INCENTING MANAGERS TOWARD THE TRIPLE BOTTOM LINE: AN AGENCY AND SOCIAL NORM PERSPECTIVE

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Research to date has identified CEO pay structure as an important factor in the environmental and social performance of the organization but has not considered how pay may influence these sustainability efforts at the middle-management level. We address this void with an experimental manipulation of direct and indirect pay incentives for an environmental sustainability project and production cost savings project. Counter to our predictions, investment in sustainability versus cost savings is significantly lower when incentives for both projects are equivalent, and investment is only comparable when incentives for the sustainability project are superior. Further investigation using qualitative data attributes this to differences in the salient social norms that individuals hold and an apparent undervaluing of the indirect incentive derived through sustainability's contribution to cost savings. The results shed light on primary ways in which human resource management practices may be used to embed support for sustainability initiatives throughout the organization.

Keywords: sustainability, triple bottom line, incentives, multitask agency theory, rational choice theory

Organizational sustainability has garnered serious attention of late, as evidenced by the triple-bottom-line mantras of people, planet, profit, and economic, environmental, and social performance. Investors and corporate governance entities are increasingly expanding their assessment of organizational performance to encompass all three dimensions (Savitz & Weber, 2006). Organizational responsiveness toward sustainable performance is also observable in the proliferation of fair-trade products, carbon offsets, and "green" products and packaging. A survey conducted by McKinsey & Company (2010) revealed that more than 50 percent of organizations consider sustainability initiatives to be "very" to "extremely" important. Naturally, effective integration of sustainability efforts within an organization requires compatible performance management systems—that is, systems that encourage social and environmental performance in addition to the traditional emphasis on financial performance (Mackenzie, 2007; Perrini & Tencati, 2006).

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Research to date has identified CEO pay as an important performance management practice related to the environmental and social performance of the organization (e.g., Berrone & Gomez-Mejia, 2009; Deckop, Merriman, & Gupta, 2006). However, research has not considered how pay systems may influence organizational sustainability efforts at the non-executive management level. Further, whereas long-term compensation is the prescription for encouraging CEO efforts toward organizational sustainability (Deckop et al., 2006), this finding is unlikely to generalize to middle managers for whom *annual* incentive schemes have the greatest potential to influence individual behavior (Freher, 2002). Thus, research has not kept pace with the notion that corporate implementation of sustainable business practices requires companywide involvement; organizations are remiss if they limit their explicit reinforcement to only senior managers (Haugh & Talwar, 2010). Underscoring the need for reinforcement throughout employee ranks, and the call for human resource management practices to address it, is a recent report that found boards of directors and executive-level employees were more likely than manager-level and nonmanagerial employees to view sustainability as important (national survey of 691 companies within the United States; Society for Human Resource Management, BSR, & Aurosoorya, 2011).

The present study addresses this void with an experimental investigation into how pay incentives influence midlevel management support of concurrent environmental and financial performance goals. Use of experimental design to investigate sustainability-related choice decisions, particularly with regard to the environmental dimension of sustainability, has an established presence across varied research disciplines, including economics and marketing. While the specific focus of the decision choice in the present study is unique, the use of an experimental approach is similarly applied to investigate individual (in this case, middle manager) sustainability-related choice decisions in response to manipulated stimulus (in this case, monetary incentives). Further, this study applies both quantitative and qualitative methods to derive its findings. Scholars in social science research methods have long advocated the use of applying both quantitative and qualitative methods as complements to each other (Jick, 1979). Qualitative inquiry is particularly useful for gaining insights into areas in which research has yet to articulate an understanding of the process, such as the present study's topic (Pratt, 2009).

This study offers several contributions to research and practice. First, we broaden the current CEO-level research focus in the area of compensation and sustainability to mid-level management. This is a particularly timely focus following BP's decision, after their catastrophic oil spill in the Gulf of Mexico, to tie employee bonuses to operational safety measures. Second, we approach our investigation from the theoretical lens of multitask agency theory (Holmstrom & Milgrom, 1991, 1994; Milgrom & Roberts, 1990). To our knowledge, this is the first time the framework has been applied to the study of sustainability, and it is particularly relevant since pursuit of the triple bottom line requires simultaneous attention to multiple, potentially competing objectives. Third, the study findings are derived from empirical and qualitative methods, extracting deeper insight than either approach alone. Finally, the results shed light on a primary way in which human resource management practices may be used to embed support for sustainability initiatives throughout the organization.

Theoretical Development

Even when organizations consider sustainability to be of strategic importance, managers may withhold support if such efforts are perceived to be at odds with the economic utility of their own remuneration. For

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instance, it has been shown that executive pay structures with a short-term focus are negatively related to corporate social performance, while a longer-term focus results in a positive relationship—ostensibly due to the longer return horizon for social and environmental initiatives and its negative impact on short-term financial outcomes (Berrone & Gomez-Mejia, 2009; Deckop et al., 2006). Furthermore, corporate efforts toward sustainability carry a risk of failure. Frito-Lay was forced to retire its 100 percent biodegradable SunChips bags less than a year after they were introduced, as customers vehemently complained about the noise levels made by the packaging material, resulting in lost sales (Vranica, 2010). Motivating managers to engage in sustainability projects thus necessitates the design of incentive systems that effectively balance the risk-reward relationship of the multiple possible courses of actions that a manager might take. In this respect, multitask agency theory (Holmstrom & Milgrom, 1991, 1994; Milgrom & Roberts, 1990) provides a rich framework for predictions.

Multitask Agency Theory

Agency theory (Eisenhardt, 1989; Jensen & Meckling, 1976) contends that organizations can be analyzed in terms of conflicts of interest between principals and agents and is commonly applied to the relationship of firm owners or governance entities (principals) and managers (agents). The basis of agency theory is that managers are self-interested (i.e., they have interests that diverge from the organization) and may attempt to maximize their interests at the expense of the organization. To deter self-interested behavior, an organization may closely monitor a manager and/or impose conditions that shift some of the performance risk to the manager and thus more closely align mutual interests. When monitoring is impractical due to cost or the nature of the task, agency theory calls for the creation of an optimal incentive scheme that aligns the interests of the organization and manager.

An important extension of classic agency theory is the multitask agency model (Holmstrom & Milgrom, 1991), where the agent, or manager in our example, has to perform separate and distinct actions in order to fulfill multiple objectives. Assigning managers multiple distinct tasks that compete for their attention (e.g., reducing cost of production and reducing environmental impact) leads to the question of effort allocation on the part of the manager. Incentives should be designed to induce an optimum allocation of effort among the tasks in addition to addressing the trade-off between risk and return emphasized by the single-task model. Hence, the objective is to choose: (1) the appropriate performance measures (e.g., single or multiple measures), and subsequently (2) the power of the corresponding incentives so as to induce the optimal set of actions (Baker, Gibbons, & Murphy, 2002; Sinclair-Desgagne, 1999).

Single Versus Multiple Performance Measures

Firms that value sustainability must have explicit incentives for socially responsible actions in managers' compensation schemes to induce such actions (Cordeiro & Sarkis, 2008). This notion stems from the previously described potential negative impact of social and environmental initiatives on short-term financial outcomes due to their typically perceived longer return horizon. If a sustainability initiative requires significant up-front investment, this coupled with a distant return will impact short-term financial performance negatively. Following the basic tenets of agency theory, managers would only take up such projects when their pay goes beyond ties to short-term financial outcomes to include social/environmental outcomes.

Research focused at the CEO level of management suggests compensation tied to long-term financial performance, particularly

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stock options or restricted stock grants, encourages sustainability-aligned performance (e.g., Deckop et al., 2006). Following this observation, it may seem at first glance that middle-manager support for sustainability initiatives may be encouraged with a long-term incentive focus as well, without the need for explicit incentives tied to socially responsible actions. However, stock-related compensation and bonuses tied to the long-term financial performance of the firm are likely to have less perceived utility for middle managers due to the weaker line of sight (i.e., clear path) between middle-manager performance and organizational performance. Career capital for such managers is instead derived through actions more proximal to their individual control and is thus more directly related to the success of the projects they have undertaken—projects that by the very nature of middle managers' extent of influence also tend to be relatively short-term in nature. Consequently, it would indeed seem middle-manager compensation structures should include distinct incentives tied to environmental and social sustainability outcomes in addition to the traditional incentives tied to financial outcomes in order to encourage balanced effort across the multiple performance objectives that sustainability requires. Further, structuring these distinct incentives as annual rather than long-term incentive schemes have greater potential to influence their behavior (Freher, 2002).

Power of the Corresponding Incentives

The power of incentives is most obviously influenced by the absolute size of the incentive. In the case of multiple performance objectives, multitask agency theory calls for interrelation among the different performance objectives to also be taken into consideration. Interrelations among the actions can be either complementary or substitute in nature. When action along one performance dimension reduces the cost of action or enhances the outcome along another performance dimension, they are complementary in nature. On the other hand, if actions needed for one

performance dimension increase the cost of action or reduce the performance along another performance dimension, they are substitutes (Dikolli, Hofmann, & Kulp, 2009). For example, adopting energy-efficient lighting (environmental objective) in a hotel may reduce the cost of operations (financial objective). On the other hand, retooling a manufacturing plant to reduce carbon emissions may reduce the profit margin, at least in the short run. In the present article, we focus on the complementary form of interrelation.

When different performance dimensions are interrelated in such a way that actions in one dimension (e.g., environmental) reinforce the performance of other dimensions (e.g., financial), it reduces the total cost of effort and, in turn, increases the individual utility to be derived from the objective. Consequently, when an objective is complementary to the attainment of another incented objective, a relatively lower direct incentive for this objective is theoretically adequate to motivate action. Holding other individual utility considerations constant (e.g., probability of success and resources required for the task), we would expect manager allocation of resources across sustainability and financial performance objectives to be unbiased under these conditions. That is, both actions should be equally attractive to managers when a sustainability dimension of performance offers explicit complementary benefits coupled with a direct incentive that together are equivalent in individual utility to the direct incentive attached to a financial dimension of performance.

Hypothesis 1: Manager investment in sustainability and financial performance will be equal when the pay incentive for a sustainability project is equivalent (due to complementary benefit and direct incentive) to the pay incentive for a financial project.

At times, it may be necessary for organizations to place greater emphasis on environmental and social initiatives than financial ones. This is especially true for nonprofit organizations as well as for organizations that have newly embraced the triple bottom line

and may need to remedy underserved areas of performance. In such scenarios, incentives would be structured to intentionally distort the balance across performance objectives. Per multitask agency theory prescriptions, if the complementary benefit and direct incentive attached to a sustainability performance dimension are superior in combined individual utility to the incentive attached to a financial dimension of performance, managers should favor the former, as it maximizes personal utility. This again assumes that other individual utility considerations such as probability of success and resources required for the task are equal.

Hypothesis 2: Manager investment in sustainability performance will exceed investment in financial performance when the pay incentive for a sustainability project is superior (due to complementary benefit and direct incentive) to the pay incentive for a financial project.

Method

Participants

Participants were working adults solicited through a part-time, graduate business-degree program to respond to the study's hypothetical management scenarios. The specific topic of sustainability was not part of the program courses; thus, participant attitudes toward sustainability had not been inadvertently primed. The scenarios were administered online, participation was voluntary, and responses were confidential, as no name or identifying characteristics were captured. The link to the online survey was accessed through course websites that limited access to students enrolled and required a student identification name and password to enter. We obtained 83 responses from a pool of approximately 120 individuals, for a response rate of 69 percent.

Respondents were not asked to provide demographic information in order to maintain their anonymity and reduce the potential for social desirability response bias. However, the gender composition (65 percent male, 35 percent female) was discernible through the respondent's post-experiment confirmation of completion for extra course credit. A general demographic profile may be inferred from a typical cohort within the graduate program from which the respondents were derived. A typical cohort averaged 4.7 years of tenure with their current organization and 11.1 years of overall work experience. Managerial and other professional positions were the predominant occupations. The average age was 34 years and race was predominantly Caucasian.

Scenario

The experiment scenario (see the Appendix) required respondents, in their role as manager, to allocate $50,000 of project development funds between two projects. One of the projects was a redesign of the production process for production cost savings. The other project was a "green" initiative to redesign product packaging in order to reduce environmental impact. The green project also included a stated complementary benefit for production cost savings. Targeted organizational outcomes were provided for each project, and all outcomes were stated as feasible based on prior analyses in order to make the probability of success equal for utility calculations. The stated organizational outcome for the production redesign project was strictly financial (20 percent, or $20,000 in cost savings), whereas the stated organizational outcome for the green project emphasized a nonfinancial outcome related to environmental impact (30 percent reduction in packaging material) and an additional complementary financial outcome (10 percent, or $10,000 in cost savings). Finally, both projects were stated as potentially beneficial for sales in order to further constrain utility differences between the two projects to the manipulation of interest.

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Manipulation

Pay incentive scenarios were designed to create two conditions in which the green project was either equivalent or superior to the production redesign project in potential individual incentive payout. In both conditions, pay was stated as base salary plus a potential incentive of 10 percent of production cost savings (equivalent to $20,000 for the production redesign project and $10,000 for the green project). In addition, the green project included a direct incentive of $10,000 under the equivalent condition and $20,000 under the superior condition. Thus, with the direct incentive and the incentive related to complementary benefits, the green project offered $20,000 in total incentive pay under the equivalent condition and $30,000 in total incentive pay under the superior condition, contrasted in both cases to the $20,000 incentive for the production redesign project, as summarized in Table I. The two conditions were randomly assigned to participants; 46 responded to the first condition of equivalent incentives while 37 people responded to the second condition of superior incentives for green.

Results

Prior to hypothesis testing, the data were first investigated for social desirability bias. A 12-item measure (α = .60) with a dichotomous response scale (true/false) was used to assess social desirability, based on the short version of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). The measure was administered to participants following completion of the experimental scenario, and item responses were converted to a sum score reflecting the presence of bias (M = 6.14, SD = 2.44). The variable was included as a covariate with incentive condition in a preliminary analysis of covariance (ANCOVA). The covariate was neither statistically significant in relation to green investment [$F(1, 80)$ = .79, p = .38] nor material to the results (i.e., incentive condition remained similarly significant in its relationship with green investment at p < .05) and was thus excluded from the subsequent analysis of incentive conditions for clarity of presentation.

Figure 1 provides a visual representation of the results. Contrary to our expectations, investment in the green initiative (redesigning product packaging to reduce environmental impact) was less favored relative to the financially oriented project (redesigning the production process to improve cost efficiency) in both incentive conditions. In the first condition, within which incentives were equivalent for both projects, investment in the more traditional cost savings project (M = 37,978) compared to the green

TABLE I	Summary of Incentive Payment Conditions
Equivalent Green Incentive Condition:	
Incentive for completion of the production redesign project:	= $20,000 (10% of $200,000 production cost savings)
Incentive for completion of the green packaging project:	= $20,000 ($10,000 + 10% of $100,000 production cost savings)
Superior Green Incentive Condition:	
Incentive for completion of the production redesign project:	= $20,000 (10% of $200,000 production cost savings)
Incentive for completion of the green packaging project:	= $30,000 ($20,000 + 10% of $100,000 production cost savings)

Note: A portion of the green project incentive comes from the complementary benefit of the green packaging in that it also reduces production costs by $100,000. We refer to the $10,000 incentive resulting from these production savings as the "indirect" incentive and the $20,000 incentive for completion of the green packaging project as the "direct" incentive.
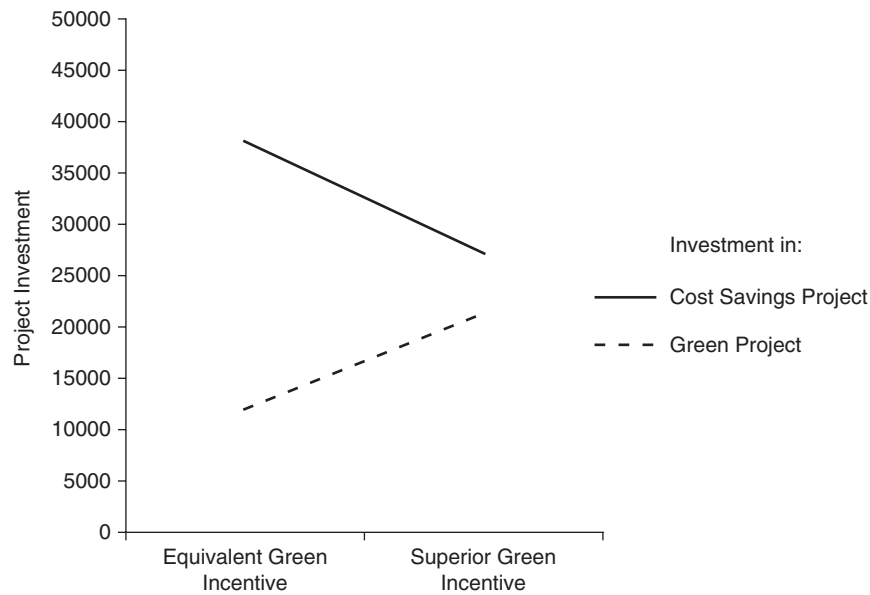
FIGURE 1. Effects of Incentives on Project Investment

project (M = 12,022) was significantly higher ($t(45)$ = 5.35, p = .000), rather than equal as we predicted. In the second condition, within which the green incentive was superior, investment in the cost savings project (M = 27,135) was still surprisingly higher than investment in the green project (M = 21,514), though the difference was not statistically significant ($t(36)$ = .85, p = .40). Although investment in green showed a significant increase between the two incentive conditions ($t(81)$ = 5.30, p = .02), it still only statistically equaled investment in the cost savings project rather than exceeding it as we predicted. Thus, neither of our hypotheses was supported. These unexpected findings led us to a second phase of analysis where we explored participants' narrative justification for their investment decisions.

A Post-Hoc Descriptive Investigation

While pay incentives directed green investment to some degree under the prior analysis, it was unexpected and intriguing to find that the incentive structure did not have a stronger effect. Our expectations were based on a prescriptive agency theory perspective. We will now seek a descriptive understanding of how individuals responded to the incentive

scenarios. The descriptive investigation was conducted through a combination of qualitative content analysis and, once a coding scheme was constructed, quantitative analysis for proposition testing. Details of these steps follow.

Qualitative Content Analysis

The research scenarios included an open-ended question that asked subjects to "Please briefly describe your reasoning for the investment decision above." We applied qualitative content analysis in order to interpret manifest patterns within the narrative responses that may further explain the prior findings. Raw data were analyzed through a combination of inductive and deductive reasoning and followed three interrelated phases common to qualitative analysis (Corbin & Strauss, 2008; Flick, 2006). First, narrative responses were scanned to search for dominant themes. Second, emerging themes were considered in light of existing theory in order to develop a coherent conceptual framework to further refine the themes. Finally, data were coded and categorized to the themes for further interpretation via quantitative analysis.

The full text of each individual response to the open-ended question comprised the

unit of analysis for coding purposes. Each response was assigned a code based on the overall theme expressed. Individual responses primarily focused on one single theme in justifying their allocation decision. In cases where more than one type of justification was mentioned, coding was directed by the dominant theme within the response as determined by order of presentation and majority proportion of text. Emphasis on dominant themes assured reduction of the text to a practical number of content categories and maintained categories that were mutually exclusive, primary goals of content analysis and necessary for quantitative analysis (Weber, 1990).

Emergent Themes

We examined narrative responses in isolation from the respondents' investment decision data in order to avoid bias in the qualitative content interpretation. Our initial review of the narrative content revealed a calculative reasoning behind many respondents' allocation choices, as would be expected per agency theory. For example, one respondent indicated, "If the savings are achieved, the bonus you would receive would be greater than ($20k vs. $10k) if you went with Project B." In addition to exemplifying a calculative reasoning, this and a few similar responses brought to light that individuals sometimes overlook or undervalue the indirect incentive effects stemming from project complementarity. Of course, many respondents did identify and value the indirect return attached to the green project, for example: "I would put my entire available funding towards project B because this project has the potential to contribute to both efforts being successful, which would result in a very large bonus." Regardless of the potentially

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subjective weighting of indirect versus direct incentives, it is clear that many respondents took the self-interested, rational approach to decision making, as predicted by agency theory, by calculating the amount of incentive pay associated with each project and allocating project investment to maximize their own incentive payout.

Not all respondents followed this calculative reasoning. A minority of respondents attributed the primary driver of their decision to what was good for society ("project B seems like a more responsible project than A because it would impact 'our' waste as well as profit") or good for the company ("I believe both are great projects to focus on, each yielding big gains for the company"). These distinct reasonings led us to a broader investigation of agency theory assumptions in order to understand the phenomena. Rational choice theory and its extension into the rational value of social norms provided the broader conceptual framework necessary to deductively refine the emerging themes into categorizations. This interchange between inductive investigation and an orienting theoretical perspective serves to guide attention but also capture relevance within the data that may otherwise be overlooked with a strict theoretical lens from the start (Locke, 2002). We will review rational choice theory and research in our subsequent hypothesis building, after further clarifying our coding scheme.

Coding Scheme

Three categories were ultimately defined for coding: calculative, societal normative, and institutional normative. Table II gives definitions and narrative examples for each category. These categories were mutually exhaustive of all decision standards observed within the sample as required in order to facilitate quantitative analysis of the qualitative data (Weber, 1990). The coding process was conducted independently by two of the study's researchers and a third rater unfamiliar with the research. The outside rater was provided the category definitions, the experimental scenario, and the coding rules previously

TABLE II Qualitative Identification of Decision Norms

Decision Norm	Description	Representative Quotes
Calculative	*Emphasis on financial benefits for the self.* Indicated by prominent calculation or consideration of individual incentive optimization.	"… I would be doing my own family a disservice if I did not provide all of the income that I could. While this is self-serving, until my company chooses to [make] 'green initiatives' a priority, then I will not make decisions that are to my personal financial detriment."
		"… By allocating the majority of the project development funds to project B, I would hope to achieve the full potential of 30% reduction in packaging and 10% reduction in production costs. Then project A would only need to realize an additional 10% reduction in production costs in order for me to hit the targets of both bonuses."
		"This was based on percentages and trying to maximize the bonus payout. The max bonus that could be earned is $30,000. Project A bonus is 2/3 of the total, so 2/3 of the budget was allocated to that. Project B bonus is 1/3, so 1/3 of the budget was allocated towards that."
		"From a bonus payout perspective only, I would invest the entire $50,000 in investment A because there is a higher bonus potential (if savings > $200,000)."
Institutional	*Emphasis on financial benefits for the company.* Indicated by prominent consideration of organizational return.	"… I prioritized Project A because it means greater savings to the company, and ultimately my job is to increase the company's profits as much as possible."
		"… Reducing the production costs by 20% is a huge deal. By lowering these costs, the corporation will be able to utilize other funds on initiatives like marketing or sales. Additionally, reducing these costs is something that can be transferred from year to year. … "
		"Customers are more and more expecting a shorter time between order and delivery, and I think this is where the company should focus funds if they have to choose. I see making the production process more efficient a necessity, and the green effort more of a perk if they can do it. While customers do appreciate green packaging, what will really drive sales is a shorter order-to-delivery time."
		"I'd start off by first saying that the incentive pay would not alter my decision in either scenario. As CEO (or any profit-sharing employee in the company), it's the best decision for the company that I am concerned with. … "

(Continued)

TABLE II   Qualitative Identification of Decision Norms (continued)

Decision Norm	Description	Representative Quotes
Societal	*Emphasis on intangible benefits for the environment.* Indicated by prominent consideration of the public good and/or public expectations.	" . . . I am committed to the Green movement and would forfeit a higher bonus knowing that my changes contributed to environmental sustainability. . . . " "The bonus structure doesn't grab my attention although I am sure some of my counterparts will flock to 10% of the production cost savings because it is simply more money. I would invest more in project B because of its intangibles. . . . " "Project B seems like a more responsible project than A because it would impact 'our' waste as well as profit. . . . " "In today's society, efficiency and being green should go hand in hand, and both should be equally implemented as an integrated initiative."

described regarding categorization by dominant theme. The narrative data was reviewed in isolation from investment decision data and identification of experimental condition. To gauge validity of category definitions and coding consistency, each case was compared within its assigned category for homogeneity and compared with the cases within the other two categories for heterogeneity (Lincoln & Guba, 1985).

Coding consistency was further validated through assessment of intercoder agreement. Intercoder agreement assesses the degree to which each independent coder reaches the same conclusion regarding the characteristics of the content evaluated, and was calculated in this case based on all three raters' assessment of the full sample. The a priori agreed decision rule for handling rater disagreement was consultation within the research team (Schilling, 2006). The calculated percent of agreement between the three coders was .86 and did not fall below .81 for any pairwise coder comparison; thus, agreement was well above the common minimum threshold of .70 (Cohen, 1960). A more conservative test of the reliability of agreement between multiple raters that adjusts for the degree of agreement expected by chance was also within acceptable range (Fleiss's kappa = .75). Rater disagreements were resolved through critical discussion and ultimate agreement between the researchers, and resolution was informed by a debriefing with the outside rater and through clarification of each rater's understanding of the category definitions.

The Role of Uncertainty

As previously described, various factors that influence utility calculation were controlled within the experimental design. However, the amount required for project investment was intentionally left uncertain within the scenario design in order to avoid undue constraint of choice and to create a more naturalistic managerial decision-making environment. The open-ended responses indicated that uncertainty over project cost was a salient concern for a minority of respondents,

for example: "The challenge with this is I do not know what the forecasted cost structure of each project is." To explore for potential confounding effects of uncertainty on our findings, we coded each case based on the presence (1) or absence (0) of narratively stated funding uncertainty concerns and included the variable as a covariate within the following quantitative analysis (percent uncertain = 22).

Quantitative Analysis of Decision Norms

Development of Propositions

Our original predictions rested on agency theory axioms that individuals are self-interested and utility-maximizing, and that pay incentives determine expected utility for managerial decision makers. Given the unexpected findings—less managerial investment in green than the incentive scheme would predict—we now consider how additional factors beyond economic self-interest might have influenced decision making. Rational choice theory suggests social norms may form part of the rational calculation of costs and benefits in individual maximization of utility (Zey, 1998). Similar to agency theory, rational choice theory poses all action as fundamentally rational in that individuals calculate the costs and benefits when deciding which action to pursue and choose the action that is optimal for their own interests. However, rational choice theory extends costs and benefits beyond strictly economic calculations to include the instrumental value individuals ascribe to social norms, even when specific calculation of such is not conscious (Coleman, 1990; Hechter & Kanazawa, 1997). This concept was demonstrated by a study that used rational choice theory to explain conference paper sharing among academicians (Lee, Lee, & Wadhwa, 2010). The researchers found that sharing decisions in this context

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were based on the calculation of the immediate costs and benefits (e.g., the risk of plagiarism and the potential to receive feedback) and the implicit value stemming from adherence to perceived social norms (e.g., reciprocity in paper sharing from the academic community).

Consistent with the rational choice view, research suggests social norms carry value for individuals in at least three instrumentally rational ways. First, for public actions, social norms carry the expectation of social evaluation and the legitimization or sanctions that stem from such evaluation. Extending institutional theory prescriptions from the organizational level (DiMaggio & Powell, 1983), legitimization at the individual level is likely to enable better interpersonal exchange conditions. Second, adherence to social norms has value for nonpublic actions as well. Social norms carry implicit information about what action is likely to be most effective in a given context on the basis that the majority knows best (e.g., see Cialdini, 2007), and thereby have instrumental value as a cognitive shortcut for choosing optimal actions. Third, adhering to social norms supports collective interests, which may eventually benefit oneself directly. This reasoning was offered to explain adherence to the social norm of conference paper sharing in the study described earlier (Lee et al., 2010). Translated to the present study, a more profitable company may have more financial resources to allocate to "me" in the long run, or preservation of the environment may offer better living conditions to "me" in the long run.

Following this logic, we can now consider how the salient social norms identified in the present study might have influenced utility calculations for the decision alternatives. The societal norm is consistent with the incented green objective, meaning it holds normative value for green investment in any or all of the three ways described previously. It thereby contributes to the instrumental value attached to the green project choice (i.e., adds instrumental value beyond the incentive pay) and is likely to result in the highest level of green investment. Conversely, a salient institutional norm—a norm more

aligned with the incented cost savings objective—would enhance the instrumental value attached to the production project choice and likely result in the lowest level of green investment. Finally, salience of either social norm should result in weaker pay incentive effects *across the two incentive conditions* relative to those holding a calculative decision norm, since pay incentives represent only one component in the evaluation of utility for the salient social norm groups.

Proposition 1: The overall level of green investment will differ between each of the three decision standard groups such that green investment will be highest for those with a salient societal norm and lowest for those with a salient institutional norm.

Proposition 2: Incentive effects will differ within each decision standard group such that the difference in green investment between the two incentive conditions will be lower for the societal and institutional norm groups relative to the calculative norm group.

Quantitative Results

Using the sample ($N = 83$) and supplemented data from our prior analysis, we conducted a full factorial, two-way analysis of covariance (ANCOVA; type III sums of squares) to test the dependence of green project investment on incentive condition and individual decision standard. Incentive conditions were entered as fixed effects composed of two levels: (1) equivalent green incentive and (2) superior green incentive. Individual decision standards were entered as random effects and were represented by three levels: societal, calculative, and institutional. Individual perceptions of ambiguity regarding return on project investment and individual social desirability bias were entered as covariates in order to control for their potentially confounding effects in the analysis.

Fisher's Least Significance Difference (LSD) test was used to determine significant differences between each pair of means for factors that demonstrated significant

TABLE III	Estimated Marginal Means and Standard Errors for Green Investment by Decision Standard Within Incentive Condition				
				Green Investment	
Green Incentive Condition	Decision Standard	*n*	M	SE
Equivalent to production	Total	46	20,118	6,938
project incentive	Calculative	32	13,159	6,695
	Institutional	10	5,573	7,721
	Societal	4	41,623	10,068
Superior to production	Total	37	28,071	6,052
project incentive	Calculative	17	27,070	6,969
	Institutional	15	10,768	6,688
	Societal	5	46,375	8,494

Note: Potential investment dollars totaled $50,000.

| TABLE IV	Results of ANCOVA: Effects of Incentive Condition and Decision Standard on Green Investment	
Variable	*F* Value	*p* Value
Perceived ambiguity	.05	.83
Social desirability	.29	.59
Incentive condition	3.89	.12
Decision standard	22.45	.03
Incentive condition X Decision standard	.77	.47

Decision standard Classical $\eta^2 = .32$.

F-values. Finally, post-hoc independent-sample *t*-tests were conducted to determine significant differences in green project investment between the two incentive conditions for each decision standard. Homogeneity of variance across cells was confirmed by Levene's test for equality, with the exception of one analysis that was evaluated with equal variances not assumed, discussed subsequently. Relevant cell means and standard errors are shown in Table III. We report estimated marginal means based on our unbalanced, multiple-effect design. Results for the ANCOVA are summarized in Table IV and here along with a narrative reporting of results from the planned post-tests.

The ANCOVA findings point to decision standards as a key factor in explaining the pattern of green investment within our overall sample. Only decision standards significantly accounted for unique variance in green investment when incentive conditions
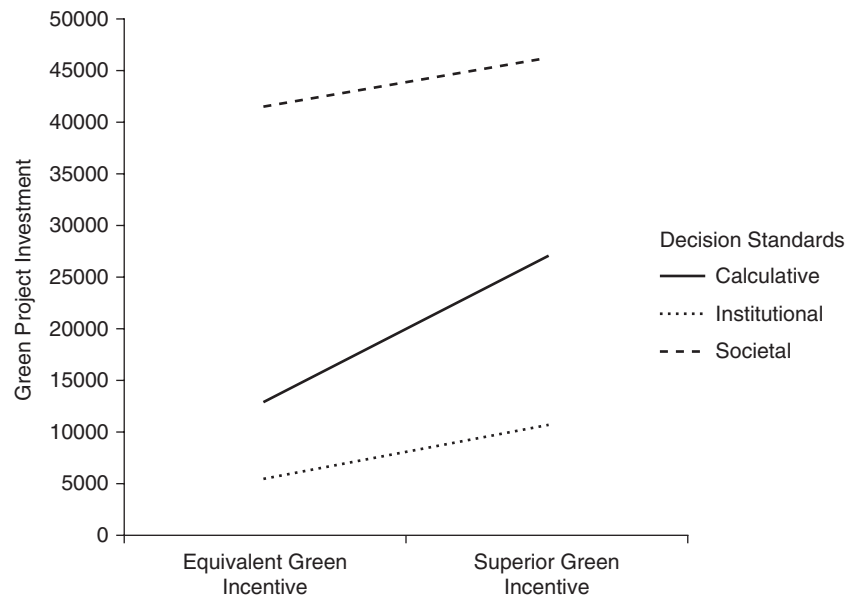
FIGURE 2. Effects of Incentives and Decision Norms on Green Investment

[$F(1, 75) = 3.89, p = .12$], decision standards [$F(2, 75) = 22.45, p = .03$] and their interaction [$F(2, 75) = 0.78, p = .47$] were included in the model. Both control variables were also statistically nonsignificant. Further, decision standards accounted for 32 percent of unique variance in green investment (classical $\eta^2 = .32$; see Pierce, Block, & Aguinis, 2004, for treatment of eta-squared in multifactor ANOVA), a relatively large effect size (Cohen, 1998).

As expected, pairwise comparison of means revealed each of the three decision standard groups, without consideration of incentive condition, to be significantly different from the other in mean level of green investment. Green investment was greatest for those holding a societal decision standard (estimated marginal M = 43,999), followed by those holding a calculative standard (estimated marginal M = 20,114), and was lowest for the institutional standard group (estimated marginal M = 8,170). The more telling question is whether the decision standard groups represented significantly different patterns of green investment across incentive conditions. Based on our prior theorizing, incentive effects (i.e., greater investment in green when green incentives are higher versus lower) should be weakest for those hold-

ing a social or institutional norm and strongest for those holding a calculative norm. In support of this prediction, independent-sample t-tests determined significant differences in green project investment between the two incentive conditions for only the calculative standard group [$t(47) = -2.77, p = .01$]. As depicted in Figure 2 and via the marginal means in Table III, the calculative group invested more in green when monetary incentives for the green project were higher versus lower. Societal [$t(7) = -.85, p = .42$] and institutional standard [$t(23) = -1.03, p = .32$] groups showed no statistically significant difference in green investment across incentive conditions.

The assumption of homogeneity of variance across cells was rejected for the institutional standard group, based on Levene's test for equality of variances. Unequal variances for this group were driven by the previously described minority emphasis on green investment's contribution to financial performance, whereas the majority of those holding an institutional standard perceived greater financial organizational returns with the production project. However, results based on nonassumption of equal variances did not substantively differ from the results described earlier.

Discussion

This study investigated pay incentives as a means to encourage managerial support for sustainable business practices. We focused on midlevel management rather than the more typically researched senior-management level in order to address the need for company-wide involvement in sustainability efforts (Haugh & Talwar, 2010). In sum, the findings suggest pay incentives do increase management attention to environmental initiatives, although not fully in accordance with our predictions.

Contrary to multitask agency theory predictions, direct incentives appeared much more powerful than the indirect incentives associated with complementarity. A project that is complementary to another (i.e., indirectly contributes to some other valued performance outcome beyond its own project objective) should require less of a direct incentive attached to it to encourage action. We found, however, significantly greater funds allocated to the production cost savings project versus the environmental sustainability project when the latter conveyed a lower direct incentive along with an added indirect incentive from its complementary benefits for costs savings. Thus, even though incentives for both projects were equivalent, the production project was preferred. Increasing the sustainability project's direct incentive to an amount equal to the cost savings project increased investment in sustainability, but only to a degree statistically equal to the other project—again at odds with the added indirect incentive to be gained from the sustainability project.

Our post-hoc investigation of individual justification for fund allocation showed complementary benefits may be less efficient than direct incentives in spurring project investment simply because they are overlooked. Although our scenario explicitly stated the complementary benefits of the sustainability project on cost savings, the positive effect on individual incentives remained implicit and required slightly more cognitive effort to decipher than the directly attached incentives. It is also possible that even when direct and indirect benefits are fully considered, the perceived value of sustainable projects is unduly affected by cognitive biases in decision making. For instance, the long-term benefits of environmental initiatives are likely to be discounted beyond what is objectively warranted while short-term benefits are overweighted (Shu & Bazerman, 2010). The probability of success for environmental initiatives may also be underestimated due to tendency toward the availability heuristic—a decision-making shortcut that skews perceived probability in favor of events that are more familiar. Although the present research presented both projects as providing short-term benefits and having the same probability of success, individual beliefs of environmental initiatives as long-term and unfamiliar investments may have influenced their calculations.

Taken together, we interpret the findings to suggest two points in structuring effective managerial incentives for sustainability efforts. First, although sustainability projects are often lauded for their indirect benefits to financial business outcomes, these indirect benefits are an insufficient or at best an inefficient means to direct managerial attention, relative to tying an incentive directly to sustainability outcomes. Second, sustainability projects appear to require a direct incentive that is at least as attractive, if not more attractive, than that attached to other more traditional projects. Since managers are generally faced with more opportunities than resources (e.g., time, effort, finances), cognitive decision-making biases may lead them to often choose more traditional projects over sustainable projects even when incentives attached directly to each outcome are equal. Future research may more precisely tease out the interdependent effects of complementary benefits and direct incentive amount through additional experiments that contrast incentives with and without the presence of complementary benefits or vary

The findings suggest pay incentives do increase management attention to environmental initiatives, although not fully in accordance with our predictions.

the saliency of the indirect incentive associated with project complementarity.

It is also relevant to consider the form of incentive. The present study focused specifically on financial incentives in the form of an annual performance bonus. A recent cross-sectional survey of 93 US organizations found that among companies that reward employees to encourage green behaviors, non-cash rewards of employee recognition (77 percent) and prizes (36 percent) were most prevalent, whereas monetary rewards were less so (14 percent; total greater than 100 percent due to use of multiple methods by some companies; Buck Consultants, 2009). Per agency theory prescriptions, the degree of measurement or monitoring of performance for sustainability projects is also likely to influence managerial efforts in this area. The relative effectiveness of these alternatives or supplements to monetary bonuses in directing managerial effort toward organizational sustainability is an important consideration for future research. However, regardless of the form chosen, our findings suggest that organizations start by tying performance rewards and related performance metrics directly to sustainability projects, a practice that appears underused (e.g., only 22 of the 93 companies in the survey reported rewarding any level of employee to pursue green behavior).

Another important finding in our research is that pay-incentive effects were supplanted by saliently held social norms in cases where individuals expressed primary concern for societal or organizational benefits. From a rational choice perspective, it is possible that larger incentives could outweigh the value of social norms in directing behaviors for such managers. However, a more practical approach for gaining consistency in sustainability efforts across managers with different internalized decision-making norms may be for organizations to combine the direct incentive described earlier with efforts to make salient a social norm that is consistent with sustainability. For instance, the simple added communication that the majority of hotel guests reuse their towels (making salient the social norm) led to a significant increase in guest participation in this environmental

conservation program (Goldstein, Cialdini, & Griskevicius, 2008). Translated to the workplace, this type of descriptive social norm may be communicated by informing operational managers of sustainability efforts within the organization, industry, or even the broader business environment. For example, socially responsible investments rose 324 percent in the period 1995–2007 and as of 2007 represented roughly 11 percent of total assets under professional management (Social Investment Forum, 2007). Further, it is HR that should lead employee communications in this area (Society for Human Resource Management et al., 2011). We suggest future research explore the malleability of social norms for managerial decision making within the context of organizational sustainability.

As with any study, there are limitations of the present research that must be considered. While we have drawn conclusions regarding social norms, the post-hoc nature of the findings and the small sample size temper the strength of these conclusions. To this point, the nonsignificant results associated with the societal and institutional decision standards could be an artifact of low statistical power due to the small number of cases in these categories. It must also be noted that, since the research was experimental in design, generalizability beyond the present sample cannot be assumed. However, the sample consisted of employees in actual organizational roles similar to the experimental scenario conditions and may therefore represent the decision-making tendency of these individuals in organizational practice—although their participation in a graduate degree program, even though only part-time, may limit generalizability to a broader working population. It should also be noted that experimental design is commonly used within various research disciplines to investigate sustainability-related choice decisions. For instance, hypothetical discrete-choice experiments have been frequently used to determine consumer preference for environmentally friendly product attributes as signaled by ecolabels or other forms of product certification (e.g., Blend & van Ravenswaay, 1999; Innes & Hobbs, 2011; Johnston, Wessells, Donath, & Asche, 2001;

Loureiro, McCluskey, & Mittelhammer, 2001; Nilsson, Foster, & Lusk, 2005; Wessells, Johnston, & Donath, 1999). Experiments have also investigated consumer preferences for products that are more or less socially responsible in other ways (Leszczyc-Popkowski & Rothkopf, 2010; Marquina, 2010; Mohr & Webb, 2005); individual investment, job, and product preferences at varied levels of corporate social performance (Berens, Van Riel, & Van Rekom, 2007); executive decision making in the domain of social and financial choices (Rose, 2007); preferences for socially responsible investing (Vyvyan, Ng, & Brimble, 2007); and public use of environmental resources (Brick & Visser, 2010; Dutta & Verma, 2009; Kreg, Fredman, & Heldt, 2009).

A key advantage to our experimental, combined quantitative and qualitative design was the ability to focus deeply on a narrow set of variables. Doing so, however, precluded consideration of different types of sustainability projects and the people or social dimension of sustainability. While we would expect the findings to generalize across various sustainability initiatives, future research must confirm this. Additionally, sample-specific demographics such as age and gender were not controlled for in the analyses due to efforts to maintain anonymity of respondents. There is no empirical grounding to suggest age or gender influenced the direction of the relationships uncovered, but these and other demographics may have implications for the strength or significance of the relationships identified. For instance, a study of organizational values that drive decision making within public- and private-sector organizations showed that female managers and managers above the age of 46 attributed higher scores to social justice and to sustainability values relative to their male and younger counterparts (van der Wal & Huberts, 2008). Related gender effects were found with MBA students (Fukukawa, Shafer, & Lee, 2007). National culture may also influence environmental attitudes (Schultz & Zelezny, 1999); thus replication of the present findings beyond a US sample is necessary for cross-cultural generalizability.

In conclusion, pursuit of the triple bottom line is an important endeavor for twenty-first-century organizations. We are hopeful that the insights gained from our research will aid organizations in refining their incentive schemes to support this objective at the operational level. Additionally, our application of the multitask agency theoretic framework to sustainability extends this research stream beyond the classic agency theory view applied to date and, we suggest, provides an important framework for future sustainability research.

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APPENDIX Experimental Scenario

Management Scenario: What would you do?

You have $50,000 of project development funds left in the budget for the current fiscal year. There are two projects (detailed below) that you are considering:

Project A: Redesign the production process for cost efficiency. A prior analysis suggests a 20% ($200,000) reduction in production costs is feasible. A streamlined production process will also reduce the time it takes to fulfill customer orders, which can potentially increase sales.

Project B: Redesign product packaging to reduce its environmental impact. A prior analysis suggests a 30% reduction in packaging materials is feasible. The redesigned packaging is expected to reduce production costs by 10% ($100,000). "Green" packaging can also potentially increase sales.

Your current fiscal year pay package with a base salary plus incentive pay is calculated as follows:

Bonus of 10% of production cost savings if cost-reduction target of 20% is reached this year.

Bonus of [$10,000] [$20,000] if product packaging materials are reduced by target of 30% this year.

Please indicate how you will allocate the $50,000 of project development funds remaining in your budget this year.

$_____ Investment in Project A

$_____ Investment in Project B

Note: Bracketed bonus amounts of $10,000 and $20,000 represent the condition manipulation making the total incentive for the green project either equivalent or superior to the cost savings project (also see Table I for incentive calculation summary).