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Dynamic incentives and dual-purpose accounting ☆

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Abstract

Ongoing employment relationships often give rise to implicit, dynamic incentives. We describe the implications of implicit incentives when firms use information about both an employee's past performance and his future productivity in a two-period agency model. We show that when an accounting system serves these dual objectives, an employee's implicit incentives may be beneficial or detrimental to the firm. As a consequence, firms may prefer an accounting system that reports a single metric that combines information about past performance and future productivity, over one that reports two distinct metrics, one for each purpose.

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1. Introduction

Accounting scholars suggest that firms use management accounting systems to serve two broad objectives: facilitate managerial decision making and mitigate organizational

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control problems (e.g., Zimmerman, 2000).[1] An important dimension that distinguishes these two objectives is the time frame to which they apply. For instance, while decision-making information tends to be forward looking (e.g., information useful for making future production plans), control information is typically retrospective (e.g., information useful for evaluating an employee's past behavior). As a practical matter, these two roles are intertwined. Reported information serves both a control role with respect to prior behavior and a decision-facilitating role with respect to future actions. The objective of this paper is to show how the interaction between these two roles affects the usefulness of alternative accounting systems.

We illustrate the interaction between the control and decision-facilitating roles of accounting information in a two-period linear–exponential–normal (LEN) agency model where a risk-neutral owner (or a board-of-directors acting on behalf of well-diversified owners of a firm) contracts with a risk- and effort-averse manager to perform a single task in each of two periods. We assume the owner commits to hire the manager for both periods, but the terms of the manager's compensation contract are renegotiable at the end of the first period. We also assume that the payoff to the firm is not contractible information. Instead, the owner evaluates the manager based on performance measures that are informative about the manager's effort in each period. A distinguishing feature of our model is that the owner is uncertain about the manager's marginal productivity in the second period. Hence, the information reported at the end of the first period serves two objectives: it helps the owner motivate the manager's first-period effort (the control role), and it helps the owner determine the optimal level of managerial effort to be induced in the second period (the decision-facilitating role).

Renegotiating the second-period contract based on first-period information gives rise to what are termed *dynamic* or *implicit* first-period incentives.[2] In our model, implicit incentives manifest in two distinct ways. The first effect reflects the manager's desire to increase his expected second-period compensation. For instance, if random uncontrollable factors affecting reported performance are likely to persist, then a first-period report of high performance raises the owner's expectation of the manager's second-period performance. Accordingly, a manager will reduce his first-period effort to dampen his reported performance and, in effect, raise his expected second-period compensation by lowering the principal's expectation of his future performance.[3]

The second effect reflects the manager's desire to reduce the variance of his aggregate compensation. This implicit incentive is a unique feature of our setting and arises only because first-period information serves a dual purpose; it is informative about the manager's first-period effort and it is also informative about the manager's second-period

[1]Demski and Feltham (1976) and Baiman and Demski (1980) are examples of some early studies that highlight distinct decision-influencing and decision-facilitating roles for accounting information. Arya et al. (1997) and Narayanan and Davila (1998) are more recent studies of the tensions that arise when information is used for both decision making and control.

[2]Implicit first-period incentives arise whenever the manager's expected utility is affected by the difference between his choice of the first-period effort level and the owner's conjecture with respect to that choice. Of course, in equilibrium, the owner's conjecture equals the manager's choice, since in equilibrium the manager is compensated for his effort cost and risk.

[3]Recent literature that examines this implicit incentive include Milgrom and Roberts (1992), Gibbons and Murphy (1992), Meyer (1995), Meyer et al. (1996), Meyer and Vickers (1997), Indjejikian and Nanda (1999, 2003), and Christensen et al. (2003a, b, 2004).