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My submission focuses on asset misappropriation (theft) and performance misrepresentation. We explored the impact of compensation on theft (a valued pen) and misrepresentation (falsely reporting performance), two forms of fraud. Our design allowed testing causal relationships, difficult if not impossible with field or archival data.

Fraud affects all businesses. Importantly, our results identified compensation form – non-contingent (salary), contingent-bonus or contingent penalty – as affecting fraud levels, including misrepresentation and theft. Understanding tensions between rewarding performance and stimulating fraud can significantly advance business results. The first study to demonstrate causal links between contingent-pay and fraud, it represents a larger programatic series exploring fraud's antecedents and prescriptions.

From Hammurabi[i] through modern scandals, fraud is of concern. Responsible for 20% of business failures, the fastest-growing US crime is employee theft/fraud. Three-quarters of employees steal,[ii] totaling $15.2 billion/year. Employee theft is responsible for 44% of retail inventory shrinkage, eclipsing losses from shop-lifting or other sources. 2008's estimated fraud losses were $994 billion.[iii] Fraud uncovered at Fannie Mae alone is estimated to exceed $10.6 billion.[iv] The importance of understanding the causes cannot be understated.

Organizations use incentives to align interests with company and shareholders. Paid contingently, employees benefit when companies do well or employees meet or exceed criteria. Hence they are motivated to achieve specified outcomes. Yet incentives may stimulate fraud. Many speculated on the role of incentives in fraud at Fannie Mae, Enron and Tyco. Before these failures, Warren Buffett asserted a growing number of managers manipulated earnings to inflate stock price and hence personal income.[v] Former Federal Reserve Chairman Greenspan testified managers had "incentives to artificially inflate reported earnings"[vi] in part because their pay depended on it.

Previous research examines how incentives influence performance. Little, if any, explores the relationship between incentives and fraud. Nor has the impact of different incentive forms been addressed. These omissions are important, not only because of mounting anecdotal evidence linking them, but also because the presumed causal mechanism – contingent-pay – is common at all levels.

Bonuses and penalties[vii] represent contingent-pay for achieving or failing to meet objectives. Economically, there should be no difference between equal bonuses and penalties. Psychologically, bonuses and penalties are evaluated differently and engender different behaviors. **Results support the intuition: there are unintended costs in using performance-contingent-pay.**

We found greater theft and misrepresentation with contingent vs. non-contingent compensation. Greatest levels occurred with penalty-contingent-pay. Actual performance, higher when paid contingently (vs salary), was costly: misrepresentation and theft averaged $7.57 vs. productivity gains of $5.58. When paid contingently, fraud exceeded productivity gains. Further, those paid contingently were 21.1% more likely to steal. If facing penalties, the increased likelihood was 41.9%.

We were befuddled by why the dishonest were selective in their form of dishonesty – why not both steal and misrepresent? 47% who didn't misrepresent performance stole. This pattern hints at a compensatory model to be explored in future research. Why these two frauds were treated differently is a conundrum.

i Hammurabi was the sixth king of Babylon, about 2250 B.C.E.

ii Wall Street Journal

iii Association of Certified Fraud Examiners, 2008.

iv For years 1998 – 2006: Day, K. 2006. Study Finds 'Extensive' Fraud at Fannie Mae: Bonuses Allegedly Drove the Scheme. Washington Post (May 24): A01.

v Buffett, W. E. 1999. Chairman's Letter To the Shareholders of Berkshire Hathaway Inc. Available at: http://www.berkshirehathaway.com/letters/1998pdf.

vi Greenspan, A. 2002. Testimony before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate. July 16. Available at: http://www.federalreserve.gov/boarddocs/hh/2002/july/testimony.htm.

vii Although most of us may think of performance-contingent-pay in terms of bonuses, the use of penalties is quite common: "bonus banks" where bonuses earned are banked and may be lost if performance declines in future years, emergency medical technicians who are fined for incorrectly completed or late forms, physicians with capitation contracts, workers penalized based on defect rates, restaurant wait staff whose pay is docked for stolen mugs/ashtrays and salespeople who may have to pay their firm back from future or past draws when their sales fall short of a quota. Restricted stock grants may also be viewed as a penalty when the stock's market price falls.

Give & Take:
Incentive Framing in Compensation Contracts

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ABSTRACT

This research examined how framing a compensation contract potentially affects fraudulent behavior in organizations: specifically, the misrepresentation of performance and misappropriation of assets. We also explored how priming ethical concerns affects these behaviors. The relationship between fraudulent behavior and performance-contingent pay is important, especially in view of the dramatic increases in the use of contingent pay in recent years. Evidence of the scope of this problem is provided by both academic and practitioner literatures, which have documented examples of accounting manipulations. Using Prospect Theory, we tested our hypotheses in a 3×2 between-subjects experiment. We found that the framing of compensation matters: Participants with performance-contingent pay engaged in greater fraudulent behavior, and those facing penalties engage in more fraud than those facing bonuses. We found qualified support for the role of ethical primes in mitigating fraudulent behavior. Ethical priming limited the misappropriation of assets, but not the fraudulent misrepresentation of performance.

Keywords: compensation; incentives; Prospect theory; fraudulent behavior; fraud; bonus; penalty; performance-contingent pay; misrepresentation; misappropriation; ethics; experiment; managerial accounting

Data Availability: Please contact the authors for data.

Give & Take: Incentive Framing in Compensation Contracts

"*If a man hire a man to oversee his farm and furnish him the seed-grain and intrust [sic] him with oxen and contract with him to cultivate the field, and that man steal either the seed or the crop and it be found in his possession, they shall cut off his fingers*." The Code of Hammurabi §253. Harper (1904).

I. INTRODUCTION

From the time of Hammurabi[1] through the modern-day scandals of Enron's collapse and the Fannie Mae/Freddie Mac takeovers, fraud has been a concern. Broadly conceived, fraud is the misappropriation of assets as well as financial statement misrepresentation (Golden et al. 2005). The first of these – the misappropriation of assets – includes unauthorized consumption, or theft, of an organization's resources. In contrast, financial statement fraud is the presentation of knowingly false reports wherein financial damage results from reliance on those reports (Skalak et al. 2005). The issue of fraud has broad appeal from a number of perspectives: (1) to managerial accountants who are concerned with fraud from the perspective of control system design, (2) to auditors who are interested in fraud from a detection viewpoint, and (3) to financial accountants who are concerned with the quality of the financial reporting on which organizational and investor decisions are based.

In this study, we tested hypotheses relating compensation type (contingent versus non-contingent) and the form of the contingency (bonus or penalty) on both fraudulent reporting (misrepresentation) and the misappropriation of assets. Our results suggest there may be unintended costs in using contingent contracts to mitigate the moral hazards of agency theory.[2]

[1] Hammurabi was the sixth king of Babylon, about 2250 B.C.E. (Harper 1904).

[2] It has been suggested that firms explicitly recognize this tradeoff. This argument is based on a notion of economic Darwinism that assumes the knowledge we seek to gain from this study. Furthermore, evolution doesn't require optimality, just equivalent levels of efficiency.

A recent survey by the Association of Certified Fraud Examiners (ACFE 2008) estimates losses due to all frauds at $994 billion annually.[3] Responsible for 20% of all business failures, the fastest-growing category of crime in the United States is employee theft and fraud (Collins 2003). According to the Wall Street Journal, up to three-quarters of all employees steal from their workplace at least once. Hollinger and Adams (2007) note that employee theft is responsible for 44% of inventory shrinkage in retail stores, far eclipsing losses due to shop-lifting or other sources. Further, employee theft is the single most significant source of inventory shrinkage, totaling about $15.2 billion a year, "…a staggering monetary loss to come from a single crime type. In fact, there is no other form of larceny that annually costs Americans more money than employee theft" (p. 8). In the retail industry, managers are responsible for more theft than hourly employees, at least in part because managers more easily can put themselves into a position to steal and to steal larger amounts. In addition to costs due to employee theft (asset misappropriation), the manipulation of financial reports also is common (Merchant and Van der Stede 2007) and costly.

Organizations have long used incentives as a mechanism for aligning the interests of managers and workers with the interests of the company and its shareholders. For example, among CEOs and top managers, performance-contingent pay has long been a key component of compensation. Yet scholars, journalists, legislators and practitioners are among those who have expressed concern that incentives, such as contingent compensation, may actually stimulate financial misdeeds under some circumstances. For example, many have speculated on the role of incentives in the frauds at firms like Fannie Mae, Enron and Tyco. Long before these failures, well-known investor Warren Buffett asserted that a growing number of managers manipulated

[3] For example, the fraud uncovered from 1998 – 2004 at Fannie Mae alone has been estimated to be in excess of $10.6 billion (Day 2006).

earnings to inflate stock price and, therefore, personal income (Buffett 1999). Later, former Federal Reserve Chairman Alan Greenspan (2002) testified that managers had "incentives to artificially inflate reported earnings" at least in part because their pay depended on it.

Compensation contracts are a key element in the design of managerial control systems. Accordingly, managerial accounting research has a long history of exploring how incentives influence behavior (for reviews, see Luft and Shields [2003], Bonner and Sprinkle [2002], and Young and Lewis [1995])[4]. However, the literature has mostly focused on budgetary slack and performance quantity using only single tasks (Sprinkle 2003). Understanding the factors that affect fraudulent behaviors is important, not only because of the mounting evidence linking incentive contracting to opportunistic behavior, but also because the presumed causal mechanism – performance-contingent pay – is common practice at all levels (e.g., Lambert 2001; Lawler and Cohen 1992; Markham et al. 1992; Richter 1999; Welbourne and Gomez-Mejia 1995).

One perspective on control is that of agency theory, a stylized model of the relationship between a principal and an agent. Agency theory assumes that both principal and agent are self-interested with divergent goals, and agents, who possess private information, are both effort- and risk-averse (Baiman 1990). Principals use contingent compensation contracts (i.e., pay for performance) as a form of control over agent behavior.

While agency theory focuses on the role of contingent compensation, it is silent on the actual *form* that contingent compensation may take. Yet form may also be important (Wiseman and Gomez-Mejia 1998). Within the compensation and agency theory literature, a number of studies have explored whether contingent pay plans (e.g., bonuses, commissions, penalties) result in superior job performance when compared to non-contingent pay plans (e.g., wages, salaries)

[4] Other streams of research have sought to document an association between executive compensation and fraud. For example, see Healy and Wahlen (1999), Bartov and Mohanram (2004), and Erickson et al. (2006).

with somewhat mixed results (Barkema and Gomez-Mejia 1998). Although research interest in contingent pay has been high, to date the research has almost exclusively focused on bonus pay. Although most of us may think of performance-contingent pay in terms of bonuses, the use of penalties – another form of contingent pay – is quite common.[5] Yet there are few published studies that have addressed whether the form of compensation and its framing make a difference.

From Prospect Theory (Kahneman and Tversky 1979) we know that the framing of the contingencies (i.e., a loss or a gain) likely will have an impact on work attitudes, behavior and performance. It has been well documented that the framing of an outcome, such as the number of lives saved or lost, causes decision makers to make different choices despite identical expected values (e.g., see Kahneman and Tversky 2000). In the domain of compensation, the framing of a contingent contract as a loss (penalty) or a gain (bonus) likely will engender different behaviors and choices as well. This is attested by the robust findings of Prospect Theory (Kahneman and Tversky 1979), which have demonstrated consistently that a dollar lost is always more painful than a dollar gained is pleasurable. In this paper, we are interested in the impact of contingent compensation *framing* on the misrepresentation of performance outcomes (actual performance levels and creativity) and the misappropriation of assets.

The remainder of this paper proceeds as follows. In the next section we review the literature and develop our hypotheses. This is followed by a description of our experimental methods, our results and a discussion of these results and their implications and contributions to the literature.

[5] Simons (2000) and Merchant and Van der Stede (2003) both describe "bonus banks" used in incentive systems. In these systems, bonuses earned are banked and may be lost if performance declines in future years below prescribed levels. Other examples include: emergency medical technicians who are fined for incorrectly completed or late forms (Schneid 2001); medical doctors with capitation-withhold contracts; workers penalized based on defect rates, restaurant wait staff whose pay is docked for stolen mugs/ashtrays and salespeople who may have to pay their firm back from future or past draws when their sales fall short of a quota (Fischer 2006). Restricted stock grants may also be viewed as a penalty when the stock's market price falls.

II. HYPOTHESIS DEVELOPMENT

Compensation Contracts

Agency theory predicts that workers, given a flat wage, have little incentive to work (Baiman 1990; Jensen and Meckling 1976) and will prefer leisure. As a result, they will shirk in their assigned work. To overcome the shirking problem, organizations use contracts with performance-contingent pay to better align workers' incentives with those of the owners of the firm. In the accounting literature a number of studies have explored the effects of non-contingent and contingent pay schemes, finding that performance-contingent pay does indeed increase effort and performance (e.g., Chow 1983; Sprinkle 2000). While these findings are not universal (Bonner et al. 2000), the use of performance-contingent pay is nevertheless commonplace in organizations (Lambert 2001; Richter 1999).

A potential disadvantage of performance-contingent pay is that it provides an incentive for workers to engage in other forms of opportunism. For example, a number of studies have documented an association between performance-contingent pay and misrepresentation. Baiman and Lewis (1989) found participants were willing to misrepresent private information about their skills when given opportunities for increased wealth (the adverse selection problem). Similarly, in Waller and Bishop (1990), study participants given bonus-based performance-contingent pay misrepresented private information about their potential profits in order to create budgetary slack, in order to increase their personal wealth. In an experiment comparing three performance-contingent pay schemes, Chow et al. (1994) reported that the frequency of misrepresentation ranged from 60 – 85% of participants, with the highest misrepresentation occurring when participants were given bonus-based pay.

While performance-contingent pay can induce greater effort, it does not always translate into higher performance. This is likely to be especially true when workers face a difficult task and are limited by a lack of time, cognitive ability, skills or other resources. In such situations – not uncommon – some workers will respond by misrepresenting their performance in order to (apparently) meet expectations and maximize their individual wealth. Formally, we predict that:

H1: Performance-contingent pay will result in greater misrepresentation than non-contingent pay.

Logically, performance-contingent pay can take one of at least two forms: bonuses paid for achieving, or penalties levied for failure to achieve, performance levels. Normatively, there should be no difference between positive (bonus) and negative (penalty) incentives as long as expected values are equivalent. However, research has empirically demonstrated that preferences for allocation rules – in this case, compensation schemes – will be seen very differently when allocating losses (penalties) as opposed to gains (bonuses). For example, experimental evidence has demonstrated that individuals prefer contracts expressed in bonus as opposed to penalty terms, despite being economically equivalent (Luft 1994). Work by McLean Parks et al. (1995) found different allocation rules were preferred for distributing (gain) versus rescinding (loss) resources, while Mannix et al. (1995) found different allocation rules for the distribution of benefits versus burdens. Further, McLean Parks et al. (1996) found sharing of adventitious gains versus adventitious losses resulted in different levels of satisfaction with final distributions.

Most studies in the agency and prospect theory literatures are concerned with outcomes, or the choices that are made, as a function of different incentive structures (loss versus gain). And while a number of these studies have examined contingent bonus-based pay, there is a relative paucity of accounting research that focuses on penalties, or on research contrasting these

two contingent compensation forms. In a study by Waller and Bishop (1990), misrepresentation by study participants receiving penalty-based pay was markedly different from misrepresentation by those receiving other contingent forms of compensation. Waller and Bishop's study differs from the current one in that workers made decisions regarding inputs, hence a penalty for failing to achieve budgeted profit motivated truthful reporting. Different behavior also was observed between participants receiving an indemnification bonus and those receiving an equivalent contract framed as a penalty (Frederickson and Waller 2005). Over time, participants in the bonus-framed condition converged toward the optimal contract weight as calculated from a principal-agent model. However, loss aversion by participants in the penalty-framed condition prevented convergence. Recent studies by Hannan et al. (2005) and Church et al. (2008) examined how framing affects the choice of effort level, finding penalty-framed output pay motivated higher effort levels than corresponding bonus-framed pay. In our study, we take a different focus, exploring the relationship between the form and framing of compensation on two outcome behaviors that are ex-post moral hazards: the misrepresentation of performance and the misappropriation of assets.

Just as equivalent losses and gains are viewed differently and result in different choices, compensation contracts may engender differential reactions. Given equivalent performance and potentially equivalent *actual* outcomes, penalty-based contracts will be seen very differently, triggering different reciprocity behaviors. Integrating the reciprocity norms specified by Gouldner (1960), Sahlins (1972) and Mitchell (1988), McLean Parks (1998) noted that when someone has been harmed, perhaps by being penalized, these norms proscribe helping someone who has harmed you and that further, they prescribe that one should harm those who have harmed you. Integrating these arguments results in the following logic: (1) losses and gains are

evaluated quite differently; (2) people prefer different allocation rules for losses versus gains; (3) these different rules may trigger different reciprocity norms; and, (4) a reciprocity norm of "getting even" may be quite likely when facing penalties (losses).

Logically, as those faced with contingent penalties are motivated to exert more effort, penalties also may encourage misrepresentation, especially when such efforts are likely to be unsuccessful. Further, being punished with a penalty will be felt more strongly than being equivalently rewarded, as predicted by Prospect Theory, engendering risk-seeking behavior. Such risk-seeking behavior may manifest itself by misrepresentation, in order to avoid the painful experience of having monies taken away in the form of a penalty. Thus we predict:

H2: Penalty-based contingent pay will result in more misrepresentation than either salary or bonus-based contingent pay, *ceteris paribus*.

Yet, these effects may go beyond misrepresentation. Perquisites have the ability to attract workers to a firm and improve job satisfaction (Gino and Pierce 2008). However, many workers have the ability to divert firm resources for personal use (Cyert and March 1963; Alchian and Demsetz 1972; Jensen and Meckling 1976; Baiman 1990). For example, executives may dress up their offices with expensive artwork, travel in luxury on corporate jets, or claim to need laptop computers that are actually used at home by family members.

Waller and Bishop's (1990) study documents this consumption of perquisites, finding that participants were willing to misrepresent private information in order to divert excess resources for increased personal wealth. Although perhaps seen as less extreme than theft, such behavior does constitute misappropriation. The ability to misappropriate assets is a second form of opportunism that may be affected by performance-contingent pay.

Based on our arguments regarding compensation form, we conclude that those faced with

contingent penalties will be more likely to take the risks associated with resource misappropriation. This assertion is supported by the intriguing results of recent neuro-economics research (e.g., Breiter et al. 2001; Kuhnen and Knutson 2005; Loewenstein et al. 2001). This literature has found that not only does facing losses versus gains result in different choices, but that this effect may be due to the fact that losses and gains are processed quite differently in the brain. The intra-parietal sulcus is strongly activated when fear of loss is aroused. This activation pattern is similar to that which occurs when evaluating risks, and is not observed when evaluating gains or sure bets (Gonzalez et al. 2005). With the intra-parietal sulcus also activated when evaluating the motivations and intentions of others (Hamilton and Grafton 2006), for example, to determine whether to "get even," then when processing loss (penalty) information reciprocal revenge may be a plausible result. With penalties a form of punishment or harm, this implies that when one has been harmed (penalized) one will be more likely to inflict harm, for example, by theft, sabotage (McLean Parks 1998) or misappropriation of resources. More directly, this means that if someone has "stolen" something from you — taken away what you feel entitled to — taking something away from that person would be a justifiable response through reciprocal harm. This reaction may be particularly pronounced, given evidence that fairness norms may be hard wired (Brosnan and de Waal 2003). One plausible reason to expect a pronounced reaction is that, all else equal, the logic of fairness apparently supersedes the logic of economics in much of human decision-making. Simply put, punishing someone who has harmed (penalized) you "feels good" because this activates the dorsal striatum (de Quervain et al. 2004), a portion of the brain associated with satisfaction. Thus when contingent compensation is penalty-based, being penalized (harmed) may trigger the response to steal or misappropriate assets. Based on this discussion, we predict:

H3: Penalty-based contingent pay will result in greater misappropriation of assets than either salary or bonus-based contingent pay, *ceteris paribus*.

Ethical Expectations

Agency theory assumes that individuals "act unreservedly in their own narrowly defined self-interest with, if necessary, guile and deceit" (Noreen 1988, 359). Yet while ethical behavior is not likely to eliminate moral hazards (Sprinkle 2003), empirical research suggests that ethical norms matter. Baiman and Lewis (1989), while not raising ethical awareness, found participants in their study behaved in a manner consistent with the notion that different people hold different ethical standards. They observed what appeared to be a threshold effect, where it appeared there was a level below which participants were honest, and above which dishonesty increased as monetary rewards increased. But with a very low threshold ($0.25), Baiman and Lewis concluded that the economic assumption of self-interested behavior most likely is appropriate.

In contrast, Luft (1997) noted that research has observed behavior inconsistent with simple self-interest, arguing for research incorporating preferences for honesty, fairness and ethical concerns. Preferences for honesty were examined in Evans et al. (2001) who found that individuals sacrificed wealth in order to make honest, or at least partially honest, reports. Participants were less honest when the contract provided a smaller share of the firm's surplus, a result that would suggest perceived fairness affects honest reporting. They concluded that a contract that considered preferences for honesty provided the highest firm profit. Their finding of differences across contracts suggests compensation form is a factor.

When normative concerns – including ethics – are salient, people will tend to behave in a manner consonant with those norms. In other words, it is possible to prime normative behaviors. As noted by Mazar et al. (2007), one should not have to be reminded to behave honestly.

However, these authors argued that it is not so much whether individuals *know* it is wrong to be dishonest, but whether or not they think about norms of honesty and ethical behaviors when presented with the opportunity to behave dishonestly. By using a prime focused on the recall of the Ten Commandments, the 9th of which is a prohibition against lying, Mazar et al. observed that the prime eliminated dishonest behavior. The effect of priming normative or ethical concerns is robust and has been empirically demonstrated across a wide variety of contexts. For example, in addition to Biblical primes enhancing honesty, primes of loyalty (Hertel and Kerr 2001), consensual sex (Littleton et al. 2006), racial stereotypes (Johnson et al. 2008), and power (Galinsky et al. 2003) all affect subsequent behavior. These primes can be obvious ethical primes such as Biblical references (Mazar et al. 2007) or more subtle ones, such as use of radar speed signs to reduce speeding, even when enforcement mechanisms are missing (e.g., Van Houten and Nau 1981; Van Houten and Nau 1983; Wrapson et al. 2006). In both cases, behavior is shaped by the prime. More directly, other research has suggested that priming ethics, for example through corporate ethics statements, can induce more ethical behavior (e.g., McCabe et al. 2001; Stevens 2008). Given the robustness of normative priming effects across contexts, it is plausible that the mere priming of ethical concerns could result in more ethical behaviors. Based on this discussion, we predict that the use of an ethics statement will influence opportunism by priming ethical concerns:

H4a: Priming ethical concerns will result in more truthful reporting (less misrepresentation).

H4b: Priming ethical concerns will lower resource misappropriation.

III. RESEARCH METHODS

Procedures and Experimental Manipulations

Participants in this study were recruited from the University's Human Subject Pool for a "study involving two tasks… [for which they could] earn up to a maximum of $50". Participants received compensation for their participation, as part of the compensation manipulation of the study. With well-paid experiments being relatively rare, experimental sessions were quickly filled (within 24 hours of posting an announcement), so interest in the study appeared strong. Participants were randomly assigned to each of the six experimental conditions. Demographic information on participants is provided in Table 1. These statistics were similar across treatment conditions.

[Insert Table 1 about here]

In order to ensure consistency across sessions, participants were read an instruction script specifying the experimental protocols, with key points posted on slides. As participants arrived, they were told to take any seat as long as they were seated three seats apart. The spacing inhibited the copying of answers from others. The large number of participants, their ability to select their seat, and the procedure for the collection of forms enhanced anonymity.

Once seated, participants detached their consent forms from the experimental packet, signed and turned them in before opening the experimental packet. The consent forms explained the compensation scheme to the participant (flat salary of $42.50, contingent bonus or contingent penalty). Once consent forms had been completed, participants opened their packets of experimental materials, each containing a booklet containing the tasks to be performed; a high-quality, attractive pen; and, envelopes for task solution keys and results. The experimental materials asked them to perform two tasks in return for compensation.

We were interested in two factors: the impact of three forms of compensation scheme (non-contingent, contingent bonus, contingent penalty) and the impact of ethical priming on behaviors in two self-scored tasks. Accordingly, our experiment was a 3 × 2 between-subjects factorial design with task as a within-subjects factor. In the two contingent pay schemes participants earned identical amounts for identical performance.

We manipulated **compensation** and **ethics** through the experimental procedures. The first task was based on an anagram task designed by Vargas et al. (2004). Participants were told they had 15 minutes to solve fifteen anagrams. **Compensation** was manipulated by task instructions, with those in the penalty condition given an envelope with cash before they began the task, to create an "endowment" from which the penalty for both tasks could be withdrawn (given back). For both the salary and bonus conditions, participants were told that they would receive their compensation after completion of the two tasks. The instructions then provided details of the compensation scheme. Those in the non-contingent compensation condition were paid a flat $22.50, those in the bonus condition were paid $2 for each correctly solved anagram, and those in the penalty condition had to return $2 for each anagram they failed to solve. Participants were told that although the anagrams varied in difficulty, performance would be assessed simply by a count of anagrams solved (left unsolved for penalty condition). Several sample anagrams were provided in the instructions, after which participants began the anagram task. The majority of the anagrams were intended to be difficult to solve (e.g., uioettms, drinpomlea, and gliebapaarn for titmouse, palindrome, and plea bargain, respectively), while roughly 25% were easier. After 15 minutes, participants self-scored their performance using the solution key provided.

For the second task, participants were told they had 16 minutes to provide responses to a creative fluency (idea generation) task. We used a standard creativity test (the Purdue Creativity

Test) consisting of eight abstract line drawings, where participants were instructed to "list as many possible uses" for each object depicted by the drawings. A creative fluency score was calculated by tallying the total number of distinct answers generated. Compensation form (salary, bonus, penalty) for the creativity task was the same for each participant as it had been for the anagram task and was manipulated as before. Those in the non-contingent compensation condition were given a flat amount ($20) and those in the contingent pay conditions either given a bonus or penalized 32¢ for each idea generated (or not), up to a maximum of $20. As before, participants self-scored performance.

In all three conditions, participants were given the same performance goals. Participants in the contingent pay conditions could potentially earn $50: $30 if they solved all 15 anagrams, and $20 if they achieved a creative fluency score of at least 63. Identical performance in the two contingent pay conditions resulted in identical pay.

At the end of each task, participants were asked to complete a single *experimental outcome form* on which they simply entered the numbers reflecting their performance on the two tasks. In the **ethics priming** condition, participants were asked to check a box attesting to the fact that their self-scoring accurately reflected their performance on the two tasks. Participants subsequently were asked to complete a short post-experimental questionnaire that included manipulation checks,[6] demographics and questions about the difficulty of the tasks and fairness of the compensation. Participants were told to place their compensation form and post-experimental questionnaire in the plain envelope provided and to bring it to the front. They were also told remaining materials could be left at their desk or placed in bins at the exits. Participants

[6] The effectiveness of both the compensation and ethics manipulation was assessed via manipulation checks in which participants selected their compensation scheme and answered whether or not they had been given an ethics statement. In all cases, the participants selected the response that was consistent with their experimental condition, hence we deemed our manipulations effective.

were then paid (or returned money to the experimenter), depending on the protocols for their assigned experimental condition. Those in the penalty condition returned monies not earned, those in the bonus conditions were given monies earned, and those in the non-contingent pay condition simply picked up an envelope with their flat pay. Participants then were dismissed and later debriefed.

Measurement of Key Variables. Two outcomes were of interest: Misrepresentation and misappropriation of assets. **Misrepresentation** was determined via participants self-scoring of their performance. Participants were provided with the opportunity to modify the reporting of their performance (i.e., to "cook the books"), ostensibly without detection. This was accomplished by instructing participants to either leave their materials on their desks or to place the materials in one of the bins at the exits to the room as they left. As noted above, because the experiment was conducted with many participants simultaneously in a large room, these procedures ensured anonymity. The only materials they turned in to the experimenter were the experimental outcome and post experimental questionnaire sheets provided in the packet.

Prior to the beginning of the experimental session, all materials had been marked with unique identifiers using steganography and subsequently assembled into the packets that were distributed to participants at the start of the experimental session. This enabled us to match self-reported results (which were turned in) with corresponding worksheets (left on desks or placed in bins) in order to document actual performance, without identifying individual participants with their behaviors.

We computed actual performance using the procedures of Vargas et al. (2004), requiring that there be some indication of effort in the anagram task. That is, there had to be evidence of attempts to cross out letters or create different combinations of letters on the participant's

worksheet for any word that they counted as correctly solved. Consequently, if a correct answer listed in the answer field contained no marks on the worksheet, that answer was counted as wrong (i.e., misrepresentation occurred). There were two exceptions to this procedure involving the two anagrams that a pre-test indicated could be solved by sight (dolrw = world; and, ewlhp = whelp).[7] Using this procedure, we created an *AnagramMisreport* score by subtracting the number of anagrams reported as correctly solved by the participants from our calculation of correctly solved anagrams. Similarly, in the creativity task, we created a *CreativityMisreport* score by subtracting their self-reported scores from the actual number of ideas written down on the worksheet. For the anagram task, the *AnagramMisreport* score could range from 0 – 15.[8] For the creativity task, *CreativityMisreport* could range from 0 – 64.[9] Both of these scores were indicators of misrepresentation.

Misappropriation of assets was measured by whether or not participants returned the pens. As mentioned in the procedures, we included a high quality pen in each participant's packet of materials.[10] Further, the instructions provided to the participants both verbally and posted in the room requested that the pens be returned. Using ink visible under ultraviolet light,

[7] The pre-test sample was an independent sample of 71 respondents drawn from the same population. They were given the same amount of time to solve the anagrams as the study participants, but were not allowed to write anything down, rather, had to solve each anagram by sight only. There were only two words that could be solved by "sight" by over 70% of the pre-test sample (whelp and world). Thus, if our study participants scored either of these two as correct, we counted them as correct even if there were no signs of attempts to solve them. In addition, we conducted our analyses using the rule just described (requiring no sign of effort) as well as by requiring signs of effort on the sight words and our results were unchanged.

[8] While there were 15 anagrams with two that conceivably could be solved by sight, it would seem that the misrepresentation score would have a maximum of 13. But it is possible to have an *AnagramMisreport* score of 15 if the subject were to report perfect/maximum performance while turning in a completely blank worksheet. Further, a number of participants were unable to solve the two "sight" anagrams.

[9] In one instance we noted a participant who filled in the same word repeatedly regardless of the actual letters contained in the anagram, yet self-reported maximum performance. Apparently, the participant felt a need to perform some work.

[10] If we had used a low-quality plastic pen, participants may not have valued the item. Conversely, a participant may not have thought much of taking a cheap pen (e.g., hotel guests who take pens). On the other hand, a very expensive pen (e.g., a Mont Blanc-branded pen) might induce some to take the pen simply because of its very high value. Participants appeared to value the pen because five participants asked permission to keep the pen, while several others commented it was a nice pen.

the pens were marked inside the barrel with codes that enabled us to match them to one of the experimental packets. By determining which packets did not have returned pens, we were able to determine which participants took the pens, misappropriating the asset.

IV. RESULTS

The appropriate tests of the hypotheses for misrepresentation were pre-planned comparisons using specific contrasts.[11] With directional predictions, all planned contrasts were one-tailed tests of means by condition. Means, variances and sample sizes by condition are given in Table 2. Means and confidence intervals for misrepresentation, reported in terms of fraud value, are shown in Figure 1. Fraud values are used in lieu of count data because the two measures differ in value and a common basis (U.S. dollars) enables us to informally compare misrepresentation across the two tasks. The misappropriation hypotheses were tested using two-sample tests of the equality of proportions. Counts of misappropriation also are shown in Table 2. Means and confidence values for misappropriation are depicted in Figure 2. Overall, our results support our hypotheses for the effects of compensation, but the effects of the ethics manipulation were mixed.

[Insert Table 2 about here]

[Insert Figures 1 and 2 about here]

Our first hypothesis predicted there would be greater misrepresentation when participants received contingent pay as opposed to non-contingent pay (i.e., salary). This hypothesis was

[11] We have not reported the omnibus tests since planned contrasts are needed to test the hypotheses. Tabachnick and Fidell (2007a) note that the omnibus test 'consumes' a − 1 degrees of freedom and those degrees of freedom "could, instead, be spent performing planned comparisons that provide specific information regarding the location of mean differences" (p. 123). Further, multivariate analysis of variance (MANOVA) is not used in our analyses despite the presence of multiple dependent variables. When dependent variables are highly correlated, MANOVA has advantages over separate univariate analyses, but "moderately correlated DVs diminish the power of MANOVA" (Tabachnick and Fidell 2007b, 244). With a relatively low correlation between anagram and creativity misrepresentation (Pearson's r = 0.287, $p < .01$; Spearman's rho = 0.187, $p < .10$), MANOVA would have a low power relative to univariate analyses.

tested by contrasting the salary condition with the two contingent pay conditions. Because the variances differed across conditions, degrees of freedom were approximated using Welch's (1947) formula. The contrast for the anagram task (*AnagramMisreport*) was significant ($t_{59.38}$ = 2.10, $p < .05$). There was less misrepresentation on the anagram task when participants faced non-contingent compensation than when they were faced with contingent compensation (across both ethics conditions, weighted means were 1.33, 1.55, and 2.82 for non-contingent, contingent-bonus and contingent-penalty, respectively). The contrast for the creativity task (*CreativityMisreport*) also was significant in the expected direction ($t_{41.99}$ = 1.69, $p < .05$). Across both ethics conditions, weighted means were 0.58, 2.52 and 1.25 for non-contingent, contingent-bonus and contingent-penalty, respectively).[12]

Hypothesis 2 predicted that penalty-based contingent pay would result in the greatest levels of misrepresentation. We tested this hypothesis by contrasting the penalty-contingent condition to the other pay conditions. The contrast for the anagram task was significant ($t_{35.81}$ = 2.33, $p < .05$) with means of 2.82 versus 1.45 for penalty versus the other two compensation conditions respectively. As before, we used Welch's formula to calculate the approximate degrees of freedom. The contrast for the creativity task, however, was not significant ($p = .65$). We also tested the contrasts comparing bonus-contingent to penalty-contingent pay, using a two-tailed test in the absence of a specific hypothesis. The contrast for the anagram task was marginally significant ($t_{41.89} = 1.84$, $p < .07$), while the task for creativity was not significant (p = .32).

Hypothesis 3 predicted that those with penalty-based pay would be more likely to misappropriate resources, *ceteris paribus*. Given a directional hypothesis, the appropriate test

[12] Although the counts of misrepresentation appear similar, we again note that these represent different levels of fraud. Misrepresentation in the anagram task, in monetary terms, is significantly higher than the creativity task (t_{80} = 7.06, $p < .01$).

was the two-sample test of the equality of proportions. Results revealed a significant two-sample test ($z = -4.18$, $p < .01$). Penalty pay, compared to the other two pay conditions, increased asset misappropriation by 47.1%. Thus our hypothesis was supported.

Our next hypothesis (H4a) predicted a main effect for the ethics statement on the two misrepresentation outcomes (AnagramMisreport and CreativityMisreport tasks). The contrasts for the anagram and creativity tasks were not significant ($t_{80.65} = -1.31$, $p > .90$ and $t_{80.15} = -0.58$, $p > .71$, respectively), hence hypothesis 4a was not supported.

Hypothesis 4b predicted that there would be greater misappropriation (more pens stolen) in the absence of an ethics prime. Here again, with a directional hypothesis, the two-sample test supported our hypothesis with a significant mean difference in proportions of 17.6% ($z = 1.64$, $p = .05$). Table 2 reveals that 46% of the participants with *no* ethics prime took the pens, compared to 29% who *did* receive an ethics prime. With no ethics prime, 25%, 36% and 77% of the pens were taken in the non-contingent, contingent bonus and contingent penalty conditions respectively. When there *was* an ethics prime, 0%, 20% and 60% of the pens were taken, respectively, effectively reducing misappropriation in all pay conditions.

Robustness Tests

The two response variables for misrepresentation exhibited a positive skew. Accordingly, we used bootstrapping to assess the robustness of our results.[13] A non-parametric statistical technique with no distributional assumptions, bootstrapping uses repeated sampling with replacement which allows us to empirically generate the confidence interval for mean differences

[13] We also assessed our results using non-parametric techniques (Wilcoxon [1945] rank-sum test and the Kruskal-Wallis test [1952]) and two transformations of the response variables (square root and winsorizing). A winsorized variable replaces the g lowest and g highest observations with the $g + 1$ and $N - g - 1$ observations, respectively. When g is zero you get the sample mean and when $g = n/2$ the result is the sample median. Wilcox (1996) recommends a value of $g = .2n$. Overall, the four sets of results were qualitatively similar to the parametric and bootstrapped results.

in treatment means (Efron and Tibshirani 1993). Confidence intervals were bias-corrected and accelerated, an adjustment shown to exhibit improved accuracy (Fox 1997).[14]

Misrepresentation. First, we used bootstrapping to test differences in treatment means. With 2,000 random samples for each test, the parametric results were confirmed in five out of the six tests. The exception was for misrepresentation of creativity in the salary vs. contingent pay condition where the result was marginally significant ($p < .078$). We found overall support for a compensation effect for anagram misrepresentation, but not for creativity misrepresentation. As before, we found no evidence of ethics or interaction effects. Accordingly, we believe our conclusions were not adversely impacted by the non-normality of the underlying data.

Misappropriation. We used bootstrapping to evaluate the two-sample equality of proportions tests because these rest upon large-sample theory, an assumption that is violated in our relatively small data set. Our results were confirmed.

V. DISCUSSION

Our study contributes to the literature in a number of ways. First, we examined how alternative incentive schemes affect a manager's misrepresentation of actual performance, as opposed to the creation of budgetary slack or effort choice. Second, we documented the misappropriation of resources across incentive schemes. The examination of how performance-contingent pay impacts misappropriation has received little, if any, research attention, and is not well understood. This issue has obvious implications for the design of management control systems. Third, we examined how ethical primes influence misconduct by managers. Finally, we answered Sprinkle's (2003) call for experimental research in managerial accounting that examines measures other than budget slack and performance quantity, by focusing on

[14] Confidence intervals using the percentile and normal theory methods led to the same conclusions.

misrepresentation and the misappropriation of assets. With most experimental research employing a single, one-dimensional task (Sprinkle 2003), our use of multiple tasks also makes a methodological contribution to the managerial accounting literature.

In an experimental setting, we found that using contingent pay schemes increased both performance misrepresentation and asset misappropriation in a difficult task. Compensation form also mattered, as we found higher levels of misrepresentation and misappropriation when pay was framed in penalty terms, despite equivalent pay for equivalent performance. Priming ethical behavior did not have an effect on misrepresentation, but it did lower misappropriation.

To better understand our results on misappropriation, we conducted several post-hoc analyses using a logistic regression model incorporating both compensation and ethics. Results are depicted in panel A of Table 3. We found that contingent pay represented a 21.1% increase in the probability of misappropriation relative to the salary condition.[15] For penalty pay there was a 41.9% increase in the probability of misappropriation, again relative to the salary condition. Finally, ethics priming lowered misappropriation by 24.2%.

[15] We calculated percentage changes of probabilities in Stata (StataCorp 2005) using the 'prchange' command by Long and Freese (2003). Coefficient estimates represent odds ratios; i.e., how frequently resources are misappropriated relative to how often resources are not misappropriated. Hence coefficients are always positive, with numbers between zero and one representing reductions in the probability of misappropriation, and those greater than one representing an increase. With a dummy variable for penalty pay, the contingent pay dummy is essentially a dummy variable for bonus-based contingent pay. The coefficient for contingent pay was not significant at any level below $p = .17$. A goodness-of-fit test (Hosmer and Lemeshow 1989) was not significant (Pearson $\chi^2 = 1.52$, $p = .47$) meaning the model fit the data well. A non-significant coefficient for the link specification test suggested neither omitted relevant variables or a misspecified link function. Collinearity diagnostics and residuals plots were quite good. The model correctly classified 75.3% of the cases (see Table 3, panel B). The positive predictive value (probability those classified as misappropriated are, in fact, misappropriated) was 67.9% while the negative predictive value (classified as not misappropriated and true) was 79.2%. Sensitivity (probability classified as misappropriated when misappropriated) is 63.3% and specificity (probability not misappropriated when it is not) was 82.4%. Overall, these measures are far better than naïve models that assume either complete misappropriation or no misappropriation. A model with interactions also was estimated, but one of the interaction terms was collinear and hence dropped. The other interaction term was not significant ($p = .64$). Further, interactions are easily seen in a graph of means as non-parallel lines (Tabachnick and Fidell 2007a). As seen in Figure 2, the lines are mostly parallel. For these reasons, we have presented the model without the interaction term. We also bootstrapped the model because the sample size is less than 100, a figure that has been recommended as a lower limit (Long and Freese 2003). Our results were confirmed.

A remaining question is why someone who was going to be dishonest was selective in the form of their dishonesty. In other words, why did they not always both misappropriate the pens and misrepresent their performance? Specifically, we found that 47% of those who did not misrepresent their performance misappropriated the pen. In contrast, for those who did misrepresent their performance, 35% misappropriated the pen. This pattern hints at a compensatory model that should be explored in future research. Why these two forms of fraud were treated differently is something of a conundrum. However, a number of research studies in both social cognition (e.g., see review in Fiske and Taylor 2008) and marketing (Cheema and Solman 2006; Thaler 1999) indicate that individuals keep different mental accounts/categorizations. It is plausible that they do so for the ways that they might exploit an employer (in other words, different types of "accounts" for different moral hazards). In this case, these accounts may signal that fudging the numbers (misrepresentation) and misappropriating assets are two very different moral hazards with different trade-offs, ethical interpretations and implications. Further, Foa and Foa's (1975) resource theory classifies all resources including money (compensation in this case) and goods (the pen) in terms of their particularism and tangibility. According to their theory, pens and money – even of equivalent pecuniary value – would be evaluated quite differently, with very different rules for allocation/redistribution decisions (McLean Parks et al. 1999; Conlon et al. 2004). This literature suggests there may be very different underlying characteristics associated with the two different moral hazards, triggering different decision processes for determining whether to misrepresent, misappropriate or both. Identifying such characteristics would facilitate a better understanding of the underlying processes and the development of effective prescriptions. We regard this as a fruitful avenue for future research.

[Insert Table 3 about here]

Further examination suggests the ethical priming results were more complex than the simple assertion that the main effect was not significant. There was no effect for the ethics statement in the salary or bonus-contingent pay conditions, however, in the penalty-contingent pay condition, there was a pronounced effect. Specifically, participants who received an ethics prime misrepresented their performance to an even *greater* degree than those who did not (*post hoc* $t_{75} = 2.44$, $p < .05$). In other words, there was greater performance misrepresentation when an ethics statement *was* present than when it was not. It is possible that the priming of ethics concerns in this case, especially when faced with a penalty, may have created the impression that misrepresentation was not only possible, but may go undetected. The mere fact that one is asked to attest to truthful reporting of performance may provide a prime that perhaps misrepresentation cannot be easily detected; otherwise, of what use is the ethics statement? This potential triggering effect – when combined with inherently risky situations such as those that the penalty represents – warrants additional research.[16]

An alternative explanation comes from the literature in psychology. From the perspective of self-esteem, experiencing the loss of their incentive pay due to non-performance easily could have threatened the self-esteem of the participants in the penalty condition. In the face of punishment (application of a penalty) – an obvious threat to self-esteem – ego defensiveness would mandate that the message in the prime be discounted. Hence the prime of the ethics statement would not have exerted an effect for those participants who were punished (penalty condition).

Yet by itself, the self-esteem/ego defensive explanation would suggest only that the hypothesized effect would not be found. In our data, the ethics statement resulted in a

[16] We wish to acknowledge the input of Dejun (Tony) Kong for the insight that lead to this potential explanation.

pronounced increase in misrepresentation. The self-esteem explanation also can be seen in light of the literature on psychological reactance. This literature provides an explanation for this pronounced increase in misrepresentation in the face of an ethics prime, especially when viewed in the context of ego threat. Persuasive messages, of which an ethics statement is one, will result in the elaboration or generation of counter-arguments when individuals are unable or unlikely to process the message contained in the ethics statement as a proscription against unethical behavior (Cacioppo and Petty, 1996; Petty et al. 2005). In other words, the cognitive effort involved in ego protection, the frustration over non-performance as well as the loss of monies from the penalty would reduce motivation to think about and process the ethics prime and instead result in a reactance effect or backlash against the prime (Cacioppo and Petty, 1996; Petty et al. 2005). From the perspectives of self-esteem and reactance, we would not expect to see the same effect in the salary condition nor in the bonus condition, where participants were rewarded for performance rather than punished for non-performance.

Study Limitations

Like all studies, this research has limitations. One cost of laboratory research is the possible loss of external validity and mundane realism. In the field, external validity often is obtained with costs to internal validity, which frequently results from the loss of control and a potential loss in the precision in the measurement of variables of interest. Without the control of the laboratory, it may be difficult, if not impossible, to disentangle the effects of the factors and potential confounds on the behaviors of interest. Consequently, laboratory research is a justified and complementary tool to the findings of field research. Further, by exploiting the precise control of the laboratory setting, we were better able to test causal links and explore complex interactions.

As Campbell (1986, 278) suggested, perhaps a preference for either a laboratory or a field setting is merely a straw issue, and what we should attempt to do is to "find some way to stimulate people to use multiple methods." We hope our findings are intriguing enough to encourage researchers to replicate our study in the field. Because our participants were given real compensation for completing the task, they had the motivation and incentive to do well in the exercise. Further, when asked on the post-experimental questionnaire whether they believed that compensation was an important issue, the average response was 4.41 on a five-point scale. From this, we inferred that our experimental task provided both mundane and experimental realism (Aronson and Carlsmith 1968).

In retrospect, we believe that the creativity task was too easy and hence there was little variance in misrepresentation. The task involved simple counts of uses generated, not the quality of those ideas, making it easy for participants to get credit for a correct response. Had we used two anagram tasks with one made of difficult and one of easy words, it is likely we would have observed the same basic result: there was less misrepresentation in the easy task simply because misrepresentation was not necessary in order to perform at the level needed to receive high compensation. Incentives drove effort that led to more than 40% of contingent-pay participants achieving the maximum score and, hence, had no ability to misrepresent performance for financial gain.[17] In other words, given the opportunity to misrepresent or put forth effort (even within a one-shot anonymous setting), most participants chose to be honest. Future research may want to explicitly address differences in difficult versus less-difficult task environments.

We believe the limitations of our methodology are counter-balanced by the strengths of

[17] Examining actual performance, we found higher scores on both tasks by those receiving contingent pay compared to those receiving a salary (*post hoc* $t_{40.47} = 2.54$, $p < .01$ [creativity] and $t_{80.99} = 6.07$, $p < .01$ [anagrams]). Further, while performance was relatively low in the salary condition, it was close to the stated goal and those participants had no financial gain for misrepresentation, a fact that further suppressed item variance.

our study. Specifically, we used multi-source measures of key variables. Our misrepresentation (fraudulent reporting) scores were a mix of self-reported and actual performance, while the theft of the pens (misappropriation of assets) was ascertained from actual participant behaviors.

Conclusion and Future Research

In our discussion we noted a number of potentially fruitful avenues for future research, and there are two areas that also are deserving of additional research attention. First, our task design used individual participants who acted in relative isolation and anonymity. Whether or not these findings would extend to group environments such as a board of directors or a work team is still an open question. One can argue that impression management concerns would make workers in a group of strangers less likely to behave unethically, while the relative comfort of known group members, such as those found in interlocking directorates, might encourage collusion. Second, there is a market for reputations and it would be useful to understand how this variable mitigates risk-seeking behaviors.

Agency theory has addressed the moral hazard of shirking, and to a lesser extent, that of adverse selection, by aligning the interests of agents with those of their principals through the use of contingent contracts. However, the hazards of fraudulent misrepresentation and misappropriation of assets have relied on an efficient market for reputations. The 20/20 vision of hindsight has revealed to us an inefficiency in the market for reputations as evidenced by the multitude of recent corporate scandals. Our results suggest that the cure for the moral hazards of agency theory provided by contingent contracts may itself create moral hazards that may be more damaging than the original disease. The results suggest that while actual performance in the contingent pay conditions was higher than in the salary condition, it came with a significant cost. Misrepresentation and misappropriation amounted to an average of $7.57 higher for participants

given contingent pay (*post hoc* $t_{78.04} = 6.76$, $p < .01$) compared to their productivity gains of \$5.58 (*post hoc* $t_{49.7} = 4.53$, $p < .01$). Further, as the ethics results demonstrated, the use of attestations may be otiose at best and may even signal that detection is unlikely.

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TABLE 1

Participant Demographics

Total Number of Participants		81
Female		51.2%
Domestic		78.0%
Among Domestics, Ethnicity Classification:		
African American	5.71%	
Asian-American	25.7%	
Caucasian	48.6%	
Hispanic	11.4%	
Native American	0.0%	
Other	8.6%	

Item	**Mean**	**S.D.**
Participant Age (years; range of 18 – 33)	21.5	3.50
Full-time Work Experience (months)	14.1	25.7
Part-time Work Experience (months)	19.3	20.6
Graduate Students (%)	28.3	0.45

TABLE 2

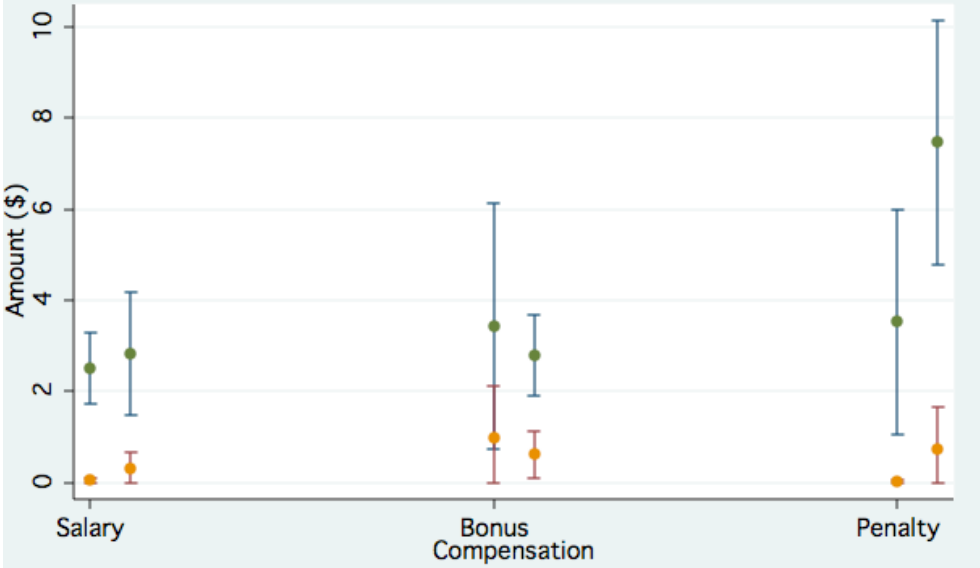
Misrepresentation and Misappropriation
Summary Statistics by Condition

	Across All Pay Conditions	Salary	Contingent		
			Bonus	Penalty	Overall
Overall					
N	81	24	29	28	57
AnagramMisreport	1.93	1.33	1.55	2.82	2.18
	(2.24)	(1.05)	(2.06)	(2.87)	(2.55)
CreativityMisreport	1.51	0.58	2.52	1.25	1.89
	(4.48)	(1.61)	(5.64)	(4.72)	(5.20)
Pens Taken (*n*, total)	30	3	8	19	27
% Taking Pens	37%	13%	28%	68%	47%
No Ethics Priming					
N	39	12	14	13	27
AnagramMisreport	1.59	1.25	1.71	1.77	1.74
	(2.22)	(0.75)	(2.84)	(2.49)	(2.63)
CreativityMisreport	1.21	0.17	3.14	0.08	1.67
	(4.56)	(0.39)	(7.37)	(0.28)	(5.44)
Pens Taken (*n*, total)	18	3	5	10	15
% Taking Pens	46%	25%	36%	77%	56%
Ethics Priming					
N	42	12	15	15	30
AnagramMisreport	2.24	1.42	1.40	3.73	2.57
	(2.24)	(1.31)	(0.99)	(2.94)	(2.46)
CreativityMisreport	1.79	1.00	1.93	2.27	2.10
	(4.43)	(2.22)	(3.51)	(6.36)	(5.05)
Pens Taken (*n*, total)	12	0	3	9	12
% Taking Pens	29%	0%	20%	60%	40%

Note. Misreport scores are means. Numbers in parentheses are standard deviations.

FIGURE 1

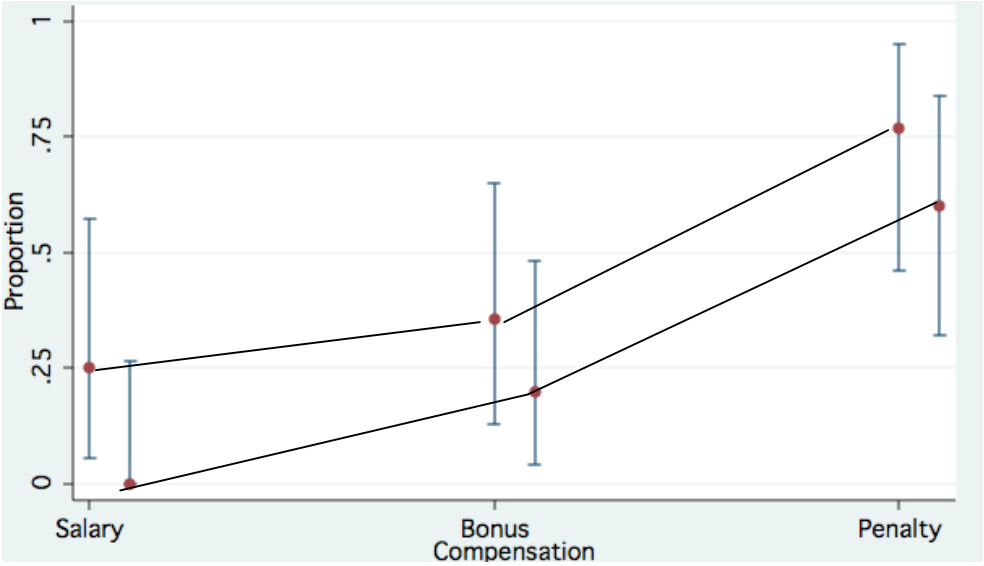
Means and Confidence Intervals for the Fraud Value of Misrepresentation



Note. Assumes normality. Ethics condition is to the right of the 'No Ethics' condition.

FIGURE 2

Means and Confidence Intervals of Misappropriation



Note. Assumes normality. Ethics condition is to the right of the 'No Ethics' condition.

TABLE 3

Binomial Logistic Regression

Panel A: Model Estimates

	Estimates
Independent Variables:	
Contingent	2.839 †
	(1.37)
Penalty Pay	6.404 **
(18.180; z = 3.74)?	(3.03)
Ethics Priming	0.332 *
	(-1.96)
Number of observations	81
Log Likelihood	-41.649
LR χ^2	23.480
Prob. > χ^2	0.000
Pseudo-R	0.220

Notes: Dependent variable is StolePen (1 = pen misappropriated). The coefficients are odds ratios, with absolute z-statistics shown in parentheses. Significance: † $p < .10$, * $p < .05$, ** $p < .01$. Model: $\Pr(\text{Misappropriation}) = \beta_0 + \beta_1 \cdot \textit{Contingent Pay} + \beta_2 \cdot \textit{Penalty Pay} + \beta_3 \cdot \textit{Ethics Priming} + \varepsilon$

Panel B: Classification Table

	Misappropriated?		
Model Classification	Yes	No	Total
Misappropriated	19	9	28
Not misappropriated	11	42	53
Total	30	51	81