Discretion in Executive Incentive Contracts: Theory and Evidence

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Abstract

We examine the role of discretion in executive incentive contracts, and explore the trade-offs firms face in choosing among imperfect objective measures of individual performance, potentially more accurate but non-verifiable subjective measures, and overly broad objective measures of company-wide performance that include the performance of all agents in the firm. We generate implications and test the model empirically using a proprietary dataset of executive bonus plans. Consistent with our model, we find that discretion is less important in determining CEO pay than the pay of other executives. We also find that discretion is relatively important in determining executive bonuses at larger and privately held firms and that more diversified firms are relatively less likely to compensate their business unit managers based on firm-wide performance. Finally, we consider (and largely dismiss) tax-related explanations for our results.

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by

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1. Introduction

Central to the design of any management incentive compensation plan is the definition of the measures used to evaluate and reward performance. For incentive purposes, an ideal performance measure would reflect a manager's true contribution to firm value, purged of factors beyond her control but including the effect of current actions on the performances of co-workers or on the future profitability of the firm. In practice, the available objective measures are typically either too broad (*e.g.*, company-wide performance affected by all employees as well as external factors) or too narrow (*e.g.,* business-unit accounting performance for managers who can influence firm performance beyond their division). However, while a manager's contribution to firm value can usually not be measured objectively, it can often be subjectively assessed by higher-level managers or the board.

In this paper, we explore theoretically and empirically the role of discretionary bonuses based on subjective assessments of individual performance. We develop and test a model in which discretion is used to correct or adjust for imperfections in the available objective performance measures. Following Baker, Gibbons, and Murphy (1994) (BGM hereafter) we assume that the firm can make assessments of individual contributions to firm value, but that these assessments are non-verifiable to parties outside the firm. We also assume, following Prendergast and Topel (1993) and Holmstrom (1999), that an individual may be able to influence these assessments, perhaps destroying firm value in the process. The bonuses paid based on these subjective assessments are discretionary in the sense that the firm can choose

to pay or not pay the bonus without fear of reprisal from the courts. However, if the firm reneges on a promised discretionary payment, it faces recourse not from the courts but rather from the managers themselves, who assume that a firm that is dishonorable once will be dishonorable in the future.

Building on BGM and Holmstrom and Milgrom (1991), we begin in Section 2 with a simple multi-task model of the use of subjective and objective performance measures. We highlight three aspects of these measures' trade-offs: firms' incentives to renege on non-contractible subjective bonuses, noise in objective measures, and the opportunity for individuals to engage in non-productive influence activities that affect subjective assessments. Firms in our model use up to three performance measures: an objective measure that imperfectly captures the individual's contribution to the firm, a potentially (but not necessarily) more accurate non-verifiable subjective measure, and (if available) a measure of company-wide performance that includes the performance of all agents in the firm.

We derive the optimal weights on the three performance measures both within and across firms. We show that the weight on subjective relative to objective measures increases with the importance of the actions that affect value but not the objective measure and that the relative weight on subjective measures decreases as agents can more effectively manipulate these measures. We also show that factors that decrease the share of company-wide equity held by an individual manager (such as increases in the size of the management team) will increase the use of discretionary bonuses. We develop a variety of empirical predictions based on our interpretation of model parameters. In particular, we predict that bonuses will be more discretionary (that is, the relative weight on subjective vs. objective performance measures will be higher) in privately held companies, in companies with more top managers, in larger companies, and in companies with substantial growth opportunities. In addition, we predict that bonuses will be less discretionary for the chief executive officer (CEO) than for lower-level executives, and that bonuses for business-unit executives will be less

discretionary, and more based on business-unit rather than company-wide results, in relatively autonomous business units.

Section 3 provides our empirical analysis of discretion in executive incentive plans, based on a confidential survey of 280 bonus plans gathered by a large compensation-consulting firm. Our data, which include detailed data on the use of discretion for several management positions in both public and non-public companies, offer several advantages over data previously used to study discretion in executive bonuses. For example, Bushman, Indjejikian, and Smith (1996) (hereafter BIS) and Ittner, Larcker, and Rajan (1997) also rely on proprietary datasets obtained from compensation consulting firms, but analyze less-inclusive measures of discretion that are available only for CEOs in publicly traded companies.[1]

Although only a small fraction of our 280 sample companies offer fully discretionary bonus plans, we document a variety of ways that firms can exercise discretion in awarding annual bonuses. For example, individual bonuses may be based in part on subjectively assessed individual performance as well as on accounting-based financial performance. Alternatively, the boards of directors may make discretionary adjustments to the aggregate bonus pool. We show that firms without publicly traded stock use more discretion in allocating bonuses among plan participants and that the use of discretion among publicly traded firms increases with company size and the number of plan participants.

We also study differences across positions and find that CEOs are less likely to receive bonuses based on individual performance appraisals than are lower-level managers. In addition, we show that business-unit executives in multi-segment or multi-industry firms

[1] Several studies have addressed discretion in executive compensation indirectly. For example, Hayes and Schaefer (2000) design a model of discretionary executive pay that makes predictions (which they confirm empirically) about the relationship between *current* cash compensation and *future* firm performance. Hallock and Oyer (1999) find similar results. Aggarwal and Samwick (1999) attempt to draw conclusions about the use of discretion from proxy statement data by considering how pay-performance sensitivities vary across executive positions in public companies.

receive less discretionary pay, and more pay based on unit performance, than do business-unit executives in undiversified single-segment firms.

Section 4 recognizes that several of our primary findings may reflect regulatory constraints on discretionary payments imposed by U.S. tax law. Recent changes in the tax code, effective beginning in 1994, limit the deductibility of "non-performance-based" compensation to $1 million for top executives in publicly traded U.S. companies. Under the Internal Revenue Service (IRS) definitions, formula-driven bonuses based on objective measures are considered performance based and deductible, while bonuses based on subjective measures are not. We analyze the tax issues affecting discretion in executive incentive contracts and consider how tax changes may drive our results. Overall, we conclude that the new tax law has influenced the use of discretion in executive incentive contracts, but show that our results are not driven by these tax considerations.

Section 5 summarizes our results and concludes. Overall, our evidence is consistent with viewing the role of discretion as correcting or adjusting for imperfect objective performance measures.

2. A Multi-Task Model of Discretionary Bonuses

2.1 Economic Environment

We begin with a simple multi-task model of the trade-offs between subjective and objective performance measures. We define Z_i as manager i's individual contribution to firm value, but assume that Z_i is not directly observable and therefore cannot form the basis for an incentive contract. The firm chooses among three observable performance measures—an objective measure that imperfectly captures individual contribution (X_i), a potentially more accurate subjective measure (Y_i) that is both non-verifiable and subject to managerial manipulation, and a measure of firm-wide performance that includes the performance of all

managers in the firm (Π). The firm is assumed to consist of *n* risk-neutral managers. To keep things as simple as possible, we assume that X_i, Y_i and Z_i are either zero or one.

Managers can take actions that affect the objective performance measure X_i, and can also take actions that affect the value of the company in ways not captured by X_i. In particular, we assume that manager i takes actions $\{a_{i1}, a_{i2}\}$ that affect the probabilities of realizing $X_i=1$ and $Z_i=1$, as follows

$$\text{Prob}(X_i=1) = a_{i1},$$

$$\text{Prob}(Z_i=1) = a_{i1} + \gamma_i a_{i2}.$$

When $\gamma_i=0$, the manager's individual contribution to firm value can be measured objectively by X_i. However, when $\gamma_i\neq0$, the manager can take actions a_2 that affect firm value but are not reflected in X_i. For example, X_i might be divisional profit in a firm where division heads can take actions that affect the performance of other divisions. Or, X_i might be short-run accounting profit in a situation where managers take current actions that show up only in future profit.[2] The parameter γ_i measures the importance of these cross-sectional or intertemporal externalities for this particular manager.

In addition to the objective performance assessment X_i, the firm can also make a subjective assessment of individual performance, Y_i. We assume that manager i takes actions $\{a_{i1}, a_{i2}, a_{i3}\}$ that affect the probability of realizing $Y_i=1$:

$$\text{Prob}(Y_i=1) = a_{i1} + \gamma_i a_{i2} + \eta_i a_{i3}.$$

When $\eta_i=0$, the manager's individual contribution to firm value can be measured subjectively by Y_i. However, when $\eta_i\neq0$, the manager can take unproductive actions a_3 that affect subjectively assessed performance but not firm value. For example, a_3 might reflect actions

[2] Baker (1992) models the firm's problem when it has only an imperfect objective measure, such as X_i, on which to base incentive pay. Holmstrom (1999) considers the value of adding additional objective measures to the agent's contract.

managers take to influence, bias, or curry favor with their superiors (Prendergast and Topel, 1993, and Holmstrom, 1999).

The individual's true contribution to firm value, Y_i, is non-verifiable and therefore cannot be the basis of a court-enforceable contract. However, we assume that Y_i can be subjectively assessed by a supervisor or the board and, following Bull (1987) and BGM, can therefore be used in a self-enforcing relational contract in a repeated game. In particular, we assume that the firm can promise to pay a discretionary bonus of d_i when $Y_i=1$. But, once the results are tallied, the firm can renege on its promise by not paying d_i when warranted. The contract will be self-enforcing if the firm's losses from reneging (reflected in its ability to enter into such contracts in the future) exceed the gains from reneging.

Compensation contracts consist of a base salary w_i, an objective bonus b_i paid when $X_i=1$, and a discretionary bonus d_i promised to be paid when $Y_i=1$.[3] In addition, we assume that manager i receives a share s_i of total profit Π, where

$$\Pi = \sum_{i=1}^{n} Z_i - w_i - b_i X_i - d_i Y_i, \tag{1}$$

and incurs cost $c(\mathbf{a})$, where

$$c_i(\mathbf{a}) \equiv \tfrac{1}{2} c_1 a_{i1}^2 + \tfrac{1}{2} c_2 a_{i2}^2 + \tfrac{1}{2} c_3 a_{i3}^2, \tag{2}$$

yielding expected utility $E[U_i]$ given by,

$$E[U_i] = w_i + b_i a_{i1} + d_i(a_{i1} + \gamma_i a_{i2} + \eta_i a_{i3}) + s_i E[\Pi] - c_i(\mathbf{a}). \tag{3}$$

The timing of events within each period is as follows. First, the firm offers each manager a compensation package (w_i, b_i, d_i, s_i). Second, the manager either accepts the

[3] Our assumption that b_i depends only on the realization of X_i and d_i depends only on Y_i substantially simplifies our analysis. Allowing an additional bonus for high realizations of *both* X_i and Y_i would complicate the exposition but would not change our results (we thank Jan Zabojnik for providing a proof of this assertion). In addition, we could allow d_i to depend on Y_j (for $j \neq i$) as well as Y_i. Relaxing this assumption will not improve incentives (since manager i can only affect Y_i and not Y_j) but may affect reneging temptations in (7) below.

compensation package or rejects it in favor of an alternative employment opportunity with utility $\overline{w}_i$. Third, if the contract is accepted then the manager chooses unobservable actions $\{a_{i1}, a_{i2}, a_{i3}\}$ to maximize (3). Fourth, the firm and each manager observe Y_i and the firm and the manager (and, if necessary, a court) observe X_i and Π. Finally, the manager receives a share of realized profit, $s_i\Pi$, and if $X_i = 1$ then the firm pays the bonus b_i dictated by the explicit contract, and if $Y_i = 1$ then the firm chooses whether to pay the manager the discretionary bonus d_i.

Expected firm profit per period (after all compensation and profit-sharing payments) is given by,

$$V = \left(1 - \sum\nolimits_i s_i\right)E[\Pi], \text{ where } E[\Pi] = \sum_{i=1}^{n} a_{i1} + \gamma a_{i2} - E[w_i + b_i X_i + d_i Y_i]$$

From the participation constraint, we know $E[w_i + b_i X_i + d_i Y_i]$ + $s_i E[\Pi]$ - $c_i(a) = \overline{w}_i$. Substitution yields

$$V = \sum_{i=1}^{n} (a_{i1} + \gamma a_{i2} - c_i(\mathbf{a}) - \overline{w}_i) \tag{4}$$

If manager i believes the firm will honor the contract and pay discretionary bonuses when warranted, then the managers' action decisions are given by,

$$\begin{aligned} a_{i1} &= \frac{(b_i + d_i) + s_i(1 - b_i - d_i)}{c_{i1}}, \\ a_{i2} &= \frac{\gamma_i(d_i + s_i(1 - d_i))}{c_{i2}}, \\ a_{i3} &= \frac{\eta_i d_i(1 - s_i)}{c_{i3}}. \end{aligned} \tag{5}$$

The first-best actions are achieved when the marginal benefit of each action equals its marginal cost, or $a_{i1}^{FB} = 1/c_{i1}$, $a_{i2}^{FB} = \gamma_i / c_{i2}$, and $a_{i3}^{FB} = 0$. When $\eta_i > 0$, (5) implies that first-best can only be achieved when $s_i = 1$ (with b_i and d_i arbitrary). We rule out achieving first-best solely through profit sharing (that is, selling each of $n > 1$ managers 100% of the firm) by

imposing a balanced-budget constraint, $\sum_i s_i \leq 1$. We view this assumption as realistic given liability limitations and also as a useful proxy for unmodeled risk aversion.

We assume there is sufficient communication among the n infinitely lived managers so that if the firm reneges on one manager it affects the firms' ability to contract with all managers in subsequent periods.[4] In particular, we explore trigger-strategy equilibria in which, if the firm fails to pay a promised discretionary bonus to any manager, all parties will refuse to cooperate forever after. As a consequence of this assumption, the firm will renege on promised payments to all managers simultaneously, if at all. Define V^d as maximum firm profit per period (after all compensation and profit-sharing payments) when the firm contracts optimally on X_i, Y_i, and Π, and define V* as the maximum profit when the firm is only able to contract optimally on X_i and Π. Then, if the firm reneges on promised payments, it saves $\sum_i d_i Y_i$ this period and earns V* forever thereafter, while if it honors the contract it earns V^d in subsequent periods. The firm will therefore honor the contract if

$$\sum_i d_i Y_i + \frac{1}{r} V^* \leq \frac{1}{r} V^d, \tag{6}$$

where r is the firm's discount rate. If (6) holds for all realizations of Y_i it must hold for the maximum $\sum_i d_i Y_i$ which occurs when $Y_i=1$, i=1,…,n. Therefore, the necessary condition for self-enforcing discretionary bonuses is

$$\sum_i d_i \leq \frac{1}{r}(V^d - V^*). \tag{7}$$

The n optimal contracts $\{w_i, b_i, d_i, s_i\}$ will be the contracts that maximize V^d subject to satisfying both (7) and each managers' participation constraint.

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[4] Suppose, for example, that η_i is small so that $\Sigma Y_i \approx \Sigma Z_i$. Since total profits Π and aggregate compensation payments $\Sigma b_i + \Sigma d_i$ are observable, employees can determine whether the firm has reneged without identifying specific reneged-upon employees.

2.2 Identical Managers

In this sub-section we consider a case with n identical managers, allowing us (when clear from the context) to suppress the managerial subscripts. In order to derive the optimal contract {w, b, d, s}, we need to first characterize the value of the "fallback" V* that occurs after the firm reneges on the promised discretionary bonus. In this situation, the managers will choose actions $\{a_1^*, a_2^*, a_3^*\}$ satisfying

$$a_1^* = \frac{b + s(1-b)}{c_1}, \quad a_2^* = \frac{\gamma s}{c_2}, \quad a_3^* = 0 \tag{8}$$

From (4), the firm's expected profit in the absence of discretionary bonuses is given by,

$$V = n(a_1^* + \gamma a_2^* - c(\mathbf{a}) - \overline{w}).$$

The optimal contract in the fallback equilibrium is the contract {b*, s*} that maximizes V subject to (8) and ns≤1. The first-order conditions imply that b*=1 and s*=1/n, which implies $a_1^*=1/c_1$, $a_2^*=\gamma s^*/c_2$, and $a_3^*=0$. Therefore, the fallback contract achieves the first-best in a_1 and a_3, but falls short of the first-best a_2 because s*<1. Total fallback surplus is[5]

$$V^* = n\left(\frac{1}{2c_1} + \frac{\gamma^2}{c_2}\left(s^* - \tfrac{1}{2}s^{*2}\right) - \overline{w}\right) = n\left(\frac{1}{2c_1} + \frac{\gamma^2}{c_2}\left(\frac{2n-1}{2n^2}\right) - \overline{w}\right). \tag{9}$$

The optimal contract with the discretionary bonus, $(\hat{b}, \hat{d}, \hat{s})$, maximizes profit V subject to the reneging temptation (7), rnd ≤ (V – V*), and the balanced-budget restriction, ns≤1. Letting λ_1 and λ_2 be respective Lagrange multipliers for the two constraints yields,

$$V^d \equiv \underset{s,b,d}{MAX}\, V + \lambda_1(V - V^* - rnd) + \lambda_2(1 - ns) \tag{10}$$

Maximizing (10) with respect to s implies $\hat{s}=1/n$, and maximizing with respect to b yields $\partial V/\partial b(1+\lambda_1)=0$. Substituting (5) into (4) and differentiating yields

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[5] To simplify our analysis, we assume that V*>0, so that the firm is better off operating under only objective performance measures than shutting down and earning V=0. Relaxing this assumptions leads to some interesting findings along the lines developed by BGM, but does not alter our basic comparative-statics results.

$$\frac{\partial V}{\partial b} = \frac{n(1-\hat{s})^2}{c_1}(1-b-d) = 0$$

Since $\hat{s} = 1/n < 1$, the first-order condition implies b + d = 1 which, from (5), implies $a_1^d = 1/c_1$, $a_2^d = \gamma(d(1-\hat{s})+\hat{s})/c_2$, and $a_3^d = \eta d(1-\hat{s})/c_3$. These results allow us to restate the problem in terms of only the discretionary bonus, d,

$$V^d \equiv \underset{d}{MAX}\, V \text{ subject to } nd \le \frac{1}{r}(V - V^*),$$

where, using (9),

$$V = V^* + nd(1-\hat{s})^2\left(\frac{\gamma^2(2-d)}{2c_2} - \frac{\eta^2 d}{2c_3}\right) \tag{11}$$

At sufficiently low r, the reneging constraint (7) is not binding and the optimal contract selects d to maximize (11), yielding

$$\hat{d} = \frac{\gamma^2/c_2}{\gamma^2/c_2 + \eta^2/c_3}.$$

This contract is feasible as long as $rnd \le (V-V^*)$ is satisfied at $\hat{d}$, or (using (11)),

$$r \le (1-\hat{s})^2\left(\frac{\gamma^2(2-\hat{d})}{2c_2} - \frac{\eta^2\hat{d}}{2c_3}\right) = \frac{\gamma^2(1-\hat{s})^2}{2c_2}.$$

If the reneging constraint is binding, then the optimal contract is determined by the largest d satisfying the reneging temptation, $rnd \le (V - V^*)$. Substituting for V and V* from (11) and (9) yields

$$\hat{d} = 2\left(\frac{\gamma^2/c_2 - r/(1-\hat{s})^2}{\gamma^2/c_2 + \eta^2/c_3}\right). \tag{12}$$

Finally, at sufficiently high r, the reneging constraint cannot be satisfied at any positive value of $\hat{d}$. From (12), note that $\hat{d} > 0$ only when $r < \gamma^2(1-\hat{s})^2/c_2$.

Since $\hat{b}=1-\hat{d}$, and $\hat{s} = s^* = 1/n$, we can now characterize the optimal weights on subjective, objective, and company-wide profits for companies comprised of n identical

managers. Figure 1 summarizes our results.

Figure 1

Summary of Optimal Weights on Subjective and Objective Performance Measures for companies comprised of n identical managers

Performance measure	Reputation Constraint Not Binding $r \le \frac{\gamma^2(1-\hat{s})^2}{2c_2}$	Reputation Constraint Binding $\frac{\gamma^2(1-\hat{s})^2}{2c_2} < r < \frac{\gamma^2(1-\hat{s})^2}{c_2}$	Reputation Constraint Not Achievable $r \ge \frac{\gamma^2(1-\hat{s})^2}{c_2}$
Subjective ($\hat{d}$)	$\hat{d} = \left(\frac{\gamma^2/c_2}{\gamma^2/c_2 + \eta^2/c_3}\right)$	$\hat{d} = 2\left(\frac{\gamma^2/c_2 - r/(1-\hat{s})^2}{\gamma^2/c_2 + \eta^2/c_3}\right)$	$\hat{d} = 0$
Objective ($\hat{b}$)	$\hat{b} = \left(\frac{\eta^2/c_3}{\gamma^2/c_2 + \eta^2/c_3}\right)$	$\hat{b} = \left(\frac{\eta^2/c_3 - \gamma^2/c_2 + 2r/(1-\hat{s})^2}{\gamma^2/c_2 + \eta^2/c_3}\right)$	$\hat{b} = 1$
Company-wide profits ($\hat{s}$)	$\hat{s} = 1/n$	$\hat{s} = 1/n$	$\hat{s} = 1/n$

Several interesting results emerge from Figure 1. When managers cannot manipulate their subjective performance measure (η=0) and when discount rates are sufficiently low, the firm sets $\hat{d}$=1 and $\hat{b}$=0 and achieves first-best actions $\{a_1^{FB}, a_2^{FB}, a_3^{FB}\}$. The firm cannot pay discretionary bonuses based on subjective measures when rates are sufficiently high (because, at these rates, the firm cannot be trusted to honor d>0 contracts). In our simple model, the "threshold" discount rate where the reneging constraint first binds is independent of η and is exactly half the "maximum" rate above which only objective performance measures can be used. Both the threshold and maximum rates increase with externalities γ because the "net surplus" (*i.e*, the difference between profits with and without subjective measures, V-V*) increases with γ. Similarly, the threshold and maximum rates increase with the number of managers: the net surplus per manager, (V-V*)/n, increases with n because each manager's share of company profits, s, decreases as n increases, which in turn lowers V* relative to V.

For intermediate discount rates, firms will use a combination of subjective, objective,

and company-wide performance measures. The comparative-statics predictions include:

$$\frac{\partial \hat{d}}{\partial \gamma} > 0, \qquad \frac{\partial \hat{d}}{\partial \eta} < 0, \qquad \frac{\partial \hat{d}}{\partial n} > 0, \qquad \frac{\partial \hat{d}}{\partial r} < 0;$$

(13)

$$\frac{\partial \hat{b}}{\partial \gamma} < 0, \qquad \frac{\partial \hat{b}}{\partial \eta} > 0, \qquad \frac{\partial \hat{b}}{\partial n} < 0, \qquad \frac{\partial \hat{b}}{\partial r} > 0.$$

The weight on subjective measures will increase with the importance of the externalities and the number of managers. It will decrease with the discount rate and with the ability of managers to manipulate (unproductively) their subjective assessment. Similarly, the weight on objective measures will decrease with externalities and the size of the management team and will increase with managerial manipulation and the discount rate. Finally, the company-wide profit sharing will be binding, so that each manager will receive $1/n^{th}$ of company profits and $\hat{s}$ therefore declines with n.

2.3 Identical Managers with Heterogeneous Jobs

We now consider how the results in the previous sub-section change when the jobs within the firm differ in their levels of externalities. In particular, we analyze a firm with two managers with identical outside opportunities ($\overline{w}$) and costs of effort (c_1 and c_2). In addition, we simplify the analysis by assuming that the agent cannot take actions that distort the subjective measure (that is, $\eta=0$ for both agents).[6] But one manager's job has externalities of γ_L while the other has γ_H where $\gamma_H > \gamma_L$. The managers will not necessarily have the same contracts or effort choices, so we add H and L subscripts to d, b, s, a_1, and a_2.

To calculate the fallback V* (that is, when the firm is restricted to $d_L = d_H = 0$), we first restate the managerial effort choices in (8), which will now satisfy

[6] Making this assumption regarding η simplifies the analysis and allows us to sign differences between the two agents' contract parameters unambiguously. Based on numerical analysis, we believe that the qualitative results in this section continue to hold for $\eta>0$.

$$a_{i1}^* = \frac{b_i + s_i(1-b_i)}{c_1}, \quad a_{i2}^* = \frac{\gamma_i s_i}{c_2}$$

where i = L or H, and again impose the restriction that $s_L + s_H \leq 1$. As in the case of identical managers, it is easy to show that $b_L^* = b_H^* = 1$. Solving the relevant first-order conditions for the optimal profit sharing leads to the following:

$$s_H^* = \frac{\gamma_H^2}{\gamma_H^2 + \gamma_L^2}, \quad s_L^* = \frac{\gamma_L^2}{\gamma_H^2 + \gamma_L^2}.$$

Therefore, when s is the only instrument available to influence the managers' externality-driven actions, the firm will allocate more s to managers with greater externalities: $s_H^* > s_L^*$. As when managers are identical, the fallback contract achieves the first-best a_{i1} but a_{i2} is less than first-best because $s_i^* < 1$.

Given that η=0, when the reneging constraint does not bind, the firm can offer contracts that will maximize total surplus and induce first-best effort choices $\{d_L^{FB}=d_H^{FB}=1,\ b_L^{FB}=b_H^{FB}=0\}$. These contracts are feasible if $d_L^{FB} + d_H^{FB} \leq \frac{1}{r}(V^{FB} - V^*)$. Solving for V^* and V^{FB} provides the following condition for the feasibility of these optimal contracts:

(14) $$r \leq \frac{\gamma_L^2 \gamma_H^2}{4c_2(\gamma_L^2 + \gamma_H^2)}.$$

When (14) is not met, the firm finds the most profitable d's, b's, and s's that satisfy $d_L + d_H \leq \frac{1}{r}(V - V^*)$. We do not present the details of our calculations, but summarize the optimal contract as follows:

$$\frac{1-\hat{d}_H}{1-\hat{d}_L} = \left(\frac{\gamma_L}{\gamma_H}\right)^{\frac{2}{3}} < 1,$$

$$\hat{s}_H = \frac{\gamma_H^{2/3}}{\gamma_L^{2/3} + \gamma_H^{2/3}}, \quad \hat{s}_L = \frac{\gamma_L^{2/3}}{\gamma_L^{2/3} + \gamma_H^{2/3}}$$

$$\hat{d}_H + \hat{b}_H = 1, \quad \hat{d}_L + \hat{b}_L = 1.$$

which implies,

$$1 > \hat{d}_H > \hat{d}_L > 0,$$

(15) $$0 < \hat{b}_H < \hat{b}_L < 1,$$

$$s_H^* > \hat{s}_H > \hat{s}_L > s_L^*.$$

Equation (15) indicates that, when the reputation constraint binds, the firm will use a combination of subjective and objective measures for both managers. The relative weight on subjective performance will be higher for the manager with the higher level of externalities, reflecting that it is more important to induce action a_2 for the manager with the higher γ. In addition, the manager with higher γ will be allocated a larger share of company profits, $\hat{s}_H > \hat{s}_L$, but a lower share than he would receive without the discretionary payments, $\hat{s}_H < s_H^*$.

The model also suggests that, if a given firm uses an entirely discretionary plan for any manager and if all managers have imperfect objective performance measures, then the firm will use entirely discretionary plans for all managers. Similarly, if it uses a partially discretionary plan for any manager, it will use a partially discretionary plan for all managers. These results, however, would not hold without the assumption that $\eta = 0$.

Though we do not present detailed calculations here, we have also considered the case where influence activity is critical but externalities are not (that is, $\eta > 0$ and $\gamma = 0$). Specifically, consider two agents whose jobs vary in the amount of non-productive influence that they can have on the subjective assessment of their work. One manager's job has η_H while the other has η_L where $\eta_H > \eta_L$. In this case, the firm would use more discretion for the agent with lower influence ability, so $d_H < d_L$.

2.4 Implications

Our model of discretionary bonuses based on subjective performance assessments suggests a variety of implications regarding the use of discretionary bonuses both within and

across firms. The specific implications depend on an empirical interpretation of the various parameters in the model. In this sub-section, we will develop several testable implications of our model. In the following section, we will describe our data and introduce our empirical measures.

In our model, incentives to take action a_2 are provided by payments $\hat{d}$ based on the subjective performance measure Y_i, and also by payments $\hat{s}$ based on company-wide profits Π. We think of Π as the total change in firm value or shareholder wealth creation, affected by the actions of all company employees. For publicly traded corporations, year-to-year shareholder returns provide an approximate measure of shareholder wealth creation, and boards of directors can use payments based on Π to induce both a_1 and a_2 and to deter a_3. However, privately held firms do not have market-based measures of shareholder value, and must rely more heavily on subjective performance assessment to induce a_2.[7] In our model, fixing $\hat{s}$ at or very near 0 increases $\hat{d}$, leading to the following prediction:

P1. Bonuses will be more discretionary (that is, the relative weight on subjective vs. objective performance measures will be higher) in privately held companies than in publicly held corporations.

Publicly traded companies can induce a_2 through both $\hat{s}>0$ and $\hat{d}>0$, and in fact could optimize a_2 without any discretionary payments if $\hat{s}=1$. In our model of risk-neutral managers, we limit each manager's share of company value through a balanced-budget condition, $\sum_i \hat{s}_i \leq 1$. However, in a richer model that incorporates risk aversion, dependence on company-wide (noisy) shareholder value would be endogenously limited, especially for mid-level or divisional executives. Through either the balanced-budget or risk-aversion

[7] Many non-public companies have closely held stock, and this stock ownership can induce a_2 to the extent the managers anticipate a market transaction for their shares (such as an acquisition or an IPO). However, most of the non-public firms in our sample are subsidiaries of large domestic or foreign-owned companies, non-profit companies, or mutual financial companies; these entities cannot offer meaningful ownership incentives to incumbent managers.

approach, the average fraction of company shares held by a single manager will naturally decline as the size of the top management team increases and, more generally, as company size increases (Schaefer, 1998). As suggested by (13), as size n increases and profit share $\hat{s}$ declines in publicly traded firms, the firm must rely more on subjective measures.

P2. Bonuses in publicly traded firms will be more discretionary in companies with more top managers and in larger companies.

Note that the relevant measure of size for this prediction is the market value of the company's equity, since limitations on the share of equity held by each manager provide the scope for discretion. Consequently, while we predict discretion will increase with size for publicly traded firms, we do not make a similar prediction for privately held firms.

Predictions P1 and P2 are cross-sectional predictions based on our analyses of identical managers in Section 2.2. In Section 2.3, we analyzed the case where jobs within a firm differ in their levels of externalities ($\gamma_H > \gamma_L$). One reason externalities might differ across jobs relates to imperfections in the available objective performance measures. We expect the CEO's γ_{CEO} to be lower than the γ's of other executives, because the available company-wide objective performance measures are better for the CEO. In addition, we expect η_{CEO} to be higher than other executives' η's. This is because boards of directors, meeting irregularly in the CEO's office and digesting primarily only that information offered by the CEO, can seldom offer meaningful subjective assessments of CEO performance. On the other hand, the CEO observes and monitors his management team on a daily basis, and is likely in a good position to make valid assessments.

P3. Bonuses will be less discretionary for the CEO than for lower-level executives.

Prediction P3 is similar to the predictions of the model developed by Aggarwal and Samwick (1999). However, where their empirical analyses (based on empirical pay-performance

sensitivities across managers) cannot identify discretion as the source of their results, we will look directly at the role of discretion and assessment of individual performance.

Another reason that γ's might differ across managers within a firm relates to "interdependencies." Consider, for example, a divisionalized company where business unit A is fairly autonomous (with few operational interdependencies with the parent company) while unit B has complex vertical and horizontal interdependencies with other company divisions. Given these assumptions, the actions the manager of A takes to create firm value are likely largely captured by A's unit performance, while the action of unit B's manager are not captured by B's unit performance. Therefore, if the business-unit executives are paid in part on the basis of business-unit performance, we expect $\gamma_B > \gamma_A$ and we would predict more discretionary-based bonuses for the manager of B, and less for A. Moreover, we would expect the manager of A to be paid primarily based on business-unit results, while B's manager will be more-likely paid on company-wide measures.

P4. Bonuses will be less discretionary, and more based on business-unit rather than company-wide results, in relatively autonomous business units.

Underlying our theoretical analysis is the premise that firms use discretion to correct or adjust for imperfections in the available objective performance measures. In particular, the objective measure X_i is "too narrow" in the sense that it fails to capture actions managers take that affect firm value. For concreteness, we think of X_i as representing accounting profits, measured at the company or business-unit level, but X_i can include any objectively measured signal of the manager's contribution to company value. Our externality measure, γ, is meant to capture the importance of actions managers can take that affect company value but not X_i. Thus, our empirical measures of γ will be proxies for actions managers take that are not captured by current accounting profits. For example, companies with substantial growth or investment opportunities are expected to have high γ's, because current actions

affect future as well as contemporaneous accounting performance. From (13), $\partial\hat{d}/\partial\gamma>0$ and $\partial\hat{b}/\partial\gamma<0$, leading to the following prediction:

P5. Bonuses will be more discretionary in companies with substantial growth or investment opportunities.

Finally, as γ approaches zero there is no need for discretionary bonuses, since (when $\gamma=0$) a_2 is not productive and bonuses $\hat{b}=1$ based on objectively measured X_i provide optimal incentives for a_1. Empirically, we interpret low γ firms as firms where accounting profits closely track the executive's true contribution to firm value, and use as a proxy for low γ firms where accounting profits and shareholder returns are highly correlated.

P6. Bonuses will be less discretionary in companies where accounting profits and shareholder returns are highly correlated.

These last two predictions are similar to those developed and tested by BIS. However, while our predictions arise in a model of risk-neutral managers with imperfect objective performance measures and perfect but not verifiable subjective measures, the BIS predictions arise implicitly from a model of risk-averse managers (based on Holmstrom, 1979) where the inclusion of performance measures depends on whether the measures are incrementally informative about unobservable managerial actions.

3. Empirical Analysis of Discretion in Executive Bonus Plans

The primary components of executive compensation packages include base salaries, annual bonuses, stock-based pay (including stock options, restricted stock, and performance share plans), and benefits (Murphy, 1999). Although comprising only a fraction of total compensation, the annual bonus is the pay component most susceptible to meaningful discretion. The level and annual revisions of base salaries and benefits, for example, are

largely determined by competitive market surveys with relatively little scope for individual adjustments. Similarly, annual grants of restricted stock or options are typically set either as a fixed fraction of base salary or as a fixed number of shares (Hall, 2000), and the post-grant ultimate payouts are determined strictly by stock-price realizations.[8] In contrast, while "target" bonuses are often tied to base salaries (and are therefore non-discretionary), the ultimate payouts under annual bonus plans can be highly discretionary.

Our primary data source of discretion in annual incentive plans is a detailed survey conducted by the consulting firm of Towers Perrin in 1996-97 and focused on plans in place between 1993 and 1995. The "Annual Incentive Plan" survey includes 262 publicly traded and non-public firms with fairly complete details on the role of discretion in annual bonuses. Due to incomplete information, insufficient details, irrelevance of some issues to some firms, and limits with matching financial information from Compustat and CRSP, our samples are smaller for some parts of our analyses.

The survey provides detailed data on the annual bonus plan covering the CEO and other top executives. The number of eligible participants in the surveyed plans ranges from one (only the CEO) to 25,000 with a median of 125 participants. The firms in the survey range from 25 to 500,000 employees (median 7,650), and the median bonus plan in the survey covers the top 2% of company employees. The sample firms span most sectors of the economy, representing virtually every two-digit SIC code. Electric utilities (twenty firms), chemicals/pharmaceuticals (twenty-four), and banks (ten) are the most highly represented industries.

3.1 Discretion in Annual Bonus Plans

While companies use a variety of financial and non-financial performance measures in

[8] The much-maligned practice of resetting exercise prices for options following large declines in stock prices can be interpreted as a discretionary adjustment to stock option payouts. However, such repricings have historically been infrequent and have virtually disappeared since accounting-rule changes in 1998.

their annual bonus plans, almost all companies rely primarily on one or more measures of accounting profit. In order to understand the scope for discretion in these bonus plans in our sample firms, it is useful to first describe in some detail how bonuses are determined.

Panel A of Table 1 presents prevalence statistics on the bonus-setting process, for our full 262-firm sample and for firms grouped by whether the firm has publicly traded equity (which, from Section 2, can substitute for discretionary pay).[9] Participants in executive bonus plans typically negotiate "target bonuses" that specify the expected bonus payment upon achievement of a predetermined performance standard. In about a third (35%) of our sample, the aggregate "bonus pool" is determined by summing the participants' target bonuses, and adjusting this sum up or down depending on realized performance. In another 35% of our sample firms, the aggregate bonus pool is determined by a schedule or formula.[10] In 6% of the sample, the bonus pool is determined *ex post* after the annual results are tallied, subjectively and without explicit schedules or target bonuses. Finally, 24% of the companies either used a different approach, or reported insufficient information to identify their approach.

As reported in Panel A of Table 1, only 6% of management bonus plans are fully discretionary. However, there are a variety of ways that firms can exercise discretion in awarding annual bonuses. For example, individual bonuses may be based in part on subjectively assessed individual performance as well as on accounting-based financial performance. Or, the boards of directors may make discretionary adjustments to the aggregate bonus pool.

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[9] Ownership status could not be determined for one sample firm. "Not Publicly Traded" firms include 45 private firms and 21 subsidiaries of publicly traded domestic or foreign corporations. To be in the sample, the subsidiaries must have their own human resource department and their own management bonus plan separate from parent-level plans, and are therefore presumably quite independent from their parent organizations.

[10] Firms in this category often do not explicitly define a bonus pool, but rather compute schedule-based bonuses by individual. We treat the aggregation of these individual bonuses as the implicit bonus pool.

The Annual Incentive Plan survey includes several questions that reveal the ways firms use discretion in awarding bonuses. Panel B of Table 1 presents prevalence statistics on the role of discretion in management bonus plans, for our full sample and for firms grouped by ownership structure. Almost two-thirds (65%) of the sample firms base individual bonuses at least in part on non-financial measures of individual performance.

To capture the distinction between discretion in setting the size of the bonus pool and discretion in allocating bonus funds, we created two indicator variables. The first indicates whether or not the firm uses discretion in determining the size of the overall pool of funds available for bonuses. In most cases where this variable equals one, the firm has no set formula or schedule for determining its bonus pool but reported some discretion in determining individual employees' bonuses. The second variable captures whether the firm has discretion in allocating bonus funds to individuals, whether or not the aggregate pool is non-discretionary. As indicated in Panel B of Table 1, boards have discretion in determining the aggregate amount of bonuses paid in 42% of the sample firms, and have discretion in allocating the bonus pool in 70% of the sample firms.

The survey also identified discretion by asking if firms had overridden the formulaic bonus calculations in any of the five years leading up to the survey. As reported in Panel B of Table 1, 58 firms (22%), including 28 firms that indicated there was no discretion in determining the size of their bonus pools or the allocation of that pool to individuals, said that they had overridden their plans and paid bonuses when a strict interpretation of the plans would have led to no bonuses. Eight of these overrides were for *all* employees covered by the bonus plan, while the others targeted individuals. Reasons given for overriding formulas included "extraordinary individual performance", "externalities", "to reflect reorganization and impact of new units on performance", and "unrealistic budget/internal equity." Many of these firms were in or emerging from financial distress when they overrode their bonus plan, which may have been an attempt to retain workers when the firm had a bad year relative to

other firms that might employ its workers (see Oyer, 2001).

Fourteen firms that indicated no discretion in determining the size or allocation of its pool said they had disallowed bonuses that formulas warranted. In eleven cases, bonuses were disallowed for *some* eligible employees, while they were disallowed for *all* eligible employees in three cases. Reasons given for disallowing bonuses focused on poor individual performance and underperformance relative to similar firms.

In our model, discretionary bonuses mitigate problems with imperfect objective performance measures, serve as a substitute for stock ownership, and are limited by reneging temptations and influence activities. Although the prevalence statistics in Table 1 do not provide direct evidence on the relative benefits and limitations of discretionary bonus plans, several observations should be noted. First, consistent with our prediction (P1), the use of individual performance appraisals in non-public firms (75%) is significantly higher than its use in publicly traded firms (62%); non-public firms are also more likely to use discretionary allocations of bonus pools. Second, although bonus allocations are often discretionary, the overall size of the bonus pool is fixed (i.e., non-discretionary) for about 60% of the sample firms. Fixing the overall pool exacerbates problems with imperfect objective measures, but also reduces the benefits of unproductive influence activities and makes reneging more visible (which, in turn, will reduce the firm's temptation to renege on promised bonus payments). Finally, there is some evidence that firms renege on promised bonus payments by disallowing warranted bonuses. The fact that such behavior is rare is consistent with our model, because reneging should not occur in equilibrium.

3.2 The Determinants of Discretion

Tables 2 and 3 begin our analyses of the determinants of the use of discretion and allow us to evaluate our first two predictions. Table 2 presents results from logistic regressions predicting whether firms base bonuses on individual performance assessments (columns (1)

and (2)), or use discretion in allocating bonuses to individuals (columns (3) and (4)). The independent variables include a dummy variable for privately held firms (or subsidiaries of domestic or foreign publicly traded firms), the number of participants in the bonus plan, participants interacted with ownership, and broad industry dummy variables.

The dependent variable in columns (1) and (2) of Table 2 is a dummy variable equaling one if the firm bases bonuses in part on assessments of individual performance. The coefficient on "Not Public" in column (1) is positive and significant, suggesting that publicly traded firms are less likely to use individual performance assessments in their management bonus plans. The coefficient on Ln(Eligible Employees) in column (1) is insignificant. Column (2) includes controls for finance and insurance firms ("Finance") and electric and gas utilities ("Utilities"), both of which are insignificant. In column (2), we also include an interaction between eligible employees and Not Public. This interaction term is negative and marginally significant, indicating that the use of individual performance in private firms actually decreases with the number of plan participants. The dependent variable in columns (3) and (4) of Table 2 is a dummy variable equaling one if the firm uses discretion in allocating bonuses to plan participants. The results are largely consistent with those for individual performance assessments.

As reported in Table 1, nearly two-thirds of the sample companies base bonuses, in part, on subjective assessments of individual performance. In addition to describing the existence of individual performance measures, the Annual Incentive Plan survey identifies the fraction of the bonus based on individual performance evaluation for five positions: the Chief Executive Officer (CEO), the Chief Financial Officer (CFO), the Top Legal Executive (General Counsel), a "representative" Group Head, and a "representative" Business Unit Executive.[11] Table 3 reports coefficients on OLS regressions using the same independent

[11] Unfortunately, the survey identified only "representative" group and business-unit heads, and provided no information on the size or industry of the group or business unit.

variables as in Table 2 but two new dependent variables: the fraction of the CEO's bonus based on individual performance, and the average fraction (across up to five executives) of bonuses based on individual performance. Table 3 displays the results of OLS regressions of these two regression weights on the same variables as we used in the logistic regressions in Table 2.[12]

The results of the regressions in Table 3 are qualitatively similar to those in Table 2, though the table provides stronger statistical support for our predictions. The coefficients on Not Public of .107 in column (1) suggests that CEOs in private firms receive 11% more of their bonus based on subjective measures of individual performance than do CEOs in public firms. The coefficient on eligible employees in columns (1) and (3) are also positive and significant, consistent with our prediction that discretion increases with the size of the top management team. But, as our model implies, discretion is not related to firm size at firms that are not publicly traded. The opposite and nearly equal coefficients for employees and the employee/non-public interaction in column (2) and, especially, column (4) suggest that the number of managers does not affect the use of subjective measures at firms without publicly traded stock. Overall, we view the results in Tables 1, 2, and 3 as providing evidence consistent with predictions P1 and P2.

3.3 Within-Company Variation in Discretion

Table 4 presents summary statistics for each position on the prevalence of individual performance assessments, and the fraction of bonuses bases on these assessments, for 262 firms that provided usable data by position. As reported in column (1) and consistent with prediction P3, just over half (51%) of the CEOs in the sample received bonuses based on individual performance assessments, while 60% or more CFOs, general counsels, and group

[12] Because the discretion weights are censored at zero and one, we ran Tobit regressions as well. The results were similar in both economic and statistical significance.

or business-unit executives received discretionary bonuses. Consistent with prediction P1, individual performance assessments are significantly less likely in publicly traded firms than in non–publicly traded firms.

Columns (4), (5), and (6) of Table 4 report the average fraction of annual bonus based on subjectively assessed individual performance for each of the five executive positions. Consistent with prediction P3, only 31% of the bonus for the sample CEOs is based on individual performance, while between 35%-37% of the bonus for the other executives is based on individual performance. The weight on individual performance assessments is higher in non-public firms than in publicly traded firms (although the difference is not statistically significant for business-unit executives).

Table 5 provides summary statistics on the prevalence of bonus plans with no discretion, partial discretion, and "full discretion" (where 100% of the bonus is based on subjective assessments). The cross-tabulation is based on the sub-sample of 230 firms that included usable information on the fraction of the bonus based on individual performance for the CEO and for at least one of the other four executives. The table shows, for example, that 82 of the 230 firms (36%) had objectively determined bonuses for all five positions, while 45 (20%) had fully discretionary bonus payouts for these positions. The cross-tabulation also reveals that most of the data (84%) are along the diagonal: firms that offer no, partial, or fully discretionary payouts for any executive are likely to offer similar plans to other executives. This strong within-firm correlation in the use of discretion is consistent with our analysis in Section 2.3. The only exception is that the CEO is less likely to be paid based on subjective assessments than are lower-level executives. For example, in 33 (14%) firms there is no discretion in the CEO's payouts, but partial or full discretion in the payouts for executives below the CEO.

Table 6 reports coefficients from regressions that explore how the use of discretion varies within firms. The regressions are based on a data set that includes up to five

observations for each sample firm, one observation for each reported position. The dependent variable is the fraction of the bonus based on individual performance, and the independent variables include dummy variables for each position (the CEO is the omitted category), as well as the independent variables in Tables 2 and 3.[13] The position-dummy coefficients in column (1) are all positive and significantly from zero (i.e., the CEO), but are not significantly different from each other. The regression in column (2) includes a single independent variable, "Non-CEO" which is a dummy variable set to one for all positions except the CEO. The coefficient is positive and highly significant, indicating that bonuses are less discretionary for the CEO than for lower-level executives. Finally, the regressions in (3) and (4) include Not Public, Ln(Eligible Employees), and their interaction as additional explanatory variables. The coefficients and significance of the position dummies are not changed, and regressions indicate that the fraction of bonuses based on individual performance is higher in private firms and, among publicly traded firms, is increasing in the number of bonus-eligible managers.[14]

Columns (5) and (6) of Table 6 include firm fixed-effects to capture factors that affect the use of discretion among executives within a firm, but vary across firms. The estimated coefficients on the position dummies are similar to those reported in columns (1) and (2), but the t-statistics are much higher and confirm the result that the CEO receives less discretionary pay than do executives below the CEO. Moreover, the high R–squares of the fixed-effects regressions reflect that most of the variation in discretionary bonuses is between rather than within firms. This is consistent with the results in Table 5 and with theoretical analysis of heterogeneous managers in Section 2.3.

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[13] We have dropped broad-industry controls from our reported regressions, because (as in Tables 2 and 3) they are uniformly insignificant.

[14] As we have already shown, the use of discretion is highly correlated within firms. The t-statistics in Table 6 are based on Huber/White standard errors that allow the OLS errors to be correlated for observations within a firm and for heteroskedasticity in the errors across firms.

In Section 2.4, we predicted that bonuses for autonomous business units are less likely to be discretionary and more likely to be based on business-unit rather than corporate performance than are bonuses for business units with close horizontal and/or vertical ties to the parent organization. Unfortunately, the Annual Incentive Plan survey provides information only for "representative" group and business-unit executives, and provides no information on the autonomy, size, or industry of the reported executive. Therefore, we cannot test our prediction directly, but can do so indirectly by categorizing sample firms based on the characteristics of their business segments or divisions. After eliminating private companies and companies without complete bonus-composition data for group or business-unit executives, we were able to match 129 of our sample firms to Compustat's Business Segment database. For this sub-sample we computed the number of business segments the company reports, and also the number of industries (defined by 2-digit SIC codes) in which the company operates. We posit that companies with multiple segments operating in multiple industries are more likely to have autonomous business units, relative to companies with only a single segment operating in only a single industry.

Table 7 shows the average composition of annual bonuses for group and business-unit executives for firms grouped by the number of business segments and industries. For firms reporting bonus compositions for both group executives and business-unit executives, we averaged and used a single number for each firm. As reported in the table, company-wide performance accounts for an average of 46% of bonuses for business-unit executives in firms with a single business segment, while unit and individual performance account for 21% and 32% respectively. For companies with multiple business segments, company, unit, and individual performance account for 35%, 41%, and 24% of annual bonuses, respectively.

The right-hand panel of Table 7 shows bonus compositions for business-unit executives for firms grouped by whether they operate in a single or in multiple 2-digit SIC industries. As reported, unit executives in firms operating in a single industry receive 46%, 18%, and 36%

of their bonus based on corporate, unit, or individual performance, respectively, while unit executives in multi-industry companies receive 38%, 36%, and 25% of their bonuses based respectively on corporate, unit, or individual performance. Overall, the results in Table 7 suggest that business-unit executives in multi-segment or multi-industry firms receive less discretionary pay, and more pay based on unit performance, than do business-unit executives in undiversified single-segment firms.

3.4 Cross-Sectional Variation in Discretion

The role of discretion in our model is to correct or adjust for imperfections in the available objective performance measures. We therefore expect firms to use more discretion when the available objective measures, which we assume are accounting-based, are particularly poor measures of the consequences of contemporaneous managerial actions. Also, because share ownership of publicly traded equity can effectively substitute for discretionary pay, we expect more discretion in firms where share ownership is limited either by the size of the management team or the firm's total market capitalization.

Table 8 explores a variety of implications for a sub-sample of 174 of our sample companies that are publicly traded and matched to Compustat corporate data. The dependent variable in columns (1), (2), and (3) is the fraction of the CEO's bonus that is based on individual performance assessments, while the dependent variable in columns (4), (5), and (6) is the "average" fraction based on individual assessments for up to five executive positions (CEO, CFO, general counsel, group executive, and business-unit executive). Column (1) and (4) include as independent variables only Ln(Market Cap) and Ln(Eligible Employees). As predicted, both coefficients are positive and significant, supporting our prediction that, in publicly traded firms, discretion will increase with both market capitalization and the size of the management team.

Contemporaneous accounting profit is a particularly poor measure of management

contribution to firm value in high growth firms and other firms where management take current actions that affect future performance. We therefore expect firms with high growth or investment opportunities to use more discretion in their bonus plans. In columns (2) and (5) of Table 8 we introduce two proxies for investment opportunities: the market-to-book ratio and the actual growth in sales from 1993-1997 (which includes both the two years before and the two years after the survey). We expect both variables to be positive, but in fact we find the coefficient on market-to-book ratio to be insignificantly different from zero and the coefficient on sales growth is negative (significantly so, for CEO discretion in column (2)).[15] The negative relationship between growth and discretion could reflect the fact that some firms use growth as an objective measure.

Finally, because we predict that bonuses will be less discretionary in companies where accounting profits and shareholder returns are highly correlated, columns (3) and (5) include two additional variables to proxy for how well accounting profits track stock returns. The first variable, which also proxies for the noise in stock-based measures, is the annual volatility of continuous stock returns computed from monthly Compustat data. The second variable is the correlation between accounting return on assets and stock returns, based on annual data from 1990-1999 (or as many observations as available). The coefficients on both variables in both regressions are insignificantly different from zero.[16]

Overall, our predictions on the relation between discretion and the size of the company and top management team are clearly supported by the data. However, we find no support for the predictions that discretionary bonuses are used more in firms where accounting returns

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[15] In their closely related study of individual performance evaluation, using a similar though less-detailed survey from a different compensation-consulting firm, BIS report that the fraction of discretion in CEO pay is positively and significantly related to the firm's market-to-book ratio. We have attempted to replicate their exact specifications and variable definitions, but have not been able to replicate their results in our sample.

[16] BIS also include stock-return volatility and correlations between accounting and stock returns as independent variables in their regression on CEO individual performance evaluation, and also report coefficients that are not significantly different from zero.

poorly reflect managerial contributions to firm value. One possible explanation for this is that firms with better prospects also have greater risk of failure and therefore cannot use self-enforcing contracts that rely on many future years of manager-firm interaction for implementation. A more likely possibility is that these firms find stock-based pay to be a relatively better incentive than pay cash bonuses.

4. Regulatory Constraints on Discretion

The evidence in Section 3 on the use of discretion in executive bonus plans is broadly consistent with the predictions of our model. However, our primary findings—that discretionary payments are more prevalent in privately held firms than in public firms, and are less prevalent for CEOs than for other executives—may also reflect regulatory constraints on discretionary payments imposed by U.S. tax law. In this section, we describe the tax considerations affecting discretion in executive incentive contracts, and analyze the extent to which such considerations drive our results.

Corporations are allowed to deduct from income all "reasonable" compensation expenses. Under Section 162(m) of the Internal Revenue Code—effective for tax years beginning on or after January 1, 1994—compensation in excess of $1 million is considered unreasonable and therefore not deductible. The tax code provides several exemptions from the million-dollar limit that are relevant for our analysis. First, Section 162(m) only applies to public firms and not to privately held firms. Second, Section 162(m) only applies to compensation paid to the CEO and the four highest-paid executive officers as disclosed in annual proxy statements (non-officer compensation is fully deductible, even if in excess of the million-dollar limit). Finally, and most importantly for our purposes, Section 162(m) does not apply to compensation considered "performance-based" by the IRS.

Performance-based compensation, as defined under the new tax law, includes

commissions and pay based on the attainment of one or more performance goals, but only if (1) the goals are determined by an independent compensation committee, and (2) the terms of the contract (including goals) are disclosed to shareholders and approved by shareholders before payment. Under this definition, a bonus based on formula-driven objective performance measures is considered performance based (so long as the bonus plan has been approved by shareholders), while a discretionary bonus based on ex post subjective assessments is not considered performance based (since there are not predetermined performance goals). In addition, the new tax law has been interpreted as allowing negative but not positive discretionary payments: the board can use its discretion to pay less but not more than the amount indicated by a shareholder-approved objective plan.

Most executive pay packages contain four basic components: a base salary, an annual bonus, stock options, and long-term incentive plans (Murphy, 1999). Base salaries are considered non-performance-based for Section 162(m) purposes, while most stock option plans and long-term incentive plans easily qualify as performance based and therefore deductible. To preserve the deductibility of annual bonus payouts, public companies paying cash compensation (salary and bonus) in excess of $1 million to any "proxy-named executive" must therefore either reduce the level of cash pay (so that non-performance-based pay falls below $1 million) or modify the bonus plan so that it qualifies as performance based.

The new tax law became effective the year before the Towers Perrin survey was conducted, and respondents were asked to describe any changes made to the annual bonus plan to comply with Section 162(m). Of the 190 (out of 195) publicly traded companies in our sample responding to this portion of the survey, nearly half (84 firms) reported tax-related changes.[17] Table 9 shows that companies with high-paid executives were more likely

[17] We focus on public firms because private firms are not subject to Section 162(m). We note, however, that three subsidiaries of public firms—categorized by us as "not publicly traded"—also modified their plans.

to adjust their plans than were companies with lower-paid executives. The compensation data is extracted from Compustat's ExecuComp database; we were able to obtain 1993 pay data for 161 of our 195 publicly traded companies, and we focus on 1993 because this was the year prior to the effective date for the tax law. The data in the table indicate that nearly two thirds of the companies with executives receiving more than $1 million in 1993 cash compensation modified their plan to comply with Section 162(m), while only one third of the companies paying less than $1 million modified their plan.

In most cases, compliance with Section 162(m) involved imposing maximums on individual payouts to proxy-named executives, and submitting the plans to a shareholder approval. However, in nineteen companies compliance involved eliminating discretionary payouts for proxy-named executives, while twelve companies explicitly incorporated "negative discretion" in otherwise objective-based bonus formulas. The right-most column in Table 9 shows that companies with executives paid more than $1 million in cash compensation were much more likely to make adjustments to the discretionary components of bonuses than were companies with executives paid less than $1 million. In particular, approximately 28% of companies paying more than $1 million either eliminated discretion or introduced negative discretion, while only 8% of companies paying less than $1 million made adjustments to discretionary components.

In Section 3, we documented (see Tables 1-4) that private firms use more discretion in bonus payouts than do public firms, and we attributed this difference to the fact that private firms lack an objective measure of wealth creation (i.e., shareholder value), and consequently put higher weight on subjective measures. An alternative hypothesis is that private firms use more discretion than public firms because they are not subject to the restrictions on deductibility under Section 162(m) of the tax code. Similarly, in Tables 4-6 we documented less discretion in CEO bonuses than in bonuses for lower-level executives, and attributed this result to the fact that the available company-wide objective performance measures are better

for the CEO than for other executives. However, an alternative tax-driven hypothesis is that CEOs are more likely to be subject to Section 162(m) than are lower-paid executives, and companies reduce the use of discretion in CEO contracts to retain deductibility.

If the use of discretion reflects tax considerations, we would expect the discretionary component of bonuses to be lower for executives receiving more than $1 million in cash compensation than executives receiving less than $1 million. Table 10 shows the fraction of bonuses based on individual performance assessments for CEOs, CFOs, and General Counsels where we could directly match ExecuComp pay data with the Annual Incentive Plan survey data.[18] In accordance with SEC disclosure rules, the CEO is always included among the proxy-named executives. As indicated in Table 10, the CFO was only included among the other four highest-paid officers in 79 of the 161 matched firms (49%), and the general counsel was only included in 33 of the matched firms (20%).

As shown in Table 10, the fraction of CEO bonuses based on individual performance assessments increases rather than decreases with compensation. In particular, the 81 CEOs who earned salaries and bonuses in excess of $1 million in 1993 received an average of 36% of their bonus through discretionary payouts, while the 55 CEOs earning less than $1 million received an average of 31% of their bonus through discretionary payouts. The same general pattern holds for CFOs and General Counsels, although these latter two groups had few executives earning above the $1 million Section 162(m) threshold. Overall, the results in Table 10 are inconsistent with the hypothesis that discretionary bonus payouts are largely driven by tax considerations.

In order to explore further whether the results in Section 3 are driven by tax

[18] We exclude survey data on group executives and business unit executives because there may be multiple such positions at a given firm, and we cannot reliably match actual compensation data from ExecuComp to the "representative" positions in the survey. When more than one executive held the position of CEO, CFO, or General Counsel in 1993, we used the executive who received the highest cash compensation in that position.

considerations rather than by our model, we re-estimated the results in Tables 2-5 on sub-samples of our data that are less subject to the new tax code. First, we eliminated from our sample all publicly traded companies where any executive in 1993 received cash compensation in excess of $1 million.[19] The results from this analysis (which reduced the size of our sample by up to 84 firms, or approximately 32%) are qualitatively unchanged from those reported, although the significance levels of the results were generally lower. Second, we eliminated from our sample companies who reported making any modifications to their bonus plans to comply with Section 162(m). This analysis again results in significantly lower sample sizes (reduced by up to 88 firms, or approximately 34%), and produces qualitatively similar results at slightly lower significant levels. Finally, we eliminated from our sample only companies who made discretionary-related modifications to their bonus plans (either by eliminating discretion or introducing negative discretion). This analysis results in a modest reduction in sample size (up to 31 firms, or 12%), and substantially reduces standard errors: the results are similar in magnitude but generally more highly significant.

Overall, we interpret our results as supporting the predictions of Section 2.4 rather than being driven by tax considerations. Nonetheless, we also conclude that the tax code has affected the structure of bonus contracts, and that companies most affected by the code were far more likely to make compliance-related adjustments. This suggests that though there is little evidence that Section 162(m) affected the *level* of executive compensation (see especially Rose and Wolfram, 2002, but also Hall and Liebman, 2000, and Perry and Zenner, 2001), it did affect executives' reward structures.

[19] For Table 4 (which describes discretion in bonus plans, by position) we eliminated CEOs, CFOs, and General Counsels earning more than $1 million.

5. Conclusion

This paper studies the role of discretion in executive incentive contracts, and explores the trade-offs firms face in choosing among imperfect objective measures of individual performance, potentially more-accurate but non-verifiable subjective measures, and overly broad objective measures of company-wide performance. Our model is based on the realistic assumptions that discretionary contracts are not court-enforceable and that agents may be able to affect discretionary measures without affecting firm value. These contracts are therefore limited by the firm's temptation to renege on large promised payments, and by opportunistic behavior by the agent. Contracts based on company-wide performance are also limited, by either risk aversion or the fact that aggregate shareholdings cannot exceed some limit (which we somewhat arbitrarily set to 100% in our model). We derive several specific implications of the model regarding the use of discretion to measure different managers within and across firms. We analyze the use of discretion when jobs and managers are homogeneous and extend the model to heterogeneous jobs.

Using a proprietary dataset of executive bonus plans, we find evidence largely supporting the implications of our model. We show that firms use less discretion in determining CEO bonuses than the bonuses of other executives. We also show that discretionary payments based on subjective measures are more important in determining the bonuses of managers at privately held firms and relatively large public firms. In addition, the importance of discretion varies much more across firms than among different managers in the same firm and business unit managers are more likely to be paid based on their own unit's results when they work at diversified firms. Finally, we discuss and largely dismiss alternative tax-driven explanations of our results.

Prior empirical studies of the use of non-financial or individual performance measures in bonus contracts have focused exclusively on CEOs of publicly traded companies and have been motivated primarily by risk considerations. We focus (following Bull, 1987, and BGM)

on the non-contractibility of such measures. We believe that our analysis, by virtue of both our focus on incomplete contacts and our ability to measure empirically the weight of discretion at specific positions within both private and public firms, makes a useful contribution to understanding the importance of subjective evaluation. However, limitations in our data and our current model render us unable to address conclusively several important issues at this point.

We have assumed throughout that subjective assessments are costless. We suspect, however, that accurate assessments involve substantial time and monitoring costs, and that these costs vary both within and across firms. For example, while the CEO may be able to assess accurately the contribution of a direct report through daily contact and observation, the board (meeting six times each year in the CEOs office seeing only data provided by the CEO) may have a much harder time accurately assessing the CEO's contribution to firm value. In addition, we have assumed perfect correlation between the firm's and the managers' subjective assessments of the managers' performance (see MacLeod, 2001). An analysis that includes the costs and potential disagreements of subjective measures will provide further understanding of the role of discretion in executive incentive plans.

Although we assert that our focus on incomplete contracts (with non-contractible subjective assessments) rather than risk considerations constitutes a contribution to the literature, a richer model would contain both elements. In addition to using subjective measures to correct or adjust for narrow objective measures, subjectivity can also be used to "take the noise out" of overly broad measures. Modeling both aspects of subjectivity will likely lead to further predictions and insights.

Although our analysis is based on what we believe to be the most comprehensive survey of bonus plans ever conducted, a full understanding of the use of discretion probably requires an even richer dataset including, ideally, more observations and a panel structure. A survey designed expressly for our purposes would provide better information on the

interactions within a firm (γ in our model), including detailed data on upstream, downstream, and horizontal relationships. Similarly, the "perfect" survey would provide meaningful information on imperfections in the subjective measure (η in our model).

Though we have focused on executive bonus plans, discretion takes many forms and future research could explore how these forms act as complements or substitutes in providing incentives. Based on unreported analysis we conducted using Execucomp data and institutional features of compensation determination (see Murphy, 1999), we do not believe that firms exercise much performance-based discretion in setting base salaries. So our focus on bonus plans likely captures the vast majority of discretion in cash compensation. However, promotion decisions and job assignments are also important and subjective. Understanding the link between discretion in pay and in responsibility is difficult to do at any general (that is, cross-firm) level, however.

In addition, given that stock-based pay is such an important part of top executives' compensation, it would be useful to study the connection between stock and discretion in bonus plans. Our preliminary analysis of this issue suggests that bonus plans use more discretion at firms where executives are given relatively large amounts of equity. This contradicts the current version of our model, which suggests that providing managers with more stock ("s") limits the need for discretion in cash bonuses ("d"). However, a richer model that endogenously determines optimal stock-based pay and, possibly, includes risk aversion, may help explain the apparent complementarity between equity and discretion.

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Table 1

Bonus Pool Determination Process and Discretion in Executive Bonus Plans, by Ownership Structure

	All Firms n=262	Publicly Traded n=195	Not Publicly Traded n=66
Panel A *Determination of Bonus Pool*			
Adjusted Sum-of-Targets	35%	30%	50%*
Formula or Schedule	35%	37%	27%
Discretionary	6%	5%	8%
Other	24%	27%	15%*
Panel B. *Discretion in Bonus Plans*			
Individual Bonuses based on "Individual Performance"	65%	62%	75%*
Discretion in Determining the Size of the Bonus Pool	42%	43%	41%
Discretion in Allocating the Bonus Pool across participants	70%	67%	80%*
Firm Has Overridden Formula and Paid Bonuses within Last 5 Years	22%	23%	20%
Firm Has Overridden Formula and Cancelled Bonuses within Last 5 Years	8%	9%	7%

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. "Not publicly traded" firms include 45 private firms and 21 subsidiaries of domestic or foreign publicly held firms. *-denotes that the means for publicly traded and not publicly traded firms are significantly different at the 10% level.

Table 2

Determinants of the Use of Discretion in Bonus Plans:
Logistic Regressions on the Choice of Individual Appraisals and Pool Allocations

Independent Variable	Predicted Sign	*Dependent Variable:* =1 for Firms with Individual Performance Appraisals		*Dependent Variable:* =1 for Firms with Discretionary Allocation of Bonus Pool	
		(1)	(2)	(3)	(4)
Intercept		.308	.060	.288	.136
Not Public (Dummy)	+	.584 (1.7)	2.09 (2.0)	0.672 (1.9)	1.83 (1.8)
Ln(Eligible Employees)	+	.032 (0.4)	.087 (1.0)	.085 (1.1)	.121 (1.4)
(Not Public)× Ln(Eligible Employees)	−	—	-.306 (1.7)	—	-.240 (1.3)
Finance (Dummy)	?	—	.337 (0.8)	—	.438 (1.0)
Utility (Dummy)	?	—	-.330 (0.9)	—	-.396 (1.0)
Sample Size		242	242	261	261
Log Likelihood		-155.8	-153.3	-156.4	-154.1

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. "Non-public" firms include 45 private firms and 21 subsidiaries of domestic or foreign publicly held firms.

Table 3

Determinants of the Use of Discretion in Bonus Plans:
OLS Regressions on the Fraction of Bonus paid based on Individual Performance

Independent Variable	Predicted Sign	*Dependent Variable:* % of CEO Bonus Based on Discretion		*Dependent Variable:* % of Average Executive Bonus Based on Discretion	
		(1)	(2)	(3)	(4)
Intercept		.130	.058	.168	.102
Not Public (Dummy)	+	0.107 (1.8)	0.424 (2.4)	0.079 (1.4)	0.311 (1.9)
Ln(Eligible Employees)	+	.031 (2.3)	.045 (2.8)	.031 (2.4)	.042 (2.8)
(Not Public)× Ln(Eligible Employees)	–	—	-.065 (2.0)	—	-.048 (1.6)
Finance (Dummy)	?	—	.069 (1.0)	—	.107 (1.6)
Utility (Dummy)	?	—	-.022 (0.3)	—	-.008 (0.1)
Sample Size		233	233	242	242
R^2		.036	.058	.032	.054

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. "Non-public" firms include 45 private firms and 21 subsidiaries of domestic or foreign publicly held firms.

Table 4

Discretion in Bonus Plans for Five Executive Positions, by Ownership Structure

	Percentage of Executives with Discretionary Measures in Bonus			Percentage of Bonus Determined by Discretion		
	All Firms n=262	Publicly Traded n=195	Not Public n=66	All Firms n=262	Publicly Traded n=195	Not Public n=66
	(1)	(2)	(3)	(4)	(5)	(6)
Chief Executive Officer	51%	46%	67%*	31%	28%	41%*
Chief Financial Officer	60%	57%	74%*	35%	32%	45%*
General Counsel	63%	60%	74%*	37%	35%	47%*
Group Executive	62%	58%	73%*	37%	35%	46%*
Business Unit Executive	60%	57%	72%*	35%	33%	42%

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. "Not public" firms include 45 private firms and 21 subsidiaries of domestic or foreign publicly held firms.

*-denotes that the means for publicly traded and not public firms are significantly different at the 10% level.

Table 5

Prevalence of Firms with No, Partial, and Fully Discretionary Bonuses for the CEO and Other Top Executives

		Executives other than the Chief Executive Officer			
	Number of Firms in Sample	No Discretion	Some Discretion	Full Discretion	Total
Chief Executive Officer	No Discretion	82	28	5	115
	Some Discretion	0	66	1	67
	Full Discretion	0	3	45	48
	Total	82	97	51	230

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. Table is based on 230 sample firms that reported usable data on discretionary bonuses for the CEO and at least one other position (CFO, General Counsel, Group Executive, and Business Unit Executive).

Table 6

Coefficients of OLS and Firm Fixed-Effects Regressions of Fraction of Bonus Based on Individual Performance Measures

Independent Variables	Pred. Sign	OLS Regressions				Firm Fixed Effects	
		(1)	(2)	(3)	(4)	(5)	(6)
Intercept		.3092	.3092	.0644	.0641	—	—
Chief Financial Officer	+	.0412 (3.1)	—	.0399 (3.0)	—	.0450 (4.2)	—
General Counsel	+	.0642 (3.8)	—	.0605 (3.5)	—	.0612 (5.5)	—
Group or Business Unit Executive	+	.0539 (3.1)	—	.0520 (3.0)	—	.0480 (5.0)	—
Non-CEO	+	—	.0530 (3.5)	—	.0508 (3.3)	—	.0504 (5.9)
Not Public (Dummy)	+	—	—	.4081 (2.4)	.4076 (2.4)	—	—
Ln(Eligible Employees)	+	—	—	.0447 (2.5)	.0448 (2.5)	—	—
(Not Public)× Ln(Elig. Employees)	−	—	—	-.0613 (1.9)	-.0612 (1.9)	—	—
R^2		.003	.003	.049	.049	.935	.934
Sample Size		1081	1081	1076	1076	1081	1081

Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. Sample includes up to five observations for each company (for each of five reported positions). "Non-public" firms include 45 private firms and 21 subsidiaries of domestic or foreign publicly held firms. "Non-CEO" includes all executives except for the Chief Executive Officer; fixed-effects regressions include 242 firm dummy variables. t-statistics in parentheses. In columns (1)-(4), t-statistics are based on Huber/White standard errors that allow for within-firm correlation and across-firm heteroskedasticy.

Table 7

Performance Measures and Weights for Group and Business-Unit Executives

	Number of Business Segments		Number of SIC 2-Digit Industries	
Percentage of Bonus Based on:	One (n=55)	Multiple (n=74)	One (n=32)	Multiple (n=95)
Corporate Performance	46%	35%*	46%	38%
Group or Unit Performance	21%	41%*	18%	36%*
Individual Performance	32%	24%	36%	25%

Data on performance measures and weights extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997; data on number of business segments and industry from Compustat Business Segment files. Sample consists of 129 firms, representing the intersection of the Annual Incentive Plan and Compustat Business Segment data.

*-denotes that the means are significantly different at the 10% level.

Table 8

Coefficients of OLS Regressions Predicting the Fraction of Bonus Based on Subjective Measures of Individual Performance

Independent Variable	Pred. Sign	Chief Executive Officer			Average of Five Positions		
		(1)	(2)	(3)	(4)	(5)	(5)
Intercept		-.1576	-.1216	-.1726	-.1432	-.1144	-.1351
Ln(Market Cap)	+	.0364 (1.9)	.0373 (1.9)	.0511 (2.0)	.0426 (2.3)	.0427 (2.3)	.0534 (2.2)
Ln(Eligible Employees)	+	.0327 (2.0)	.0310 (1.9)	.0205 (1.0)	.0283 (1.8)	.0274 (1.7)	.0154 (0.8)
Market-to-Book Ratio	+	—	.0001 (0.9)	.0001 (0.8)	—	.0001 (1.0)	.0001 (0.9)
'93-'97 Sales Growth	+	—	-.3508 (-2.0)	-.4040 (-1.3)	—	-.2583 (-1.5)	-.4003 (-1.4)
Stock-Price Volatility	+	—	—	.0102 (0.1)	—	—	.0595 (0.3)
Corr(ROA, TSR)	–	—	—	.0068 (0.1)	—	—	-.0438 (-0.5)
R^2		.057	.082	.080	.057	.080	.088
Sample Size		174	173	132	174	173	132

t-statistics in parentheses. Data extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. "Average of Five Positions" is the average fraction of bonus based on individual performance for the CEO, CFO, General Counsel, Group Executive, and Business Unit Executive. Market Cap is the year-end stock price multiplied by shares outstanding. Market-to-Book ratio is the average Market Cap divided by the book value of common equity. Sales Growth is the annual growth in company sales. Stock-price volatility is the standard deviation of monthly continuous compounded returns, multiplied by √12. Annual measures of Market cap, Market-to-Book, Sales Growth, and Volatility are averaged over 1993-1997. Corr(ROA,TSR) is the correlation between annual accounting return on equity and total return to shareholders, measured for each firm using all available data from 1990 to 1999.

Table 9

Adjustments to Bonus Plans to Comply with Section 162(m), by Level of 1993 Cash Compensation of Highest-Paid Executive

1993 Cash Compensation of Highest-Paid Executive	Number of Firms	Firms Modifying Bonus Plan	Firms Adjusting Discretion in Bonus Plan
Less than $500,000	20	10.0%	0.00%
$500,000 to $750,000	33	36.7%	13.3%
$750,000 to $1,000,000	24	47.8%	8.7%
$1,000,000 to $1,250,000	22	38.1%	19.1%
$1,250,000 to $1,500,000	19	63.2%	15.8%
Above $1,500,000	43	72.1%	37.2%

Compensation data from Compustat's ExecuComp database. Information on bonus-plan adjustments from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997. Discretionary adjustments include eliminating all discretionary components of pay, or incorporating "negative discretion" to objective-based bonuses.

Table 10

Discretion in Bonus Plans for Proxy-Named Executives in Public Firms, by Level of 1993 Cash Compensation

	Chief Executive Officer		Chief Financial Officer		General Counsel	
1993 Cash Compensation	#	% of Bonus Discretionary	#	% of Bonus Discretionary	#	% of Bonus Discretionary
Less than $250,000	1	10.0%	7	5.0%	5	23.0%
$250,000 to $500,000	21	21.8%	34	33.8%	20	41.8%
$500,000 to $750,000	33	34.7%	26	29.1%	7	75.0%
$750,000 to $1,000,000	25	34.4%	9	43.1%		
$1,000,000 to $1,250,000	21	34.2%	2	100.0%		
$1,250,000 to $1,500,000	18	32.5%				
Above $1,500,000	42	38.2%	1	100.0%	1	100.0%

Compensation data from Compustat's ExecuComp database, titles for individual executives are matched manually. Data on discretion extracted from Towers Perrin's *Annual Incentive Plan Design Survey*, 1997.