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# Can a Code of Ethics Improve Manager Behavior and Investor Confidence? An Experimental Study

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**ABSTRACT:** Policy makers and corporations have recently emphasized a code of ethics as an effective aspect of corporate governance. The corporate governance literature in accounting, however, provides little empirical or theoretical support for this emphasis. We address this gap between public policy and the literature by studying the effectiveness of a code of ethics in an experimental setting. Using [Bicchieri's \(2006\)](#) model of social norm activation, we predict that a code of ethics will improve manager return behavior and investor confidence to the extent that it activates social norms that control opportunistic behavior. Further, we predict that adding a certification choice whereby the manager can publicly certify that he will adhere to the code will enhance the potential for the code of ethics to activate such norms. We find that a code of ethics only improves manager return behavior and investor confidence when the code incorporates a public certification choice by the manager. When the code is present but there is no certification choice, manager return behavior does not improve and investor confidence erodes over time because of increased expectations that are not met by managers. An analysis of individual return decisions and exit questionnaire responses supports the activation of social norms as the underlying mechanism behind our results.

**Keywords:** *code of ethics; certification; social norm activation; corporate governance.*

**Data Availability:** *Experimental data are available from the authors upon request.*

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## I. INTRODUCTION

The corporate governance literature addresses the inherent conflict that arises when corporate control is separated from ownership. In particular, the literature examines mechanisms that reduce the likelihood that corporate managers will act opportunistically and expropriate investor capital through excessive pay, excessive perquisites, inefficient investments, or outright fraud (Shleifer and Vishny 1997; Bushman and Smith 2001). In a review of the corporate governance literature in accounting, Bushman and Smith (2001) present an extensive list of internal and external mechanisms that the literature suggests controls this managerial opportunism.<sup>1</sup> Missing from the list, however, is any mention of a corporate code of ethics. To date, there is a lack of empirical or theoretical support in the literature for the effectiveness of a code of ethics. Yet, policy makers and corporations have recently promoted a code of ethics as an effective aspect of corporate governance. We address this gap between public policy and the literature by studying the effectiveness of a code of ethics in an experimental setting.

The United States Congress enacted the Sarbanes-Oxley Act (SOX, U.S. House of Representatives 2002) in response to a multitude of highly publicized corporate scandals (e.g., Enron, WorldCom, Adelphia Communications, and Tyco). The primary intent of SOX was to strengthen corporate governance and thereby increase investor confidence.<sup>2</sup> Section 406 of SOX contains a key provision requiring organizations to disclose the adoption of a corporate code of ethics or justify the absence of such a code. In response to this legislation and new SEC rules in 2003, the New York Stock Exchange and Nasdaq now require all listed firms to adopt and disclose a corporate code of ethics.<sup>3</sup> While Section 302 of SOX requires the CEO and CFO to certify financial reports filed with the SEC,<sup>4</sup> Section 406 does not require certification of corporate codes of ethics. Nevertheless, a recent survey found that 31 percent of codes of ethics implemented by corporations included certification signatures by upper management (Orin 2008). In Appendix A we present the corporate code of ethics adopted by Starbucks Corporation (2003), which reflects the view that a code of ethics is an effective corporate governance mechanism and that certification by the CEO and top financial officers enhances its effectiveness.

In light of the emphasis on a code of ethics by regulators and the emphasis by some corporations on the certification of such codes, we examine the effect of a code of ethics alone versus a code of ethics with a certification choice by the manager. Using Bicchieri's model of social norm activation

<sup>1</sup> The internal corporate governance mechanisms identified by Bushman and Smith (2001) include managerial incentive plans, shareholder and debtholder monitoring, board monitoring, corporate bylaws and charters, and the internal managerial labor market. The external corporate governance mechanisms identified by Bushman and Smith (2001) include the market for corporate control, the external managerial labor market, competition in the product market, and the legal and judicial systems that protect investors' rights.

<sup>2</sup> The Securities and Exchange Commission (SEC) supported this primary intent of SOX in 2003 when it stated, "The strength of the U.S. financial markets depends on investor confidence. Recent events involving allegations of misdeeds by corporate executives, independent auditors and other market participants have undermined that confidence. In response to this threat to the U.S. financial markets, Congress passed and the President signed into law the Sarbanes-Oxley Act of 2002, which effects sweeping corporate disclosure and financial reporting reform" (SEC 2003a).

<sup>3</sup> Section 406 of SOX directed the SEC to issue rules to require each firm to disclose whether it has adopted a code of ethics for senior financial officers and, if not, to provide a justification. In response, in 2003 the SEC defined the code of ethics and implemented rules in accordance with Section 406 (SEC 2003a). In concert with the SEC ruling, the New York Stock Exchange and Nasdaq proposed amendments to require listed companies to adopt and disclose a corporate code of ethics. On November 4, 2003, the SEC approved the amendments on an accelerated basis (SEC 2003b). The Cadbury Report (1992) in the United Kingdom and the King Committee on Corporate Governance (2002) report in South Africa also emphasize the importance of a code of ethics to strengthen corporate governance.

<sup>4</sup> In particular, Section 302 of SOX requires the principal executive and financial officers to certify that the financial reports have been reviewed, do not contain untrue statements or omit important information, and fairly present the company's financial condition and performance.

(Bicchieri 2006), we predict that a code of ethics will improve manager return behavior (the amount of the investment returned to the investor) and investor confidence (the amount invested with the manager) to the extent that it activates social norms that control opportunistic behavior. Further, we predict that adding a certification choice whereby the manager can publicly certify that he will adhere to the code will enhance the potential for the code of ethics to activate such norms.<sup>5</sup> Bicchieri's model is particularly useful for our study because, similar to recent models in the accounting literature (e.g., Mittendorf 2006; Stevens and Thevaranjan 2010), it utilizes current research in social norms from the behavioral literature and yet models social norms in a way that can be readily incorporated within traditional agency theory. This is important because the accounting literature in corporate governance is based on agency theory and the agency conflict between managers and investors. Further, Bicchieri's model provides an operational definition of social norm activation that yields meaningful and testable predictions. Thus, instead of simply documenting behavior that deviates from narrow self-interest, our study provides insight into what drives such behavior.

We test our predictions using an adaptation of the investment game in Berg et al. (1995; hereafter, the BDM game).<sup>6</sup> In the BDM game, the investor first determines how much of an endowment to transfer to the manager and how much to keep. Monies transferred to the manager triple in value. After the investment is tripled, the manager then determines how much of the tripled amount to return to the investor and how much to keep. We find the BDM game to be an ideal setting to test the effectiveness of a code of ethics. First, the BDM game focuses on the same agency conflict between managers and investors that is the focus of the corporate governance literature. Second, the BDM game provides a direct measure of both manager return behavior and investor confidence. Third, the BDM game provides a clear economic prediction based on narrow self-interest against which to compare our experimental results, which maximizes the potential for our experimental study to contribute to both agency theory and the corporate governance literature (Brown et al. 2009).

We adapt the BDM game in the following ways to study the effect of a code of ethics on manager return behavior and investor confidence. First, we incorporate a code of ethics manipulation that includes three experimental conditions: no code of ethics as a baseline control, a code of ethics alone, and a code of ethics with a certification choice whereby the manager can publicly certify that he will adhere to the code. When the code of ethics alone is present, managers and investors are aware that the code of ethics exists and that the code is presented to the manager at the beginning of each period. When the code of ethics includes a managerial certification choice, managers and investors are also aware as to whether the manager chose to provide an electronic signature certifying that he will adhere to the code.

To avoid potential confounds from strategic behavior that has arisen in prior studies using the BDM game, we make the investor's initial endowment a random variable whose realization each period is only known to the investor. This information asymmetry blocks strategic behavior in a single-period setting whereby the investor can signal full trust and expected reciprocity by investing 100 percent of the initial endowment. This strategic behavior on the part of investors had a significant effect on manager return behavior in Berg et al.'s (1995) original study. We also emphasize in the instructions that the tripling of the invested amount is done automatically and is not the result of any effort or choice on the part of the manager. This emphasis is important because prior studies using the BDM game have found that managers feel entitled to a larger share of the tripled amount if they attribute the tripling to their own effort or choice (Smith 2010).

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<sup>5</sup> The certification choice was public in that both the investor and the manager knew whether the manager had certified the code of ethics. Public certification is a common feature of corporate codes of ethics.

<sup>6</sup> Although Berg et al. (1995) originally labeled their experimental setting the "investment game," their setting has become widely known as the "trust game" because it examines trust and trustworthy behavior between an investor and a manager (Camerer 2003; Smith 2010).

We measure manager return behavior by the percent of the investment that is returned to the investor and we measure investor confidence by the percent of the initial endowment that is invested by the investor. We find that a code of ethics only improves manager return behavior and investor confidence when the code incorporates a public certification choice by the manager. When the code is present but there is no certification choice by the manager, manager return behavior does not improve and investor confidence erodes over time because of increased expectations that are not met by managers. An analysis of individual return decisions and exit questionnaire responses supports the activation of social norms as the underlying mechanism behind our results.

We identify three major contributions of this research. First, this study provides support for the emphasis that policy makers and corporations have recently placed on a corporate code of ethics as an effective aspect of corporate governance. By demonstrating a mechanism by which a code of ethics might be effective, this study helps explain the recent behavior by policy makers and corporations of emphasizing such codes (positive theory) and suggests ways of maximizing the effectiveness of such codes in the future (normative theory). In particular, a recent study found that 31 percent of codes implemented by corporations included managerial certification in the form of acknowledgement signatures by upper management (Orin 2008). Our evidence suggests that such certification by management may enhance the effectiveness of a corporate code of ethics by activating social norms within managers. Since certification is a common component of organizational control, this study also suggests that other forms of certification within an organization can potentially contribute to better organizational control.

Second, this study introduces recent theory in social norm activation to the corporate governance literature in accounting. Bicchieri's model of social norm activation predicts that some decision settings may activate social norms that control the opportunism of the manager. This supports a model of decision making where social context and internalized social norms matter. The idea that social norms may be activated to control the opportunism of the manager is attractive because it suggests an alternative form of organizational control that may be less costly than financial incentives and other controls suggested by traditional agency theory (Stevens and Thevaranjan 2010). The literature in management accounting has developed a growing body of agency-based experiments documenting the effectiveness of social norms to control manager opportunism in contracting settings (e.g., Evans et al. 2001; Stevens 2002; Webb 2002; Hannan et al. 2006; Rankin et al. 2008; Schatzberg and Stevens 2008; Hobson et al. 2011). This body of experimental research along with experimental research in economics has motivated some theorists to incorporate social norms in their economic models of the firm (e.g., Mittendorf 2006; Fischer and Huddart 2008; Stevens and Thevaranjan 2010). Despite this body of evidence and theory in the management accounting literature, accounting researchers in corporate governance have generally not considered the potential for social norms to control opportunistic behavior (Sunder 2005).

Third, this study contributes to the broad literature in experimental economics examining behavior consistent with social norms in Dictator, Ultimatum, and Trust games such as the BDM game (McCabe et al. 1998; McCabe et al. 2003; Cox 2004). Our study adds to the growing body of experimental evidence that context can have a significant effect on behavior, consistent with social norms such as fairness, reciprocity, trustworthiness, and promise-keeping (Camerer 2003; Bicchieri 2006; Smith 2010). In their original study, Berg et al. (1995) document that social norms can affect manager return behavior and investor confidence in the BDM game. The potential for social norms to be activated in the BDM game by various priming mechanisms, however, has received little attention. This is in stark contrast to the growing number of experimental studies examining the activation of social norms in Dictator and Ultimatum games (Bicchieri 2006; Smith 2010). Our study contributes to the experimental economics literature by providing evidence that social norms can be activated in the BDM game.

The following section presents the Bicchieri model of social norm activation and develops the hypotheses we test in this study. In Section III we explain the experimental design we employ to test our hypotheses. In Section IV we present our empirical results and in Section V we conclude.

## II. HYPOTHESIS DEVELOPMENT

While there is currently a paucity of research examining the effectiveness of a code of ethics in the accounting literature, a number of code-related empirical studies have appeared in the business ethics and management literatures. These studies use primarily archival or survey data to examine the relationship between a corporate code of ethics and corporate performance. Reviews of this research reveal that the evidence regarding the effectiveness of such codes is mixed (Stevens 1994; Griffin and Mahon 1997; Preston and O'Bannon 1997; Helin and Sandstrom 2007). After reviewing the evidence in the literature, Stevens (1994) concludes that corporate codes of ethics are primarily “window-dressing” implemented to protect the firm from legal liability. In a more recent review of the literature, Helin and Sandstrom (2007) reach the same conclusion.

Archival studies of corporate governance mechanisms, however, are plagued with the problems of endogeneity and correlated omitted variables (Bushman and Smith 2001). In particular, findings from archival studies of corporate codes of ethics can be confounded by other aspects of the firm's policies, strategies, and environment. Responses to a survey reported in Schwartz (2001) support the presence of countervailing influences within the firm that may help to explain the mixed results from prior empirical research. Reasons given for adherence to a code of ethics include personal values, fear of discipline, and feelings of loyalty to the company. Reasons given for noncompliance to a code of ethics include self-interest, dissatisfaction, environment (peer pressure, supervisors, or opportunity), and the company's interest. Thus, it is not surprising that prior archival and survey studies of the effectiveness of a corporate code of ethics have yielded mixed results.

Despite the potential for more direct and powerful tests, there is a paucity of experimental research examining the effectiveness of a code of ethics. As discussed elsewhere in detail (e.g., Davis and Holt 1993; Friedman and Sunder 1994; Libby et al. 2002), the experimental method allows a researcher to manipulate the independent variable of interest while controlling for extraneous nuisance variables. This allows a researcher to develop more powerful tests of causality rather than just association. Further, the experimental method allows a researcher to provide evidence regarding the motivations and preferences that underlie behavior. Prior experimental research in economics suggests that people are not only motivated by monetary incentives, but also often act in ways that suggest they have preferences for social norms such as fairness, reciprocity, trustworthiness, and promise-keeping (Camerer 2003; Bicchieri 2006; Smith 2010). Further, experimental research by accountants and economists reveals that such preferences can be context-specific, or that social norms can be activated by contextual cues (McCabe et al. 2000; Rankin et al. 2008; Hobson et al. 2011; Tayler and Bloomfield 2011). As such, we believe an experimental examination of the effectiveness of a code of ethics is warranted.

To develop our hypotheses, we utilize Bicchieri's model of social norm activation. Bicchieri's model provides an operational definition of social norm activation that yields meaningful and testable empirical predictions. Experimental studies in economics are frequently designed to show that human behavior deviates from the traditional assumption of narrow self-interest. However, in many cases these experimental studies provide little insight regarding why participants appear to have other-regarding preferences.<sup>7</sup> Bicchieri's model explains how people map contexts into

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<sup>7</sup> Such behavior could be due to altruism, benevolence, or the activation of social norms. Bicchieri (2006, 19) argues, however, that while it is plausible for a person to be guided by benevolence or even altruism when interacting with family and friends, a person is more likely to be guided by social norms when interacting with strangers. She asserts that if most people were benevolent toward strangers, then we would not need social norms.

specific interpretations that shape their beliefs and expectations about people's motives and behaviors. In particular, her model suggests that social norm activation creates relevant beliefs and expectations that impact behavior. Thus, the model allows a researcher to predict that, *ceteris paribus*, factors that we expect will change relevant beliefs and expectations will have a measurable effect on behavior.

Bicchieri's model of social norm activation includes a contingency or initial condition that must be met before a social norm is activated and three conditional preference conditions (Bicchieri 2006, 11).<sup>8</sup> We present these conditions formally below and then use them to make our predictions regarding the effect of a code of ethics on manager behavior and investor confidence. The subscript "cf" stands for a conditional follower of a behavioral rule and the subscript "f" stands for a follower of a behavioral rule.

Let  $R$  be a *behavioral rule* for situations of type  $S$ , where  $S$  can be represented as a mixed-motive game. We say that  $R$  is a social norm in a population  $P$  if there exists a sufficiently large subset  $P_{cf} \subseteq P$  such that, for each individual  $i \in P_{cf}$ :

- (1) *Contingency*:  $i$  knows that a rule  $R$  exists and applies to situations of type  $S$ ;
- (2) *Conditional preference*:  $i$  prefers to conform to  $R$  in situations of type  $S$  on the condition that:

- (a) *Empirical expectations*:  $i$  believes that a sufficiently large subset of  $P$  conforms to  $R$  in situations of type  $S$ ;

and either

- (b) *Normative expectations*:  $i$  believes that a sufficiently large subset of  $P$  expects  $i$  to conform to  $R$  in situations of type  $S$ ;

or

- (b') *Normative expectations with sanctions*:  $i$  believes that a sufficiently large subset of  $P$  expects  $i$  to conform to  $R$  in situations of type  $S$ , prefers  $i$  to conform, and may sanction behavior through penalties or rewards.

A social norm  $R$  is followed by population  $P$  if there exists a sufficiently large subset  $P_f \subseteq P_{cf}$  such that, for each individual  $i \in P_f$ , conditions 2(a) and either 2(b) or 2(b') are met for  $i$  and, as a result,  $i$  prefers to conform to  $R$  in situations of type  $S$ .

In her model of social norm activation, Bicchieri (2009) uses the context of a mixed-motive game where narrow self-interest is in conflict with joint or group gain.<sup>9</sup> Well-known examples of mixed-motive games that can be transformed by social norms include Dictator, Ultimatum, and Trust games such as the BDM game. Using the language of game theory, we may say that compliance with the behavioral rule  $R$  is not a strictly dominant strategy in these games because of the presence of narrow self-interest. If it were, then one would want to follow  $R$  irrespective of one's expectations about others' behavior or beliefs. Consistent with mixed-motive games, the availability of the self-interested solution makes each individual a *conditional* follower of the behavioral rule initially

<sup>8</sup> Bicchieri (2006) acknowledges that people often take heuristic routes to behavior, or combine deliberational and heuristic routes. Thus, her model may be viewed as a rational reconstruction of what a social norm is, and not necessarily a description of the way in which people, in fact, deliberate in a given situation. She states, "The advantage of a rational reconstruction is that it substitutes a precise concept for an imprecise one, thus removing the conceptual difficulties and vagueness related to everyday usage" (Bicchieri 2006, 10).

<sup>9</sup> A mixed-motive game is defined as one in which there is both conflict and mutual dependence in the relationship between partners, and does not refer to an individual's lack of clarity about preferences (Schelling 1960, 89).

( $i \subseteq P_{cf}$ ). When the conditions necessary for the behavioral rule to become a social norm are met, a sufficient number of conditional followers become followers of the behavioral rule ( $i \subseteq P_f$ ) and it becomes a new equilibrium. Thus, social norms *transform* mixed-motive games into coordination games where there is the possibility of self-interested equilibria or cooperative equilibria.

Consistent with Bicchieri's model, we predict that a code of ethics will improve manager return behavior and investor confidence to the extent that it activates social norms that control opportunistic behavior. The Bicchieri model identifies specific mechanisms by which this social norm activation may occur. The *contingency condition* (1) presents the foundational condition necessary for a social norm to be activated. This condition states that individual actors are aware that a behavioral rule  $R$  exists and applies to situations of type  $S$ . Thus, collective awareness of a given behavioral rule and its relevance to the current situation is foundational to social norm activation. To be effective, therefore, a code of ethics must make relevant behavioral rules salient to the manager and investor. The *empirical expectations condition* (2a) states that individual actors believe that a sufficiently large subset of the population  $P$  conforms to the behavioral rule  $R$  in situations of type  $S$ . These expectations are called empirical expectations because they are often based on observed behavior in similar situations over time. Further, they can be confirmed or weakened by subsequent observed behavior in similar situations. To be effective, therefore, a code of ethics must also strengthen the belief that a sufficiently large subset of the population conforms to the relevant behavioral rules made salient by the code.

The two normative expectations conditions suggest that people may have different reasons for conditionally preferring to follow a social norm. The first, *normative expectations condition* (2b), states that individual actors believe a sufficiently large subset of  $P$  expects them to conform to  $R$  in situations of type  $S$ . This is a normative expectation in that it is based on the belief that a sufficiently large number of people think that an individual has an obligation to conform to  $R$  in the appropriate circumstances. For some individuals, the belief that others' normative expectations are valid or reasonable is sufficient to motivate behavior consistent with a social norm. The second, *normative expectations with sanctions condition* (2b'), adds the belief that those who expect an individual to conform to the social norm also prefer the individual to conform and may be prepared to sanction the individual's behavior when they can observe it. The possibility of sanctions, whether positive or negative, may be necessary for some individuals to follow a social norm.

Our study examines the effectiveness of a code of ethics in an experimental setting in which there is anonymity and the absence of sanctions. To be effective in our experimental setting, therefore, the code of ethics must increase the motivation to follow others' normative expectations not through expected sanctions, but through the belief that such normative expectations are valid or reasonable. As such, our study provides a vigorous test of the effectiveness of a code of ethics because anonymity is typically not present in real-world organizations and sanctions for violating normative expectations typically are present. In summary, Bicchieri's model suggests that a code of ethics may activate social norms that control opportunistic behavior in our experimental setting by: (1) making relevant behavioral rules salient, (2) increasing the belief that a sufficiently large subset of the population conforms to the relevant behavioral rules made salient by the code, and (3) increasing the motivation to follow the relevant behavioral rules made salient by the code through the belief that such rules are valid or reasonable.

A challenge of examining the effectiveness of a code of ethics is to identify particular social norms that might be activated by the code. Bicchieri (2006, 45) asserts that social norms are complex, and her model reflects that complexity: "Norms are sometimes stated in vague and general terms and operate in the presence of areas of indeterminacy and ambiguity. Several norms may apply to the same situation, or it may not be clear which norms have a bearing in a given case." Similarly, corporate codes of ethics are usually stated in vague and general terms such as honesty, integrity, and responsibility (see the Starbucks Code of Ethics in Appendix A). Given the



complexity of social norms and the inherent generality of codes of ethics, we assert that a number of social norms may be activated by a code of ethics, including fairness, reciprocity, and trustworthiness. Fairness and reciprocity are social norms that have been identified as arising in Dictator and Ultimatum games (Bicchieri 2006; Smith 2010). The social norm of trustworthiness has been identified as arising in Trust games such as the BDM game (Berg et al. 1995; Smith 2010). As we discuss in detail below, the addition of a certification choice is also likely to activate the social norm of promise-keeping (Bicchieri 2006).

In their original experiment, Berg et al. (1995) used a single-period, double-blind setting to control for reputation, collusion, or threat of punishment. To examine the possibility that the behavior of investors and managers might be influenced by social norms, the authors included a setting where subjects were given a report summarizing the decisions of a previous group of investors and managers. Berg et al. (1995) found that this social history increased both the amount sent by investors and the amount returned by managers. As explained more fully below, we provide a social history by having investors interact with multiple managers across multiple single-period games. This controls for reputation and strategic behavior while providing participants with substantial experience.

In this repeating single-period experimental setting, we manipulate the likelihood that the code of ethics will activate social norms that control opportunistic behavior. In particular, we examine manager return behavior and investor confidence under three experimental conditions: no code of ethics as a baseline condition, a code of ethics alone, and a code of ethics with a public certification choice by the manager. We test four hypotheses motivated by our theoretical development above and current trends in the application of a code of ethics in practice. Our first two hypotheses test the effect of a code of ethics alone on manager return behavior and investor confidence:

- H1:** Managers will exhibit less opportunistic behavior when a code of ethics is present than when there is no code of ethics.
- H2:** Investor confidence will be greater when a code of ethics is present than when there is no code of ethics.

As discussed in the “Introduction” section, some corporations require their CEO and other financial officers to certify that they will adhere to the corporate code of ethics, while other corporations do not. Including this certification requirement implies an expectation that certification strengthens the effectiveness of the code. We expect that a certification choice will accentuate the factors that Bicchieri’s model suggests will activate social norms that control opportunistic behavior. In particular, the certification choice will make it more likely that the contingency condition and the two conditional preference conditions hold in our experimental setting. Specifically, certification is likely to make the social norms in the code of ethics more salient to the manager (condition (1)). Certification is also likely to increase the belief that a sufficiently large subset of the population will conform to the social norms in the code (condition (2a)). Finally, certification is likely to increase the belief that a sufficiently large subset of the population expects conforming behavior (condition (2b)).

In addition to accentuating the factors that Bicchieri’s model suggests will activate social norms, we expect that the certification choice will activate a new social norm in both the manager and the investor. Bicchieri (2006, 148) argues that the very act of promising focuses participants on a norm of promise-keeping, thereby fostering expectations that such promises will be kept. Research in the managerial accounting literature finds evidence in support of this norm in studies of the effectiveness of cheap talk in principal-agent experimental settings. Douthit et al. (2012) find that allowing the agent to promise a given level of effort results in promise-keeping behavior in the agent and trusting behavior in the principal, leading to superior outcomes for both the principal and the agent. Kachelmeier et al.

(1994) find that non-binding budgetary commitments by the principal result in trusting behavior in the agent. Specifically, they find that allowing the principal to make a non-binding budgetary announcement (promise) leads to a belief by the agent that the principal will keep the promise, which results in goal congruence between the principal and agent. Similarly, we expect that having the manager certify that he will adhere to the code will activate the social norm of promise-keeping, leading to promise-keeping behavior in the manager and trusting behavior in the investor.

Finally, the certification choice is likely to engage the self-concept of the manager, which [Bicchieri \(2006, 85–86\)](#) argues focuses individuals on relevant social norms that are consistent with their identity. [Carvello and Li \(2012\)](#) find evidence in support of this norm in a recent study of the effects of requiring the engagement partner to sign the audit report on audit quality. Specifically, [Carvello and Li \(2012\)](#) find evidence that the engagement partner signature requirement leads to improved audit quality in the United Kingdom.

In summary, we expect a code of ethics with a certification choice to accentuate factors that Bicchieri's model predicts will activate social norms that control opportunistic behavior. As such, our third and fourth hypotheses test the incremental effect of the certification choice on the effectiveness of a code of ethics:

- H3:** Managers will exhibit less opportunistic behavior when the code of ethics incorporates a certification choice than when it does not.
- H4:** Investor confidence will be greater when the code of ethics incorporates a certification choice than when it does not.

### III. EXPERIMENTAL METHOD

To test our hypotheses, we utilize an adaptation of the BDM game. The original BDM game was formulated as an investment game whereby an investor and a manager are paired together and endowed with equal funds.<sup>10</sup> All information regarding the game is common knowledge, but the identities of the investor and the manager remain anonymous. The game begins with the investor deciding how much of the initial endowment to send to the manager and how much to keep. The manager receives three times the amount sent by the investor, which represents a positive growth or yield from the investment. Next, the manager decides how much of the tripled amount to return to the investor and how much to keep. The investor receives the portion of the initial endowment that was not invested plus any amount subsequently returned by the manager to the investor. The manager earns his initial endowment plus any of the tripled amount not returned to the investor.

Utilizing the principle of backward induction, the investor knows that the manager is motivated to keep all of the money sent by the investor, and therefore the Nash equilibrium prediction is that investors will transfer no resources to the manager ([Smith 2010, 235](#)). Potential explanations for the frequent deviation from this Nash equilibrium include trust on the part of the investor, reciprocity on the part of the manager, and altruism on the part of both parties ([Cox 2004](#)). In [Berg et al.'s \(1995\)](#) original single-period study, investors frequently signaled full trust and expected reciprocity by investing 100 percent of the initial endowment, and this strategic behavior was often successful at generating higher returns from managers. Researchers have found, however, that keeping the initial endowment of the investor private reduces such strategic behavior because the amount invested by the investor is no longer an unambiguous signal of full trust ([McCabe et al. 1998](#)). To

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<sup>10</sup> For clarity and consistency, we use the terms “investor” and “manager” throughout the text to describe the roles of the two players. [Berg et al. \(1995\)](#) identified the two roles as “Room A participants” and “Room B participants.” Similarly, we used the labels “Player A” and “Player B” in our experimental instructions to avoid the potential effect of context-laden terms in the experiment.

avoid potential confounds from the investor signaling full trust, as explained later, we make the investor's initial endowment a random variable over a defined range and disclose the actual realization of the endowment only to the investor.

## Participants

The participants in our experiment include students recruited from a large U.S. university in the Southeast. Of the 124 participants, 12 were graduate students, 38 were seniors, 37 were juniors, 15 were sophomores, and 22 were freshmen. Participants included 39 females and 85 males whose ages ranged from 18 to 35 years old; however, only four participants (two male, two female) were older than 25 years of age. Fifty-seven (46 percent) of the participants indicated that they had personal investment experience through Internet trading, mutual funds, a financial advisor, or a financial institution. Statistical tests did not reveal any significant differences in participant behavior across these demographic characteristics.

## Procedures

The experiment was administered in an experimental lab using z-Tree software (Fischbacher 2007). To ensure participant anonymity, we utilized a procedure similar to that employed by Stevens (2002). At the beginning of the experiment, participants clicked a button on the computer to receive a random four-digit personal identification number. Participants wrote this number on an index card as their only form of identification, and took this card to a cashier in another room at the end of the experiment to receive their earnings from the experiment. This procedure ensured both actual and perceived anonymity of the participants.

We collected data from six experimental sessions—two sessions for each of the three experimental conditions. At the beginning of each experimental session, we read aloud an initial set of instructions to participants and then the computer program randomly assigned participants to their role (investor or manager) for the duration of the session. The computer program also randomly paired investors and managers at the beginning of each of nine periods following a turnpike design to ensure that no two players were paired together more than once.<sup>11</sup> At no time during the experimental session did the participants know with whom they had been paired. Participants received a \$10 show-up fee plus their earnings from a single period randomly selected by the computer program, so amounts earned in a given period did not carry over to the next period. Thus, the experiment simulated a series of single-period BDM games. While this experimental design minimized the possibility of “end-of-game” effects, the players also did not know how many periods would be included in the experiment to further reduce the possibility of such effects.

In the control group (hereafter, “No Code”), participants interacted without a code of ethics. In the experimental groups with a code of ethics present (hereafter, “Present”) or a code of ethics plus a certification choice (hereafter, “Certified”), participants received the following code of ethics at the beginning of each period:

As Player B, I am expected to adhere to the following:<sup>12</sup>

- I will act in good faith, and adhere to ethical conduct.
- I will act responsibly with fairness, honesty, and integrity.

<sup>11</sup> Only 16 participants showed up for the second session of the Present treatment. Therefore, we informed participants that it was possible that they may be paired with one of the other participants twice but they would not know which other participant or in which round this might occur. Thus, any potential reputation effects were minimized.

<sup>12</sup> Player B was the label for the manager throughout the experiment.

- I will act ethically in the handling of actual or apparent conflicts of interest.

This code was carefully designed to follow SOX Section 406(c) and the SEC ruling regarding code of ethics disclosure requirements (SEC 2003a). Consistent with these requirements, the code of ethics used in our experiment encourages ethical behavior by referring to the common social norms of honesty, integrity, responsibility, and fairness.

At the start of each period the investor and the manager were both informed that the manager's endowment for the period was \$5.00 and the investor's endowment for the period was between \$5.00 and \$13.00 with a random uniform distribution in increments of \$0.10. The investor's realized endowment was then revealed to the investor but not the manager.<sup>13</sup> Participants who were under the Present and Certified treatments then received the code of ethics. Under the Present treatment, the manager clicked a "continue" button after reading the code and the investor was informed when the manager had done so. Under the Certified treatment, the manager made an explicit choice whether to certify through an electronic signature that he would adhere to the code, and the investor was informed of the manager's choice. To certify the code, the manager entered his personal four-digit code into the computer and clicked an "Accept" button. Alternatively, the manager clicked a "Decline" button. This certification manipulation maintained the anonymity of the manager while increasing the presence of the theoretical factors that Bicchieri's model suggests would increase the activation of the social norms inherent in the code.

The remainder of each period proceeded in the same manner in all three experimental conditions. The investor decided how much of her realized endowment to invest and transfer to the manager. The amount of the investment was tripled and transferred to the manager. Upon notification of the tripled amount, the manager decided how much to keep and how much to return to the investor. The investor was then notified of the amount returned by the manager. The investor's total earnings for the period equaled the initial endowment that was not invested plus the portion of the tripled investment that the manager returned to the investor. The manager received the amount of his initial endowment of \$5.00 plus any portion of the tripled amount that the manager did not return to the investor. At the end of the period the participants were assigned to a new pairing prior to the start of a new period.

At the end of the ninth and final period, participants completed an exit questionnaire. The exit questionnaire gathered demographic information and personal perceptions. With the exception of the demographic data, participants responded to perception statements on a seven-point Likert scale with 1 indicating "Strongly Disagree," 4 indicating "Neutral," and 7 indicating "Strongly Agree." After all of the participants had completed the exit questionnaire, the computer program randomly selected the period used to determine earnings and the participants proceeded individually to another room to receive their cash payment in private before exiting the experiment. Participants received \$20.74 on average, including the show-up fee of \$10.00, and each experimental session lasted just over an hour.<sup>14</sup>

## IV. RESULTS

### Manipulation Checks

Responses to perception statements on the exit questionnaire suggest that our experimental controls and manipulations were effective. Responses indicate that reputation effects were

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<sup>13</sup> To facilitate comparisons across treatments, the same randomly selected endowment sequences were used in each experimental session.

<sup>14</sup> The maximum received by any one participant was \$43.80, while the minimum received was \$10.00. The minimum and maximum payoff values were realized in the No Code treatment.

effectively controlled, as participants agreed that they did not know who they had been paired with during the experiment ( $p < 0.01$ ).<sup>15</sup> Responses also indicate that participants understood that the investor could invest any amount from \$0.00 to the value of the investor's endowment ( $p < 0.01$ ) and that the manager would receive triple the invested amount ( $p < 0.01$ ). Further, responses indicate that participants understood that the investment was automatically tripled as opposed to being the result of any effort or choice on the part of the manager ( $p < 0.01$ ). This is important because prior research suggests that the manager feels entitled to more of the tripled amount if she attributes the tripling to her own effort or choice (Smith 2010).

## Descriptive Statistics

Figure 1 presents two graphs of the percent of investment returned each period by treatment group (Panel A) and the percent of endowment invested each period by treatment group (Panel B). These graphs reveal no obvious trend in the data across the nine periods in the No Code group. However, they reveal a downward trend in both the percent of endowment invested and the percent of the investment returned in the Present group. This trend suggests that participants revised their expectations based on past observations when interacting with rotating investor/manager pairs under a code of ethics with no certification choice over time. For the Certified group, the graph in Panel B reveals a slight upward trend in the percent of endowment invested despite a slight downward trend in the percent of investment returned in Panel A. Thus, it appears that when the code of ethics included a certification choice, the level of investor confidence was maintained over time. In summary, the two graphs in Figure 1 reveal changes in participant expectations despite experimental design characteristics that assured that each decision period was a single-period game to control for reputation effects.<sup>16</sup> Below we report statistical tests that support these changes in participant behavior over time.

Contrary to the Nash equilibrium prediction of zero investment, investors in all three experimental groups began the experiment by investing around 35–50 percent of their endowment with the manager, on average.<sup>17</sup> The relatively high level of investment in comparison to the Nash equilibrium suggests that many investors brought socially derived expectations or norms to the experiment. This is consistent with results from previous experimental studies of behavior in trust games such as the BDM game (Smith 2010). Statistical tests presented below demonstrate that investor confidence increased over time in the Certified group, but decreased in the Present group as investors updated their expectations in response to the return behavior of their prior rotating managers. This evidence is consistent with Bicchieri's (2006) *empirical expectations condition* (2a), which states that social norm activation requires expectations that often reflect previous observed behavior, and such expectations can be confirmed or weakened by subsequent observed behavior.<sup>18</sup>

Table 1 reports descriptive statistics regarding the percent of investment returned by managers and the percent of endowment invested by investors across the three treatment groups. Panel A

<sup>15</sup> Probability levels indicate the significance of mean tests from the neutral response of 4.

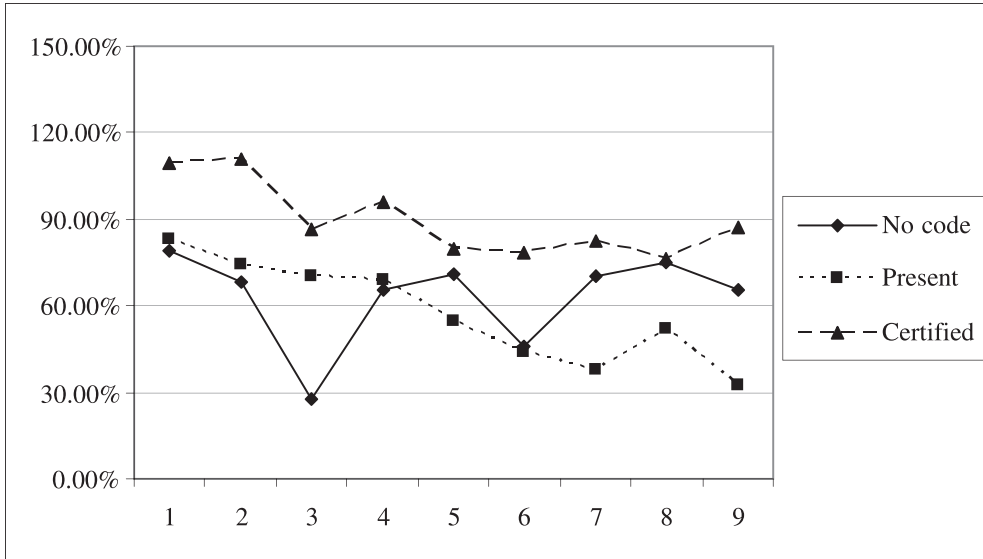
<sup>16</sup> The experimental design characteristics that assured that each decision period was a single-period game include participant anonymity, investor/manager pair rotation each period, and payment based on the random selection of a single decision period.

<sup>17</sup> A comparison of means test reveals that the percent of endowment invested in the first period was not significantly different across the three experimental conditions ( $p = 0.208$ ).

<sup>18</sup> Bicchieri (2006, 28) states that the existence of a social norm always presents a conditional follower with a Bayesian game: "If the normative and empirical expectations conditions are fulfilled, she will assess a higher probability to being matched with a similar player type (a norm follower) and act accordingly. But she must also be prepared to revise her probabilistic assessment in case experience contravenes her previous expectations."

**FIGURE 1**  
**Percent of Endowment Invested and Percent of Investment Returned Each Period**

**Panel A: Percent of Investment Returned Each Period**



**Panel B: Percent of Endowment Invested Each Period**

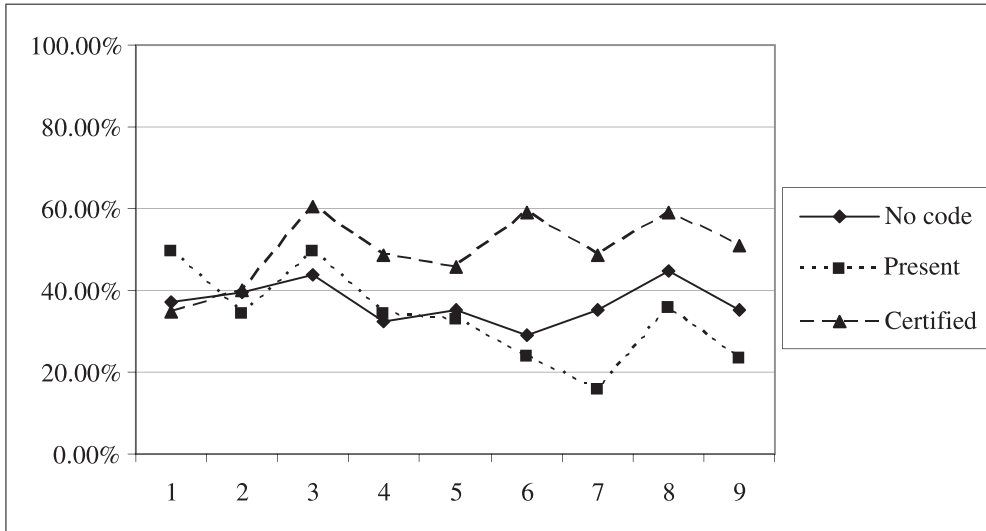


TABLE 1

## Percent of Investment Returned and Percent of Endowment Invested

## Panel A: Percent of Investment Returned by Managers in Early versus Later Periods

Treatment Group		All Nine Periods	Early Periods (1–4)	Later Periods (6–9)	Test of Differences	
					Periods (1–4) versus (6–9)	two-tailed p-value
No Code <sup>a</sup>	Mean	63.5%	64.5%	60.8%	t = 0.37	0.710
	Median	58.4%	61.9%	56.6%	Z = 0.04	0.971
	Std. Dev.	56.7%	62.5%	54.1%		
	n	156	65	73		
Present <sup>b</sup>	Mean	59.5%	74.7%	41.8%	t = 3.44	0.001
	Median	50.0%	77.8%	26.1%	Z = 3.40	0.001
	Std. Dev.	55.1%	56.6%	48.9%		
	n	138	67	52		
Certified <sup>c</sup>	Mean	89.3%	100.3%	80.5%	t = 2.01	0.046
	Median	100.0%	100.0%	88.7%	Z = 2.31	0.021
	Std. Dev.	60.6%	55.9%	63.8%		
	n	167	75	74		

## Panel B: Percent of Endowment Invested by Investors in Early versus Later Periods

Treatment Group		All Nine Periods	Early Periods (1–4)	Later Periods (6–9)	Test of Differences	
					Periods (1–4) versus (6–9)	two-tailed p-value
No Code <sup>a</sup>	Mean	36.9%	38.3%	35.9%	t = 0.44	0.663
	Median	23.7%	30.7%	16.4%	Z = 1.15	0.251
	Std. Dev.	36.4%	34.0%	39.1%		
	n	198	88	88		
Present <sup>b</sup>	Mean	31.7%	38.7%	24.6%	t = 2.55	0.012
	Median	19.4%	26.5%	5.1%	Z = 3.61	0.000
	Std. Dev.	33.9%	34.4%	33.8%		
	n	171	76	76		
Certified <sup>c</sup>	Mean	49.6%	45.9%	54.3%	t = 1.62	0.108
	Median	48.2%	42.2%	63.7%	Z = 1.46	0.146
	Std. Dev.	34.2%	31.9%	35.9%		
	n	189	84	84		

<sup>a</sup> In the “No Code” treatment there was no code of ethics present. The No Code treatment involved 44 participants forming 22 pairs over nine rounds, providing 198 investor observations. The investor sent \$0.00 to the manager on 42 occasions, leaving 156 manager decision observations.

<sup>b</sup> In the “Present” treatment a code of ethics was present. The Present treatment involved 38 participants forming 19 pairs over nine rounds, providing 171 investor observations. The investor sent \$0.00 to the manager on 33 occasions, leaving 138 manager decision observations.

<sup>c</sup> In the “Certified” treatment a code of ethics was present and the manager had to choose whether to electronically certify the code. The Certified treatment involved 42 participants forming 21 pairs over nine rounds, providing 189 investor observations. The investor sent \$0.00 to the manager on 22 occasions, leaving 167 manager decision observations.

reports the percent of investment returned by managers, first for all nine periods and then separately for the early periods (1–4) and the later periods (6–9).<sup>19</sup> The test of differences between the early periods and later periods support the trends present in Figure 1. In the No Code group, the small decrease in the mean from 64.5 percent to 60.8 percent is insignificant ( $p = 0.710$ ). In the Present group, the decrease in the mean from 74.7 percent to 41.8 percent is significant at the 1 percent level ( $p < 0.01$ ). Finally, in the Certified group the decrease in the mean from 100.3 percent to 80.5 percent is significant at the 5 percent level ( $p < 0.05$ ).

Panel B of Table 1 reports the percent of endowment invested by investors, first for all nine periods and then separately for the early periods (1–4) and the later periods (6–9).<sup>20</sup> Again, the test of differences between the early and later periods support the trends present in Figure 1. In the No Code group, the small decrease in the mean from 38.3 percent to 35.9 percent is insignificant ( $p = 0.663$ ). In the Present group, the decrease in the mean from 38.7 percent to 24.6 percent is significant at the 5 percent level ( $p < 0.05$ ). Finally, in the Certified group the increase in the mean from 45.9 percent to 54.3 percent falls just outside the 10 percent marginal significance level ( $p = 0.108$ ).

By comparison, investors in the original Berg et al. (1995) study invested 51.6 percent of their endowment and the manager returned 90.3 percent of the invested amount on average. The difference between our No Code control group and results in Berg et al. (1995) is likely due to the information asymmetry we introduce regarding the endowment of the investor and our multiple single-period setting. Consistent with McCabe et al. (1998), this information asymmetry made it difficult for the manager to estimate relative payoffs and the level of trust exhibited by the investor. In particular, the information asymmetry manipulation did not allow the investor to send a signal of full trust and expected reciprocity to the manager by investing 100 percent of the endowment. In effect, the inclusion of the code of ethics and information asymmetry regarding the investor's endowment changed the BDM game from one where the investor can signal "I trust you" to the manager to one where the manager can signal "You can trust me" to the investor.<sup>21</sup> This is the implied signal when corporations publish a code of ethics, especially those that are certified by top management.

## Hypotheses Tests

Table 2 presents parametric and nonparametric tests of H1–H4. Regarding H1, Panel A reveals that there is no significant difference in the percent of investment returned by managers between the No Code and Present groups using a t-test and Mann-Whitney U ( $p = 0.544$  for the parametric t-test). Thus, the presence of a code of ethics alone did not significantly increase manager return behavior, inconsistent with H1. In contrast, Panel A reveals that adding a certification choice to the code of ethics alone did significantly improve manager return behavior. The percent of investment returned is significantly higher for the Certified group than the Present group using a t-test and Mann-Whitney U ( $p < 0.01$ ). These results provide strong support for H3. In untabled results, the percent of investment returned is also significantly higher for the Certified group (89.3 percent) than the baseline No Code group (63.5 percent) using a t-test and Mann-Whitney U ( $p < 0.01$ ).

<sup>19</sup> Managers declined certification on six occasions. The managers transferred 0 percent of the investment back to each of the investors on five occasions and 10 percent (\$0.10) on the other occasion. We keep these observations in our data for the Certified treatment. Deleting these observations from our analysis strengthens our results.

<sup>20</sup> The percent of endowment invested also provides a measure of the percent of the maximum surplus extracted within each treatment, i.e., market efficiency for each treatment.

<sup>21</sup> Because the code of ethics and the certification choice, when present, were publicly disclosed prior to the investment choice, they provided an *ex ante* signal of potential trust to the investor.



**TABLE 2**  
**Hypotheses Tests for H1–H4**

**Panel A: Tests of Manager Return Behavior<sup>a</sup>**

Comparison	Tests of Differences			
	t-test		Mann-Whitney U	
	t	p-value (two-tailed)	Z	p-value (two-tailed)
H1: Present (59.5%) versus No Code (63.5%)	-0.61	0.544	-0.69	0.491
H3: Certified (89.3%) versus Present (59.5%)	4.79	0.000	4.98	0.000

**Panel B: Tests of Investor Confidence<sup>b</sup>**

Comparison	Tests of Differences			
	t-test		Mann-Whitney U	
	t	p-value (two-tailed)	Z	p-value (two-tailed)
H2: Present (31.7%) versus No Code (36.9%)	-1.41	0.160	-1.28	0.199
H4: Certified (49.6%) versus Present (31.7%)	5.15	0.000	5.14	0.000

<sup>a</sup> Manager return behavior is measured as the percent of investment returned.

<sup>b</sup> Investor confidence is measured as the percent of endowment invested.

Regarding H2 and H4 relating to investor confidence, Panel B of Table 2 reveals no significant difference in the percent of endowment invested by investors between the No Code and Present groups using a t-test and Mann-Whitney U ( $p = 0.160$  for the parametric t-test). Thus, the presence of a code of ethics alone did not improve investor confidence in our experimental setting, inconsistent with H2. Panel B also reveals, however, that the combination of a code of ethics and a managerial certification choice did improve investor confidence relative to the results with a code of ethics alone. The percent of endowment invested is significantly higher for the Certified group than the Present group using a t-test and Mann-Whitney U ( $p < 0.01$ ) providing strong support for H4. In untabled results, the percent of endowment invested is also significantly higher for the Certified group (49.6 percent) than the baseline No Code group (36.9 percent) using a t-test and Mann-Whitney U ( $p < 0.01$ ).

Our main results are robust to different decision period cut-offs and different models of manager and investor behavior. Figure 1 shows that the percentage of investment returned under the Certified treatment was higher in the first two periods than in the subsequent periods. Accordingly, we omitted the data from the first two periods from our sample and performed similar tests of H1–H4. The results of our analysis from this reduced subsample are consistent with our hypotheses tests of the full sample. When the mean results in periods 3–5 are compared with periods 7–9, however, the test of differences between the earlier periods and later periods for the Certified and No Code groups are insignificant ( $p = 0.598$  and  $p = 0.165$ , respectively) for the percent of investment returned and the percent of endowment invested. The differences in means between the earlier periods and later periods for the Present group remain highly significant ( $p < 0.01$ ). Specifically, the percent of investment returned and the percent of endowment invested are significantly lower in

the later periods. Our main results also hold when we perform a multivariate regression analysis on the percent of investment returned and the percent of endowment invested, controlling for changes in participant expectations including prior period amount invested and prior period amount returned. These tests confirm the robustness of our main results.

### **Tests of Social Norm Activation**

We use Bicchieri's model of social norm activation to predict that a code of ethics will improve manager behavior and investor confidence to the extent that it activates social norms that control opportunistic behavior. Bicchieri's model suggests that social norms must be activated by situational cues to be effective. In particular, participants must infer from the situational cues what the appropriate behavior is, what they should expect others to do, and what they are expected to do themselves. Our results suggest that the code of ethics alone did not provide the situational cues necessary to activate social norms that controlled opportunistic behavior. In our experimental setting, it took the certification choice to provide these situational cues. As our theoretical development suggests, the incremental effect of the certification choice may have occurred because it added a promise-keeping social norm and/or engaged the self-concept of the manager. Managers who were presented the code of ethics without the certification choice did not face a promise-keeping norm and may have been able to keep their return behavior separate from their self-concept. To test the main mechanism behind our results, we examine the range of behavior across managers and investors and the responses to exit questionnaire items that are designed to capture social norm activation.

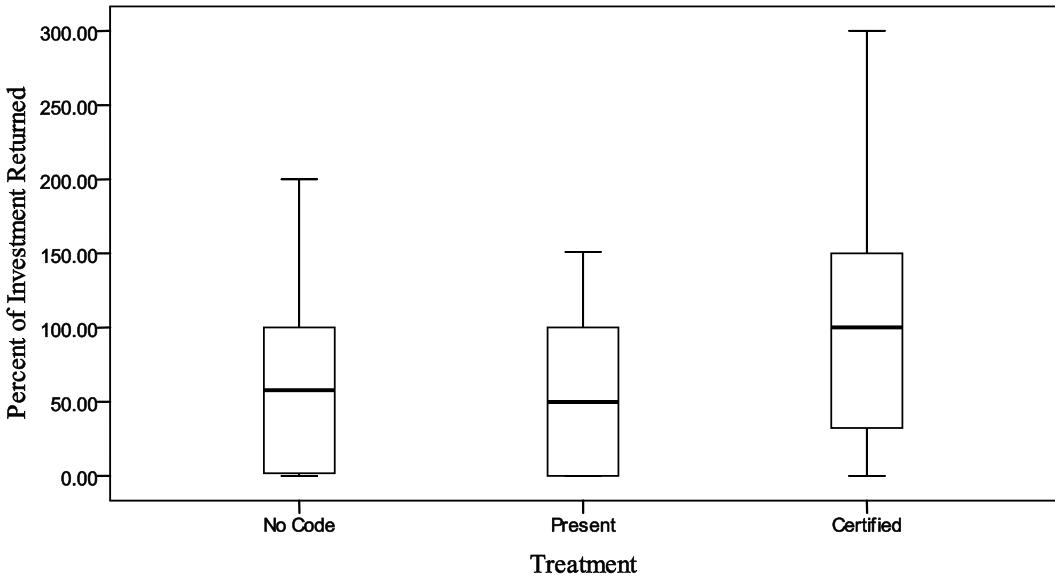
To provide initial evidence of the mechanism behind our results, we examine the distribution of behavior across the three experimental conditions. Figure 2 provides a summarized depiction of the distribution of manager and investor decisions by quartile using boxplots (also known as box-whisker diagrams). These plots show the median at the center of the plot surrounded by a box that measures the interquartile range. The whiskers of the diagram extend to the maximum and minimum observations that fall within 1.5 times the interquartile range from the upper and lower quartiles, respectively (i.e., the smallest and largest observations are constrained to 1.5 times the interquartile range below Q1 and above Q3, respectively).

In their original study, [Berg et al. \(1995\)](#) identify the social norm of trustworthiness as arising in the manager due to the trust placed in the manager by the investor to provide a sufficient return to the investor. They measure behavior consistent with this social norm as the manager returning, at a minimum, the original amount invested by the investor. The boxplots in Panel A show that compared to the No Code group, managers are more likely to return at least 100 percent of the investment after certifying a code of ethics, but the mere presence of a code of ethics had little effect on the manager's return behavior. An analysis of the data (results not shown) reveals that 51.8 percent of the manager return observations were greater than or equal to the amount of the investment in the Certified group compared to 31.4 percent and 30.4 percent in the No Code and Present groups, respectively. This result provides strong evidence that the certification of a code of ethics increased the manager's attention to the social norm of trustworthiness as defined by [Berg et al. \(1995\)](#).

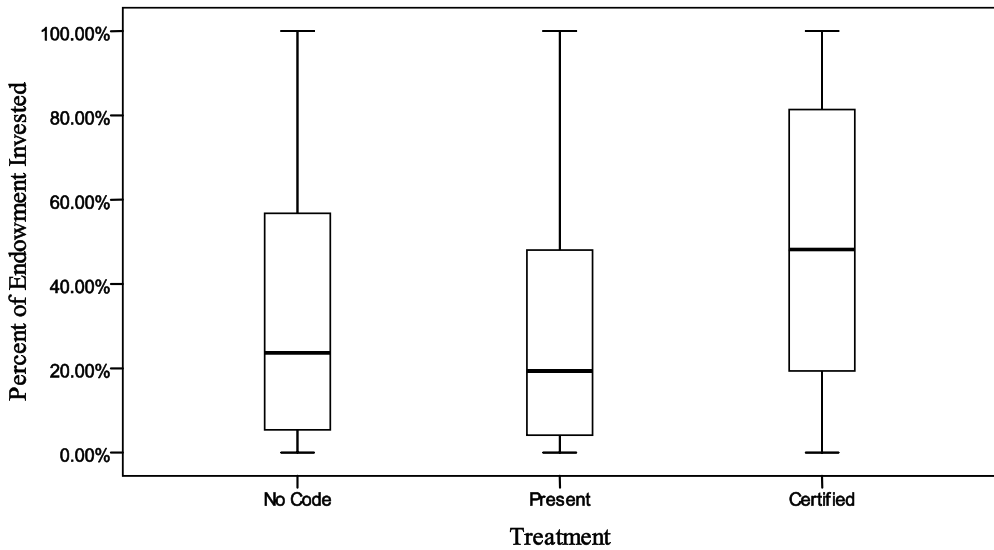
The boxplots in Panel B show that each experimental condition exhibits instances where investors invested 100 percent of their investment and 0 percent of their investment. The lower quartile (Q1), the median (Q2), and the upper quartile (Q3) are all higher in the Certified condition than in the other two conditions. An analysis of the data (results not shown) reveals that less than 25 percent of the investors in the Present group invested at least half of their endowment, compared to nearly 40 percent of the investors in the No Code group and nearly 50 percent of the investors in the Certified group. In fact, investors in the top quartile in the Certified group invested more than 82.5

**FIGURE 2**  
**Boxplots of the Distribution of Percentages Transferred by Treatment Group**

**Panel A: Distribution of the Percent of Investment Returned by Treatment Group**



**Panel B: Distribution of the Percent of Endowment Invested by Treatment Group**



These box plots present the smallest observation in the subsample, the lower quartile (Q1), the median (Q2), the upper quartile (Q3), and the largest observation in the subsample.

percent of the endowment, compared to only 57.2 percent for the No Code group and 48.2 percent for the Present group. This figure illustrates the extent to which investors maintained their confidence that managers would return a reasonable amount in the Certified group.

Previous results from coordination games like the BDM game suggest the presence of focal points that govern manager return behavior.<sup>22</sup> A separate analysis of individual behavior within our study reveals the emergence of three focal points in manager return behavior (results not tabulated): return \$0.00, return the amount of the investment, and return 150 percent of the investment, i.e., half of the tripled amount. Returning \$0.00 indicates complete self-interested behavior as predicted by traditional economic theory. Within the Certified group, 12.6 percent of the observations involved a return of \$0.00, compared to 24.4 percent and 29.7 percent for the No Code and Present groups, respectively. The lower incidence of \$0.00 returns by managers in the Certified group provides supporting evidence of the activation of social norms within the managers. The other two focal points that emerged provide further evidence of social norm activation. Although there was little difference between treatments on the focal point of returning the exact amount invested (9.5 percent of observations in the Certified group compared to 7.7 percent and 11.5 percent in the No Code and Present groups, respectively), returns of half of the tripled amount differed significantly in frequency between the Certified group and the No Code and Present groups. Within the Certified group, 20.9 percent of the observations involved a return of half the tripled amount compared to 6.3 percent and 7.3 percent for the No Code and Present groups, respectively. Taken together these results provide evidence that adding the certification choice to the code of ethics activated social norms within the manager, whereas the presence of a code of ethics alone did not.

To provide direct evidence regarding the activation of social norms under our experimental conditions, we analyze responses to three perception statements on the exit questionnaire that were designed to capture social norm activation and investor expectations. Participants responded to these statements on a seven-point Likert scale with 1 indicating “Strongly Disagree,” 4 indicating “Neutral,” and 7 indicating “Strongly Agree.” Table 3 presents the three exit questionnaire items and the mean responses of participants by role and treatment group. Panel B of Table 3 shows that, on average, investors within each of the three experimental groups believed it would have been unethical for the manager not to return any money to the investor. For investors, the mean response to item 1 is significantly greater than the neutral response of 4 across all three groups ( $p < 0.05$ ).<sup>23</sup> Panel A of Table 3 shows, however, that only managers in the certify group believed that such opportunistic behavior would have been unethical. For managers, the mean response to item 1 is only significantly greater than the neutral response of 4 in the Certify group ( $p < 0.05$ ). This suggests that investors across all groups recognized social norms that would obligate the manager to return money to the investor, but only the code of ethics with the certification choice caused managers to recognize and act on such norms.

Responses to the other two exit questionnaire items in Table 3 provide further insights regarding the nature of the social norm activation in our study. We find that all participants in our study expected that a certification choice would improve manager return behavior and investor confidence. The mean response to item 2 across all roles and all experimental groups indicate that participants believed that, as an investor, they would invest more money with a manager who had committed to the code (the mean response is significantly greater than the neutral response of 4;  $p < 0.05$ ). Further, the mean response to item 3 across all roles and all experimental groups indicate that participants believed that, as a manager, they would return more of the investment to the investor

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<sup>22</sup> Focal points arise in these situations when there is some clue (social norms) of expected behavior. Focal points in paired settings are defined as a “person’s expectation of what the other expects him to expect to be expected to do” (Schelling 1960, 57).

<sup>23</sup> Probability levels indicate the difference of means test from the neutral response of 4.

TABLE 3

**Mean (Std. Dev.) Responses to Exit Questionnaire Items Designed to Capture Social Norm Activation and Investor Expectations**

**Panel A: Manager Post-Experimental Questionnaire Responses**

		Treatment Group		
		No Code	Present	Certify
1.	If Player B did not return any money to Player A, it would have been unethical.	4.18 (1.94)	4.05 (2.27)	5.00 (2.07)
2.	If I were Player A, I would have sent more to Player B if Player B had committed to written ethical standards compared to if there were not any written ethical standards.	5.23 (1.77)	5.05 (2.09)	6.00 (1.70)
3.	If I were Player B, I would have sent more to Player A if I had committed to written ethical standards compared to if there were not any written ethical standards.	5.23 (1.66)	4.89 (2.18)	5.10 (2.19)

**Panel B: Investor Post-Experimental Questionnaire Responses**

		Treatment Group		
		No Code	Present	Certify
1.	If Player B did not return any money to Player A, it would have been unethical.	5.05 (2.30)	5.63 (2.03)	5.38 (2.13)
2.	If I were Player A, I would have sent more to Player B if Player B had committed to written ethical standards compared to if there were not any written ethical standards.	6.14 (1.28)	5.00 (2.16)	5.10 (1.55)
3.	If I were Player B, I would have sent more to Player A if I had committed to written ethical standards compared to if there were not any written ethical standards.	6.05 (1.53)	5.26 (1.91)	5.43 (2.06)

Participants responded on a seven-point Likert scale, where 1 = Strongly disagree, 4 = Neutral, 7 = Strongly agree.

after committing to the code (the mean response is significantly greater than the neutral response of 4;  $p < 0.05$ ). This evidence suggests that all participants expected the certification choice to activate social norms that control opportunistic behavior. Bicchieri's model predicts that this general expectation would increase the likelihood that such social norms would be activated, consistent with our results. This expectation is also consistent with the expectation implied by corporations that require the CEO and other financial officers to provide certification signatures for their corporate code of ethics.

## V. CONCLUSION

We study the effectiveness of a code of ethics in an experimental setting. Using Bicchieri's (2006) model of social norm activation, we predict that a code of ethics will improve manager return behavior and investor confidence to the extent that it activates social norms that control opportunistic behavior. Further, we predict that a certification choice will enhance the potential for

the code of ethics to activate such norms. Utilizing an adaptation of the investment game in [Berg et al. \(1995\)](#), we find that a code of ethics only improves manager return behavior and investor confidence when the code incorporates a public certification choice by the manager. When the code is present but there is no certification choice, manager return behavior does not improve and investor confidence erodes over time because of increased expectations that are not met by managers. An analysis of individual return decisions and exit questionnaire responses supports the activation of social norms as the underlying mechanism behind our results.

The evidence reported here provides new insights that may be of use to corporations, policymakers, and researchers. Prior to SOX, corporations were faced with the decision of whether to implement a corporate code of ethics and if so, how. Since the passing of SOX and subsequent regulation by the SEC and organized stock exchanges, publicly traded companies are essentially required to adopt a corporate code of ethics. Thus, our evidence may help corporations implement their code of ethics in the most effective manner. Our results may also help explain why some corporations have added certification to their code of ethics even though such certification is not required. Future research may want to examine why some corporations certify their code of ethics while others do not. Since certification is a common component of organizational control, this study also provides support for other forms of certification within the firm.

Our study extends previous experimental research showing that priming mechanisms can activate social norms that control opportunistic behavior. In an experimental setting where students could profit by overstating their performance on a test, [Mazar et al. \(2008\)](#) find that misreporting is reduced by having students recall the Ten Commandments prior to the test or sign a pre-test statement that the test falls under the school's student honor code. In the conclusion to their study, [Mazar et al. \(2008, 643\)](#) call on researchers to examine ways of incorporating such priming mechanisms into everyday scenarios in which people might be tempted to be dishonest and to determine how abstract or concrete these mechanisms must be to be effective. Our study contributes to the literature by examining a priming mechanism that has been identified to enhance corporate governance by policy makers and corporations and by showing that this priming mechanism may require a certification choice to be effective.

By utilizing the investment game in [Berg et al. \(1995\)](#), we increase the potential for our experimental study to contribute to the corporate governance literature in accounting. First, the BDM game examines the same investment setting that is examined in the corporate governance literature ([Bushman and Smith 2001](#)). Second, the BDM game incorporates the same underlying agency theory that is the foundation of the corporate governance literature ([Shleifer and Vishny 1997](#)). Third, the BDM game has clear economic predictions that may be compared and contrasted to behavioral predictions ([Brown et al. 2009](#)). We also increase the potential contribution of our study by utilizing [Bicchieri's](#) model of social norm activation, which utilizes current research in social norms from the behavioral literature and yet models social norms in a way that can be readily incorporated within traditional agency theory. Her model not only allows us to make testable predictions regarding the effectiveness of a code of ethics, but also allows us to interpret our results by providing insight into the "black box" of beliefs and expectations that underlie behavior.

By utilizing the BDM game, our study also contributes to the growing literature in experimental economics examining behavior in trust games. Experimental studies of the BDM game and other related trust games have documented behavior inconsistent with narrow conceptions of economic self-interest (e.g., [McCabe et al. 1998](#); [McCabe et al. 2003](#); [Cox 2004](#)). To help explain this behavior, economists have incorporated the concept of "ecological" rationality that considers socially derived rules and behavioral norms that emerge out of cultural and biological evolutionary processes ([Smith 2003](#)). Economists have also found references to this alternative form of rationality in the writings of Adam Smith ([Smith 1759/1966](#)). Our study provides further evidence of this alternative form of rationality. By demonstrating the effectiveness

of a code of ethics with a certification choice, and linking it to the activation of social norms, our study supports Berg et al.'s (1995, 138) assertion that incorporating social norms could expand the descriptive validity of the rational choice paradigm in economics. Our study also supports Sunder's (2005) assertion that incorporating social norms in accounting research and practice could enhance corporate governance while reducing the burden of accounting regulation.

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**APPENDIX A**  
**STARBUCKS CODE OF ETHICS WITH CERTIFICATION REQUIREMENT**

**Code of Ethics for CEO and Finance Leaders**

In my financial leadership role with Starbucks Coffee Company, I recognize that I hold an important and elevated role in corporate governance. I am charged with ensuring that stakeholders' interests are appropriately balanced, protected, and preserved. Accordingly, this Code provides principles to which I am expected to adhere.

To the best of my knowledge and ability, in executing my job responsibilities:

1. I act with honesty and integrity, avoiding actual or apparent conflicts of interest.
2. I provide internal and external constituents with appropriate and objective information that is full, fair, accurate, timely, and understandable.
3. I comply with all applicable governmental laws, rules and regulations, and other appropriate private and public regulatory agencies' requirements.
4. I act in good faith, responsibly, with due care, competence, and diligence, without misrepresenting material facts or allowing my independent judgment to be compromised.
5. I respect the confidentiality of information acquired in the course of my work except when authorized or otherwise legally obligated to disclose. I will not use confidential information acquired in the course of my work for personal advantage.
6. I proactively promote ethical behavior as a responsible partner among others in my work environment. I understand my accountability for adhering to this code and my responsibility to report violations of this code to the corporate compliance officer or other appropriate individuals in accordance with Starbucks Standards of Business Conduct.
7. I exercise responsible stewardship over company assets and resources and maintain appropriate internal controls.

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(Signature)

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(Date)

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