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**DISCIPLINARY CONSTRAINTS ON THE
ADVANCEMENT OF KNOWLEDGE: THE CASE
OF ORGANIZATIONAL INCENTIVE SYSTEMS**

**CEO PUBLICATION
G 00-15 (388)**

**KENNETH A. MERCHANT
WIM A. VAN DER STEDE
LIU ZHENG**

*University of Southern California
Leventhal School of Accounting*

September 2000

Working Paper - Comments Welcome

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Disciplinary Constraints on the Advancement of Knowledge: The Case of Organizational Incentive Systems

ABSTRACT

This paper argues that research progress in accounting has been significantly hindered by most researchers' excessively narrow focus on a single research discipline. The point is illustrated by discussing research in the area of organizational incentive systems. The contrasting base disciplines in this area are economics and behavioral sciences (primarily psychology and sociology). The paper uses a citation and content analysis to show that the economics-based and behavioral-based empirical papers published in accounting journals differ and that little cross-fertilization exists between them. It then describes how the ultimate research objective—the creation of usable knowledge—would be furthered if the disciplinary parochialism were reduced.

Disciplinary Constraints on the Advancement of Knowledge: The Case of Organizational Incentive Systems

Much of the research focused on the study of the design and use of various accounting practices in organizations is done, seemingly, with no (or little) researcher awareness of research findings from disciplines other than the authors' primary discipline. Many researchers seem to lock quickly into a single research discipline, paradigm or theory and ignore developments and insights from other fields that could shed light on the research issue on which they are focusing. These narrow, single discipline- or paradigm-bound foci have hindered research progress by fragmenting the literature, by hindering communication (because of the concurrent use of highly specialized jargon with quite similar meanings), and by suggesting incomplete and, in some cases, incorrect conclusions.

In this paper we call for researchers to throw off their single-paradigm-induced blinders, to adopt a management problem-based (rather than a discipline-based) orientation, and to work toward integration of findings by incorporating in their research designs variables, perspectives, terminologies, and findings from other related research areas. Ours is not the first such call; for example, Atkinson et al. (1997) dealt with the problem broadly.¹ But our paper makes a contribution by documenting the extent of the problem and describing some examples where improvements can be made in one important area of the research literature: the study of the design and effects of *organizational incentive systems*. This particular topic area is discussed as merely an example of the problem, but it is one in

which paradigm-induced parochialism seems particularly acute. It is also a good area for illustration because organizational incentive systems are a particularly important area of study for accounting researchers. Measurements, often in accounting terms, are a major element of most incentive systems.

The remainder of the paper is structured as follows. In Section 1, we define the scope of research bearing on organizational incentive systems and categorize the disciplinary orientations to incentives-research in accounting. In Section 2, we describe the findings of an analysis of the citations in four major accounting journals and discuss the extent to which incentives-research published in these journals draws on either or both of the disciplinary orientations (economic *vs.* behavioral) described in Section 1. In Section 3, we discuss how different disciplinary orientations lead to quite different incentives-research choices. In Section 4, we describe the research ideal—at least from the practitioner perspective—which is to produce what we call “usable knowledge.” In Section 5 we explain how better integrating approaches and findings across discipline boundaries can accelerate the production of usable knowledge. In Section 6, we summarize and conclude.

1. Disciplinary Approaches to the Study of Organizational Incentive Systems

Organizational incentive systems encompass multiple elements—performance standards or targets and the processes used to set them, performance measures, performance evaluations, and reward structures that relate the evaluations to the provision of various forms of organizational rewards. By definition, the primary goal of an incentive system is motivation. However, organizations commonly incorporate features in incentive systems to serve non-motivational purposes, such as employee attraction and retention and smoothing of income and cash flow streams (e.g., Merchant, 1989). These non-motivational purposes can affect the design or use of some incentive system elements.

The body of research in organizational incentive systems has grown substantially over the last 20 years. For example, the literature on *executive compensation* alone, which focuses on only one organizational level of analysis, has grown from just a few papers per year prior to 1985 to 60 papers in 1995 alone (Murphy, 1999). Similar, although less dramatic, growth increases have also occurred in other organizational incentive system areas. Research aimed at the study of various aspects of organizational incentive systems emanates from many sources including, from just within business school (or commerce) faculties, those interested in economics, strategy (general management), finance, accounting, and organization behavior.

Various organizational incentive systems literatures have recently been reviewed and critically evaluated. Prendergast (1999) reviewed the economics-oriented incentives research; Murphy (1999) and Pavlik et al. (1993) focused on the executive compensation studies in the finance/accounting literatures; and Indjejikian (1999) focused on agency-based compensation research in accounting, just to mention a few.² Our aim is not to “*re-review*” these now vast areas of research. Instead, our aim is to compare, and particularly contrast, the incentives-oriented empirical accounting literatures that have different disciplinary orientations. Later we describe how the literatures, which are growing up nearly independent of each other, can be enriched with cross-fertilization.

The research bearing on one or more aspects of organizational incentive systems can be classified broadly into two categories. One category uses *economics* as the base discipline. Most of the incentives-oriented economics research published in the past 20 years has relied on the terminology and structure of what has been labeled *agency theory*, but economists have also developed or applied other models for use in the incentives area (e.g., tournament models).³ A second category can be called *behavioral research*. Most of this research builds on established theories or paradigms developed in

the fields of *psychology* or *sociology*. Among the behavioral theories that are commonly cited in the organizational incentives literature are expectancy theory (e.g., Vroom, 1964), goal-setting theory (e.g., Locke & Latham, 1990), equity theory (Adams, 1965), and attribution theory (e.g., Mowday, 1983).

2. Citation Analysis of Accounting Publications Related to Organizational Incentives

To explore the extent to which there is cross-fertilization between the economics and the behavioral literatures in *empirical* incentives-related research published in the accounting literature in the last decade, we analyzed the citations made in publications in four major journals in accounting: *Journal of Accounting and Economics* (JAE), *Accounting, Organizations and Society* (AOS), *The Accounting Review* (TAR), and *Journal of Accounting Research* (JAR). We conducted a search using the *Social Science Citation Index*-database of the *Institute for Scientific Information* over the last decade: 1989 to 1999. We searched for article titles, keywords, and abstracts⁴ that included the following search-words: *incentive, reward, compensation, pay, bonus, budget, target, standard, goal, performance measure, and performance evaluation* (using wildcards to catch plurals and hyphenated terms). These search-words were chosen to capture the main elements of organizational incentive systems, broadly defined, i.e., [i] standard setting (*budget, target, standard, goal*);⁵ [ii] *performance measurement*; [iii] *performance evaluation*; and [iv] the actual reward itself (*incentive, reward, bonus, compensation, pay*). From the computerized search, we excluded all articles that did not fall within this (rather broad) framework of organizational incentives. We also excluded all non-empirical publications, which included analytical papers, theoretical papers, review papers, commentaries, and discussion papers.

This key word search revealed a total of 380 papers published in the four target journals. For *AOS*, the search revealed 80 articles, 20 of which were dealing directly with the topic of this paper as described above.⁶ For *JAE*, the search revealed 104 articles, 22 of which were directly relevant for the purpose of this paper.⁷ For *TAR*, 13 out of 157 articles were retained,⁸ and for *JAR* eight of 39 were retained.⁹ The retained articles, 63 in total, are listed by journal source in Table 1.

----- Insert Table 1 about here -----

Table 1 reports the economic and behavioral citations included in the 63 incentive systems papers. We counted citations to publications in journals with the word “economic” in the journal title as “pure” economic citations. We counted citations to publications in journals from psychology, sociology, and (organizational and human) behavior as “pure” behavioral citations. (Refer to the footnotes in Table 1 for a complete listing of the journal names in both categories.)

We also identified some citations as “hybrid” citations. References to publications in the *Academy of Management Journal* (*AMJ*), *Academy of Management Review* (*AMR*), and *Administrative Science Quarterly* (*ASQ*) were considered as “hybrid” behavioral citations. These journals tend to publish articles with an organizational or behavioral slant, although they do not do so exclusively (e.g., some empirical tests of agency models have been published in *AMJ* or *ASQ*). We included these hybrid citations to avoid the criticism that we had predetermined one conclusion—that incentives research in accounting is predominantly economics-based—by defining the behavioral literature too narrowly. To be consistent, we considered references to the *Journal of Economic Behavior and Organization* as “hybrid” economic citations. (Hybrid citations are shown in brackets in Table 1.)

Table 1 does not include citations to papers published in most accounting journals because accounting journals generally do not have an explicit “economic” or “behavioral” focus. The two

exceptions are *JAE* and *Behavioral Research in Accounting* (BRIA). References to *JAE* and *BRIA* were included as “pure” economics citations¹⁰ and “pure” behavioral citations, respectively.

We considered citations to articles in *AOS* as “hybrid”-behavioral. *AOS* is often an outlet for behavioral accounting research, but there are exceptions. Again, including a relatively broad count of behavioral citations should avoid the criticism that our conclusion that incentives-research in accounting tends to be economics-based is due to an overly narrow count of behavioral citations.

For purposes of assembling Table 1, we excluded all other references. These included citations to management journals with “undeclared” paradigms (e.g., *Strategic Management Journal*), methodological/statistical references, citations to books, dissertations, working papers, practitioner-oriented publications (e.g., *Harvard Business Review*), and the popular business press (e.g., *Business Week*, *The Wall Street Journal*).

The results of this citation analysis are shown in Table 1. The majority of articles (41 out of 63, or 65%) have references either only to the economics-based literature or only to the behavioral literature. Excluding “hybrid” citations, which are bracketed in Table 1, 49 of the 63 articles (78%) have citations only in one discipline’s literature. Fifteen articles (all of which are published in *AOS*) cite only behavioral-based publications; 26 papers cite only economics-based publications. Excluding the “hybrid” citations shows 34 papers that cite the economics-based literature only. Of these 34 papers, 18 are in *JAE*, 10 in *TAR*, four in *JAR*, and two in *AOS*.¹¹

Of the 22 articles that cite both literatures (including hybrid citations), 12 are predominantly economics-oriented. These include the eight articles with citations only to hybrid behavioral papers as well as Ittner et al. (1997), Gibbs (1995), Lanen & Larcker (1992), and Chow et al. (1991). Three are predominantly behavioral-oriented (Chow et al., 1999; Scott & Tiessen, 1999; Merchant & Manzoni,

1989). Based on the number of citations, the remaining seven papers seem relatively “balanced” or cross-paradigmatic (Drake et al., 1999; Banker et al., 1996; Ittner & Larcker, 1995; Luft, 1994; Wruck & Jensen, 1994; Libby & Lipe, 1992; Ashton, 1990).

In sum, out of the 63 publications listed in Table 1, 38 are economics-based (60%), 18 are behavioral-based (29%), and only seven seem to build on both literatures (11%). Overall, the citation analysis suggests both that the majority of empirical incentives-related research papers in accounting is economics-based and that relatively little cross-fertilization has taken place between the economics and behavioral literatures.¹²

We also checked the number of times each of the papers listed in Table 1 had been cited in the research literature. These numbers are shown in the last column of Table 1. This analysis shows that the 38 economics-based papers have been cited 250 times, or about seven citations per paper. The 18 behavioral-based papers have been cited only 48 times, which is less than three citations per paper. This analysis, showing that the economics-based papers are cited more frequently than are the behavioral-based papers, adds support to our first conclusion above, that incentives research in accounting is predominantly economics-oriented.

3. Comparing and Contrasting the Incentives-Oriented Literatures

To understand how the two categories of accounting literatures described above—economic and behavioral—are both similar and different, we content-analyzed the 63 empirical incentives-related papers listed in Table 1. Based on the citation analysis shown in Table 1, we categorized papers as “economics-oriented” (Table 2-A), “behavioral” (Table 2-B), or “mixed” (Table 2-C).

As discussed in the previous section, a majority of papers were easy to classify based on the citations listed in Table 1. Thirty-four papers have no citations to the “pure” behavioral literatures, so they are classified as economics-oriented. Fifteen papers have no citations to the economics-literature, so they are classified as behavioral-oriented. Of the remaining 14 papers with references to both literatures, three are predominantly behavioral-oriented (Chow et al., 1999; Scott & Tiessen, 1999; Merchant & Manzoni, 1989) and four are predominantly economics-oriented (Ittner et al., 1997; Gibbs, 1995; Lanen & Larcker, 1992; Chow et al., 1991). Because they have roughly equal numbers of citations to papers in each discipline, we classified the remaining seven papers (Drake et al., 1999, Banker et al., 1996; Ittner & Larcker, 1995; Luft, 1994; Wruck & Jensen, 1994; Libby & Lipe, 1992; Ashton, 1990) as “mixed” or cross-paradigmatic.

In Table 2, we compare and contrast these 38 economics-oriented papers, 18 behavioral-oriented papers, and seven “mixed” papers using the following descriptors:

1. level of analysis;
2. sample (size);
3. research method;
4. organizational incentive system variables included in the study;
5. outcome variables included in the study;
6. contextual variables included in the study.

Here is a description of the classification categories that might not be self-explanatory (the last four):

- a. **Research method.** We distinguish four categories of research method: (1) experiments; (2) field studies; (3) survey research; and (4) archival. *Survey research* stems from surveys designed by the researchers themselves. *Archival research* presents analyses of data obtained

from pre-existing sources. These data sources can be either publicly available (e.g., from *COMPUSTAT* or *CRSP*) or private. Private archival data sources can stem from internal firm archives (e.g., Banker et al., 1996) or from surveys conducted by consulting firms (e.g., Ittner & Larcker, 1997, 1995; Holthausen et al., 1995a).

- b. Organizational incentive system variables included in the study.* As described in section 2, organizational incentive system variables relate to one or more of the four elements of an organizational incentive system (i.e., standard setting, performance measurement, performance evaluation, and the actual reward itself). Some studies focus just on variables in this category. For example, Natarajan (1996) studied the relative weights of components of earnings in CEO compensation without including either outcome or contextual variables in his study.
- c. Outcome variables included in the study.* Outcome variables describe anything that is affected by the design and use of the incentive system. This category includes “ultimate” dependent variables (i.e., overall performance). It also includes “mediating” variables, such as specific types of decisions (e.g., capital investment), gameplaying activities, innovation, job-related tension, and any of a variety of attitudes.
- d. Contextual variables included in the study.* Contextual variables encompass characteristics of the setting that might affect an element of the incentive system or, in combination with specific incentive system choices, one or more outcomes. Examples of contextual variables are: national culture; industry; competition; environmental uncertainty; size; organizational strategy (at the corporate or business unit level); the investment, innovation or growth opportunity set; characteristics of the product development or product life cycle; organizational interdependencies; the organizations’ tax or capital position; or specific task characteristics.

Most of the incentives studies have tested theory that relates these contextual variables, alone or in combination, directly with one or more incentive system variables. A few of these studies, however, include the contextual variables as “moderating” variables. That is, the researchers theorize that the contextual variables affect the relationship between organizational incentives and outcomes in an interactive sense. For example, Drake et al. (1999) studied the effect of group-based *vs.* tournament-based incentive schemes (an *incentive system variable*) on performance (an *outcome variable*) moderated by type of costing system (a *contextual variable*). (Moderating variables are indicated in Table 2 with an asterisk.)

----- Insert Table 2 about here -----

Table 2 suggests the following findings. First, the predominant research methods differ between the economics and behavioral literatures. These differences are summarized in Table 3. The economics-based accounting literature uses archival studies almost exclusively. Thirty-two of the 38 papers listed in Table 2-A use this research methodology. Only two of the economics-oriented papers used experiments; three used a self-conducted mail survey; and one used a telephone survey. The predominant research method in the behavioral literature is self-administered surveys (15 out of 18 papers listed in Table 2-B). One behavioral paper used an experiment; two used field studies. Interestingly, a majority (four out of seven) of the mixed papers used an experimental methodology.

----- Insert Table 3 about here -----

Second, the economics-oriented papers tend to focus on the corporate level of analysis. Twenty-nine of 36 economics-oriented papers (excluding the two experimental papers) analyzed corporate-level data (either focused on the CEO or the top management team);¹³ five analyzed data from business unit-, division- or subunit-levels; two spanned multiple organizational levels. The

behavioral studies, on the other hand, tend to focus on the use of incentives at middle management levels (e.g., functional or divisional managers). Twelve of the 17 non-experimental papers focused on middle management, and three spanned multiple organization levels. Two papers were not specific about the organizational level (Collins et al., 1997; Manger et al., 1995). Overall, only four of the 56 non-experimental papers we reviewed focused on incentives for non-management employees, and three of those papers are listed in Table 2-C because they cite both the economics-based and behavioral literatures.

Third, almost all of the incentives-oriented literature in accounting focuses on incentive systems in large, public, for-profit firms. All but one of the papers with economics as a base discipline have this focus. The exception (Burrows & Black, 1998) focused on incentives in Big-6 accounting firms, and these firms are large and for-profit but not public. Only three of the behavioral papers (Scott & Tiessen, 1999; Ross, 1994; Williams et al., 1990) focused on not-for-profit organizations. One other behavioral paper (Lockett & Hurst, 1989) focused on accounting firm incentives.

Fourth, the sets of organizational incentive system variables the literatures focus on are quite different and seem to stem directly from the choice of research method. The economics-based papers tend to focus on the characteristics of *cash-based* incentive systems, some details of which can be gleaned from public documents (e.g., proxy statements). Many of these studies include simple indicators, such as the mere existence of a bonus plan, the size of the bonus awards, the extent to which rewards are based on earnings-based performance measures, and the shape of the reward function (e.g., slope, bounds). The behavioral literature has also focused considerable attention on the use of accounting performance measures for performance evaluation and reward purposes, which many of these papers term as *reliance on accounting performance measures* (RAPM). Unlike the economics

literature, however, the behavioral literature has focused considerable attention on performance targets and target-setting processes.

Fifth, only a minority (14 of 38; 37%) of the papers in the economics literatures include an outcome variable in the study. In contrast, a majority (13 of 18; 72%) of the behavioral papers include at least one such variable. The most popular outcome variables in the economics literature are shareholder wealth and earnings management activities (as reflected in discretionary accruals). In the behavioral literature, subjective assessments of performance and job-related tension are the outcome variables used most often.

Sixth, the inclusion of contextual variables differs considerably. Slightly more than half (21 of 38, or 55%) of the economics-based papers incorporate one or more contextual variables. The most common contextual variables considered in the economics-oriented papers are competition, investment (or growth or innovation) opportunities, and noise in the financial performance measures. In many of the economics papers, industry is used as a crude surrogate for any of the many cross-organizational differences that might affect one or more incentive compensation system differences. Fourteen (78%) of the 18 behavioral papers include at least one contextual variable, and the sets of contextual variables considered are quite different from those included in the economics papers. Prominent in the behavioral literature, but rare in the economics literature, are variables descriptive of national culture, specific job tasks, personalities, and relations between superiors and subordinates.

4. A Major Research Failure—Lack of Concern for the Creation of Usable Knowledge

Does it matter that the economics and behavioral incentives-focused literatures are expanding relatively independently? We think it does matter. The lack of cross-fertilization has hindered the development of usable knowledge.

The primary long-term goal in an *applied* field like accounting should not be to create knowledge for knowledge sake; it should be to create *usable knowledge*. Usable knowledge is knowledge that helps managers know what works (i.e., what leads to the highest performance), or what might work for them with high probability, in their specific situation. This viewpoint is illustrated in the following quote from a marketing vice-president in a large U.S. consumer products firm:

“I don’t want to hear your general theory about how people might react to some of the options I am considering [*in this case systems that would motivate employees to reach optimal allocations of trade marketing expenditures*]. I want to know what my closest competitors are doing [*in this area*] and what is working best for them. That is the most relevant knowledge for me.”

Managers are problem-focused, not paradigm- or discipline-focused. They do not care whether the advice they receive ultimately stems from agency theory, stewardship theory, expectancy theory, or just some as-yet-unnamed observations of empirical regularities. Practitioners are not interested in modest, but statistically significant, relationships in the same way that academics (and journal editors) are. For example, they are not greatly interested in knowing that across a broad range of settings, the extent of use of subjectivity in performance evaluations is positively associated with overall performance, perhaps with a correlation of +0.1. They want some assurances that performance would improve for them—in their specific situations—if they made greater use of subjectivity in performance evaluations.

To create usable knowledge, what is needed is for researchers to take a problem-focus and attempt to integrate and build on existing knowledge from all available sources and to attempt to capture

or control for the many contextual variables that can create grossly incomplete, and quite potentially misleading, findings. Are researchers taking a problem focus and attempting to reflect the contextual richness in their research designs? The evidence from Tables 1 and 2 suggests that they are not.

How do incentives researchers choose their research topics, variables, and relationships? Many of the choices seem to be theory-driven rather than being driven from real-world concerns. Accounting researchers tend to dip into the foundation discipline, extract techniques and findings from selected publications in that discipline, and apply them to the investigation of accounting issues. They may even have to search hard for problems to apply the knowledge to.

For example, issues related to the roles or usefulness of different performance measures and the weights put on multiple performance measures have attracted considerable interest in the economics-oriented incentives literature in accounting. This stream of research has been mostly motivated by theoretical developments in economics, such as the *informativeness principle* suggested by Holmstrom (1979), the *multi-tasking* issue suggested by Holmstrom & Milgrom (1991), and some theoretical extensions made in the accounting literature (e.g., Banker & Datar, 1989; Feltham & Xie, 1994). Other equally important incentive system elements, such as performance standards, have received far less attention from economics researchers, probably because of the lack of parallel development in economic theories. Similarly, where does the behavioral focus on budgetary participation come from? It seems to stem from supportive findings in its base discipline—industrial sociology—more than from real managers' concerns. Should incentives researchers wait for theoretical developments in the base disciplines before researchers address managers' concerns? Many managers are hoping that they do not.

Other major factors affecting researchers' choices of topics are data availability and research training. For example, the corporate focus of most economics-based incentives-research probably can be explained by relative emphasis placed on econometrics training in economics-oriented doctoral programs combined with the accessibility of relatively large amounts of public data. The focus on incentives for middle managers and lower-level employees, which dominates behavioral researchers' choices, can be explained by the relative emphasis placed on survey and field research methods in behaviorally oriented doctoral programs. But should economists ignore the study of incentives at lower organizational levels, and should behaviorists ignore the study of incentives at corporate levels? Clearly not. The incentive properties of lower-level employees (including motivational properties and risk attitudes) are likely to differ from those of corporate executives, and each discipline's theories and perspectives might shed light on the real practical problems faced at both levels of analysis.

5. The Benefits of Disciplinary Integration

If more researchers adopted a problem focus, and did not just use the theories, variables, terminology, and evidence from a single paradigm or discipline, what benefits would be forthcoming?

We believe there are three:

1. A sorting out of the applicability of competing theories;
2. More complete consideration of the totality of the systems and the settings in which they operate; and,
3. Better communication of findings, amongst researchers with different orientations and consumers of the research in general.

5.1. A SORTING OUT OF THE APPLICABILITY OF COMPETING THEORIES

The ideas in competing theories can be discussed at two different levels of abstraction. At the highest level of abstraction, competing theories stem from different “views of the world.” Below we discuss some of the significant differences in the economics and behavioral views of the world, in terms of the different *models-of-man* underlying agency and stewardship theory and differing views on the effects of *intrinsic vs. extrinsic motivation*. At a lower, more pragmatic level of abstraction, we discuss examples where different theories lead to different specific predictions and examples where theories stemming from different paradigms provide different explanations for the same phenomena (empirical findings).

5.1.1. *Different Views of the World.*

The economics literature and some of the behavioral literature on incentive compensation are rooted in different assumptions about people’s behaviors, which are sometimes referred to as “models-of-man” (Davis et al., 1997). The model-of-man in economists’ agency theory assumes rational individuals who seek to maximize their own utility, taking all benefits and costs into consideration. In a principal-agent situation, this model-of-man implies that, if interests diverge, agents will act to serve their own self-interests. Agency researchers assume there is no trust among agents and principals and no commitment whatsoever from the agent to the organization (unless such commitment optimally contributes to self-interest, i.e., when principal and agent interests converge). In short, the agency model addresses principal-agent *divergence* and how it can be brought more into alignment through proper monitoring and incentive systems.

Stewardship theory, a behavioral theory with roots in psychology and sociology, assumes a quite different model-of-man (Davis et al., 1997). It assumes that at least some employees are

motivated to act in the best interest of their superiors and their organizations. In other words, the model-of-man in stewardship theory is one of a “steward” who attaches higher utility to collectivistic, organization-centered behaviors than to individual, self-centered behaviors. When the interests of the steward and the organization diverge, the steward will place higher value on cooperation than on defection. Stewardship theory provides a useful way of explaining relationships where the parties’ interests *converge* and can be reinforced through structures that “reinforce” and “empower,” rather than those that “monitor” and “control.”

Evidence exists to support both models (e.g., Deckop et al., 1999). Some “agents” clearly seem to be self-serving. But some other situations appear to be characterized by an atmosphere of high trust, where employees are highly involved even without the presence of explicit incentive systems, such as in organizations with a strong “clan” culture (Ouchi, 1980). Some research could usefully be focused on tying these two competing models of motivation together. Where and when does an agency model assumption about behavior make sense in designing organizational incentive systems? Where and when does a stewardship theory make sense? One implication for accounting research on incentive systems, for example, is to incorporate measures of *corporate culture* as a contextual variable, a variable which has not been considered by any of the studies listed in Table 2.

Related to the different model-of-man is the divergent view by economists and behaviorists on the function and effects of intrinsic *vs.* extrinsic motivation in organizational incentive systems. In agency theory, and particularly in empirical tests of the theory, the emphasis is on extrinsic motivation, i.e., tangible rewards that have a measurable, quantifiable market value. Behavior-based models, with roots in psychology and sociology, on the other hand, also recognize the potential power of intrinsic rewards that “naturally” motivate an individual to perform well. These rewards are not easily quantified, as they

include such intangible factors as achievement, self-actualization, autonomy, and opportunities for growth. Combining the insights about extrinsic rewards, which stem from both economics and behavioral research, with those on intrinsic motivation, which stem mostly from the behavioral literature, would contribute to a better overall understanding of the roles and effectiveness of all forms of rewards provided in organizations.

Organizational psychologists have argued that the effects of organizational rewards may actually be negative because they can undermine intrinsic motivation (e.g., Deci, 1975; Jordan, 1986). Their argument is that monetary incentives make employees focus on those elements of the job that maximize compensation, thereby neglecting other important but unmeasured aspects of the job. Although economics-oriented (accounting) researchers generally do not refer to this literature, some studies in accounting can actually be interpreted as being in line with these claims. For example, numerous studies in accounting have shown that under certain compensation plans, and accounting-based bonus plans in particular, managers attempt to maximize bonus payments through discretionary accounting choices (earnings management)¹⁴ or through decisions that increase current reported profits while potentially harming long-term performance (the “myopia” problem, the “horizon” problem).¹⁵ These studies certainly lend credence to the efficacy of extrinsic rewards to affect managerial decisions (Gibbons & Murphy, 1990). However, they also point to harmful management behaviors taken for the sake of rewards, thus likely undermining the intrinsic motivation (job satisfaction, sense of accomplishment) managers derive from doing their job well.

Again, this discussion merely suggests one way to explore the circumstances in which an organization can rely on, or enhance, the intrinsic motivation of its managers/employees to do what is best for the organization or, alternatively, the circumstances in which the organization needs to rely on

extrinsic rewards. In most organizational situations, the optimum solution is likely to take advantage of a combination of intrinsic and extrinsic rewards. Empirical (accounting) research could usefully integrate these views to explore *non-monotonic* relationships between the provision of incentives and performance (or other outcomes). Theories of intrinsic motivation could provide testable hypotheses as to why (too) high levels of monetary incentives may actually reduce, rather than enhance, manager/employee motivation, and hence, performance (Tosi & Gomez-Mejia, 1994).

In sum, an important managerial challenge is to design and use incentive systems that are responsive to the psychological, sociological, and perhaps anthropological traits of the individuals being motivated. Although they may hold the real key to understand the effectiveness of incentives in organizations (Finkelstein & Boyd, 1998), individual attributes of the managers or employees themselves have received little attention in the economics-based (accounting) literature. These attributes include risk-taking profiles, self-serving tendencies, personal goals, personality traits (e.g., tolerance for ambiguity, locus of control), aspiration levels, and power bases. After all, different forms of compensation vary in their attractiveness to individuals, and therefore, in their efficacy as incentives or motivational tools (Lawler, 1981). Hence, research on incentive compensation would likely benefit from combining the economics approach with a greater consideration of characteristics of the individuals being motivated.

5.1.2. Different Explanations of the Same Phenomena

At a more pragmatic level, different theories sometimes just provide different explanations for the same phenomena. For example, higher pay-levels and a lower reliance on variable (performance-dependent) pay are often interpreted as a sign of political power by agents (which may be middle

managers or lower-level employees). Thus they are seen as being consistent with predictions of *managerial capitalism* theory (e.g., Tosi & Gomez-Mejia, 1989, 1994; Gomez-Mejia et al., 1987; Tosi & Werner, 1995; Werner & Tosi, 1995)¹⁶ or *social capital* theory (e.g., Belliveau et al., 1996).¹⁷

One common proxy for the political power variable in managerial capitalism theory is *tenure* (Hill & Phan, 1991). Tenure, which gives managers/employees time to build power, is expected to be negatively associated with variable pay and, hence, compensation risk. However, Stroh et al. (1996), who found that tenure was negatively associated with the use of variable pay, did not interpret their finding as a sign of greater managerial power by middle managers (in contrast with Fisher & Govindarajan (1992), for example). Rather, they interpreted the lower reliance on performance-based incentives as resulting from an increasing ability by the organization to use behavior-based controls because more information is available on managers with longer tenure.

Both explanations—political power and relative expertise by superiors about subordinates' actions and behaviors—are plausible. Both may or may not be occurring simultaneously, and social networks may or may not play a role in any given setting.

Incomplete consideration of the possibilities can easily lead to incorrect interpretations, for example, in situations in which little or no political power exists but where researchers ascribe a political power explanation to a negative relation between tenure and variable pay nonetheless. This example illustrates the common research problem of omitted variables, which is exacerbated by the lack of a problem focus. Researchers who are bound by the strictures of a single research discipline or paradigm are more likely to omit potentially relevant variables.

Another problem caused by an excessively narrow research focus is the differing interpretation of results. For example, *social comparison theory* maintains that organizations are not just economic

exchange systems, but are also hotbeds of continual social comparison. These comparisons, in turn, affect effort, motivation, trust, loyalty, organizational commitment, and cooperation (e.g., Ezzamel & Watson, 1998; Cowherd & Levine, 1992). Applied to comparisons within organizations across hierarchical levels, studies have begun to examine how executive pay levels affect the motivation of lower-level employees (Lambert, et al., 1993; Cowherd & Levine, 1992). Different theories provide competing explanations regarding the cross-hierarchical level compensation issue. From an economics-based tournament perspective, high pay disparity across hierarchical levels should strengthen motivation for employees in promotion tournaments (Lazear & Rosen, 1981). But, from a sociological and psychological perspective, pay inequities are expected to decrease motivation (and have other consequences, such as lower productivity, lower product quality, decreased employee morale, and increased turnover) (Cowherd & Levine, 1992). In a way, different predictions from different paradigms are “convenient” for researchers, but they are not very useful for the ultimate consumers for whom the research is intended (i.e., practitioners). In this example, the findings provide the practitioners with no guidance as to whether they should increase or decrease pay equity.

5.2. INTEGRATION OF THE FINDINGS OF COMPLEMENTARY THEORIES

Each basic discipline seems to focus on a relatively narrow set of variables and research settings. In many cases, the narrow foci can complement each other. The complementarities occur both among incentive system decision (endogenous) variables and among contextual (exogenous) variables that affect one or more incentive system variables. A few of these complementarities have been discovered, but many have not.

5.2.1. Incentive System Decision (Endogenous) Variables

Much of the organizational incentives research tends to focus on only a small set of the many incentive system decision variables, and the choices of foci are not independent of the researchers' base disciplines. For example, as was shown in Table 2, some of the behavioral research focuses on variables that are generally not considered in the economics literature. One such set of variables involves performance standard- or target-setting.

It is well known that companies give most employees explicit targets to shoot for. These targets are called quotas, budgets, and standards of various types. Behavioral research has developed some insights about what targets should be set and how they should be set. The effects of incentives, in both a positive (i.e., motivational) and negative (e.g., gameplaying) sense, probably often depends on the perceived performance target difficulty (e.g., Merchant & Manzoni, 1989). Generally, targets have been shown to be maximally motivating when targets are set to be challenging but achievable, although some research is still aimed at understanding why the level of challenge sometimes varies significantly across organizations and organizational sub-units. Other research is aimed at understanding the effects of the target-setting process itself.

The economics-based literature, on the other hand, has focused very little on performance targets. A small amount of research (e.g., DeFond & Park, 1999; Janakiraman et al., 1992) has focused on relative performance evaluations. One earlier economics-based paper in accounting (Magee, 1980; not in Table 2) focused on one characteristic of the process of setting budget targets (budget participation). However, most of the economics literature seems to assume that optimal incentive contracts involve merely telling employees what measures are desired and telling them to do their best; for example, "to maximize shareholder value." Adding an explicit consideration of performance targets

and their qualities to agency models would enrich the models and might even lead to the discovery of situations in which the performance target variables interact with other design variables to produce predictions in the opposite direction of those currently being predicted. Similarly, the behavioral incentives literature could be enriched through explicit consideration of some of the variables that have been studied in the economics literature, such as the informativeness of the performance measure and performance-reward sensitivity.

5.2.2. *Contextual (Exogenous) Variables*

Researchers invariably focus on a limited set of contextual variables, and the choices vary significantly depending on the researchers' disciplinary orientations. Our total understanding of the causes and effects of organizational incentive system features would be enhanced if we could combine the knowledge contained in the studies with limited foci. To illustrate this point, we describe two issue examples: the effects of national culture and the use of group rewards.

Effects of National Culture. One potentially important consideration that has received considerable attention in the behavioral literature, but not the economics literature, is *national culture*. Most incentive studies that consider culture (e.g., Chow, et al., 1999; Merchant, et al., 1995; Harrison 1993) rely on the Hofstede (1980) taxonomy to predict empirical regularities between incentive system design and various aspects of national culture. Typical predictions are as follows. First, individual performance-based incentives fit individualistic cultures, but run counter to the values of collectivistic cultures because they accentuate interpersonal differences and introduce interpersonal rivalry. Second, employees in cultures characterized by high uncertainty avoidance may not react favorably to performance-dependent compensation because it causes them to bear more risk, especially when

incentive rewards are highly discretionary, as opposed to being formula-based. Third, when power distance is high, lower-level managers are more likely to accept greater discretionary power being exercised by their superiors in performance evaluation and incentive determination. Finally, employees' desire for achievement and competition in masculine cultures may permit the use of relative performance evaluations. However, published studies have reported many "surprises" where either support for the impact of national culture on incentive compensation was weak or inexistent, or empirical evidence was opposite to theoretical expectations. The need for stronger theory development clearly exists (Chow et al., 1999).

To our knowledge, no economics-based incentives studies in accounting have considered cultural differences. National culture seems to be considered irrelevant in the set of assumptions imposed on principals and agents. There is no question but that the use of significant performance-based incentives is spreading far beyond the U.S. border (e.g., in Europe, see Richter, 1999). But will the spread be universal? Is culture irrelevant? Testing agency predictions across significantly different cultures could provide useful tests and potential enhancements both of the cultural theory and the agency theory.

Use of Group Rewards. Managers must decide whether to base rewards on the measured performance of individuals or groups of individuals (e.g., team, department, division, or corporation). Several economists (e.g., Baker et al., 1988; Holmstrom, 1982) have been puzzled about the extensive and growing use of group rewards because of the high potential for the "free rider effect." Indeed, when large groups of people are included in a group reward system, the link between any individual's effort and the reward s/he will be due is virtually zero, so any individual can slack off without suffering a material loss of rewards.

So why are many companies implementing new group reward systems and emphasizing the group reward systems they have? Economists have incorporated into their models a few variables that might provide insights into this academic puzzle: e.g., *task repetition*, which might lead to mutual monitoring of actions over time (Arya et al., 1997) and *organizational interdependencies* (Bushman et al., 1995; Keating, 1997). Behavioral researchers have suggested different explanatory variables: e.g., *ability to share information* (Ravenscroft & Haka, 1996). But, there are many other plausible variables that might explain why group incentives work. Some have already been discussed in other contexts; for example, *informativeness of performance measures* in the economics literature (Holmstrom, 1979) and *cultural collectivism* in the behavioral literature (e.g., Earley, 1989; Wagner, 1995).

Any or all of these explanatory variables may be important in any given situation. There is a need for broader scope studies designed to integrate and build on these developing and as yet fragmented and isolated literatures in order to create knowledge that managers can use. For example, what advice about individual *vs.* group reward systems can we provide to managers who operate in situations with repetitive tasks, low organizational interdependency, relative ease in sharing information, and an individualistic culture? Integrating the variables included in and the findings supporting each of these theories would provide a richer understanding of the phenomena and would produce more reliable, and more usable, knowledge.

In summary of Sections 5.1 and 5.2, we argue that economics-oriented research on incentive compensation, and agency-based research in particular, would benefit from bringing characteristics of the individuals being motivated back into the picture. This will require cross-fertilization with the psychology literature. Another fruitful extension to agency-based incentives research would be to take a

less restricted view of the principal-agent relationship; that is, to relax the assumption that agents control organizations and that principals control agents. Principal-agent (or, superior-subordinate) relationships are likely to be more cooperative than typically assumed, and hence, subject to mutual influencing, joint problem solving, etc. This implies that the compensation arrangements found in firms are the result, at least in part, of the relative political and social power of the parties involved (Belliveau et al., 1996; Parks & Conlon, 1995). Extending the literature at this level will require cross-fertilization with the sociology literature. Finally, observed compensation plans may be adopted for many other reasons than to provide motivation or overcome agency problems, such as signaling (Beatty & Zajac, 1994). Even symbolism—how compensation decisions are explained or legitimized to shareholders and other constituents (e.g., Zajac & Westphal, 1995; Tosi & Gomez-Mejia, 1989)—may play a role in compensation decisions. Probably no single study can incorporate all these factors at once, but casting a wider net across paradigms, theories, and areas of research is a fruitful way to pursue future incentives research.

5.3. BETTER COMMUNICATION AMONGST RESEARCHERS WITH DIFFERENT ORIENTATIONS AND CONSUMERS OF THE RESEARCH IN GENERAL

Communication amongst researchers with different orientations, and consumers of the research in general, is often complicated by the use of technical jargon with quite similar meanings. This problem does not exist just in comparing the economics and behavioral literatures; it exists across paradigms within many disciplines. But it clearly creates problems in understanding and integrating the organizational incentive findings across the economics and behavioral literatures.

For example, the agency theory literature is only about 20 years old. Its inventors (e.g., Jensen & Meckling, 1976) chose to create a new technical language. For example, they wrote about

monitoring and *allocation of decision rights*, rather than using older, more widely understood terms with equivalent, or near equivalent, meanings, such as supervision and delegation (or decentralization). Similarly, agency researchers refer to *agents* rather than employees (or subordinates) and *principals* rather than shareholders or superiors.

Some terminology issues are subtler. For example, one area of study that has received some attention by behavioral researchers is the impact of *corporate diversification* on the reward systems of business-unit managers (e.g., Kerr, 1985; Pitts, 1976; Lorsch & Allen, 1973; Salter, 1973). A few papers published in the accounting literature have provided an agency-based conceptual framework of business unit manager compensation in diversified firms (e.g., Baiman et al., 1995; Bushman et al., 1995). Although the latter works clearly bear on the organizational literature on *corporate diversification*, *organizational interdependencies*, and *decentralization*—which is the terminology typically used in the organizational literature—they hardly refer to this literature and/or terminology. Bushman et al. (1995, p. 105) refer to this literature in one phrase that states only that: “This literature finds some evidence that diversification strategies are associated with the use of corporate performance measures in division manager compensation.” In the same paper, the authors relegate their references to the prior literature on organizational interdependencies to one footnote. Similarly, despite obvious links with the organizational literature on diversification and decentralization, at least at face value, Baiman et al. (1995) refer to it scantily and introduce their own terminology of *relative expertise* and *task allocation*, respectively. The reader interested in usable knowledge is left with some important, unanswered questions: Do the findings of these two sets of studies confirm each other? Do they complement on each other, and if so, how?

The behavioral literature is not immune from this same criticism. For example, Finkelstein & Boyd (1998) introduced the notion of *managerial discretion* as a key determinant of executive compensation. They defined managerial discretion as “latitude of action in the job” which, they believe, depends on factors such as industry concentration and regulation, market growth, demand stability, and R&D-, advertising-, and capital-intensity. Their proposition is that situations that offer CEOs more discretion tend to make their jobs more complex, so CEOs with more discretion be paid more. Their theory was supported by their empirical results. But what Finkelstein & Boyd (1998) did, seemingly, was to create a new name for *job complexity*, a concept that has received considerable research attention in the behavioral literature. How managerial discretion is similar to or different from job complexity and other closely related concepts, such as *decision rights*, *authority*, *autonomy*, or even *environmental uncertainty*, is difficult to assess.

Certainly academic incentives are in place to motivate researchers to coin new terms, in hopes that they will be known as the inventors of a “new” line of research and thus be oft-cited. However, the invention of new terms, many of which are unnecessary, surely complicates interpretation and reconciliation of results across studies, academic fields, and/or paradigms.¹⁸

6. Conclusions

In this paper we have argued that while the literature bearing on organizational incentive systems is exploding, research progress is being hindered because so much of this research is parochial—paradigm- or discipline-focused—not problem-focused. This discipline focus is unfortunate because managers are hungry for knowledge they can use; they hope not to have to wait for decades for the development of sound theories that could help them address today’s problems.

What are needed, most importantly, are more studies that are focused on important, practical incentives issues. These studies should not wait for relevant theoretical developments in the base disciplines, and they should use any and all paradigms, evidence, and research methods that might shed light on the issues.¹⁹ For example, Gibbons (1998) described how it took agency theory 15 years to incorporate in their models the key ideas expressed in an oft-cited 1975 behavioral journal article by Steven Kerr titled, “*On the Folly of Rewarding A, While Hoping for B*” (Kerr, 1975). This lost-time problem occurred, in part, because the agency researchers did not read the behavioral literature.

There are many other examples of opportunities lost. For example, why don't economics-oriented researchers cite authors who have published extensively on intrinsic motivation (e.g., Jordan, 1986; Deci, 1975) and high involvement organizations (e.g., Walton, 1985)? Why don't those writing about balanced scorecards cite the literature on management-by-objectives (e.g., Carroll & Tosi, 1973)? Why don't more behavioral researchers incorporate in their research useful concepts from the economics literature, such as *informativeness of performance measures*, *pay-performance sensitivity*, *risk aversion*, *contract completeness*, and *relative performance evaluation*? Aren't some of the findings about the design and effectiveness of CEO incentives, which has been the economists' predominant focus, applicable lower in the organization? Similarly, aren't some of the findings about the design and effectiveness of middle managers' and lower-level employees' incentives, which has been the behaviorists' predominant focus, applicable at corporate levels of analysis?

We think a problem focus will help achieve greater integration across disciplines. However, it is a necessary but not sufficient condition. Also needed are more open-mindedness (by both researchers and journal editors), more contact with practitioners, and broader doctoral training that trains accounting researchers in multiple base disciplines and multiple research methods.

Our call for more problem-focused, interdisciplinary research does not apply uniquely to incentive systems research; it applies to many areas of accounting-related research and, indeed, many other areas of life. For example, a recent *Forbes* article described how some economists are puzzled as to why people leave tips (Seligman, 1998). Tips are difficult to understand in the standard economic paradigms because tippers do not differentiate significantly depending on the quality of the service they receive. Most tippers and their service providers are anonymous and will not meet again; and there are no little tax benefits to earning compensation through tips rather than higher wages. To solve this puzzle, the author of the article suggested calling in behaviorists who could provide some insights about personality and individual differences, neuroticism, and cultural norms.

If the goal of organizationally oriented accounting research is to provide usable knowledge, and we think it is, we suggest that the types of studies most needed are those that employ or develop richer interdisciplinary frameworks. The eventual goal of our research should be to try to explain a high proportion of variance. We will never be able to explain empirically 100 percent of the variance in any situation because of the great situational variety and complexity and unavoidable measurement errors. But we should not be content with explaining only ten percent, or even less, of the variance.

Organizational incentive systems provide just one good example of an organizational system that contains many elements that are related to each other. In such cases, there are benefits to studying concurrently as many of the elements as is possible so as to sort out their interdependencies. Similarly, there are many contextual variables that, alone or in combination, will affect one or more of the system elements. Different base disciplines focus on different sets of potentially relevant design (endogenous) and exogenous variables. Economic, psychological, and sociological perspectives have been well introduced into the literature, but the perspectives have not been well integrated. Other concepts,

perhaps stemming largely from political science, anthropology, or moral philosophy, may also be relevant. As the literature matures, it would be very desirable to try to aggregate the perspectives, rather than allowing them to develop independently.

Some accounting researchers have already attempted to integrate findings across disciplines. In the incentives area, Lambert et al. (1993) found that a combination of tournament and managerial power models provided relatively more insight into the structure of organizational incentives than the agency model. However, such examples are rare.

Many fruitful paths exist toward the creation of usable knowledge. Certainly there is room for narrower studies. Highly focused studies, those studying only a narrow class of situations, such as (incentives in) firms in the public sector (Deckop, 1995; Pearce et al., 1985) or high-tech IPOs (Beatty & Zajac, 1994), can provide knowledge that is useful for managers operating in exactly that class of situation. These highly focused studies can control for much of the complexity through sample selection. However, highly situation-focused does not mean single discipline- or paradigm-focused. Insights about these specific situations can be gleaned from any of many disciplines.

Studies aimed at finding “separation properties” are also useful. These studies would search for a small set of relatively simple (non-interactive or low-level interactive) relationships that hold across a broad range of settings. However, it is not possible to know in what populations the relationships hold unless they are subjected to a broad range of tests.

The study of the design and use of accounting-related systems in organizations is relatively young, really younger than half a century. Certainly great progress has been made. But progress will be much faster—more usable knowledge will be created more quickly—if researchers work together to try

to integrate and build on each others' work, rather than trying to create something new in isolation. It will take effort, but that effort should be rewarding.

ENDNOTES

- ¹ There are also many calls for use of multiple research *methods*. We concur with this advice but the discussion of this issue is outside the scope of this paper.
- ² Most of these reviews, however, focus on *incentive-contracting* issues (i.e., reward structures). Our scope is broader and also includes the literature on: (1) performance targets and target-setting processes; (2) performance measurement; and (3) performance evaluation. These aspects of an organizational incentive system, broadly defined, generally are part of the budgeting process in most organizations.
- ³ Tournaments take place within organizations with fixed salary structures. The incentive effect stems from the appeal of the possibility of earning successively higher salaries for winning the “tournaments,” i.e., from being promoted to the next level or from achieving the next rank (Lazear & Rosen, 1981; Rosen, 1986). To date, tournament models have been overwhelmingly theoretical with few empirical tests in organizational settings other than athletic contexts, such as golf tournaments and auto racing (Becker & Huselid, 1992).
- ⁴ The *Institute for Scientific Information*, however, started indexing author-written abstracts in its *Social Science Citation Index* database only as of 1992. This explains, for example, why our search missed the article by Merchant (1990) that uses the phrase “financial targets” in the abstract, but has none of the search-words in its title or keywords.
- ⁵ We include the search-word “budget,” because standard-setting is an integral part of the budgeting process in most organizations.
- ⁶ For AOS, we excluded review articles (e.g., Harrison & McKinnon, 1999; Langfield-Smith, 1997), methodological papers (e.g., Hartmann & Moers, 1999), and theoretical papers (e.g., Fisher, 1994; Oakes & Covalleski, 1994). Moreover, our computerized search resulted in hits to papers outside the scope of this paper. For example, the paper by Jonsson & Macintosh (1997), which is about ethnographic accounting research, was captured in our search because it used “... will pay more attention ...” in the abstract, and pay was one of our search words.
- ⁷ For JAE, we excluded 15 analytical papers, four discussion papers, and one editorial. Other papers were excluded because they are outside the scope of this paper, such as articles on “Bank Capital Standards” (Kim & Kross, 1998) and “Incentives for Unconsolidated Financial Reporting” (Mian & Smith, 1990).
- ⁸ For TAR, we excluded 25 analytical papers and 13 book reviews. Other papers were excluded because they are outside the scope of this article, such as, papers about “Incentives for Voluntary Disclosure” (e.g., Scott, 1994) and “Auditors’ Incentives for Applying Financial Accounting Standards” (Hackenbrack & Nelson, 1996).
- ⁹ For JAR, our search included 10 analytical papers and five discussion papers, which were eliminated. Topic-wise, our search captured articles about “Segment Reporting Standards” (Maines et al., 1997); “Financial-Accounting-Standards-Board Regulation” (Melumad & Shibano, 1994); “Tax Incentives and Capital Structures” (Chang & Nichols, 1992); “Auditor Compensation in IPO Markets” (Beatty, 1993); and “Product Standardization and Manufacturing Process Automation” (Brownell & Merchant, 1990). Our search also returned articles that are dealing with accounting for, valuation of, and

tax-issues of stock options (e.g., Dechow et al., 1996; Matsunaga et al., 1992); financial accounting disclosure papers (e.g., Bamber & Cheon, 1998), and auditing-oriented papers (e.g., Phillips, 1999). These articles are all outside the scope of our paper.

- ¹⁰ This *JAE* treatment as a “pure” economic journal affects our citation-based conclusions only for two papers: Ittner & Larcker (1997) and Gaver & Gaver (1998). These papers would become more difficult to classify in an objective way as economics-oriented papers based on non-*JAE* citations (see Table 1).
- ¹¹ By journal, incentives-oriented publications appear to be mainly behavioral-oriented in *AOS* (15 out of 20 papers in Table 1-A) and economics-oriented in *JAE* (18 out of 22 papers in Table 1-B) and *TAR* (10 out of 13 papers in Table 1-C). In *JAR*, the coverage of economics-based and behavioral work seems more balanced (i.e., only four out of eight papers are economics-oriented in Table 1-D).
- ¹² Our citation-based conclusion perhaps only applies to North America, since three out of four journals are North American (*JAR*, *TAR*, *JAE*). Other authors have argued that Australian and European researchers and journals have tended more toward behavioral, particularly sociological, or contingency approaches to the study of uses of management accounting in organizations (Atkinson et al., 1997; Lukka & Kasanen, 1996).
- ¹³ Some studies focus exclusively on the CEO, whereas other studies comprehend in their study all *corporate executive officers* on which compensation contract data is available in proxy statements. Both cases are indicated in Table 2 as “CEO” for the level of analysis.
- ¹⁴ For representative studies in accounting with respect to how managers make *accounting choices* consistent with protecting or maximizing compensation, see Healy (1985), Healy et al. (1987), Gaver et al. (1995), Holthausen et al. (1995a), and Guidry et al. (1999).
- ¹⁵ For representative studies in accounting with respect to how compensation plans may affect managerial (short-term) decision-making, see Larcker (1983), Lewellen et al. (1987), Agrawal & Mandelker (1987), Merchant (1990), and Wallace (1997).
- ¹⁶ Managerial capitalism theory maintains that when managers/employees have greater ability to influence their boards/superiors, incentives are likely to be “diluted,” i.e., designed such that they reduce compensation risk.
- ¹⁷ Social capital theory takes into consideration the social context in which decisions are made. The contention is that executives can use social networks (e.g., elite club affiliations) to enhance their influence over a wide range of decisions, including professional advancement and compensation.
- ¹⁸ As a matter of fact, it should be noted that the use of differing terminology and measurements not only exists across disciplines, but also within disciplines. For example, Hartmann (1999) comments on this issue within the behavioral accounting literature with respect to the concept of *reliance on accounting performance measures* (RAPM).
- ¹⁹ Our call for *concurrent use of multiple research methods and paradigms* contrasts with that of a Management Accounting Section Committee of the American Accounting Association (Atkinson et al., 1997, p. 80), which calls for use of “alternate methods and paradigms.”

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TABLE 1-A: Citations by AOS-Papers Related to Organizational Incentives Published in 1989-1999(*)

AOS-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Chow et al. (1999)	81	<i>J. Ec. Perspect.</i> (1); <i>J. Public Ec.</i> (1).	<i>J. Cross Cult. Psych.</i> (4); <i>Adv. Expt. Soc. Psych.</i> (1); [<i>Acc. Org. Soc.</i> (13); <i>Ac. Man. Rev.</i> (1); <i>Admin. Sci. Quart.</i> (3)].	0
Scott & Tiessen (1999)	51	<i>Bell J. Ec.</i> (2); <i>Am. Ec. Rev.</i> (1).	<i>Psych. Rev.</i> (1); <i>Eur. J. Soc. Psych.</i> (1); <i>J. Appl. Psych.</i> (1); <i>Organ. Behav. Hum. Perf.</i> (2); <i>Small Group Behav.</i> (1); [<i>Acc. Org. Soc.</i> (2); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (3)].	0
Burrows & Black (1998)	45	<i>J. Pol. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>Bell J. Ec.</i> (1); <i>Legal Ec.</i> (1); <i>Ec. Inquiry</i> (1); <i>J. Acc. Ec.</i> (1); <i>J. Law Ec.</i> (1).	[<i>Acc. Org. Soc.</i> (4); <i>Ac. Man. J.</i> (1)].	0
Collins et al. (1997)	69		<i>J. Appl. Psych.</i> (1); <i>Psych. Bul.</i> (1); [<i>Acc. Org. Soc.</i> (12); <i>Ac. Man. J.</i> (2); <i>Ac. Man. Rev.</i> (1); <i>Admin. Sci. Quart.</i> (2) + Cites to the management, marketing, and strategy literatures, e.g., <i>Man. Sci.</i> (2)].	0
Perera et al. (1997)	45		<i>Psychometrika</i> (1); <i>Am. J. Soc.</i> (1); [<i>Acc. Org. Soc.</i> (5); <i>Ac. Man. Rev.</i> (1); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (2)].	0
Ittner & Larcker (1997)	62	<i>J. Acc. Ec.</i> (1).	[<i>Acc. Org. Soc.</i> (5); <i>Ac. Man. Rev.</i> (1) + Cites to the management and strategy literatures, e.g., <i>Man. Sci.</i> (2)].	0
Magner et al. (1995)	36		<i>J. Appl. Psych.</i> (4); <i>J. Pers. Soc. Psych.</i> (4); <i>Organ. Behav. Hum. Perf.</i> (1); <i>J. Voc. Behav.</i> (1); <i>Hum. Relat.</i> (2); <i>Behav. Res. Acc.</i> (1); [<i>Acc. Org. Soc.</i> (4); <i>Ac. Man. J.</i> (3)].	2

(*) Source: *Social Science Citation Index*-database of the *Institute for Scientific Information*.

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-A (Continued)

AOS-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Merchant et al. (1995)	64		<i>J. Cross Cult. Psych.</i> (3); <i>J. Pers. Soc. Psych.</i> (3); <i>Ann. Rev. Soc.</i> (1); <i>Int. J. Psych.</i> (1); <i>Annual Rev. Psych.</i> (1); <i>Pers. Psych.</i> (1); <i>Psych. Bul.</i> (1); <i>Am. Psychologist</i> (1); <i>Res. Organ. Behav.</i> (1); [<i>Acc. Org. Soc.</i> (8); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (1)].	4
Lau et al. (1995)	62		<i>J. Appl. Psych.</i> (2); <i>Psychometrika</i> (1); <i>Pers. Psych.</i> (2); <i>Psych. Bul.</i> (1); <i>Am. J. Soc.</i> (2); <i>Am. Soc. Rev.</i> (1); [<i>Acc. Org. Soc.</i> (11); <i>Ac. Man. Rev.</i> (2); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (7); <i>Dec. Sci.</i> (1)].	4
O'Connor (1995)	43		<i>J. Appl. Psych.</i> (1); <i>Psychometrika</i> (1); <i>Org. Behav. Hum. Dec.</i> (1); <i>J. Hum. Relat.</i> (1); [<i>Acc. Org. Soc.</i> (8); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (6)].	8
Ross (1994)	27		<i>Psychometrika</i> (1); <i>J. Abn. Soc. Psych.</i> (2); <i>Am. J. Soc.</i> (1); <i>Hum. Relat.</i> (1) [<i>Acc. Org. Soc.</i> (3)].	0
Harrison (1993)	71		<i>J. Cross Cult. Psych.</i> (7); <i>J. Appl. Psych.</i> (6); <i>J. Soc. Psych.</i> (1); <i>J. Pers. Soc. Psych.</i> (2); <i>Annual Rev. Psych.</i> (1); <i>Soc. Psych. Q.</i> (2); <i>Pers. Psych.</i> (1); <i>Psychometrika</i> (1); <i>Pol. Psych.</i> (1); <i>Indian Psych. Rev.</i> (1); <i>S. African J. Psych.</i> (1); <i>J. Res. Pers.</i> (1); <i>Am. J. Soc.</i> (1); <i>Am. Soc. Rev.</i> (1); <i>Behav. Res. Acc.</i> (1); [<i>Acc. Org. Soc.</i> (7); <i>Ac. Man. Rev.</i> (2); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (2)].	7
Dunk (1992)	50		<i>J. Appl. Psych.</i> (1); <i>J. Ind. Psych.</i> (1); <i>Pers. Psych.</i> (1); <i>Org. Behav. Hum. Dec.</i> (1); <i>Am. J. Soc.</i> (1); <i>Res. Organ. Behav.</i> (1); [<i>Acc. Org. Soc.</i> (4); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (2)].	2

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-A (Continued)

AOS-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Harrison (1992)	52		<i>Psychometrika</i> (1); <i>J. Appl. Psych.</i> (5); <i>J. Cross Cult. Psych.</i> (3); <i>Pers. Psych.</i> (1); <i>Organ. Behav. Hum. Perf.</i> (1); <i>Am. J. Soc.</i> (1); <i>Am. Soc. Rev.</i> (1); <i>Ann. Rev. Soc.</i> (1); <i>Res. Organ. Behav.</i> (1); <i>Hum. Relat.</i> (3); [Acc. Org. Soc. (6); Ac. Man. J. (1); Ac. Man. Rev. (1); Admin. Sci. Quart. (2)].	5
Chow et al. (1991)	37	<i>Bell J. Ec.</i> (5); <i>J. Comp. Ec.</i> (5); <i>J. Ec. Theory</i> (1); <i>Econometrica</i> (1); <i>Eur. Ec. Rev.</i> (1); <i>So. Ec. J.</i> (1).	<i>Psych. Bul.</i> (1); [Acc. Org. Soc. (1); Admin. Sci. Quart. (1)].	0
Dunk (1990)	37		<i>Psychometrika</i> (1); <i>J. Appl. Psych.</i> (5) <i>Am. J. Soc.</i> (1); [Acc. Org. Soc. (3); Dec. Sci. (1)].	1
Williams et al. (1990)	64		<i>J. Appl. Psych.</i> (1) <i>Am. Soc. Rev.</i> (2); <i>Organ. Behav. Hum. Perf.</i> (1); [Acc. Org. Soc. (11); Ac. Man. Rev. (3); Admin. Sci. Quart. (4)].	0
Dunk (1989)	14		<i>Psychometrika</i> (1).	4
Imoisili (1989)	22		<i>Psychometrika</i> (1); [Acc. Org. Soc. (5); Admin. Sci. Quart. (2)]	3
Luckett & Hirst (1989)	23		<i>Psych. Rev.</i> (1); <i>Psych. Bul.</i> (1); <i>Psych. Sci.</i> (1); <i>Organ. Behav. Hum. Perf.</i> (4); <i>J. Nerv. Ment. Dis.</i> (1); [Acc. Org. Soc. (3)].	1

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-B: Citations by *JAE*-Papers Related to Organizational Incentives Published in 1989-1999(*)

<i>JAE</i> -Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Begley & Feltham (1999)	50	<i>Econometrica</i> (2); <i>J. Pol. Ec.</i> (2); <i>Rev. Ec. Stud.</i> (1); <i>Int. Ec. Rev.</i> (1); <i>Man. Dec. Ec.</i> (1); <i>J. Fin. Ec.</i> (6); <i>J. Acc. Ec.</i> (7).		0
DeFond & Park (1999)	23	<i>Bell J. Ec.</i> (2); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (4).	[<i>Admin. Sci. Quart.</i> (1)].	0
Guidry et al. (1999)	34	<i>J. Pol. Ec.</i> (1); <i>J. Acc. Ec.</i> (13).		0
Baber et al. (1998)	59	<i>Bell J. Ec.</i> (2); <i>J. Pol. Ec.</i> (5); <i>J. Fin. Ec.</i> (4); <i>J. Acc. Ec.</i> (18).		0
Wallace (1997)	19	<i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (4).		0
Keating (1997)	24	<i>Bell J. Ec.</i> (1); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (4).		0
Baber et al. (1996)	23	<i>Bell J. Ec.</i> (1); <i>J. Pol. Ec.</i> (3); <i>Am. Ec. Rev.</i> (1); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (7).		4
Bushman et al. (1996)	31	<i>Q. J. Ec.</i> (2); <i>Bell J. Ec.</i> (2); <i>J. Pol. Ec.</i> (2); <i>J. Law Ec. Organ.</i> (1); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (6).	[<i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (1)].	5
Banker et al. (1996)	76	<i>Econometrica</i> (1); <i>Q. J. Ec.</i> (2); <i>Bell J. Ec.</i> (2); <i>Rand J. Ec.</i> (1); <i>J. Pol. Ec.</i> (2); <i>J. Law Ec. Organ.</i> (1); <i>J. Acc. Ec.</i> (8).	<i>J. Appl. Psych.</i> (2); <i>Am. Psych.</i> (1); <i>Pers. Psych.</i> (2); <i>J. Pers. Soc. Psych.</i> (2); <i>Org. Behav. Hum. Dec.</i> (2); <i>J. Expt. Psych. Learn.</i> (1); [<i>Ac. Man. J.</i> (1)].	2
Gibbs (1995)	19	<i>Econometrica</i> (1); <i>Q. J. Ec.</i> (2); <i>Bell J. Ec.</i> (1); <i>J. Pol. Ec.</i> (3); <i>J. Lab. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>Eur. Ec. Rev.</i> (1).	<i>Am. J. Soc.</i> (1); <i>J. Hum. Res.</i> (1).	3
Holthausen et al. (1995b)	41	<i>J. Pol. Ec.</i> (1); <i>Rand J. Ec.</i> (1); <i>J. Ec. Lit.</i> (1); <i>J. Ec. Theory</i> (1); <i>Appl. Ec.</i> (1); <i>J. Fin. Ec.</i> (1); <i>J. Acc. Ec.</i> (5); [<i>J. Ec. Behav. Organ.</i> (1)].		3
Gaver et al. (1995)	27	<i>J. Fin. Ec.</i> (1); <i>J. Acc. Ec.</i> (3).		9

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-B (Continued)

JAE-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Holthausen et al. (1995a)	32	<i>Bell J. Ec.</i> (1); <i>J. Acc. Ec.</i> (9).	[<i>Admin. Sci. Quart.</i> (2)].	11
Wruck & Jensen (1994)	51	<i>Am. Ec. Rev.</i> (2); <i>J. Law Ec.</i> (1); <i>J. Fin. Ec.</i> (1).	<i>Am. J. Soc.</i> (1); <i>Org. Behav. Hum. Dec.</i> (1).	9
Luft (1994)	46	<i>Econometrica</i> (1); <i>J. Pol. Ec.</i> (1); <i>Am. Ec. Rev.</i> (5); <i>Q. J. Ec.</i> (2); <i>J. Ec. Perspect.</i> (3); <i>Can. J. Ec.</i> (1); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (2).	<i>Psych. Rev.</i> (1); <i>Cogn. Psych.</i> (1); <i>Am. Psych.</i> (1); <i>J. Expt. Soc. Psych.</i> (1); <i>J. Expt. Psych.</i> (1); <i>J. Pers. Soc. Psych.</i> (2); [<i>Ac. Man. J.</i> (1)].	1
Blackwell et al. (1994)	59	<i>Q. J. Ec.</i> (1); <i>Bell J. Ec.</i> (1); <i>J. Pol. Ec.</i> (4); <i>Rand</i> <i>J. Ec.</i> (1); <i>J. Ec. Lit.</i> (1); <i>J. Lab. Ec.</i> (2); <i>J. Law Ec.</i> (1); <i>J. Fin. Ec.</i> (5); <i>J. Acc. Ec.</i> (10).	[<i>Ac. Man. J.</i> (5)].	8
Golec (1994)	37	<i>Bell J. Ec.</i> (2); <i>J. Pol. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>J. Law Ec.</i> (2); <i>Q. Rev. Ec. Bus.</i> (1); <i>J. Fin. Ec.</i> (3); <i>J. Acc. Ec.</i> (6).		2
Skinner (1993)	43	<i>J. Fin. Ec.</i> (3); <i>J. Acc. Ec.</i> (13).		10
Sloan (1993)	46	<i>Am. Ec. Rev.</i> (1); <i>Bell J. Ec.</i> (3); <i>J. Pol. Ec.</i> (1); <i>J. Acc. Ec.</i> (7).		36
Gaver & Gaver (1993)	26	<i>Am. Ec. Rev.</i> (1); <i>J. Fin. Ec.</i> (5); <i>J. Acc. Ec.</i> (4).		44
Clinch & Magliolo (1993)	28	<i>J. Pol. Ec.</i> (1); <i>J. Lab. Ec.</i> (1); <i>Rand J. Ec.</i> (1); <i>J. Acc. Ec.</i> (10).		9
Bizjak et al. (1993)	36	<i>Econometrica</i> (2); <i>Bell J. Ec.</i> (2); <i>J. Pol. Ec.</i> (4); <i>Am. Ec. Rev.</i> (1); <i>Q. J. Ec.</i> (2); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (4).		22

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-C: Citations by TAR-Papers Related to Organizational Incentives Published in 1989-1999(*)

TAR-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Drake et al. (1999)	37	<i>J. Pol. Ec.</i> (1); <i>Bell J. Ec.</i> (1); <i>Am. Ec. Rev.</i> (2); <i>Ec. Inq.</i> (1); <i>J. Ec. Man. Strategy</i> (1); <i>J. Acc. Ec.</i> (3).	<i>J. Org. Behav.</i> (1); <i>Soc. Behav.</i> (1); <i>Behav. Res. Acc.</i> (1); [<i>Ac. Man. J.</i> (1); + Cites to operations, management, and human resources journals].	0
Gaver & Gaver (1998)	27	<i>J. Acc. Ec.</i> (8).		1
Ittner et al. (1997)	61	<i>J. Pol. Ec.</i> (1); <i>Bell J. Ec.</i> (2); <i>J. Fin. Ec.</i> (1); <i>J. Acc. Ec.</i> (5).	<i>Psych. Bul.</i> (1); [<i>Acc. Org. Soc.</i> (3); <i>Ac. Man. J.</i> (3); <i>Admin. Sci. Quart.</i> (3) + Cites to marketing, management, and human resources journals].	2
Natarajan (1996)	32	<i>Bell J. Ec.</i> (1); <i>J. Law Ec. Organ.</i> (1); <i>J. Fin. Ec.</i> (1); <i>J. Acc. Ec.</i> (10).		2
Chen & Lee (1995)	30	<i>Bell J. Ec.</i> (2); <i>J. Pol. Ec.</i> (5); <i>J. Fin. Ec.</i> (4); <i>J. Acc. Ec.</i> (18).		0
Dechow et al. (1994)	31	<i>Econometrica</i> (2); <i>J. Acc. Ec.</i> (5).		8
Enis (1993)	29	<i>Bell J. Ec.</i> (1); <i>J. Fin. Ec.</i> (2); <i>J. Acc. Ec.</i> (6).		0
Gaver et al. (1992)	14	<i>J. Pol. Ec.</i> (2); <i>Bell J. Ec.</i> (1); <i>J. Acc. Ec.</i> (3).		2
Waller & Bishop (1990)	18	<i>Econometrica</i> (1); <i>Bell J. Ec.</i> (1); <i>Q. J. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>J. Com. Ec.</i> (1); <i>J. Fin. Ec.</i> (1).	[<i>Acc. Org. Soc.</i> (2) + cites to <i>Man. Sci.</i> (4)].	2
Newman (1989)	7	<i>J. Acc. Ec.</i> (3).		1
Merchant & Manzoni (1989)	54	<i>Bell J. Ec.</i> (1); <i>J. Fin. Ec.</i> (1).	<i>Psych. Bul.</i> (1); <i>J. Appl. Psych.</i> (7); <i>J. Soc. Psych.</i> (1); <i>J. Pers. Soc. Psych.</i> (2); <i>Am. Soc. Rev.</i> (1); <i>Behav. Sci.</i> (1); [<i>Acc. Org. Soc.</i> (4); <i>Ac. Man. Rev.</i> (1); <i>Admin. Sci. Quart.</i> (1)].	7
Defeo et al. (1989)	41	<i>Bell J. Ec.</i> (1); <i>Rand J. Ec.</i> (1); <i>J. Acc. Ec.</i> (6).		17
Ronen & Aharoni (1989)	18	<i>J. Pol. Ec.</i> (1); <i>Bell J. Ec.</i> (1); <i>J. Law Ec. Organ.</i> (1); <i>J. Acc. Ec.</i> (5).		1

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1-D: Citations by *JAR*-Papers Related to Organizational Incentives Published in 1989-1999(*)

JAR-Paper	(1)	Citations to [Pure] Economics Literature	Citations to [Pure] Behavioral Literature	(2)
Ittner & Larcker (1995)	57	<i>Am. Ec. Rev.</i> (1); <i>J. Acc. Ec.</i> (1).	<i>J. Appl. Psych.</i> (1); <i>J. Educ. Psych.</i> (1); <i>Psych. Bul.</i> (1); <i>Organ. Behav. Hum. Perf.</i> (1); [<i>Acc. Org. Soc.</i> (1); <i>Ac. Man. J.</i> (2); <i>Admin. Sci. Quart.</i> (2) + Cites to marketing and operations management journals].	1
Bushman et al. (1995)	37	<i>Econometrica</i> (3); <i>Bell J. Ec.</i> (4); <i>Rand J. Ec.</i> (2); <i>J. Ec. Theory</i> (1); <i>J. Ind. Ec.</i> (1); <i>J. Ec. Bus.</i> (1); <i>J. Law Ec. Org.</i> (1); <i>J. Acc. Ec.</i> (1).	[<i>Acc. Org. Soc.</i> (1); <i>Ac. Man. J.</i> (1); <i>Admin. Sci. Quart.</i> (1)].	4
Libby & Lipe (1992)	64	<i>Q. J. Ec.</i> (1); <i>J. Pol. Ec.</i> (2); <i>Am. Ec. Rev.</i> (4); <i>J. Ec. Perspect.</i> (1).	<i>J. Appl. Psych.</i> (1); <i>Psych. Res.</i> (1); <i>Psych. Rev.</i> (3); <i>Psych. Bul.</i> (1); <i>J. Pers. Soc. Psych.</i> (1); <i>Org. Behav. Hum. Dec.</i> (2); <i>J. Expt. Psych.</i> (5); <i>J. Behav. Dec.-Making</i> (1); [<i>Acc. Org. Soc.</i> (1) + Cite to marketing journal (<i>J. Cons. Res.</i>)].	6
Janakiraman et al. (1992)	23	<i>Bell J. Ec.</i> (3); <i>Am. Ec. Rev.</i> (1); <i>Ec. Inq.</i> (1); <i>J. Lab. Ec.</i> (1).		14
Lanen & Larcker (1992)	47	<i>Econometrica</i> (1); <i>J. Pol. Ec.</i> (2); <i>Am. Ec. Rev.</i> (3); <i>Bell J. Ec.</i> (2); <i>Appl. Ec.</i> (1).	<i>Psych. Bul.</i> (3).	6
Ely (1991)	31	<i>J. Pol. Ec.</i> (1); <i>Bell J. Ec.</i> (3); <i>J. Acc. Ec.</i> (3).		10
Clinch (1991)	25	<i>J. Pol. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>Bell J. Ec.</i> (1); <i>Rand J. Ec.</i> (1); <i>J. Acc. Ec.</i> (1); [<i>J. Ec. Behav. Organ.</i> (1)].	[Two cites to law journals: <i>Harvard Law Rev.</i> (1); <i>J. Legal Studies</i> (1)]	14
Ashton (1990)	102	<i>J. Pol. Ec.</i> (3); <i>Rand J. Ec.</i> (1); <i>J. Lab. Ec.</i> (1); <i>Am. Ec. Rev.</i> (1); <i>Ec. Inq.</i> (1); <i>J. Bus. Ec. St.</i> (1); <i>J. Acc. Ec.</i> (1); [<i>J. Ec. Behav. Organ.</i> (1)].	<i>Org. Behav. Hum. Dec.</i> (10); <i>Organ. Behav. Hum. Perf.</i> (3); <i>J. Pers. Soc. Psych.</i> (7); <i>J. Gen. Psych.</i> (1); <i>J. Appl. Psych.</i> (9); <i>J. Expt. Psych. Learn.</i> (1); <i>Psych. Rev.</i> (3); <i>Psych. Bul.</i> (5); <i>Am. Psych.</i> (1); <i>Eur. J. Soc. Psych.</i> (1); <i>Pers. Soc. Psych. Bul.</i> (2); <i>Pers. Psych.</i> (1); <i>J. Pers. Ass.</i> (1); <i>J. Comp. Neur.</i> (1); <i>Acta Psych.</i> (2); <i>Soc. Psych. Q.</i> (1); <i>Res. Organ. Behav.</i> (1); <i>J. Personality</i> (1); [<i>Ac. Man. Rev.</i> (1) + 1 Cite to human resources journal].	28

(1) Total number of cited references in paper.

(2) Total number of citing articles.

TABLE 1 (Continued)

- Note: ■ The full journal names for the **economics-based journals** in Table 1 are: *Quarterly Journal of Economics*; *Journal of Political Economy*; *Journal of Economic Theory*; *Journal of Economic Literature*; *Journal of Economic Perspectives*; *Quarterly Review of Economics and Business*; *International Economic Review*; *American Economic Review*; *European Economic Review*; *Bell Journal of Economics*; *Rand Journal of Economics*; *Canadian Journal of Economics*; *Journal of Comparative Economics*; *Journal of Institutional and Theoretical Economics*; *Journal of Industrial Economics*; *Journal of Monetary Economics*; *Journal of Labor Economics*; *Journal of Economics and Business*; *Journal of Economics and Management Strategy*; *Journal of Business and Economic Statistics*; *Managerial and Decision Economics*; *Economic Inquiry*; *Applied Economics*; *Review of Economic Studies*; *Econometrica*; *Journal of Law and Economics*; *Journal of Law, Economics, and Organization*; *Journal of Financial Economics*; *Journal of Accounting and Economics*.
- The full journal names for the **behavioral-based journals** in Table 1 are: *Acta Psychologica*; *Journal of Cross-Cultural Psychology*; *Journal of General Psychology*; *Journal of Applied Psychology*; *Journal of Educational Psychology*; *Psychological Bulletin*; *Psychological Research*; *Psychological Review*; *Psychological Science*; *Psychometrika*; *European Journal of Social Psychology*; *American Journal of Psychology*; *South African Journal of Psychology*; *American Psychologist*; *International Journal of Psychology*; *Advances in Experimental Social Psychology*; *Social Psychology Quarterly*; *Journal of Personality and Social Psychology*; *Annual Review of Psychology*; *Cognitive Psychology*; *Personnel Psychology*; *Political Psychology*; *Journal of Experimental Psychology*; *Journal of Experimental Social Psychology*; *Personality and Social Psychology Bulletin*; *Journal of Personality Assessment*; *Journal of Comparative Neurology*; *Journal of Nervous and Mental Disease*; *American Sociological Review*; *American Journal of Sociology*; *American Sociologist*; *Annual Review of Sociology*; *Behavioral Science*; *Journal of Organizational Behavior*; *Research in Organizational Behavior*; *Organizational Behavior and Human Decision Processes*; *Organizational Behavior and Human Performance*; *Journal of Human Relations*; *Human Relations*; *Journal of Behavioral Decision Making*; *Journal of Behavioral Assessment*; *Journal of Vocational Behavior*; *Journal of Verbal Learning and Verbal Behavior*; *Small Group Behavior*; *Social Behavior*; *Research in Organizational Behavior*; *Behavioral Research in Accounting*.
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TABLE 2-A: “Economics-Oriented” Accounting Papers Related to Organizational Incentives Published in 1989-1999

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Burrows & Black (1998- <i>AOS</i>)	accounting firm partners	six partners from Australian Big-6 accounting firms	survey (telephone)	profit sharing by accounting partners (equal sharing vs. perf.-based profit sharing vs. hybrid scheme)		- firm specific capital - diversification - income volatility - economies of scope
Ittner & Larcker (1997- <i>AOS</i>)	sr., middle, non-mgt. employees	249 firms (auto and computer industry in Canada, Germany, Japan, and U.S.)	archival (consulting firm survey)	importance of quality performance in compensation determination	performance (ROA, ROS, growth, perceived performance)	quality-oriented strategy
Chow et al. (1991- <i>AOS</i>)	n.a.	55 business students	experiment	- pay scheme (truth-telling vs. fixed-pay-plus-bonus) - ratchet (present vs. absent)	- budget slack - performance	
Begley & Feltham (1999- <i>JAE</i>)	CEO	91 debt issuing industrial firms (1975-1979)	archival (proxy statements, <i>Forbes</i> survey)	- CEO cash compensation - CEO stock wealth - CEO ownership fraction		use of debt covenants restricting dividends and borrowings
DeFond & Park (1999- <i>JAE</i>)	CEO	301 CEO turnovers; 621 control firms (1988-1992)	archival	use of absolute firm performance vs. RPE in CEO turnover decisions		competition
Guidry et al. (1999- <i>JAE</i>)	SBU managers	117 SBUs in one multinational, US-mftg. firm (1994-1995)	archival	earning-based bonus plan bounds	earnings management (discretionary accruals)	
Baber et al. (1998- <i>JAE</i>)	CEO	713 firms	archival	pay-for-performance sensitivity		- earnings persistence - CEO retirement window*
Wallace (1997- <i>JAE</i>)	CEO	40 firms with residual income-based comp. plans + 40 control firms	archival	adoption of residual income-based bonus plan	- investment decisions - financing decisions - operating decisions - residual income - shareholder wealth	

TABLE 2-A (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Keating (1997- <i>JAE</i>)	division managers	78 divisions from 78 different firms	survey	use of division accounting metrics, firm accounting metrics, and firm stock price in the evaluation of divisional managers		<ul style="list-style-type: none"> - divisional interdependencies - growth opportunities - relative divisional size - correlation firm/market- returns - correlation divisional earnings/value
Baber et al. (1996- <i>JAE</i>)	CEO	1249 firms (1992-1993)	archival	<ul style="list-style-type: none"> - sensitivity of CEO compensation - use of market-based vs. accounting-based performance indicators 		investment opportunity
Bushman et al. (1996- <i>JAE</i>)	CEO	396 firms (1990-1995)	archival (<i>Hewitt</i> survey)	use of individual performance evaluation in determining CEO bonuses		<ul style="list-style-type: none"> - importance of growth opportunities - length of product development and product life cycles - noise in accounting returns - noise in stock returns
Gibbs (1995- <i>JAE</i>)	across org. levels (entry mgt. to CEO)	single large hierarchical firm (1969-1988)	analytical / archival	<ul style="list-style-type: none"> - ST and LT rewards from promotion - interaction between within-job and promotion-based pay-for-perf. 		
Holthausen et al. (1995b- <i>JAE</i>)	division managers	299 observations in 116 firms (1987-1991)	archival	compensation structure (ratio of LT-comp. to total comp.)	innovation activity	innovation opportunity set
Gaver et al. (1995- <i>JAE</i>)	CEO	102 firms (1980-1990)	archival	bonus plan bounds	earnings management (discretionary accruals)	
Holthausen et al. (1995a- <i>JAE</i>)	CEO	443 firm-year observations over 6 years	archival (consulting firm survey)	bonus plan bounds	earnings management (discretionary accruals; investment decisions; unexpected components of gains/losses).	
Blackwell et al. (1994- <i>JAE</i>)	subsidiary bank managers	700+ subsidiaries of 100+ Texas bank holdings (1984-1987)	archival	effect of subunit absolute/relative performance on subunit manager turnover		

TABLE 2-A (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Golec (1994- <i>JAE</i>)	REIT- “advisors” (managers)	66 REITs (1962-1987)	archival	formula-based compensation vs. discretionary compensation	- mgt. decisions - dividend yields - stock return	
Skinner (1993- <i>JAE</i>)	CEO	504 COMPUSTAT industrial firms	archival	earnings-based bonus plan vs. discre- tionary bonus plan vs. no bonus plan	use of income- increasing accounting procedures	firm investment opportunities
Sloan (1993- <i>JAE</i>)	CEO	538 firms (CRSP / COMPUSTAT)	archival (<i>Forbes</i> survey)	use of earnings-based performance measures in CEO cash compensation		- market-wide noise in stock returns relative to noise in earnings - correlation between noise in stock returns and noise in earnings
Gaver & Gaver (1993- <i>JAE</i>)	top five executives	237 growth vs. 237 non-growth firms (COMPUSTAT)	archival	- levels of cash compensation - incidence of bonus plans - incidence of stock option plans - incidence restricted stock plans		investment opportunities
Clinch & Magliolo (1993- <i>JAE</i>)	CEO	63 banks	archival (<i>Forbes</i> survey)	impact of discretionary earnings on CEO compensation functions		- firm’s future capital position - tax status - CEO tenure
Bizjak et al. (1993- <i>JAE</i>)	CEO	430 large U.S.-corporations	analytical / archival	sensitivity of CEO pay to stock price performance		information asymmetry between shareholders and managers about management investment decisions
Gaver & Gaver (1998- <i>TAR</i>)	CEO	376 firms	archival (<i>Forbes</i> survey)	nonrecurring accounting transactions and CEO cash compensation		
Ittner et al. (1997- <i>TAR</i>)	CEO	317 firms (48 industries)	archival	weight on non-financial performance measures		- organization strategy - quality strategy - regulatory environment - financial performance - noise in financial perf. measures - CEO influence
Natarajan (1996- <i>TAR</i>)	CEO	331 firms	archival (<i>Forbes</i> survey)	use and relative weight of components of earnings in CEO compensation		

TABLE 2-A (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Chen & Lee (1995-TAR)	CEO	12 'switch' firms vs. 22 'write-down' firms (1985-1986)	archival	- bonus plan (lower) bound - bonus plan slope	accounting choice (switch to full cost)	
Dechow et al. (1994-TAR)	CEO	91 Fortune 500 (1982-1989)	archival	adjustments of earnings-based incentive compensation for restructuring charges by compensation committees		
Enis (1993-TAR)	CEO	307 motor carriers (small, closely-held)	survey / archival	- adoption of earnings-based bonus plan - adoption of performance plan	- performance - cap. investment	
Gaver et al. (1992-TAR)	CEO	209 firms (1971-1980)	archival	adoption of LT compensation agreement for corporate top management	stock market reaction	
Waller & Bishop (1990-TAR)	n.a.	72 undergraduate students	experiment	incentive scheme (Groves scheme vs. unit profit-plus-penalty scheme)	subordinate's misrepresentation in resource allocation decisions	
Newman (1989-TAR)	CEO	165 firms (<i>Fortune 1000</i>)	archival	use of before-tax vs. after-tax profits in bonus plan		- degree of multinationality - degree of capital intensity
Defeo et al. (1989-TAR)	CEO	179 swap transactions (1981-1984)	archival	effect of accounting gains from equity-for-debt swaps on executive compensation and wealth		
Ronen & Aharoni (1989-TAR)	CEO	1022 firms (<i>Fortune 1000</i>)	analytical / survey	existence of bonus or option plan*	accounting choices	firms' effective tax rate
Bushman et al. (1995-JAR)	business unit mgr.	246 firms (<i>Hewitt 1993 survey</i>)	analytical / archival	percentage of division CEO annual bonus based on performance above division level		intrafirm interdependencies
Janakiraman et al. (1992-JAR)	CEO	609 firms (<i>Forbes</i> annual survey) (1970-1988)	archival (<i>Forbes</i> survey)	use of RPE in CEO cash compensation (salary plus annual bonus)		
Lanen & Larcker (1992-JAR)	CEO	114 utility firms (1973-1986)	archival	adoption of performance-based compensation contract		- environment change (utility regulation) - technical production efficiency - diversification

TABLE 2-A (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Ely (1991-JAR)	CEO	173 firms in banking, electric utilities, oil and gas, and retailing (1978-1982)	archival	relationship between compensation and four firm perf. variables (ROE, RET, sales revenue and net interest income)		industry
Clinch (1991-JAR)	“key” employees	200 public firms (1981-1985)	archival	relationship between compensation and accounting performance measures as well as stock market performance measures		- R&D expenditures - tax status

TABLE 2-B: “Behavioral” Accounting Papers Related to Organizational Incentives Published in 1989-1999

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Chow et al. (1999-AOS)	top-two levels of managers	159 mgrs. in six each of Japan, Taiwan, and U.S.-owned electronics and computer firms	survey	- participative budgeting - standard tightness - participative performance evaluation - performance-contingent financial rewards		national culture
Scott & Tiessen (1999-AOS)	across mgt. hierarchy	248 managers (for-profit and non-profit organizations)	survey	- weight on team-performance in comp. - diversity of performance measures - performance standard-setting participation*	self-rated team performance	- task complexity - involvement in teams
Perera et al. (1997-AOS)	corporate and division managers	105 mgrs. randomly selected from mftg. firms	survey	use of non-financial performance measures	self-rated performance	customer-focused manufacturing strategy
Collins et al. (1997-AOS)	accountants and managers (no indication of the level)	28 Latin American accountants and managers	survey / interview	budgetary usage for performance evaluation		strategy (i.e., defender, analyzer, prospector and reactor)
Magner et al. (1995-AOS)	variety of line and staff managers	53 managers attending executive development program	survey	- budget participation - budget favorability	- trust in supervisor - organizational commitment	
Merchant et al. (1995-AOS)	profit center managers	2 US + 2 Taiwan firms (chemicals, electronics)	field study	- use of individual perf.-dependent rewards - use of group-rewards - use of long-term incentives - use of subjective performance evaluation		national culture

TABLE 2-B (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Lau et al. (1995-AOS)	functional heads	112 functional heads (Singapore mftg. firms)	survey	- evaluative style (budget emphasis) - budget participation	- job-related tension - self-rated performance	task difficulty*
O'Connor (1995-AOS)	middle managers	125 managers (44 firms in Singapore)	survey	participation in performance evaluation	- role ambiguity - superior/subordinate relationship	national culture (power distance)*
Ross (1994-AOS)	respons. center managers	215 mgrs. (18 Australian organ.: private/public, manufacturing/service)	survey	performance evaluation style (budget-constrained, profit-conscious, non-accounting)	job-related tension	trust between superior and subordinate*
Harrison (1993-AOS)	middle managers	115 managers from 14 Singaporean firms and 96 managers from 14 Australian firms	survey	performance evaluation style (RAPM)	- job related tension - job satisfaction	- national culture* - personality*
Harrison (1992-AOS)	middle managers	115 managers from 14 Singaporean firms and 96 managers from 14 Australian firms	survey	- budget emphasis in superior evaluative style - budget-participation*	- job related tension - job satisfaction	national culture* (power distance, individualism)
Dunk (1992-AOS)	cost center managers	24 managers (24 consumer product firms)	survey	reliance on budgetary control in performance evaluation	self-rated performance	manufacturing process automation *
Dunk (1990-AOS)	cost center managers	26 managers (26 consumer product firms)	survey	- budgetary participation - agreement on evaluation criteria	self-rated performance	
Williams et al. (1990-AOS)	department managers	201 managers (22 public sector organizations in Canada)	survey	budget-based performance evaluation	self-rated performance	reciprocal vs. pooled task interdependence*
Dunk (1989-AOS)	cost center managers	26 managers (26 consumer product firms)	survey	- budget participation - budget emphasis	self-rated performance	
Imoisili (1989-AOS)	cost center managers	188 managers from 3 organizations	survey / interview	performance evaluation style (budget-constrained, profit-conscious)	self-rated performance	- task interdependence* - task uncertainty*
Lockett & Hirst (1989-AOS)	n.a.	48 employees (Big-8 firms in Sydney)	experiment	quality of performance evaluation: - level of inter-rater agreement, - conformity with official policies, - level of self-insight		different types of feedback

TABLE 2-B (Continued)

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Merchant & Manzoni (1989-TAR)	profit center	54 profit center managers (12 firms)	field study	<ul style="list-style-type: none"> - number of budget targets - budget target achievability - performance/reward function (bounds) 	<ul style="list-style-type: none"> - motivation - morale - earnings management 	<ul style="list-style-type: none"> - upper mgt.'s incentives - manager/profit center effectiveness - corporate need for short-term profit

TABLE 2-C: "Mixed Behavioral/Economics-Oriented" Accounting Papers Related to Organizational Incentives Published in 1989-1999

Article	Level of analysis	Sample	Research Method	Org. Incentive System Variables	Outcome Variables	Contextual Variables
Drake et al. (1999-TAR)	n.a.	132 MBA students	experiment	group-based incentive vs. tournament-based incentive	profit	adoption of an activity-based vs. volume-based costing system
Banker et al. (1996-JAE)	front-line workers	15 retail outlets	archival (internal firm data)	performance-based compensation plan	performance	
Wruck & Jensen (1994-JAE)	employees	<i>Sterling Chemicals</i>	field study	<ul style="list-style-type: none"> - allocation of decision rights - performance measurement and reward systems 		total quality management
Luft (1994-JAE)	n.a.	36 MBA students	experiment	preference for bonus vs. penalty incentives		
Ittner & Larcker (1995-JAR)	sr., middle, non-mgt. employees	249 firms (auto and computer industry in Canada, Germany, Japan, and U.S.)	archival (consulting firm survey)	<ul style="list-style-type: none"> - use of non-financial performance measures - importance of team performance 	performance	total quality management
Libby & Lipe (1992-JAR)	n.a.	134 auditing students	experiment	performance-based incentives	cognitive performance improvements	task characteristics* (degree of effort sensitivity)
Ashton (1990-JAR)	n.a.	182 auditors	experiment	financial incentives	judgment performance	availability of decision aids*

(*) moderating variable

TABLE 3
Number of Published Papers using Each Research Method

Research Method	Base Discipline		
	<i>Economics</i>	<i>Behavioral</i>	<i>Mixed</i>
<i>Archival</i> (*)	32	-	2
<i>Survey</i> (*)	4	15	0
<i>Experiment</i>	2	1	4
<i>Field study</i>	-	2	1
Total	38	18	7

(*) *Archival research* presents analysis of data from pre-existing sources. *Survey research* uses surveys designed by the researchers themselves.