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Discretion in Managerial Bonus Pools

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Abstract

It is common practice for firms in a variety of industries to specify bonus pools that are available for distribution among a group of managers. While the actual size of the bonus pool may vary with the realization of certain financial metrics, for example, earnings growth or Return-on-Investment, the essential property of bonus pools is that the firm retains discretion in how the overall pool is divided among the target group of managers. An important advantage of discretionary bonus payments is that the persons in charge of administering the bonus pool are in a position to incorporate subjective, non-verifiable indicators of individual performance that would be impossible to specify contractually as part of an explicit incentive scheme. This paper synthesizes several strands of the recent principal-agent literature that have explored the structure and the relative efficiency of discretionary bonus pools. Our analysis is framed around a number of recurring themes. These include

the value of subjective performance indicators for contracting purposes, the loss associated with subjective rather than objective information, and finally, the degree to which bonus pools entail more compression in the amounts of bonuses paid to managers.

Contents

1

Introduction

Agency theory has for the most part focused on the nature and efficiency properties of "complete" incentive contracts. Accordingly, a contract is viewed as a collection of "if-then" statements such that a specific payoff results if a particular outcome has emerged. The enforceability of such incentive contracts is usually based on the notion that the outcomes are verifiable to third parties, with the consequence that a court of law could enforce the contract provisions in case of dispute.[1]

An essential characteristic of the incentive plans observed in many organizations is that they are not "hard-wired" but instead leave a considerable amount of discretion. Top-level management frequently defines a set of performance metrics and specifies certain boundary parameters for incentive compensation. Yet, at the same time management retains discretion in determining the actual rewards and compensation payments for lower level managers. The widespread

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[1] In contrast to this view of "complete" contracts, the literature on incomplete contracts has emphasized that in many situations the parties are constrained in the types of contracts they rely on. Certain contingencies may be difficult to describe contractually (Williamson, 1995), some variables may not be verifiable to outside parties (Tirole, 1999) or comprehensive contracts may be too costly to write (Dye, 1985; Melumad et al., 1997; Laffont and Martimort, 2001).

use of balanced scorecards provides an illustration of discretionary performance measurement. Such scorecards usually combine a host of financial and nonfinancial performance indicators.[2] While firms make a commitment to measuring these variables for the purpose of performance evaluation, the actual aggregation (balancing) of the component variables for the purpose of determining managerial bonuses is frequently not specified contractually.

Bonus pools provide another illustration of discretionary incentive mechanisms. It is common practice in firms across a variety of industries to specify an overall bonus amount for a group of managers. While this amount frequently varies with certain high-level financial metrics, like earnings, sales revenues or Return-on-Investment, the central feature of bonus pools is that the principal (board of directors or higher-level management) retains discretion for distributing the bonus pool among the eligible agents. Some publicly traded companies disclose considerable details about the structure of their bonus pool arrangements. The following excerpt is taken from the 2007 proxy statement of Aetna Inc.:

> *... The Compensation Committee, after consulting with the Board, establishes specific financial and operational goals at the beginning of each performance year, and annual bonus funding is linked directly to the achievement of these annual goals. [...] For 2007, bonus pool funding under the ABP [Annual Bonus Program] depended upon performance against the following measures: Financial performance (55%), health cost management (16%), profitable growth (16%), and constituent focus (13%). [...] For 2007, as a result of this performance, after applying the weightings noted above, the Compensation Committee set the 2007 ABP bonus pool funding at just above the target level. Within this pool funding, the Compensation Committee set actual bonus amounts after a subjective review of each executive officer's individual performance for the year and*

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[2] See, for instance, Kaplan and Norton (1996) or Ittner et al. (2003).

> *consideration of recommendations from the CEO. [. . .]*
> *The Committee has the discretion to pay an individual*
> *executive above or below the target performance based*
> *on its assessment of individual performance.*

The description of Aetna's compensation plan suggests that certain information variables are deemed important for assessing managerial performance, yet these variables are not specified in a formulaic fashion in the compensation scheme. This feature most likely reflects that some variables are difficult, if not impossible, to describe with sufficient precision as part of a contract. A related possible explanation is that these variables cannot be incorporated credibly into a contract because their actual realization is not verifiable to outside parties. Both of these frictions may have influenced the bonus plan adopted by SWS Group in 2005, as the following excerpt suggests:

> *. . . Our incentive compensation program provides for a*
> *bonus pool, determined annually, based on our return on*
> *equity. Allocation of the bonus pool to individual exec-*
> *utive officers is determined using objective measures of*
> *business unit performance as well as subjective measures*
> *of the executive officer's contribution to our financial*
> *and strategic objectives.*

The main purpose of this monograph is to synthesize and integrate a growing literature that has emerged over the past 10–15 years on the use of both objective and subjective performance indicators in managerial incentive plans. Since the terms "objective" and "subjective" are not used uniformly in the literature, it is essential to clarify the meaning we attach to these terms in this monograph. Objective performance indicators are observed by the principal and the agent(s). These indicators are verifiable to third parties and therefore compensation arrangements can be explicitly conditioned on their realization. Accounting information, stock price, and quantifiable productivity measures are prime examples in this category. In contrast, subjective performance indicators are observed by the principal, and possibly also by the agents (an issue we

discuss in further detail in Section 2). While these variables may be quantifiable, it is assumed that their realization cannot be verified by outside (third) parties. Direct observations by the principal about an agent's conduct or reports about this agent conveyed by other agents in the organization are leading examples of subjective information.

Without attempting a review of the literature at this stage, we mention several branches of the existing work on incentive contracting with subjective information. Bull (1987) and Baker et al. (1994) are examples of models where a principal and an agent can rely only on subjective information.[3] Contracts are entirely *implicit* in the sense that the principal is under no legal obligation to pay the amount promised under the agreement. Performance incentives can then be sustained only through the threat of terminating cooperation in future periods if the principal were to behave opportunistically in any given period and deny the agent the bonus promised under the implicit agreement.

For short-term contracting arrangements based only on subjective performance indicators, the principal faces a more severe problem in making any incentive provisions credible. MacLeod (2003) argues that one way of achieving credibility is to commit to a fixed-payment scheme, or a bonus pool. The principal will not be tempted to act opportunistically ex-post if the bonus pool is paid out in full such that any portion not paid to the agent must be diverted to a third party whose welfare is of no concern to either the principal or the agent. MacLeod demonstrates the striking result that the optimal bonus pool arrangement results in an extremely compressed incentive scheme. In particular, the agent will always receive the full bonus pool amount unless the subjective metric assumes the lowest possible outcome.

While the possibility of diverting money to a third party provides a "theoretical" solution to the credibility problem caused by subjectivity, the widespread use of bonus pools in practice suggests that it may be more efficient to combine multiple agents in one bonus pool. The agents can then serve as budget balancers for one another. An early model examining this possibility is Baiman and Rajan (1995). They show that a principal can generate a more efficient incentive structure by

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[3] See also Pearce and Stacchetti (1998) and Levin (2003).

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incorporating unverifiable information via a bonus pool that is ex-post split among the agents.

We examine the structure of efficient bonus pools (fixed-payment schemes) in the presence of subjective performance indicators. Our analysis covers a range of scenarios including single- and multi-agent settings, the interplay of objective and subjective indicators and short-term as opposed to long-term contracting relations. To synthesize the existing research, we frame our exposition around five recurring themes which collectively speak to the structure and the efficiency of incentive schemes based on subjective information.

(i) *Value of Subjective Performance Indicators*: Are subjective performance indicators valuable for contracting purposes? A fundamental result in agency theory, due to Holmstrom (1979), says that any information signal that is incrementally informative about an agent's non-contractible action must be included in the optimal incentive scheme. We ask whether this result carries over to subjective, non-verifiable signals. The inherent tradeoff involves a balance between the informational value of the subjective signal and the constraints on the incentive scheme imposed by subjective information.

(ii) *Incremental Agency Cost*: Bonus pools generally entail an agency cost beyond the hypothetical benchmark in which all performance indicators are objective and verifiable for contracting purposes. We seek to identify the incremental agency cost that the principal incurs due to some performance indicators being subjective. In particular, we link the cost increment to the number of participating agents and the information content of the available signals.

(iii) *Compression of Optimal Incentive Contracts*: In circumstances where subjective performance indicators are valuable for contracting purposes, we continue MacLeod's (2003) line of inquiry to determine under what circumstances optimal incentive schemes are compressed. If the principal can rely on both objective and subjective information, will an efficient bonus pool arrangement continue to have the property

that the agent(s) receive identical compensation for an entire range of subjective outcomes?

(iv) *Optimality of Proper Bonus Pools*: If the principal constructs a joint incentive contract for multiple agents based on subjective information, will the corresponding bonus pools be *proper* in the sense that the entire bonus amount is always paid out to the participating agents, rather than being partially diverted to a third party? By relying on some agents to be budget balancers for others, the principal saves the cost of diverting money to parties that are external to the agency. However, if agents serve also as budget balancers, their compensation will be exposed to additional risk associated with the variability in the performance indicators of other agents. We examine whether this additional cost arising from inefficient risk-sharing dominates the savings that the principal would incur by confining attention to proper bonus pools.

(v) *Value of Multiperiod Contracting*: The final part of our analysis explores to what extent the efficiency of bonus pool arrangements can be improved through multi-period contracts which allow the principal to roll over parts of a current period bonus pool into future periods. We also seek to highlight the constraints imposed by subjectivity in an infinite horizon setting.

The use of subjective performance evaluation has been documented in a variety of empirical studies. Bushman et al. (1996), Ittner et al. (1997), and Hayes and Schaefer (2000) examine how bonuses for CEOs are influenced by subjective factors. These studies find evidence that subjective information plays a bigger role in environments where objective performance signals, such as accounting information, are less informative for contracting purposes.

Murphy and Oyer (2004) provide a comprehensive description of the different ways that discretion influences the process of determining bonuses. They conclude that almost two-thirds of the companies in their sample use nonfinancial measures of individual performance to determine individual bonus payouts. In 42% of their sample firms,

the board has discretion in determining the aggregate amount of bonuses paid. Furthermore, in 70% of their sample firms, the board has discretion in allocating the bonus pool to individuals. Finally, for approximately one third of the companies in the sample, the original bonus formula was overridden following the review of other subjective information.

Related to this last finding in Murphy and Oyer (2004), the studies in Gibbs et al. (2004) and Ederhof (2010) examine discretionary bonus payments that were paid in addition to the bonus that was warranted according to the bonus formula in place. Gibbs et al. (2004) analyze a proprietary dataset covering department managers of auto dealerships. The authors document that discretionary bonuses are used to balance perceived flaws in quantitative performance measures and to insure managers against downside risk in their compensation. Ederhof (2010) analyzes a sample collected from companies' Forms 8-K and proxy statements that covers top-level executives who received discretionary bonuses. The discretionary bonuses paid to the executives in Ederhof's sample are incrementally predictive of future financial performance, supporting the notion that discretionary bonuses are based on non-contractible performance measures.

Hoppe and Moers (2010) examine two forms of discretion that may exist in determining top executive bonus payouts. They find that incentive contracts are more likely to include the option to pay a discretionary bonus if the contract is written on a single, earnings-based measure or if the company is in an industry that experiences high levels of variability. The study also documents that the use of subjective weights on alternative performance measures is more common in companies with higher stock price volatility.[4]

Finally, bonus pools have been investigated in several recent experimental studies, including Fisher et al. (2005), Bailey et al. (2009), and Maas et al. (2009). Based on the theoretical findings in Baiman and

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[4] Ittner et al. (2003), Moers (2005), and Bol (2009) document that discretion can lead to biases in employee evaluation. Moers (2005) shows that subjectivity leads to performance ratings that are more lenient ("leniency bias") and more compressed ("centrality bias"). Bol (2009) explores the two types of biases further and documents that they are driven by information gathering and confrontation costs.

Rajan (1995), Fisher et al. (2005) provide evidence that bonus pools lead to efficiency improvements when the employer has discretion over the allocation of the bonus pool, but not its size. Consistent with the empirical findings in Ittner et al. (2003), Bailey et al. (2010) document that, in allocating bonus pools, managers tend to allocate the pool evenly and to overly rely on contractible performance metrics. Maas et al. (2010) document that supervisors are willing to incur personal costs in order to divide a bonus pool in an informed manner when social preferences such as fairness are taken into consideration.

The remainder of this monograph is organized as follows. The next section analyzes optimal incentive contracts for an individual agent. Section 3 focuses on contracting with multiple agents and Section 4 introduces multi-period considerations. We conclude in Section 5. Our discussion draws primarily on the earlier work of Baker et al. (1994), MacLeod (2003), Rajan and Reichelstein (2006, 2009), and Ederhof (2010). Throughout this monograph, we provide more specific references to individual results in these papers. As a general rule, proofs of formal propositions are provided in the Appendix of this paper only when such proofs cannot be found elsewhere or when we seek to emphasize a particular proof technique.

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