity score. This is justified because the so-called "propensity score theorem" implies that observations with the same propensity score have the same distribution of the full vector of characteristics. Accordingly, we choose this method for our matching process, although we perform a battery of robustness tests to ensure that our results are not driven by the particular matching process we use (for a similar application of the propensity score method and more discussion about its different varieties, see Villalonga, 2004).

The propensity score is defined as "the probability of assignment to a particular treatment given a vector of observed covariates" (Rosenbaum & Rubin, 1983: 41). In our case, the propensity score consists of the probability that a given organization is a division of a conglomerate—rather than an independent company—conditional on some organizational characteristics. Formally, the propensity score, $p(X_i)$ is defined as $p(X_i) \equiv Pr(D = 1|X_i)$, where D_i is the dummy variable equal to 1 if the observation corresponds to a division director, whereas X_i constitutes other observed firm variables that may influence compensation practices, including industry dummies. In the following, we explain in detail how we estimate the propensity score using standard binomial estimation methods and then match each division director to the closest CEO of a nondiversified firm according to score levels.

First, using our whole sample, we run a probit estimation in which the dependent variable is a dummy equal to 1 if the unit is a division director and 0 if it is instead a CEO of a specialized company. The independent variables that we include in this probit estimation are industry dummies at the two-digit SIC code, size measured by assets, percentage of shares owned by the executive, and the market to book ratio. We do not include the gender of the executive because we do not believe there is any reason that it may influence the likelihood that the organization is a division or an independent company. We also do not add the dummy that identifies whether the executive sits on the board because automatically all CEOs belong to the board of directors.

The results of this initial estimation are displayed in Table 1. The coefficients show that unit size, market to book ratio, and the percentage of shares owned by the top executive are strongly negatively related to the probability of being a division director rather than a CEO.

Table 1 about here

Using the first-stage probit estimation coefficients of industry and the rest of the controls from Table 1, we can now compute the propensity score—that is, the probability of being a division director—of each observation in our sample. Once we have done this, we assign to each of the 313 division directors for which we have full information in our sample the CEO with the closest propensity score. Note that this matching process based on just a single dimension, the propensity score, optimally finds the CEO that is most alike to a certain division director combining information about the industry, size, market to book ratio, and percentage of company shares held. We follow Abadie and Imbens (2006) and allow for a matching "with replacement" because these authors have shown that this method reduces asymptotic bias. In particular, this means that distinct division directors may be matched to the same CEO. Technically, this implies that matching pairs that rely on the same CEO are nonindependent observations. As Abadie and Imbens, we adjust for this nonindependence in the empirical analysis below by using a maximum likelihood estimation specifically designed to deal with this problem.

Table 2 shows the average differences between treatment and control group obtained in this manner. Note that the treatment group is still composed of units with slightly lower average size (about $300,000, around 13% smaller), market to book (0.12; i.e., around 7% lower), and percentage of shares (members of the control group have 0.68% more shares), but all differences are statistically insignificant and have largely been reduced as compared to the equivalent difference that can be computed from the numbers displayed in Table 3. From that table, we can easily infer that differences in asset value of the business units between the original two subsamples were around $600,000, the average market to book differs by 0.9 (a difference of around 55%), and CEOs controlled 2.5% more company shares. Note that intuitively this matching process reduces the differences in all three characteristics according to their importance

in explaining the probability of being a division rather than an independent company. As a result, a perfect matching for each of them is unattainable.

Table 2 about here

Finally, we also consider the results of this matching process in terms of industry membership. In this regard only 6% of the matched pairs have divisions and nondiversified firms operating in the same industry. This is not surprising because the first-stage probit estimation revealed that industry dummies are not good predictors of the probability of being a division or an independent company. We address this point again in the robustness test section.

Once we have computed the matched pairs, we estimate the propensity-score matching estimator by subtracting from each division director compensation variable the corresponding value of that variable for her matched CEO. We then follow Villalonga (2004) and regress the resulting differences on our set of controls including industry dummies and the diversification variables to test our hypotheses. Please note that as we are using the results of only matched pairs, we have 313 observations in our sample corresponding to each division director. Note as well that because for division directors we were using the corresponding industry market to book ratios, when we add industry dummies as controls we cannot include market to book as an additional control variable.

Results

Table 3 reports the descriptive statistics of the total sample and also breaks out the values that correspond to each of the two subsamples (i.e., CEOs of undiversified firms and division directors) that constitute the overall data set. A quick look at these descriptive statistics is

illustrative: As expected, the size of individual divisions of larger firms, as measured by revenues, is smaller than the size of the nondiversified firms presided over by the CEOs in our sample. Also, CEOs of nondiversified companies hold a larger percentage of company stock and operate in industries with larger market to book values. The latter is consistent with the findings of Lang and Stulz (1994), who reported that diversified companies operate in industries with lower Tobin's Q.

Table 3 about here

More specific to our hypotheses, we also find that division directors have lower pay levels than CEOs independently of including equity-based incentives or not when measuring compensation. This provides preliminary support for our Hypothesis 2. Regarding pay structure, however, we observe a more complex picture in that division directors receive a lower percentage of variable pay than CEOs when we take into account equity-based incentives but have a higher pay-for-performance ratio if we look only at non-equity-based incentives.

To investigate these relationships in a more formal way, we are now turning to the results that we have obtained by following the matched-pair estimation procedure described above. In particular, Table 4 displays the final results for the compensation structure variables, whereas Table 5 does the same for the compensation-level variables.

When interpreting the coefficients of Tables 4 and 5, it is important to keep in mind that the dependent variable is the difference between a division director and his or her matched CEO for each compensation measure. Consistent with this interpretation, all tables show a negative and statistically significant intercept, which shows that division directors have indeed lower

levels of incentive pay (Models 4.1 to 4.9) and lower compensation levels (Models 5.1 to 5.6) than do matching CEOs. We interpret this as empirical evidence in favor of Hypotheses 1 and 2.

The magnitude of these effects is quite relevant as well. The intercepts of Models 4.1, 4.2, and 4.3 suggest that division directors receive a cash-based incentive ratio that is on average 30 to 45 points lower. This means that if the cash incentive ratio of the division director represented 50% of total nonequity compensation, then the cash incentive ratio of the matched CEO would represent between 80% and 95%. When we consider equity incentives and look at the intercepts of Models 4.4, 4.5, and 4.6, the magnitude of these effects more than doubles. Similarly, the differences in pay levels are sizable, too, although the interpretation of the intercept coefficient is not straightforward as the compensation-level variables are in logs. An algebraic transformation of the coefficients displayed in Table 5 shows that division director current compensation is on average about 73% to 67% lower than their matched CEOs, whereas total compensation is on average 98% lower.[1]

Table 4 & 5 about here

Tables 4 and 5 also show that the size of the division is positively related to the differences of all three pay-for-performance ratios as well as to the matched differences of both compensation-level measures. Given the negative sign of the intercept, this means that the larger the size of the division, the more similar the compensation of its director relative to the compensation of his or her properly matched CEO. This positive correlation might indicate that managers of larger divisions perform more complex tasks that are harder to monitor, which, in turn, would negate the hypothesized structural effects and leave the division director in a similar

situation, as far as monitoring is concerned, than the comparable CEO. In line with our argument, pay levels and structure should then indeed become more similar as well.

Furthermore, when we analyze the percentage of shares owned by the top executive, we have opposite results depending on whether the compensation variables include measures of equity-based pay or not. Executive ownership increases the gap between a division director and his or her comparable CEO for measures of non-equity-based pay, whereas it reduces the differences for compensation measures that include equity incentives. Moreover, at least in the context of total current compensation, we also observe significant effects of gender, with females having even larger pay differentials for cash-based compensation but apparently no significant differences in overall pay as well as for directors with a seat on the board. The latter apparently lobby for higher cash-based incentives for themselves but do not seem to significantly affect total pay.

More relevant to our research purpose, the diversification strategy of the conglomerate positively affects the intensity of pay for performance when we consider only cash-based incentives for both the number of segments and the entropy index, supporting Hypothesis 3a. This is consistent with the findings of Berg (1969, 1973), who noted that among large diversified firms, lower fixed pay and rewards based on unit performance were prevalent. By contrast, the importance of equity incentives decreases with the same measures of diversification, backing up Hypothesis 3b. This finding is in itself consistent with Gomez-Mejia (1992), who found that the degree of diversification is negatively related to the use of incentive pay.

The diversification strategy likewise increases significantly the total current compensation of division directors but does not affect total compensation, which includes stock market-based compensation. We interpret this as evidence in favor of Hypothesis 4a, whereas

Hypothesis 4b is not supported. This lack of support of Hypothesis 4b may be because of a number of possible effects related to the opposing influences of cash- versus equity-based incentives that we have discussed above.

One possibility is that instead of awarding a higher absolute level of incentive pay when diversification goes up, firms simply switch approximately equal amounts of equity-based incentives for more targeted cash-based incentives. If the latter are indeed "more targeted," this would actually imply a higher effective degree of incentives than is the case with more equity-based pay while still leading to the observed noneffect in total pay levels. Second, it may also be the case that even though more cash incentives are granted than equity incentives are withdrawn, the required risk premium for this "higher" degree of incentives is lower than before. This would occur, for example, when equity-based compensation is subject to a higher degree of exogenous variability than non-equity-based incentives. In both cases, our basic idea that diversification leads to an increase in incentives essentially still holds.

Using the coefficients estimated in Table 5, we can also compute at what degree of diversification division directors would theoretically receive the same total current compensation as CEOs of nondiversified firms. Figure 1 displays a graphical representation of this relationship utilizing the coefficients of Model 5.2 corresponding to total current compensation as dependent variable and utilizing the average value of division size and executive ownership for a division director who is not a female and does not sit on the board. According to this figure, division directors would have the same current compensation as CEOs if the entropy index were equal to 0.54. Note that in our sample of division directors the average entropy index of the conglomerates they belong to is already 0.58. Furthermore, the maximum entropy index in our sample corresponds to the company Time Warner Inc., which with seven different divisions has

an index of 1.62, which means that for average to highly diversified conglomerates division director current compensation is larger than that for CEOs.

However, given the results in Models 5.4 to 5.6, CEOs would always receive higher total compensation independent of any diversification strategy of the conglomerate. When we perform the same experiment with the coefficients obtained when using the cash incentive ratio as dependent variable (Model 4.2), we find that division directors would be paid like CEOs when the entropy index of the conglomerates is only 0.36 (as illustrated in Figure 2), suggesting that cash incentives are really the pay method of choice to reward division directors.

Robustness Tests

As explained above, the matching process based on the propensity score has given more importance to other unit and division characteristics rather than to the industry in which the division operates. This does not represent a problem because it seems that industry is not a good predictor of the probability that a given unit is a division. Also, the final propensity score matching estimators include industry dummies as controls that prevent our results from being driven by industry effects. Yet as a robustness test, we have performed an additional matching process based exclusively on the industry in which the division operates.

For this purpose, we have matched to each division director the average value corresponding to all CEOs of nondiversified firms that operate in the same industry. We obtain the same qualitative results as we have discussed immediately above with the propensity-score matching estimator. To avoid cluttering the article with tables, we do not report these results here, but they are available from the authors on request.

Another source of concern could be the absence of controls for executive demographics in our specifications, such as firm tenure or age. Unfortunately, ExecuComp provides demographic information only for a small subsample of below-CEO executives. In terms of our sample, this means that we were able to collect information on age for only 60 and on company tenure for only 90 division directors out of a total of 313. Given this dramatic reduction in sample size, we have opted to not include these controls in our empirical models.

However, we have performed additional analyses to assess whether the absence of these controls bias our estimates. For this we create a dummy equal to 1 if information about tenure is missing and 0 otherwise, and if the information on tenure is missing we also assign the executive a value of tenure equal to 0. We proceed in the exact same manner with the age of the executive. In the econometric procedure we include the control of tenure and age computed in this manner plus the corresponding dummies. This method allows us to preserve our sample and at the same time exploit the variability in tenure and age for those directors that have no missing values. Please note that both dummies would capture any average effect driven by the probability of ExecuComp reporting that type of executive information or not. Our results do not change when we include tenure and age in this manner, and we interpret these data as evidence that our results are not driven by biases resulting from the omission of director demographics.

Discussion

Our focus in this article has been on highlighting the effects of structural characteristics on compensation practices in terms of both pay composition and level. We extend prior work focusing on trade-offs between monitoring and incentives because of the costs and benefits of these corporate governance elements (e.g., Zajac & Westphal, 1994) by analyzing how these

trade-offs affect levels of management below the often analyzed CEO, thus addressing to some degree Carpenter and Sanders's (2002) complaint that most corporate governance research has a near-exclusive focus on CEO compensation. We do so by exploiting the task similarity between directors of individual divisions of larger firms and CEOs who head single business companies to analyze the role that the simple structural difference of an additional layer of monitoring in the case of the division directors has on the aforementioned trade-off.

Utilizing a unique data set, we have found strong empirical support for all but one (Hypothesis 4b) of our specific hypotheses. Specifically, after controlling for various structural differences, we find that division directors have a lower total compensation and less financial incentives than do independent CEOs, but these differences—at least for the non-equity-based part of incentives and total compensation—decrease as higher levels of corporate diversification lower the "natural" degree of monitoring within a more and more complex organization.

As a result of focusing on seemingly different positions across separate firms—CEOs of independent firms and division heads of business units—who, nevertheless, perform the very similar tasks of running their respective businesses, we provide a somewhat different lens than does, for example, tournament theory (Rosen, 1986), which has also looked at compensation levels but squarely within hierarchies. By looking outside the organization (diversified corporation) for a comparable position (CEOs of nondiversified firms), our work highlights the additional governance forces (monitoring) that are at work within a corporation and that affect the level and structure of pay rather than focusing on the hierarchical competition across various management levels.

Lambert et al. (1993) suggested that several logics (e.g., tournament, managerial power, agency considerations) simultaneously operate in shaping a firm's compensation policy. We

wholeheartedly agree with this statement and suggest that the simple differences in organizational structure for a given position, in the present case, the existence of an additional layer of monitoring or the number of other segments in which a firm is active, may play a straightforward and important role in this orchestra of influences. In our current study we have attempted to construct a sample that limits the applicability that particularly tournament, task differences, managerial power, or human capital explanations may have by matching highly paid senior division directors who head subunits of large corporations to CEOs of smaller, undiversified firms. Our results show that both the level and the structure of compensation differ in ways that are predictable based on the simple fact that a division director is exposed to more monitoring and that diversification, by contrast, makes monitoring more costly again.

Particularly, our findings regarding the structure of incentive compensation have delivered new and unique insights that are not related to tournament considerations (which primarily focus on the differences in pay levels across hierarchies—e.g., Conyon et al., 2001; Eriksson, 1999; Henderson & Frederickson, 1996, 2001; Lambert et al., 1993) and therefore underscore the importance of taking the totality of governance elements (planned or structural) into account. Our results are important to the extent that they further clarify theoretically "correct" ways of compensating managers and thus help to avoid costly overpayments or, perhaps more important, to underincentivize key employees (Ang et al., 1998).

In addition, our findings suggest that merger and acquisition activity that essentially converts individual businesses into divisions of larger organizations can, in fact, capitalize on the existence of a higher degree of monitoring within the corporation. As we have seen, even carefully matched division director-CEO pairs, which seem to do pretty much the same job, have rather large differences in absolute compensation, which could materially affect a firm's

(division's) profit. Corporations have to be aware, however, that the effect of their structurally higher monitoring wears thin with further levels of diversification, suggesting adaptations to the incentive mix toward more cash-based incentives that are more directly related to outcomes over which the division director has control.

These observed adaptations are in fact also very much in line with prescriptions in the literature on variable pay that suggest that the incentivizing effect of such measures accrues only when a good match between managerial responsibilities and pay outcomes is ensured (e.g., Heneman, 1992; Skinner, 1948). Ducharme and Podolsky (2006), for example, suggested that variable pay plans that provide for both "contingency" of rewards on individual actions as well as "contiguity" in terms of a short duration between performance and reward provide what they called "line of sight"—employees can understand and appreciate the performance-pay relationship and thus adjust their behavior accordingly. They lamented, however, that this line of sight is increasingly blocked as compensation plans become more long term, complex, and not based on individual performance.

Although our study cannot address the contiguity issue as we have not analyzed the timing characteristics of non-equity-based incentives, what our results do show is that firms, in adjusting division directors' pay structure when higher levels of diversification reduce the "natural" level of monitoring in a large corporation, apparently act quite prudently to maintain a close match between individual responsibilities and rewards. Thus, at least at the level of upper-managerial compensation, we provide new evidence that firms successfully attempt to maintain at least part of this "line of sight."

Moreover, our findings discussed above that firms not only scale down division directors' salaries but likewise account for the structurally higher presence of monitoring by adjusting the

mix of compensation elements accordingly also have a clear bearing on the current academic and policy debate regarding executive pay. In particular, a branch of the literature (e.g., Kaplan, 2008; Murphy, 1999) defends the fact that firms set top management salaries efficiently according to market forces and estimations of the added value contributed by top executives. On the contrary, other authors (e.g., Bebchuk & Fried, 2005; Bogle, 2008; Moriarty, 2005) argue that top executives use their power within the organization to design their own compensation schemes in a manner that maximizes rent extraction from shareholders, void of any potential efficiency considerations.

Whether or not those within a company who set division director pay consciously look outside the firm to make the same comparison we have made, our results suggest that firms indeed act quite responsibly in defining the composition and level of their division directors' pay. Existing structural characteristics of large firms, such as additional layers of monitoring and the degree of diversification, are apparently used to create a theoretically sound mix of incentives for such directors, which in turn (our Hypothesis 2) also allows for paying these directors much less than what an "independent" CEO would get—for essentially the same job! Although, as we mentioned in the introduction, we cannot address the question of whether the absolute level of CEO compensation is justified or not, what this pattern shows is that firms are indeed quite prudent in fine-tuning salary structure and levels below the CEO and leveraging organizational characteristics to "pay less."

As all empirical research, our analysis has a number of limitations. The nonavailability of data allowing for a more in-depth look at personal characteristics of directors clearly counts among these limitations. Although our robustness tests have excluded the possibility that our current results were biased because of not including age or tenure variables, other variables, such

as product market strategy or location-specific economic environments, may play important roles in the setting of CEO and other managers' pay that we have failed to account for. A task for future work would therefore be to explore the theoretical and empirical implications of including these additional variables for our notion of the importance of simple structural issues for the setting of salary structure and level. This also applies to another important limitation, which is that our sample consists of only a single year.

Furthermore, in our empirical analysis we have focused on the most senior division directors in a given firm. Although we believe that our results lend credence to the notion that the presence or absence of structural levels of monitoring affects the salary structure and level along the entire hierarchy within a given firm, further tests that explicitly include multiple levels of a firm's hierarchy will be necessary to confirm this intuition. A further important task for future work is the assessment of whether firms that "correctly" take account of structural issues such as internal monitoring or the effect of diversification levels in adjusting their top or middle managers' salary levels and structures also perform better than firms that do not (see Bloom & Milkovich's [1998] analysis of "risk").

Another limitation, finally, is that one additional dimension of managerial power, that is, the basic fact that having a high formal position, such as the official title of a CEO, may grant one power (e.g., Finkelstein, 1992; Lambert et al., 1993), has not been sufficiently addressed in our study. This may provide an alternative explanation for finding support for our Hypothesis 2—yet given the rather large observed salary differences for practically identical jobs, a pure power explanation appears to be too "expensive," particularly when the existence of additional monitoring within a corporation provides an efficiency explanation for these differences. The truth probably lies somewhere in the middle, where part of the salary differences between CEOs

and division director may be attributable to the higher official power of the former and another part being most likely because of the simple structural explanation we have advanced. Although we believe that structural issues are likely to account for the majority of this difference, it is up to future work to untangle these issues.

Note

1. Because compensation variables are in logs, the formula applied to find percentage differences (%dif) from the intercept coefficients in Table 5 is: %dif = 1 − exp(coefficient of intercept).

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Tables

Table 1
First Stage of the Propensity Score Matching Estimator, Probit Estimation

Variable	Coefficient	SE
Intercept	–5.00	4660
Size[a]	–0.08*	0.04
Market to book ratio[b]	–0.75***	0.11
Percentage of shares held by individual executive	–0.54***	0.04
N	816	
Log likelihood	–243.25***	

Note. Probit estimation of the probability that a given organizational unit is a division of a diversified firm or an independent company. Industry dummies at the two-digit SIC code are included in the analysis.

[a] Log of firm sales for CEOs and log of division sales for division directors.

[b] Firm market to book value for CEOs and industry market to book value for division directors.

† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 2
Comparison Between Treatment and Control Groups: Average Differences Between Control and Treatment Groups and Standard Deviation of the Difference

	Size[a]	Market to Book	% of Shares
Average difference	315.75	0.12	0.0068
SD	6251	0.67	20.24

[a] In thousands of dollars.

Table 3
Descriptive Statistics (Whole Sample and Subsamples), Year 2002

		Combined Sample			CEOs of Non-diversified Firms			CEOs of Non-diversified Firms	
	M	**SD**	**N**	**M**	**SD**	**N**	**M**	**SD**	**N**
Cash incentive ratio	0.36	0.34	826	0.33	0.29	508	0.39	0.39	318
Total incentive ratio	0.66	0.24	818	0.68	0.26	505	0.63	0.21	313
Equity incentive ratio	0.57	0.30	818	0.60	0.31	505	0.53	0.25	313
Total current compensation ($000s)	908	822	826	1,041	841	508	694	744	318
Total compensation ($000s)	3,538	6,568	818	4,551	7,878	505	1,904	2,897	313
Size (sales in $000s)	2,285	5,423	826	2,531	6,315	508	1,892	3,536	318
Market to book	2.20	1.62	826	2.54	1.93	508	1.64	0.62	318
Number of segments	2.18	1.79	826	1	0	508	4.07	1.60	318
Entropy index	0.22	0.41	826	0	0	508	0.58	0.47	318
Proportion of shares held by exec.	0.02	0.05	826	0.03	0.06	508	0.01	0.01	318
Female	0.03	0.17	816	0.02	0.15	532	0.03	0.19	314
Sits on the board	0.63	0.48	816	0.99	0.12	532	0.06	0.25	314

Table 3 continued
Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Cash incentive ratio	1												
2. Total incentive ratio	.38	1											
3. Equity incentive ratio	.14	.90	1										
4. Total compensation	.16	.42	.43	1									
5. Total current compensation	.49	.33	.20	.42	1								
6. Size	.31	.22	.16	.28	.48	1							
7. Market to book	-.01	.15	.16	.17	.05	-.07	1						
8. Segments	.18	-.05	-.09	-.15	-.11	.07	-.22	1					
9. Entropy	.21	-.01	-.04	-.10	-.04	.08	-.17	.83	1				
10. % shares by executive	-.09	-.15	-.12	-.04	.01	-.07	.06	-.18	-.15	1			
11. Dummy division director	.09	-.09	-.11	-.19	-.20	-.01	-.27	.83	.69	-.22	1		
12. Female	-.03	.03	.03	-.03	-.04	-.06	-.01	.00	.03	-.05	.04	1	
13. Sits on board	-.08	.01	.07	.19	.20	.05	.25	-.75	-.68	.56	-.92	-.04	1

Table 4
Propensity Score Matching Estimator for Compensation Structure Variables

Dependent Variable		Cash Incentive Ratio (Differences) [a]			Equity Incentive Ratio (Differences)[b]			Total Incentive Ratio (Differences)[c]	
Model	**4.1**	**4.2**	**4.3**	**4.4**	**4.5**	**4.6**	**4.7**	**4.8**	**4.9**
Intercept	–0.30* (0.14)	–0.42** (0.14)	–0.43** (0.14)	–1.26*** (0.18)	–1.17*** (0.19)	–1.12*** (0.16)	–0.92*** (0.12)	–0.88*** (0.12)	–0.87*** (0.11)
No. of segments[d]	0.04*** (0.01)			–0.05*** (0.02)			–0.02† (0.01)		
Entropy index[e]		0.59** (0.20)			–0.47^ (0.26)			–0.24 (0.17)	
Size	0.07** (0.02)	0.06** (0.02)	0.06** (0.02)	0.11*** (0.02)	0.11*** (0.02)	0.12*** (0.02)	0.07*** (0.01)	0.07*** (0.02)	0.08*** (0.02)
% of shares	–0.03* (0.01)	–0.03** (0.01)	–0.04** (0.01)	0.07* (0.03)	0.07* (0.03)	0.07* (0.03)	0.05† (0.03)	0.05† (0.03)	0.06* (0.03)
Dir. on board	0.08 (0.12)	0.09 (0.12)	0.10 (0.12)	–0.13 (0.13)	–0.14 (0.13)	–0.16 (0.14)	–0.11 (0.09)	–0.11 (0.09)	–0.12 (0.09)
Female	–0.11 (0.12)	–0.12 (0.11)	–0.10 (0.12)	0.03 (0.18)	0.04 (0.17)	0.02 (0.17)	–0.02 (0.12)	–0.02 (0.12)	–0.02 (0.12)
Pseudo R^2	.18	.20	.20	.22	.23	.23	.41	.42	.42
Observations	313	313	313	313	313	313	313	313	313

Note. The dependent variable in all specifications is the difference between the corresponding value of the variable of division directors and the value of the matched CEO of an independent company. The matching is performed according to the closest propensity score estimator. All regressions include controls of industry dummies at the two-digit SIC code and use a maximum likelihood procedure that adjusts standard errors to take into account that those matched pairs that share the same CEO have a common component in the error term.

[a] Ratio of the sum of bonus and long-term incentive plans over total current compensation, which includes salary, bonus, and long-term incentive plans.

[b] Ratio of the sum of the value of restricted stock grants and the value of options granted using the Black-Scholes formula divided by total compensation minus bonus and long-term incentive plans.

[c] Ratio of the sum of bonus, long-term incentive plans, the value of restricted stock grants, and the value of options granted using the Black-Scholes formula divided by total compensation.

[d] Number of segments of the diversified corporation.

[e] Entropy index computed as $E = \Sigma P_i \log(1/P_i)$ where P_i is the proportion of firm sales accounted by segment i.

† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 5
Propensity Score Matching Estimator for Compensation-Level Variables

Dependent Variable	Total Current Compensation (Differences in Logs)[a]			Total Compensation (Differences in Logs)[b]		
Model	**5.1**	**5.2**	**5.3**	**5.4**	**5.5**	**5.6**
Intercept	–1.06*** (0.31)	–1.28*** (0.30)	–1.30*** (0.30)	–3.81*** (0.50)	–3.82*** (0.49)	–3.83*** (0.52)
No. of segments[c]	0.08** (0.02)			0.01 (0.04)		
Entropy index[d]		1.10** (0.35)			0.11 (0.52)	
Size	0.21*** (0.03)	0.20*** (0.03)	0.20*** (0.03)	0.40*** (0.05)	0.40*** (0.05)	0.40*** (0.05)
% of shares	–0.23** (0.09)	–0.26** (0.08)	–0.26** (0.08)	0.37* (0.15)	0.37** (0.15)	0.36** (0.15)
Dir. on board	0.78*** (0.21)	0.80*** (0.20)	0.82*** (0.21)	–0.30 (0.40)	–0.29 (0.40)	–0.29 (0.40)
Female	–0.44* (0.22)	–0.47* (0.20)	–0.43* (0.22)	–0.43 (0.35)	–0.44 (0.35)	–0.43 (0.35)
Pseudo R^2	.20	.21	.21	.15	.15	.15
Observations	313	313	313	313	313	313

Note. The dependent variable in all specifications is the difference between the corresponding value of the variable for division directors and the value for the matched CEO of an independent company. The matching is performed according to the closest propensity score estimator. All regressions include controls of industry dummies at the two-digit SIC code and use a maximum likelihood procedure that adjusts standard errors to take into account that those matched pairs that share the same CEO have a common component in the error term.

[a] Total current compensation that includes salary, bonus, and long-term incentive plans.

[b] Total compensation.

[c] Number of segments of the diversified corporation.

[d] Entropy index computed as $E = \Sigma P_i \log(1/P_i)$ where P_i is the proportion of firm sales accounted by segment i.

* p < .05. ** p < .01. *** p < .001.