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# Internal audit reporting lines, fraud risk decomposition, and assessments of fraud risk

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A B S T R A C T

The main purpose of this research is to examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies. Significant emphasis has been placed on the importance of reporting lines in maintaining the autonomy of internal auditors, but the perceived benefits of requiring internal audit to report directly to the audit committee have not been validated or systematically investigated. Results of an experiment involving 172 experienced internal auditors and additional survey findings indicate that internal auditors perceive more personal threats when they report high levels of risk directly to the audit committee, relative to management. Perceived threats lead internal auditors to reduce assessed levels of fraud risk when reporting to the audit committee relative to when reporting to management. This finding runs counter to the anticipated benefits of requirements that the internal audit function report directly to the audit committee, and it reveals potential conflicts of interest and independence threats created by the audit committee itself. We also investigate the effects of fraud risk decomposition on risk assessments made by internal auditors. We find that fraud risk assessment decomposition does not have the same effects on internal auditors as it has on external auditors, and the effects of decomposition do not align with the expected benefits of decomposition.



## Introduction

Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee, and investor protection groups have made strong calls for the cessation of reporting by internal audit functions to the CFO and other top executives (e.g., Johnson, 2006; Moody's Investor Services, 2006). Similar calls for reporting directly to the audit committee have recently been made by professionals, academic researchers, and other professional organizations, all of which suggest that internal auditors are key players in day-to-day corporate integrity, sound reporting, and anti-fraud activities (e.g., Berman, 2006; Kaplan & Schultz, 2007; KPMG Forensic., 2006; Salierno, 2007). A common concern expressed by these individuals and organizations is that without appropriate reporting lines, business cannot be conducted effectively or efficiently (Berman, 2006), and reporting to management undermines the internal audit function's independence and objectivity (Balkaran, 2007). That is, internal auditors face conflicts of interest when they report to management.

Research demonstrates that external auditors' conflicts of interest (e.g., legal requirements to be independent and provide unbiased evaluations of financial disclosures versus incentives to maintain fees and create employment opportunities with clients) influence external auditors' objectivity and independence (Demski, 2003; King, 2002; Moore, Tetlock, Tanlu, & Bazerman, 2006; Nelson, 2005). However, little research has examined how conflicts of interest influence the judgments of internal auditors. Internal auditing is considered one of the four

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cornerstones of corporate governance, along with senior management, the board, and the external auditors and, as such, internal audit must be free from potential influence or interference by management. The majority of internal audit departments in publicly-traded firms distribute their efforts and report their findings to either top management (often the CFO) or the audit committee, depending upon the source of the request. Cenker and Nagy (2004) interviewed nine CAEs of large publicly listed corporations (average total assets of approximately $15 billion) and found that eight report to the CFO or CEO and one reports to the chief risk officer. A recent report by the Institute of Internal Auditors indicates that approximately 40% of Chief Audit Executives (CAEs) report to the CFO and nearly 20% do not report functionally to the audit committee (Balkaran, 2007).

Investor protection agencies worry that internal auditors cannot objectively examine financial disclosures, evaluate internal controls, or assess risks when they report the results of their efforts to their supervisors, such as the CFO (Johnson, 2006). Investor concerns echo the findings of the IIA standards – the reporting line for internal auditors is important and can have significant effects on their judgments. Changing the primary reporting line away from management and to the audit committee is expected to mitigate problems associated with internal auditors' conflicts of interest, but this assumption has not been investigated. Furthermore, Nieschwietz, Schultz, and Zimbleman (2000) encourage accounting researchers to investigate (1) the effects of multiple sources of accountability on fraud risk assessments and (2) how auditors assess fraud risk. While these calls for research are aimed at better understanding fraud risk assessments by external auditors, clearly such an investigation of internal auditors' fraud risk assessments is equally important.

As a result of the Sarbanes Oxley Act of 2002 and associated stock exchange regulations, the internal audit function now faces substantial scrutiny and oversight from the firm's audit committee – indeed, many audit committee (AC) charters include provisions that give the AC the authority to hire or fire the Chief Audit Executive (Cenker & Nagy, 2004). Such power over internal audit creates the potential for new threats to internal audit independence that have not previously been considered. It is possible that reporting to the audit committee creates independence and objectivity threats that are equivalent to, or even greater than, the threats created by reporting to management for certain internal auditor roles. Currently, the question of which reporting line creates the greater threats to independence and/or objectivity is unclear, and experimental investigation is necessary.

Accordingly, the primary purpose of our research is to examine the effects of internal audit reporting lines on the judgments of internal auditors. We focus our investigation on fraud risk assessment. We selected this task for several reasons. First, assessments of fraud risk represent judgments where internal auditors face significant pressures from management because internal auditors must evaluate the likelihood that members of management (who are in control of the internal auditors' evaluations and promotions) are committing fraud. Internal auditors may feel pressure to compromise their independence to appease management. Second, fraud risk assessments are critical to the organization, and undiscovered fraud can cause serious damage to the viability of the firm, if not dissolution. Third, fraud is difficult for external auditors to detect, and recent regulation promotes greater reliance by external auditors on the risk assessments of internal auditors (e.g., PCAOB AS5, 2007). As Albrecht (1996) points out, fraud is not an event that is normally witnessed firsthand, and it is often too ambiguous for external parties to discover. Green and Calderon (1996) argue that internal auditors are optimally positioned to identify and assess any red flags that might indicate fraud, and internal auditors face increasing pressures to assess firm risks. Fourth, the extant research on auditors' fraud risk assessments focuses primarily on *external* auditors' judgments, and as such, little research exists on *internal* auditors' judgments (Asare, Davidson, & Gramling, 2003). Finally, a fraud risk assessment task allows us to extend previous research of fraud risk assessments made by external auditors.

A recent study by Wilks and Zimbelman (2004) examines the effects of the decomposition of fraud risks (following the fraud triangle described in SAS No. 99) on external auditors' assessments of fraud risk. The authors investigate concerns expressed by regulators, practitioners, and academics that external auditors may be insensitive to situational factors, such as fraud opportunities and incentives, when management's attitude indicates low levels of fraud risk. Wilks and Zimbelman (2004) found that auditors were more sensitive to opportunity and incentive cues when auditors were required to make a decomposed assessment of fraud risk, as opposed to a holistic assessment. Curiously, they discovered that increased sensitivity to incentive and opportunity cues only occurred when the incentive and opportunity cues were indicative of low levels of fraud risk. That is, decomposition of fraud risk assessments decreased overall assessments of risk when opportunity and incentive cues were not indicative of high fraud risk, but decomposed risk assessments did not increase assessed levels of fraud risk relative to holistic assessments when opportunity and incentive cues were indicative of high fraud risk.

We find meaningful opportunities to extend the literature related to the decomposition of fraud risk assessments. The internal audit function can play a substantial role in fraud detection and fraud risk assessment (e.g., Green & Calderon, 1996; KPMG, 2006; Welch, Holmes, & Strawser, 1996), and external auditors might rely on risk assessments made by internal auditors. Given that internal auditors face different motivations, incentives, and threats than external auditors, and internal auditors have different knowledge and experience relative to external auditors, internal auditors may not be influenced by risk decomposition in the same manner as external auditors are. Wilks and Zimbelman (2004) find that decomposed risk assessments increase external auditors' attention to incentive and opportunity cues only when incentive and opportunity cues are indicative of low risk. Our study replicates the decomposition tests from Wilks and Zimbelman (2004) to determine whether these results hold for internal auditors.

Our results indicate that internal auditors perceive threats when reporting high levels of fraud risk to management. However, internal auditors perceive greater personal threats when they report high levels of fraud risk directly to the audit committee. The greater perceived threats associated with reporting high levels of fraud risk to the audit committee lead internal auditors to reduce assessed levels of fraud risk when reporting to the audit committee relative to reporting to management. This finding runs counter to the anticipated benefits of requiring the internal audit function to report directly to the audit committee, and it reveals potential independence and objectivity threats created by the audit committee itself. We also find that fraud assessment decomposition does not have the same effects on internal auditors as it has on external auditors. Decomposition resulted in increased attention to management attitude, which represents the opposite effect sought by practitioners and regulators. Overall our research findings provide evidence that recent recommendations for improving internal audit practice and risk assessment processes can have significant, unintended consequences.

## Background and development of hypotheses

### *Fraud risk assessment and professional guidance for external auditors*

Accountants and standard-setting bodies have attempted to define the roles and responsibilities that internal and external auditors should have with respect to fraud detection and fraud risk assessment in the course of an audit examination. For example, external auditors were tasked to assess the risk that errors and irregularities may cause financial statements to contain a misstatement and design the audit to provide reasonable assurance of detecting errors and irregularities that are material to the financial statements (SAS No. 53, AICPA, 1988). Later, SAS No. 82 (AICPA, 1997) required the external auditor to assess the risk of material misstatement of the financial statements due to fraud and to consider that assessment in designing the audit procedures to be performed, and SAS No. 99 (American Institute of Certified Public Accountants (AICPA)., 2002) required that the external auditor place more emphasis on inquiry as an audit procedure to increase the likelihood of detecting fraud and expand the use of analytical procedures to gather information useful for identifying the risk of fraud.

SAS No. 99 identifies three conditions that are generally present when fraud occurs: (1) Management or other employees have an *incentive* or are under pressure, which provides a reason to commit fraud. (2) Circumstances exist (e.g., absence of controls, ineffective controls, or the ability of management to override controls) that provide an *opportunity* to commit fraud. (3) The individuals involved are able to rationalize the fraud, which is related to the *attitude* of the individual. Further, the greater the incentive or pressure, the more likely an individual will be able to rationalize the acceptability of committing the fraud. In addition, SAS No. 109 (American Institute of Certified Public Accountants (AICPA)., 2006) requires the auditor to gain an understanding of an organization's internal controls by performing risk assessment procedures to determine any significant risks, such as risk of fraud.

As a result of widely publicized financial frauds over the past several decades, legislators have also participated in these attempts to identify the obligations that auditors should assume. The Sarbanes Oxley Act of 2002 and additional professional guidance such as Public Company Accounting Oversight Board Auditing Standard No. 2 (PCAOB, 2004) hold external auditors to a higher level of responsibility with respect to fraud risk assessment within the context of a public audit.

### *Role of the internal auditor in fraud risk assessment*

Internal auditors also adhere to professional guidance, known as the International Standards for the Professional Practice of Internal Auditing.[1] According to the Standards, the internal auditor should have sufficient knowledge to identify the indicators of fraud but is not expected to have the expertise of a person whose primary responsibility is detecting and investigating fraud. However, "internal auditors' escalating responsibilities in the area of fraud detection and reporting make it essential for every member of the audit team to understand clearly the guidelines and procedures involved" (DeHaven, 1990). Based on internal auditors' intimate knowledge of the organization and responsibilities with respect to controls, management typically believes that internal auditors are responsible for finding fraud (Reeve, 1990).

Research suggests that internal auditors play a significant role in the detection and deterrence of fraudulent activity, and most frauds are uncovered through the work of internal audit (MG, 2003). Further, internal audit functions effectively reduce the losses associated with fraud. Organizations suffer fewer losses from fraud when they have an internal audit department that performs surprise audits and conducts anti-fraud training for employees and managers (Association of Certified Fraud Examiners (ACFE), 2006). The KPMG Fraud Survey (2003) concludes that internal audit should be responsible for evaluating the design and operating effectiveness of anti-fraud controls, assisting in the organization's fraud risk assessment, and helping to develop appropriate mitigation strategies.

Due to the capacity for internal audit to detect fraud and other risks, external auditors often rely upon the risk assessments of internal auditors during the financial statement audit (see Gramling, Maletta, Schneider, & Church, 2004 for a discussion of the extent and nature of external auditor reliance on internal audit work). During the development of our experiment, we interviewed a Fortune 500 Chief of Internal Audit who stated "the external auditors must rely on our assessments of fraud risk because the [external] auditors are too separated from the firms and management to effectively detect fraud." The PCAOB has also recognized the problems associated with the external auditor's inability to adequately asses fraud risk (and other risks), and the recently released AS5, *An Audit of Internal*

[1] May be accessed at the official website for the Institute of Internal Auditors (www.theiia.org).

*Control Over Financial Reporting*, allows external auditors to rely substantially on the risk assessments of internal auditors.

*Internal auditing reporting lines and risk assessments*

Internal auditors regularly make fraud risk assessments, they have demonstrated the ability to effectively detect fraud, and external auditors often rely upon the risk assessments made by internal auditors. Given the importance of the internal auditor for the prevention and detection of fraud, the independence of internal auditors is a critical issue. Internal auditors must remain unbiased to fulfill their duties to both management and the audit committee (e.g., Balkaran, 2007; Berman, 2006; Kaplan & Schultz, 2007; Salierno, 2007). They are also bound by duties that prevent them from acting in their self-interests, as well as a code of ethics that requires them not to be unduly influenced by their own interests. Given the intense pressures to remain autonomous, one could argue that internal auditors would seek to avoid any actions that violate their independence. However, research related to external auditors finds that auditors do violate independence, both consciously and subconsciously, when they face incentives to please clients (Demski, 2003; King, 2002; Moore et al., 2006; Nelson, 2005). The theory of motivation-based reasoning indicates that judgment can be both intentionally and unintentionally biased when a decision maker is motivated to achieve a decision outcome that provides personal benefits or protection from personal harm (Kunda, 1990). We expect that internal auditors, like external auditors, are susceptible to biased judgment in the face of conflicting incentives.

In a meta-analysis of motivation-based research, Kunda (1990) finds that personal incentives to arrive at specific conclusions can lead to conscious and subconscious adjustments to memory and cognitive processes. Decision makers often develop *illusions of objectivity,* where the decision maker believes that his/her decision processes are objective, even while the decision maker is pursuing self-interests (Kruglanski, 1980; Kunda, 1990; Pyszczynski & Greenberg, 1987). For any decisions based on memories of facts and rules, decision processes are prone to cognitive distortions and biases because memories are easily subconsciously biased by personal motives (Greenwald, 1980; Kunda, 1990). That is, decision makers can unwittingly alter their memories for facts and rules in response to decisions that present opportunities for gain or potential threats of punishment.

Kunda (1990) indicates that cognitive distortion results from a complex web of psychological processes that are not well understood; however, one point seems clear: decision makers "...are more likely to arrive at those conclusions that they want to arrive at." (p. 27), for the underlying motive to protect one's self-interest can lead to illusory objectivity and rationalization. When internal auditors must report their assessments of the risk of management fraud directly to management itself, fears related to the potential personal consequences (such as job loss and missed promotions) created by these assessments would most likely motivate internal auditors to avoid reporting high levels of fraud risk to management. The cognitive processes that drive such decisions often occur at a subconscious level, such that even the most ethical and unbiased internal auditors can still subconsciously alter their assessments of fraud risk in order to protect themselves. Overall, the theory of motivation-based reasoning suggests that internal auditors will decrease their assessments of fraud risk when reporting to management, relative to when internal audit reports the results of risk assessments directly to the audit committee.

However, we propose that the effects of reporting lines and related independence issues on internal audit decisions are more complex, and other effects of new reporting requirements must be considered. Motivated reasoning can also be triggered by internal auditors' concerns related to reporting risks to the audit committee. For example, during the development of this study, we interviewed a number of experienced internal auditors who indicated that audit committees tend to act swiftly and forcefully to indicators of substantial risk.[2] One interviewee described the post-Sarbanes Oxley situation as follows: "If internal audit presents a risk of eight on a 1–9 scale to the audit committee, the audit committee is going to bring down the hammer hard and fast, and management will feel the pain. Internal audit will not want to present evidence of a substantial risk to the audit committee before it has worked with management to resolve and/or reduce the risk." In such an environment, internal audit has strong incentives to avoid reporting high levels of risk to the audit committee due to concerns about "over-reaction" by the audit committee and reprisals from management.

Several internal auditors that we interviewed at length indicated that formal reporting lines to the audit committee may exist, but management is always aware of the information being reported to the audit committee. These interviewees felt strongly that all risk assessments are reviewed by management, regardless of reporting line, and that reporting to the audit committee essentially doubles the threats to internal auditors. One Chief Audit Executive indicated that "management poses more threats to an internal auditor who reports risks directly to an audit committee than to an internal auditor who reports an unflattering risk to management." That is, this Chief Audit Executive believed that there are real threats to internal auditors that come from management, but that management is more concerned about the internal audit function reporting high levels of risk to the audit committee than they are about internal auditors reporting high levels of risk to management. From the perspective of Chief Audit Executives, internal auditors that report to the audit committee face even greater pressures to violate their independence and objectivity (e.g., by decreasing their assessments of fraud risk) than do internal auditors who report to upper management. Based upon the role of the audit committee in practice, we pose the following hypothesis.

[2] We interviewed two Chief Audit Executives from Fortune 500 firms, two audit committee members from Fortune 500 firms, and several practicing internal auditors. During our discussions of the experimental materials, these interviewees expressed similar beliefs about reporting lines.

*H1:* Internal auditors will make lower assessments of fraud risk when risks are reported directly to the audit committee, relative to when risks are reported directly to management.

*Aggregated versus disaggregated assessments of fraud risk*

Wilks and Zimbelman (2004) proposed that decomposition of fraud risk assessments into the components of the fraud triangle (management attitude, incentives, and opportunities) could increase external auditors' attention to incentive and opportunity cues. That is, requiring auditors to independently assess opportunity, incentive, and attitude risks, rather than making a holistic assessment of fraud risk, could result in increased reliance on incentive and opportunity cues. Their research addressed fears that external auditors under-utilized incentive and opportunity cues when management's attitude suggested low levels of fraud risk (e.g., American Institute of Certified Public Accountants (AICPA)., 2002; Heiman-Hoffman, Morgan, & Patton, 1996; Shelton, Whittington, & Landsittel, 2001). Psychology and accounting research both indicate a general tendency to over-rely on attitude cues relative to situational cues such as incentives and opportunities (e.g., Apostolou, Hassell, Webber, & Sumners, 2001; Heiman-Hoffman et al., 1996; Jones, 1990). Academics and practitioners have expressed concerns about potential over-reliance on management attitudes and under-reliance on incentive and opportunity cues because management attitudes can be difficult to assess accurately, and management attitudes can change rapidly as business conditions change (Wilks & Zimbelman, 2004).

The results from Wilks and Zimbelman (2004) indicate that auditors are more sensitive to opportunity and incentive cues when they are required to make decomposed assessments of fraud risk, relative to holistic assessments. However, the increased sensitivity to incentive and opportunity cues only appears to occur when the incentive and opportunity cues are indicative of lower levels of fraud risk. Wilks and Zimbelman (2004) offer two potential explanations for this finding. First, they propose that external auditors may be so sensitive to higher levels of fraud risk that decomposition has no effects when there are many indicators of fraud. When fraud risk is lower, however, decomposition increases awareness of incentive and opportunity cues. Second, they analyze a structural model of the fraud risk assessment process and determine that decomposition may increase attention to management attitude, which overwhelms any effects of increased attention to incentive and opportunity risks. In either case, decomposition is expected to reduce overall risk assessments. We replicate Wilks and Zimbelman's (2004) test of the main effect of decomposition in order to verify that the effect holds for internal auditors.

*H2:* Internal auditors will make lower assessments of fraud risk when fraud risk assessments are decomposed, relative to when risk assessments are holistic.

Analysis of decomposition also provides the opportunity to examine the alternative explanations for decomposition proposed by Wilks and Zimbelman (2004). We posit that the second explanation (i.e., increased attention to management attitudes) is particularly relevant to internal auditors. External auditors face substantial reputation and litigation threats when evaluating fraud risk, and they are primarily interested in determining whether financial fraud has occurred (Palmrose, 1987; Palmrose, 1988; Palmrose, 1991). In particular, external auditors focus on evidence that may indicate overstatement of financial performance, as overstatements are more likely to result in litigation (Barron, Pratt, & Stice, 2001; Hirst, 1994). Given that external auditors believe that management attitude is highly correlated with the probability of financial fraud and performance overstatement (e.g., Allen, Hermanson, Kozloski, & Ransay, 2006; Apostolou & Crumbley, 2008; Apostolou et al., 2001; Gavious, 2007; Hayes, 2008; Shelton et al., 2001), their emphasis on management attitude cues is entirely rational.

In contrast, internal auditors are focused on evaluating the internal control systems in their companies and typically use the COSO Framework for this evaluation (Cenker & Nagy, 2004). The first component of the COSO Framework requires an assessment of the control environment of the organization, which is the tone at the top (i.e., the integrity, values, and philosophy of management). However, since internal auditors are integral to the organization and work with management on a daily basis, they may not be as sensitive to management's attitude as they are to specific incentives and opportunities that make financial fraud possible. That is, internal auditors are more interested in the particular causes of financial fraud and the controls that could be implemented to prevent future fraud (Church, McMillan, & Schneider, 1998; Church & Schneider, 1995; Frank, 2004).

As a result of the accounting scandals at Tyco, Enron, Worldcom and other companies, internal auditors are more sensitive to the risk that is posed by the ability of executive-level management to override internal controls (Hogan, Rezaee, Riley, & Velury, 2008), and are therefore keenly aware of the requirement for preventive and corrective controls to monitor and restrict management override, as well as to address identified weaknesses (Hogan et al., 2008; Church & Schneider, 1995; Church et al., 1998). Moreover, internal auditors are responsible for testing internal controls, and must closely monitor opportunity risks to prevent control failures that could be attributed to poor performance by internal audit.

In sum, external auditors face strong pressures to detect financial fraud as a result of litigation risks, while internal auditors are motivated to determine the causes of fraud and ensure that controls are in place to prevent additional fraud. Based upon the different foci of internal and external auditors during fraud risk assessments and the findings from Wilks and Zimbelman (2004), which indicate that decomposition can increase attention to attitude cues, we posit that decomposition of fraud risk assessments will increase internal auditors' sensitivity to management attitude cues.

*H3:* Decomposition of fraud risk assessments into the components of the fraud triangle will cause internal

auditors to rely more on attitude cues, relative to when holistic risk assessments are made.

## Experimental design and method

### *Phase I – survey*

Given the general lack of empirical evidence for the expectations of internal auditors with regards to reporting matters to management versus the audit committee, we conducted a survey of 27 highly experienced (mean experience = 15.3 years) internal auditors (including six Chief Audit Executives) to determine whether internal auditors have greater concerns associated with reporting fraud risk to management versus the audit committee. Recall that our interviews with practitioners suggested that internal auditors are very concerned about audit committee overreaction to risk assessments. We asked respondents the questions presented in Table 1. Results from this survey indicate that internal auditors believe that: (1) audit committees are more likely to react strongly to high assessments of risk than are managers; (2) internal auditors suffer negative consequences from management if they report high levels of risk to the audit committee without discussing these risks with management; (3) internal auditors are very likely to report findings of risk assessments to management before reporting to the audit committee, even when reporting lines designate that the internal audit function reports to the audit committee; (4) the workload for internal auditors is strongly influenced by the audit committee after a high assessment of fraud risk is made; and (5) management expects the internal audit function to find means of reducing fraud risk before reporting risk assessments to the audit committee.

The survey results indicate that internal auditors believe that the personal consequences of assessing a high level of fraud risk are more severe when these assessments are reported to the audit committee. The internal auditors perceive that all information reported to the audit committee will be examined by management, and the repercussions of reporting information to the audit committee before reviewing the information with management can be harsh. Internal auditors perceive pressure from management to reduce assessments of risk made to the audit committee, and they believe that high assessments of risk presented to the audit committee can significantly increase their workload. In sum, internal auditors face strong motivations to present all risk assessments to management, regardless of established reporting lines; they face management pressures to find means of reducing risk assessments made to the audit committee; and they have strong motivations to avoid reporting serious risks directly to the audit committee.

### *Phase II – experiment*

The experiment employed a $2 \times 2 \times 2$ between-participants design. The manipulated independent variables were the type of fraud risk assessment (holistic versus decomposed), the level of fraud risk (lower and higher), and the reporting line (top management versus audit committee). Participants in the *holistic* assessment treatment assessed the overall fraud risk, while participants in the *decomposed* assessment treatment assessed the risks related to attitudes, incentives, and opportunities. The *lower level* of fraud risk contained six fraud cues and the *higher level* of fraud risk included thirteen fraud cues (both levels included incentive and opportunity cues). Half of the participants reported the results of their assessment directly to *management* and the other half of the participants reported directly to the *audit committee*. Participation in the study was voluntary.

### *Participants*

The participants were 172 experienced internal auditors from 21 organizations. The participants had an

**Table 1**
Survey results.

| Response items | Mean | SD | Test | *t* | *P* |
|---|---|---|---|---|---|
| 1. Who would react more strongly to a high assessment of financial fraud risk made by the internal audit function, management or the audit committee? (−5 = Management, 0 = no difference, 5 = audit committee) | 2.85 | 1.875 | =0 | 7.903 | 0.000 |
| 2. When firm policies require that the internal audit function reports assessments of risk, such as financial fraud risk, directly to the audit committee, what is the likelihood that these risks are discussed with management prior to reporting to the audit committee? (−5 = No likelihood, 0 = Moderately likely, 5 = very likely) | 4.00 | 1.109 | =0 | 18.735 | 0.000 |
| 3. If a member of the internal audit function reports a high level of financial fraud risk to the audit committee without discussing the assessment with management, what are the potential consequences for the internal audit member? (−5 = Very negative consequences, 0 = no consequences, 5 = very positive consequences) | −2.00 | 1.240 | =0 | −8.379 | 0.000 |
| 4. If the internal audit function determines that there is a high level of financial fraud risk, which group will be more likely to significantly increase the workload of the internal audit function, management or the audit committee? (−5 = Management, 0 = no difference, 5 = audit committee) | 0.85 | 1.231 | =0 | 3.595 | 0.001 |
| 5. If the internal audit function performs a financial fraud risk assessment and determines that there is a high level of financial fraud risk, does management expect the internal audit function to find means of reducing the risk before reporting its findings to the audit committee, or does management expect the internal audit function to report its initial risk assessment? (−5 = Management expects reductions, 0 = no management expectations, 5 = management expects initial assessment) | −0.56 | 1.847 | =0 | −1.563 | 0.130 |

average of 9.6 years of internal audit experience and 48% of the participants were male. None of the participants worked in an outsourced internal audit function.

### Task and design

We derived experimental materials from Wilks and Zimbelman (2004) to enhance the validity of our experimental constructs and to allow for comparisons to their findings for external auditors. We also expand on these materials to investigate the effects of reporting line on risk assessments.

The experiment took place under controlled conditions and under the supervision of one of the authors. Participants assumed the role of an internal auditor and evaluated the financial fraud risk for a hypothetical firm. The case materials indicated that the assessment was requested by senior management [the audit committee], and that the results of the assessment should be reported directly to senior management [the audit committee]. Six experienced internal auditors who aided in the development of the experimental materials, and three additional experts who reviewed the completed instrument (a Fortune 200 Chief Audit Executive, a former President of the Institute of Internal Auditors, and a national Big 4 partner in charge of internal audit services) all agreed that the case materials were realistic and represented common practices by internal auditors. The three experts who reviewed the completed materials also agreed that the setting was: (1) "very relevant to the real world"; (2) "the audit committee and/or management regularly asks internal audit to make risk assessments, and these risk assessments are provided directly to superiors, either management or the audit committee"; and (3) "risk assessments performed by internal audit often include fraud risk assessments."

Participants first read background information about the firm, which included strong signals that management's attitude indicated low levels of fraud risk. After reading the background information, participants reviewed a list of fraud cues. Participants either received six or 13 fraud cues (including both incentive and opportunity cues), depending upon their assigned risk level treatment condition. The cues were previously validated (see Wilks and Zimbelman (2004) for a discussion of the validation process). After reviewing the fraud cues, participants assessed the level of fraud risk.

### Independent variables

We derived the *assessment type* treatment from Wilks and Zimbelman (2004). Assessment type was manipulated at two levels: holistic assessment or decomposed assessment. Participants in the holistic risk assessment treatment assessed the overall risk of financial statement fraud immediately after reading the case materials. These participants also completed a decomposed assessment during the debriefing phase of the experiment. Participants in the decomposed treatment condition assessed the separate fraud risks related to incentives, opportunities, and attitudes after reading the case materials. These participants also completed an overall assessment of fraud risk. The assessment type manipulation mirrored the manipulation in Wilks and Zimbelman (2004).[3]

Fraud risk was manipulated at two levels: higher and lower. In the lower risk condition, participants received six red flags, while participants in the higher risk condition received 13 red flags. This manipulation precisely duplicates the manipulation employed by Wilks and Zimbelman (2004) to create two levels of risk.

The *reporting line* independent variable varied the source of request and associated reporting line for the fraud risk assessment. Half of the participants reported the results of their assessment directly to management and the other half of the participants reported directly to the audit committee. At the beginning of the experimental materials, participants were told to assume that they were reporting to either management or the audit committee. To reinforce the manipulation, participants were also reminded about their assigned condition at the point where a fraud risk assessment was performed.

### Dependent variable

The dependent variable is the assessment of fraud risk. All participants evaluated the overall level of fraud risk and the levels of risk related to opportunities, incentives, and management attitudes. The order in which participants completed the holistic versus decomposed assessments was determined by their *assessment type* treatment assignment.

## Results

### Manipulation checks

Twenty-six participants failed to answer a manipulation check in accordance with their assigned condition (reporting line), and are not included in the statistical analyses.[4] Further, four participants did not complete all of the experimental materials. Thus, the final sample size for all analyses is 142 participants. It was not necessary to perform a manipulation check for the aggregation treatment because this treatment condition is independent of participants' perceptions. That is, participants in the aggregated risk assess-

[3] We made one adjustment to the Wilks and Zimbelman (2004) instrument. In their study, participants received 40 additional cues unrelated to the risk assessment, while our study omitted these cues due to time limitations of our participant pool. As a result of the greater length of their instrument, Wilks and Zimbelman provided a statement in the instructions to their participants that they would be making a holistic [decomposed] assessment. Our participants received the fraud cues and the risk assessment (either holistic or decomposed) on the same page. Thus, we did not find it necessary to add a separate statement on this page to inform the participants that they would either assess one risk or three risks, as the nature of the assessment was readily apparent.

[4] We performed additional analyses on the participants who failed the manipulation check to determine the cause of their error. The participants did not cluster within any particular category from the debriefing questions, and there was no apparent pattern related to any demographic factor. There was evidence that many participants who failed the manipulation check provided nonsensical responses to other questions on the instrument, indicating that these participants may have failed to adequately attend to the experiment.

ment condition were required to make aggregated assessments, and they could not make a disaggregated assessment due to erroneous assumptions about their treatment condition. The dependent variable serves to check that participants in the high-risk treatment (mean risk assessment 7.32) perceived higher levels of risk ($p < 0.001$) than did participants in the lower-risk treatment (mean risk assessment 5.97).

*Preliminary analyses*

We first conduct an ANCOVA analysis to determine whether any demographic variables would influence our hypothesis tests. The dependent variable is the overall assessment of fraud risk, and the independent variables represent the manipulations of risk level (higher versus lower), risk assessment type (holistic versus decomposed), and reporting line (senior management versus audit committee). Covariates were included for participant age, experience, position, professional licenses, gender, and firm. None of the demographic factors are significant in this analysis ($p > 0.2$), and they are not considered in the hypothesis tests.

Descriptive analyses of the dependent variable (fraud risk assessments) are shown in Table 2, which provides means, standard deviations, and sample sizes for all treatment conditions. The pattern of means in Table 2 indicates potential main effects of assessment type, risk level (number of red flags), and reporting line on overall fraud risk assessments. In addition, there is some evidence of an interaction of reporting line and risk level.

*Hypothesis testing*

Hypothesis one relates to the potential effects of the reporting line of the internal audit function on internal auditors' assessments of fraud risk. Table 3 presents an ANOVA model where the dependent variable is the overall assessment of fraud risk, and the independent variables represent the manipulations of risk level (lower versus higher), risk assessment type (holistic versus decomposed), and reporting line (senior management versus audit committee). The significant main effect of reporting line in Table 3 ($p < 0.012$) and the associated means in Table 2 indicate that reporting line has a statistically significant effect on risk assessments. Internal auditors who report directly to the audit committee assess lower levels of fraud risk (mean = 6.32) than do internal auditors who report directly to management (mean = 6.99). This finding supports hypothesis one. Requiring internal auditors to report directly to the audit committee may have unintended and detrimental consequences because internal auditors decrease risk assessments when assessments are reported directly to the audit committee, relative to when assessments are reported to management.

The main effect of reporting line must be considered in light of the statistically significant interaction between reporting line and risk level ($p < 0.022$). The interaction is displayed in Fig. 1. Based upon the statistical significance of the interaction and the pattern of means in Fig. 1, reporting line only affects assessments of fraud risk in the higher risk treatment condition. It appears that internal auditors' concerns for self-protection do not influence risk assessments until there is a higher level of fraud risk. When fraud risk is higher, internal auditors report lower assessments of risk to the audit committee (mean = 6.690) than they report to management (mean = 7.97). A planned contrast test confirms that risk assessments reported to the audit committee (6.69) are significantly lower ($p < 0.01$) than risk assessments reported to management (7.97).

To test hypothesis two, we examine whether the decomposition of fraud risk assessments affects the overall assessment of fraud risk. There is a significant effect of risk assessment type ($p < 0.006$) in Table 3, and the means presented in Table 2 indicate that overall assessments of fraud risk are significantly lower when internal auditors make decomposed (mean = 6.25) versus holistic (mean = 7.03) assessments of fraud risk. This finding mirrors the main effect results in Wilks and Zimbelman (2004). Also consistent with their results, the present study finds a main effect of risk level on risk assessments ($p < 0.000$).

**Table 2**
Descriptive statistics – fraud risk assessments.

| Risk level | Assessment type | Reporting line | Mean | SD | *N* |
|---|---|---|---|---|---|
| *Dependent variable: overall assessment of fraud risk* | | | | | |
| Lower | Holistic | Management | 6.18 | 1.704 | 17 |
| | | Audit Committee | 6.28 | 1.904 | 18 |
| | | Total | 6.23 | 1.784 | 35 |
| | Decomposed | Management | 5.83 | 1.855 | 18 |
| | | Audit Committee | 5.61 | 1.335 | 18 |
| | | Total | 5.72 | 1.597 | 36 |
| | Total | Management | 6 | 1.766 | 35 |
| | | Audit Committee | 5.94 | 1.655 | 36 |
| | | Total | 5.97 | 1.699 | 71 |
| Higher | Holistic | Management | 8.5 | 1.043 | 18 |
| | | Audit Committee | 7.1 | 1.832 | 20 |
| | | Total | 7.76 | 1.651 | 38 |
| | Decomposed | Management | 7.41 | 1.228 | 17 |
| | | Audit Committee | 6.19 | 1.682 | 16 |
| | | Total | 6.82 | 1.57 | 33 |
| | Total | Management | 7.97 | 1.248 | 35 |
| | | Audit Committee | 6.69 | 1.802 | 36 |
| | | Total | 7.32 | 1.671 | 71 |
| Total | Holistic | Management | 7.37 | 1.816 | 35 |
| | | Audit Committee | 6.71 | 1.887 | 38 |
| | | Total | 7.03 | 1.871 | 73 |
| | Decomposed | Management | 6.6 | 1.752 | 35 |
| | | Audit Committee | 5.88 | 1.513 | 34 |
| | | Total | 6.25 | 1.666 | 69 |
| | Total | Management | 6.99 | 1.814 | 70 |
| | | Audit Committee | 6.32 | 1.759 | 72 |
| | | Total | 6.65 | 1.811 | 142 |

**Table 3**
ANOVA results – test of hypothesis one and hypothesis two.

| Source | SS | df | MS | F | Sig |
|---|---|---|---|---|---|
| Intercept | 6232.503 | 1 | 6232.503 | 2415.737 | 0.000 |
| Risk level (Risk) | 62.109 | 1 | 62.109 | 24.074 | 0.000 |
| Assessment type (Type) | 20.035 | 1 | 20.035 | 7.766 | 0.006 |
| Reporting line (Line) | 16.659 | 1 | 16.659 | 6.457 | 0.012 |
| Risk × type | 2.171 | 1 | 2.171 | 0.841 | 0.361 |
| Risk × line | 13.853 | 1 | 13.853 | 5.370 | 0.022 |
| Type × line | 0.048 | 1 | 0.048 | 0.019 | 0.891 |
| Risk × type × line | 0.551 | 1 | 0.551 | 0.214 | 0.645 |
| Error | 345.715 | 134 | 2.580 | | |
| Total | 6738.000 | 142 | | | |

*R*-squared = 0.252 (adjusted *R*-squared = 0.213).
Dependent variable = overall fraud risk assessment.

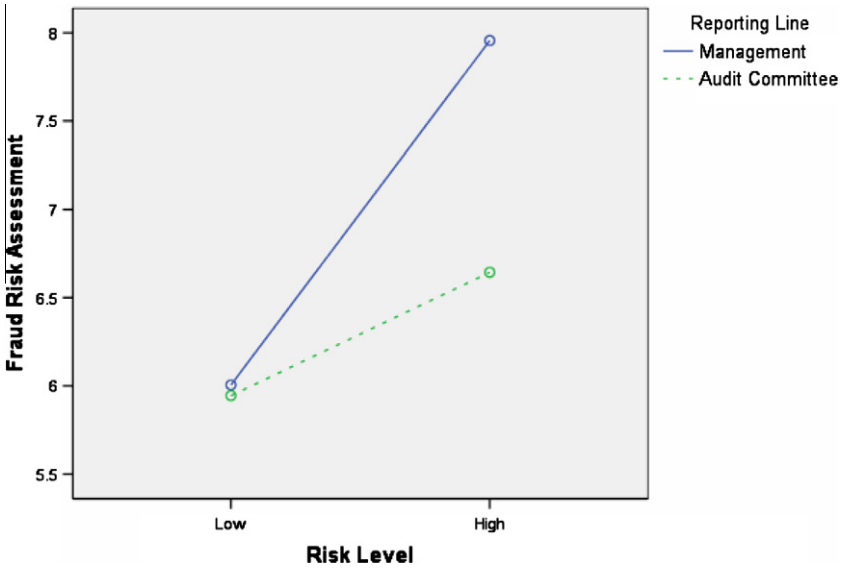


**Fig. 1.** Interaction of risk level and reporting line.

**Table 4**
Regression analysis – test of hypothesis three.

| Variable | *B* | Standard error | Beta | *t* | Sig. |
|---|---|---|---|---|---|
| (Constant) | 5.838 | 0.462 | | 12.626 | 0.000 |
| Risk level (risk) | 1.468 | 0.365 | 0.405 | 4.027 | 0.000 |
| Assessment type (type) | −1.592 | 0.562 | −0.438 | −2.834 | 0.005 |
| Reporting line (line) | 0.042 | 0.361 | 0.012 | 0.116 | 0.908 |
| Assessed attitude risk (AAR) | 0.137 | 0.083 | 0.166 | 1.656 | 0.100 |
| Risk × line | −1.253 | 0.503 | −0.298 | −2.490 | 0.014 |
| Type × AAR | 0.246 | 0.115 | 0.347 | 2.136 | 0.034 |

*R*-squared = 0.332 (adjusted *R*-squared = 0.304).
Dependent variable = overall assessment of fraud risk.

To test the third hypothesis, which posits that attitude cues have more influence on assessments of fraud risk when risk assessments are decomposed relative to holistic, we run a regression model where the dependent variable is the overall assessment of fraud risk, and the independent variables represent the manipulations of risk level (lower = 0 versus higher = 1), risk assessment type (holistic = 0 versus decomposed = 1), reporting line (senior management = 0 versus audit committee = 1), the assessment of attitude risk, the interaction of attitude risk and assessment type, and the interaction of reporting line and risk level (which was determined to be significant in previous analyses). The interaction of assessment type and attitude risk is statistically significant and the coefficient is positive ($B = .246$, $p < 0.034$), indicating that attitude risks have more influence on overall fraud risk assessments for

**Table 5**
Supplemental analyses (regression) for hypothesis three: holistic versus decomposed risk assessments.

| Independent variable | *B* | SE | Standardized *B* | *t* | Sig. |
|---|---|---|---|---|---|
| *Panel A: holistic assessment of fraud risk* | | | | | |
| (Constant) | 1.412 | 0.907 | | 1.557 | 0.124 |
| Incentive risk | 0.266 | 0.100 | 0.251 | 2.662 | 0.010 |
| Opportunity risk | 0.569 | 0.098 | 0.564 | 5.780 | 0.000 |
| Attitude risk | 0.030 | 0.086 | 0.035 | 0.346 | 0.730 |
| Model $F = 16.479$, $p < 0.000$ | | | | | |
| *Panel B: decomposed assessment of fraud risk* | | | | | |
| (Constant) | 1.134 | 0.517 | | 2.193 | 0.032 |
| Incentive risk | 0.355 | 0.067 | 0.403 | 5.280 | 0.000 |
| Opportunity risk | 0.203 | 0.066 | 0.268 | 3.078 | 0.003 |
| Attitude risk | 0.327 | 0.062 | 0.444 | 5.311 | 0.000 |
| Model $F = 41.800$, $p < 0.000$ | | | | | |

decomposed, relative to holistic, risk assessments (see Table 4). We conduct a pair of regression analyses to further investigate this result.

Table 5 presents the results of regression models where the dependent variable is the overall assessment of fraud risk, and the independent variables are the assessments of incentive risks, opportunity risks, and attitude risks. Panel A presents the results for participants in the holistic risk assessment treatment group, while Panel B presents the results for participants in the decomposed risk assessment treatment group. In both models, assessments of incentive risks ($p < 0.010$ and $p < 0.000$) and opportunity risks ($p < 0.000$ and $p < 0.003$) significantly influence assessments of the overall risk of fraud. The effects of attitude risks on overall risk assessments are, however, dependent upon the risk assessment type. When the internal auditors make holistic assessments of fraud risk, management attitude has no significant effect on overall assessments of fraud risk ($p = 0.730$). On the other hand, when the internal auditors make decomposed assessments of fraud risk, management attitude does have a significant effect on overall assessments of fraud risk ($p < 0.000$).

## Discussion and conclusions

Significant emphasis has been placed on the importance of internal audit reporting lines in maintaining the independence of internal auditors, but this emphasis has been based almost solely on the intuitive appeal that accurate, objective information can only be provided when internal auditing has a direct reporting line to the audit committee (Balkaran, 2007). We investigate the effects of reporting line on internal auditors' assessments of fraud risk in a controlled, laboratory setting. Our results suggest that requiring the internal audit function of an organization to report directly to the audit committee may not be a wise solution for internal auditor independence or objectivity threats. We find that internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the audit committee, relative to when the results are reported to management.

We triangulate our findings with interviews of highly experienced practitioners and a survey of internal auditors in order to understand why internal auditors feel pressure to decrease risk assessments when reporting to the audit committee. Our analyses reveal that internal auditors view the audit committee as an additional personal threat, in addition to the threats posed by management. Internal auditors believe that all information is filtered through management, regardless of reporting line. In addition, internal auditors fear over-reaction by the audit committee to indicators of risk that can lead to workload increases and management reprisals. Finally, internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the audit committee without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the audit committee than they are concerned about reporting risk to management.

We also investigated another dimension of the fraud risk assessment process – decomposition of risk assessment judgments. Regulators and academics have expressed significant concerns that external auditors focus too heavily on management attitude cues during fraud risk assessments, while focusing too little on incentive and opportunity cues (AICPA, 2002; Heiman-Hoffman et al., 1996; Jonas, 2001; Shelton et al., 2001). Wilks and Zimbelman (2004) investigated the effectiveness of risk decomposition as a mechanism to reduce over-reliance on attitude cues and found that decomposition increased sensitivity to incentive and opportunity cues, but only when these cues indicated a low risk of fraud.

Our results reveal that internal auditors are not influenced by decomposition in the same manner as external auditors. For internal auditors, decomposition of fraud risk assessments results in increased attention to management attitude cues across all levels of risk, without corresponding increase in attention to incentive or opportunity cues. These findings indicate that any attempts to mitigate perceived problems associated with insensitivity to incentive and opportunity cues by decomposing risk assessments can actually amplify the problem that prompted consideration of mitigating mechanisms. Due to differences in the practice requirements and legal environments faced by internal and external auditors, these two groups of auditors react differently to risk decomposition.

The results from analyses of the effects of reporting lines and fraud risk decomposition each indicate that

recent recommendations for improving audit practice and risk assessment processes can have adverse and unexpected consequences for the internal audit function. Our findings highlight the need for empirical examination of assumptions about the benefits of new legal requirements (such as requirements to report to the audit committee) and the problems associated with drawing conclusions about the judgment processes of internal auditors from studies of external auditor judgment.

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