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**The Effects of Reputation Threat and Whistle-Blowing Report Source on  
Chief Audit Executives' Investigation Decisions**

A dissertation submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy at Virginia Commonwealth University

by

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## Dedication

“Every good thing given and every perfect gift is from above, coming down from the Father of lights, with whom there is no variation or shifting shadow” (James 1:17, New American Standard Bible). I praise the Lord God for His incredible gift of this journey and its successful conclusion.

This work is dedicated to my wonderful husband, Steve, who has provided unwavering emotional support throughout this endeavor. He never complained about the time I spent away at school, the time studying at home, the things around the house that I did not accomplish, or the bills I could not help pay. He has truly been my rock.

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## Abstract

### THE EFFECTS OF REPUTATION THREAT AND WHISTLE-BLOWING REPORT SOURCE ON CHIEF AUDIT EXECUTIVES' INVESTIGATION DECISIONS

By Cynthia Peterson Guthrie, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2008

Dissertation Director: Carolyn Strand Norman, Ph.D.  
Associate Professor of Accounting

This study examines the effects of reputation threats and anonymous whistle-blowing channels on Chief Audit Executives' (CAEs) decisions to investigate whistle-blowing allegations. Participants were 94 CAEs and Deputy CAEs from publicly traded companies in the eastern half of the United States. Participants received whistle-blowing reports from either an anonymous or a non-anonymous source. In the high reputation threat condition the whistle-blowing report alleged that the wrongdoing was perpetrated by the exploitation of substantial weaknesses in internal controls that had been previously evaluated by external auditors and the internal audit function. The report in the lower threat condition alleged that the wrongdoing was accomplished by the circumvention of internal controls. Findings show that CAEs found anonymous whistle-blowing reports to be significantly less credible than non-

anonymous reports. Although CAEs assessed lower credibility ratings for the reports alleging wrongdoing by the exploitation of substantial weaknesses in internal controls, they perceived greater personal and departmental responsibility in this condition. CAEs did not, however, perceive a significant reputation threat in either the Exploitation or Circumvention condition. Regardless of report source credibility, perceived reputation threat, or felt responsibility, CAEs' resource allocation decisions consistently demonstrated a determination to thoroughly investigate the allegations of wrongdoing and uncover the truth.

## I. INTRODUCTION

Whistle-blowing has gained new notoriety since the corporate scandals earlier this decade. Although whistle-blowing was previously recognized as a key factor in fraud deterrence by such bodies as the US Congress, the US Merit Systems Protection Board and the Committee of Sponsoring Organizations of the Treadway Commission (COSO 1992), more recent legislation gives whistle-blowers increased access to reporting channels as well as increased legal protection. The Sarbanes-Oxley Act of 2002 (hereafter, SOX) was passed by Congress to improve the quality of financial reporting by public companies. Section 301 (4) of SOX specifically charges the audit committee of public companies with establishing procedures for receiving and handling complaints regarding accounting, internal accounting controls, or auditing matters, and more specifically, with establishing a confidential and anonymous channel for such complaints.

Most studies on whistle-blowing were conducted before the reporting channels mandated by SOX were available and known to employees. However, recent evidence suggests that these anonymous reporting channels may not have the effect that the sponsors of SOX intended. The introduction of an anonymous whistle-blowing channel may decrease reporting intentions across all channels (Kaplan and Schultz 2007).

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This dissertation follows the style of *The Accounting Review* (*Chicago Manual of Style*, 15<sup>th</sup> ed).

According to a pre and post-SOX analysis of fraud cases, whistle-blowing by employees has decreased by over five percent since the advent of SOX and employees whose identities were revealed suffered significant retaliation (Dyck et al. 2007). A benchmarking report that compiled data from 2003 through 2006 to show how participants use reporting hotlines indicated that 54 percent of all reports received were anonymous. The hotlines were most often used to report personnel management incidents (51 percent of calls) and only 10 percent of reports were related to corruption and fraud. Moreover, those reporting fraud and corruption chose to remain anonymous only 36 percent of the time (Security Executive Council 2007). Although evidence is mixed as to the effectiveness of and the need for an anonymous channel to report fraud, employee reporting remains an important source of fraud detection (PricewaterhouseCoopers, hereafter, PWC, 2007).

If employee reporting is an important source of information for fraud detection and prevention, then the investigation of all whistle-blowing reports should be taken seriously by the audit committee and executive management. However, extant research shows that people view communications received from anonymous individuals as less trustworthy and as less credible (Rains 2007; Hunton and Rose 2008). Furthermore, source credibility has been shown to be an important factor in auditors' judgment and decision making processes; information from less credible sources may be discounted (Bamber 1983; Hirst 1994; DeZoort et al. 2003). Consequently, follow up on whistle-blowing reports from anonymous sources may not be given the appropriate attention by report recipients.

Taken as a whole, current evidence is inconclusive as to whether the SOX mandated anonymous whistle-blowing channels are useful and under what circumstances they may be more or less conducive in assisting with the desired end of decreasing fraudulent financial reporting. Experimental research can be especially helpful to test the conventional wisdom of the intent of reporting standards and regulations such as those that involve the whistle-blowing channel mandated by SOX (Kadous et al. 2003; Bonner 2008). More specifically, experimental research can add insight to the still unanswered question posed by Hooks et al. (1994, 105), “Should anonymous reports be encouraged?” The current study seeks to enrich the literature by examining the impressions of and responses to anonymous versus non-anonymous whistle-blowing reports alleging fraudulent financial reporting.

SOX charges executive management with creating, documenting, and maintaining a strong system of internal controls, especially over financial reporting. Furthermore, SOX has significantly increased the culpability of executive management if they fail to carry out these duties and of external auditors if they fail to detect insufficient controls. As a result, the role of internal audit with regard to internal control systems has expanded considerably. Executive management and external auditors have come to rely on internal audit not only to assist in establishing and documenting these control systems, but also to test and preserve compliance with them. Accordingly, the role of most internal audit functions has shifted to that of ensuring financial control compliance (Nagy and Cenker 2007).



An additional outcome of SOX is the audit committee's increasing reliance on internal audit and especially the Chief Audit Executive (CAE). Current professional guidance suggests that the CAE should report functionally to the audit committee and administratively to executive management (IIA 2000). Audit committee members, now all independent from executive management, often look to the CAE to reduce the information asymmetry between them and management (Raghunandan et al. 2001). In addition to the CAE's roles of ensuring compliance with internal controls and serving as an information source, audit committees often call on the CAE to be the recipient of whistle-blowing reports. A recent study indicated that in the majority of companies responding the internal audit department had sole responsibility for documenting, investigating, and resolving whistle-blowing reports. Furthermore, CAEs had the responsibility of following up on allegations from anonymous whistle-blowers in 71 percent of the sampled companies (Kaplan and Schultz 2006).

Prior research has not considered a complete view of the whistle-blowing process. Rather the extant research has focused on whistle-blowers, what they choose to report, their motivations for reporting, how they choose a reporting channel, and the possible retaliation they encounter after their actions. A whistle-blowing report is not helpful in uncovering wrongdoing if it is not properly received, investigated, and resolved. A key element in the upstream of the whistle-blowing process is the person receiving the report (Hooks et al. 1994). Consequently, to understand the entire picture of the post-SOX environment, the subsequent actions of whistle-blowing complaint recipients should also be scrutinized. Read and Rama (2003) make a specific call for the examination of the

variations in the reactions of internal auditors to whistle-blowing reports. Accordingly, the current inquiry expands our understanding of whistle-blowing effectiveness by exploring both CAEs' judgments about and decisions to investigate reports of alleged wrongdoing.

In working with and supporting executive management, external auditors, and the audit committee, it is clear that the role of the CAE has become politically complex. The Code of Ethics of the Institute of Internal Auditors (IIA) charges its members with upholding the principles of integrity, objectivity, and competency (IIA 2000). In relation to SOX internal control issues, the IIA's position paper warns CAEs not to become involved with assisting executive management to an extent that would obstruct their objectivity and independence. Yet, the authors of the position paper admit that such a balance is difficult to maintain (IIA 2004).

This balancing act can create and exacerbate moral dilemmas for the CAE when making judgments and decisions. When forming judgments and making subsequent decisions about a specific event or state of affairs, individuals go through the process of accessing pertinent existing beliefs. This process includes not only the intentional accessing and evaluation of such beliefs, but also the inclusion of unacknowledged beliefs and motives. Thus, the judgment and decision making process may include predecision biases that give way to motivated reasoning. Motivations may be primarily driven by the desire to be accurate, or by the desire or need to reach a specific conclusion. Self-esteem, self-preservation, the need to maintain control, and the need to maintain

consistency are examples of directional goals (Pyszczynski and Greenberg 1987; Kunda 1990).

Directional goals can be met through a variety of mechanisms. The decision maker may distort beliefs about herself or beliefs about others (individuals or groups), she may use statistical heuristics improperly or ignore them altogether, and/or she may process new information in a biased manner (Kunda 1990). Research shows that motivated reasoning can be a significant factor in accounting related judgment and decision making scenarios. For example, auditors' decisions have been influenced by potential client loss and other client related risks (e.g. Farmer et al. 1987; Hackenback and Nelson 1996; Beeler and Hunton 2002; Kadous et al. 2003; Blay 2005). However, there is a paucity of research that explores similar phenomena with respect to internal auditors. This study contributes to the literature by focusing on the judgment and decision making of an understudied but important population in accounting research, the CAE.

The purpose of this study is, thus, to investigate the effects of reputation threats that may give rise to motivated reasoning and the provision of anonymous whistle-blowing channels on CAEs' decisions to investigate whistle-blowing allegations. To accomplish this, a two by two, between-participants experiment was administered to 47 CAEs and 47 Deputy CAEs (Deputies), 83% of whom were in publicly traded companies.

After reading a case study that described a whistle-blowing allegation, participants were asked to assess the credibility of the whistle-blowing report and allocate resources toward investigating the alleged wrongdoing. Study results show that CAEs

ascribed a lower level of credibility to anonymous whistle-blowing reports than to non-anonymous reports. Resource allocations were not significantly different for the four experimental conditions. Instead, the debriefing question responses and CAE comments suggest that participants intentionally ignored their perceptions of credibility of the whistle-blowing report and purposed to fully investigate the alleged wrongdoing. CAEs who were told that the alleged wrongdoing was perpetrated by the exploitation of substantial weaknesses in internal controls that had been evaluated by the internal audit function did not indicate significantly different levels of perceived reputation threat than did CAEs who were told that the wrongdoing was perpetrated by the circumvention of internal controls. Moreover, reputation threat did not have a significant influence on CAEs' allocation of investigatory resources. However, those in the Exploitation condition did indicate a significantly higher level of perceived responsibility for the wrongdoing than did those in the Circumvention condition.

The responses of CAE participants were compared to those of Deputies. The findings suggest that CAEs appear to be motivated by accuracy and intentions to discover the truth about the alleged wrongdoing and that Deputies are more influenced by directional goals. Deputies' credibility assessments were biased by the nature of the report rather than the report source. In addition, Deputies showed a tendency to revise their memories of prior probabilities to make them consistent with current judgments.

This study contributes to extant theory, practice, and regulation in corporate governance by demonstrating how CAEs and their Deputies might respond to anonymous whistle-blowing reports. Overall, the results indicate that CAEs take their role as

investigators of alleged financial statement fraud quite seriously and are careful to not allow their impressions of report credibility to influence their related decisions.

Moreover, CAEs show intent to be diligent investigators regardless of their perception of personal or departmental responsibility.

The remainder of this dissertation proceeds as follows. A review of the literature and development of hypotheses is presented in Chapter II. The research methodology is described in Chapter III, followed by the data analysis and results in Chapter IV. Chapter V concludes the dissertation.

## II. REVIEW OF THE LITERATURE AND HYPOTHESES DEVELOPMENT

### Whistle-Blowing

“Principled organizational dissent is the effort by individuals in the workplace to protest and/or change the organizational status quo because of their conscientious objection to current policy or practice” (Graham 1986, 2). Graham explained that she used the word *principled* to describe the issue at stake (e.g. justice, honesty, economy) and not necessarily the motive of the dissenter. Voice and exit are two forms of principled organizational dissent. Clearly whistle-blowing is an example of giving voice to one’s dissent. In Graham’s view, however, whistle-blowing is defined as using one’s voice through an external channel.

Near and Miceli (1985) defined whistle-blowing “to be the disclosure by organizational members (former or current) of illegal, immoral, or illegitimate practices under the control of their employer, to persons or organizations that may be able to effect action” (4). In contrast to Graham’s view of whistle-blowing, Near and Miceli’s definition does not confine whistle-blowing allegations to those reported only through external channels. The more notable public cases, such as those related to Enron and Worldcom, involved external whistle-blowing; the media received the information, directly or indirectly, and made it public. However, in many of these famous whistle-blowing incidents, external whistle-blowing became necessary after internal whistle-

blowing was unsuccessful in eradicating the wrongdoing. The more inclusive definition of whistle-blowing is the most widely accepted in academic research; consequently, this study adopts the Near and Miceli (1985) definition.

### ***SOX Whistle-Blowing Provisions***

One overall thrust of SOX was to make board members more personally accountable for corporate credibility and, therefore, more attentive to the activities of corporate actors. The Act's whistle-blowing provisions are intended to assist the board by providing better access to information about possible wrongdoing (Vandekerckhove 2006). SOX uses two approaches to encourage corporate whistle-blowers. The first (SOX Section 806) involves an update of existing laws to protect whistle-blowers from employer retaliation after they act. The second approach mandates a mechanism for anonymous whistle-blowing.

Section 301 (4) of SOX specifically charges the audit committee of public companies with "establishing procedures for (a) the receipt, retention, and treatment of complaints received by the issuer regarding accounting, internal accounting controls, or auditing matters; and (b) the confidential and anonymous submission by employees of the issuer of concerns regarding questionable accounting or auditing matters" (SOX 2002). Moberly (2006) described this as the Structural Model and opined that this model should prove to be more satisfactory because it removes two significant barriers to employees functioning as effective corporate monitors: the corporate norm of silence, and the tradition of blocking and filtering whistle-blowing. Indeed, SOX's emphasis that the

mandated reporting channel must provide for *confidential and anonymous* reporting shows that employee anonymity is a priority. Accordingly, this study limits its focus to the predictors, correlates, and effectiveness of anonymous versus non-anonymous whistle-blowing. There are myriad other aspects of whistle-blowing that are beyond the scope of this inquiry.

### ***Anonymity and Whistle-Blowing***

#### The Ethics of Anonymous Whistle-Blowing

Long before the SOX mandated channel for anonymous reporting of wrongdoing, ethicists and behaviorists have debated the ethics of whistle-blowing. Graham (1986, 11) stated, “The ethics of whistle-blowing refers to the moral appropriateness of both choosing whistle-blowing as a strategy and selecting whistle-blowing tactics.” The alternative to choose anonymous reporting plays a role in both of these decisions. An observer of wrongdoing has three primary options: public whistle-blowing, anonymous whistle-blowing, and not blowing the whistle at all. Although non-anonymous whistle-blowing is regarded to be the most ethical option, certainly anonymous whistle-blowing is morally preferable to remaining silent about the wrongdoing. Accordingly, Elliston et al. (1985) pointed out that a rule-utilitarian perspective would support anonymous whistle-blowing if the option to remain anonymous promoted the practice of justifiable and effective whistle-blowing. On the other hand, Elliston et al. (1985) emphasized that anonymous whistle-blowing can create an ethical dilemma. “The means and ends conflict; he or she uses ignorance to promote knowledge, identifies others while hiding”



(152). Thus, the good that the whistle-blower is attempting to accomplish may be refuted by the means that he chooses to accomplish it.

There are at least two arguments against anonymous whistle-blowing. First, anonymous whistle-blowing deprives the accused of confronting the accuser. Second, is the concern that if many people within an organization adopt anonymous whistle-blowing, the atmosphere will become one of secrecy and distrust. Elliston et al. (1985) were adamant that they did not support the idea that anonymous whistle-blowing was always justified; nevertheless, they did refute the above assertions. As to the first argument, they contended that the more serious the wrongdoing the weaker the case against anonymous whistle-blowing. If the wrongdoer is causing great harm, her right to confront her accuser becomes a secondary concern to the more important issue of stopping the wrongdoing. Furthermore, anonymity is justified if the likelihood of unfair retaliation against the whistle-blower is high. Finally, strong group cohesiveness may make it very difficult for a potential whistle-blower to withstand pressure to conform to group norms, making anonymous whistle-blowing the only practical alternative. As to the second argument regarding the creation of a secret and untrustworthy environment, Elliston et al. (1985) purported that this is unlikely and that this proposition is based on ignorance and not information.

It is unknown whether these ethical considerations were part of the actual discussions that took place when the authors of SOX Sections 301 and 806 included provisions for anonymous whistle-blowing and protections from retaliation. These provisions of SOX are intended to assist in the legitimization of whistle-blowing:

“internal reporting is not hostile, it is proof of employee loyalty” (Vandekerckhove 2006, 183). SOX clearly supports the proposition that blowing the whistle anonymously is preferred to not blowing it at all.

### The Characteristics of Whistle-Blowers

Elliston et al. (1985) and others promoted justifiable whistle-blowing as an ethical practice. Dozier and Miceli (1985) believed that whistle-blowers do not act from purely altruistic motives, but rather from a combination of altruism and egoism. Hence, they characterized whistle-blowing as a prosocial organizational behavior. It is intended to benefit the whistle-blower as well as the organization and/or other employees. Berry (2004) concurred, labeling whistle-blowing as an organizational citizenship behavior. Extant research that has examined individual traits and circumstances as possible predictors or correlates of whistle-blowing behavior corroborates this positive view of whistle-blowers.

Several significant studies in the whistle-blowing literature, including those examining the characteristics of whistle-blowers, used data from a series of surveys of federal employees that were collected after the passage of specific legislation. In the first and largest of these studies, the US Merit Systems Protection Board collected anonymous survey data in 1980 from employees in 15 major federal agencies (n = 8,587). The federal law that precipitated the 1980 US Merit Systems Protection Board study was the Civil Service Reform Act of 1978 (CRSA) that was designed to protect employees of the federal government. Largely due to the ineffectiveness of the 1978 legislation, the US Congress passed an amendment to the CRSA, the Whistleblower Protection Act, in 1989.

They amended it again in 1994 (Johnson 2003). These acts were among other federal and state laws passed long before the arrival of SOX in 2002 with the goal of both encouraging and protecting whistle-blowers.

In a study using US Merit Systems Protection Board data obtained from the 1983 survey responses of 4,897 federal employees, Miceli and Near (1988) examined the individual and situational correlates of whistle-blowers. These authors analyzed the responses using one way ANOVA and a series of planned contrasts and found that, compared to inactive observers, whistle-blowers had more positive job responses (e.g. satisfaction with job overall and the appraisal system) and were more likely to have professional status (both differences in means significant at  $p < .001$ ). In addition, whistle-blowers tended to have more idiosyncratic credits. Two of these measures, longer service and number of service awards in the past two years, were significant at  $p < .01$ . The third, being male, was significant at  $p < .001$ . Although Miceli and Near (1988) did not statistically contrast anonymous whistle-blowers with identified whistle-blowers, they did provide the means and standard deviations (SD) of both groups. Identified whistle-blowers were more likely to have professional status (mean 0.57, SD 2.06) than anonymous reporters (mean -0.19, SD 2.41), but were less likely to have a positive job response (mean 0.62, SD 3.76) than anonymous reporters (mean 1.09, SD 3.63). Means of the other measures reported above were similar for identified and anonymous whistle-blowers.

Later, in 1996, Near and Miceli summarized 18 prior studies, ranging from 1984 through 1995, to examine personal characteristics as predictors of whistle-blowing. Near

and Miceli (1996) concluded that although personality characteristics are not consistently related to whistle-blowing, the results do indicate that whistle-blowers tend to be older, have higher levels of education, have longer tenure within their organizations, hold supervisory or professional status, and tend to be male. There was also some indication that whistle-blowers have higher levels of job satisfaction and organizational commitment. Although the analysis technique did not qualify the study as a meta-analysis, it is interesting to note that none of the summary findings showed characteristics that would be indicative of the unstable individuals or disgruntled employees.

In a survey of 725 managers, Keenan (2000) examined the relationships of both differences in managerial levels and moral perceptions of wrongdoing with the intent to blow the whistle. Participants were randomly selected from a US national database by a private marketing research firm. The questionnaire was sent to 1,000 upper-level, 1,500 mid-level, and 3,500 first-level managers. The number of usable responses from each group was 131 upper-level, 188 mid-level, and 408 first-level. Keenan (2002) found that upper-level managers were more likely than both mid-level and first-level managers to indicate an intention of whistle-blowing after encountering either more serious or less serious wrongdoing. In contrast, moral perceptions of what was a serious versus a less serious wrongdoing were not significantly different among the three groups.

In a meta-analysis of 26 whistle-blowing studies that were conducted from 1982 through 2003, Mesmer-Mangus and Viswesvaran (henceforth, MMV, 2005) concluded that, overall, whistle-blowers tended to have favorable characteristics. The MMV analysis differentiated between studies that examined whistle-blowing intent and those

that examined actual whistle-blowing behavior. They reported that gender and tenure had higher correlations to actual whistle-blowing than to whistle-blowing intent. Moreover, they found that females were slightly more likely to be whistle-blowers than males. This is in contrast to Miceli and Near (1988) and Near and Miceli (1996) whose findings suggested that whistle-blowers were more likely to be male. MMV also reported that job level had a similar relationship to whistle-blowing intent and actual activity; both correlations were small effects. Ethical judgment was moderately correlated with whistle-blowing intent, but not correlated with actual reporting.

Current research offers no convincing conclusions about specific whistle-blower characteristics. Nevertheless, it does provide an overall picture of individuals who would be regarded positively, rather than negatively, in most organizations. Although these studies do not allow us to delineate the characteristics of anonymous whistle-blowers from those of non-anonymous whistle-blowers, they do allow us to proscribe these general positive qualities to both groups. An anonymous whistle-blower is, after all, a whistle-blower.

#### The Expected Efficacy of Whistle-Blowing

What determines whether the act of whistle-blowing has been effective? A legal definition may evaluate the ratio of court cases in which the wrongdoer was successfully prosecuted to those in which the alleged wrongdoer was not punished. Near and Miceli (1995) took a broader view and defined whistle-blowing effectiveness in terms of “whether the whistle-blower accomplished what he or she set out to do – namely, the implementation of organizational change...” (681). In one of their analyses of the 1980

US Merit Systems Protection Board data (n = 8,587), Near and Miceli (1985) found that 80 percent of respondents chose efficacy as one of the two most important outcome factors that influenced their choice to report wrongdoing. The researchers summarized their overall findings: whistle-blowers were likely to act only if they perceived the incident of wrongdoing to be serious enough that they felt compelled to report it, if they were aware of the available reporting channels, and if they believed their efforts would result in the discontinuation of the wrongful act.

Another survey-based study of 3,288 military and civil service employees on a US military base revealed that the primary reason (43.1 percent) that non-reporters of wrongdoing gave for not blowing the whistle was that nothing *could* be done about the issue. This compares to the 10 percent who did not report because they thought that nothing *would* be done about the issue. In sum, expected lack of efficacy was the reason for not blowing the whistle for over 53 percent of inactive observers (Near et al. 2004).

The effectiveness model presented by Near and Miceli (1995) outlined three individual (as opposed to situational) predictor variables that affect the outcome of whistle-blowing. These were the characteristics of the whistle-blower, the characteristics of the complaint recipient, and the characteristics of the wrongdoer. Furthermore, Near and Miceli (1995) identified the power and credibility of each of these three actors as being key components of their effectiveness characteristics. Employees possessing higher level positions, longer tenure, higher levels of education, professional status, and membership in the majority group have more power within the organization. It follows

that individuals with more power will have a greater influence as whistle-blowers and are more likely to create change within the organization.

Miceli and Near (2002) conducted a three-part study designed to test whistle-blowing effectiveness derived from power theories. The first study was an analysis of the US Merit Systems Protection Board 1980 data (n = 8,587). The second of the three studies employed a 25-page questionnaire completed by Directors of Internal Audit in North America. Only data from respondents that had personally observed or obtained direct evidence of wrongdoing during the last 12 months and had reported it were included in the analysis for this second study (n = 690). The third study focused on civilian employees in agencies of the federal government. Only the responses of those who had experienced and reported sexual harassment were analyzed in the third study (n = 324). After summarizing the results of all three studies, Miceli and Near (2002) found that whistle-blowers perceived that reporting wrongdoing was more likely to be effective when the whistle-blowers had more power as reflected in the legitimacy of their roles and the support of others.

Along with power, the whistle-blower's credibility is a primary determinant of whistle-blowing effectiveness (Near and Miceli 1995). Minority influence theory submits that a group member who holds a view that is not held by the majority of the group may still influence the group's decisions and processes. The minority member's ability to do so is based on his competence, objectivity, and credibility (Miceli and Near 2002). A more credible whistle-blower is expected to lead to higher levels of reporting effectiveness by influencing the group (i.e. the organization) to terminate the

wrongdoing. Employees who have higher levels of performance and satisfaction at work and have higher levels of organizational commitment also appear to have less of a motive to harm the organization by making inaccurate allegations. Consequently, Near and Miceli (1995) listed these three characteristics: performance, satisfaction, and commitment, as potential operationalizations of credibility.

### Source Credibility

Research shows that source credibility is an important criterion in judgment and decision making. Rains (2007) investigated the impact of anonymity on perceptions of source credibility in computer mediated group communication. Two competing hypotheses were advanced and tested: the discounting prediction that anonymity would undermine perceptions of group member contributions and decision outcomes, as opposed to the benevolent prediction that anonymity would have a positive impact. Testing the competing hypotheses in a single study allows for more conclusive findings because methods, samples, and electronic systems are the same (Rains 2007). This study used a 2 x 2 between-subjects design with 82 undergraduate communications students as participants. The dependent variables measured were communicator credibility, influence, perceived anonymity, group effectiveness, and satisfaction. Three dimensions of communicator credibility were included: competence, trustworthiness, and goodwill. Each of these was measured with six items on a 10-point semantic differential scale and reliability coefficients measured .85, .84, and .82 respectively. Correlations among the three ranged from .71 to .77 and all were significant at  $p < .01$ . A four-item measure established the participants' perceptions of the relative anonymity of the confederate.



This determination was important in distinguishing between a true anonymous condition and an assigned anonymous condition in which the participants thought they knew or could guess the confederate's identity.

Data analysis revealed that when controlling for participant perceptions of confederate anonymity, the anonymous confederate was less trustworthy, less persuasive, had less goodwill toward the group, and was associated with more negative-irrelevant thoughts. Lower competence was marginally significant. Furthermore, perceived anonymity of the confederate was associated with negative decision shifts. However, anonymity did not appear to affect members' satisfaction with decisions or perceptions of decision quality.

Source credibility can also be a key factor in audit judgment and decision making. Bamber (1983) designed a study to explore audit managers' sensitivity to the reliability of the senior auditor who provided information and opinions on important issues. He noted that two factors determined the information content of audit evidence: the potential content of the audit procedures themselves and the reliability of the senior auditor. Bamber's (1983) findings supported his conclusion that auditors did not ignore their prior beliefs (e.g. their assessment of the quality of internal controls) when evaluating new information and making a judgment. Nonetheless, he found that variations in source reliability had a significant effect on information content. Furthermore, because auditors excessively discounted the diagnosticity of information in a lower reliability scenario, Bamber (1983) concluded that audit managers may underutilize information from a less than reliable source.

In two separate experiments, Hirst (1994) investigated auditor sensitivity to source reliability. Participants were practicing auditors with 101 (mean experience of 56.5 months) participating in Study 1 and 84 (mean experience of 66.3 months) participating in Study 2. In the first study, he manipulated source competence and objectivity and found that auditors were sensitive to both factors. The second study examined the relationship between source credibility and the verifiability of reported evidence. Results indicated, again, that auditors were sensitive to source objectivity. However, the author did not find support for the hypothesis that when an explanation was easier to verify that auditors would assume a more truthful report. Hirst's (1994) overall conclusion was that auditors rely more heavily on information from more objective and more competent sources and discount information from less objective and less competent sources.

DeZoort, et al. (2003) examined the effect of several source credibility variables on audit committee members' (ACM) decisions to support an audit adjustment. Participants were 131 ACMs with mean experience as a committee member of 12.7 years. The three source variables were report timing (interim or year end), forecast (over or under analysts' forecasts), and auditor consistency (auditor relents on recommendation of adjustment or auditor stands her ground). Results indicated that both adjustment timing and auditor consistency were significant. In a supplemental analysis of debriefing questions, DeZoort et al. (2003) report that 14 ACMs specifically mentioned the credibility of the auditors in accepting the recommendation for the adjustment. Moreover, 12 ACMs (most of whom were in the inconsistent auditor recommendation condition)

remarked that management's credibility influenced their decision. Hence, the inconsistent position of the auditor appears to have decreased her credibility while enhancing the credibility of management.

Hunton and Rose (2008) conducted one of the few studies that examined the credibility ascribed to anonymous versus non-anonymous whistle-blowing reports. Using a 2 x 2 between-subjects experimental design they manipulated report source (whether a whistle-blowing report was made anonymously or non-anonymously) and the level of reputation threat to the ACM who received the report. If the allegations in the report were true, the subject company was faced with restating financial statements. This restatement would involve only the subject company for the lower threat condition. For ACMs in the higher reputation threat condition, the accounting issue in question had a high likelihood of also affecting another company in the industry. The participant was also a board member of this related company. The dependent variables were the ACM's assessment of the credibility of the whistle-blowing report and the amount of financial resources that the ACM allocated to investigate the whistle-blowing allegation.

Participants were 83 experienced ACMs with significant work experience. Over 74 percent were certified public accountants. Two primary analyses were conducted using ANOVA, one with each dependent variable. With the assessment of credibility as the dependent variable, the main effect of report source was significant. The means for credibility assessments were significantly lower for anonymous reports (45.12) than for non-anonymous reports (78.50). Hence, the hypothesis that ACMs would perceive anonymous whistle-blowing reports to be less credible than non-anonymous reports was

supported. The interaction between the report source and reputation threat variables was significant. Therefore, the prediction that the difference in perceived credibility of a whistle-blowing report between anonymous and non-anonymous reporting would be significantly greater when a reputation threat was present relative to absent was also supported.

When the dollar value of resource allocation was the dependent variable, report source was significant and the mean of resources allocated to investigate anonymous reports was \$24,420 compared to \$39,500 allocated to non-anonymous reports. Consequently, the prediction that ACMs would allocate fewer resources to investigate anonymous, as compared to non-anonymous reports, was supported. However, the interaction between the report source and reputation threat variables was insignificant. Accordingly, there was insufficient support for the prediction that the difference in resource allocation between anonymous and non-anonymous reporting would be significantly greater when a reputation threat was present.

Hunton and Rose (2008) then conducted a path analysis to determine whether the perception of credibility mediated the relationship between the independent variables and the investigatory resource allocation. Goodness of fit measures for this analysis showed that the model fit was satisfactory. The final model showed that the relationship between whistle-blowing report source and reputation threat and the investigatory resource allocation was partially mediated by the perceived credibility of the allegation. ACMs in all experimental conditions agreed that non-anonymous whistle-blowing reports were more helpful than anonymous reports. Similarly, they indicated that anonymous reports

were not very useful to the board of directors. Nevertheless, members did not view anonymous reports to be any more time consuming or difficult or require more expertise to investigate than non-anonymous reports. Furthermore, ACMs did not believe that the regulations requiring anonymous whistle-blowing channels make the organization any more or less effective in preventing fraud or unethical behavior (Hunton and Rose 2008).

The results from this study suggested that anonymous whistle-blowing reports were considered less credible than non-anonymous whistle-blowing reports. Although experimental designs have limitations they do allow researchers to ascertain causal relationships. The fact that participants in this study were ACMs with a high level of financial expertise, dealing with a real-world accounting task, makes these results more resilient to the lack of generalizability that is considered a shortcoming of experimental studies.

In addition to the power and credibility ascribed to the whistle-blower, the efficacy of a whistle-blowing report is also dependent on the decisions and actions of the complaint recipient. The whistle-blower presents, anonymously or non-anonymously, the complaint recipient with the whistle-blowing allegation usually accompanied by some statement or piece of evidence. The complaint recipient then has several decisions to make and this decision process may not be sequential. What is the likelihood that wrongdoing has occurred? How serious is it? Who is involved? Will I investigate the allegation? Do I have enough evidence? How do I go about gathering more? If the whistle-blower has chosen anonymity, the complaint recipient is more likely to be stifled in attempts to seek additional information. When evidence is sketchy or contradictory, the

report recipient may rely even more heavily on the credibility of the complainant (Miceli and Near 1992). Clearly, a compliant recipient can evaluate the power and credibility of a known whistle-blower. In contrast, the credibility of an anonymous whistle-blower is undeterminable.

There are at least three reasons that anonymous whistle-blowers risk their effectiveness. First, the complaint recipient cannot observe the whistle-blower's characteristics or evaluate the individual's power and credibility. Next, in line with Elliston et al.'s (1985) arguments, organization members may discount the concerns of one who is unwilling to confront the target of his allegations. Finally, anonymous reports may be more time consuming and difficult to investigate because the complaint recipient is unable to enlist the whistle-blower's help in gathering the required evidence (Miceli and Near 1992). If the effectiveness of the outcome of a whistle-blowing allegation is of primary importance to a whistle-blower and if efficacy depends at least partly on the power and credibility of the whistle-blower, why do some whistle-blowers choose to remain anonymous?

#### The Choice to Remain Anonymous

The Social Information Processing Model of Whistle-Blowing Decisions developed by Gundlach et al. (2003) shows the cost-benefit analysis of blowing the whistle as a key in the decision making process. The whistle-blower must weigh the economic and psychological costs of acting against the expected benefits. Presumably, whistle-blowers who choose to remain anonymous have considered the costs and benefits of both the choice to report the wrongdoing and the choice to remain anonymous. As

highlighted by Elliston et al. (1985), anonymous whistle-blowing becomes more justified when the seriousness of the wrongdoing is greater and there is fear of unfair retaliation.

It is quite possible that the seriousness of wrongdoing and the fear of retaliation for any given situation are linked. A more serious wrongdoing may indicate that the organization or a group within the organization depends more heavily on the continuance of the wrongdoing. Consequently, there may be stronger resistance to change leading to a greater probability of retaliation (Miceli and Near 1992). Gundlach et al. (2003) considered the power of the whistle-blower and the power of the wrongdoer as moderators in the decision process. They opined that individuals may be more intimidated when the wrongdoer is a high status member of the organization. Thus, even without the possible interaction of retaliation, a higher status wrongdoer may be another factor that influences anonymous whistle-blowing.

Three studies that used the 1980 US Merit Systems Protection Board data examined the motivations of anonymous and non-anonymous whistle-blowers (Miceli and Near 1984; 1985; Miceli et al. 1988). In the earliest study (Miceli and Near 1984), the researchers used MANOVA to determine whether statistically significant differences existed in the belief sets of groups of whistle-blowers. Three factors emerged, explaining over 95 percent of the variance, in the follow up discriminant analysis. The first was the belief set of non-observers of wrongdoing. The second and third were the belief sets of internal whistle-blowers and external whistle-blowers, respectively. Among the three groups, internal whistle-blowers were the *least* likely to express the belief that the availability of an anonymous channel would encourage them to blow the whistle. Non-

observers were the most likely to believe that they would not be retaliated against. Perhaps non-observers would reconsider this belief if they observed a wrongdoing and faced the whistle-blowing decision.

The second study (Miceli and Near 1985) used the same analysis methodology, but focused on 11 circumstance and 12 control variables (a variety of belief and position variables). Two factors emerged in this analysis, all whistle-blowers and the combined group of non-observers and inactive observers. Agreement with the question “anonymity would encourage me to blow the whistle” was significantly lower for whistle-blowers than the non-observer and inactive observer group. It appeared that those who chose to report wrongdoing felt strongly enough to act regardless of the availability of the choice to remain anonymous.

Following Elliston et al. (1985) and Graham’s (1986) moral reasoning on the justifiability of anonymous whistle-blowing, Miceli et al. (1988) hypothesized that anonymous whistle-blowers would observe more serious wrongdoing than those reporting and revealing their identities. In addition, they predicted that anonymous whistle-blowers would expect that a confidential channel would be responsive to reports of wrongdoing. Furthermore, they hypothesized that anonymous whistle-blowers were more likely than identified reporters to expect retaliation, work in organizations with less supportive climates, and believe that the complaint recipient would protect their identity. Contrary to their expectations, Miceli et al. (1988) found that employees who reported anonymously through internal and external channels tended to observe *less serious* wrongdoing than those who identified themselves. Seriousness was more strongly related



to identified whistle-blowing and, more specifically, to external rather than internal channels. Another unexpected finding was that reporters using anonymous internal channels believed that their organizations were, overall, supportive of whistle-blowing which suggested a lower threat of retaliation. As expected, whistle-blowers reporting anonymously, but externally, were most likely to expect retaliation.

In addition to examining issues of efficacy, the Near et. al (2004) study explored the effect of the type of wrongdoing on the whistle-blowing process. Participants were 3,288 military and civil service employees. Variables included seven categories of wrongdoing (more serious to less serious), the choice to report or remain inactive, and the reason for not reporting. Of those who observed and reported a wrongdoing, 76.9 percent identified themselves and 23.1 percent remained anonymous. This ratio of non-anonymous to anonymous whistle-blowers did not vary significantly regardless of the type (seriousness) of the wrongdoing.

The recent benchmarking report released by the Security Executive Council (2007) supported the earlier findings of Miceli et al. (1988). The data collected for the report showed that the seriousness of wrongdoing had a stronger relationship with non-anonymous reporting; only 36 percent of individuals who reported fraud and corruption (a more serious wrongdoing) chose to remain anonymous compared to the overall rate for anonymity of 54 percent.

Two studies used data collected over a 13 year time period (Near et al. 1995; Miceli et al. 1999). In the first study, the researchers focused on retaliation. They found that by the final time period, 1992, some measures of power (high performance ratings

and being white) of the whistle-blower seem to be related to lower levels of retaliation; however, having a professional position was not related (Near et al. 1995). The most significant predictor of retaliation was lack of supervisor and management support.

The 1999 study revealed the more significant and interesting findings. This analysis showed that the proportion of respondents who observed wrongdoing and followed through with whistle-blowing reports increased over the period from 30 percent in 1980 to 51 percent in 1992. Similarly, the percentage of anonymous reporters increased from 28 percent to 46 percent over the same time period. Although the Civil Service Reform Act included whistle-blower protections, the incidence of retaliation increased from 19 percent in 1980 to 21 percent in 1983 and again to 38 percent in 1992 (Miceli et al. 1999). Hence, this research showed that the various versions of the Whistle-Blowing Protection Act (WPA) had mixed results. While they appear to have promoted whistle-blowing overall, they do not seem to have been effective in accomplishing the goal of protecting whistle-blowers. Similar to this evidence that the various versions of the WPA have failed to protect whistle-blowers, there are post-SOX studies that suggest the whistle-blowing related provisions of SOX may not have achieved some of the key objectives.

Kaplan and Schultz (2007) designed an experiment to investigate the effect of type of wrongdoing, the quality of the internal audit department, and the availability of an anonymous channel on whistle-blowing intentions. Participants were evening MBA students with a mean age of 30 (SD 4.6) and mean work experience of 8.6 years (SD 5.0), (n = 90). Participants were randomly assigned to two reporting channel scenarios. One

channel offered two non-anonymous reporting options, management and internal audit. The other offered these plus an anonymous channel. The three randomly assigned case scenarios involved financial reporting fraud, theft of assets, and dishonest and misleading remarks made by an outside systems consultant. The third manipulation was the presence of a higher quality versus a lower quality internal audit department. Based on prior research, Kaplan and Schultz (2007) described the higher (lower) quality internal audit department as one that reported to the audit committee (management), had a financial (business consulting) orientation, was staffed with more (fewer) certified internal auditors, and had a high (adequate) budget funding level. In addition, internal auditors in high (low) quality departments were not (were) eligible to receive performance based bonuses.

Kaplan and Schultz (2007) used repeated measure ANOVA to analyze the results. The most significant finding was that when participants could choose between non-anonymous and anonymous channels, the overall intention to blow the whistle, across all reporting channels, decreased. In addition, the results showed that the choice to report to management versus the internal audit department was not dependent on the quality of the internal audit department. A supplemental analysis of participants who had a choice of both non-anonymous and anonymous channels revealed that the perceived cost of reporting was higher for non-anonymous channels. One limitation of this study is that only 29 percent of the MBA participants reported actually observing a wrongdoing perpetrated by a person of a higher level of authority in their workplace. Nevertheless,

these results bring into question the helpfulness of the SOX mandated anonymous whistle-blowing channel.

A recent study (Dyck et al. 2007) of archival data corroborated Kaplan and Schultz's (2007) findings. The study was sponsored by the National Bureau of Economic Research and examined 230 actual fraud cases, pre and post-SOX. The fraud sample consisted of companies that were defendants in class action suits filed under the 1933 Exchange Act or the 1934 Securities Act. Thus, the sample source was Stanford Securities Class Action Clearinghouse data. The sample period included alleged frauds that ended in 1996 through 2004. The final sample, after screening for four additional factors (i.e. company size, US firm, dollar value of settlement, and non standard security frauds), was 244 cases. The findings indicated that the whistle-blowing provisions of SOX may not be working as intended. One aim of Section 301 of SOX was to encourage more employees to report wrongdoing by providing anonymous channels. However, this study finds a decrease, from 20.7 percent (pre-SOX) to 15.6 percent (post-SOX), in whistle-blowing reports initiated by employees. Moreover, employees whose identities were revealed suffered significant negative consequences. Eighty-two percent of these individuals were allegedly fired, quit, or had their responsibilities significantly changed (Dyck et al. 2007).

The fourth biennial global economic crime survey published by PWC (2007) reported that frauds detected by whistle-blowing hotlines increased from 4 percent of fraud cases in 2005 to 8 percent in 2007. For corporations that rated their whistle-blowing systems as effective, the hotline statistic rose to 14 percent for 2007. In addition "internal

tip-offs” not received through the hot-line accounted for another 21 percent of fraud cases in 2007, up from 17 percent in 2005. These results were somewhat contradictory to Dyck et al. (2007); however, all of the PWC data was post-SOX, it included three more recent years, and the data sources of the two studies were quite different. In a benchmarking study, The Security Executive Council (2007) compiled the overall statistics on the use of hotlines. Their report revealed that only 10 percent of incidents reported through hotlines from 2003 through 2006 were related to fraud and corruption; most (51 percent) were personnel management related.

### *Summary*

Anonymous whistle-blowing that was once considered to be ethically justified in only a limited number of cases has been increasingly encouraged and protected by regulatory bodies. Existing research shows that whistle-blowers, in general, have positive individual characteristics, and that the act of whistle-blowing is considered by many to be prosocial behavior. These developments indicate that anonymous whistle-blowing should have become not only more widely accepted, but also more widely practiced. However, anonymous whistle-blowing continues to present both the whistle-blower and the complaint recipient with more than one dilemma. Although the cost of anonymous whistle-blowing may be lower for the whistle-blower, the possibility of weakened efficacy also decreases the benefit. Since anonymous whistle-blowers cannot signal their power or credibility, the primary burden of the efficacy of the whistle-blowing action falls on the complaint recipient. It follows that the ultimate success of SOX and other regulations that promote whistle-blowing, especially the anonymous reporting of

wrongdoing, depends on the decisions made and actions taken by the complaint recipient. In many organizations, especially publicly traded companies, that complaint recipient is the internal audit department, more specifically, the CAE.

### **The Role of the Internal Auditor**

The role of internal auditors in organizations is not prescribed by obligatory auditing standards as is the role of external auditors. The Institute of Internal Auditors (IIA) defines internal auditing as “an independent, objective assurance and consulting activity designed to add value and improve an organization’s operations...by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” (IIA 2000). Some internal audit departments have focused on the traditional compliance functions that involve testing internal controls and financial accounting transactions. In other organizations, the internal audit function has been more oriented toward business consulting where the emphasis is on adding value through process improvement. The former role, with its compliance function focus, requires the internal auditor to maintain a greater level of independence from management, while the latter more or less creates a partnership with management (Nagy and Cenker 2007).

However, since the enactment of SOX, the focus of most internal audit functions in public companies is their role in corporate governance. The IIA frequently uses the analogy of a four-legged table when describing corporate governance. Internal audit, external audit, executive management, and the board of directors are the four legs, each serving in a crucial, but separate role (Adamec et al. 2005).

Many, if not most, internal audit functions have been enlisted as the primary vehicle to oversee the documentation of and compliance with internal controls as required by Section 404 of SOX. Krell (2006) noted that this required focus on internal control compliance is distracting internal auditors from the more traditional and essential role of fraud prevention and detection. According to the PWC (2007) report, internal audit was the leading detection method of fraud in both the 2005 and 2007 surveys. Moreover, 95 percent of companies that had more than five fraud risk management controls had an internal audit function. This is compared to only 61 percent of companies that had instituted only up to five controls. The group with more controls detected more fraud cases; but fewer of the companies in this group suffered significant collateral damage due to fraud.

Clearly, internal auditors have played a critical role in fraud deterrence and detection. However, in the current environment, regulators, audit committee members, external auditors, and executive management are all focused on internal audit's contribution to compliance with SOX 404 (Krell 2006). These constituents rely on the assistance of internal audit in various ways. The competing demands of these groups can create ethical dilemmas as internal auditors attempt to carry out their responsibilities as compliance officers and fraud deterrers.

### ***Internal Auditor Relationships***

#### **The External Auditor's Reliance on the Internal Audit Function**

External auditors have traditionally played a major role in corporate governance by performing the financial statement audit and issuing the audit opinion. It has been

routine for internal audit departments to assist by conducting tests under the external auditor's supervision. Now, under Section 404 of SOX, external auditors not only attest to the fairness of the financial statements, but also to management's assertions as to the adequacy of internal controls over financial reporting. Accordingly, external auditors must conduct their own audit of the organization's internal controls. Because of the enormous time commitment, the Public Company Accounting Oversight Board allows external auditors to rely on internal audit testing. To do so, the external auditor must determine that the internal auditors possess appropriate levels of competence and independence (Adamec et al. 2005).

Although internal auditors play a critical role in external auditors' assessments of internal controls over financial reporting, there are some indications that the relationship between the two has deteriorated in the post-SOX environment. Nagy and Cenker (2007) conducted personal interviews with CAEs from 17 publicly listed companies located in Northeast Ohio in February and March of 2006. These CAEs had substantial internal audit experience (mean = 17.5 years) and tenure in their current positions (mean = 5.7 years). Although the sample is targeted and small, the findings provide some useful insights. Twelve of the CAEs indicated that the independence provisions of SOX had put a strain on their relationships with external auditors. Nine of these CAEs stated that they no longer sought advice from external auditors on complex issues in fear that the issue would be written up as a significant deficiency in internal control. Several CAEs offered that the tremendous responsibility and workload placed on the external auditors by SOX was a significant cause of the deterioration in relationships (Nagy and Cenker 2007).



Regardless of the cordiality of the relationship between an organization's internal and external auditors, it remains that external auditors rely heavily on the internal audit function.

### Executive Management and the Internal Auditor

Although executive management is shown as an equal leg in the corporate governance table, most corporate governance responsibilities rest on its shoulders. SOX Section 404 requires management to document and evaluate the design and operation of internal controls over financial reporting. Internal auditors support executive management in these tasks. The IIA position paper on internal auditing's role in SOX compliance warned that internal auditors should not become involved to the extent of interfering with their ability to remain independent and objective. In practice, the writers admitted, this balance has been hard to achieve (IIA 2004).

Even before the danger of becoming enmeshed with management's SOX Section 404 responsibilities, internal auditors have historically faced challenges with reporting to executive management and being part of the management team while simultaneously maintaining the independence and objectivity necessary to carry out their responsibilities. Traditionally, CAEs have reported to executive management, usually the CFO or CEO. The IIA recommends a functional reporting relationship to the audit committee and an administrative reporting relationship to executive management; indeed, there has been a post-SOX shift toward these reporting lines. The Global Summary of the Common Body of Knowledge published by the Internal Auditors Research Foundation (IIARF 2006) reports that audit committees are involved in appointing CAEs in 68 percent of

companies in North America, and are involved in evaluating the CAE's performance in 59.8 percent. Nevertheless, executive management has sole positional authority over CAEs in a large percentage of organizations and continues to have a significant influence over CAEs' careers in almost all organizations.

Internal auditors generally enjoy positive relationships with and the support of executive management. However, conflict in relationships is a natural occurrence in all organizational settings. The challenge is for the CAE to maintain independence without becoming isolated from executive management. The current shift toward the audit committee's reliance on the CAE may make this challenge even more daunting. Audit committee members must now be independent directors. Although this gives them greater autonomy to oversee corporate governance, it also creates a knowledge gap between committee members and executive management. The CAE has become a key player in reducing this information asymmetry. It is understandable that even ethical and effective members of executive management may be wary, in some respects, of this role for the CAE.

Should the CAE disagree with a member of executive management in a matter of consequence, the CAE must decide on the appropriate professional response. A survey of directors of internal audit revealed that more than one half of the respondents felt that audit committee power was not sufficient to adequately protect an internal auditor from management retaliation (Tidrick 1992). Post-SOX audit committees may have more authority and may, therefore, provide more protection. However, the choice to remain part of an executive management team in an adversarial role is complex and difficult.

One seasoned audit committee chairman remarked that a CAE must have courage, extraordinary political skills, and endurance to exist within the corporate world while maintaining responsibility to the board and audit committee. He sums up his idea of courage by exclaiming, “And if you are not willing to put your job on the line, then you shouldn’t take the job” (Allison 1994, 51). Obviously this audit committee chair expects the CAE’s loyalty to professional ethics and overall corporate governance to trump his loyalty to management.

#### The Audit Committee’s Reliance on the Internal Audit Function

Even prior to SOX, audit committees have been charged with increasing levels of responsibility for corporate governance. A common theme in the recommendations of the Treadway Commission (1987), the Blue Ribbon Committee (hereafter, BRC, 1999), and SOX is that audit committees should assume greater responsibility with respect to corporate governance by focusing on financial reporting and internal control. These initiatives emphasize audit committee interaction with internal auditors in varying degrees.

In its report on fraudulent financial reporting, the Treadway Commission (1987) addressed the internal audit function’s role in detecting such fraudulent reporting indirectly. The Commission’s report states that the internal auditor's qualifications, status and reporting relationships must be adequate to ensure the internal audit function's effectiveness and objectivity. Internal audit did play a role in implementing the Commission’s more specific recommendations. For example, the Commission urged companies to adopt and enforce a written code of conduct. This recommendation was

based on the assumption that an ethical tone at the top would help prevent fraudulent reporting. A post-Treadway study (Peacock and Pelfrey 1991) examined internal auditors and codes of conduct. The study analyzed responses from internal auditors in 795 organizations, 503 of which were publicly traded companies. Eighty-seven percent of respondents that were in publicly held companies stated that their companies had a code of conduct. Moreover, internal auditors were responsible for reviewing the code of conduct in 67 percent of these companies, and for testing compliance in 53 percent. Peacock and Pelfrey (1991) also found that only 60 percent of internal auditors reported having access to the organization's audit committee. They predicted that internal audit's role and access to audit committees would continue to increase as audit committees adopted the Treadway Commission's recommendation to report on management's compliance with the code of conduct.

Although the BRC encouraged direct communication channels between the audit committee and internal audit, it did not go so far as to make explicit recommendations with respect to audit committee contacts with internal audit. A post-BRC study that surveyed 296 CAEs reported that audit committees' responses to the eight effectiveness steps suggested by the BRC were, overall, quite positive. Specifically, with respect to internal audit interaction, audit committees with higher levels of effort to improve their effectiveness communicated more with CAEs than those with lower levels of effort. Moreover, more frequent communication between the CAE and the audit committee was linked with higher levels of effort than was a functional reporting relationship between the CAE and the audit committee (Myers and Ziegenfuss 2006).

Another study (Raghunandan et al. 2001) that also examined a post-BRC time period reported that audit committees with independent members and financial experts (considered to be the most effective audit committee composition) were most likely to meet more frequently with CAEs, spend more time with them at each meeting, and meet with CAEs without senior management in attendance than were committees with less effective compositions. These studies showed that more effective audit committees place a greater value on the assistance of and input from the CAE.

Communication between internal audit and the audit committee became increasingly important as companies adopted the guidelines of the Treadway Commission, the BRC, and similar initiatives. However, internal audit functions, overall, were experiencing downsizing and outsourcing during these periods. In addition, their focus was often on operational issues instead of financial reporting controls (Gray 2004). The sweeping changes in corporate governance and focus on financial reporting and internal controls mandated by SOX have precipitated resurgence in the perceived value of the internal audit function and the CAE. Furthermore, internal audit's role is shifting back to a financial emphasis.

In a 2002 survey of internal auditors in publicly traded companies, 67 percent of respondents reported enhanced support of audit committees by internal audit as committees struggled to comply with SOX (IIARF 2004). To meet increased demands to support the audit committee and overall SOX requirements, internal audit departments are adding more staff from external and internal sources and paying more competitive salaries. Senior managers are requesting more internal audit projects and they are less

interested in outsourcing the internal audit function. The desired internal auditor skill set is now more focused on GAAP and internal controls rather than on operational and consulting skills. There is now more often a functional relationship (solid line) between the CAE and the audit committee and an administrative relationship (dotted line) between the CAE and the CFO or CEO (Gray 2004). Clearly the internal audit function and, more specifically, the CAE, is a crucial resource for the audit committee in its quest to properly oversee financial reporting and internal controls.

### ***The Role of Internal Audit in the Whistle-Blowing Process***

After the passage of SOX, audit committees were compelled to carry out the responsibilities charged to them in Section 301 (4). Over 67 percent of audit committees participating in the 2002 IIA survey (IIARF 2004) reported that, for the first time, they were reviewing whistle-blowing allegations and actions taken. Moreover, 33 percent attended to whistle-blowing reports at every meeting and 73.6 percent of committees reviewed allegations at least annually. Although the audit committee is charged by SOX with establishing and overseeing the anonymous whistle-blowing channel, committees frequently turn to the internal audit function to provide the ongoing effort to monitor whistle-blowing allegations.

Many companies have chosen to outsource the channel by hiring a reporting service to receive hotline calls from employees. Peterson (2006) suggested that the ideal situation is for one individual to be assigned as the single point of contact for the anonymous reporting service provider. She stated that this single point of contact is often the head of internal audit. Daher (2005) emphasized that the CAE is the organization's

best choice as to who will receive whistle-blowing hotline complaints because the CAE has direct line to the audit committee and is least likely to be personally involved in financial fraud. A recent study by Kaplan and Schultz (2006) corroborated Peterson's observation. Seventy-three percent of the surveyed CAEs indicated that one department in their organization had sole responsibility for documenting, investigating, and resolving whistle-blowing reports. Internal audit was most often charged with this responsibility. Further, CAEs were assigned the responsibility of following up on allegations from anonymous whistle-blowers in the majority (71 percent) of the sampled companies.

Moberly (2006) submitted that the SOX mandated reporting channels should encourage more whistle-blowing because it provides incentives for employees to increase their role in corporate monitoring while simultaneously reducing previous disincentives. In addition, he predicted that the direct channel to the board would encourage effective whistle-blowing by minimizing the principal-agent problem that previously existed when reports of misconduct went to mid-level managers or corporate executives. If, however, the CAE has a key responsibility for receiving and investigating whistle-blowing allegations, the principal-agent issue may not be totally resolved. Clearly, the effectiveness of the whistle-blowing mechanism may depend on the ability of CAEs to perform this function with integrity and objectivity. Given the CAE's multiple roles and complex relationships within the organization, the ability to make effective decisions with regard to whistle-blowing reports is not completely certain.

## **Judgment and Decision Making**

Judgment is the process of forming an opinion or evaluation by discerning and comparing. More specifically, in an accounting context, a judgment usually refers to a prediction about a future event or state of affairs or an evaluation of a current, but not completely revealed event or state of affairs. Consequently, judgments in accounting tend to be judgments under circumstances of uncertainty. Decisions require the individual to reach a conclusion about the issue at hand and taking a course of action. “Decisions typically follow judgments and involve a choice among various alternatives based on judgments about those alternatives and preferences for factors such as risk and money. In other words, judgments reflect beliefs whereas decisions reflect both beliefs and preferences” (Bonner 2008, 2).

### ***The Role of Ethics in Judgment and Decision Making***

Ethics in organizations has received an ever increasing societal focus. The scandals that precipitated the SOX legislation are but a few in a long line of historical misdeeds of individuals in powerful, influential positions. Accordingly, the study of ethics in judgment and decision making has expanded over the years. Jones (1991) defined an ethical decision “as a decision that is both legal and morally acceptable to the larger community” (367). In an analysis of extant models of ethical decision making, he pointed out that none considered the characteristics of the moral issue at hand. Consequently, Jones (1991) synthesized five models of ethical decision making and added the component of moral intensity. The basis of this approach is the understanding that people respond differently to moral issues depending on the characteristics of the



issue itself. Jones (1991) argued that six characteristics of a moral issue define its intensity: magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. Jones (1991) proposed that moral intensity influences all four stages (recognize moral issue, make moral judgment, establish moral intent, and engage in moral behavior) of ethical decision making in organizations. Furthermore, he included the organizational factors of group dynamics, authority factors, and socialization processes as moderators of the latter two stages.

Organizational factors, in particular, create challenges to moral actors and can create both biases in and impediments to ethical decision making. In some situations, individuals may not see themselves as totally independent moral actors; they cede responsibility for decisions to the authority structure of the organization (Jones 1991). It follows that the ethical climate of an organization's authority structure can be of paramount significance in influencing decisions of organization members. The Treadway Commission (1987) report directed public companies to develop and enforce written codes of conduct and the COSO (1992) report on internal control regarded the ethical tone of the organization as the foundation for all other components of internal control. Both these reports emphasized an ethical corporate environment. These are just two examples of the recognition by regulators and professional groups of the importance of top management's attitude toward integrity and ethical values.

#### The Internal Auditor's Code of Ethics

In addition to the ethical climate of their employer organization, most professionals have separate codes of ethics that guide them in decision making. The

Institute of Internal Auditors' Code of Ethics (IIA 2000) states that internal auditors are expected to uphold the principles of integrity, objectivity, confidentiality, and competency. The related Code of Conduct describes specific attitudes and behaviors that are expected of internal auditors in carrying out their duties and adhering to the Code of Ethics (IIA 2000). Likewise, the American Institute of Certified Public Accountants (AICPA) requires members to adhere to ethical standards. It is not uncommon for internal auditors to belong to both professional groups. The AICPA (1992) focus is on independence, integrity, and objectivity. The AICPA standards acknowledge that the question of independence is assumed to be automatically impaired by virtue of an employment arrangement and consequently, places an even higher emphasis on objectivity for members employed in industry.

A study that explored the influence of the IIA Code of Ethics on members found that the Code did have a positive influence on members' ethical perceptions and was useful in resolving ethical dilemmas. Ziegenfuss and Singhapakdi (1994) designed a survey instrument to assess IIA members' ethical positions, as measured by the EPQ, and their opinions about the importance of each of the 11 standards of the IIA Code of Ethics. These authors ascertained participants' ethical perceptions by measuring responses to three scenarios involving ethical dilemmas and found that the scores on IIA norms were significantly and positively related to ethical perceptions in all three case scenarios. However, individuals' personal ethical philosophies as measured by the EPQ and their professional certifications did not have a statistically significant relationship with ethical perception.

### Ethics, Judgment, and Decision Making in Whistle-Blowing Scenarios

Elliston (1982) claimed that, with respect to whistle-blowing, responsibility has two dimensions. Descriptive responsibility refers to the person that causes something to happen, whereas normative responsibility identifies those who should do something about it. “The first sense looks to the past, as part of an explanation. The second looks to the future as a coping strategy” (169). Elliston was referring to the whistle-blower in his definition of the normative dimension, likewise, this could easily be extended to the recipient of the whistle-blowing complaint.

Although some individuals, such as internal auditors, may be what Miceli and Near (1992) referred to as *role-prescribed whistle-blowers*, there are reasons why role-prescribed whistle-blowers may face countervailing pressures that would serve to discourage whistle-blowing or the further investigation of a whistle-blowing report. First, as Dozier and Miceli (1985) point out, written directives do not necessarily reflect actual formal and informal reward contingencies. If executive management is involved in the alleged wrongdoing, clearly there are incentives for an internal auditor to ignore or downplay the report. In addition, Miceli and Near (1992) suggested that role-prescribed whistle-blowers believe they have the option of ignoring wrongdoing or exposing it. While this attitude is inconsistent with the IIA Code of Ethics, it does highlight the fact that there is a decision process for both role-prescribed whistle-blowers as well as those without such role prescriptions. Surely one’s personal and professional ethical standing is an important factor in the decision to follow through with either whistle-blowing or investigating another’s whistle-blowing report.

One study examined the influences of moral reasoning on internal auditors' judgments concerning the receipt of whistle-blowing reports. Arnold and Ponemon (1991) designed a between-subjects experiment using 106 internal auditors as participants. Participants were asked to predict whether an individual in one of six different case study scenarios would or would not blow the whistle. The first manipulation was the position of the prospective whistle-blower: internal auditor, external auditor, or marketing analyst. The second manipulation was the probable consequence of reporting (retaliation): the whistle-blower's friends may lose their jobs (affiliation) or whistle-blower may lose her job (penalty). The participants also completed the Defining Issues Test (DIT), an instrument that measures levels of moral reasoning.

A three-way ANOVA revealed that all three main effects (DIT score, position, and retaliation) were significant as were the interactions. Overall, findings indicated that internal auditors with higher levels of moral reasoning, as measured by the DIT, were more likely to predict that the subject in the case study would blow the whistle. Arnold and Ponemon (1991) also found that internal auditors predicted that external auditors were most likely to blow the whistle, followed by internal auditors, and that marketing analysts were least likely to report. Consequently, these findings suggest that ethical internal auditors would expect others to blow the whistle and, furthermore, that they might assume that the whistle-blowing individual is in a more objective professional position. It follows that ethical internal auditors would presumably judge such whistle-blowing reports to be credible and deserving of investigation.

### ***Biased Predecision Processing***

In forming a judgment about a specific event or state of affairs and making subsequent decisions, individuals go through the process of evaluating the situation and accessing pertinent existing beliefs. The decision they make incorporates not only their intentional evaluations and comparisons of beliefs, but also includes subconscious beliefs and motives. Although internal auditors are charged with exhibiting the highest level of professional objectivity and with making judgments based on unbiased evaluations of all the relevant circumstances (IIA 2000), CAEs face ethical dilemmas just like other corporate executives. Internal auditors are employees of the organizations they audit; accordingly, they face concerns over retaliation for and personal costs of their decisions and actions. Even those CAEs who report functionally to the audit committee must face the reality that they still serve the CEO. They may encounter the consequences of reputation threat and career penalties if a decision or action is viewed as unfavorable by executive management. Therefore, CAEs may be subject to unconscious biases in judgment and decision making.

Existing research in biased cognitive processing tended to support one of two views. Theorists support either a motivational position that cognitions are biased to meet an individual's desires, or the position that cognitive biases are the result of rational inferential processes. Pyszczynski and Greenberg (1987) show how the two views can be integrated by explaining biased hypothesis testing. For example, when an unexpected event occurs, an individual will select several hypotheses for testing that are perceived to provide plausible explanations. The individual then generates an inference rule to test

each selected hypothesis, searches for and appraises information, and finally evaluates the hypothesis for acceptance or rejection. While this may be a rational cognitive process with an apparent motive of accuracy, other motives can influence some or all of the stages. The need to protect self-esteem, maintain consistency in beliefs, maintain control, and others may be primary drivers. These motivations can influence the entire process beginning with how one determines which hypotheses are plausible explanations for the unexpected event (Pyszczynski and Greenberg 1987).

Brownstein (2003) explained that “biased predecision processing occurs when decision makers restructure their mental representations of the decision environment to favor one alternative before making a choice” (545). This restructuring of mental representations is most often on a subconscious level. Needs and motives often influence mental processes in a way that enables the decision maker to maintain an illusion of objectivity (Pyszczynski and Greenberg 1987). Brownstein (2003) categorized motivated reasoning as a form of predecision processing bias.

### Motivated Reasoning

Kunda’s (1990) definition of the process of reasoning encompassed both judgment and decision making. Motivated reasoning takes place when the decision maker uses biased cognitive processes as strategies for accessing, constructing, and evaluating beliefs. These phenomena represent two major categories. The first is the motivation to reach an accurate conclusion and the second is to reach a particular directional conclusion.

### Accuracy Goals

Individuals are most likely to strive for accuracy when they expect to justify their decision, expect the decision to be made public, or expect to be evaluated in some other way. If they are evaluating another person, concern over how their decision will affect the evaluated person may also lead to an accuracy goal. Individuals with accuracy goals tend to have lower levels of bias in cognitive processing (Kunda 1990). Though accuracy goals do not always eliminate bias, overall, individuals striving to be accurate are likely to use more complex and deeper processing of information, as well as rules and strategies that are more appropriate for the situation (Kunda 1990).

Nevertheless, accuracy goals do not always lead to more accurate judgments and decisions. Kruglanski (1989) explained that individuals rely on repertoires of inferential rules that they have derived from both self-schema and their conceptions of external sources of information. A person's available rules may help or hinder accurate decision making. Adopting an expert's opinion as one's own, an example of a source heuristic, may lead to a less accurate decision if the source's judgment is not applicable to the situation (Kruglanski 1989). Moreover, some biases have been shown to be resistant to accuracy manipulations. These include the use of the availability heuristic (basing a prediction or concept of the characteristics of the whole population on an available example that comes easily to mind) and failure to acknowledge the law of large numbers. An individual with an accuracy goal that wrongly applies such a heuristic or statistical property may exacerbate biased reasoning (Kunda 1990).

The term accuracy brings to mind an evaluation of correctness; however, Tyszka (1998) gave accuracy an alternative definition. He defined an accuracy goal as the decision maker's concern about regret for the decision made if afterward it should turn out to be wrong. Overall, accuracy goals focus on the completeness and reliability of the evaluation process. Tyszka (1998) contrasted the completeness of evaluation of an accuracy goal with the goal to minimize effort and consider as few features of the choice alternatives as possible. Another conflict that competes with the reliability of the accuracy goal is the desire for distinctness. Instead of reliability, an individual may be focused on trying to maximize the differences between the attractive features of her choice and the features of alternative choices. Tyszka (1998) purported that the relative strength of these two opposing motivational systems will together determine the extent of biased predecision processing in a given judgment and decision making scenario.

### Directional Goals

Directional goals reflect the desire or need for specific conclusions or outcomes. They affect reasoning by influencing which information will be considered in the judgment and decision making process (Kunda 1990). Directional goals influence the reasoning process in a variety of ways. The mechanisms include biased accessing of beliefs about oneself, biased accessing of beliefs about others, biased selection of statistical heuristics, and biased processing of information.



### *Biased Beliefs about Self*

Directional goals may bias an individual's interpretations of his attitudes, beliefs, personal traits, and preferences. For example, participants in an experiment that were encouraged to believe that extroversion or introversion was conducive to academic success tended to view themselves as possessing higher levels of that trait than other participants. These findings indicated that the participants were motivated to think of themselves as possessing success-promoting attributes. The manipulations successfully influenced self-perceptions; however, the participants' prior self-knowledge also played a role. For example, those who believed they were extroverts and were encouraged to believe that introverts were more academically successful did not change their self-concept to introversion, but to a lower level of extroversion (Kunda and Sanitioso 1989).

### *Biased Beliefs about Others*

Biased beliefs about others have been most often investigated through outcome dependency where individuals expect their own outcomes to depend in some way on another person. Klein and Kunda (1992) designed two separate studies to explore how people construct justifications for desired beliefs about others. They examined how different motivations incited people to form different general beliefs so that they could logically project the desired beliefs on a target individual. In the first study, participants with different goals (the target would be a partner in a competition or the target would be a competitor) concluded different target abilities in spite of the fact that targets exhibited identical behavior. The researchers concluded that the motivation to hold a specific

opinion of a target person may affect one's beliefs about the ability of the target's peer group. Similarly, one's general beliefs or stereotypes of an entire group may be biased so as to justify desired beliefs about the one group member (Klein and Kunda 1992). The second study was designed to examine bias in the opposite direction. The desired belief about an individual would precipitate changes in one's general beliefs about the entire group of that individual's peers. The findings supported the researchers' predictions. Participants expecting to interact with a member of a stigmatized group came to hold a more positive stereotype of the entire group (Klein and Kunda 1992).

#### *Biased Use of Statistical Heuristics*

Several studies have investigated the biased accessing of statistical heuristics. One study employed a variant of the law of large numbers, the aggregation principle. The aggregation principle holds that increasing the number in the sample of observed events increases the predictability of that class of events. Sanitioso and Kunda (1991) hypothesized that in determining the amount of evidence to gather people may use such a heuristic to justify their predecisions regarding the amount of evidence they want to gather, which, in turn, could depend on the ease or difficulty of evidence collection. If obtaining evidence is costly, an individual may choose to gather less evidence and, consequently, place a lower value on the informative nature of further evidence. The actual results of Sanitioso and Kunda's (1991) two studies were somewhat counterintuitive, but consistent, in that participants in the higher evidence cost scenario appeared to appropriate the aggregation principle more often than those in the scenario with a lower evidence cost. These researchers claimed that the desire to be reasonably

accurate (and thus win more money in the study) influenced the gathering of more evidence. Nevertheless, the costliness of the evidence made participants reluctant to observe larger samples. The researchers' overall conclusion was that people are committed to seemingly rational inferential processes in which they try to build a reasoned justification for their preferred conclusions. However, in doing so, they are unaware of the motivated biases in their reasoning processes.

Other studies examined base-rate neglect. Kahneman and Tversky (1996) defined this to be a situation where the exact or approximate base-rate is known by an individual, but she ignores the information or significantly underweights it. In one of these studies, participants were given case data about a person and then asked to assign (rank) a set of outcomes by different criteria. One group of participants was instructed to categorize the person into a profession (an outcome group) based on the degree to which the person's description was representative of the stereotype characteristics of the members of that profession. Another participant group was instructed to rank the same outcomes (professions) based on the probability that they applied to the person in question. A third group of participants was not given individual descriptions. The rankings of the first two groups were nearly identical and both ignored the base-rate information provided. The third group, lacking personality sketches, relied on the base-rate information to assign a probability of the subject's ranking. Kahneman and Tversky (1996) concluded that the ranking decisions of the first two groups were based on representativeness of the subject's personality sketch and not the more accurate base-rate information.

One tenant of decision theory is that the probability of an outcome is independent of that outcome's value or importance (Levy and Hershey 2006). Value-induced bias violates a principle of decision theory by allowing the nature of an outcome to influence the judgment of how likely it is to occur. The manipulations in Levy and Hershey's (2006) study involved participants reading various case scenarios that told them (to imagine) that they had been diagnosed with a disease. The flow of information about what form of the disease an individual participant had was varied along with solicited feedback as to his desire for treatment, his predicted probability of the treatment's success, and his certainty of the probability. Participants weighed a painful two week treatment with an undetermined probability of individual success (there was a 40 percent success rate overall for treatment) against the alternative of suffering with the disease for two months with no treatment. As the researchers predicted, participants who were asked about their desire for treatment early on in the experiment adjusted the probability of treatment success to justify their pre-stated desire, even when they knew that the overall probability of success was 40 percent. That is, those who wanted treatment supposed the probability of success to be higher and those who did not want treatment supposed the probability of treatment success to be lower (Levy and Hershey 2006).

### *Biased Information Processing*

Pyszczynski et al. (1985) designed an experimental study to investigate self-serving bias in the evaluation of new information. Participants took a standard social sensitivity survey and then (without their knowledge) were assigned random scores by the researchers. Participants were then asked to evaluate two separate research reports

that critiqued the survey instrument. One report found the instrument to have high validity and the other report concluded low validity. Participants who were randomly assigned the higher test scores rated the study that supported the validity of the survey instrument more positively than those who were assigned lower scores. Similarly, the high scoring participants found the low validity study to be less convincing. Lower scoring participants responded in the opposite manner. Pyszczynski et al. (1985) concluded that individuals judge information that is consistent with a self-serving bias to have higher validity than information that is not consistent with that bias. Furthermore, this distorted evaluation of information allows individuals to generate and maintain such self-serving beliefs without forsaking the need to have logical consistency between their conclusions and the evidence at hand.

Russo et al. (1996) sought to test their prediction that an established preference for one of the choices in a preferential choice task might lead to a biased evaluation of new information about the alternatives. Their findings supported this prediction and suggested that in addition to a current belief or a preferred conclusion, preference for one of the options is also a source of confirmation bias. In an attempt to explain the possible reasons for this finding, Russo et al. (1996) addressed two possible psychological mechanisms: the desire to maintain consistency and the desire to reduce effort. Consistency may take the form of ego defense, which is a desire to support prior conclusions. Alternatively, individuals may distort new information so that it is congruent with existing information in an attempt to support their desire for a consistent and orderly world. Participants may also distort new information to accelerate their cumulative

preference for a specific choice in order to finish the evaluation task sooner. On the other hand, they may distort new information to more easily integrate it with existing information and exert less effort to process it (Russo et al. 1996).

Boiney et al. (1997) conducted a two-part study to investigate extensions to the motivated reasoning literature. The 65 undergraduate participants in the first study assumed the role of a marketing manager and were asked to make sales forecasts for two new products based on best estimates of industry experts. The treatment group was motivated to make higher forecasts and the control group was given neutral information. For each product there was one discrepant expert forecast. It was two standard deviations above the mean for one product and four standard deviations above the mean for the other. Participants could choose to rely on the discrepant estimate to form their forecast, although they would have to weigh this against the justification that they relied heavily on outlier information. The study results suggest that decision makers who are motivated to support a particular conclusion will adopt decision strategies most likely to yield the desired conclusion. However, the motivated subjects recommended a goal directed decision less frequently when the industry expert estimates contained greater discrepancies. Consequently, the researchers concluded that a decision maker's ability to justify the reasonableness of both the process and the conclusion constrains the tendency to adopt a biased processing strategy.

In their second study, Boiney et al. (1997) examined how motivated decision makers manage the tension between the two potentially conflicting objectives of adopting a decision making process that supports the goal directed conclusion versus one that can

be justified as reasonable. Like the first, this experimental task was related to sales forecasting. The 122 undergraduate student participants assumed the same role as those in the first study and, similarly, were asked to develop sales forecasts based on industry expert estimates. The discrepancies in the expert estimates were held constant. Instead, the motivation to support the goal directed decision was manipulated. Participants motivated to give the highest sales forecasts attached the greatest weight to the most discrepant high industry expert estimate. In contrast, the majority of decision makers who did not need to justify their decision by relying heavily on the discrepant estimate chose not to do so. Boiney et al. (1997) concluded that the motivational bias appeared to be instrumental; that is, it increased when greater bias was needed to support a desired result. Thus, these researchers expanded the application of Kunda's (1990) theory to a quantitative business decision process.

### Quantity of Processing

While some of the previously reviewed studies (e.g. Kunda 1990, Pyszczynski and Greenberg 1987) supported the view that individuals differ in the way and the degree to which they process preference-consistent versus preference-inconsistent information, other research suggested the alternative *quantity of processing* view (e.g. Ditto and Lopez 1992; Ditto et al. 1998; Jain and Maheswaran 2000). Ditto and Lopez (1992) proposed that information that is consistent with a preferred conclusion is examined less critically than is information that is inconsistent with the preferred conclusion. Furthermore, they advocated that less information is then required to reach a preference-consistent conclusion than a preference-inconsistent conclusion. To test this hypothesis, they

designed studies in two different domains in which they held the judgment constant (either preference-consistent or preference-inconsistent) and measured the amount of information that participants required to make that judgment. The results support the hypothesis that participants will use differential decision criteria for the preferred versus the non-preferred conclusions. Ditto and Lopez (1996) made it clear that they were not implying the source of bias, only that there was a quantity difference in the processing of the information. Accordingly, they suggest that the quantitative view of self-serving bias may underlie both accuracy and directional motivational goals. Judgments are most often motivated by more than one goal, the desire for an accurate view of the world as well as the desire for a particular view of the world.

Following Ditto and Lopez (1996), Jain and Maheswaran (2000) used the sufficiency principle to explain the psychological mechanism that underlies the quantity of processing view. An individual in a given decision making scenario has an actual confidence level which represents her subjective experience. Each individual also has a desired confidence level which she wishes to attain before making the decision. Jain and Maheswaran (2000) submitted that the gap between the two confidence levels is the underlying motivator of processing effort. In other words, an individual will process available information until it is sufficient to bridge the confidence gap. Preference-inconsistent information may serve to raise the desired confidence level or, conversely, it may lower the actual confidence level. In either case, preference-inconsistent information generates a wider confidence gap and, thus, generates more effort. Their study findings supported the sufficiency principle as an explanation for greater scrutiny of preference-



inconsistent information. The results indicated that preference-inconsistent information generated more effort by lowering participants' actual confidence levels. The desired confidence levels remained similar for both preference-inconsistent information and preference-consistent information (Jain and Maheswaran 2000).

The overall conclusion of motivated reasoning theorists is that whether accuracy goals or directional goals are the primary drivers, people do attempt to be rational. People are not free to believe anything they wish to believe. On the other hand, beliefs are influenced by both wishes and fears. "Both passion and reason are characteristic of human thought. The research presented here continues this process of recognizing this duality and conceptualizing the passionate side of human judgment within the more general information processing framework from which it was once banished" (Ditto and Lopez 1996, 582).

#### Predecision Bias in Accounting Studies

Although Boiney et al. (1997) extended motivated reasoning to a business related decision setting additional studies addressed predecision bias and justification in more specific accounting related settings. In one of the earlier studies, Farmer et al. (1987) examined the influence of potential client loss and potential threat of lawsuits on the decisions of auditors at differing ranks. Their participants were 75 practicing auditors (19 staff, 26 seniors, 19 managers, and 11 partners) from seven of the Big Eight firms along with 29 senior level accounting students in an auditing course. First, Farmer et al. (1987) compared and contrasted the participant groups' rankings of attributes of auditor independence. They found that students and lower level auditors, those not fully

acculturated in the firm, ranked economic independence as significantly more important than did managers and partners. Overall, the staff accountants agreed with the client's position more often than managers and partners.

In the specific conditions of high risk of client loss, staff accountants championed the client's position 27 percent of the time in contrast to managers and partners agreeing with the client position only 19 percent of the time. Responses to the same client position scenarios by staff level participants in low threat conditions showed that these results are not merely due to the inexperience of staff level auditors. Both the staff level group and the manager/partner groups favored the client position significantly more often when the risk of client loss was high compared to when it was low.

Although Farmer et al. (1987) do not discuss any theoretical basis for their results, it is clear that they discovered incongruence between stated beliefs and actual decisions. Moreover, their study highlights decision bias in the presence of two types of threats. The design of this experiment did not allow valid conclusions as to whether the decision bias was a cognitive process or the unintentional result of motivated reasoning.

Hackenback and Nelson (1996) designed an experiment to investigate whether auditors use the flexibility provided by vague disclosure criteria in actual accounting standards to justify reporting methods. Participants were 90 auditors from one Big Six firm with mean experience of 3.28 years. The two manipulations were engagement risk level and applicable accounting standard. The company in the high risk condition was a first year client that was considering an IPO and that was in danger of violating a debt covenant agreement. The company in the moderate risk condition was a continuing client

that was not being threatened with debt covenant issues and there was no mention of an IPO. The accounting standard manipulation concerned SFAS No. 5 addressing the allowance for doubtful accounts, versus SFAS No. 77 addressing the recognition of the transfer of receivables as a sale or a loan. Management made aggressive disclosures in both accounting standard conditions.

As hypothesized, Hackenback and Nelson (1996) found that when engagement risk is low or medium, auditors were more likely to permit an aggressive reporting position. On the contrary, auditors in the high engagement risk condition were more likely to select the more conservative position. Furthermore, auditors in the study applied the vague language in the specific accounting standards in a manner consistent with the reporting position they selected. Instead of recommending that accounting standards be changed to allow less latitude in application, these researchers emphasized that diminishing aggressive reporting may require sufficient incentives to auditors to enforce the more conservative applications of existing standards.

Following Hackenback and Nelson (1996), Russo et al. (2000) compared the predecisional distortion of information by auditors to that of salespersons. They designed an experiment to examine the presence of distortion in professionals making familiar professional decisions and to determine whether accountability would serve to reduce distortion. Auditor participants were 90 employees of KPMG with median work experience of four years. Salesperson participants were 76 employees of a large pharmaceutical company with median work experience of five years. Each group made two professional decisions; one judgment task was pertinent to their specific profession

and one was the same for both groups (choosing a restaurant for a business dinner). Some participants also completed a third non-professional task so that they could be compared to students. Half of each group (auditors and salespersons) was assigned to a decision accountability condition and the other half to a condition that had no mention of accountability. Russo et al. (2000) included a post-decision questionnaire to assess several predictors of the magnitude of decision distortion. These included attribute importance, and individual differences of (1) awareness of the possibility of distortion, (2) relevance of the professional decision, (3) years of experience, (4) mood, and (5) judgment dimension (as determined by responses to the judgment section of the Myers-Briggs measure).

A two-way ANOVA revealed that the main effect of profession was marginally significant, and that auditors distorted information less than salespersons. Salespersons in the accountability condition distorted information less than their counterparts in the non-accountability condition. The researchers pointed out that this difference arose because distortion of salespersons in the non-accountable condition was high, not because the distortion of those in the accountable condition was low. All auditors responded as if they were in the accountability condition in the domain of the professional decisions. Additional analysis revealed that attribute importance did not decrease distortion; instead, distortion increased marginally with higher importance ratings for salespersons. Mood was positively related to distortion for salespersons (the better their mood, the greater the distortion); however, auditors' distortions were insensitive to mood.

Overall results confirmed that both auditors and salespersons exhibited substantial distortion of information with little reduction for professional versus non-professional decisions. Auditors' distortions were significantly less than those of salespersons; auditors acted as if they were always accountable. Russo et al. (2000) theorized that this result could have been due to auditors' having a high degree of accountability ingrained in their decision making due to their normal responsibilities, training, and levels of supervision.

Beeler and Hunton (2002) examined the effects of contingent economic rents on audit judgments. More specifically, they hypothesized (1) that contingent economic rents would heighten auditors' initial commitments to clients, (2) that there would be a positive relationship between initial client commitment and predecisional distortion of information, (3) that there would be a positive relationship between predecisional distortion and likelihood assessments that the client will continue as a going concern (the audit judgment), and (4) that there would be a negative relationship between predecisional distortion and revisions to budget hours (effort). These authors created a predecisional distortion index that combined attribute and importance ratings of pertinent variables and they predicted that the index would improve model fit over either factor alone.

A notable feature of this study was that the 73 participants were audit partners from four of the Big Five firms. The two manipulated conditions were the type of economic rent: (1) low-balling to obtain a first year engagement, which would require an ongoing client relationship for the auditor to make a profit, and (2) potential non-audit

revenue. The primary dependent variables were a measure of initial client commitment, risk assessment on the client's going concern status (audit judgment), and audit diligence (hours budgeted). The results of ANOVA and path analysis supported all hypotheses and showed that the predecisional distortion index was, indeed, more predictive than prior measurement techniques. Beeler and Hunton (2002) claimed that contingent economic rents could precipitate favorable predecisional distortion of client information, and bias audit judgments.

Kadous et al. (2003) investigated the effect of requiring auditors to identify benchmark accounting methods (i.e., most appropriate) on the objectivity of their decisions to support aggressive client-preferred accounting methods. These authors noted that SAS No. 90, effective in 2000, addresses the appropriateness of accounting methods by requiring auditors to discuss the quality of client accounting methods with the audit committee. This standard forces auditors to make judgments about the quality of a client's accounting principles rather than judgments about acceptability. Kadous et al. (2003) hypothesized that although standards like SAS No. 90 are designed to increase auditor objectivity, they may, in fact, do the opposite.

These researchers used Web-based survey technology to administer their experiment to auditors in an international accounting firm in December 2001. Participants returned 227 usable responses (mean audit experience was 9.63 years). The manipulated conditions were the requirement (or no requirement) of a quality assessment of accounting methods and engagement pressure (to operationalize the strength of a directional goal). The findings suggest that auditors who were asked to identify the best

method increased their commitment to their directional goals of accepting an aggressive client-preferred method, despite the availability of potentially higher quality methods. In addition, auditors who were more committed to directional goals were more likely to select the client-preferred method as the benchmark method. Since the results indicated that auditing standards may not have the desired affect of increasing auditor objectivity, the researchers emphasized the importance of experimental research to test the intent of such standards (Kadous et al. 2003).

In a more recent study Blay (2005) employed the risk of client loss and threat of litigation conditions, similar to those in Farmer et al. (1987), to examine conscious and unconscious choice biases. He theorized that costs related to such threats as client loss (which is a threat to independence) and litigation risk could potentially affect auditors at both the choice stage and the information processing stage of their decision making. Blay (2005) manipulated the independence threat of possible client loss and the litigation risk threat. Forty-eight audit managers from multiple offices of three Big Four firms with a mean experience level of 6.4 years participated in the Web-based study. Participants assessed the probability that the client would be a going concern before and during their reading of the case information. They also rated information cues as to the cue's importance and positive or negative influence on the going concern evaluation. The participants' final decision was whether to render a modified or non-modified audit opinion.

The results of this study showed that auditors in the higher risk of client loss condition assessed both the initial information given and the information gathered as

more supportive of the client. They were also more likely to reach a client-preferred reporting decision. On the other hand, auditors in the higher litigation risk condition assessed the information gathered as less supportive of the client and were less likely to reach a client-preferred reporting decision.

Additional analysis showed that in both scenarios (high risk of client loss and high risk of litigation) the relationship between the report choice and the threats were fully mediated by the final assessment of the evidence. Thus, Blay (2005) concluded that the audit report choices were not likely to be a pure choice effect where the auditors made a decision by adjusting their decision criteria. He opined that, instead, these results most likely represented an information processing bias. This study produced two additional findings of note: (1) the levels of the incentives have a significant effect on auditor decision making, and (2) in the presence of high risk in both conditions, auditors evaluated significantly more information than in any other condition. It is probable that the auditors in this pair of high threat conditions encountered a heightened need for accuracy. These findings support Kunda's (1990) motivated reasoning theory that accuracy goals are likely to lead to more complex reasoning and more careful processing. Alternatively, it could be explained by the sufficiency principle introduced by Jain and Maheswaran (2000) suggesting that auditors in the high risk conditions experienced a greater confidence gap between actual confidence and desired confidence and, therefore, processed more information to bridge the gap.

Hunton and Rose (2007, 2008) conducted experiments to investigate self-serving biases of audit committee members (ACMs) in two different scenarios. The first



examined the effects of reputation threat on committee members' decisions to accept an auditor's recommendation to restate versus adjust the financial statements. Reputation threat was operationalized by the busy status of an ACM. A busy committee member is one who serves on more than one board and would presumably be more concerned that a reputation threat arising from one committee position might negatively influence other board positions. Financial statement restatements have been shown to negatively affect the reputations of board members as well as executive management.

Hunton and Rose (2007) manipulated director status (busy or non-busy) and audit issue (restatement or adjustment recommendation). Participants were 88 ACMs with mean (SD) business experience of 23.34 (9.91) years. Ninety percent of the 88 were considered the financial expert on their respective committees and 83 percent were certified public accountants. ANOVA showed statistically significant main effects for both independent variables as well as a significant interaction effect. Planned contrasts further distinguished the differences among the groups and showed that within each separate audit issue condition the differences between busy and non-busy directors was significant. Moreover, the change in scores between the two audit issues was significantly different for the busy and the non-busy groups. The overall conclusion was that ACMs may pursue self-interests instead of shareholder interests in important decisions regarding accounting treatments. This may be particularly true of busy directors because they face greater reputation threats. Although the researchers pointed out that the effects of motivated reasoning should be considered as second order effects in this study, clearly

ACMs chose to make decisions that exhibited self-serving biases (Hunton and Rose 2007).

Hunton and Rose's (2008) second study also examined self-serving bias of ACMs. This study employed the difference in perceived credibility of an anonymous versus a non-anonymous whistle-blowing report along with a greater or lesser threat to the ACM's status as a committee member on the board of a related (interlocking) company. The whistle-blowing allegation, if true, would indicate that restatement of the financial statements would be appropriate. The threat to the ACM's status was manipulated by including a statement that the other company on whose board the ACM served did or did not use the same accounting practice that was in question. This implied that if restatement were necessary for the subject company that it would be appropriate for the related company as well.

Similar to the earlier study, Hunton and Rose (2008) used a between-participants 2 x 2 experimental design. Participants were 83 ACMs with mean (SD) business experience of 23.05 (10.06) years, and 74.7 percent were considered the financial expert on their respective committees and were also certified public accountants. The independent variables were the whistle-blowing report source (anonymous or non-anonymous) and board interlock threat (presence or absence). The two dependent variables were the perceived credibility of the whistle-blowing report and the dollar amount of resources that the participant chose to allocate to investigate the whistle-blowing allegation. The ANOVA with the rating of the creditability of the whistle-blowing report as the dependent variable showed statistically significant main effects for

both independent variables as well as a significant interaction effect. Likewise, the ANOVA with the dollar value of investigative resources allocated as the dependent variable showed statistically significant main effects for both independent variables. Several debriefing questions provided additional insights on the thought processes and possible motives of the ACMs. Hunton and Rose (2008) concluded that interlocking directors with a conflict of interest appear to favor their personal reputations over their obligations to shareholders and other stakeholders. The committee members with higher threats to their reputations demonstrated a biased processing of the information contained in the whistle-blowing report. In addition, those who believed the whistle-blower to be anonymous rationalized their decision by ascribing lower credibility to the report allegations.

## **Hypotheses Development**

### ***Anonymous Whistle-Blowing***

Anonymous whistle-blowing sometimes creates an ethical dilemma because the whistle-blower attempts to hide while revealing the identity and alleged wrongdoing of an accused party (Elliston et al.1985). In hiding their identities, anonymous whistle-blowers do not allow whistle-blowing report recipients to evaluate their personal characteristics as a means to at least partially determine the veracity of the report. More specifically, two of the most important characteristics that strongly influence whistle-blowing efficacy, the whistle-blower's power and credibility, cannot be established (Near and Miceli 1995). Source credibility has been shown to be an important factor in audit judgment and decision making (Bamber 1983; Hirst 1994; DeZoort et al. 2003).

Moreover, anonymous sources have been judged to be less trustworthy, demonstrate less goodwill, be associated with negative irrelevant information, and have less credibility (Rains 2007; Hunton and Rose 2008). It is also possible that CAEs, being *role-prescribed whistle-blowers* (Miceli and Near 1992), may not be as sensitive to the peer pressure and fear of retaliation that may cause a whistle-blower in another position to decide to report anonymously (Johnson et al. 1993; Near et al. 1993). On the other hand, anonymous whistle-blowing should be more acceptable since regulators continue to encourage anonymous reporting and SOX now requires public companies to establish and monitor anonymous whistle-blowing channels.

Given these arguments in total the following hypothesis is formed about the perceptions of CAEs with regard to the credibility of anonymous versus non-anonymous whistle-blowing reports:

**Hypothesis 1a:** CAEs will perceive anonymous whistle-blowing allegations to be less credible than non-anonymous whistle-blowing allegations.

Recent studies showed that although whistle-blowing is an important fraud detection mechanism, whistle-blowing reports from employees have been declining since the establishment of the anonymous channels mandated by SOX (Kaplan and Schultz 2007; Dyck et. al 2007). It follows that more emphasis should be placed on the whistle-blowing reports that are received, whether anonymous or non-anonymous. Furthermore, anonymous whistle-blowing reports may be more time consuming and difficult to investigate because the report recipient cannot consult with the whistle-blower to gather additional information (Miceli and Near 1992; Near and Miceli 1995). Although

anonymous reports may require more resources than non-anonymous reports for thorough investigation, credibility is also a factor (Hunton and Rose 2008). If a CAE has past experience with poor results from anonymous whistle-blowing reports, the CAE is likely to doubt the wisdom of allocating the additional resources that may be required to investigate allegations received in such a manner. Consequently, the following hypothesis regarding how CAEs will choose to allocate resources to investigate whistle-blowing reports is offered:

**Hypothesis 1b:** CAEs will allocate fewer resources to investigating anonymous whistle-blowing reports than they will allocate to investigating non-anonymous whistle-blowing reports.

### *Motivated Reasoning*

Internal auditors are instrumental in maintaining and evaluating their companies' internal control environments, especially the internal controls over financial reporting. The discovery of fraudulent financial reporting might indicate that the CAE had not succeeded in detecting and preventing fraud. If fraudulent reporting is accomplished through exploitation of substantial weaknesses in internal controls, this would be a clear signal that the CAE had failed in some critical aspect of responsibility to assist executive management in maintaining sufficiently strong internal controls over financial reporting. On the other hand, if fraudulent reporting is accomplished by the circumvention of internal controls, the CAE would be less likely to shoulder primary responsibility. Consequently, this study adopts the exploitation of substantial weaknesses in internal controls and the circumvention of internal controls as operationalizations of higher and lower levels, respectively, of reputation threat.

Motivated reasoning theories explain that decision makers sometimes use biased cognitive processes as strategies for accessing, constructing, and evaluating beliefs. Moreover, needs and motives often influence mental processes in a way that enables the decision maker to maintain an illusion of objectivity (Kunda 1990, Pyszczynski and Greenberg 1987). Decision makers may engage in biased information evaluation and processing to arrive at the conclusion they want to adopt. They may also ignore applicable statistical heuristics or employ inappropriate heuristics. Ambiguity in the situation can aid in the justification of such information processing biases.

Motivated reasoning also addresses how a particular reason may be adopted to explain an unusual or unexpected event. Individuals are active information processors who engage in causal selection when attempting to make sense of such an occurrence. Each person's causal background is a combination of past experience, available information, and cognitive processes that can lead individuals in the same organization to generate different explanations for the same event (Rousseau and Tijoriwala 1999).

A CAE's reputation will be more seriously threatened if a financial reporting fraud has been perpetrated via an exploitation of substantial weaknesses in internal controls compared to the circumvention of internal controls. Auditors do consider the perceived personal costs when deciding to report wrongdoing (Kaplan and Whitecotton 2001). It follows that they would also consider personal costs when deciding to investigate a whistle-blowing report. Consequently, a CAE with a more serious reputation threat has a greater motivation to evaluate the information in the whistle-blowing report as less credible overall. Therefore, the related hypothesis is considered:

**Hypothesis 2a:** CAEs who receive a whistle-blowing allegation that suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls (circumvention of internal controls) will assess the allegation to be less (more) credible.

The quantity processing view of motivated reasoning purports that decision makers will process a larger quantity of information when new information is preference-inconsistent than when it is preference-consistent (Ditto and Lopez 1992). The sufficiency principle provides the psychological mechanism for this tendency by suggesting that the larger the gap between a decision maker's actual confidence level and the desired confidence level, the more information the decision maker will process and evaluate in an attempt to close the gap. Preference-inconsistent information has been shown to widen this gap by lowering the actual confidence level (Jain and Maheswaran 2000). Although Ditto and Lopez (1992) submitted that the quantity processing view supports both accuracy and directional goals, based on other information processing bias studies (e.g. Russo et al. 1996), it appears that the quantity of processing view is most often applicable to accuracy goals.

Clearly a whistle-blowing report that alleges fraudulent financial reporting is new information that is preference-inconsistent for a CAE. If the CAE is driven primarily by an accuracy goal, then the desire to investigate such allegations should be strong. It follows that an allegation that the fraud was perpetrated in such a way as to seriously threaten the CAE's reputation would be viewed as even more preference-inconsistent than an allegation that suggests the fraud was perpetrated via a less threatening method.

Hence, a CAE with predecision bias toward an accuracy goal may be expected to allocate significant resources to gather and evaluate more information in the serious threat scenario. In contrast, a CAE with an overriding directional goal (e.g. self-esteem, self-preservation, desire to maintain control, desire to maintain consistency) may make a different choice. Based on research regarding directional goals, the following hypothesis is proposed:

**Hypothesis 2b:** CAEs who receive a whistle-blowing allegation that suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls (circumvention of internal controls) will allocate fewer (more) resources toward investigating the allegation.

### *Anonymous Whistle-Blowing and Motivated Reasoning*

As explained above, the moral dilemma of the responsibility to follow up on allegations of financial statement fraud that may, if proven to be true, harm one's reputation could certainly provide the catalyst for biased directional goals in predecision processing. Nevertheless, individuals are not at liberty to believe whatever they wish. Extant research shows that individuals are committed to rational inferential processes. Within these rational processes they may attempt to build justifications for their preferred conclusions. However, the need to justify the reasonableness of both the process and the conclusion constrains the tendency to adopt biased processing strategies (Sanitioso and Kunda 1991; Boiney et al. 1997).

The inability of a CAE to establish the power and credibility of an anonymous whistle-blower provides ambiguity to this scenario that does not exist when the whistle-blower is non-anonymous. Having no information about the whistle-blower from which to derive beliefs other than the fact that the reporter belongs to the group of anonymous



whistle-blowers, the CAE may be forced to adjust general beliefs about the group (anonymous reporters) in accordance with the CAE's goals (Klein and Kunda 1992). Thus, this additional ambiguity may be used to justify the preferred conclusion that the report that poses the most serious reputation threat (the fraud was perpetrated through exploitation of substantial weaknesses in internal controls) is the least credible and is least worthy of investigation. Consequently, the following two hypotheses regarding the interaction of whistle-blowing report source and reputation threat are offered:

**Hypothesis 3a:** The difference in perceived credibility of a whistle-blowing allegation between anonymous and non-anonymous reporting will be significantly greater when the allegation suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls relative to when the fraud was perpetrated by the circumvention of internal controls.

**Hypothesis 3b:** The difference in investigatory resource allocation between anonymous and non-anonymous reporting will be significantly greater when the allegation suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls relative to when the fraud was perpetrated by the circumvention of internal controls.

### *The Mediation Effects of Credibility*

The theory elaborated above suggests that an anonymous whistle-blowing report (compared to a non-anonymous report) and the presence of a more serious reputation threat (compared to a less serious reputation threat) will lower the perceived credibility of the whistle-blowing allegation. Accordingly, these conditions will result in a decrease in the amount of resources allocated to the investigation of the allegation. Hence, the final hypothesis is:

**Hypothesis 4:** Perceived credibility of the whistle-blowing allegation will mediate the effect of whistle-blowing report source and reputation threat on the dollar amount of investigatory resource allocation.

### III. METHODOLOGY

#### The Participants

Forty-seven CAEs and 47 CAE Deputies (Deputies) from companies in the eastern half of the United States participated in the study. Several respondents failed the manipulation checks, one Deputy did not complete key variables, and one Deputy listed less than one year of internal audit experience. After these were excluded, the final sample consisted of 40 CAEs and 41 Deputies. Table 1 shows the identification of the

**Table 1 - Sample Identification**

	CAEs	Deputies	Total
<b>Original Sample</b>	47	47	94
Failed manipulation check	7	4	11
Failed to complete dependent variable measures	0	1	1
Less than 1 year of internal audit experience	0	1	1
<b>Total Responses Included</b>	40	41	81

final sample. The Deputy-level individuals were included based on the expectation that they also have significant responsibilities and could easily be expected to have knowledge of the CAE's work with the audit committee. CAEs and Deputies are an important participant group that is largely understudied. More importantly, this group

provides an accurate participant-task match for the present study and improves the validity as well as the generalizability of the results.

### ***Demographic Information***

The mean years (standard deviation) of participants' internal audit experience is 13.11 (8.23). Participants also have mean external audit experience of 2.63 (3.45) years and mean corporate accounting experience of 3.37 (5.68) years. The mean tenure with the current organization is 9.40 (9.06) years. This data is displayed separately for CAEs and Deputies in Table 2. A test of differences in means revealed that there are no statistically significant differences in the experience levels or tenure of CAEs when compared to Deputies.

In total, 49 (60.5%) participants are CPAs and 40 (49.4%) are CIAs. Ten (12.3%) are Certified Fraud Examiners, 17 (21.0%) are Certified Information Systems Auditors (CISA), and six (7.4%) are Certified Financial Services Auditors (CFSA). The CISA and the CFSA are specialty designations associated with the IIA. Finally, four (4.9%) participants are Certified Management Accountants and ten (12.3%) hold other professional credentials. Overall, ten (12.35%) individuals listed more than two professional certifications, 26 (32.10%) listed two certifications, and 43 (53.09%) listed one certification. Only two (2.47%) participants did not list any professional certifications. Table 2 shows detailed information regarding professional certifications.

Of the 94 original participants, 78 (83.0%) were from publicly traded companies, 10 (10.6%) were from non-public, for profit companies, and 6 (6.4%) were from government agencies or large universities. All organizations included have a board of

**Table 2 - Demographic Information**

	CAEs		Deputies		Total Sample	
	Mean	SD	Mean	SD	Mean	SD
<b>Retained Sample</b>						
Experience and Tenure (Years)						
Internal Audit	14.53	8.53	11.73	7.78	13.11	8.23
External Audit	3.18	3.97	2.10	2.81	2.63	3.45
Corporate Accounting	3.69	6.25	3.05	5.13	3.37	5.68
Tenure - Current Organization	9.11	9.15	9.69	9.07	9.40	9.06
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Professional Certifications						
Certified Public Accountant	27	67.5%	22	53.7%	49	60.5%
Certified Internal Auditor	19	47.5%	21	51.2%	40	49.4%
Certified Fraud Examiner	5	12.5%	5	12.2%	10	12.3%
Certified Information Systems Auditor	6	15.0%	11	26.8%	17	21.0%
Certified Financial Services Auditor	4	10.0%	2	4.9%	6	7.4%
Certified Management Accountant	2	5.0%	2	4.9%	4	4.9%
Other Professional Certifications (36 participants hold > 1 certification)	6	15.0%	4	9.8%	10	12.3%
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Public / Non-Public Status						
Not-Publicly Traded	8	20.0%	6	14.6%	14	17.3%
Publicly Traded	32	80.0%	35	85.4%	67	82.7%
	40	100.0%	41	100.0%	81	100.0%
<b>Original Sample<sup>a</sup></b>						
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Stock Exchange Status						
Not for Profit / Gov Agency	3	6.4%	3	6.7%	6	6.4%
For Profit, Not Public	7	14.9%	3	6.7%	10	10.6%
NYSE	28	59.6%	38	84.4%	66	70.2%
NASDAQ	8	17.0%	2	4.4%	10	10.6%
Other Exchange	1	2.1%	1	2.2%	2	2.1%
	47	100.0%	47	104.4%	94	100.0%
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Fortune 1000 (2008) Status						
Fortune 250	9	19.1%	23	48.9%	32	34.0%
Fortune 251 - 500	6	12.8%	6	12.8%	12	12.8%
Fortune 501 - 750	9	19.1%	4	8.5%	13	13.8%
Fortune 751 - 1000	3	6.4%	3	6.4%	6	6.4%
Public - Not Ranked	10	21.3%	5	10.6%	15	16.0%
Not Public	10	21.3%	6	12.8%	16	17.0%
	47	100.0%	47	100.0%	94	100.0%
<sup>a</sup> Responses were anonymous; therefore, the companies representing the deleted responses cannot be determined.						

directors and the internal audit function is accountable to the board. Of the ten participants from non-public companies, five were former CAEs of public companies, and/or hold senior positions in consulting firms that perform internal audit functions for public companies. The remaining five are in large private companies that comply with SOX. Sixty-six participants (70.2%) are from companies listed on the NYSE and another 10 (10.6%) are from companies traded on NASDAQ. Sixty-three participants (67.0%) are in companies listed in the Fortune 1000 for 2008 (CNNMoney.com 2008). Thirty-two (34.0%) are from companies that are ranked 250 or higher, 12 (12.8%) are in companies ranked between 251 and 500, 13 (13.8%) are in companies ranked between 501 and 750, and another six (6.4%) are in companies that are ranked between 701 and 1000. Table 2 shows the detail of the stock exchange and Fortune 1000 status of participants' companies. Since responses were anonymous, these company specific demographic statistics cannot be separately determined for the retained participants.

### **The Task**

The task for this inquiry was a case that was adapted from Hunton and Rose (2008). First, each participant was asked to assume the role of CAE for a hypothetical company, BioMeasure, Inc. The CAE was told that the internal audit function has evaluated the company's internal controls for 2006 and reported to management that no material weaknesses in controls were found. It is now December of 2007 and the annual financial statements for 2006 have been audited by the external auditors and publicly released. Participants were then presented with a brief background of the company. Salient information included the fact that corporate fraud has not been a problem for

BioMeasure in the past and that the external (Big Four) auditor has always issued clean opinions. The CAE reports functionally to the audit committee and administratively to senior executives. BioMeasure has implemented an anonymous whistle-blowing system as required by SOX and up to this point no significant financial frauds have been identified through any whistle-blowing reporting channel. Next, the CAE was informed that a whistle-blowing report was received in December of 2007 alleging that senior managers materially overstated earnings for 2006 in order to earn their bonuses. The language in the report itself varies to create the four experimental conditions (see Appendix).

The allegation of earnings management meets Jones' (1991) criteria for an issue of significant moral intensity. Hence, the scenario described should result in the CAE recognizing the existence of an important moral issue and engaging in a moral decision making process.<sup>1</sup> The final sentence in the case states, "You have determined that should the allegation be true, a restatement of 2006 revenue would be necessary." The purpose of this statement is to reinforce the understanding that the allegation creates a reputation threat to the CAE. Financial restatements have been shown to cause a loss of shareholder trust and investment capital (Linn and Diehl 2005) and to discredit management and significantly increase management turnover (Desai et al. 2006; Gersten et al. 2006). Following the case information, participants were asked to respond to two questions that were used as dependent variables.

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<sup>1</sup> This scenario was pilot tested by interviewing several financial experts who remarked that earnings management represents a claim that warrants thorough investigation (Hunton and Rose 2008).

Part Two of the study included manipulation check questions and solicited additional information from the participants. Manipulation check questions are important in between-subjects designs to ensure that the participants attended to and interpreted correctly the independent variables described in the case. The responses to the manipulation check questions can be particularly helpful if there is an insignificant treatment effect because the underlying reason could be that the manipulated condition was not correctly incorporated into the participants thought processes (Libby et al. 2002). Consequently, the first two debriefing questions were manipulation check questions to test the recognition and comprehension of the whistle-blowing report source and the alleged method of wrongdoing.

The manipulation check questions were followed by 24 additional debriefing questions. Nine of the 24 sought information regarding demographics, actual reporting relationships, and the participants' past experiences with whistle-blowing reports and their investigations. The remaining 15 questions collected information to bring additional insights to the experimental results and were based on the theory used for this study. CAEs are busy executives, thus the case and debriefing questions were designed to require a maximum of 15 to 20 minutes of a participant's time. The researchers visited the offices of the participants to administer the case study.

### **The Experimental Design**

This study used a 2 x 2 factorial experimental design. The first manipulated condition was report source, either anonymous or non-anonymous. Although a primary purpose of the whistle-blowing channel mandated by SOX was to provide for anonymous



reports, employees also use the channel for non-anonymous reporting. A benchmark report on the use of hotlines revealed that more than half (54 %) of the calls received were anonymous (Security Executive Council 2007).

The second manipulated condition was reputation threat. The less serious reputation threat condition stated that the fraudulent reporting was allegedly accomplished by a circumvention of internal controls. The more serious reputation threat alleged that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls.

Because the focus of this study was judgment and decision making, a between-subjects design was used to afford a set of circumstances that CAEs might reasonably expect to encounter in the normal course of business, and therefore, should solicit CAEs' natural reasoning processes. A within-subjects design draws more attention to the independent variables of interest and can create demand effects (Kahneman and Tversky 1996). CAEs would not normally encounter communications alleging fraudulent financial reporting on a recurring basis in the real world; thus, a repetitive task design would detract from the study's realism. Accordingly, each participant was assigned to only one experimental condition.

### **The Independent Variables: Report Source and Reputation Threat**

The whistle-blowing allegation contained a manipulation of the report source, which was either anonymous or non-anonymous. The seriousness of reputation threat was manipulated by the method of wrongdoing. In the less serious reputation threat condition, the fraud was allegedly perpetrated by the circumvention of internal controls. In the

serious reputation threat condition, the fraud was allegedly perpetrated by the exploitation of substantial weaknesses in internal controls (see Appendix).

Internal auditors play a key role in maintaining and testing compliance with internal controls over financial reporting. Consequently, the discovery of a breach in controls that internal audit had previously inspected might indicate that the CAE had not been as diligent as expected in overseeing the evaluation process. Although the revelation of fraudulent reporting by the circumvention of internal controls would also be disturbing, it would not necessarily imply ineffectiveness on the part of internal audit or the CAE.

### **The Dependent Variables: Credibility and Resource Allocation**

After reading the case, participants were asked to assess the credibility of the whistle-blowing report using a scale of 0% (not credible at all) to 100% (completely credible). Next, participants were asked to determine the amount of resources that they would allocate to investigate the whistle-blowing allegation. Resource allocation decisions always involve trade-offs in an actual business environment. Therefore, to make this question more effective in engaging the CAE in the judgment and decision making task, the scenario generated tension by including such a trade-off.

### **Control Variables**

A number of questions were included in Part Two of the study that could be used as control variables in the analysis of the data. The topics of questions used to collect demographic information were: (1) years of experience in internal audit, (2) years of

experience in external audit, (3) years of experience in corporate accounting, (4) tenure in the current organization, and (5) professional designations.

### **Pilot Study**

The pilot study for this study included feedback from interviews with a prominent Fortune 200 CAE with significant internal audit experience. He agreed that the overall case scenario was realistic. As a CAE, he is charged with investigating whistle-blowing reports and allocating appropriate resources to conduct investigations. He stated that these responsibilities are typical of someone in his position and that a report alleging earnings management should definitely be investigated, regardless of the source. He also opined that anonymous reports are almost always more difficult and more expensive to investigate. Further, this CAE claimed that the alleged method of wrongdoing (exploitation or circumvention) should have no effect on the intention to investigate the report. Based on this expert's comments and Hunton and Rose's (2008) pilot study of a similar case, the final experimental case study for the present inquiry was developed and employed (see Appendix for the complete case study).

### **Tests of Hypotheses**

The following sub-sections describe the intended plan of analyses for testing the study hypotheses. Chapter IV of this dissertation presents the details of the tests that were conducted.

### ***Hypotheses 1a and 2a***

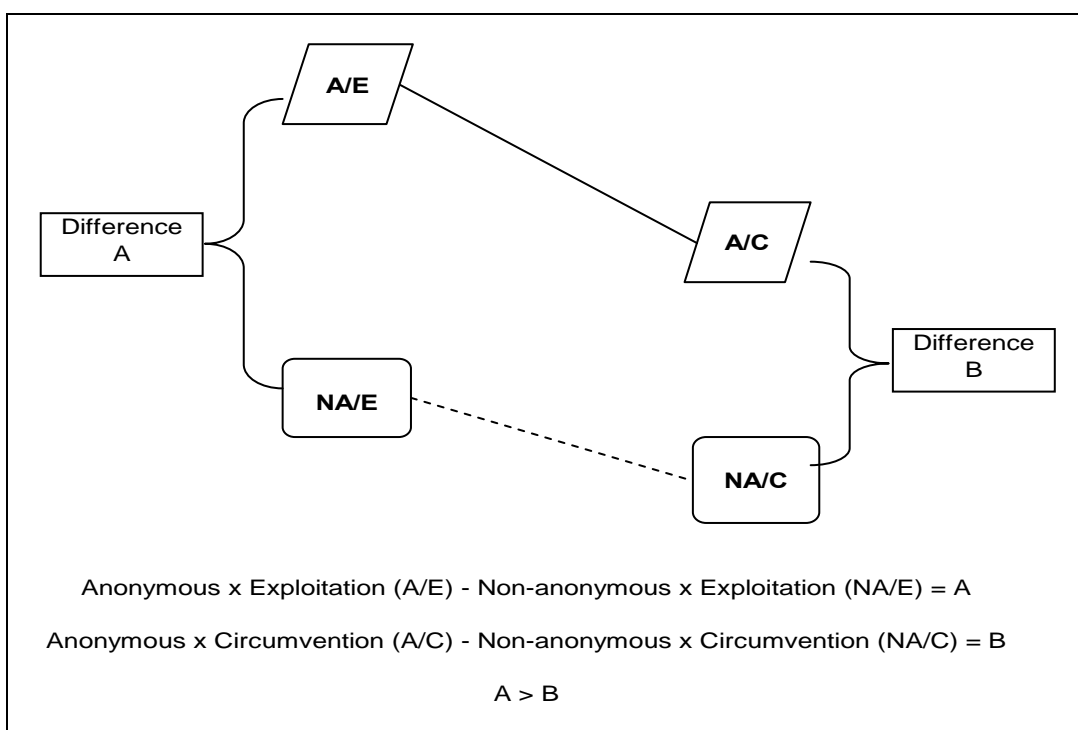
An ANOVA will be conducted with credibility as the dependent variable to determine the significance of the main effects of the two treatments, report source and reputation threat. If the main effect for report source is significant, Hypothesis 1a will be evaluated by comparing the mean of credibility scores reported by participants in the anonymous condition with those in the non-anonymous condition. This hypothesis will be considered supported if the mean of credibility scores in the anonymous condition is lower. Similarly, Hypothesis 2a will be supported if the ANOVA shows the main effect of reputation threat to be significant and if the mean of the credibility scores of participants in the exploitation condition is lower than the mean of the credibility scores of those in the circumvention condition.

### ***Hypotheses 1b and 2b***

A second ANOVA will be conducted with resource allocation as the dependent variable to determine the significance of the main effects of the two treatments. If the main effect for report source is significant, Hypothesis 1b will be evaluated by comparing the mean of dollars allocated by participants in the anonymous condition with those in the non-anonymous condition. Hypothesis 1b will be supported if the mean of dollars allocated in the anonymous condition is lower. Likewise, Hypothesis 2b will be supported if the ANOVA shows the main effect of reputation threat to be significant and if the mean of the dollars allocated by participants in the exploitation condition is lower than the mean of dollars allocated by participants in the circumvention condition.

### *Hypotheses 3a and 3b*

Hypotheses 3a and 3b predict that the interaction of report source and reputation threat will be significant. If the ANOVA with credibility as the dependent variable shows a significant interaction, Hypothesis 3a will be evaluated by a planned contrast. Hypothesis 3a predicts that the difference in the credibility assessment between anonymous and non-anonymous report source will be significantly greater when the method of wrongdoing is exploitation compared to circumvention. First, the difference between the means of the credibility scores of those in the anonymous report source/ exploitation reputation threat condition and those in the non-anonymous/ exploitation condition will be calculated. Next, the difference between the means of the credibility



**Figure 1 - Example of Contrast for Hypothesis 3a**

scores of those in the anonymous report source/circumvention reputation threat condition and those in the non-anonymous/circumvention condition will be determined. Hypothesis 3a will be supported if the contrast between these differences is statistically significant. Figure 1 is an example of how this analysis will be presented.

The evaluation of Hypothesis 3b will be similar. If the ANOVA with resource allocation as the dependent variable verifies that the interaction of report source with reputation threat is significant, then the planned contrast will be conducted. The differences in differences will be determined as explained above and these two differences will be contrasted. A statistically significant result will support Hypothesis 3b.

#### ***Hypothesis 4***

Hypothesis 4 predicts that perceived credibility will mediate the relationship between report source and the dollar amount of investigatory resources allocated. Hypothesis 4 also predicts that perceived credibility will mediate the relationship between reputation threat and the dollar amount of investigatory resources allocated. This hypothesis will be tested using path analysis in LISREL because the use of separate regression equations to evaluate a mediation effect does not allow for shared variance between the two variables. Path analysis in LISREL uses maximum likelihood with full information and estimates the equations simultaneously. Consequently, the standard error should be smaller and the parameter estimates more accurate. Also, the LISREL method provides goodness of fit measurements for evaluating model fit. The disadvantage of

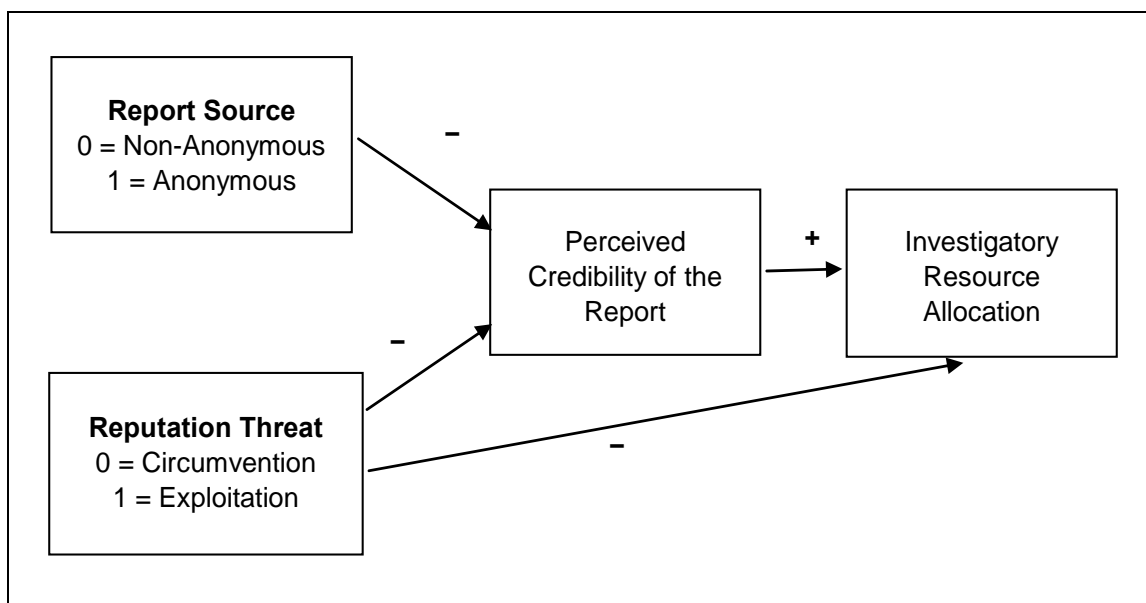
using simultaneous equations is that the misspecification of one equation (one path) will affect the whole model.

One caveat to relying on fit measures for this study is the potential effect of a small sample size. The first test statistic reported for path models is the chi-square statistic. Because the null hypothesis assumes perfect fit, a small test statistic and a large p-value (that indicates the null cannot be rejected) are desirable. The chi-square is sensitive to sample size and rewards a small sample. Consequently, because the chi-square test is not a valid criterion for evaluating the overall fit of the proposed model for the present study, other fit indices will be considered.<sup>2</sup> The various goodness of fit indices focus on different aspects of the structural model. Some are sensitive to sample size, some are not; some reward parsimony and others reward lack of parsimony. Cortina and Blundau (2007) recommend reporting both the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) because these two indices differ on important measures. Pertinent to the current study, both of these measures are not sample size dependent and not estimation method specific. The CFI is relative and does not account for parsimony, while the RMSEA is an absolute measure that rewards parsimony. Accordingly, the path model for the current study will be primarily evaluated using these two fit indices. A value of .95 or higher is indicative of good model fit for the CFI. For the RMSEA, values below .05 indicate a good fit and values between .05 and .08 indicate a fair fit (Kline 2005).

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<sup>2</sup> The chi-square difference test can be used appropriately to compare mediation models and may be used for that purpose in the current study.

The theoretical path model (Figure 2) shows that perceived credibility is expected to fully mediate the relationship between whistle-blowing report source and the allocation



**Figure 2 - Theoretical Model for Hypothesis 4**

of resources, but only partially mediate the relationship between reputation threat and allocation of resources. If the report source is anonymous, then the value for report source is 1, otherwise 0. Thus, the relationship between report source and credibility is predicted to be negative. If the wrongdoing method is exploitation, then the value for reputation threat is 1, otherwise 0. Consequently, the relationships between the reputation threat and credibility and resource allocation are hypothesized to be negative. However, the path between credibility and resource allocation is predicted to have a positive coefficient.



### **Additional Analysis**

The information gathered from the answers to the debriefing questions should add insight to the issues underlying the motivated reasoning that is hypothesized in the study. Two of these questions were additional measures of credibility and another asked how important credibility was in the participant's decision to allocate resources. Three questions addressed perceived reputation threat and two questions targeted perceived responsibility for the wrongdoing. Another question addressed accountability, and two questions addressed the interpretation of new information. This data was first examined with confirmatory factor analysis to determine if the intended measures of individual constructs exhibited convergent validity and if the constructs exhibited discriminate validity. Differences in means among the groups were then compared using planned contrasts.

In addition to questions about motivated reasoning, the debriefing section contained several inquiries soliciting the participant's opinion about the helpfulness of the anonymous whistle-blowing channel. These were directed at gaining insights about the whistle-blowing mandates included in the Sarbanes-Oxley Act of 2002. Similar questions were asked of ACMs in Hunton and Rose (2008); consequently, the responses of the CAEs in this study will be compared to the responses of ACMs in the prior study.

## IV. DATA ANALYSIS AND RESULTS

### **Diagnostic Procedures**

#### *Manipulation Checks*

The first two debriefing questions were manipulation check questions to test participants' recognition and comprehension of the whistle-blowing report source and the alleged method of wrongdoing. All participants responded correctly to the question addressing the report source (anonymous or non-anonymous). However, 11 participants did not respond correctly to the question addressing the method of wrongdoing. Thus, these 11 individuals were excluded from further analysis (see Table 1).

#### *Diagnostic Tests*

First, standard diagnostic steps to test for data entry errors and validity of statistical assumptions were performed. All responses were in the minimum to maximum range of the scale for each question. Levene's tests revealed that the homogeneity of variance assumption was not violated for any variable. Skewness and kurtosis measures of the variables indicated no significant violations of the normal distribution assumption, however the Kolmogorov-Smirnov and Shapiro-Wilk tests revealed that the distribution of the two dependent variables is not normal. Since the models formed with these data were not used for predictive purposes, this violation was not critical. Observations are independent in that each participant was assigned to only one condition.

### ***Factor Analysis***

Several debriefing questions were designed to measure perceived reputation threat, responsibility, and accuracy goal, and also as additional measures of report source credibility. Principal components factor analysis with direct oblimin rotation was used to validate the convergent and divergent validity of these measures. An oblique rotation was employed because these psychological measures are clearly related. The analysis included Credibility of Individual (Q3CR2), Responsibility of IA (Q4RS1), Reputation CAE (Q5RP1), Importance of Credibility (Q7CRDS), Importance of Justification (Q8JUST), Probability Report is True (Q9PROB), Personal Responsibility (Q10RS2), Effect Reputation (Q11RP2), and IA Dept Reputation (Q12RP3). The KMO measure of sampling adequacy was acceptable at .676 and Bartlett's Test of Sphericity was significant ( $p < .000$ ) indicating that the R matrix was not an identity matrix and that factor analysis was appropriate for this data. A review of the anti-image correlation matrix revealed the KMO for all variables was above .5 and that the off-diagonal values were acceptable.

The pattern matrix showed that the three reputation questions (Q5RP1, Q11RP2, and Q12RP3) loaded on one factor at .972, .957, and .891 respectively. The credibility questions (Q3CR2 and Q9PROB) loaded on the second factor at .869 and .834 respectively. The responsibility questions (Q4RS1 and Q10RS2) loaded on the third factor at .919 and .821 respectively, and the accuracy goal questions (Q7CRDS and Q8JUST) loaded on the fourth factor at .872 and .794 respectively. All other loadings had absolute values of .215 or less. A score was calculated for each factor using the means of

the questions that loaded on that factor. The questions within each of the four factors had the same response scale so no recoding of data was necessary. These four new variables are REPUSC (Reputation Score), CREDSC (Credibility Score), RESBSC (Responsibility Score), and ACCRSC (Accuracy Score). The pattern matrix is shown in Table 3.

**Table 3 - Factor Analysis – Pattern Matrix**

	Component			
	1	2	3	4
Effect Reputation (Q11)	<b>0.972</b>	-0.025	0.015	-0.023
IA Dept Reputation (Q12)	<b>0.957</b>	-0.022	-0.020	0.052
Reputation CAE (Q5)	<b>0.891</b>	0.062	-0.005	-0.039
Credibility Indiv (Q3)	0.049	<b>0.869</b>	0.052	-0.053
Probability WB True (Q9)	-0.035	<b>0.834</b>	-0.128	0.055
Responsibility of IA (Q4)	0.124	-0.033	<b>0.919</b>	0.002
Pers Responsibility (Q10)	-0.215	-0.057	<b>0.821</b>	0.012
Impt Cred in Decision (Q7)	-0.002	-0.139	-0.151	<b>0.872</b>
Impt of Justification (Q8)	-0.019	0.166	0.194	<b>0.794</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

## Hypotheses 1a and 2a

### *Diagnostics for Hypotheses 1a and 2a*

Hypotheses 1a and 2a were both tested using ANOVA with Credibility Assess (CRED) as the dependent variable. As a preliminary step, regression analyses were conducted to test for the significance of demographic variables. The primary independent variables of Report Source (REPSOR) and Reputation Threat (REPTHR) were included along with the following demographic variables: Participant is CAE (CAE; coded as 1 if the participant was a CAE and 0 if a Deputy), Participant is CPA (Q20CPA), Participant is CIA (Q20CIA), Participant Has Other Designation (Q20OTH), Years of Internal Audit Experience (Q21EIA), Years of External Audit Experience (Q21EEA), Years of

Corporate Accounting Experience (Q21ECA), Years of Tenure with Current Organization (Q22TEN), and Publicly Traded Status (PUB). The PUB variable was coded as 1 if the participant's company was publicly traded, 0 otherwise.

Two different variable entry methods (stepwise and enter) were used. The stepwise method showed two significant covariates, Q20CPA ( $p < .022$ ) and PUB ( $p < .010$ ), while the enter method also yielded two, PUB ( $p < .021$ ) and Q22TEN ( $p < .039$ ). REPSOR and REPTHR remained significant ( $p < .050$ ) in both of these models. The  $R^2_a$  for the stepwise model was .221 and the  $R^2_a$  for the enter model was .216. The enter method model indicated that all variance inflation factors (VIFs) were greater than one, but less than two, indicating that multicollinearity was not an issue.

Influence diagnostics were then analyzed for two models; one included Q20CPA and PUB and the other included PUB and Q22TEN. The problem cases were the same for both models, consequently this discussion focuses on the model with Q20CPA and PUB. Five cases had an R-Student statistic with an absolute value greater than two. Case #60 had a value of 4.198 and Case #68 was the next highest at 2.673. Cook's D was highest for Case #33 (.157) and Case #60 (.140). Hat diagonal values were not of concern as none of the cases had a value greater than 0.124 (calculated at  $2p/n = 10/81$ ).<sup>3</sup> The COVRATIO for each of three cases was less than the benchmark of  $1 - 3p/n = .815$ . Case #9 was .779, Case #60 was .390, and Case #68 was .728. None of the absolute values for the DFFITS statistic exceeded two. An R-Student statistic greater than two indicates that an observation may be an outlier. A COVRATIO that is less than the benchmark value

<sup>3</sup> This is expected as a high HAT diagonal would indicate a high leverage point (an unusual value for an independent variable). All independent variables in this model carried values of 1 or 0.

indicates that an observation is having a negative influence on the regression model.

Because of its extreme diagnostic values, Case #60 was deemed to be an outlier.

A regression analysis with Q20CPA and PUB as covariates was then conducted with Case #60 removed. PUB was significant at  $p < .002$  and Q20CPA was significant at  $p < .033$ . REPSOR and REPTHR were both significant at  $p < .050$ . The  $R^2_a$  for this model was .310. An ANCOVA ( $n = 80$ ) with REPSOR, REPTHR, both the Q20CPA and PUB covariates, and the interaction term for REPSOR and REPTHR showed PUB to be significant at  $p < .002$  and Q20CPA to be significant at  $p < .035$ . REPSOR was significant at  $p < .000$  and REPTHR was significant at  $p < .002$ . The interaction between these two variables was insignificant at  $p < .980$ . The  $R^2_a$  for this model was .301. Finally, an ANCOVA with only PUB as a covariate showed PUB to be significant at  $p < .002$ , REPSOR to be significant at  $p < .001$ , REPTHR to be significant at  $p < .001$ , and the interaction to be insignificant at  $p < .983$ . The  $R^2_a$  for this model was .267.

The primary variables of interest, REPSOR and REPTHR, remained statistically significant at  $p < .050$  or less for all versions of the model and the interaction remained clearly insignificant; consequently, the choice of model did not appear to be critical to the testing of Hypotheses 1a and 2a. The model containing only the primary variables, their interaction, and the covariate PUB was, therefore, retained for testing Hypotheses 1a and 2a. This model was parsimonious and included the most significant covariate. The responses of all participants except Case #60 were used ( $n = 80$ ). Levene's test for equality of error variances for this model was insignificant ( $p < .380$ ) and the  $R^2_a$  was .267.

### *Tests of Hypotheses 1a and 2a*

Hypotheses 1a and 2a were both tested using ANCOVA with Credibility Assess (CRED) as the dependent variable. Hypotheses 1a states that CAEs will perceive anonymous whistle-blowing allegations to be less credible than non-anonymous whistle-blowing allegations. Table 4, Panel A shows means, standard deviations, and sample size for the credibility assessment across treatment conditions. Panel B shows the results of the ANCOVA with CRED as the dependent variable and REPSOR, REPTHR, along with the interaction term and the covariate PUB as independent variables. The variable for REPSOR was significant ( $F = 10.968, p < .001$ ). The pattern of means in Panel A indicates that credibility assessments were lower for anonymous reports (.413) than for non-anonymous reports (.520); thus Hypothesis 1a is supported.

Hypotheses 2a states that CAEs who receive a whistle-blowing allegation that suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls (circumvention of internal controls) will assess the allegation to be less (more) credible. The results of the ANCOVA presented in Table 4, Panel B also shows that the variable REPTHR was significant ( $F = 10.526, p < .002$ ). The pattern of means in Panel A indicates that mean credibility assessments were lower for wrongdoing allegedly accomplished by exploitation of substantial weaknesses in internal controls (.403) than for that accomplished by circumvention of internal controls (.529); thus, Hypothesis 2a is supported. Some of the participants explained<sup>4</sup> the reasoning for their responses to the

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<sup>4</sup> Many participants wrote comments in the case study materials. Others comments were noted by the administrator during conversations with participants after the case study was completed.

**Table 4- Credibility of Whistle-Blowing Report****Panel A:** Mean (standard deviation) {sample size} across treatment conditions

Reputation Threat	Report Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	0.475 (0.155) {20}	0.581 (0.160) {21}	0.529 (0.165) {41}
Exploitation (high)	0.347 (0.135) {19}	0.455 (0.199) {20}	0.403 0.177 {39}
Main Effect: Report Source	0.413 (0.189) {39}	0.520 (0.189) {41}	0.467 (0.181) {80}

**Panel B:** ANCOVA Results

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Publicly Traded (PUB)	0.24	1	0.24	9.979	0.002	n / a
Report Source (REPSOR)	0.264	1	0.264	10.968	0.001	H1a
Reputation Threat (REPTHR)	0.254	1	0.254	10.526	0.002	H2a
RPTSOR X REPTHR	1.04E-05	1	1.04E-05	0.000	0.983	H3a
Error	1.806	75	0.024			

Adjusted R<sup>2</sup> = .267

credibility assessment. One of the participant's justifications was: "An anonymous call has ground zero credibility, but I will investigate. A non-anonymous source is above ground zero." Another participant indicated that: "Non-anonymous can also be less credible. Have had experience with employees posturing and creating a set up in order to sue the company."



### Differences in CAEs and Deputies

To investigate whether there were any differences in responses between the CAE participants and the Deputies, separate analyses were performed for each of these groups. Table 5, Panel A shows means, standard deviations, and sample size for the credibility assessment across treatment conditions for CAEs ( $n = 39$ ) and Panel B shows these statistics for Deputies ( $n = 41$ ). Table 6, Panels A and B show the results of the two ANCOVAs with CRED as the dependent variable and REPSOR, REPTH, along with the interaction term, and the covariate PUB as independent variables. The ANCOVAs indicate that responses of CAEs were different from those of Deputies in some respects. For CAEs, REPSOR remained highly significant ( $F = 12.576$ ,  $p < .001$ ), but REPTH became less significant ( $F = 3.316$ ,  $p < .066$ ). On the other hand, the

**Table 5 - Credibility of Whistle-Blowing Report, Means, CAEs versus Deputies**

Mean (Standard Deviation) {Sample Size} Across Treatment Conditions

**Panel A: CAEs**

Reputation Threat	Report Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	0.440 (0.117) {10}	0.590 (0.152) {10}	0.515 (0.153) {20}
Exploitation (high)	0.322 (0.130) {9}	0.500 (0.211) {10}	0.416 (0.195) {19}
Main Effect: Report Source	0.384 (0.134) {19}	0.545 (0.185) {20}	0.467 (0.180) {39}

**Panel B: Deputies**

Reputation Threat	Report Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	0.510 (0.185) {10}	0.573 (0.174) {11}	0.543 (0.178) {21}
Exploitation (high)	0.370 (0.142) {10}	0.410 (0.185) {10}	0.390 (0.162) {20}
Main Effect: Report Source	0.440 (0.176) {20}	0.495 (0.194) {21}	0.468 (0.185) {41}

**Table 6 - Credibility of Whistle-Blowing Report, ANCOVA Results, CAEs versus Deputies**

**Panel A: CAEs, (n = 39)**

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Publicly Traded (PUB)	0.154	1	0.154	7.355	0.010	n / a
Report Source (REPSOR)	0.264	1	0.264	12.576	0.001	H1a
Reputation Threat (REPTHR)	0.076	1	0.076	3.616	0.066	H2a
RPTSOR X REPTHR	1.02E-05	1	1.02E-05	0.000	0.983	H3a
Error	0.714	34	0.021			

Adjusted R<sup>2</sup> = .349**Panel B: Deputies, (n = 41)**

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Publicly Traded (PUB)	0.073	1	0.073	2.560	0.118	n / a
Report Source (REPSOR)	0.042	1	0.042	1.467	0.234	H1a
Reputation Threat (REPTHR)	0.198	1	0.198	6.923	0.012	H2a
RPTSOR X REPTHR	3.55E-07	1	3.55E-07	0.000	0.997	H3a
Error	1.028	36	0.029			

Adjusted R<sup>2</sup> = .166

ANCOVA for the Deputy group showed REPSOR was insignificant ( $F = 1.467, p < .234$ ) and REPTHR remained significant ( $F = 6.923, p < .012$ ). The interaction term remained insignificant for both. Thus, Hypothesis 1a is supported for CAEs, but not for Deputies. Hypothesis 2a has strong support from the Deputy group and moderate support from the CAE group.

Corroborating the outcome of the two ANCOVAs, a review of the mean credibility assessments gives further insight. Although the overall mean credibility assessment for Non-Anonymous reporters was greater than that for Anonymous reporters in both the CAE and Deputy groups, there was a larger difference between the two means for CAEs than for Deputies. CAEs in the Non-Anonymous/ Circumvention (NA/C) condition gave the highest mean rating (0.590), while CAEs in the Non-Anonymous/Exploitation (NA/E) condition gave the second highest mean assessment (0.500). Deputies in the NA/C condition also gave the highest credibility assessments. In contrast to the CAE group, the second highest assessment for Deputies was given by those in the Anonymous/Circumvention (A/C) group.

## **Hypotheses 1b and 2b**

### ***Diagnostics for Hypotheses 1b and 2b***

Hypotheses 1b and 2b were both tested with Resource Allocation (RESAL) as the dependent variable. As a preliminary step, regression analyses were conducted to test for the significance of demographic variables. Once again, the primary independent variables of REPSOR and REPTHR were included along with the following demographic

variables: CAE, Q20CPA, Q20CIA, Q20OTH, Q21EIA, Q21EEA, Q21ECA, Q22TEN, and PUB.

Both the stepwise and enter variable entry methods were used. The stepwise method showed two significant covariates, CAE ( $p < .000$ ), and Q20CPA ( $p < .026$ ). The enter method showed CAE as most significant ( $p < .001$ ) and Q20CPA also as somewhat significant ( $p < .088$ ). REPSOR and REPTHR were insignificant in both of these models. The  $R^2_a$  for the stepwise model was .223 and the  $R^2_a$  for the enter model was .173. The VIFs for all variables in the enter model were greater than one, but less than two, indicating that multicollinearity was not a concern.

Influence diagnostics were then analyzed for the model including CAE and Q20CPA as covariates. Three cases had an R-Student statistic with an absolute value greater than two indicating these cases may be outliers. The highest was Case #48 with a value of -2.460 and the next highest was Case #25 with a value of -2.303. These two cases also exhibited the highest Cook's Ds at .072 and .084 respectively. Case #48 had a COVRATIO lower than the benchmark ( $1 - 3p/n = .815$ ) with a value of .771, which indicated a negative impact on the model. Case # 25 had a COVRATIO of .822. None of the cases had an unusual value for the HAT diagonal or for DFFITS. Although none of these cases was clearly an outlier, Case #25 and Case #48 were removed from the model due to the fact they had at least two unusual statistics.

The regression analysis described above was conducted again with these two responses excluded from the data set ( $n = 79$ ). CAE was significant at  $p < .000$  and Q20CPA was significant at  $p < .008$ . REPSOR and REPTHR were insignificant. This

model had an  $R^2_a$  of .231. An ANCOVA with the 79 retained cases was run with REPSOR, REPTHR, their interaction, and CAE and Q20CPA as covariates. Both covariates were significant at  $p < .01$ . REPSOR and REPTHR remained insignificant as did their interaction. The  $R^2_a$  for this model was .238.

The primary variables of interest, REPSOR and REPTHR, remained statistically insignificant for all versions of the model. The interaction term remained insignificant as well. Accordingly, the choice of model did not appear to be critical to the testing of Hypotheses 1b and 2b. The model excluding Case #25 and Case #48 and retaining CAE and Q20CPA as covariates was selected for testing Hypotheses 1b and 2b. Levene's test for equality of error variances for this model was insignificant at  $p < .885$  and the  $R^2_a$  was .238.

### ***Tests of Hypotheses 1b and 2b***

Hypothesis 1b states that CAEs will allocate fewer resources to investigating anonymous whistle-blowing reports than they will allocate to investigating non-anonymous whistle-blowing reports. Table 7, Panel A shows means, standard deviations, and sample size for the resource allocation across treatment conditions. Panel B shows the results of an ANCOVA with RESAL as the dependent variable and REPSOR, REPTHR, and the interaction term as independent variables. CAE and Q20CPA were included as covariates. Although Panel A shows that, as predicted, the mean of resources allocated by those in the anonymous condition (\$69,079) was less than the mean of resources allocated in the non-anonymous condition (\$70,244), Panel B reveals that the

variable for REPSOR was insignificant ( $F = 0.366, p < .547$ ). Consequently, Hypothesis 1b is not supported.

**Table 7 - Resource Allocation**

**Panel A:** Mean (standard deviation) {sample size} across treatment conditions

Reputation Threat	Whistle-Blowing Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	63,000 (26,577) {20}	70,952 (28,400) {21}	67,073 (24,277) {41}
Exploitation (high)	75,833 (29,568) {20}	69,500 (29,285) {20}	72,500 (29,195) {38}
Main Effect: Report Source	69,079 (28,400) {38}	70,244 (28,481) {41}	69,684 (28,265) {80}

**Panel B:** ANCOVA Results

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Participant is CAE (CAE)	9.133E9	1	9.133E9	15.000	0.000	n / a
Participant is CPA (Q20CPA)	4.442E9	1	4.442E9	7.296	0.009	n / a
Report Source (REPSOR)	2.226E8	1	2.226E8	0.366	0.547	H1b
Reputation Threat (REPTHR)	7.684E8	1	7.684E8	1.262	0.265	H2b
RPTSOR X REPTHR	9.924E8	1	9.924E8	1.630	0.206	H3b
Error	4.445E10	73	6.089E8			

Adjusted  $R^2 = .238$

Hypothesis 2b predicts that CAEs who receive a whistle-blowing allegation that suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls (circumvention of internal controls) will allocate fewer (more) resources toward investigating the allegation. The results of the ANCOVA presented in Table 7, Panel B shows the variable for REPTHR was insignificant ( $F = 1.262, p < .265$ ). The pattern of means in Panel A indicates that resource allocations were actually higher for wrongdoing allegedly accomplished by exploitation of weaknesses in internal controls (\$72,500) than for that allegedly accomplished by circumvention of internal controls (\$67,073); thus, Hypothesis 2b is not supported.

Participant comments lend insight to these findings. With regard to resource allocation decisions, multiple CAE participants claimed they would spend “what ever it takes” to investigate the allegations and that “budget was not a consideration.” Additional comments were: “If there is a whistle-blowing activity there is no budget, you just do it!” and “If restatement is out there, budget is beside the point. There is an open check book.” With regard to the effect that the report’s credibility had on the resource allocation choice, representative comments were: “Regardless of thoughts of credibility, (I) must treat the report as valid until proven otherwise,” and also, “I may look at non-anonymous as more credible – wish all calls were non-anonymous because they are easier to investigate – but, I make every effort to be impartial and treat all reports as valid and worthy of investigation,” and “Circumvention of controls is on the higher end of credibility.”

### Differences in CAEs and Deputies

The highly significant CAE covariate suggested that there may be distinct differences in the RESAL responses of the CAE participants when compared to the Deputy participants. To explore these possibilities, separate analyses were conducted for each of these participant groups. Table 8, Panel A shows means, standard deviations, and sample size for the credibility assessment across treatment conditions for CAEs (n = 39) and Panel B shows these statistics for Deputies (n = 40). Table 9, Panels A and B show the results of the two ANCOVAs with RESAL as the dependent variable and REPSOR, REPTHR, along with the interaction term, and the covariate Q20CPA as independent variables.

**Table 8- Resource Allocation, Means, CAEs versus Deputies**

Mean (Standard Deviation) {Sample Size}  
Across Treatment Conditions

**Panel A: CAEs**

Reputation Threat	Report Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	74,000 (27,568) {10}	82,000 (23,944) {10}	78,000 (25,464) {20}
Exploitation (high)	88,889 (22,048) {9}	84,000 (25,906) {10}	86,316 (23,620) {19}
Main Effect: Report Source	81,053 (25,581) {19}	83,000 (24,301) {20}	82,051 (24,621) {39}



**Panel B: Deputies**

Reputation Threat	Whistle-Blowing Source		Main Effect: Reputation Threat
	Anonymous	Non-Anonymous	
Circumvention (low)	52,000 (21,499) {10}	60,909 (29,395) {11}	56,667 (25,707)
Exploitation (high)	62,778 (31,436) {9}	55,000 (25,927) {10}	58,684 (28,129)
Main Effect: Report Source	57,105 (26,474) {19}	58,095 (27,271) {21}	57,625 (26,554) {40}

**Table 9 - Resource Allocation, ANCOVA Results, CAEs versus Deputies****Panel A: CAEs, (n = 39)**

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Participant is CPA (Q20CPA)	1.99E+09	1	1.99E+09	3.393	0.074	n / a
Report Source (REPSOR)	2.05E+08	1	2.05E+08	0.350	0.558	H1a
Reputation Threat (REPTHR)	2.60E+08	1	2.60E+08	0.444	0.510	H2a
RPTSOR X REPTHR	4.15E+08	1	4.15E+08	0.708	0.406	H3a
Error	1.99E+10	34	5.86E+08			

Adjusted R<sup>2</sup> = .033**Panel B: Deputies (n = 40)**

Source	Sum of Squares	df	Mean Square	F	p	Hypothesis
Participant is CPA (Q20CPA)	2.297E9	1	2.297E9	3.286	.078	n / a
Report Source (REPSOR)	4.893E7	1	4.893E7	0.070	0.793	H1b
Reputation Threat (REPTHR)	4.663E8	1	4.663E8	0.667	0.420	H2b
RPTSOR X REPTHR	5.884E8	1	5.884E8	0.842	0.365	H3b
Error	2.446E10	35	6.988E8			

Adjusted R<sup>2</sup> = .009

The ANCOVAs indicated that REPSOR, REPTHR, and their interaction term remained insignificant for the individual participant groups. An examination of the mean dollars of resources allocated for the two groups revealed that CAEs in all four conditions allocated more resources to investigate the allegations than did Deputies. Both CAEs and Deputies in the NA/E condition allocated the most dollars and those in the A/C condition allocated the least.

Like CAEs, many Deputies chose to write comments on their case study materials. Although many of the comments mirrored the opinions expressed by CAEs such as, “Due to the nature of the allegation, it should be investigated fully,” and, “(We) should not cut corners on investigating allegations of misconduct,” there were some that showed a different trend. Examples of these were: “Based on the allegation, I would not invest a lot of money” (this participant was in the A/E condition), and “I would definitely allocate more money if the source was non-anonymous.” Moreover, many of the Deputies that made statements about the importance of investigating allocated less the maximum \$100,000.

### **Hypotheses 3a and 3b**

The intended method of analysis for Hypotheses 3a and 3b was a planned contrast of differences in means. The necessary condition for these contrasts to be conducted was that the interaction term in the applicable ANCOVA had to be statistically significant.

**Hypothesis 3a:** The difference in perceived credibility of a whistle-blowing allegation between anonymous and non-anonymous reporting will be significantly greater when the allegation suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls relative to when the fraud was perpetrated by the circumvention of internal controls.

**Hypothesis 3b:** The difference in investigatory resource allocation between anonymous and non-anonymous reporting will be significantly greater when the allegation suggests that the fraud was perpetrated by the exploitation of substantial weaknesses in internal controls relative to when the fraud was perpetrated by the circumvention of internal controls.

Hypothesis 3a focused on CRED as the dependent variable. Table 4, Panel B indicates an insignificant interaction term ( $F = 0.000$ ,  $p < .983$ ). Therefore, no further testing is warranted and Hypothesis 3a is not supported. Similarly, the test for Hypothesis 3b is not appropriate because the interaction term in the ANCOVA with RESAL as the dependent variable is insignificant ( $F = 1.630$ ,  $p < .206$ ). This result is shown in Panel B of Table 7. Hypothesis 3b is not supported.

#### **Hypothesis 4**

Hypothesis 4 predicted that perceived credibility would mediate the relationship between report source and the dollar amount of investigatory resources allocated. It also predicted that perceived credibility would mediate the relationship between reputation threat and the dollar amount of investigatory resources allocated. Because the relationship between both REPSOR and REPTHR and RESAL was shown to be insignificant, the test for Hypothesis 4 is not warranted. Thus, Hypothesis 4 is not supported.

#### **Additional Analysis**

##### *Debriefing Questions*

The purpose of the debriefing questions was to provide additional insights into the judgment and decision making processes of CAEs. The means and standard deviations, by treatment condition, of the responses to each debriefing question (Questions 3 through

19)<sup>5</sup> are displayed in Table 10. In addition, the results of planned contrasts comparing the means of responses of participants in the Circumvention condition to the means of the responses of participants in the Exploitation condition are also shown in Table 10.

Questions 3, 7, and 13 specifically addressed credibility of anonymous versus non-anonymous whistle-blowers and reports. Consistent with the significance of REPTHR to the determination of the dependent variable CRED, the mean responses to Question 3 indicated that those in the Circumvention condition rated the credibility of the individual who made the whistle-blowing report significantly higher than did those in the Exploitation condition ( $F = 5.162, p < .026$ ). These results suggest that participants did not distinguish between the credibility of the reporter and the credibility of the report itself. The means for each of the four conditions in Question 3 were identical or quite similar to those for CRED (see Table 4).

Question 7 addressed the importance of the credibility of the whistle-blower in the participant's decision to allocate resources. The participants in the Circumvention condition indicated that this factor was moderately important (mean responses were 3.55 and 3.71; the scale indicated that a 4 was moderately important). Exploitation condition participants rated the credibility of the whistle-blower as less than moderately important; however, the difference in means was not significant ( $F = 1.248, p < .267$ ).

Question 13 asked participants whether anonymous or non-anonymous whistle-blowing reports were generally more credible. Again, there was no significant difference in the means between the two REPTHR conditions ( $F = 0.162, p < .689$ ). All participants

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<sup>5</sup> Questions 1 and 2 were manipulation check questions and are not, therefore, addressed here.

Table 10 - Clinical Debriefing Items

Response Item Wording	Anonymous x Circumvention Means (SD)	Non-Anonymous x Circumvention Means (SD)	Anonymous x Exploitation Means (SD)	Non-Anonymous x Exploitation Means (SD)	F	p
3. Based only on the information presented in the case, what is your assessment of the credibility of the individual who made the whistle-blowing report? 0% = Not Credible at All, 50% = moderately Credible, 100% = Completely Credible	0.48 (0.20)	0.58 (0.16)	0.38 (0.21)	0.48 (0.21)	5.162	.026
4. Should the allegation be true, what level of responsibility do you believe internal audit has for the wrongdoing? 0% = Not at All Responsible, 50% = Moderately Responsible, 100% = Extremely Responsible	0.22 (0.30)	0.24 (0.23)	0.49 (0.30)	0.40 (0.27)	12.260	.001
5. If an investigation reveals that the allegation is true, how do you believe that the whistle-blowing report could affect your reputation as the Chief Audit Executive? -5 Very Negative Effect, 0 = No Effect, +5 Very Positive Effect <sup>a</sup>	-1.75 (2.15)	-1.52 (1.86)	-2.25 (1.94)	-1.65 (2.25)	0.470	.495

Response Item Wording	Anonymous x Circumvention Means (SD)	Anonymous x Circumvention Means (SD)	Non-Anonymous x Circumvention Means (SD)	Anonymous x Exploitation Means (SD)	Non-Anonymous x Exploitation Means (SD)	F	p
6. Circle the answer that best describes the position you believe the whistle-blower held in the case you just completed. The position of the whistle-blower is: <sup>b</sup> 1 = Senior Management, 2 = Mid Level Management, 3 = Staff, 4 = Lower Level/Hourly, 5 = No Specific Impression	2.19 (0.66)	2.17 (0.51)	2.14 (0.36)	2.11 (0.47)	n / a	n / a	n / a
7. How important was the credibility of the whistle-blower in your decision to allocate resources to the investigation of the whistle-blowing report? 1 = Not at All Important, 4 = Moderately Important, 7 = Very Important	3.55 (1.99)	3.71 (1.79)	2.95 (1.39)	3.45 (1.73)	1.248	.267	
8. How important was the possibility that you would have to justify your decision to the audit committee when you made your budget allocation decision? 1 = Not at All Important, 4 = Moderately Important, 7 = Very Important	2.50 (1.79)	3.10 (1.81)	2.75 (1.29)	2.65 (1.73)	0.069	.793	
9. What is the probability that the whistle-blowing report is true? 0% = No Possibility That It Is True, 50% = I Am Undecided, 100% = I Am Certain That it is True	0.45 (0.14)	0.53 (0.16)	0.40 (0.14)	0.44 (0.13)	4.997	.028	

Response Item Wording	Anonymous x Circumvention		Non-Anonymous x Circumvention		Anonymous x Exploitation		Non-Anonymous x Exploitation		F	p
	Means (SD)		Means (SD)		Means (SD)		Means (SD)			
10. Would you feel any degree of personal responsibility for the earnings management should the allegation be true? 0% = Not at All Responsible, 50% = Moderately Responsible, 100% = Extremely Responsible	0.25 (0.24)	=	0.30 (0.24)	<	0.46 (0.27)	=	0.41 (0.26)	8.192	.005	
11. For the case you just completed, how do you believe that the whistle-blowing report could affect your reputation if an investigation reveals that the allegation is true? -5 Very Negative Effect, 0 = No Effect, +5 Very Positive Effect <sup>a</sup>	-1.55 (2.06)	=	-1.71 (1.76)	=	-1.85 (1.79)	=	-1.15 (2.39)	0.084	.773	
12. How do you believe the whistle-blowing report could affect the internal audit function's reputation if an investigation reveals that the allegation is true? -5 Very Negative Effect, 0 = No Effect, +5 Very Positive Effect <sup>a</sup>	-1.85 (1.76)	=	-1.45 (1.73)	=	-1.85 (1.79)	=	-1.15 (2.39)	0.120	.730	
13. In general, what type of whistle-blowing report do you believe is more credible, anonymous or non-anonymous? -5 = Anonymous Are More Credible, 0 = No Difference in Credibility, +5 = Non-Anonymous Are More Credible <sup>a</sup>	2.40 (2.26)	=	1.40 (2.37)	=	1.70 (2.94)	=	1.65 (2.39)	0.162	.689	

Response Item Wording	Anonymous x Circumvention Means (SD)	Anonymous x Circumvention x Circumvention Means (SD)	Anonymous x Exploitation Means (SD)	Non-Anonymous x Circumvention x Circumvention Means (SD)	Anonymous x Exploitation Means (SD)	Non-Anonymous x Exploitation Means (SD)	F	p
14. In general, what type of whistle-blowing report do you believe is more difficult to investigate, anonymous or non-anonymous? -5 = Anonymous Are More Difficult, 0 = No Difference in Difficulty, +5 = Non-Anonymous Are More Difficult <sup>a</sup>	-3.70 (2.05)	=	-3.00 (2.29)	-2.70 (1.49)	=	-3.00 (2.18)	0.195	.660
15. In general, do you believe that it is likely for external auditors to issue a clean audit opinion when management has been manipulating earnings to the extent that a restatement is necessary? 0% = Not Likely At All, 50% = Moderately Likely, 100% = Very Likely	0.45 (0.26)	=	0.51 (0.27)	0.46 (0.23)	=	0.40 (0.24)	0.002	.965
16. In general, do you believe that anonymous whistle-blowing reports are useful for detecting and preventing financial statement fraud? -5 = Not Useful At All, 0 = Indifferent, +5 = Very Useful <sup>a</sup>	2.10 (2.10)	=	2.75 (2.00)	2.75 (1.68)	=	2.35 (2.32)	0.075	.785
17. In general, what is the probability that internal audit would fail to detect significant manipulation of earnings by senior management? 0% = Not Probable At All, 50% = Moderately Probable, 100% = Very Probable	0.52 (0.22)	=	0.46 (0.21)	0.57 (0.16)	>	0.47 (0.25)	3.052	.085



Response Item Wording	Anonymous x Circumvention	Non-Anonymous x Circumvention	Anonymous x Exploitation	Non-Anonymous x Exploitation	F	p
	Means (SD)	Means (SD)	Means (SD)	Means (SD)		
18. Based upon this new evidence, do you believe that the whistle-blowing report was more likely made because of disgruntled employees attempting to discredit management with false accusations, or do you believe that the report was made because a concerned employee was aware of management's manipulations of earnings? <sup>c</sup>	-0.40 (1.76)	0.43 (2.01)	-0.80 (1.61)	-0.45 (1.73)	2.588	.112
-5 = Employees Are Trying to Discredit Management, 0 = I Have No Opinion, +5 = Employee IS Aware of Manipulation <sup>a</sup>						
19. Based on the new evidence, what is your assessment of the credibility of the individual who made the whistle-blowing report?	0.43 (0.20)	0.54 (0.16)	0.36 (0.19)	0.42 (0.22)	5.014	.028
0% = Not Credible at All, 50% = moderately Credible, 100% = Completely Credible						

<sup>a</sup> The scale on the questionnaire did not show negative numbers. The scale was converted to -5 through +5 for the purposes of

analysis. See Appendix for the scale presented to participants.

<sup>b</sup> Responses from 15 participants who chose "No Specific Impression" as their answer were excluded from the analysis before means were calculated (n = 66). The response scale indicates nominal variables of different job positions; thus a difference in means test is not appropriate.

<sup>c</sup> See Appendix, Question 18 for the new scenario presented along with this question.

regarded non-anonymous reports as generally more credible, although not a great deal more credible. The 11 point scale had a midpoint of 0 indicating no difference. A positive score<sup>6</sup> indicated that non-anonymous reports were more credible and mean scores ranged from 2.40 (A/C) to 1.40 (NA/C). One participant commented below Question 13: “Both can be credible for different reasons. Non-anonymous is more credible because they are staking their reputation on their report.”

Question 9 was designed to measure credibility using different language. It asked participants to assess the probability that the whistle-blowing report was true. The patterns of means for the four treatment conditions for this question were very similar to those of Question 3 which referred to the credibility of the individual. Likewise, the difference in means between the Circumvention and Exploitation groups was significant ( $F = 4.997, p < .028$ ); participants in the Circumvention conditions gave a higher probability.

Following the results of the factor analysis, the responses to Question 3 and Question 9 were combined to create the variable CREDSC. As expected from the results of Question 3 and Question 9 individually, the difference in means between the Circumvention and Exploitation groups was significant ( $F = 6.923, p < .010$ ). Participants in the Circumvention conditions had a higher mean CREDSC than those in the Exploitation conditions (see Table 11).

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<sup>6</sup> None of the response scales that were presented to participants in the debriefing questions showed negative signs. Responses on the left side of 0 were coded as negative and responses on the right side of 0 were coded as positive. See Appendix for the exact formats that were presented to participants.

Table 11 - Comparison of Scored Variables

Variable	Anonymous x Circumvention		Non-Anonymous x Circumvention	Non-Anonymous x Exploitation	Anonymous x Exploitation		Non-Anonymous x Exploitation	F	p
	Means (SD)				Means (SD)	Means (SD)			
Credibility (CREDSC)	0.46 (0.15)	=	0.55 (0.15)	>	0.39 (0.14)	=	0.46 (0.15)	6.923	.010
Reputation (REPUSC)	-1.72 (1.87)	=	-1.58 (1.74)	=	-1.98 (1.75)	=	-1.32 (2.25)	0.000	1.00
Responsibility (RESBSC)	0.23 (0.15)	=	0.27 (0.21)	<	0.48 (0.25)	=	0.40 (0.24)	13.149	.001
Accuracy (ACCRSC)	3.03 (1.63)	=	3.40 (1.64)	=	2.85 (1.08)	=	3.05 (1.30)	0.692	0.408

Three debriefing questions, 5, 11, and 12, addressed reputation threat issues. Question 5 inquired as to how the whistle-blowing report would effect “your reputation as the Chief Audit Executive.” Although the differences in means between the two Reputation Threat conditions were not significant ( $F = 0.470, p < 0.495$ ), the Anonymous/Exploitation (A/E) group indicated the most negative reputation effect. Question 11 also addressed the effect of the report on “your reputation” and the results were quite similar to those of Question 5 ( $F = 0.084, p < 0.773$ ). The A/E group, again, predicted the most negative effect. Question 12 asked the participant to consider the effect of the whistle-blowing report on the reputation of the internal audit department. A similar pattern of means was observed, however, the A/C group and the A/E group shared the same means and the position of most negative response. The difference in means was insignificant ( $F = 0.120, p < .730$ ).

As explained earlier, the REPUSC variable was created from the responses for Questions 5, 11, and 12 (see Table 3). A comparison of the means of REPUSC for the treatment groups is a convenient way to evaluate the overall Reputation construct (see Tale 11). The two groups in the Anonymous conditions indicated the highest mean Reputation Threat (A/E = - 1.98, A/C = -1.72). The participants in the NA/E condition recorded the lowest mean threat (-1.32) and the NA/C group was in the middle (-1.58). The highly insignificant difference in the means of the Circumvention and the Exploitation conditions ( $F = 0.000, p < 1.000$ ) indicates that the case study Reputation Threat manipulation had no effect on perceived reputation threat of the participants. CAEs and Deputies were also analyzed separately for REPUSC means. Both sets of data

showed insignificant differences between the groups (CAEs,  $F = 0.151$ ,  $p < 0.929$ ; Deputies,  $F = 0.347$ ,  $p < 0.559$ ).

Regarding the three reputation questions, two comments in particular add insight. One participant noted after Question 5 (effect on CAE's reputation), "More important as to how I would react to the situation." Another responded, "Will this effect the CAE's reputation? Depends on whether the issue was in the audit plan. It could actually increase your reputation because you get in the spotlight for the investigation. It depends on a lot of issues."

The third construct that was addressed by the debriefing questions was perceived responsibility. This construct was measured by Questions 4 and 10. The responses to these two questions were also used to calculate the Responsibility Score variable (RESBSC). Question 4 asked the participant to rate internal audit's responsibility for the alleged wrongdoing. The Exploitation condition participants had mean responses that indicated a significantly higher level of perceived internal audit responsibility ( $F = 12.260$ ,  $p < .001$ ). The A/E condition had the highest mean (0.49) followed by the NA/E condition (0.40). The .50 response on the scale was labeled *Moderately Responsible*.

Question 10 inquired about the participant's level of perceived personal responsibility for the wrongdoing. These mean responses were similar to those of Question 4 with participants in the A/E condition recording the highest mean (0.46) followed by those in the NA/E condition (0.41). Again, the .50 response on the scale was labeled *Moderately Responsible*. The difference in means between the Exploitation condition participants and those in the Circumvention condition was significant ( $F =$

8.192,  $p < .005$ ). Overall, perceived responsibility can be evaluated by inspecting RESBSC. The Exploitation condition participants had mean responses that indicated a significantly higher level of perceived responsibility than the Circumvention condition participants ( $F = 13.149$ ,  $p < .001$ ).

Even though the case manipulation for Reputation Threat did not affect participants' perceived concern for their reputations, it clearly affected their perception of the level of departmental and personal responsibility for the alleged wrongdoing. One salient participant comment was, "More responsible for exploitation." A participant who was in the NA/E condition and noted an 80% responsibility rating to Question 4 (internal audit responsibility) stated, "Management is responsible for control, but IA and CPA's SOX process should help prevent." In contrast, a participant in the NA/C condition who chose a 10% responsibility rating to Question 4 opined, "There is always audit risk that errors or control breakdowns may not be discovered. IA provides some reasonable assurance." Another A/C respondent (with a 0% rating for Question 4) explained, "This is management's responsibility."

Question 8 addressed the salience of an underlying accuracy goal by asking how important the possible justification of the participant's decision to the audit committee was to his or her decision to allocate investigatory funds. Participants in all four conditions responded positively, however, all four means indicated that this criterion was less than moderately important. The difference in means between the Exploitation group and the Circumvention group was insignificant ( $F = 0.069$ ,  $p < .793$ ).

Question 7 (importance of credibility to the decision) and Question 8 loaded together to form the Accuracy component in the factor analysis. The combined responses were used to calculate ACCRSC (see Table 11). The combined means of the Circumvention group were greater than the combined means of the Exploitation group, nevertheless, the difference in means was statistically insignificant ( $F = 0.692$ ,  $p < 0.408$ ).

Questions 14 and 16 inquired about the participant's general impression of anonymous and non-anonymous whistle-blowing reports. Participants in all four treatment conditions claimed that anonymous reports were more difficult to investigate than non-anonymous reports (Question 14). Participants in the two Anonymous conditions rated anonymous reports as more difficult than did those in the Non-anonymous conditions. The difference in means between the Circumvention group responses and those of the Exploitation group was statistically insignificant ( $F = 0.195$ ,  $p < 0.660$ ). Similarly, all four groups indicated that anonymous whistle-blowing reports were useful for detecting and preventing fraud (Question 16). Again, there was no difference in means ( $F = 0.075$ ,  $p < .785$ ). Two participants wrote notes after Question 16. "In theory, having the process should be very helpful, in practice, not often used. Opposite concern, people start using the hot line as a way of obtaining settlement for personal gain," and "The knowledge that a vehicle exists to report inappropriate activities provides somewhat of a sentinel effect."

Questions 15 and 17 addressed the probability that external auditors and internal auditors would not detect earnings management. More specifically, Question 15 asked

the likelihood that external auditors would issue a clean opinion when earnings had been significantly manipulated. Mean responses ranged from 0.40 to 0.51. The .50 anchor on the response scale was *Moderately Likely*. This indicates that, on average, all participants thought that such an occurrence was realistic, though not very likely. The difference in means test between the Exploitation and the Circumvention groups was insignificant ( $F = 0.002, p < .965$ ). Two pertinent comments were: “World Com and Enron should show that it can happen. Even good audit procedures may not detect,” and “My company experienced a restatement after a material weakness was discovered. The external audit clean opinion is not that telling.”

Question 17 was similar to Question 15; however, its focus was detection by the internal audit function. Both groups in the Circumvention condition responded that failure to detect significant manipulation of earnings was more than *Moderately Probable* with the mean of A/C responses at 0.52 and the mean of NA/C responses at 0.57. The means of both Exploitation groups were less than 0.50 (A/E = 0.46 and NA/E = 0.47). The resulting difference in the means between the Exploitation groups and the Circumvention groups was moderately significant ( $F = 3.052, p < .085$ ).

Question 18 asked participants whether the anonymous employee described in a new scenario was trying to discredit management or whether the employee was aware of a wrongdoing (see Appendix, Question 18). Differences in means between the Exploitation groups and the Circumvention groups were insignificant ( $F = 2.588, p < .112$ ). The next question (Question 19) asked participants to rate the credibility of the whistle-blower in the new mini case. Similar to previous credibility related responses, the



Circumvention groups rated the employee as significantly more credible than those in the Exploitation groups ( $F = 5.014, p < .028$ ). The means and pattern of means for all four groups were similar to those for Question 3 (credibility of the whistle-blower in the original case).

Finally, Question 6 asked participants to indicate their assumption about the level of the position of the whistle-blower. The means presented in Table 10 were calculated after the responses of the 15 participants that indicated *No Specific Impression* were removed. Of these 15, five were in the non-anonymous condition and 10 were in the anonymous condition. A response of 2 indicated that the whistle-blower was assumed to be *Mid-Level Management* and a response of 3 indicated that he or she was assumed to be *Staff*. Even though the means are similar, the Exploitation groups perceived the whistle-blower to be in a lower position than did the Circumvention groups. Four respondents indicated that they envisioned the whistle-blower to be *Senior Management* and none chose *Lower Level/Hourly* as their response. No test of difference in means was conducted for this question as the responses were nominal.

In summary, the three credibility related debriefing questions (Questions 3, 9, and 19) showed a significant difference in means between the Exploitation groups and the Circumvention groups. In all cases the participants in the Circumvention groups rated the credibility of the whistle-blowing report and the whistle-blower higher than did those in the Exploitation groups. The two questions addressing responsibility and the related RESBSC also showed a significant difference in means between the Exploitation groups and the Circumvention groups with the Exploitation groups perceiving the greatest level

of responsibility. Finally, the insignificance of the differences in means for the reputation questions and REPUSC is an important finding as it corroborates the lack of support for Hypotheses 1b and 2b.

#### Actual Experience with Anonymous Reporting

Three questions inquired about participants' actual experiences with anonymous whistle-blowing reports. Question 24 asked what percentage of reports they had received were anonymous and Question 25 asked what percentage of the anonymous reports they investigated was valid. Question 26 asked what percentage of these reports the respondent believed to be valid. For this analysis means were calculated separately for CAEs and Deputies. Twenty-seven of the 41 Deputies did not respond to these questions or indicated that they had not received any anonymous reports. This was also true for 12 of the 40 CAEs. Means and standard deviations of the responses are presented in Table 12.

**Table 12 - Actual Experience with Anonymous Whistle-Blowing Reports**

Mean (standard deviation) {sample size}

	CAEs	Deputies	Total
% Anonymous Reports Received (Q 24)	0.674 (0.296) {28}	0.625 (0.256) {14}	0.658 (0.281) {42}
% of Anonymous Reports Valid (Q 25)	0.248 (0.206) {28}	0.346 (0.246) {14}	0.281 (0.222) {42}
% of Anonymous Reports Believed Valid (Q 26)	0.307 (0.200) {28}	0.405 (0.280) {14}	0.340 (0.231) {42}

Both CAEs and Deputies indicated that over 60% of whistle-blowing reports that they had received had been anonymous (CAE = 67.4%, Deputies = 62.5%). However, CAEs noted that only 25% of these anonymous reports investigated had been valid compared to Deputies' 35%. Both CAEs and Deputies believed that a higher percentage of anonymous reports were valid than their actual experience indicated (CAEs = 30.7%, Deputies 40.5%).

### Actual Reporting Relationships

Question 23 asked participants to indicate which individuals or departments were responsible for investigating whistle-blowing reports in their organizations. Eighty of the 81 participants answered these questions. The results are detailed in Table 13, Panel A. The most frequent response was that internal audit was responsible or shared responsibility for investigating whistle-blowing reports (41 or 50.6% of respondents). CAEs listed this choice more frequently than did Deputies (CAEs = 55.0%, Deputies = 47.5%). The general counsel or legal department was chosen by 33 (40.7%) of all participants and, again, CAEs listed this choice more frequently than did Deputies (CAEs = 50.0%, Deputies = 32.5%). The audit committee was indicated by 18 (22.2%) of participants (CAEs = 32.5%, Deputies = 12.5%). Twenty-four respondents indicated that some other individual or department within their companies was at least partially responsible for whistle-blowing report investigation (both CAEs and Deputies = 30.0%).

Question 27 asked participants to indicate who had responsibility for evaluating their performance. Question 28 asked participants to indicate who had responsibility for approving internal audit's budget. Responses from Deputies were ignored for this

**Table 13 - Reporting Relationships****Panel A: Primary Responsibility for Investigating Whistle-blowing Reports**

	<b>CAE</b> (#, %)	<b>Deputy</b> (#, %)	<b>Total</b> (#, %)
Internal Audit	22, 55.0%	19, 47.5%	41, 50.6%
Audit Committee	13, 32.5%	5, 12.5%	18, 22.2%
General Counsel / Legal	20, 50.0%	13, 32.5%	33, 40.7%
Other	12, 30.0%	12, 30.0%	24, 29.6%
	(N = 40)	(N = 40)	(N = 80)

Note: Respondents indicated all that applied. In many cases responsibility for investigating was shared among two or more entities.

**Panel B: Responsibility for Evaluating Performance and Approving Budgets**

	<b>Performance Evaluation</b>		<b>Internal Audit Budget Approval</b>	
	Publicly Traded (#, %)	Not Publicly Traded (#, %)	Publicly Traded (#, %)	Not Publicly Traded (#, %)
Senior Management is Solely Responsible	2, 6.2%	2, 28.6%	4, 12.5%	2, 28.6%
Senior Management is Primarily Responsible	13, 40.6%	1, 14.3%	13, 40.6%	4, 57.1%
Audit Committee is Solely Responsible	0, 0%	0, 0%	0, 0%	0, 0%
Audit Committee is Primarily Responsible	6, 18.8%	1, 14.3%	7, 21.9%	1, 14.3%
Senior Management and Audit Committee Have Equivalent Responsibility	11, 34.4%	3, 42.9%	8, 25.0%	0, 0%
	(N = 32)	(N = 7)	(N = 32)	(N = 7)

Only responses of CAEs are included.

analysis because Deputies are most likely to be evaluated by their direct supervisors, the CAEs. However, the data was split between publicly traded and non-publicly traded organizations to add further insight. These data are shown in Table 13, Panel B. CAEs in publicly traded companies (PT) were most frequently primarily evaluated by senior management with some input from the audit committee (40.6%). The next most frequent response was that senior management and the audit committee had equivalent responsibility for evaluations (34.4%). The third most frequent response (18.8%) was that the audit committee was primarily responsible and the fourth most frequent (6.2%) was that senior management was solely responsible. The highest frequency (42.9%) of CAEs in non-publicly traded companies (NP) reported that senior management and the audit committee had equivalent responsibility for evaluations. *Senior Management is Solely Responsible* was the response in 28.6% of the NP organizations. One respondent (14.3%) indicated that his or her evaluation was primarily the responsibility of senior management and one (14.3%) indicated that his or her evaluation was primarily the responsibility of the audit committee. None of the CAEs in either the PT or the NP organizations indicated that the audit committee had sole responsibility.

The pattern of responses to Question 28 regarding internal audit budget approval was the same for PT CAEs as were the responses to the evaluation question. Again, *Senior Management is Primarily Responsible* was the most frequent response (40.6%), and *Senior Management is Solely Responsible* was least frequent (12.5%). No participants indicated that the audit committee was solely responsible. The majority of NP CAEs (57.1%) reported that senior management was primarily responsible for

internal audit budget approval. The next most frequent response was that senior management was solely responsible (28.6%). One (14.3%) NP CAE reported that the audit committee was primarily responsible. None of the NP CAEs reported that senior management and the audit committee shared the responsibility equally or that the audit committee was solely responsible.

In summary, senior management was either solely or primarily responsible for PT CAE evaluations in 46.8% of participants' organizations, and they were solely or primarily responsible for budget approval in 43.1% of these organizations. The audit committee had primary responsibility for evaluations in only 18.8% of PT companies and primary budget approval authority for internal audit in 21.9%. This compares to senior management being either solely or primarily responsible for CAE evaluations in 42.9% of NP organizations and for budget approval in 85.7% of NP organizations.

### ***Motivated Reasoning Influences***

#### Accuracy Goals

According to Kunda (1990) individuals are most likely to be influenced by accuracy goals when they expect to justify their decision, expect the decision to be made public, or anticipate some other type of evaluation. Tyszka (1998) described an accuracy goal as a focus on completeness and reliability of the evaluation process. The mean responses to Question 8 that address the importance of the need to justify a decision to the audit committee in all four treatment conditions were less than Moderately Important and the difference in means was insignificant. However, it is possible that CAEs were

more influenced by their sense of personal and professional accountability for the possible wrongdoing than by accountability to specific outside parties.

The RESBSC mean responses of participants in the Exploitation conditions were significantly higher than for those in the Circumvention conditions. The case study informed the participant that the internal audit function had evaluated internal controls and reported to management that no material weaknesses in internal controls were detected. It is reasonable that the participant would perceive a greater level of responsibility if an evaluation conducted by his or her department turned out to be flawed or inadequate. Participants in the Exploitation conditions allocated more funds to investigate the alleged wrongdoing than did those in the Circumvention conditions.

Participants in the A/E condition allocated more funds, on average, to investigating the alleged wrongdoing than did participants in any other condition. This is especially interesting because participants in the A/E condition also assessed the credibility of the whistle-blowing report at the lowest level of all conditions. Perhaps this resource allocation decision reflects the combination of felt responsibility and the realization that anonymous reports are generally more difficult and, therefore, more expensive, to investigate (see Table 10, debriefing Question 14). These motivations fit Tyszka's (1998) notion of an accuracy goal influence and corroborate the suggestion of Russo et al. (2000) that internal auditors have a high degree of accountability ingrained in their decision making due to normal responsibilities and training. Furthermore, an accuracy motivation is in keeping with the IIA's Code of Ethics for internal auditors to uphold the principles of integrity, objectivity, and competency.

### Directional Goals

Directional goals manifest in one or more ways. Among these are biased beliefs about self and/or others, biased use of statistical heuristics, and biased information processing (Kunda 1990). The separate ANCOVAs for credibility assessment indicate that while CAEs based their credibility assessments primarily on the anonymous or non-anonymous status of the whistle-blower, Deputies were significantly influenced by the REPTHR condition. Deputies in both the NA/C and the A/C conditions gave higher credibility assessments to the whistle-blowing report than did Deputies in the NA/E or A/E conditions. This indicates possible biased beliefs about non-anonymous whistle-blowers because they made a less favorable report (exploitation) for which the Deputy felt greater responsibility.

Biased information processing can become apparent in the evaluation of new information. Individuals with directional goals may judge new information as valid only when it matches their predetermined outcome. The mini case presented before Questions 18 and 19 was designed to examine this aspect of motivated reasoning. Question 18 asked participants to evaluate the motives of the whistle-blower in the mini case (from the extreme of “employees are trying to discredit management” to “employee is aware of manipulation”) and Question 19 asked them to rate the whistle-blower’s credibility. The responses to Question 18 were originally coded for analysis<sup>7</sup> with the extreme on the

<sup>7</sup> The response scale presented to participants did not contain negative signs. For the purposes of analysis, responses on the left side of 0 were coded as negative and responses on the right side of 0 were coded as positive. See Appendix, Question 18 for the exact format that was presented to participants.



discredit side as -5 and the extreme on the aware side as +5. The 0 response was anchored as “I Have No Opinion.” The means in all four conditions were between -1 and +1 indicating that, on average, participants did not have a strong opinion. Nevertheless, it is noteworthy that the participants in the A/E condition had the most unfavorable view of the whistle-blower’s motivation with a mean response of -0.80 compared to the other three that were between -0.45 and +0.43. The NA/C group gave the only positive mean response (0.43). This indicates that respondents in the A/E condition were least trusting of this new report by an anonymous employee.

Tests of differences in means for paired samples were conducted to compare participants’ credibility assessments of the whistle-blowing report in the original case study to their responses for Questions 18 and 19. Question 18 was recoded so that the scales of all three of these questions were compatible. These tests were insignificant for CAEs and Deputies in both the Exploitation and Circumvention groups for the first pair (CRED and Q18). For the second pair (CRED and Q19), CAEs showed insignificant differences for both Exploitation and Circumvention groups and Deputies showed a significant result for the Circumvention group ( $t = 2.307, p < .032$ ) and an insignificant result for the Exploitation group. These results indicated evidence of participants’ evaluating new information in such a way as to make it agree with prior decisions.

Biased processing of information includes the tendency to distort memory of prior probabilities. Participants were asked about their actual experiences with the validity of anonymous whistle-blowing reports (see Table 12). Tests of differences in means for paired samples were conducted to compare participants’ credibility assessments of the

whistle-blowing report in the case study to their responses for Question 25 (Approximately what percentage of the anonymous whistle-blowing reports that you have investigated have been valid?) and for Question 26 (Approximately what percentage of the anonymous whistle-blowing reports at your organization do you believe to be valid?). The difference in means for CAEs was significant between the first pair (CRED and Q25) for participants in both the Circumvention ( $t = 2.994, p < .010$ ) and the Exploitation conditions ( $t = 4.929, p < .000$ ). Likewise, the difference in means for CAEs was significant between the second pair (CRED and Q26) for both groups (Circumvention,  $t = 3.176, p < .007$ ; Exploitation,  $t = 3.870, p < .002$ ). These results indicate that CAEs' credibility assessments for the whistle-blowing report in the case study did not significantly influence the reports of their actual experience.

In contrast, the paired samples tests for differences in means revealed a somewhat different outcome for the Deputies. The difference in means for Deputies was insignificant between the first pair (CRED and Q25) for participants in both the Circumvention ( $t = 2.484, p < .056$ ) and the Exploitation conditions ( $t = 1.643, p < .139$ ). The difference in means for Deputies was moderately significant between the second pair (CRED and Q26) for the Circumvention group ( $t = 2.697, p < .043$ ), but distinctly insignificant for those in the Exploitation group ( $t = 0.045, p < .965$ ). These results indicated that Deputies may have revised prior probabilities to agree with their current, case study-related assessments. As indicated in Table 12, 28 CAEs and 14 Deputies responded to Questions 25 and 26. Consequently, the results must be interpreted in light of these relatively small sample sizes.

### **Comparison of CAE Study Results to Those of Audit Committee Member Study**

The current experimental case study was adapted from Hunton and Rose (2008) which examined audit committee members' judgments regarding the credibility of anonymous versus non-anonymous whistle-blowing reports and investigatory resource allocations in the presence of two levels of reputation threat. The participants in the Hunton and Rose (2008) study were all audit committee members (ACMs) with mean business experience of 23 years. Seventy-five percent of the participants were considered to be the financial expert on their respective audit committees. Similar to CAEs in the current study, ACMs assessed non-anonymous whistle-blowing reports to be more credible than those from anonymous sources. Both CAEs and ACMs in the high reputation threat conditions made lower credibility assessments.

On the other hand, the resource allocation decisions among CAEs and ACMs were markedly different. Hunton and Rose (2008) found that resource allocation decisions of ACMs were significantly influenced by both report source and reputation threat. They concluded that ACMs might fail to sufficiently investigate allegations of wrongdoing received through anonymous whistle-blowing channels and that a high reputation threat condition may exacerbate this shortcoming. The current study indicates that CAEs are not significantly influenced by either the nature of the report source or by a reputation threat when making investigatory resource allocation decisions.

Three questions focusing on the nature of anonymous reports versus non-anonymous reports were either identical or very similar in the current and the former study. Accordingly, comparisons of the responses to these questions provide additional

insights to the similarities and differences in the two groups. Question 13 in the current study was identical to a question in the audit committee study, “In general, what type of whistle-blowing report do you believe is more credible, anonymous or non-anonymous?” The scales for the two questions were also identical (-5 Anonymous Are More Credible, 0 No Difference in Credibility, +5 Non-Anonymous Are More Credible). Whereas the tests of differences in means between reputation threat groups were insignificant for both studies, ACMs rated non-anonymous reports to be much more credible when compared to anonymous reports than did CAEs. The comparative means in each of the four conditions were: (CAE vs. ACM) A/C, 2.40 vs. 3.81; NA/C, 1.40 vs. 3.75; A/E, 1.70 vs. 3.86; and NA/E, 1.65 vs. 4.00.

Question 14 was also identical to a question posed to ACMs, “In general, what type of whistle-blowing report do you believe is more difficult to investigate, anonymous or non-anonymous?” Again, the scales were the same (-5 Anonymous Are More Difficult, 0 No Difference in Difficulty, +5 Non-Anonymous Are More Difficult). The tests for differences between means of the two reputation threat groups were, once again, insignificant for both studies. Once again, CAEs and ACMs differed in their opinions; CAEs rated anonymous reports to be much more difficult to investigate than did ACMs. The comparative means in each of the four conditions were: (CAE vs. ACM) A/C, -3.70 vs. -0.48; NA/C, -2.70 vs. -0.25; A/E, -3.00 vs. -0.45; and NA/E, -3.00 vs. 0.00.

Finally, Question 16 in the current study asked, “In general, do you believe that anonymous whistle-blowing reports are useful for detecting and preventing financial statement fraud?” The question put to the ACMs was slightly different, but also focused

on the usefulness of anonymous reports, “In general, do you believe that anonymous whistle-blowing reports are useful to the board of directors?” The scales were the same (-5 Not Useful at All, 0 Indifferent, +5 Very Useful). The comparative means in each of the four conditions were: (CAE vs. ACM) A/C, 2.10 vs. -2.90; NA/C, 2.75 vs. -2.70; A/E, 2.75 vs. -3.18; and NA/E, 2.35 vs. -2.40.

In summary, CAEs judged anonymous reports to be more credible, more difficult to investigate, and more useful than did ACMs. Although these two studies contain some notable differences, the responses of CAEs compared to ACMs may add understanding to how these two groups approach judgment and decision making in anonymous whistle-blowing situations. The difference in findings points to possible incongruence in attitudes and highlights a potential conflict in corporate governance decisions. Several participant comments from CAEs indicated that they would obtain as much funding as needed from the audit committee to investigate the allegations of wrongdoing. The results of the Hunton and Rose (2008) study suggest that the check book may not be completely open, especially for whistle-blowing reports received from anonymous sources.

## V. CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

The whistle-blowing related provisions of SOX focus on the provision of anonymous channels for the reporting of accounting irregularities and fraud. Research verifies that anonymous whistle-blowers are viewed as less credible than non-anonymous reporters. A primary factor in the effectiveness of anonymous whistle-blowing is the reaction of the complaint recipient. The purpose of this study was to examine CAEs' judgments and decisions related to anonymous and non-anonymous whistle-blowing reports in which the alleged wrongdoing was perpetrated in different manners that could create higher or lower levels of reputation threat.

Results indicate that CAEs judged anonymous whistle-blowing allegations as well as anonymous whistle-blowers to be less credible than those that are non-anonymous. CAEs also judged whistle-blowing reports that suggested wrongdoing was perpetrated by the exploitation of substantial weaknesses in previously evaluated internal controls to be less credible than those which reported that the alleged wrongdoing was accomplished by the circumvention of internal controls. However, neither the report source (anonymous or non-anonymous) nor the alleged method of wrongdoing appeared to influence CAEs' allocation of resources to investigate.

Debriefing questions indicated that CAEs did not perceive either the exploitation of substantial weaknesses in internal controls to be a greater threat to their reputation than

the circumvention of internal controls. Nevertheless, CAEs perceived significantly greater responsibility for wrongdoing perpetrated through an exploitation of substantial weaknesses compared to that accomplished by a circumvention of internal controls. Regardless of report source credibility, perceived reputation threat, or felt responsibility CAEs' resource allocation decisions consistently demonstrated a determination to thoroughly investigate the allegations of wrongdoing and uncover the truth.

Although they expressed similar choices in many instances, findings suggest that Deputies are not adequate substitutes for CAEs in judgments and decisions of the type addressed in this study. While CAEs based their assessments of the credibility of whistleblowing allegations primarily on the type of source, anonymous or non-anonymous, Deputies were more influenced by the content of the report. Deputies assigned significantly less credibility to reports that were incongruent with prior beliefs that their thorough evaluation of internal controls would have identified such problems or flaws. Deputies were also more likely to revise their memories of prior related events than were CAEs. This lends additional support to the implication that Deputies may be more susceptible to the influence of directional goals than are CAEs. Moreover, Deputies allocated significantly fewer resources to the investigation of wrongdoing than did CAEs. This may be due to their perception that budget constraints were absolute and that senior management or the audit committee would not provide additional funds if needed. Alternatively, this outcome could be due to Deputies' inexperience with the importance or the cost of such investigations.

This study contributes to the current literature by exploring judgment and decision making of an important but under represented group in accounting research, CAEs. The design of this study as a controlled experiment increases internal validity and allows cause and effect relationships to be inferred from the findings. External validity is maximized by having participants who are actual CAEs and Deputies from primarily large publicly traded companies. The case represented a real-world scenario that CAEs have faced or are likely to face. One CAE commented, “This case study represents a real-world happening. I have received anonymous and non-anonymous financial fraud allegations. Cost was no issue in investigating.” Furthermore, over half of the CAEs participating reported that they have responsibility or shared responsibility for investigating whistle-blowing reports. This underscores the importance of the understanding of judgment and decision making in this area.

The comparison and contrast of CAE and Deputy judgments and decision making also contribute to the extant research. CAEs and Deputies in this study had similar years of experience, professional credentials, and tenure. However, there appeared to be differences in processes of decision making that suggest Deputies cannot immediately substitute for CAEs. This is informative for CAEs who wish to provide Deputies with learning opportunities that will enhance their ability to make high level decisions. This study indicates that more exposure to decision processes that require interaction with audit committees may be appropriate.

Both internal audit functions and audit committees are important bodies within the corporate governance structure. The results of the current study, when contrasted with



Hunton and Rose (2008), suggest that CAEs and ACMs may approach whistle-blowing reports, especially those from anonymous reporters, differently. In this particular scenario CAEs who were internal to the organization and considered as a part of management appeared to be quite intentional in their duties as sentinels. On the other hand, the prior study indicated that ACMs who are charged with being overseers of the whistle-blowing process may not be as diligent. This insight could prove especially valuable for CAEs who depend on audit committee funding for the investigation of such whistle-blowing allegations.

Experimental studies have in common the limitation of generalizability. While a concerted effort was made to increase external validity, this case study is still not a real-world experience and it lacks real-world effects such as influence of relationships and consequences of decision making. In addition, the lack of significance of reputation threat manipulations could be affected by the small sample size and resulting lack of statistical power.

This case study employed a financial statement restatement scenario to heighten the salience of the importance of the allegations of possible earnings management. Comments from participants showed that they judged the situation to be of crucial importance. It is possible that the critical nature of the situation overpowered any tendency for CAEs to be influenced by directional goals. Future research could investigate the influence of pre-decision bias and motivated reasoning in important, but less critical and/or less visible scenarios.

This study spotlighted financial reporting issues and financial statement fraud. Comments by two Deputies indicated that their departments were more focused on operational issues. Moreover, Pryal (2008) predicts that SOX compliance will no longer be the primary focus of internal audit functions. Future research could explore internal auditors' judgment and decision making in roles that are more operational in nature. In addition, similarities and differences in CAE and Deputy responses can be examined to add insight to how Deputies might progress to become more competent at the CAE level.

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## Appendix

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**This questionnaire is part of a study designed to investigate the decisions and perceptions of chief audit executives (i.e., heads of internal audit functions). Please analyze the information provided in the following pages and provide your judgments as you would in the normal course of business. The amount of information presented is limited. Although you will not have all of the information you would typically have at your disposal, it is important that you make your judgments to the best of your abilities given the limited information set.**

**Your responses are completely confidential and cannot be traced to you or your company.**

**Thank you for your help.**

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## PART I

**When reading the case materials and responding to the case questions please make the following assumptions:**

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**Assume** that you currently serve as the Chief Audit Executive (that is, head of the internal audit function) for BioMeasure, Inc.

**Assume** that the internal audit function evaluated BioMeasure's internal controls during 2006, and internal audit reported to management and the audit committee that no material internal control weaknesses were detected.

**Assume** that it is now December 2007, and the 2006 financial statements have been audited and publicly released.

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### Background

BioMeasure is a publicly traded company in the biotechnology industry that provides data collection services to pharmaceutical companies and operates in the western states of the United States. BioMeasure has been audited by the same Big 4 accounting firm for the preceding five years. BioMeasure's external auditor has always issued standard, unqualified (i.e., clean) audit reports. The internal audit function is not outsourced, and it reports functionally to the audit committee and administratively to senior executives.

Following the guidelines set forth by the Sarbanes Oxley Act of 2002, BioMeasure recently implemented a new whistle-blowing system that allows employees to report problems through anonymous or non-anonymous reporting channels. During your tenure as the Chief Audit Executive no significant financial frauds or illegal activities have been identified through any whistle-blowing reporting channels.

### Whistle-Blowing Report

However, one report was received in December 2007 through the new whistle-blowing system. The report is summarized below:

An anonymous [A non-anonymous] source, the identity of whom you do not [do] know, has filed a report alleging that senior managers have been managing earnings in order to earn their bonuses, and the earnings management resulted in a material overstatement of 2006 revenue. The allegation further states that the managers increased reported earnings by exploiting substantial weaknesses in internal controls [circumventing internal controls].

You have determined that should the allegation be true, a restatement of 2006 revenue would be necessary.

**Case Questions:**

1) Based only on the information presented on the preceding pages, what is your assessment of the credibility of the whistle-blowing report? Please circle one of the percentages on the scale below to indicate your assessment.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not Credible at All					Moderately Credible					Completely Credible

2) When budgeting for potential whistle-blowing investigation expenses for 2007, it was assumed that there could be as many as two significant reports and that each investigation would cost approximately \$50,000, for a total budget of \$100,000. Assume that you still have \$100,000 remaining in your 2007 budget and that no other whistle-blowing reports will be investigated this year. Any funds that you do not use to investigate the whistle-blowing report will carry forward to your 2008 general budget. The budget for your department has always been tight and you have important projects for 2008 that will not be fully funded. Based only on the information presented on the preceding pages, indicate the dollar amount of the 2007 whistle-blowing budget that you would allocate toward investigating this whistle-blowing report. Please enter the amount on the line below:

\$ \_\_\_\_\_

## Part II

### 1. For the case you completed, what was your assumption regarding the type of whistle-blowing report in question? (check one)

The report was received from an anonymous source, the identity of whom you did not know.

The report was received from a non-anonymous source the identity of whom you did know.

### 2. For the case you completed, what was your assumption regarding the alleged management activities? (check one)

The allegation stated that the managers have increased reported earnings by circumventing internal controls.

The allegation stated that the managers have increased reported earnings by exploiting substantial weaknesses in internal controls.

### 3. Based only on the information presented in the case, what is your assessment of the credibility of the individual who made the whistle-blowing report? (circle the number that best represents your response)

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not Credible at All					Moderately Credible					Completely Credible

### 4. Should the allegation be true, what level of responsibility do you believe internal audit has for the wrongdoing?

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at All Responsible					Moderately Responsible					Extremely Responsible

### 5. If an investigation reveals that the allegation is true, how do you believe that the whistle-blowing report could affect your reputation as the Chief Audit Executive?

5	4	3	2	1	0	1	2	3	4	5
Very Negative Effect					No Effect					Very Positive Effect

**6. Circle the answer that best describes the position you believe the whistle-blower held in the case you just completed. The position of the whistle-blower is:**

1	2	3	4	5
Senior Management	Mid Level Management	Staff	Lower Level/ Hourly	No Specific Impression

**7. How important was the credibility of the whistle-blower in your decision to allocate resources to the investigation of the whistle-blowing report?**

1	2	3	4	5	6	7
Not At All Important			Moderately Important			Very Important

**8. How important was the possibility that you would have to justify your decision to the audit committee when you made your budget allocation decision?**

1	2	3	4	5	6	7
Not At All Important			Moderately Important			Very Important

**9. What is the probability that the whistle-blowing report is true?**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
No Possibility That It Is True					I Am Undecided					I Am Certain That It Is True

**10. Would you feel any degree of personal responsibility for the earnings management should the allegation be true?**

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not at All Responsible					Moderately Responsible					Completely Responsible

**11. For the case you just completed, how do you believe that the whistle-blowing report could affect your reputation if an investigation reveals that the allegation is true?**

5	4	3	2	1	0	1	2	3	4	5
Very Negative Effect					No Effect					Very Positive Effect

**12. How do you believe the whistle-blowing report could affect the internal audit function's reputation if an investigation reveals that the allegation is true?**

5	4	3	2	1	0	1	2	3	4	5
Very Negative Effect					No Effect					Very Positive Effect

**13. In general, what type of whistle-blowing report do you believe is more credible, anonymous or non-anonymous?**

5	4	3	2	1	0	1	2	3	4	5
Anonymous Are More Credible					No Difference in Credibility					Non- Anonymous Are More Credible

**14. In general, what type of whistle-blowing report do you believe is more difficult to investigate, anonymous or non-anonymous?**

5	4	3	2	1	0	1	2	3	4	5
Anonymous Are More Difficult					No Difference in Difficulty					Non- Anonymous Are More Difficult

**15. In general, do you believe that it is likely for external auditors to issue a clean audit opinion when management has been manipulating earnings to the extent that a restatement is necessary?**

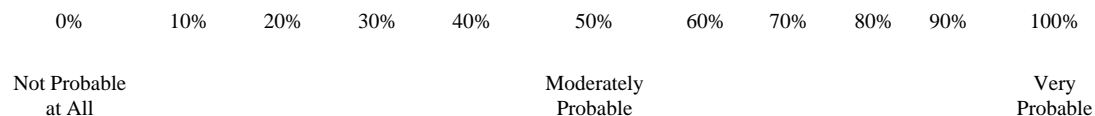
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Not Likely at All					Moderately Likely					Very Likely

**16. In general, do you believe that anonymous whistle-blowing reports are useful for detecting and preventing financial statement fraud?**

5	4	3	2	1	0	1	2	3	4	5
Not Useful at All					Indifferent					Very Useful

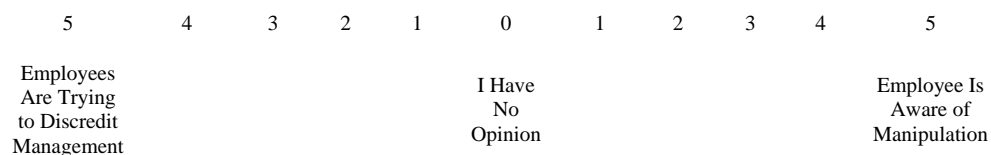


**17. In general, what is the probability that internal audit would fail to detect significant manipulation of earnings by senior management?**

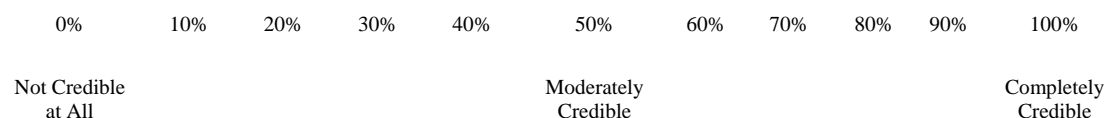


**ADDITIONAL INFORMATION:**

**18. For the case you completed, assume that you have just received an anonymous memo related to personnel issues. The memo states that employee morale is currently poor and that there are several disgruntled employees in the organization who wish to discredit senior management. The report also states that some of the disgruntled employees are upset because of rumors that senior managers have been manipulating earnings to acquire large bonuses. Based upon this new evidence, do you believe that the whistle-blowing report was more likely made because of disgruntled employees attempting to discredit management with false accusations, or do you believe that the report was made because a concerned employee was aware of management's manipulations of earnings?**



**19. Based on the new evidence, what is your assessment of the credibility of the individual who made the whistle-blowing report?**



**Instructions for Questions 20 – 26:**

Please answer the following questions based on you and your current organization.

**20. Your professional designations:**

(circle all that apply)      CIA                  CPA                  Other \_\_\_\_\_

**21. Number of years of internal audit experience:** \_\_\_\_\_

**22. Number of years of tenure with this organization:** \_\_\_\_\_

**23. Who is primarily responsible for decisions to investigate whistle-blowing reports in your organization?**

Internal Audit                      Audit Committee                      Other (List)                      \_\_\_\_\_

**24. Approximately what percentage of whistle-blowing reports received at your organization have been anonymous?**

\_\_\_\_\_ %

**25. Approximately what percentage of the anonymous whistle-blowing reports that you have investigated have been valid? (answer one)**

\_\_\_\_\_ %

\_\_\_\_\_ I have not investigated any anonymous reports.

**26. Approximately what percentage of the anonymous whistle-blowing reports at your organization do you believe are valid?**

\_\_\_\_\_ %

\_\_\_\_\_ I have not received any anonymous reports.

**Instructions for Questions 27 and 28.**

**Please indicate who in your organization has responsibility for the following activities by circling the number that best indicates the level of unique or shared responsibility.**

**27. Who is responsible for evaluating your performance?**

2	1	0	1	2
Senior Management Is Solely Responsible	Senior Management Is Primarily Responsible	Equivalent Responsibility	Audit Committee Is Primarily Responsible	Audit Committee Is Solely Responsible

**28. Who approves your departmental budget?**

2	1	0	1	2
Senior Management Is Solely Responsible	Senior Management Is Primarily Responsible	Equivalent Responsibility	Audit Committee Is Primarily Responsible	Audit Committee Is Solely Responsible

### **Vita**

Cynthia Peterson Guthrie was born on July 20, 1957, in Okaloosa County, Florida, and is a citizen of the United States of America. She graduated from Choctawhatchee High School in Fort Walton Beach, Florida in 1975 as co-valedictorian. She received her Bachelor of Arts in Accounting, summa cum laude, from University of West Florida, Pensacola, Florida in 1978. She received a Masters of Business Administration from University of Richmond in 1988.

She is a Certified Public Accountant and currently holds active licenses in Florida and Virginia. Her career includes work experience with KPMG in Atlanta, Georgia and a local accounting firm in Pensacola, Florida. She served as the Controller of American Agency Life Insurance Company in Atlanta, Georgia from 1981 to 1984 and was an officer of Life Insurance Company of Virginia from 1984 through 1987. In 1988 she joined what is now Aon Consulting Worldwide in Chicago, Illinois and served as Senior Vice President and Controller. She left Aon in 1996 entered the financial advising field, earning the Series 7 and Registered Investment Advisor licenses.