

AUDIT COMMITTEE'S PROPENSITY TO CHALLENGE SIGNIFICANT ACCOUNTING ESTIMATES:  
THE JOINT EFFECTS OF AUDIT REPORT CONTENT AND INVESTOR TYPE

BY

YOON JU KANG

DISSERTATION

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Doctoral Committee:

Professor Mark E. Peecher, Chair  
Assistant Professor Bradley Pomeroy, Director of Research  
Professor Ken Trotman, University of New South Wales  
Associate Professor W. Brooke Elliott  
Professor Madhu Viswanathan

## **ABSTRACT**

Drawing on two perspectives of accountability theory, this dissertation experimentally examines the joint effect of audit report content and investor type (i.e., primary shareholders of the firm) on audit committee members' propensity to challenge management's significant accounting estimates. Findings indicate that audit committee members engage in the highest level of questioning when sophisticated investors are the primary shareholders of the firm and a standard, unqualified audit report is issued with no additional information about management's significant accounting estimate. By contrast, their questioning level is significantly lower when unsophisticated investors are the primary shareholders of the firm and/or when the audit report includes an explanatory paragraph about management's significant accounting estimate. Further analysis suggests this pattern of results is more pronounced for audit committee members who are designated as financial experts. These findings have implications in terms of both research and practice inasmuch as facets of a recent PCAOB Exposure Draft advocates for widespread and required usage of explanatory paragraphs in audit reports that, herein, decrease audit committee's propensity to challenge management and/or auditors.

Keywords: Audit committee, audit committee effectiveness, accountability, audit report, investor type

*For Ho-Sung and our little Claire*

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## I. INTRODUCTION

This dissertation reports an experimental examination of the joint influence of audit report content and investor type (i.e., the primary shareholders of the firm) on the audit committees' propensity to challenge management's significant accounting estimates. Specifically, I investigate whether and the extent to which explanatory paragraphs about significant accounting estimates in the audit report and the sophistication level of the firm's primary shareholders interactively influence the degree to which audit committee members develop questions to ask management and/or the auditor about such estimates.

Being fiduciaries of shareholders, audit committee members have the duty to effectively monitor the financial reporting and auditing processes (Blue Ribbon Committee, 1999). The importance of this duty received increased attention following passage of the Sarbanes-Oxley Act (SOX, 2002) and, more recently, following the financial crisis (Deloitte, 2010; Ernst & Young 2008).<sup>1</sup> One significant way that audit committee members can fulfill their oversight duty is to challenge the judgments and assumptions underlying management's critical financial statement estimates. In fact, attendees of board meetings describe asking probing questions as the most important criterion for audit committee effectiveness (Beasley et al., 2009; Gendron and Bedard, 2006; Gendron et al., 2004). A recent report by the National Association of Corporate Directors (NACD) also identifies questioning assumptions that underlie critical accounting estimates as one of ten principles audit committee members should follow to provide effective oversight on the financial reporting process (NACD, 2010).

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<sup>1</sup> SOX made audit committees directly responsible for appointing, compensating, retaining, and overseeing external auditors. Moreover, under SOX, the external auditors must report directly to the audit committee rather than client management. The reports issued by Deloitte and Ernst & Young both emphasize that the recent financial crisis calls for additional audit committee scrutiny in terms of risk oversight, review of earnings press releases, and oversight of internal controls and financial reporting.

Failing to be active and ask challenging questions may lead to substantial penalties. One infamous example is the case of WorldCom where board members, while not explicitly involved in the fraud, were sanctioned (up to 20% of the net worth) for their passiveness in not asking critical questions, allowing for the fraud to sustain (Kaplan and Kiron, 2004). Despite historic and recently heightened concern about the extent to which audit committee members challenge management's significant accounting estimates, few studies have investigated determinants of such challenges or conditions that amplify or attenuate the effects of specific determinants. This dissertation provides theory and empirical evidence to address these issues.

Theory developed herein first addresses the likely *dampening* effect of more disclosure about management's estimates in the audit report on audit committee members' propensity to challenge the estimates. It then subsequently develops alternative predictions about how investor type may moderate the extent of this decrease. Along with management and external auditors, audit committee members are an integral part of the financial reporting supply chain who face complex accountabilities (Gibbins and Mason, 1988). Therefore, situational determinants of audit committee members' perceived accountabilities will affect how a requirement to disclose new information about management's estimates in the audit report influence their propensity to challenge these estimates.

While audit committee members generally are accountable to protect shareholders' interests, they are likely to be held accountable to diverse other parties in times of negative events (e.g., financial statement restatements). Consistent with this idea, audit committee members of firms issuing income-decreasing restatements, compared to firms that issue no or income-increasing restatements, face greater turnover and higher likelihood of losing positions in other companies' audit committees (Srinivasan, 2005). Ex ante, however, it is not clear whether audit committees'

perceived risk of being held accountable for potential adverse financial statement outcomes or the internal sense of responsibility to protect shareholders is the more influential mechanism underlying their behavior. Hence, I use two different perspectives of accountability -- self-serving vs. altruistic (Donaldson and Davis, 1991; Sinclair et al, 2010) -- to predict alternative ways that audit report content and investor type jointly will influence audit committee members' propensity to challenge management's estimates.

Both the self-serving and altruistic perspectives of accountability theory predict that greater disclosure in audit reports about management's estimates will *decrease* audit committee members' propensity to challenge auditors and/or management. These perspectives, however, differ in their predictions for the effect of investor type as well as the joint effects of investor type and audit report content on audit committee members' propensity to challenge management's significant estimates. That is, competing hypotheses are warranted based on the two different perspectives. First, the self-serving perspective warrants predicting audit committee members will feel more accountable, and hence challenge management and/or auditors to a greater extent, when the firm's primary shareholders are sophisticated, as opposed to unsophisticated, investors. It further predicts that greater disclosure about management's estimates in the audit report will more substantially decrease their propensity to question management and/or auditors when the investor base is sophisticated instead of unsophisticated.

Conversely, the altruistic perspective predicts that audit committee members will feel more responsible to challenge management and/or auditors when the investor base is more vulnerable (i.e., unsophisticated). Given such greater salience in the need to protect unsophisticated investors, it further predicts that greater disclosure about management's estimates in the audit

report will more extensively decrease audit committee members' propensity to challenge the estimates when the investor base is unsophisticated instead of sophisticated.

To test these predictions, I conduct an online experiment using a 2 x 2 design, with audit report content and investor type as between-subject factors. Participants are predominantly experienced audit committee members who assume that role for a hypothetical public manufacturing firm. They receive an overview of the firm's operations and information about a significant accounting estimate related to obsolete inventory. Management has favorably revised this estimate late in the audit process and moderately argues for their case. The audit committee participants' main task is to develop questions regarding the significant accounting estimate.

Overall, the experimental findings are more consistent with the self-serving, instead of the altruistic, perspective. Consistent with both perspectives, however, audit committee members become significantly less likely to challenge management's estimate when greater disclosure about the estimate appears in the audit report. Consistent (inconsistent) with the self-serving (altruistic) perspective, though, audit committee members ask significantly more questions given a sophisticated, as opposed to an unsophisticated, investor base. Moreover, when there is greater disclosure about the estimates in the audit report, audit committee members' propensity to challenge management's estimates drops to a significantly greater extent given a sophisticated, as opposed to an unsophisticated investor base.

Additional analysis provides further support for the self-serving perspective: Designated financial experts, who are relatively more likely to perceive self-serving accountability compared to audit committee members without this designation (but no more likely to be altruistic, a priori) are largely responsible for driving this pattern of findings. Especially for designated financial experts, minimization of potential accountability risks, rather than an internal sense of

responsibility to protect unsophisticated shareholders, appears to be the stronger accountability mechanism underlying the decision processes of audit committee members.

This dissertation makes several contributions. First, it enhances our understanding with respect to audit committee members' decision processes, especially in terms of factors that are likely to affect their propensity to challenge management's significant accounting estimates. Specifically, I identify audit report content and investor type as co-determinants of the level of questioning audit committee members engage in when overseeing the financial reporting and auditing processes. Second, I address the call for research on "unintended (behavioral) consequences" of attempts to regulate audit committee members (Turley and Zaman, 2004) by providing evidence on how greater disclosure about significant accounting estimates in the audit report, may decrease audit committee oversight, acting more like a substitute than a complement or amplifier of increased audit committee's diligence. Finally, this dissertation adds to the expertise and corporate governance literatures by demonstrating that, while designated financial experts have a greater capacity to challenge management's estimates, a potentially troubling boundary condition is an unsophisticated investor base, as investor protection has been a longstanding goal for standard setters and regulators.

The remaining chapters are organized as follows. Chapter 2 provides background on the concern regarding audit committee's propensity to challenge management's accounting estimates and the debate on providing greater disclosure in the audit report. Chapter 3 summarizes relevant literature and chapter 4 develops the specific hypotheses. Chapter 5 provides an overview of the experimental method and chapter 6 discusses the results. Chapter 7 presents supplemental analyses and Chapter 8 concludes.

## II. BACKGROUND

### **Do Audit Committee Members Challenge Management's Accounting Estimates?**

The need to protect investors, especially those who are unsophisticated, has been a longstanding issue. For decades the Securities Exchange Commission (SEC), for example, prohibited the inclusion of projections in filings under the 1933 and 1934 Securities Acts out of concern that the projections may “become traps for the unsophisticated who would be prone to attach more significance to such projections than they deserve” (SEC, 1969). In other words, the need to protect unsophisticated investors outweighed the objective of supplying the investment community with meaningful information. Similarly, the Securities Industry Association (SIA) expressed concern regarding Regulation Fair Disclosure (Regulation FD) in that unsophisticated investors may misinterpret, and thus be unable to take advantage of the access to information mandated by Regulation FD (SIA, 2001). Concern related to investor protection has led to various rules imposing fiduciary duties to various professions in the financial industry, such as accountants and audit committee members, to protect investors unable to sufficiently protect their own interests.<sup>2</sup>

Despite the fact audit committee members owe fiduciary duty to shareholders, commentators and regulators have expressed concern about the extent to which they actually adhere to such duties. A specific concern is failure to challenge or validate the assumptions that underlie significant accounting estimates (NACD, 2010). It is frequently emphasized that firm management compensates audit committee members. This economic bond may lead to

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<sup>2</sup> Under Section 913 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act), the SEC is currently in the process of adopting a rule imposing a fiduciary duty on brokers-dealers and their representatives as well when they provide personalized investment advice (SEC, 2011).

conditions in which audit committee members, consciously or subconsciously, try to please firm management, even at the cost of shareholder interests.<sup>3</sup>

### **Should the Audit Report Disclose More Information about Management's Estimates?**

The audit report is the primary means of communication by the auditors to third-party financial statement users. Although current reporting standards (SAS 58; AU Section 508) provide auditors the option to append an emphasis-of-matter paragraph to the standard unqualified audit report when auditors consider it necessary to draw the attention of financial statement users to issues that are important to their understanding of the financial statements, such option is rarely exercised (aside from going concern issues). Accordingly, the current pass/fail reporting model has been criticized for providing little to no information to financial statement users (PCAOB, 2011).

Attempting to engineer an audit report that would provide more relevant information to financial statement users, the PCAOB Standing Advisory Group (SAG) launched a project called the "Auditor Reporting Model Project" (SAG meeting, July 2010).<sup>4</sup> Consistent with the PCAOB's initiative to revise the audit report, Peecher et al. (2011) also propose modifying the audit report to disclose more information about the audit process as one of several recommendations that, taken as a whole, would shift auditors' accountability away from just penalties for bad outcomes and towards rewards for better judgment processes. Overall, both regulators and academic researchers are proposing changes be made to the audit report to

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<sup>3</sup> Magilke et al., (2009) find that the objectivity of experimental participants in the role of audit committee members is compromised to a greater extent when they receive stock-based vs. cash compensation.

<sup>4</sup> A related concept release was issued on June 21, 2011 which was open for public comment until September 30, 2011. The PCAOB also held a public roundtable on September 15, 2011 to obtain additional insights on the alternatives for changing the audit report.

promote greater disclosure of information related to the audit process. What information is most needed by financial statement users and thus should be included in the new audit report is a subject of intense debate.<sup>5</sup>

Among various thoughts being discussed, one potential idea gaining interest is the concept of providing additional information regarding judgments underlying significant accounting estimates in the audit report. The findings of the surveys conducted by the PCAOB staff and Investor Advisory Group (IAG) indicate that many investors (79% of the survey respondents) believe they need more information about auditor's assessments of management's judgments and estimates (PCAOB Open Board Meeting, 2011).<sup>6</sup> Therefore, including information regarding judgments underlying management's significant accounting estimates in the audit report, would indeed be a step towards meeting the information requested by financial statement users.

However, it is yet unclear on how such increased emphasis on financial statement estimates in the audit report may affect the decision processes of the people involved in the financial reporting supply chain (i.e., managers, auditors, and audit committee members). This dissertation provides theory-based empirical evidence regarding this issue by investigating the

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<sup>5</sup> The form of the modified audit report is also under deliberation. The various possibilities being discussed include adding an additional emphasis paragraph to the standard audit report, expanding the audit report to include the content relating to the audit and management's significant judgments (i.e. long-form report; variant of the French model), or requiring auditors to provide a supplemental report similar to the management discussion and analysis (MD&A) section of a company's annual report regarding judgments made by the auditor while retaining the current pass/fail model.

<sup>6</sup> Respondents also wanted more disclosure about auditors' assessment of management's accounting policies and practices (65%), discussion of sensitivity analysis performed by auditors in significant judgment areas (65%), and discussion of key issues included in the summary memorandum (54%). In their comment letters to the SEC Advisory Committee on Improvements to Financial Reporting (2008), institutional investors as well as various investor groups also expressed a preference for greater disclosure regarding significant assumptions, estimates, and qualitative discussion of risks and uncertainties.

conditions under which such extended disclosure may decrease audit committee's propensity to challenge management's significant accounting estimates.

### **III. LITERATURE REVIEW**

#### **The Effect of Additional Disclosure in the Audit Report**

Extant studies on the effect of additional disclosures in the audit report suggest additional disclosure in the audit report can be beneficial. Fisher (1990) and Davis (2007) report evidence that public disclosures of materiality in the audit report increase market efficiency, ultimately benefiting financial statement users. The survey results of Manson and Zaman (2001) also document that various disclosures in the audit report, such as disclosure of materiality, auditor's assessment of the going concern status, findings related to fraud, and the extent of reliance on internal controls, can decrease the expectations gap. Such findings are relevant to this dissertation as explanatory paragraphs could include materiality disclosures.

While these studies suggest additional disclosure in the audit report can be beneficial, they focus on how such disclosure will affect the users of the financial statement and the market outcome, without considering the effects that may occur with respect to the decision processes of other members of the financial reporting supply chain (e.g., audit committee members, auditors, etc.). This dissertation extends this line of literature by experimentally examining how increased disclosure in the audit report regarding management's significant accounting estimates influence audit committee members' behaviors.

#### **Audit Committee Effectiveness**

Extant archival research regarding audit committees uses several indirect proxies for audit committee effectiveness, including measures of financial reporting quality (Abbott et al., 2000; Beasley et al., 2000; Klein, 2002), the likelihood of employing external auditors who are industry specialists (Abbott and Parker, 2000), suspicious auditor switches (Archambeault and DeZoort, 2001), and the strength of relationship with internal auditors (Raghunandan et al., 2001;

Scarbrough et al., 1998). Among the various independent factors examined with respect to their association with audit committee effectiveness, audit committee members' independence and expertise are the ones most extensively studied. Specifically, study results show audit committees with more independent members to be more likely associated with higher audit committee effectiveness (Abbott et al., 2000; Abbott and Parker, 2000; Archambeault and DeZoort, 2001; Beasley et al., 2000; Klein, 2002; Raghunandan et al., 2001; Scarbrough et al., 1998). Further, greater financial expertise of audit committee members has also been found to be an important component of audit committee effectiveness. Specifically, McMullen and Raghunandan (1996) find that companies with financial reporting problems, compared to those that do not have such problems, were less likely to have CPAs on their audit committees. Moreover, companies with suspicious auditor switches, compared to those with no such events, were more likely to have fewer audit committee members with experience in accounting, auditing, or finance (Archambeault and DeZoort, 2001).

Much of the behavioral-experimental audit committee studies measures audit committee effectiveness in terms of the extent to which audit committee members support auditors in the context of auditor-management disagreements and negotiations (Knapp, 1987; DeZoort and Salterio, 2001; DeZoort et al., 2003a; DeZoort et al., 2003b; DeZoort et al., 2008). Recent survey findings, however, indicate that audit committee members are rarely involved in resolving auditor-client negotiations (Gibbins et al., 2001; Cohen et al., 2002; Gibbins et al., 2007). For example, in their interviews regarding CFO's perspective on auditor-client negotiations, Gibbins

et al. (2001) find that the CFOs did not involve the audit committee early in the negotiation process and frequently informed them only after the issue had been resolved.<sup>7</sup>

Building on such survey evidence suggesting that audit committee members usually are not involved in negotiated accounting decisions, Pomeroy (2010) examines audit committee effectiveness in terms of how audit committee members investigate secondary information (i.e., negotiated accounting decisions). Specifically, the study measures audit committee effectiveness in terms of the extent to which audit committee members ask probing questions related to a negotiated accounting decision. Findings indicate that audit committee members' knowledge about the negotiation process increases their discomfort but without increasing how extensively they investigate the accounting decision. More reassuringly, the study finds audit committee members more extensively investigate when management's accounting is relatively aggressive.

Despite the increasing interest on audit committee members' judgment and decision-making process, we still know little about the determinants of audit committee members' propensity to more or less thoroughly exercise their fiduciary duty to actively question management and/or auditors to gain comfort about the integrity of the financial reporting and auditing processes. This dissertation enhances our understanding regarding such determinants by examining how audit report content and investor type jointly affect audit committee members' propensity to challenge management's significant accounting estimates. I next develop theory and discuss my specific predictions.

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<sup>7</sup> Gibbins et al. (2007) observe that the audit committee or its chair was informed immediately of the issue in only 9 % of the cases and the audit committee chair was involved in the resolution only about 33% of the cases. The audit committee was informed of the negotiated result 93% of the cases.

#### IV. THEORY AND DEVELOPMENT OF HYPOTHESES

##### **Two Perspectives of Accountability**

The theory of accountability used in the accounting and psychological literature concerns how individuals cope with different socio-economic pressures (Gibbins and Newton, 1994; Lerner and Tetlock, 1994, 1999; Peecher 1996, Tetlock, 1983, Tetlock et al., 1989). Specifically, the theory predicts that individuals develop different social and cognitive strategies for coping with accountability to obtain acceptance from, or avoid conflict with important interpersonal or institutional audiences.<sup>8</sup> In other words, the concept of accountability is typically viewed to have a self-serving motivation.

However, self-interest is not the only motivation underlying accountability. Researchers in the field of sociology and management suggest altruistic reasons can also motivate accountability (Dicke, 2002; Heinrich, 2007, Sinclair et al, 2010). For example, Dicke (2002) states that “stewardship theories have been proposed as a basis for ensuring accountability in contracted human services.” From this perspective, an internal sense of responsibility, rather than protection of self-interest, is the core motivation underlying accountability.

Audit committee members are generally accountable towards protecting shareholders’ interests, but they also have the incentive to minimize being accountable for negative financial outcomes. Ex ante, however, it is unclear whether the incentive to avoid such potential accountability (i.e., protection of self-interest) or the internal sense of accountability towards protecting shareholders (i.e., altruistic motivation) is the underlying mechanism of audit committee members’ behaviors. Hence, I examine the joint effects of audit report content and

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<sup>8</sup> One example is the acceptability heuristic in which people show strategic shifts in public positions to accommodate known views of evaluative audiences.

investor type on audit committee members' propensity to challenge management's estimates under the two different perspectives of accountability (self-serving vs. altruistic).

### **Effect of Additional Disclosure in the Audit Report**

#### *Prediction Based on the Self-Serving Perspective of Accountability*

According to the accountability theory under the self-serving perspective, people exert greater cognitive effort in their decision processes when accountability pressure triggers the motivation to be accurate (Tetlock, 1992; Stapel et al., 1998) by engaging in a more extensive information gathering process (Gibbins and Newton, 1994). In the context of the financial reporting process, investors will have a preference for objective, accurate information. Accordingly, increased accountability pressure from investors will trigger a motivation to be accurate in the minds of audit committee members and increase their propensity to challenge management's significant accounting estimates.

From the self-serving perspective, the likelihood of being culpable for negative financial statement outcomes will positively affect audit committee members' perceived accountability.<sup>9</sup> Greater disclosure in the audit report may be one factor that lowers audit committee members' culpability and thus, decrease their level of perceived accountability toward investors. To elaborate, additional disclosure in the audit report may serve as a token of defense for audit committee members against being the target of public scrutiny in the event of negative outcomes, triggering a feeling of protection. This, in turn, will likely decrease their level of perceived accountability and ultimately reduce their propensity to challenge management's estimates. Cain et al. (2005) use the concept of "moral licensing" to discuss a similar phenomenon in the context

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<sup>9</sup> Schmidt and Rasmussen (2012) find that shareholders withhold at least five percent more votes from ineffective audit committee members failing in their oversight duty versus effective audit committee members.

of disclosing conflicts of interest. They assert that greater disclosure can reduce the information provider's feeling of guilt about misleading users of the information, thereby triggering a moral license to bias the information further than they would without disclosure. Monin and Miller (2001) also discuss an analogous phenomenon using the term "self-licensing." They show that once people demonstrate that they are not morally corrupt in some way, they are more likely to display exactly this corruption on subsequent tasks. These theories predict audit committee members likely will perceive the additional disclosure in the audit report as a way of demonstrating their oversight duty and hence treat it as if it were a "license" to soften how much they challenge management's estimates. So, from the self-serving perspective of accountability, audit committee members' propensity to challenge management's estimate will likely decrease with greater disclosure about management's estimates in the audit report.

#### *Prediction Based on the Altruistic Perspective of Accountability*

Being designated as fiduciaries of shareholders, it is reasonable to assume audit committee members will have an internal sense of responsibility towards protecting shareholders who are unable to directly monitor the financial reporting process themselves. In this respect, challenging management's significant accounting estimates can be regarded as a way audit committee members cope with accountability triggered for altruistic reasons.

The psychological theory of helping behavior identifies the severity of the need for aid as the primary determinant of one's engagement in altruistic behavior (Bekkers and Wiepking, 2010).<sup>10</sup> Findings in the social psychology literature on helping behavior confirm such theory by showing that the degree of need for help is positively related to the likelihood that help will be given

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<sup>10</sup> Other determinants include economical and psychological costs and benefits, reputation, efficacy, etc. See Bekkers and Wiepking (2010) for a more comprehensive overview of psychological research on helping behavior.

(Levitt and Kornhaber, 1977; Staub and Baer, 1974; West and Brown, 1975). Wagner and Wheeler (1969) further suggest that subjective perceptions of needs, rather than objective needs, are what motivate people's altruistic behavior. More recently, Zucker and Weiner (1993) and Weiner (1995) find that affective reactions to such cognitive perceptions, such as a feeling of sympathy towards the target in need, determine altruistic behavior. Overall, the theory of helping behavior postulate a motivational sequence of thinking-feeling-acting to underlie altruistic behavior and provides a basis for examining audit committee members' propensity to challenge management's estimates under the altruistic perspective of accountability. Specifically, the altruistic perspective warrants predicting audit committee members will treat the additional disclosure in the audit report as a substitute for their due diligence in protecting shareholders. This, in turn, will decrease their perception regarding investors' need for help, ultimately stimulating a lower sense of responsibility to challenge management's estimates.

In sum, both the self-serving and altruistic perspective of accountability warrants predicting greater disclosure about management's estimates in the audit report will lower audit committee members' propensity to challenge the estimates. However, this effect will likely be moderated by who forms the firm's primary investor base.

### **Effect of Investor Type**

#### *Prediction Based on the Self-Serving Perspective of Accountability*

The theory of accountability implies that audit committee members will likely develop different strategies in coping with the accountability depending on the type of investors that form the majority of the firm's investor base. From the self-serving perspective, one way individuals cope with accountability demands, especially when it triggers a motivation to be accurate, is by engaging in self-discovery. Self-discovery refers to the act of gathering information to determine

one's own personal position (Gibbins and Newton, 1994). Asking challenging questions about issues that arise during the financial reporting and auditing process requires audit committee members to anticipate issues that may hinder the objectivity of the information disclosed in the financial statements and to obtain a neutral, objective view on such issues. In this respect, challenging management's significant estimates can be considered a way in which audit committee members engage in self-discovery as a way of coping with accountability demands and thus, minimize potential accountability risk.

Cognitive sophistication of the potential audience is one factor that affects the extent to which one engages in self-discovery. Specifically, theory predicts that greater sophistication of an audience increases accountability pressure, leading to greater cognitive effort in the information gathering process (Lerner and Tetlock, 1999; Tetlock, 1999). This suggests that audit committee members will challenge management's estimates to a greater extent when the firm's primary shareholders are institutional investors who are perceived to be more sophisticated than individual investors.

Moreover, prior literature suggests that the presence of a high level of sophisticated, institutional investors increase the probability of shareholder activism (Carleton, Nelson, and Weisbach, 1998; Del Guercio and Hawkins, 1999; Karpoff et al., 1996; Ryan and Schneider, 2002; Smith, 1996) which can result in negative consequences such as a change in board composition (Smith, 1996) or a decrease in firm value (Karpoff, 2001).<sup>11</sup> An increase in the likelihood of shareholder activism will likely increase the audit committee members' perceived accountability risk. This, in turn, will increase their propensity to challenge management's

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<sup>11</sup> Shareholder activism refers to the use of power by an investor to bring about changes in the organizational structure of firms and include implementing confidential voting, creating shareholder advisory committees, altering board composition, etc.

estimates as a way of minimizing their probability of experiencing negative consequences that may occur in the event of shareholder activism. Hence, from the self-serving perspective, audit committee members will show a greater propensity to question management's estimates when the firm's investor base consists largely of sophisticated as opposed to unsophisticated investors.

*Prediction Based on the Altruistic Perspective of Accountability*

Recall that the theory of helping behavior identifies the severity of the need for aid as the primary determinant of altruistic behavior. Hence, from the altruistic perspective, investors who are more vulnerable (i.e., in greater need), compared to those who are less vulnerable will likely evoke a greater sense of responsibility from the audit committee. This, in turn, likely will lead to greater cognitive effort, and thus, greater questioning (i.e., more extensive help) to be exerted.

Investor vulnerability is likely to be a function of their sophistication level. Specifically, greater knowledge and investment experience (i.e., higher sophistication) is likely to stimulate greater detection of financial misstatements, should they exist. Sophisticated investors are also more likely to have diversified portfolios, reducing their overall level of investment risk. Hence, sophisticated investors are likely to be perceived as being less vulnerable compared to their relatively unsophisticated counterparts.<sup>12</sup> Accordingly, from the altruistic perspective, audit committee members will show a greater propensity to challenge management's estimates when the firm's investor base consists largely of unsophisticated (i.e., more vulnerable), as opposed to sophisticated (i.e., less vulnerable), investors.

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<sup>12</sup> In the context of this study, investors are characterized as dedicated investors with long-term investment strategies. Hence, the term sophisticated (unsophisticated) investors refer to dedicated-sophisticated (dedicated-unsophisticated) investors. More extensive elaboration regarding this assumption is provided in the experimental design section.

## **Joint Effects of Audit Report Content and Investor Type**

The reasoning thus far may seem to allow for predicting two main effects: one for the content of the audit report and another for investor type on the overall level of audit committee members' questioning behavior. However, theory actually warrants predicting an ordinal interaction between these two factors.

From the self-serving perspective, a salient concern is the behavior of sophisticated investors as shareholder activism is positively associated with a higher level of sophisticated, institutional ownership. By contrast, the behaviors of unsophisticated investors are a less salient concern from this perspective. Accordingly, greater disclosure in the audit report, which will likely trigger a feeling of protection against shareholder activism, will decrease audit committee's perceived accountability to a greater extent given sophisticated, as opposed to unsophisticated, investors. In other words, when there is greater disclosure in the audit report, audit committee members' propensity to challenge management's estimates will decrease to a greater extent when the firm's investor base is sophisticated, instead of unsophisticated. This predicted interaction of audit report content and investor type based on the self-serving perspective is hypothesized in H1a. Panel A of Figure 1 also depicts the predicted pattern of the interaction.

H1a: Audit committee members' propensity to challenge management's significant estimates is greatest when there is less disclosure and the primary shareholders are *sophisticated*, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.

The altruistic perspective of accountability predicts a variation of this pattern. Specifically, the vulnerability of unsophisticated, as opposed to sophisticated, investors is a more salient concern to audit committee members from this perspective. Accordingly, audit committee members will likely perceive greater disclosure in the audit report to be of greater help for more vulnerable, unsophisticated investors than for less vulnerable, sophisticated investors. Greater

disclosure about management's significant accounting estimate, thus, will likely reduce audit committee members' propensity to challenge management's estimates to a greater extent given unsophisticated, as opposed to sophisticated, investors. This predicted interaction of investor type and audit report content based on the altruistic perspective is hypothesized in H1b. Panel B of Figure 1 also illustrates the predicted interaction.

H1b: Audit committee members' propensity to challenge management's significant estimates is greatest when there is less disclosure and the primary shareholders are *unsophisticated*, lower when there is less disclosure and the primary shareholders are sophisticated, and lowest when there is greater disclosure.

## V. EXPERIMENTAL METHOD

### Design and Participants

#### *Independent Variables*

I employ a full factorial 2 x 2 between subject online experiment, with audit report content and investor type as manipulated independent variables. Audit report content is manipulated at two levels (lower vs. higher disclosure) with the requirement to include commentary on management's significant accounting estimates in the audit report being either present (higher disclosure) or absent (lower disclosure).

Investor type is also manipulated at two levels (lower vs. higher sophistication) using information regarding the firm's primary shareholders. Specifically, participants are either informed that 85% of the investor base consists of unsophisticated vs. sophisticated investors.<sup>13</sup>

The extant financial accounting literature commonly categorizes investors into four different groups on the basis of their level of sophistication (sophisticated vs. unsophisticated) and investment strategy (i.e., transient vs. dedicated). Transient investors refer to those with a shorter-term horizon and momentum focus, while dedicated investors refer to those with a longer-term horizon and valuation focus (Bushee, 1998; 2001; Ke and Petroni, 2004; Ke and Ramalingegowda, 2005; Elliott et al., 2010). Considering such characteristics, transient-sophisticated investors, who likely take advantage of unsophisticated investors, may be perceived as being the least vulnerable, while dedicated-unsophisticated investors may be

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<sup>13</sup> The manipulation of investor type in such manner may simultaneously trigger different thoughts about the fundamental characteristics of the hypothetical firm – such as its size, growth, information asymmetry, etc. To the extent participants connect the investor type manipulation with such natural correlates, however, will be an intermediary dependent response which is not a property of my manipulation per se. Hence, it will not alter my predictions on how investor type will affect audit committee members' level of questioning under the two different perspectives of accountability.

perceived to be the most vulnerable to financial misstatements. However, the presence of a large number of transient-sophisticated investors may increase audit committee's concern for potential exploitation of the minority of unsophisticated investors. In order to control for such secondary effect related to the investor group, only the level of investor sophistication is used to manipulate the different types of investors, while holding investment strategy constant across conditions.

### *Dependent Variables*

The primary dependent variable, audit committee members' propensity to challenge management's significant estimates, is examined in terms of the level and nature of questioning audit committee members engage in. Specifically, I use the total number of questions and the number of *probing* questions audit committee members ask after receiving information related to a significant accounting estimate as the primary measure of their propensity to challenge the auditor and/or management. I also ask the participants to indicate their preferred extent of questioning about management's estimate as well as their likelihood of asking questions on behalf of investors on six different issues as a secondary measure of their propensity to engage in questioning behavior. The six issues include 1) auditor's procedures to validate management's write-off, 2) instructions given to the physical inspection team, 3) whether the auditor attempted to independently assess the amount of obsolete inventory, 4) whether the company would be able to continue as a going concern if the old inventory turns out to be unsellable, 5) management's reasoning on why they believe the cost of obsolete inventory can be recovered and 6) the extent to which auditors and management believe the new estimate is more reasonable compared to the initial estimate.

Questions are also asked to examine the *process* in which the two independent variables (i.e., audit report content and investor type) affect the primary dependent variable (i.e., audit

committee's propensity to engage in questioning behavior). Specifically, I ask participants to indicate their belief regarding the likelihood that the difference between the revised and original estimate is causing a material misstatement and their comfort level related to 1) the change in management's estimate, 2) auditor's decision to allow management's updated, smaller write-down, and 3) the difference in the resulting net income amount due to the different estimates for obsolete inventory.

I also control for the possibility of participants' overall tendency to support external auditors compared to management affecting their questioning behavior, by asking them to indicate their level of support regarding a 5% increase in audit fees proposed by the auditors. Table 1 maps the different dependent measures with their corresponding construct of interest and the figure in Appendix A summarizes the experimental design using the predictive validity framework (Runkel and McGrath, 1972; Libby 1981).

### *Participants*

Participants were individuals who either possess audit committee experience or are considered eligible for serving on an audit committee.<sup>14</sup> The individuals were invited to participate in the experiment via e-mail through the alumni association of the college of business at a Big 10 university and also through professional networks.<sup>15</sup> Case materials and procedures, which are described in detail in the following section, were designed to ensure that participants were randomly assigned to experimental conditions.

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<sup>14</sup> Eligibility is determined based on their year of earning their bachelor's degree in business and their current career standing. Specifically, their graduation year must be before 1996 (i.e., have at least 15 years of professional experience) and they must either be university professors or hold or have held corporate positions in the C-suite or near the C-suite. Among the respondents, only 8 indicated having no audit committee experience.

<sup>15</sup> The survey software ensured complete anonymity (i.e., no IP addresses were collected). Hence, an analysis of the differences between the responses obtained from the two different recruitment methods could not be conducted.

## **Case Material and Procedures**

Participants were recruited via e-mail asking them to voluntarily participate in an online survey about the decision-making processes of audit committees. The e-mails included a link to a website that directed the participants to one of the four experimental conditions.

Once the participants click on the website link, they are thanked for their willingness to participate in the experiment, and asked to electronically sign an information consent form. Thereafter, the experiment begins by asking them to assume they are a member of an audit committee of a hypothetical manufacturing company and are preparing for an upcoming board meeting.

The participants first read some background information about the hypothetical firm. The background information includes a brief overview of the nature of the firm's operations, a recent strategy change implemented by the new CEO, and information regarding the firm's investor base (unsophisticated vs. sophisticated). Participants in the greater disclosure condition are further alerted of a new regulation requiring additional commentary on significant accounting estimates in the audit report, while participants in the lower disclosure condition receive no such information. After reading the background information about the firm, participants read a document developed by the external auditor regarding a significant accounting issue related to obsolete inventory that emerged during the audit process. The document includes information about the nature of the accounting issue, the initial and revised (more favorable) amount estimated by the management to be most appropriate, and the auditor's assessment of management's final estimate. The document is followed by an income statement and balance sheet that reflects the initial and revised estimate. Finally, participants in the greater disclosure conditions receive an audit report that includes commentary about the accounting estimate as

explanatory paragraphs at the end of the report. Participants in the lower disclosure condition receive a standard audit report with no additional commentary. Such operationalization of greater disclosure in the audit report is based on the long-form reporting model, which is one of the possible forms of the modified audit report being considered by the PCAOB.

Although the actually implemented form of the audit report may differ from the one used in the dissertation, there is no theoretical reason to predict a different operational form of the report would result in a significantly different conceptual effect from what is documented in this dissertation. In addition, the long-form reporting model is similar to how emphasis-of-matter is disclosed in current reports. Hence, the use of a long-form reporting model allows the experimental findings to have implications with respect to possible effects that emphasis-of-matter disclosures under the current reporting model may have. Appendix B presents the additional commentary on the management's estimate provided in the greater disclosure conditions.

After reviewing the background information, auditors' communication, and the financial statements, the participants complete questionnaires related to the significant accounting issue. I specifically ask several questions related to their comfort level on the final estimate as well as the degree to which they would like to question about the issue. Participants are then further asked to develop, to the degree they feel appropriate, one or more questions they would like to ask the external auditors and/or management regarding the significant accounting issue. The experiment concludes by asking several debriefing and demographic questionnaires. The summary of the experimental procedure is shown in Figure 2.

## VI. RESULTS

### Participants

A total of 81 participants completed the online experiment.<sup>16</sup> On average, they have 7.4 years of audit committee experience (min=0; max=25), with no significant difference across the four different experimental conditions.<sup>17</sup> Approximately half (52.1%) of the participants who have audit committee experience, reported to be designated financial experts.

On average, participants' self-reported level of engagement in asking questions in prior audit committee meetings is somewhat high with a mean of 1.33 ( $p < 0.01$ ) on a scale of -3 (extremely low) to +3 (extremely high), with no significant difference across conditions. Further, as Table 2 shows, the mean (median) values for participants' relative knowledge on financial accounting, financial statement analysis, auditing, audit committee best practice, and industry used in the case materials are 80.8% (82.7%), 81.7% (85.0%), 79.2% (82.7%), 77.5% (81.3%), and 50.7% (50.0%), respectively, with no significant difference across conditions. There were no statistically significant differences between those who are designated as financial experts and those who are not so designated, except for the relative knowledge on audit committee best practices where experts reported to have significantly greater knowledge (84.1% vs. 71.8%,  $p < 0.01$ , one-tailed).

Participants who are designated financial experts also appeared to have significantly greater audit committee experience in general (9.53 vs. 4.14,  $t_{(79)} = 4.20$ ,  $p < 0.01$ , one-tailed), as well as

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<sup>16</sup> Meaningful response rates could not be obtained because the number of participants recruited via professional networks was unknown to the researcher.

<sup>17</sup> There were 8 participants who reported to have no experience serving on audit committees but met qualifications to serve as audit committee members. The analysis result excluding this 8 participants are not significantly different from the results including all 81 participants. Hence, I include all 81 participants in my analysis.

public company audit committee experience (2.03 vs. 0.67,  $t_{(79)} = 3.16$ ,  $p < 0.01$ , one-tailed) compared to those who are not designated financial experts. However, the two groups did not differ at a statistically significant level with respect to their experience in serving on audit committees of not-for-profit ( $p = 0.19$ ) or private organizations ( $p = 0.22$ ).

### **Manipulation Checks**

To assess the effectiveness of my investor type manipulation, I ask participants to indicate the extent they would characterize the hypothetical firm's investor base to be sophisticated and their perception regarding the investors' level of expertise. I then develop a new variable of perceived investor sophistication based on a factor analysis conducted on the reported sophistication and expertise of the investor base. Results indicate the perceived investor sophistication is significantly higher (1.56 vs. -1.77) in the higher sophistication conditions ( $t_{(79)} = 15.4$ ,  $p < 0.01$ , one-tailed).<sup>18</sup>

I also ask the participants to indicate the extent to which they would characterize the hypothetical firm's investor base to be vulnerable to examine if the manipulation of investor type had an effect on participants' perceived investor vulnerability. Results show that participants in the lower sophistication conditions perceived the investors to be significantly more vulnerable (1.41 vs. 0.86,  $t_{(79)} = 2.07$ ,  $p = 0.02$ , one-tailed).<sup>19</sup> Overall, the results suggest that the manipulation of investor type significantly affected the participants' perception regarding the sophistication level and vulnerability of the hypothetical firm's investor base.

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<sup>18</sup> The numerical values on the response scale were labeled as follows: -3 "extremely unsophisticated," -2 "unsophisticated," -1 "somewhat unsophisticated," 0 "neutral," 1 "somewhat sophisticated," 2 "sophisticated," and 3 "extremely sophisticated."

<sup>19</sup> The numerical values on the response scale were labeled as follows: -3 "extremely not vulnerable," -2 "not vulnerable," -1 "somewhat not vulnerable," 0 "neutral," 1 "somewhat vulnerable," 2 "vulnerable," and 3 "extremely vulnerable."

I examine the manipulation effectiveness of audit report content by asking participants to indicate the extent to which they believe the audit report issued for the hypothetical firm would alert the financial statement users of the significant accounting issue. Results indicate that participants believed the audit report alerted the financial users to a greater extent (0.09 vs. -1.5) in the greater disclosure conditions ( $t_{(79)} = 4.45, p < 0.01$ , one-tailed).<sup>20</sup>

I also find evidence that the orthogonality of these manipulated two independent factors perceptually persisted in the minds of the participants as there is no significant effect of investor type on the participants' perception regarding the likelihood that the audit report would alert the investors of the estimate ( $p = 0.60$ , two-tailed) as well as no significant effect of the content of the audit report on perceived investor sophistication ( $p = 0.47$ , two-tailed). Further, there is no significant interaction between audit report content and investor type on the perceived likelihood that the audit report would alert investors of the significant estimate ( $p = 0.51$ , two-tailed) and perceived investor sophistication ( $p = 0.35$ , two-tailed).

## **Test of Hypotheses**

### *Total Number of Questions*

Drawing on two different perspectives of accountability, H1a and H1b predict alternative ways that audit report content and investor type interactively will affect the audit committee members' propensity to challenge management's accounting estimates.

Panel A of Table 3 tabulates the average and standard deviation of the number of questions participants developed by experimental conditions, and Panel B of Table 3 presents the analysis

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<sup>20</sup> The numerical values on the response scale were labeled as follows: -3 "extremely low," -2 "low," -1 "somewhat low," 0 "neutral," 1 "somewhat high," 2 "high," and 3 "extremely high."

of variance (ANOVA).<sup>21</sup> Panel C of Figure 1 also presents the observed pattern of results. The findings primarily support the prediction based on the self-serving perspective (H1a). Specifically, audit committee members show greater questioning when the primary shareholders are sophisticated (mean = 6.08), as opposed to unsophisticated (mean = 3.00). Moreover, when there is greater disclosure about management's estimates in the audit report, audit committee members' level of questioning decreases more given sophisticated, as opposed to unsophisticated, investors.

As I predict an ordinal interaction (i.e., a nonsymmetric pattern of cell means) of audit report content and investor type on audit committee members' propensity to challenge management's estimates, I use contrast codes to test H1a. Such analysis allows me to obtain greater statistical power in examining interactions compared to the conventional ANOVA tests (Buckless and Ravenscroft, 1990). Panel C of Table 3 presents the results of the planned contrast tests as well as follow-up simple effect tests. Consistent with my prediction, I apply contrast weights as follows: +3 in the lower disclosure/higher sophistication condition, +1 in the lower disclosure/lower sophistication condition, and -2 in the higher disclosure conditions.

Results presented in Panel C show that the +3, +1, -2, -2 planned contrast is statistically significant ( $F = 20.54$ ,  $p < 0.01$ , one-tailed), consistent with the predicted interaction as per the self-serving perspective of accountability. In addition, the results of the follow-up simple effect

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<sup>21</sup> As individual audit committee members' propensity to support auditors vs. support management, may influence the extent to which they engage in active questioning behavior, I examine if my findings hold while controlling for such propensity to support auditors. The propensity to support auditors is measured by asking participants to indicate the amount of change in audit fees they would support when the auditor is insisting on a 5% increase in audit fees, while management is arguing for a 5% decrease. On average, participants reported they would support a 1.13% increase in audit fees, which is significantly greater than 0 ( $p < 0.01$ , one-tailed). ANCOVA results (not reported) using this response as the covariate shows no significant effect of auditors' propensity to support auditors ( $p = 0.13$ , two-tailed) on the degree to which audit committee members challenge management's estimate.

tests show that when there is no additional information on management's estimates in the audit report, there is a significant effect of investor type ( $F = 27.35, p < 0.01$ , one-tailed). The results also show that the level of disclosure provided in the audit report significantly influences audit committee members' propensity to challenge management's estimates given sophisticated investors ( $F = 20.05, p < 0.01$ , one-tailed), while having no significant influence given unsophisticated investors ( $F = 0.06, p = 0.41$ , one-tailed). For completeness, I also confirm that there is no statistically significant effect of investor type given greater disclosure in the audit report ( $F = 0.47, p = 0.50$ , two-tailed). Overall, the results based on the total number of questions asked by the participants show support for H1a rather than H1b. Specifically, audit report content and investor type jointly affect audit committee members' propensity to engage in questioning behavior in a manner consistent with the prediction based on the self-serving perspective (see Panel A of Figure 1).

#### *Number of Probing Questions*

It is possible, however, that the participants in the low disclosure/high sophistication condition were simply asking greater number of questions that are not necessarily probing in nature. Hence, I conduct qualitative analysis of the questions and re-test my hypotheses based on the number of *probing* questions rather than the *total* number of questions. There is no conclusive list of probing questions audit committee members should ask. Hence the coding scheme is developed based on audit committee best practices set out by the National Association of Corporate Directors (NACD), Center for Audit Quality (CAQ), and The Audit Committee Handbook. Specifically, probing questions are questions that are difficult to answer by challenging the respondent to justify the decision; or questions that directly probe into the process of resolving the decision. Therefore, if by answering the question, the question recipient

would have to justify the inventory valuation decision, provide important additional information about the decision or disclose how the accounting treatment was agreed upon, then the question is considered probing. The full coding scheme is shown in Appendix B.

The coding was performed independently by two manager-level auditors of two different Big 4 firms who were blind to the experimental conditions. The coders were asked to evaluate the list of questions for every participant to determine whether or not each question was probing in nature (i.e., binary coding with 1 = probing, 0 = not probing). The coders obtained an agreement of 89.6%. Any disagreements were resolved through a conference call where both coders and I were present.

Panel A of Table 4 tabulates the average and standard deviation of the number of probing questions participants developed by experimental conditions, and Panel B of Table 4 presents the analysis of variance (ANOVA). Panel D of Figure 1 also presents the observed pattern of results. The findings confirm the results based on the total number of questions, further supporting the prediction based on the self-serving perspective (H1a). Specifically, audit committee members show greater questioning when the primary shareholders are sophisticated (mean = 3.74), as opposed to unsophisticated (mean = 2.11). Moreover, when there is greater disclosure about management's estimates in the audit report, audit committee members' level of questioning decreases more given sophisticated, as opposed to unsophisticated, investors. The planned contrast shown in Panel C is also statistically significant ( $F = 10.76$ ,  $p < 0.01$ , one-tailed), consistent with the analysis results based on the total number of questions asked.

Overall, the results based on both the quantitative number of questions and their qualitative nature show support for the predictions based on the self-serving perspective of accountability.

Such findings suggest that perceived accountability risk, rather than the internal sense of responsibility is the underlying mechanism of audit committee's questioning behavior.

#### *Secondary Measures of Audit Committee's Propensity to Challenge Management's Estimate*

One secondary measure of audit committee members' propensity to question management's estimate is the participants' preferred extent of questioning regarding the appropriateness of the write-down amount. Panel A of Table 5 summarizes the analysis results based on this measure and Panel A of Figure 5 graphically illustrates the observed effects. Results show that audit report content has a marginally significant effect ( $p = 0.08$ ) on the extent to which the participants would like to question the appropriateness of the write-down amount. Specifically, greater disclosure in the audit report appears to lower their preferred extent of questioning the accounting issue. This is consistent with the findings of the main analysis using the level and nature of the questions developed by the participants. However, there is no significant effect of investor type ( $p = 0.12$ ) or a joint effect of audit report content and investor type ( $p = 0.66$ ). Such findings may be due to low deviation ( $sd = 0.86$ ) among participants' responses, with most of the participants indicating that they would prefer moderately more than average amount of questioning on the accounting issue (mean = 2.40).<sup>22</sup> In other words, merely asking the participants the extent to which they would like to question may have triggered participants to answer at the higher-end of the response scale regardless of their experimental condition.<sup>23</sup>

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<sup>22</sup> The numerical values on the response scale were labeled as follows: -3 "significantly less than average amount of questioning would be warranted," -2 "moderately less than average amount of questioning would be warranted," -1 "slightly less than average amount of questioning would be warranted," 0 "average amount of questioning would be warranted," 1 "slightly more than average amount of questioning would be warranted," 2 "moderately more than average amount of questioning would be warranted," and 3 "significantly more than average amount of questioning would be warranted."

<sup>23</sup> When comparing those who are designated as financial experts and those who are not so designated, the experts preferred a greater extent of questioning (2.50 vs. 2.31), but not at a statistically significant level ( $p = 0.17$ ).

Another secondary measure of audit committee's propensity to question management's estimate is their likelihood of asking questions on behalf of financial statement users on six different issues related to the inventory write-down. The six issues include 1) auditor's procedures to validate management's write-off, 2) instructions given to the physical inspection team, 3) whether the auditor attempted to independently assess the amount of obsolete inventory, 4) whether the company would be able to continue as a going concern if the old inventory turns out to be unsellable, 5) management's reasoning on why they believe the cost of obsolete inventory can be recovered and 6) the extent to which auditors and management believe the new estimate is more reasonable compared to the initial estimate. To examine whether and to what extent audit report content and investor type interactively influence audit committee members' likelihood to ask questions on behalf of investors on these issues, I first conduct a factor analysis on the participants' responses on the six different issues. I then form a new variable, Likelihood of Questioning, based on the factor analysis results. The analysis of variance results using this new variable are summarized in Panel B of Table 5. Panel B of Figure 5 graphically illustrates the observed effects. Consistent with the main analysis based on the level and nature of questions developed by the participants, greater investor sophistication leads audit committee members to indicate greater likelihood of questioning on behalf of investors ( $p = 0.06$ ). Similarly, greater disclosure in the audit report leads to a lower likelihood of questioning on behalf of investors ( $p = 0.05$ ). However, there is no significant interaction between the two variables ( $p = 0.80$ ). Similar to the reasoning given for the analysis results based on the participants' preferred extent of questioning, this may be due to the fact that directly asking participants to indicate their likelihood of questioning on behalf of financial statement users

triggered them to answer at the higher-end of the response scale (overall mean = 2.13) regardless of their experimental conditions.<sup>24</sup>

Overall, the analysis results of the secondary measures of audit committee's propensity to engage in questioning behavior are directionally consistent with the findings based on the level and nature of questions developed by the participants (i.e., primary measure of audit committee's propensity to question management's estimates). Such findings support the argument that perceived accountability risk, rather than the internal sense of responsibility is the underlying mechanism of audit committee's questioning behavior.

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<sup>24</sup> The numerical values on the response scale were labeled as follows: -3 "extremely unlikely," -2 "unlikely," -1 "somewhat unlikely," 0 "neutral," 1 "somewhat likely," 2 "likely," and 3 "extremely likely."

## VII. SUPPLEMENTAL ANALYSES

### Further Evidence in Support of the Self-Serving Perspective of Accountability

The main findings of the dissertation are consistent with the prediction based on the self-serving perspective rather than the altruistic perspective of accountability. This suggests that protection of self-interest, rather than altruism, underlies audit committee members' perceived accountability in their decision-making processes. This further implies that the results are likely to be stronger for audit committee members who perceive greater accountability risk. The mere designation as an audit committee financial expert does not necessarily impose a higher legal degree of individual responsibility or obligation on a member of the audit committee (SOX Section 407). However, being designated to such position is likely to increase one's *perceived* accountability risk (Paskell-Mede and Jackson 1999; Rupley et al., 2011; Vera-Munoz, 2005; Zacharias 2000).<sup>25</sup> At the same time, there is no reason to think experts are more altruistic. If this is true, the results are likely to be stronger for participants who are designated financial experts. I conduct a supplemental analysis to test such prediction.<sup>26</sup>

Table 6 and 7 summarize the analysis based on the total number of questions and the number of probing questions, respectively. On both tables, Panel A tabulates the descriptive statistics

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<sup>25</sup> Many of the comment letters to the SEC regarding the rule on financial experts proposed under Section 407 of SOX expressed concern that such rule would increase the perceived liability of audit committee members, decreasing their willingness to serve as financial experts or to serve as audit committee members at all. See <http://www.sec.gov/rules/proposed/s74002.shtml> for the full list of comment letters.

<sup>26</sup> Among the participants with audit committee experience (n = 73), those who are designated as financial experts (n = 38), compared to those who are not so designated (n = 35), have significantly greater amount of audit committee experience (9.53 years vs. 5.10 years,  $t = 3.24$ ,  $p < 0.01$ , one-tailed) and have served on significantly greater number of public company audit committees (2.03 vs. 0.83,  $t = 2.54$ ,  $p < 0.01$ , one-tailed).

and Panel B presents the analysis of variance (ANOVA), while Panel C primarily tests my prediction.<sup>27</sup> The observed pattern of the results by groups is shown in Figure 3 and 4.

Results suggest the findings documented in the previous section are mainly driven by participants who are designated as financial experts. Specifically, the +3, +1, -2, -2 planned contrast using the total number of questions is statistically significant ( $F = 21.39, p < 0.01$ , one-tailed) for designated financial experts while it is not significant ( $F = 0.93, p = 0.17$ , one-tailed) for non-financial experts. In addition, the results of the follow-up simple effect tests for designated financial experts show that when there is no additional information in the audit report, there is a significant effect of investor type ( $F = 32.95, p < 0.01$ , one-tailed). The results also show that the level of disclosure provided in the audit report significantly influences the propensity to challenge management's estimates given sophisticated investors ( $F = 26.98, p < 0.01$ , one-tailed), while having no significant effect given unsophisticated investors ( $F = 0.04, p = 0.42$ , one-tailed). I also confirm that there is no statistically significant effect of investor type given greater disclosure in the audit report for designated financial experts ( $F = 0.04, p = 0.85$ , two-tailed). The +3, +1, -2, -2 planned contrast using the number of probing questions is also statistically significant ( $F = 14.85, p < 0.01$ , one-tailed) for designated financial experts while it is not significant ( $F = 0.76, p = 0.19$ , one-tailed) for non-financial experts.

Such findings provide further evidence in support of the prediction based on the self-serving perspective, suggesting that protection of self-interest, rather than altruism, is the accountability

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<sup>27</sup> As participants were randomly assigned, I was not able to control for the number of designated financial experts assigned to the different experimental conditions. As a consequence, the four conditions have an unbalanced number of designated financial experts. Some statisticians recommend using Type II sums of squares in such situations as opposed to the conventional Type III sums of squares (e.g., Maxwell and Delaney, 1990). As it turns out, the interaction of investor type and disclosure is statistically significant whether I use the Type III ( $p < 0.01$ ) or Type II ( $p < 0.01$ ) sums of squares.

mechanism underlying audit committee members' decision processes. Moreover, the findings suggest that despite their greater capacity to ask challenging questions, designated financial experts will challenge auditors and/or management to a greater extent only when they perceive a strong cognitive need to do so (e.g., when the primary shareholders are sophisticated and no additional disclosure in the audit report is required).

### **Mediation Effect of Perceived Comfort on Financial Experts**

The results thus far imply that audit committee members' incentive to minimize potential accountability risk drives their decision making process. Perceived accountability risk is likely to be negatively associated with audit committee members' comfort level regarding the accounting issue at hand. Greater accountability risk, thus, will lower audit committee members' comfort level. This, in turn, will likely increase their need to obtain justification about the issue, raising their propensity to question about it. Hence, I conduct a mediation analysis using the participants' comfort level regarding the accounting decision to gain further understanding on how audit committee members' perceived accountability risk affects their behaviors.

I first develop a variable of audit committee's overall comfort regarding the accounting issue based on a factor analysis on the participants' perceived comfort regarding 1) management's change in estimate, 2) auditor's decision to allow management's updated, smaller write-down of inventory, and 3) the difference in the net income that results from the different write-down amounts. Using this new variable, I conduct a mediation analysis according to the four-step procedure specified by Baron and Kenny (1986) on how the content of the audit report affects the number of probing questions asked by the participants.<sup>28</sup> The analysis is only conducted on

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<sup>28</sup> Mediation analysis using the total number of questions as the dependent variable is not significantly different from the results based on the number of probing questions.

the responses provided by designated financial experts given sophisticated investors as these are the conditions that drive my overall findings.<sup>29</sup> Figure 6 summarizes the results of the analysis.

Consistent with my main findings, step 1 indicates higher disclosure in the audit report negatively affects participants' propensity to challenge management's estimates ( $p < 0.01$ , one-tailed). Step 2 indicates that higher disclosure positively affects participants' perceived level of comfort regarding the accounting decision ( $p = 0.04$ , one-tailed). Step 3 shows that the perceived comfort level about the accounting decision negatively impacts the participants' propensity to challenge management's estimate ( $p = 0.04$ , one-tailed). Finally, step 4 indicates that participants' comfort with respect to the accounting decision fully mediates the influence of the disclosure level of the audit report on their propensity to challenge management's accounting estimate ( $p = 0.17$ , two-tailed). Such results imply that greater disclosure in the audit report on management's significant accounting estimate increases audit committee members' overall comfort level regarding the issue (i.e., decreasing perceived accountability risk), ultimately leading to a decrease in their propensity to engage in questioning behavior.

### **Audit Committee Members' Self-Insight into Decision Processes**

I conduct additional analysis to gain further insight on audit committee members' self-insight regarding the effect of the content of the audit report and investor type on their decision processes. After completing the main case questionnaires, I ask participants to indicate the extent to which they believe 1) an increase in investor sophistication and 2) increased disclosure in the audit report, would affect the degree to which they would like the auditors and/or

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<sup>29</sup> When comparing the perceived comfort level between designated financial experts and those who are not so designated, financial experts appear to perceive a greater level of comfort (-1.20 vs. -3.55) at a statistically significant level ( $p = 0 < 0.01$ , one-tailed).

management to be questioned. The response scale ranged from -3 to +3, where -3 was labeled as ‘substantially decrease questioning’ and +3 as ‘substantially increase questioning.’

I find that, on average, participants believe they will increase their level of questioning both when the sophistication level of the investor base increases (mean = 0.12,  $p = 0.02$ , one-tailed) and when there is greater disclosure in the audit report (mean = 1.24,  $p < 0.01$ , one-tailed).<sup>30</sup> Recall that the results from main case questionnaires show that audit committee members challenge management’s estimates to a greater extent when the primary shareholders are sophisticated investors and/or when the audit report does not have any additional disclosures about the significant accounting estimate.

Together, these findings suggest that while participants have some level of self-insight with respect to how different investor type may affect their behaviors, they are not aware and probably misguided of how their behaviors may be influenced under different levels of disclosures in the audit report. Accordingly, while audit committee members, along with standard setters, may believe that greater disclosure in the audit report may increase audit committee members’ propensity to question management and/or auditors, actual implementation of such requirement may have unintended consequences by actually lowering their level of questioning. This also suggests that surveys that simply ask what audit committee members think they will do if changes were made to the audit environment may result in misleading (even if well-intended) responses.

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<sup>30</sup> Designated financial experts, compared to those who are not so designated, do not possess significantly better self-insight with respect to the effect of greater investor sophistication (mean = 0.12 vs. 0.13;  $p = 0.45$ , one-tailed) and greater disclosure in the audit report (mean = 1.14 vs. 1.33;  $p = 0.24$ , one-tailed) on their questioning level.

## VIII. DISCUSSION AND CONCLUSION

This dissertation investigates the determinants of audit committee members' propensity to challenge management's significant accounting estimates. Specifically, I provide theory and empirical evidence on how audit report content and investor type jointly affect audit committee members' degree of questioning while overseeing the financial reporting and auditing processes.

Overall, the findings suggest that audit committee members challenge management's estimate to the greatest extent when the firm's primary shareholders are sophisticated and there is no additional disclosure in the audit report related to the significant accounting estimate. There is also evidence of audit committee members significantly decreasing their level of questioning when the primary shareholders are unsophisticated and/or when there is greater disclosure in the audit report related to the significant accounting estimate. Such findings are consistent with the predictions based on the self-serving perspective of accountability, implying that perceived accountability triggered by the motivation to protect self-interest, rather than an internal sense of responsibility to protect shareholders, is what causally drives the judgment and decision-making process of audit committee members. Supplemental analysis provides further evidence in support of the self-serving perspective by showing that the results tend to be more pronounced for audit committee members who are designated as financial experts.

There are various ways future research can extend the findings of this dissertation. First, this dissertation focuses on how the piecemeal implementation of greater disclosure in the audit report, the current approach being considered by standard setters, would affect audit committee members. In other words, the effect of changes in the audit report as part of a portfolio of other policies, such as those suggested by Peecher et al. (2011) that would switch auditors' accountability from penalties for bad outcomes towards rewards for good judgment processes, is

not considered. Future research can examine whether the findings documented in this dissertation are moderated or flipped with the implementation of such portfolio of changes in the audit environment. Second, future research can extend this dissertation by examining how greater disclosure in the audit report affects other members of the financial reporting supply chain, such as auditors and firm management, and how their behavior, in turn, may affect audit committee members' oversight process. For example, there may be changes in management's forthcomingness when greater disclosure is required in the audit report. Such change, in turn, may affect audit committee members' propensity to challenge management's estimates. The reaction of financial statement users may also be of interest as they are the ones who are insisting on such change. Third, future research can examine the effects of different composition of investor type. As one example, the presence of one big institutional investor where the primary shareholders are unsophisticated may alter the findings documented in this dissertation. Fourth, future research could address the issue of possible group dynamics among several audit committee members by using interacting groups to assess whether the implications of my findings extend in a group setting.

Overall, the theory and findings of the dissertation extensively enhances our understanding regarding audit committee members' decision-making processes. I also address the call for behavioral research on audit committees (Carcello et al., 2011) and provide ex ante evidence of possible 'policy resistance'<sup>31</sup> to greater disclosure in the audit report in terms of decreased audit committee effectiveness. Such findings warrant careful consideration of ways to minimize such unintended consequences before implementing a new auditor's reporting model. Moreover, the

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<sup>31</sup> Policy resistance is defined as "the tendency for interventions to be defeated by the response of the system to the intervention itself" and is used in the systems dynamics literature to refer to the occurrence of unintended consequences of well-intended efforts to solve pressing problems (Sterman, 2002).

findings are also applicable in the current audit environment, as I examine the effect of greater disclosure in the audit report using a form that is similar to emphasis-of-matter disclosures under the current reporting model. I also add to the expertise and corporate governance literatures by demonstrating that while designated financial experts have a greater capacity to challenge management's estimates, a potentially troubling boundary condition is an unsophisticated investor base.

## REFERENCES

- Abbott, L. J., Y. Park, and S. Parker. 2000. The effects of audit committee activity and independence on corporate fraud. *Managerial Finance* 26 (11): 55-68.
- Abbott, L. J., and S. Parker. 2000. Audit committee characteristics and auditor choice. *Auditing: A Journal of Practice & Theory* 19 (2): 47-66.
- American Institute of Certified Public Accountants (AICPA). 1988. *SAS 58 Reports on Audited Financial Statements*.
- Archambeault, D., and F. T. DeZoort. 2001. Auditor opinion shopping and the audit committee: An analysis of suspicious auditor switches. *International Journal of Auditing* 5 (1): 33-52.
- Baron, R., and D. Kenny. 1986. The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51 (6): 1173-1182.
- Beasley, M. S., J. V. Carcello, D. R. Hermanson, and P. D. Lapedes. 2000. Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons* 14: 14-21.
- Beasley, M. S., J. V. Carcello, D. R. Hermanson, and T. L. Neal. 2009. The audit committee oversight process. *Contemporary Accounting Research* 26 (1): 65-122.
- Bekkers, R. and P. Wiepking. 2010. A literature review of empirical studies in philanthropy: Eight mechanisms that drive charitable giving. *Nonprofit and Voluntary Sector Quarterly* XX (X): 1-50.
- Buckless, F., and S. Ravenscroft. 1990. Contrast coding: A refinement of ANOVA in behavioral analysis. *The Accounting Review* 65: 933-945.
- Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73 (3): 305-333.
- Bushee, B. 2001. Do institutional investors prefer near-term earnings over long-term value? *Contemporary Accounting Research* 18 (2): 207-246.
- Cain, D. M., G. Lowenstein., and D. A. Moore. 2005. The dirt on coming clean: Perverse effects of disclosing conflicts of interest. *Journal of Legal Studies* 34: 1-25.
- Carcello, J. V., D. R. Hermanson, and Z. Ye. 2011. Corporate governance research in accounting and auditing: Insights, practice implications, and future research directions. *Auditing: A Journal of Practice & Theory* 30 (3): 1-31.
- Carleton, W.T., J.M. Nelson, and M.S. Weisbach. 1998. The influence of institutions on corporate governance through private negotiations: Evidence from TIAA-CREF, *The Journal of Finance* 53(4), Papers and Proceedings of the Fifty-Eighth Annual Meeting of the American Finance Association, Chicago, Illinois, January 3-5, 1998 (Aug., 1998): 1335-1362.

- Cohen, J., G. Krishnamoorthy, and A. M. Wright. 2002. Corporate governance and the audit process. *Contemporary Accounting Research* 19 (4): 573-594.
- Davis, S. M. 2007. Market response to auditor's reports: A reexamination of auditor materiality thresholds. *Working paper*, Emory University.
- Del Guercio, D. and J. Hawkins. 1999. The motivation and impact of pension fund activism. *Journal of Financial Economics* 52: 293-340.
- Deloitte. 2010. *Audit Committee Resource Guide*.
- DeZoort, T., D. Hermanson, and R. W. Houston. 2003a. Audit committee support for auditors: The effects of materiality justification and accounting precision. *Journal of Accounting and Public Policy* 22 (2): 175-199.
- DeZoort, T., D. Hermanson, and R. W. Houston. 2003b. Audit committee support for proposed audit adjustments: A source credibility perspective. *Auditing: A Journal of Practice & Theory* 22 (2): 189-205.
- DeZoort, T. D., and S. Salterio, 2001. The effects of corporate governance experience and financial reporting and audit knowledge on audit committee members' judgments. *Auditing: A Journal of Practice & Theory* 20 (2): 31-47.
- DeZoort, T. D., D. R. Hermanson, and R. W. Houston. 2008. Audit committee member support for proposed audit adjustments: Pre-SOX versus post-SOX judgments. *Auditing: A Journal of Practice & Theory* 27 (1): 85-104.
- Dicke, L. A. 2002. Ensuring accountability in human services contracting: can stewardship theory fit the bill? *American Review of Public Administration* 32 (4): 455-470.
- Donaldson, L. and J. H. Davis. 1991. Agency theory or stewardship theory: CEO governance and shareholder returns. *Australian Journal of Management* 16: 49-64.
- Elliott, W. B., S. D. Krische, and M. E. Peecher. 2010. Expected mispricing: The joint influence of accounting transparency and investor base. *Journal of Accounting Research* 48 (2): 343-381.
- Ernst & Young. 2008. The focus of audit committees during the financial crisis. *Insights Special for Audit Committees*.
- Fisher, M. H. 1990. The effects of reporting auditor materiality levels publicly, privately, or not at all in an experimental markets setting. *Auditing: A Journal of Practice & Theory* 9 (Supplement): 184-223.
- Gendron, Y., J. Bedard, and M. Gosselin. 2004. Getting inside the blackbox: A field study of practices in "effective" audit committees. *Auditing: A Journal of Practice & Theory* 23 (1): 153-171.

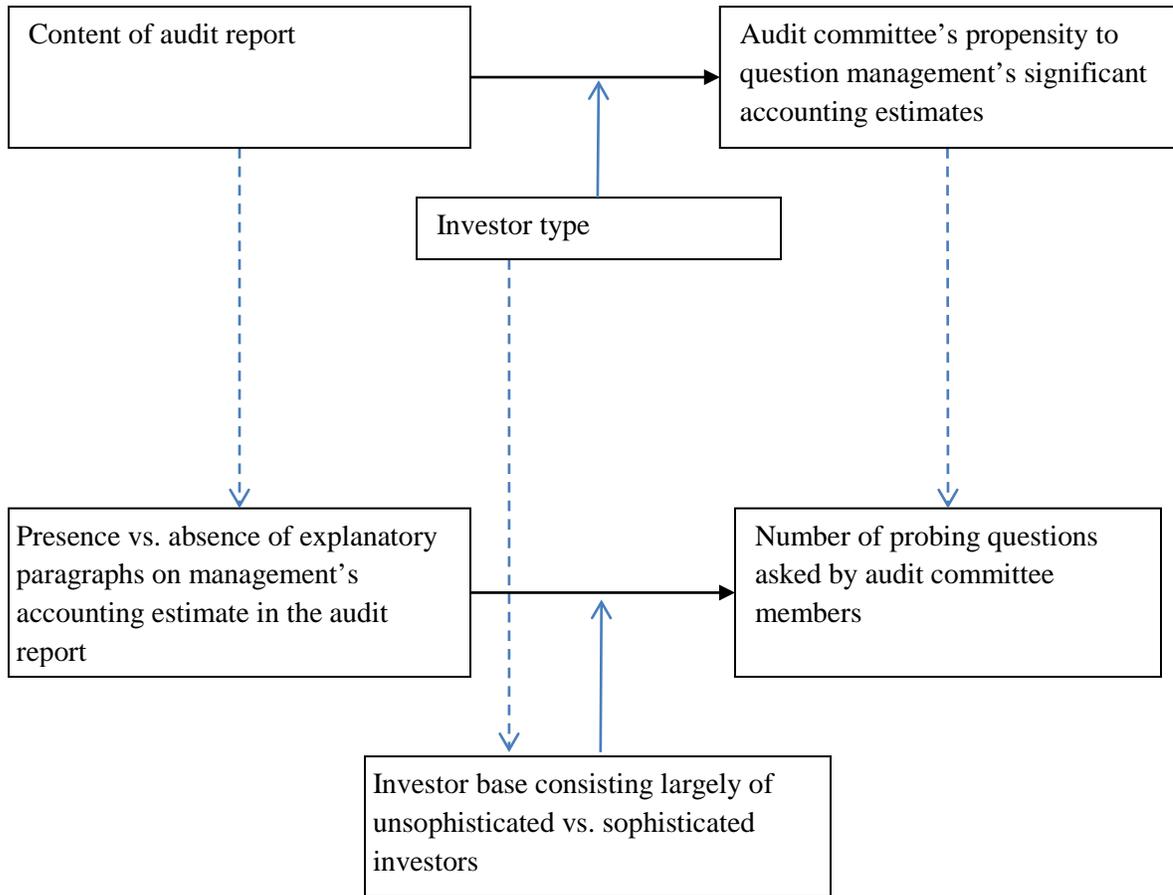
- Gendron, Y., and J. Bedard. 2006. On the constitution of audit committee effectiveness. *Accounting, Organizations and Society* 31 (3): 211-239.
- Gibbins, M., and A. K. Mason. 1988. *Professional judgment in financial reporting*. CICA. Research Studies Series. Toronto: Canadian Institute of Chartered Accountants.
- Gibbins, M., S. McCracken, and S. Salterio. 2007. The CFO's perspective on auditor-client negotiations. *Contemporary Accounting Research* 24 (2):387-422.
- Gibbins, M. and J. Newton. 1994. An empirical exploration of complex accountability in public accounting. *Journal of Accounting Research* 32: 165–186.
- Gibbins, M., S. Salterio, and A. Webb. 2001. Evidence about auditor-client management negotiation concerning the client's financial reporting. *Journal of Accounting Research* 39 (3): 535-63.
- Heinrich, C. J. 2007. False or fitting recognition? The use of high performance bonuses in motivating organizational achievements, *Journal of Policy Analysis and Management* 26 (2): 281-304.
- Kaplan, R. S. and D. Kiron. 2004. Accounting fraud at WorldCom. HBR Case 9-104-971, Boston, MA: Harvard Business School Publishing.
- Karpoff, J. 2001. The impact of shareholder activism on target companies: A survey of empirical findings, *Working paper*.
- Karpoff, J., P. Malatesta, and R. Walkling. 1996. Corporate governance and shareholder initiatives: Empirical evidence. *Journal of Financial Economics* 42: 365-395.
- Ke, B. and K. Petroni. 2004. How informed are actively trading institutional investors? Evidence from their trading behavior before a break in a string of consecutive earnings increases. *Journal of Accounting Research* 42 (5): 895-927.
- Ke, B. and S. Ramalingegowda. 2005. Do institutional investors exploit the post-earnings announcement drift? *Journal of Accounting and Economics* 39 (1): 25-53.
- Klein, A. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33 (3): 375-400.
- Knapp, M. 1987. An empirical study of audit committee support for auditors involved in technical disputes with client management. *The Accounting Review* 62 (3): 578-588.
- Lerner, J. S., and P. E. Tetlock. 1994. Accountability and social cognition. In V. S. Ramachandran (Ed.). *Encyclopedia of human behavior* (Vol. 1. pp. 3098-3121). San Diego, CA: Academic Press
- Lerner, J. S., and P. E. Tetlock. 1999. Accounting for the effects of accountability. *Psychological Bulletin* 125 (2): 255-275.

- Levitt, L. and R. C. Kornhaber. 1977. Stigma and compliance. A re-examination. *Journal of Social Psychology* 103 (1): 13-18.
- Libby, R. 1981. *Accounting and Human Information Processing: Theory and Applications*. Englewood Cliffs, NJ: Prentice Hall, Inc.
- Magilke, M. J., B. W., Mayhew, and J. E. Pike. 2009. Are independent audit committee members objective? Experimental evidence. *The Accounting Review* 84 (6): 1959-1981.
- Manson, S., and M. Zaman. 2001. Auditor communication in an evolving environment: Going beyond SAS 600 auditors' reports of financial statements. *The British Accounting Review* 33 (2): 113-136.
- Maxwell, S. E., and H. D. Delaney. 1990. *Designing experiments and analyzing data: A model comparison perspective*. Belmont, CA: Wadsworth Publishing.
- McMullen, D. A., and K. Raghunandan. 1996. Enhancing audit committee effectiveness. *Journal of Accountancy* 182 (August): 79-81.
- Monin, Benoit, and Dale T. Miller. 2001. Moral credentials and the expression of prejudice. *Journal of Personality and Social Psychology* 81: 33-43.
- National Association of Corporate Directors (NACD). 2010. *Report of the NACD Blue Ribbon Commission on the Audit Committee*.
- New York Stock Exchange (NYSE) & National Association of Securities Dealers (NASD). 1999. *Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees*.
- Paskell-Mede, M., and P. Jackson. 1999. Meeting expectations. *CA Magazine* 132: 49-50.
- Peecher, M. E. 1996. The influence of auditors' justification processes on their decisions: A cognitive model and experimental evidence. *Journal of Accounting Research* 34 (1): 125-140.
- Peecher, M. E., I. Solomon, and K. Trotman. 2011. Improving the quality of financial-statement audits by updating external auditors' accountabilities. *Working paper*.
- Pomeroy, B. 2010. Audit committee investigation of significant accounting decisions. *Auditing: A Journal of Practice & Theory*. 29 (1): 173-205.
- Public Company Accounting Oversight Board (PCAOB). 1989. *AU Section 508 Reports on Audited Financial Statements. Interim Standards*.
- Public Company Accounting Oversight Board (PCAOB). 2010. *Standing Advisory Group Meeting: ACAP Committee's Recommendation Related to the Auditor's Reporting Model*.
- Public Company Accounting Oversight Board (PCAOB). 2011. *Open Board Meeting: To Discuss Auditor's Reporting Model*.

- Raghunandan, K. R., W. J. Read, and D. V. Rama. 2001. Audit committee composition, “grey directors,” and interaction with internal auditing. *Accounting Horizons* 15: 105-118.
- Runkel, P. J., and J. E. McGrath. 1972. *Research on Human Behavior: A Systematic Guide*. New York: Holt, Rinehart & Winston, Inc.
- Rupley, K. H., E. D. Almer, and D. R. Philbrick. 2011. Audit committee effectiveness: Perceptions of public company audit committee members post-SOX. *Research in Accounting Regulations*, Forthcoming.
- Ryan, L.V. and M. Schneider. 2002. The antecedents of shareholder activism. *The Academy of Management Review* 27(4): 554-573.
- Sarbanes-Oxley Act. 2002. The Public Company Accounting Reform and Investor Protection Act. Pub. L. no. 107-204, 116 Stat. 745.
- Scarbrough, D. P., D. V. Rama, and K. R. Raghunandan. 1998. Audit committee composition and interaction with internal auditing: Canadian evidence. *Accounting Horizons*: 51-62.
- Schmidt, J. J., and S. J. Rasmussen. 2012. Auditing the audit committee: A study of shareholders’ and boards’ efforts to hold audit committee members accountable. *Working paper*.
- Securities and Exchange Commission (SEC). 1969. *Disclosure to investors: A reappraisal of federal administrative policies under the ’33 and ’34 acts*. Commerce Clearing House, Inc.
- Securities Exchange Committee (SEC). 2008. *Comments on: Advisory Committee on Improvements to Financial Reporting*.
- Securities Exchange Committee (SEC). 2011. *Study on investment advisors and broker-dealers*.
- Securities Industry Organization (SIA). 2001. *Costs and benefits of Regulation Fair Disclosure*.
- Sinclair R., K. Hooper, and S. Ayoub. 2010. Perspectives of accountability in charities. *Working paper*.
- Smith, M.P. 1996. Shareholder activism by institutional investors: Evidence from CalPERS. *The Journal of Finance* 51(1): 227-252.
- Srinivasan, S. 2005. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research* 43 (2): 291-334.
- Stapel, D. A., W. Koomen, and M. Zeelenberg. 1998. The impact of accuracy motivation on interpretation, comparison, and correction processes: Accuracy x knowledge accessibility effects. *Journal of Personality and Social Psychology* 74: 878-893.
- Staub, E. and R. S. Baer. 1974. Stimulus characteristics of a sufferer and difficulty of escape as determinants of helping. *Journal of Personality and Social Psychology* 30: 279-284.

- Sterman, J. D. 2002. All models are wrong: Reflections on becoming a systems scientist. *Systems Dynamics Review* 18: 501-531.
- Tetlock, P. E. 1983. Accountability and complexity of thought. *Journal of Personality and Social Psychology* 45: 74-83.
- Tetlock, P. E. 1992. The impact of accountability on judgment and choice: Toward a social contingency model. *Advances in Experimental Social Psychology* 25: 331-376.
- Tetlock, P. E., L. Skitka, and R. Boettger. 1989. Social and Cognitive Strategies for Coping with Accountability: Conformity, Complexity, and Bolstering. *Journal of Personality and Social Psychology* 57 (4): 632-640.
- Tetlock, P.E. 1999. Accountability theory: Mixing properties of human agents with properties of social systems. In Thompson, L. L., J. M. Levine, and D. M. Messick (Ed.), *Shared Cognition in Organizations – The Management of Knowledge*. Lawrence Erlbaum Associates, Inc.
- Turley, S., and M. Zaman. 2004. The corporate governance effects of audit committees. *Journal of Management and Governance* 8 (3): 305-332.
- Vera-Munoz, S. C. 2005 Corporate governance reforms: Redefined expectations of audit committee responsibilities and effectiveness. *Journal of Business Ethics* 62 (2): 115-127.
- Wagner, C. and L. Wheeler. 1969. Model, need, and cost effects in helping behavior. *Journal of Personality and Social Psychology* 12 (2): 111-116.
- Weiner, B. 1995. *Judgments of responsibility: a foundation for a theory of social conduct*. New York: Guilford.
- West, S. G. and T. J. Brown. 1975. Physical attractiveness, the severity of the emergency and helping: A field experiment and interpersonal simulation. *Journal of Experimental Social Psychology* 11 (6): 531-538.
- Zacharias, C. A. N. 2000. New rules, new responsibilities. *Journal of Accountancy* 190: 53-55.
- Zucker, G. S., and B. Weiner. 1993. Conservatism and perception of poverty: An attributional analysis. *Journal of Applied Social Psychology* 23 (12): 925-943.

**APPENDIX A**  
**Predictive Validity Framework**



## APPENDIX B

### Coding Scheme for Qualitative Analysis

Please code the questions in terms of 1) who the question was directed to and 2) whether the question is probing or not based on the coding scheme described below. (*Note: I do not make any predictions with respect to who the target of the questions will be. This is simply to obtain insight on the proportion of questions directed to management vs. auditors*)

1. Who is the question directed to?
    - a. (0) none
    - b. (1) management (CFO/COO/CEO)
    - c. (2) auditor
    - d. (3) both
  
  2. Is the question probing?
    - a. (0) No
    - b. (1) Yes
- To be considered probing, questions must be directly related to the inventory valuation decision and must challenge the auditor and/or CFO to justify the decision.

Specifically, probing questions are questions that are difficult to answer by challenging the respondent to justify the decision; or questions that directly probe into the process of resolving the decision. Therefore, if by answering the question, the question recipient would have to justify the inventory valuation decision, provide important additional information about the decision or disclose how the accounting treatment was agreed upon, then the question is considered probing.

- Any question that asks about the *appropriateness of the accounting treatment* is considered challenging or probing.
  - Ex: Justify the difference between the two estimates.
  - Ex: How confident are the auditors about management's estimates?
  - Ex: What is the fair value of this inventory?
  - Ex: If given a choice, what method would you choose to value the inventory?
  - Ex: How would regulatory bodies view manipulation of this kind?
  
- Any question that asks about the *internal or external influences or pressures* that could affect the estimate is considered challenging or probing.

- Ex: Does the new estimate affect the company's ability to be in compliance with debt covenants?
  - Ex: What are the implications for going concern?
  - Ex: Does the new estimate affect management's compensation in any way?
- Any question that asks about *disagreements* between the management and auditors is considered challenging or probing.
  - Ex: Were there any disagreements with the management on the estimate, and if so, how did they respond to your disagreement?
- *Note: The list above is not conclusive. Any other question that challenges the respondent to justify the inventory valuation or provide important additional information about the decision or disclose how the accounting treatment was agreed upon is considered probing.*
- Non-probing questions: does not challenge the respondent to provide information or justification about how the issue was resolved with the other party.
  - Ex: How much additional investment does the company need to spend in order to make those products related to the old strategy to be sold?
  - Ex: What does the company plan to do with obsolete inventory? – business strategy question that is not directly related to the accounting decision.
  - Are there any accounts receivables outstanding related to sales of the old strategy inventory?

**APPENDIX C**  
**Commentary Added in the Audit Report of the Greater Disclosure Conditions**

**Justification of Assessments**

In accordance with the professional standards applicable in the United States, we bring to your attention the following matters:

SCA's management adjusted its inventory by writing it down to its estimated net realizable value. This write down was necessary when a portion of its inventory became unsalable after implementation of a new marketing strategy as described in note 3.2 to the consolidated financial statements. The portion of on-hand inventory that management estimated to be unsalable had a carrying value of \$970,000, and so management took a write down of inventory in this amount, materially decreasing SCA's net income.

As part of our audit of significant accounting estimates, we assessed the assumptions made and the approach taken by management regarding this estimate for compliance, in all material respects, with U.S. GAAP. In addition, we communicated this issue to the audit committee in accordance with PCAOB Auditing Standards (AU 380). These procedures were performed in the context of our audit of the consolidated financial statements as a whole, and therefore contributed to the opinion expressed above.

**APPENDIX D**  
**Experimental Materials**

**Welcome!**

**Thank you for volunteering to participate in this survey.**

**Please proceed to the next page to begin.**

## **Informed Consent Form**

This research is being conducted by doctoral student Yoon Ju Kang under the supervision of Dr. Mark Peecher (Professor of Accountancy at the University of Illinois). The purpose of this research is to investigate how audit committee members make judgments and decisions. The experimental task involves reading about a hypothetical public company and answering several questions related to it. The benefits of this experiment primarily relate to enhancing our understanding of how audit committee members make judgments and decisions.

You must be 18 years old or older to participate in the study. Your participation is completely voluntary and you may discontinue your participation at any time. Neither the firm nor the investigator will penalize you if you choose not to participate. The task is expected to take approximately 15 to 25 minutes. Your participation in this study will not expose you to any form of risk (physical or otherwise) beyond that normally encountered in daily life. Responses will be assigned a participant number, so that data files will not contain any identification of the names of individual participants or their firm affiliation. Your confidentiality and that of your firm is assured. Results of this experiment may be disseminated in academic workshops, conferences, and/or in academic journals at aggregated levels.

Should you have any questions about the study you may contact Dr. Peecher at (217) 333-4542 or [peecher@illinois.edu](mailto:peecher@illinois.edu) via e-mail. If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at [irb@illinois.edu](mailto:irb@illinois.edu).

Please click the button below to indicate that you have read and understand the above consent form and voluntarily agree to participate in the study. Thank you.

**While completing the case materials, please assume you are an audit committee member for a hypothetical firm to be described.**

**You will now be provided with information regarding the hypothetical firm. The information provided in the case may be considerably less than what you normally would have as an audit committee member. Nevertheless, your best professional judgments given the available information would be appreciated. Please read the case information carefully and respond to the questions that follow. You may ignore any tax effects.**

## Background

Founded in 1985, Simple Computer Accessories (SCA) is a public company traded on the NASDAQ. Today, you are attending a meeting of SCA's Board of Directors to review and discuss the annual financial statements. As you prepare for your meeting, you study the information you have gathered to date.

### *Change in Regulation (Only in Higher Disclosure Condition)*

One thing that catches your attention is a new standard about the auditor's report. In addition to the current unqualified/qualified (pass/fail) opinion on the financial statements, the new standard requires a *justification of auditor's assessments* section. In this new section of the auditor's report, auditors must disclose their assessment of significant accounting estimates made by management. Regulators say the new standard is intended to provide more informative disclosure to investors and other financial statement users. As a result of the new standard, the auditor will later provide commentary on the significant accounting estimates that you will be discussing in the meeting you are about to attend. Again, this commentary will appear directly in the auditor's report via additional explanatory paragraph(s) after the audit opinion.

### Overview of Company

SCA began as a manufacturing company in 1985 located in Dayton, Ohio. It acquired sales contracts to fit specifications requested by local colleges to assemble computer desks, chairs, and accessories for dormitories and computer labs. SCA also would distribute other products through numerous local computer stores, located on or near college campuses, for direct sale to students. Its reputation for high-quality, durable products grew steadily over time and it located dozens of sales offices near college towns throughout the Midwest and Southeast regions of the United States.

### Performance and Strategy

After several years of decreasing sales, SCA was in need of a turnaround. In April 2010, SCA replaced its CEO. The new CEO, Robert Smith, initiated a significantly different product-marketing strategy, with a gradual phase-in during the second half of 2010. Based on this new strategy, SCA began to shift away from directly contracting with colleges and towards substantially manufacturing computer desks and chairs as well as other furniture to fit the specifications demanded by two major retailers (e.g., Office Depot and IKEA). SCA plans to close the majority of its direct sales offices and is no longer a distributor to numerous, smaller local retailers. Despite the strategic change, sales failed to meet SCA's projections, but perhaps it is too soon to tell whether the new strategy will work.

## Investor Base

*(Lower Sophistication Condition)* Approximately 85% of SCA's outstanding common stock is held by unsophisticated, individual investors including retirees, current employees, and former employees. As such, most of SCA's investor base has neither access to nor expertise in analyzing information germane to SCA and its industry. These investors are not able to conduct independent market research and are only novices at financial-statement analyses. They also lack investment information other than what is available to the general public (as in SCA annual reports). Finally, these investors tend to be long-term, dedicated investors with high concentration in their holdings and low portfolio turnover. The remaining 15% consists of a variety of other investors.

*(Higher Sophistication Condition)* Approximately 85% of SCA's outstanding common stock is held by sophisticated, institutional investors including pension funds, mutual funds, and private hedge funds. As such, most of SCA's investor base has considerable access to and expertise in analyzing information germane to SCA and its industry. These investors can conduct independent market research and are experts at financial-statement analyses. They possess investment information well beyond what is available to the general public (as in SCA annual reports). Finally, these investors tend to be long-term, dedicated investors with high concentration in their holdings and low portfolio turnover. The remaining 15% consists of a variety of other investors.

## Communications with SCA's External Auditor

In compliance with PCAOB Audit Standards (AU Sec. 380), the external auditor orally informed you and other audit committee members of significant accounting issues discussed with management as summarized below.

### 2011 Audit Results - Significant Accounting Estimate

PCAOB Audit Standards (AU Section 380) requires us to communicate to the audit committee about significant accounting estimates that may have a material impact on the financial statements. The following summarizes the significant accounting estimate discussed during our audit of SCA for the 2011 fiscal year.

1. Description of the Significant Estimate:

There was a large increase in inventory from \$5,510,000 at June 30, 2010 (audited) to \$12,035,000 at June 30, 2011 (unaudited). The sales contracts for nearly all the inventory marketed under SCA's old strategy have expired. So additional marketing costs would be necessary for the older inventory to be sold, and much of the inventory related to SCA's previous strategy might now be unsalable or would require a substantial markdown in order to sell. Hence, we discussed with management a potential adjustment to write-down inventory to its estimated net realizable value. This write-down would decrease SCA's assets and net income, and depending on its size, could have a material negative impact on SCA's financial statements.

2. Judgment made by SCA's Management:

When we initially discussed the issue with SCA's management several weeks ago, approximately 58 percent (\$6,995,000) of the inventory was estimated to include products saleable under the new marketing strategy, while 42 percent (\$5,040,000) was estimated to include products marketed under the old strategy with expired contracts. Of the \$5,040,000, management estimated \$4,000,000 as the value to be reported as obsolete inventory with the \$1,040,000 attributed to salvage value. Financial statements incorporating this estimate are shown in column A of Table 1, which will be shown on the next page.

*(continued from previous page)*

As part of our audit process, we asked SCA to provide us with a report showing the breakdown of the slow-moving inventory. SCA's accounting system could not track inventory in real-time, however, so we could not pull an aging analysis on slow-moving goods from the system. Although inventory is a material account on SCA's balance sheet, management informed us that they would not be able to develop a new inventory system to track and value the existing inventory due to time constraints. As a compensating control, the Vice President, COO, and CFO of SCA suggested non-sales personnel go conduct physical inspection of the inventory warehouses. This process led to a revised and considerably smaller estimate of \$970,000 in obsolete inventory. The financial statements incorporating this revised estimate are shown in column B of Table 1.

Because the revised write-down, at \$970,000, is only 24.3% of the originally proposed write-down of \$4,000,000, we questioned the CFO who stated that the high inventory level was due to SCA's intense focus on the turn-around rather than selling old inventory. The CFO also stated that based upon the physical inspection and further analysis, once SCA starts marketing old products, they will sell for more than previously estimated. The CFO also noted that an overly conservative write-down unrelated to the turn-around will send the wrong message to its investors: the turn-around is not working. We conducted additional market research as well before concluding that the new estimate is reasonable. As such, the estimate does not require any modification to our proposed unqualified (clean) opinion. (Higher Disclosure Condition Only) However, our assessment of the estimate will be discussed in the justification section of the audit report.

Table 1  
Effects of Two Alternatives for Obsolete Inventory Write-Off  
on the Income Statement and Balance Sheet

Income Statement for the Year Ending 6/30/2011 (Adjusted)  
(in thousands)

Inventory Alternative	(A) Initial Estimate	(B) Revised Estimate
Sales	\$ 23,685	\$ 23,685
Cost of Sales	\$ (17,316)	\$ (17,316)
Gross Margin	\$ 6,369	\$ 6,369
Operating Expense	\$ (1,054)	\$ (1,054)
Other Expense:		
Write-down of inventory to market	\$ (4,000)	\$ (970)
Net Income	\$ 1,315	\$ 4,345
EPS	\$2.15	\$4.41
% increase in EPS		105.1%

Select Balance Sheet Items 6/30/2011 (Adjusted)  
(in thousands)

Assets		
Inventory	\$ 12,035	\$ 12,035
Allowance to Reduce Inventory to Market	\$ 4,000	\$ 970
Net Inventory	\$ 8,035	\$ 11,065
Current Ratio	3.41	4.67
% increase in Current Ratio		37.0%

New Requirement for Auditor's Report (Higher Disclosure Condition)

Recall that a new standard regarding audit reports has been implemented to provide more informative disclosure about auditors' assessments of significant accounting estimates made by management. As a result of the new standard, a summary of the commentary about the adjustment of inventory to its net realizable value will be disclosed in the auditor's report via additional explanatory paragraphs after the audit opinion. The expected audit report is shown below with the additional explanatory paragraphs that will be disclosed shown in the second half under "Justification of Assessments."

Report of Independent Registered Accounting Firm

Board of Directors and Shareholders  
Simple Computer Accessories, Corp.

We have audited the accompanying balance sheet of Simple Computer Accessories, Corp. (the "Company") as of June 30, 2011 and the related statements of income, shareholders' equity, and cash flows for the fiscal year ending June 30, 2011. We also have audited the Company's internal control over financial reporting as of June 30, 2011, based on the criteria established in *Internal Control – Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in Management's Report on Internal Controls over Financial Reporting. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

*(continued from previous page)*

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of June 30, 2011, and the results of its operations and its cash flows for the fiscal year then ended in accordance with U.S. generally accepted accounting principles (GAAP). Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of June 30, 2011, based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

*(continued from previous page)*

#### Justification of Assessments

In accordance with the professional standards applicable in the United States, we bring to your attention the following matters:

SCA's management adjusted its inventory by writing it down to its estimated net realizable value. This write down was necessary when a portion of its inventory became unsalable after implementation of a new marketing strategy as described in note 3.2 to the consolidated financial statements. The portion of on-hand inventory that management estimated to be unsalable had a carrying value of \$970,000, and so management took a write down of inventory in this amount, materially decreasing SCA's net income.

As part of our audit of significant accounting estimates, we assessed the assumptions made and the approach taken by management regarding this estimate for compliance, in all material respects, with U.S. GAAP. In addition, we communicated this issue to the audit committee in accordance with PCAOB Auditing Standards (AU 380). These procedures were performed in the context of our audit of the consolidated financial statements as a whole, and therefore contributed to the opinion expressed above.

August 31, 2011

XYZ

Standard Auditor's Report (Lower Disclosure Condition)

As the external audit firm is prepared to give an unqualified (clean) audit opinion for this year's financial statements, the following standard unqualified audit report is expected to be issued.

Report of Independent Registered Accounting Firm

Board of Directors and Shareholders  
Simple Computer Accessories, Corp.

We have audited the accompanying balance sheet of Simple Computer Accessories, Corp. (the "Company") as of June 30, 2011 and the related statements of income, shareholders' equity, and cash flows for the fiscal year ending June 30, 2011. We also have audited the Company's internal control over financial reporting as of June 30, 2011, based on the criteria established in *Internal Control – Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in Management's Report on Internal Controls over Financial Reporting. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

*(continued from previous page)*

A company's internal control over financial reporting is a process designed by, or under the supervision of, the company's principal executive and principal financial officers, or persons performing similar functions, and effected by the company's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

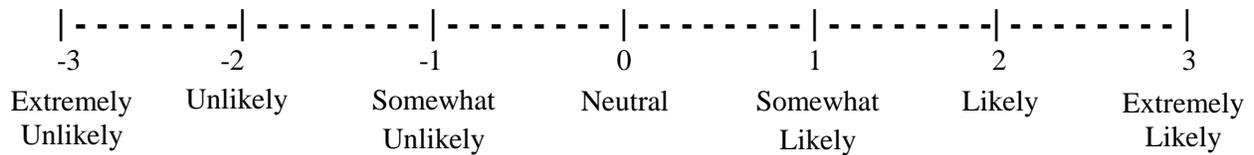
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of June 30, 2011, and the results of its operations and its cash flows for the fiscal year then ended in accordance with U.S. generally accepted accounting principles (GAAP). Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of June 30, 2011, based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission.

August 31, 2011  
XYZ

**Considering all the information you have reviewed related to SCA and its external auditor, please answer the following questions. (Note: The survey software necessitates the response scales to start at Neutral.)**

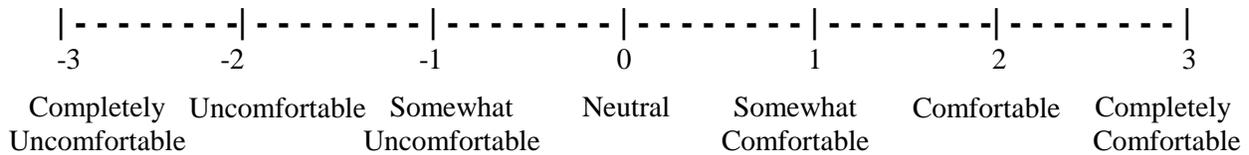
Please indicate the likelihood you believe the following statement is true:

The write-down amount of obsolete inventory, based on the new estimate of \$970,000, is too small (i.e., too aggressive) compared to the initial estimate of \$4,000,000, and is causing a material overstatement of inventory.

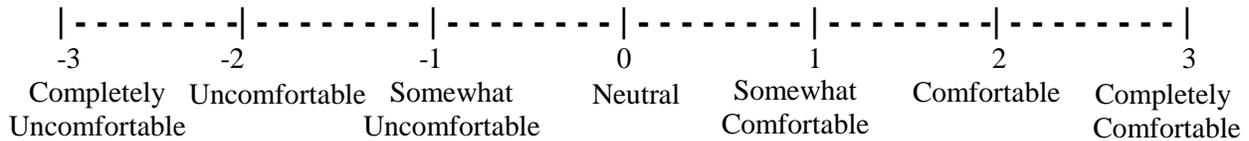


Please indicate your comfort level regarding the following issues:

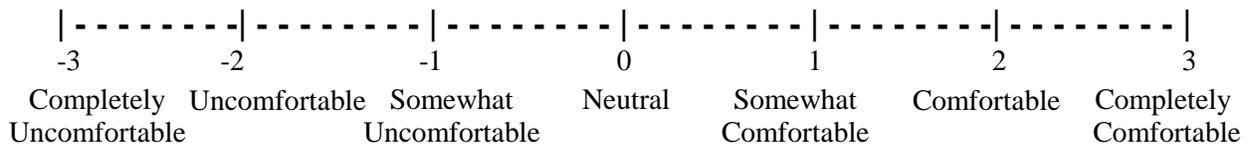
a. The change in management's estimate of obsolete inventory



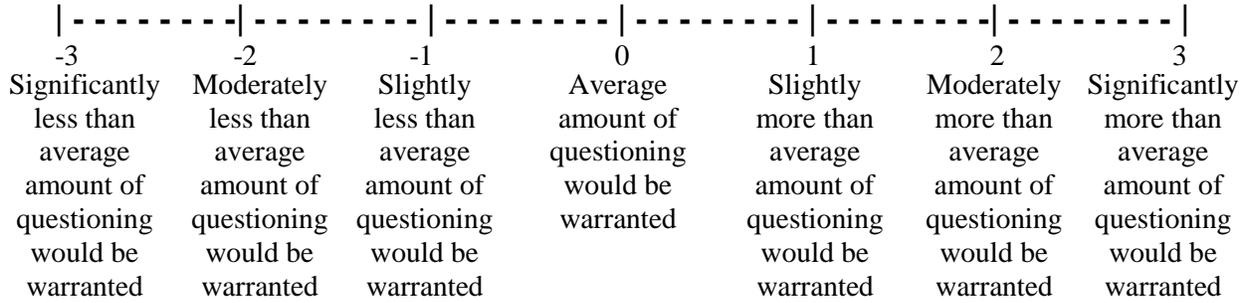
b. Auditor's decision to allow management's updated, smaller write-down of inventory



c. The difference in the net income that results from the different write-down amounts for obsolete inventory



To what extent would you like to question auditors and/or management about the appropriateness/sufficiency of the write-down amount? (Note: To the extent that you feel worried about the write-down issue and want to question auditors and/or management, but are not sure what questions to ask, your answer should be on the higher-end of this scale).

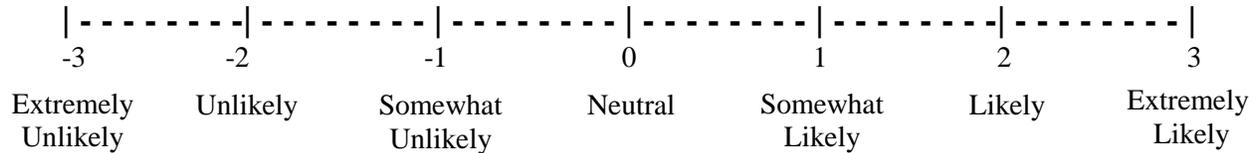


Based upon the information presented, please write down any questions, in the order that they come to mind, you would ask of SCA’s CFO and/or the audit partner regarding the significant accounting estimate related to obsolete inventory valuation described above.

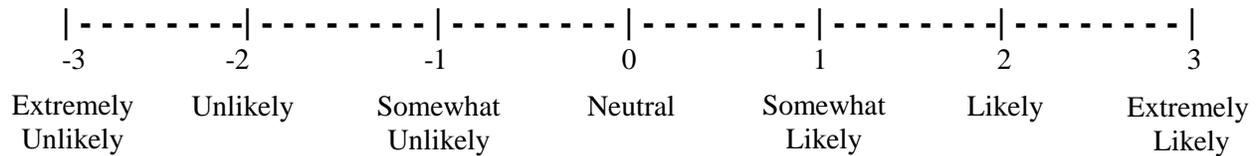
Questions you would ask:

Please indicate the likelihood that you would ask, or have other audit committee members ask the following questions on behalf of SCA’s current investor base and other financial statement users.

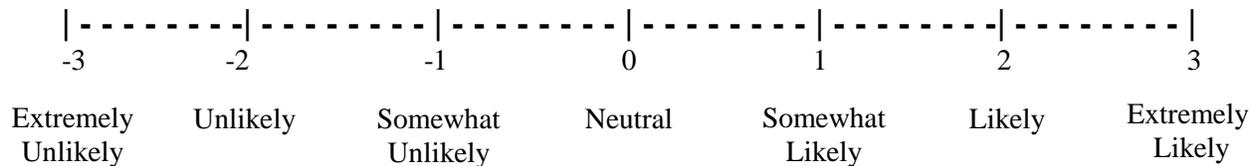
- a.** To the Auditor: What procedures did your team conduct to validate management’s write-off amount?



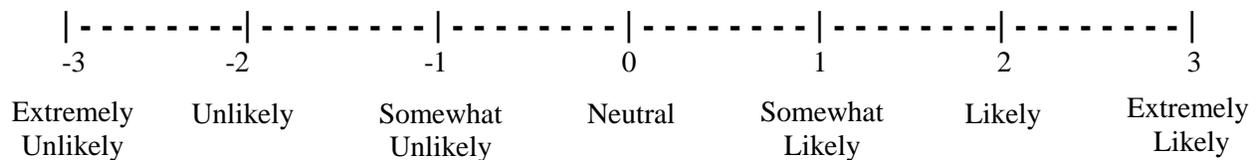
- b.** To the Management: What instructions did the physical inspection team receive, exactly?



- c.** To the Auditor: Did you attempt to independently assess the amount of obsolete inventory or did you simply use the information provided to you by SCA’s management?



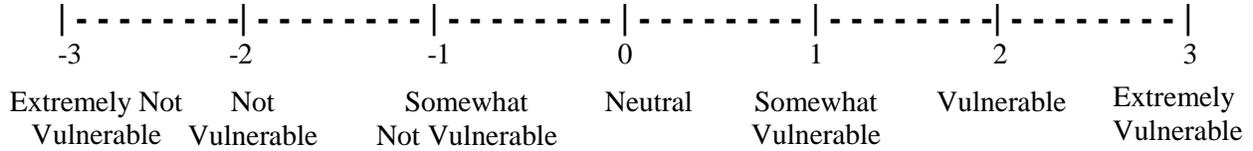
- d.** To both the Auditor & Management: If the old inventory turns out to be unsellable, will the company be able to continue as a going concern?



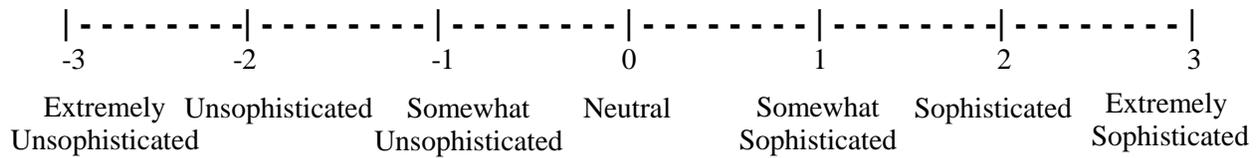


Follow-up Questions

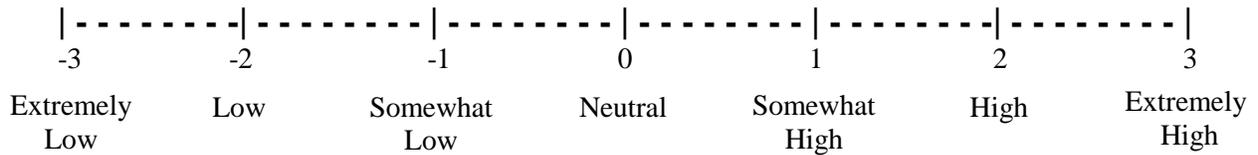
How vulnerable would you characterize the firm's investor base to be?



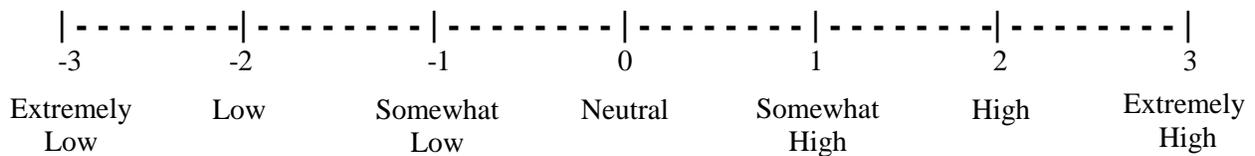
How sophisticated would you characterize the firm's investor base to be?



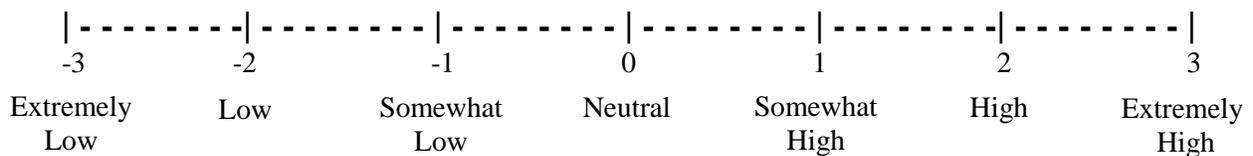
How would you rate the expertise level of the firm's investor base to be?



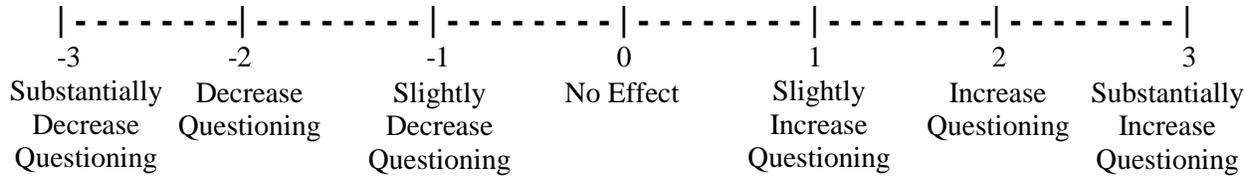
While completing the case, how much duty did you feel toward protecting the firm's investors?



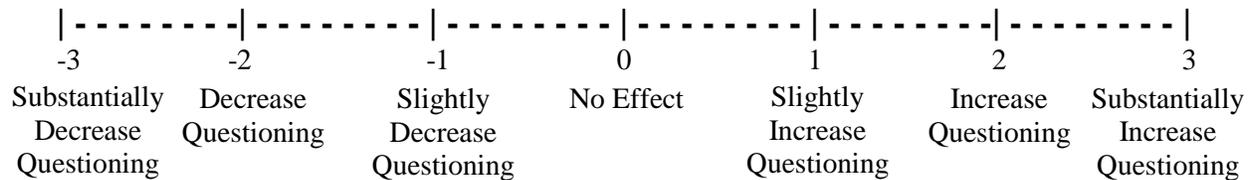
How would you rate the level at which the auditor's report that was issued for SCA, would alert the financial statement users of the adjustment that resulted in the write-down of inventory?



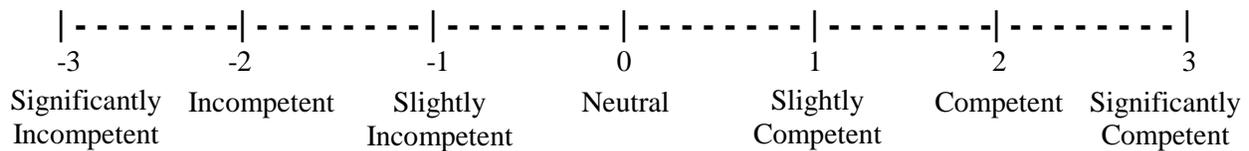
How would disclosing more information in the auditor's report regarding a significant accounting issue related to SCA's inventory valuation, affect the degree to which you would like the auditor and/or management to be questioned?



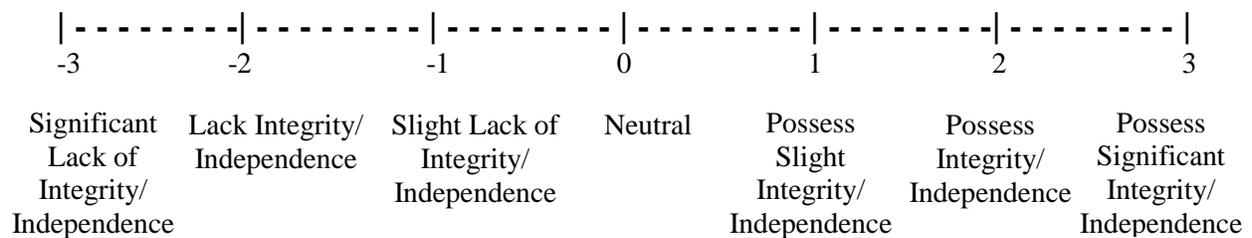
To what extent would an increase in the sophistication level, or a decrease in the vulnerability of the firm's investor base, change the degree to which you would like the auditors and/or management to be questioned?



Given SCA's estimate for obsolete inventory changed from \$4,000,000 to \$970,000, please indicate your belief on the level of SCA's external auditors' competence (i.e., ability to detect misstatements should they exist).



Given SCA's estimate for obsolete inventory changed from \$4,000,000 to \$970,000, please indicate your belief on the level of SCA's external auditors' independence/integrity (i.e., probability of reporting identified misstatements).



Demographic Questions

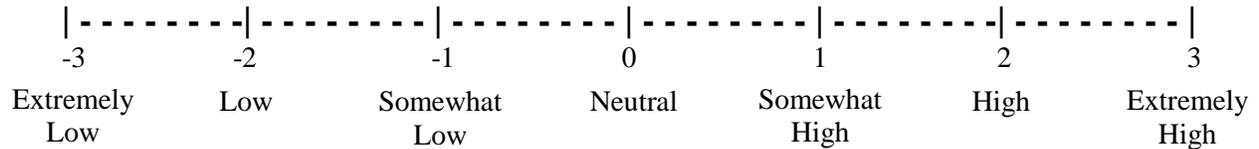
Corporate governance experience: please answer all that apply to you.

- 1) Number of public company boards of directors you have served on: \_\_\_\_\_
- 2) Number of private company boards of directors you have served on: \_\_\_\_\_
- 3) Number of not-for-profit boards of directors you have served on: \_\_\_\_\_
- 4) Total number of years that you have been an audit committee member: \_\_\_\_\_

Are you the designated financial expert on any audit committees?

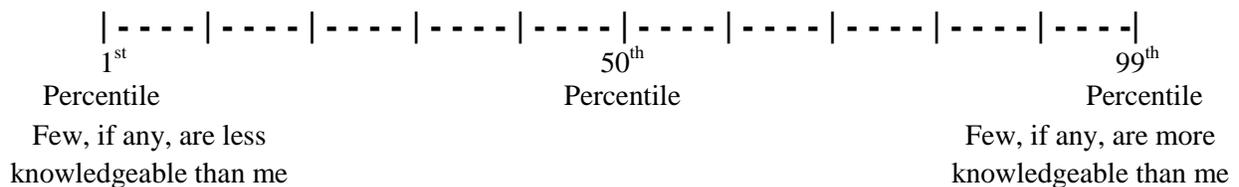
Yes \_\_\_\_\_ No \_\_\_\_\_

At what level did you engage in asking questions in prior audit committee meetings?

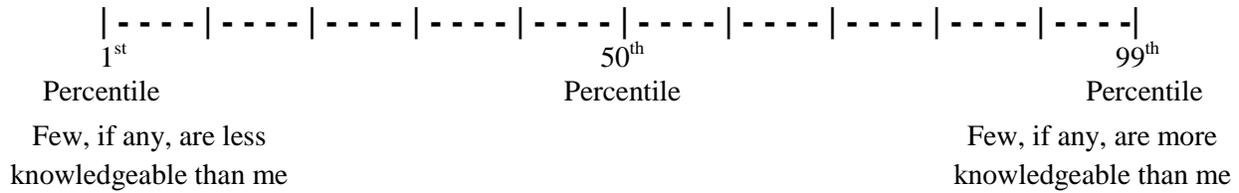


Please rate your degree of knowledge/ability, compared to other audit committee members, of the following topics.

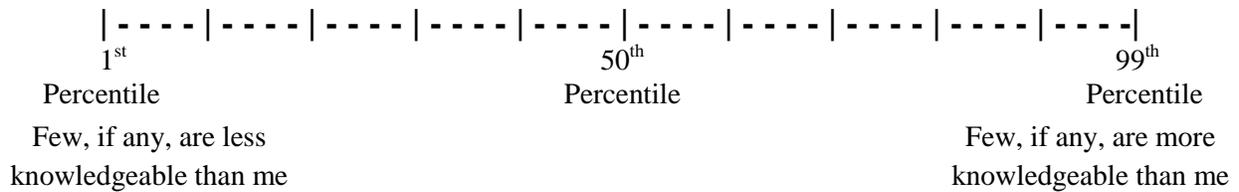
- 1) Financial accounting - knowledge about how business activities are represented in financial statements.



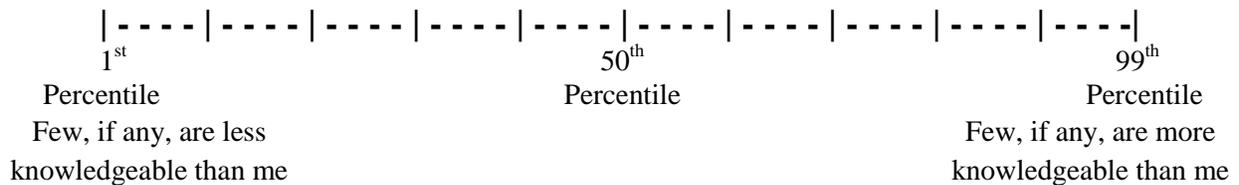
- 2) Financial statement analysis - knowledge needed to analyze and interpret information contained in financial statements.



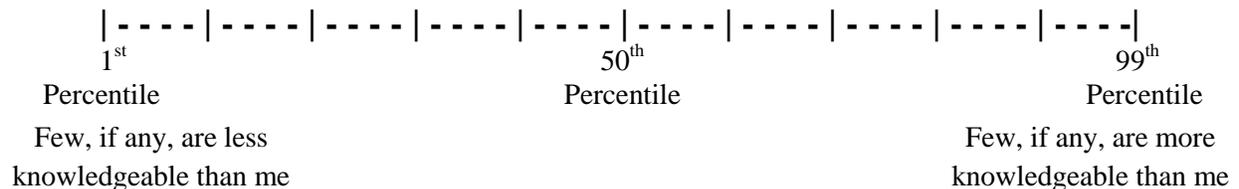
- 3) Auditing - knowledge about the auditor's responsibilities, the types of audit reports issued, and the audit report's meaning.



- 4) Audit committee best practice – knowledge about the audit committee's responsibilities as representatives of shareholders



- 5) Industry used in this case study – knowledge about the specific industry the hypothetical firm in the cast study operates in



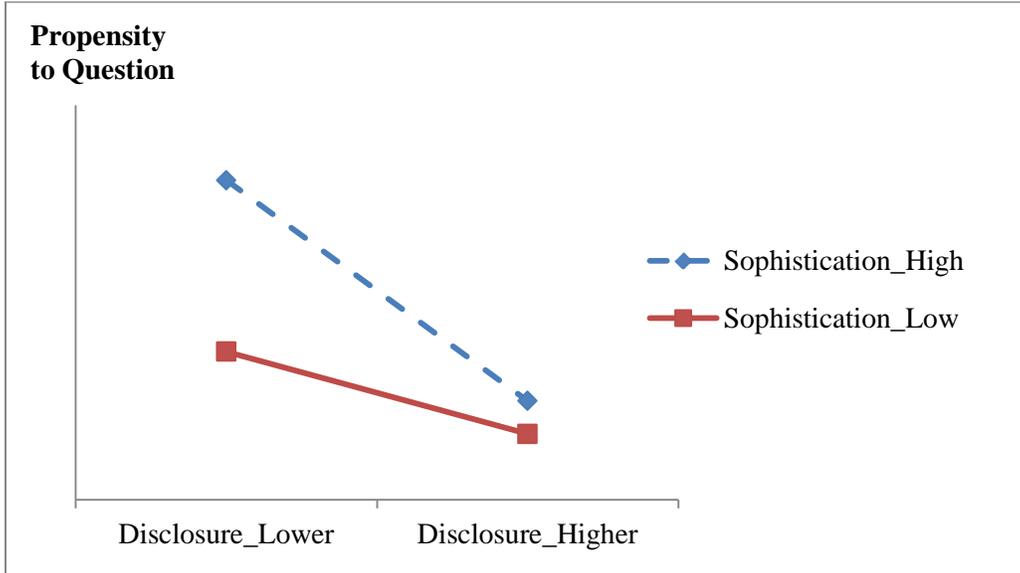
**You have completed all the questions.  
Please make sure you click on the next button to save your responses.  
Thank you very much for your participation.**

## **FIGURES**

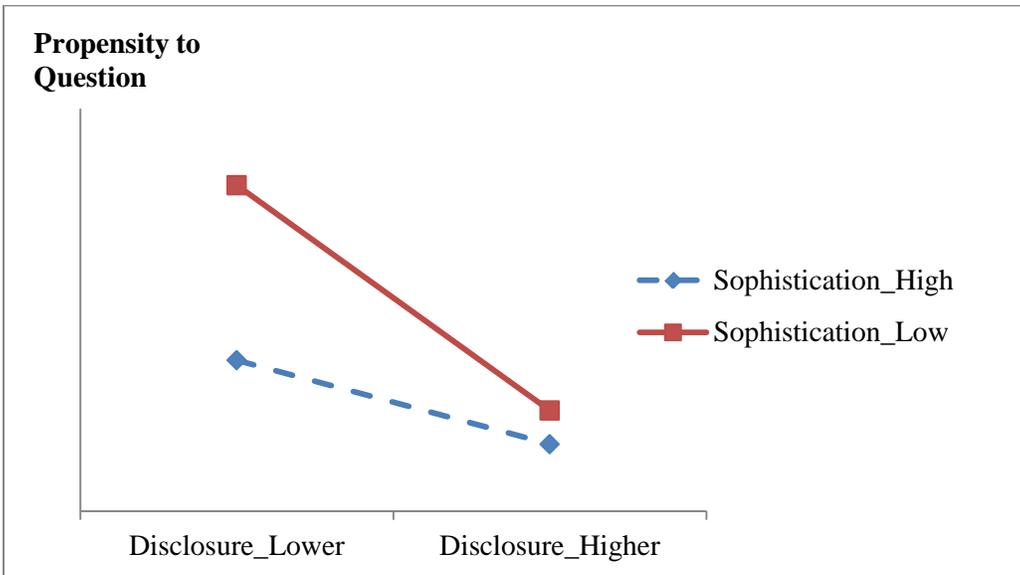
**FIGURE 1**

**Effect of Audit Report Content and Investor Type**

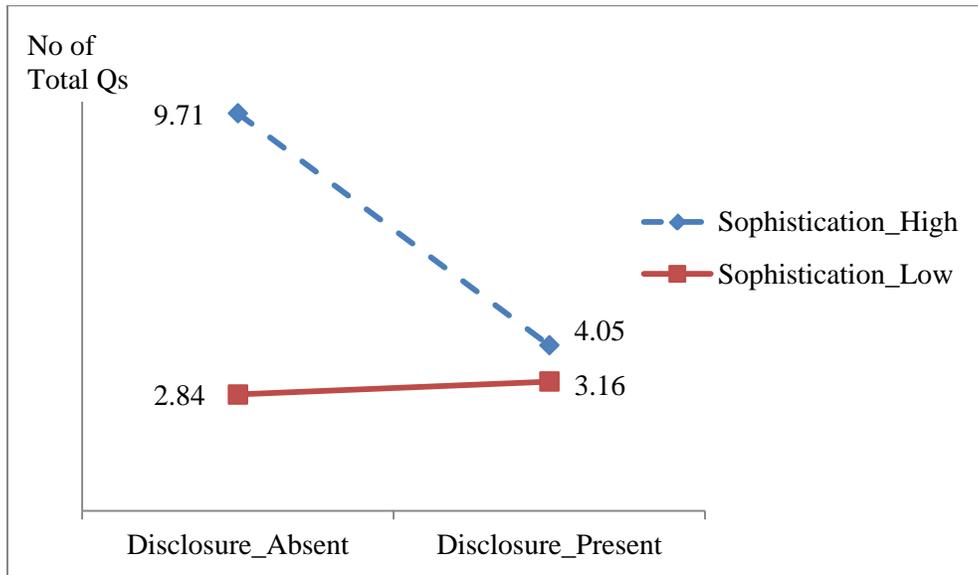
*Panel A: Prediction Based on the Self-Serving Perspective of Accountability (H1a)*



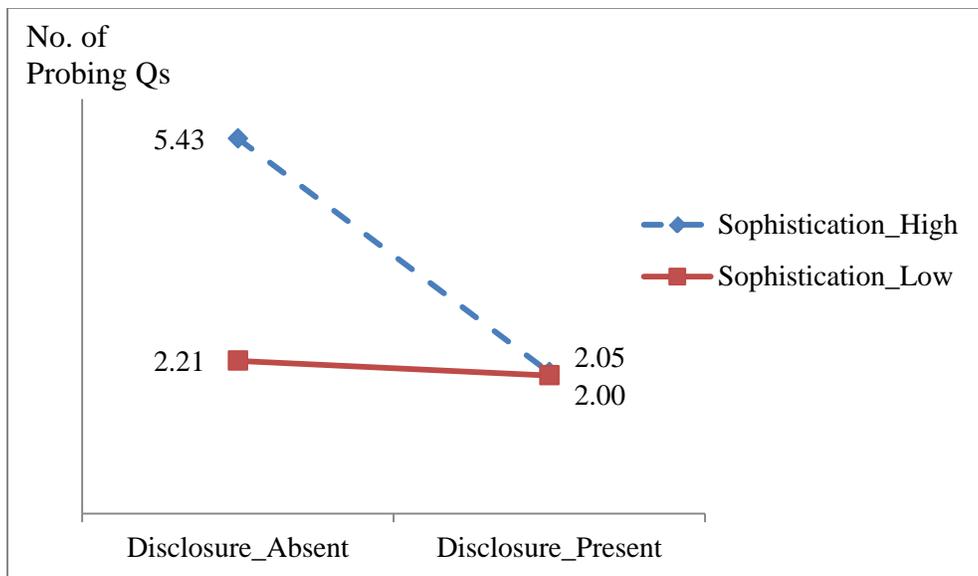
*Panel B: Prediction Based on the Altruistic Perspective of Accountability (H1b)*



Panel C: Observed Effects for Total Number of Questions



Panel D: Observed Effects for Number of Probing Questions

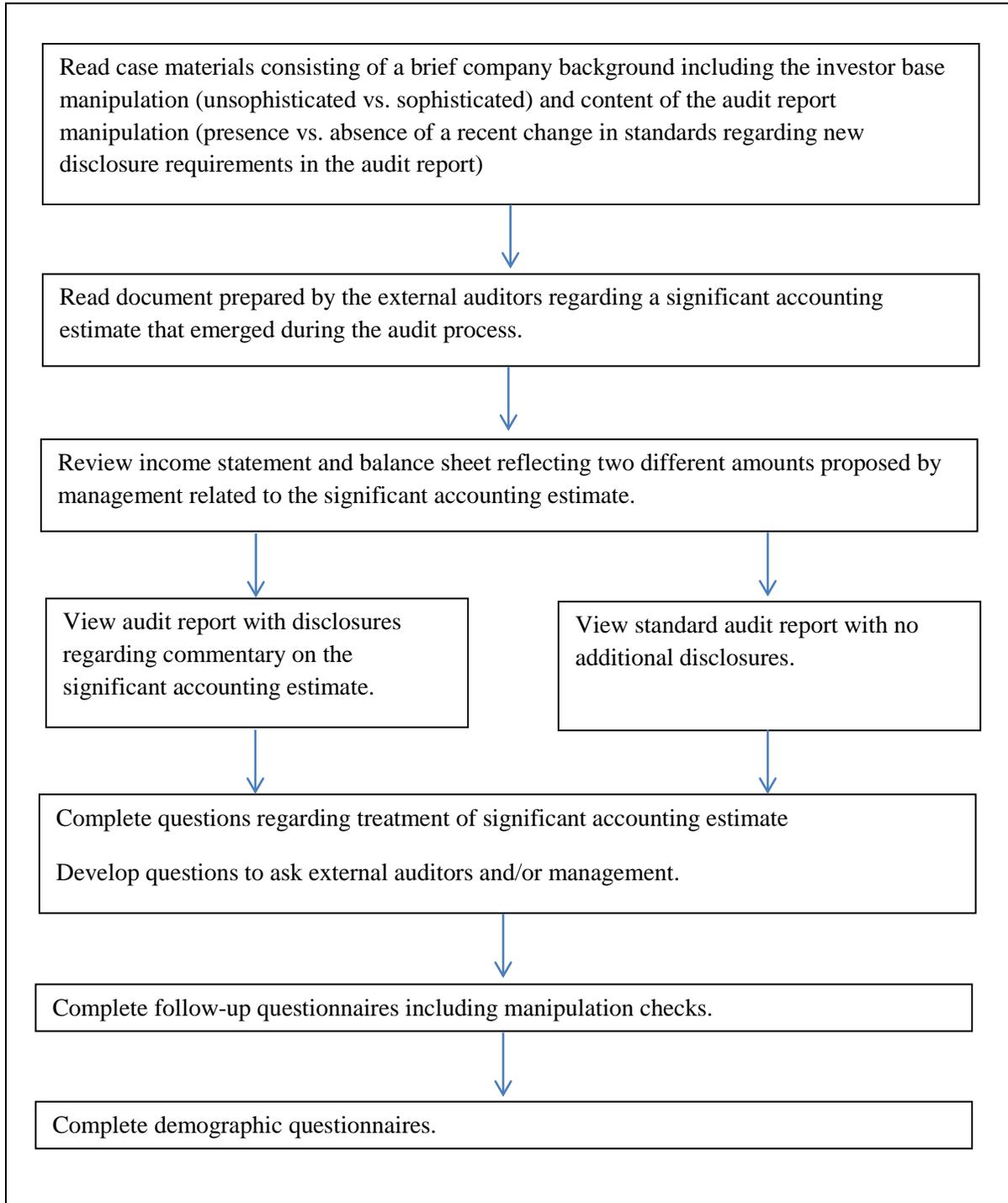


**FIGURE 2**

**Experimental Procedures**

Higher Disclosure Condition

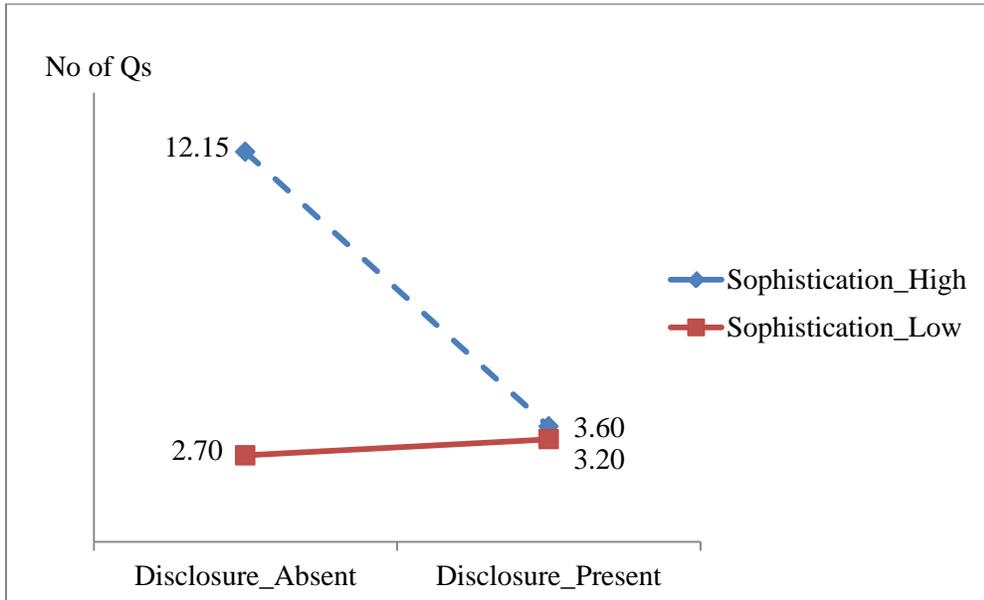
Lower Disclosure Condition



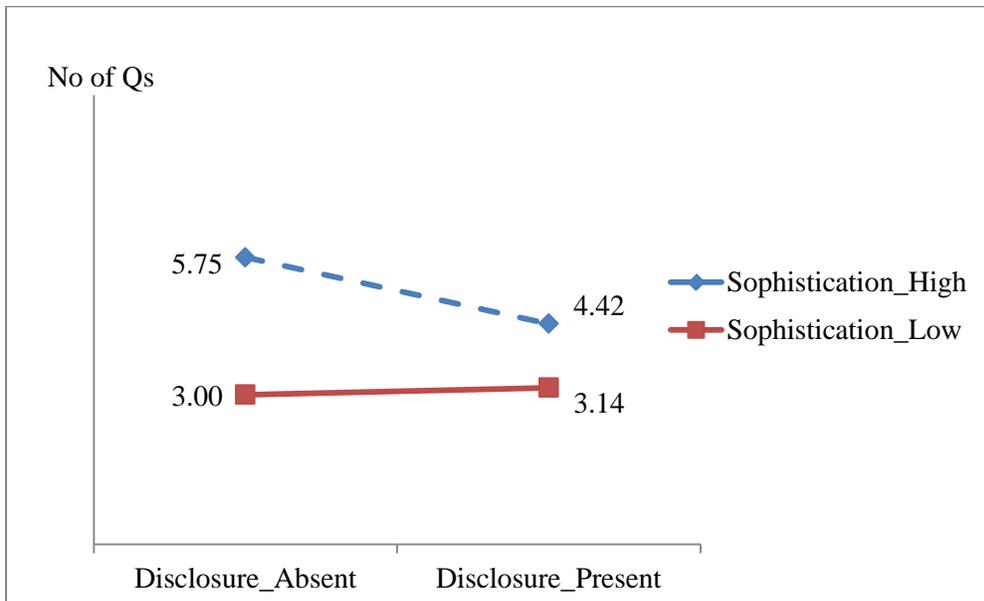
**FIGURE 3**

**Effect of Audit Report Content & Investor Type by Groups on Total Number of Questions**

*Panel A: Designated Financial Experts*



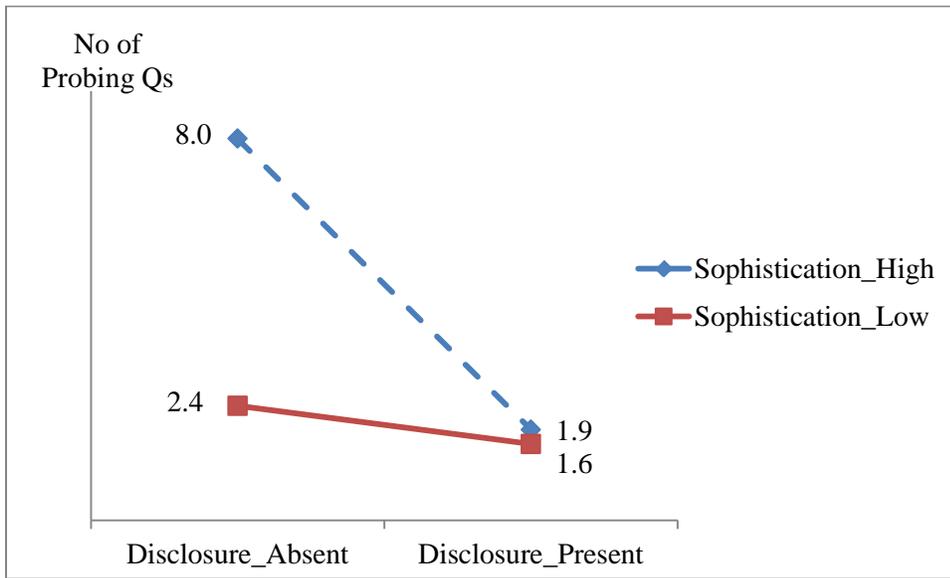
*Panel B: Non-Financial Experts*



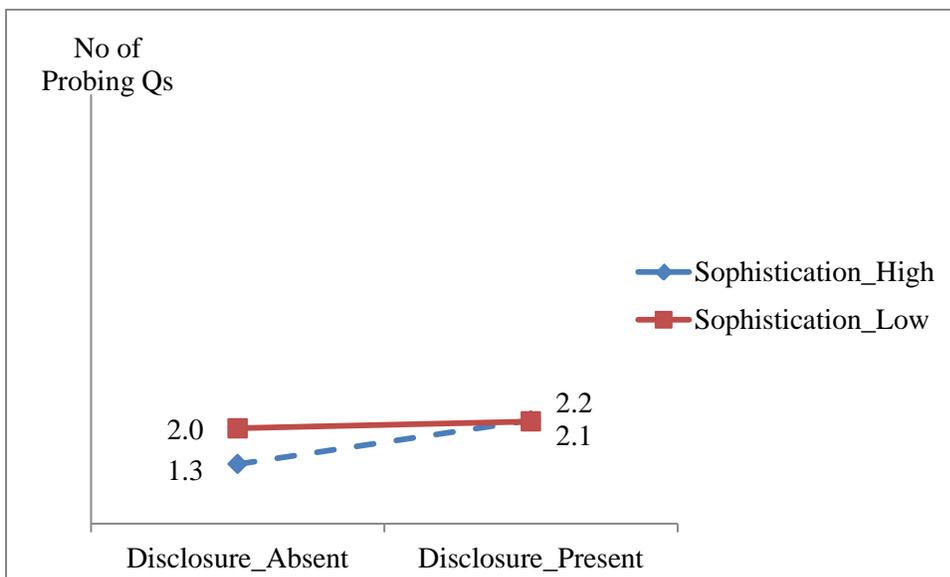
**FIGURE 4**

**Effect of Audit Report Content & Investor Type by Groups on  
Number of Probing Questions**

*Panel A: Designated Financial Experts*



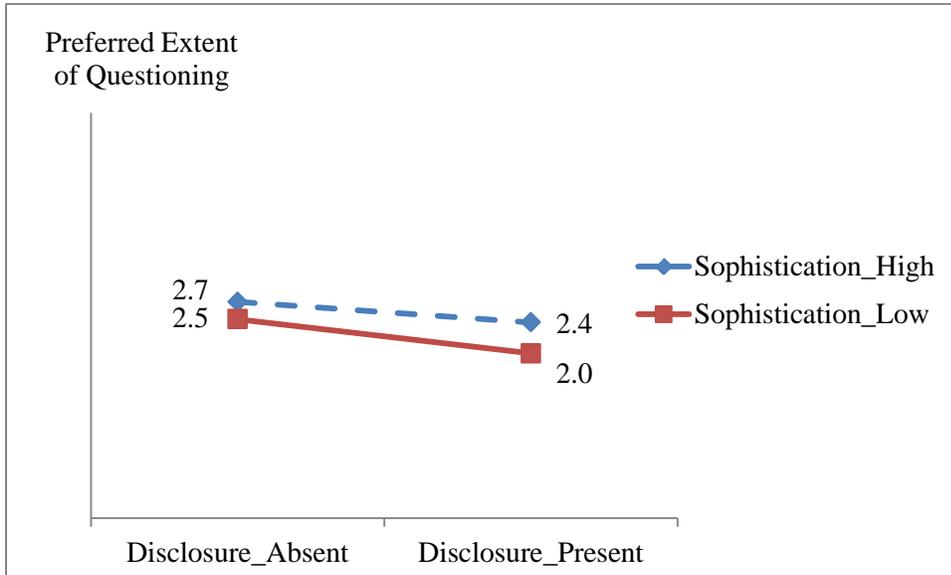
*Panel B: Non-Financial Experts*



**FIGURE 5**

**Effect of Audit Report Content & Investor Type by Groups on Secondary Measures of AC's Propensity to Question Management's Estimate**

*Panel A: Preferred Extent of Questioning on Accounting Issue*



*Panel B: Likelihood of Asking Questions on Behalf of Financial Statement Users*

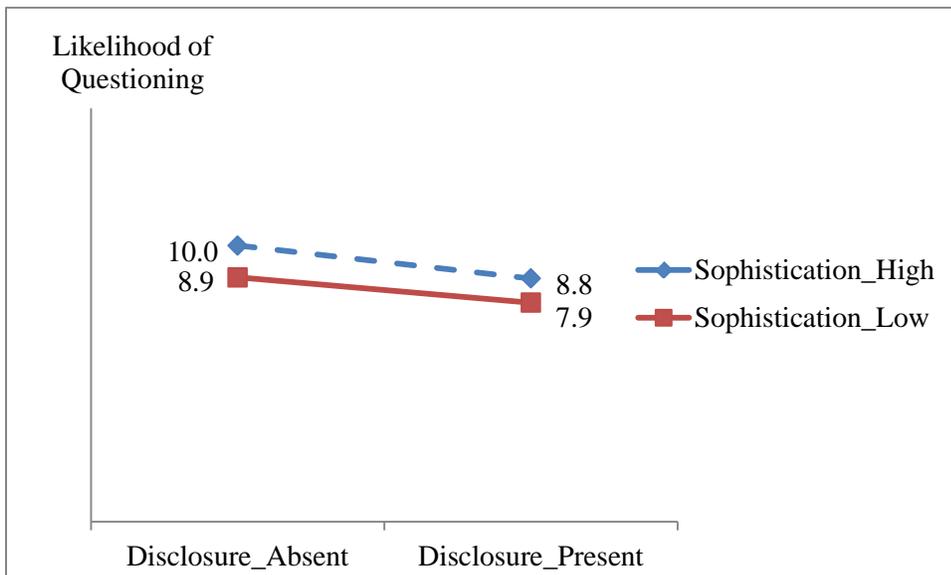
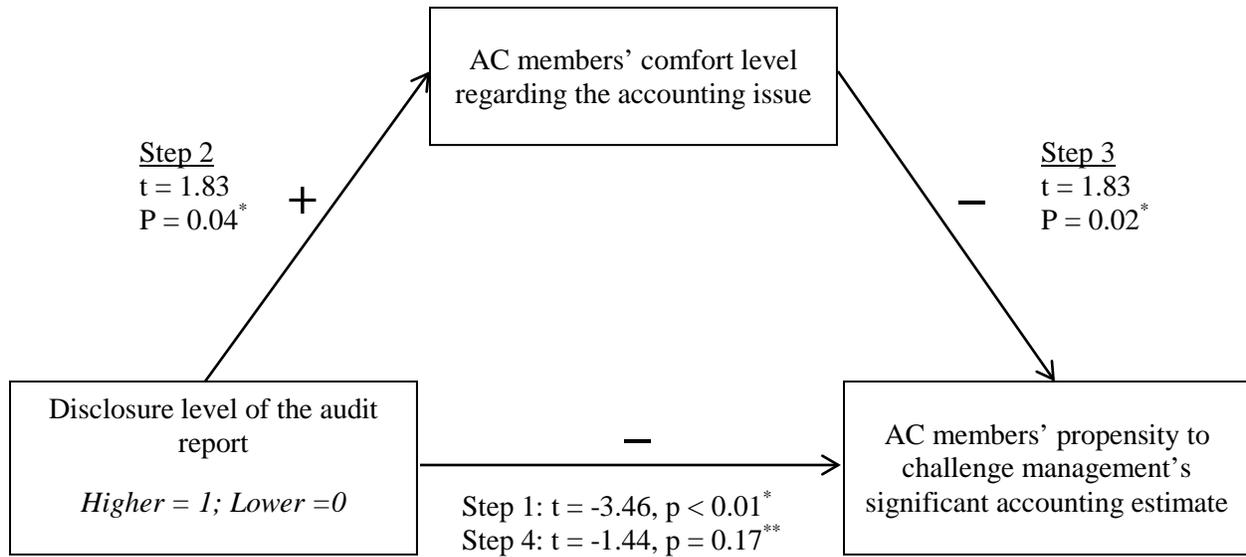


FIGURE 6

The Mediating Role of Perceived Comfort on the Effect of Audit Report Content on Audit Committee Members' Propensity to Challenge Management's Estimates



This figure summarizes tests of the mediating role of perceived comfort in the causal relation between the disclosure level of the audit report and the audit committee members' propensity to challenge management's significant accounting estimate.

\*p-values are one-tailed, given directional predictions.  
\*\* two-tailed equivalent

## **TABLES**

**TABLE 1**  
**Mapping of Main Dependent Measures with Corresponding Construct of Interest**

<u>Main Dependent Measures*</u>	<u>Corresponding Construct of Interest</u>
1. Likelihood of material misstatement	Process measure on propensity to question management's estimates
2. Perceived comfort about accounting decision (3 questions)	Process measure on propensity to question management's estimates
3. Preferred extent of questioning about management's estimate	Propensity to question management's estimates
4. Development of questions for management and/or auditors	Propensity to question management's estimates
5. Likelihood of asking questions on behalf of investors (6 questions)	Propensity to question management's estimates
6. Support for change in audit fee	Propensity to support auditors (control variable)

\*The dependent measures are listed in the order they appear in the experiment.

**TABLE 2**  
**Descriptive Statistics on Participants' Relative Knowledge on Specific Issues**

	Issues				
	<u>Financial Accounting</u>	<u>F/S Analysis</u>	<u>Auditing</u>	<u>AC Best Practice</u>	<u>Case Industry</u>
Mean	80.8%	81.7%	79.2%	77.5%	50.7%
Std. Deviation	16.5%	16.5%	19.3%	20.1%	25.9%
Minimum	8.9%	9.2%	8.9%	8.9%	0.0%
25th Percentile	74.2%	75.5%	69.0%	62.2%	29.0%
Median	82.7%	85.0%	82.7%	81.3%	50.0%
75th Percentile	91.1%	91.9%	95.3%	95.1%	71.9%
Maximum	100.0%	100.0%	100.0%	100.0%	100.0%
<i>n</i>	81	81	81	81	81

**TABLE 3**  
**Main Analyses Based on Total Number of Questions**  
**Descriptive Statistics and Two-Way ANOVA**

<i>Panel A: Mean [Standard Deviation] for total number of questions</i>					
		Investor Sophistication			
		Lower	Higher		
Disclosure in the Auditor's Report	Absent	2.84 [0.95] N=19	9.71 [0.91] N=21		
	Present	3.16 [0.95] N=19	4.05 [0.89] N=22		
<i>Panel B: Basic ANOVA model</i>					
Source	Type III SS	df	Mean Square	F-Ratio	p-value
Investor	303.59	1	303.59	17.63	<0.01
Disclosure	144.48	1	144.48	8.39	<0.01
Investor * Disclosure	180.58	1	180.58	10.48	<0.01
Error	1,326.29	77	17.23		
<i>Panel C: Planned contrast coding and follow-up simple effect tests</i>					
Source		df	Mean Square	F-Ratio	p-value*
Overall tests:					
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.		1	353.73	20.54	<0.01
Contrast Weights (3, 1, -2, -2)					
Follow-up simple effect tests:					
Effect of investor type given lower disclosure		1	471.09	27.35	<0.01
Effect of disclosure given sophisticated investors		1	345.27	20.05	<0.01
Effect of investor type given greater disclosure		1	8.03	0.47	0.50
Effect of disclosure given unsophisticated investors		1	0.95	0.06	0.41

\* Reported p-values are two-tailed for the simple effect of investor type given the presence of disclosure in the audit report, and one-tailed equivalent for all other tests given my directional predictions.

**TABLE 4**  
**Main Analyses Based on Number of Probing Questions**  
**Descriptive Statistics and Two-Way ANOVA**

<i>Panel A: Mean [Standard Deviation] for number of probing questions</i>						
				Investor Sophistication		
				Lower	Higher	
Disclosure in the Auditor's Report	Absent			2.21	5.43	
				[0.78]	[0.74]	
			N=19	N=21		
	Present			2.00	2.05	
		[0.78]	[0.73]			
				N=19	N=22	
<i>Panel B: Basic ANOVA model</i>						
Source	Type III SS	df	Mean Square	F-Ratio	p-value	
Investor	53.70	1	53.70	4.66	0.03	
Disclosure	65.11	1	65.11	5.65	0.02	
Investor * Disclosure	50.75	1	50.75	4.40	0.04	
Error	887.26	77	11.52			
<i>Panel C: Planned contrast coding and follow-up simple effect tests</i>						
Source	df	Mean Square	F-Ratio	p-value*		
Overall tests:						
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.						
Contrast Weights		(3, 1, -2, -2)				
Follow-up simple effect tests:						
Effect of investor type given lower disclosure		1	103.3	8.97	<0.01	
Effect of disclosure given sophisticated investors		1	122.97	10.67	<0.01	
Effect of investor type given greater disclosure		1	0.02	0.002	0.50	
Effect of disclosure given unsophisticated investors		1	0.42	0.04	0.43	

\* Reported *p*-values are two-tailed for the simple effect of investor type given the presence of disclosure in the audit report, and one-tailed equivalent for all other tests given my directional predictions.

**TABLE 5**  
**Analyses on Secondary Measures of AC's Propensity to Question Management's Estimate**

<i>Panel A: ANOVA of preferred extent of questioning management's estimate</i>						
Source	Type III SS	df	Mean Square	F-Ratio	p-value	
Investor	1.79	1	1.79	2.49	0.12	
Disclosure	2.29	1	2.29	3.19	0.08	
Investor * Disclosure	0.14	1	0.14	0.20	0.66	
Error	55.38	77	0.72			

<i>Panel B: ANOVA of likelihood of questioning on behalf of investors</i>						
Source	Type III SS	df	Mean Square	F-Ratio	p-value	
Investor	20.77	1	20.77	3.60	0.06	
Disclosure	22.50	1	22.50	3.90	0.05	
Investor * Disclosure	0.39	1	0.39	0.07	0.80	
Error	443.85	77	5.76			

**TABLE 6**  
**Supplemental Analyses:**  
**Descriptive Statistics and Three-Way ANOVA of Total Number of Questions Asked**

<i>Panel A: Mean [Standard Deviation] for total number of questions by groups</i>					
		<u>Financial Experts</u>		<u>Non-Experts</u>	
		Investor		Investor	
		Sophistication		Sophistication	
		Lower	Higher	Lower	Higher
Disclosure in Auditor's Report	Absent	2.70	12.15	3.00	5.75
		[1.42]	[1.25]	[1.11]	[1.17]
		N=10	N=13	N=9	N=8
	Present	3.20	3.60	3.14	4.42
[2.01]		[1.42]	[0.89]	[0.96]	
		N=5	N=10	N=14	N=12

<i>Panel B: Basic ANOVA model</i>					
Source	Type III SS	df	Mean Square	F-Ratio	p-value
Investor	221.93	1	221.93	14.48	<0.01
Disclosure	98.48	1	98.48	6.42	0.01
Expert	32.91	1	32.91	2.15	0.15
Investor * Disclosure	127.77	1	127.77	8.34	<0.01
Investor * Expert	39.17	1	39.17	2.56	0.11
Disclosure * Expert	54.28	1	54.28	3.54	0.06
Investor * Disclosure * Expert	66.17	1	66.17	4.32	0.04
Error	1,119.12	73	15.33		

**TABLE 6 (cont.)**

*Panel C: Planned contrast coding and follow-up simple effect tests*

Source	<i>df</i>	Mean Square	<i>F</i> -Ratio	<i>p</i> -value*
<u>Financial Experts</u>				
Overall tests:				
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.	1	327.96	21.39	<0.01
Contrast Weights (3, 1, -2, -2)				
Follow-up simple effect tests:				
Effect of investor type given lower disclosure	1	505.16	32.95	<0.01
Effect of disclosure given sophisticated investors	1	413.56	26.98	<0.01
Effect of investor type given greater disclosure	1	0.53	0.04	0.85
Effect of disclosure given unsophisticated investors	1	0.83	0.04	0.42
<u>Non-Experts</u>				
Overall tests:				
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.	1	14.19	0.93	0.17
Contrast Weights (3, 1, -2, -2)				

\* Reported *p*-values are two-tailed for the simple effect of investor type given the presence of disclosure in the audit report, and one-tailed equivalent for all other tests given my directional predictions.

**TABLE 7**  
**Supplemental Analyses:**  
**Descriptive Statistics and Three-Way ANOVA of Number of Probing Questions Asked**

<i>Panel A: Mean [Standard Deviation] for number of probing questions by groups</i>					
		<u>Financial Experts</u>		<u>Non-Experts</u>	
		Investor Sophistication		Investor Sophistication	
		Lower	Higher	Lower	Higher
Disclosure in Auditor's Report	Absent	2.40 [1.13] N=10	8.00 [0.99] N=13	2.00 [0.80] N=9	1.25 [0.85] N=8
	Present	1.60 [1.60] N=5	1.90 [1.13] N=10	2.14 [0.65] N=14	2.17 [0.70] N=12
	<i>Panel B: Basic ANOVA model</i>				
	Source	Type III SS	df	Mean Square	F-Ratio
Investor	30.85	1	30.85	3.42	0.07
Disclosure	39.31	1	39.31	4.35	0.04
Expert	46.33	1	46.33	5.13	0.03
Investor * Disclosure	23.61	1	23.61	2.61	0.11
Investor * Expert	50.60	1	50.60	5.60	0.02
Disclosure * Expert	73.01	1	73.01	8.08	<0.01
Investor * Disclosure * Expert	42.51	1	42.51	4.71	0.03
Error	659.38	73	9.03		

**TABLE 7 (cont.)**

*Panel C: Planned contrast coding and follow-up simple effect tests*

Source	<i>df</i>	Mean Square	<i>F</i> -Ratio	<i>p</i> -value*
<u>Financial Experts</u>				
Overall tests:				
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.	1	188.91	14.85	<0.01
Contrast Weights (3, 1, -2, -2)				
Follow-up simple effect tests:				
Effect of investor type given lower disclosure	1	177.25	13.93	<0.01
Effect of disclosure given sophisticated investors	1	210.32	16.53	<0.01
Effect of investor type given greater disclosure	1	0.30	0.02	0.44
Effect of disclosure given unsophisticated investors	1	2.13	0.17	0.35
<u>Non-Experts</u>				
Overall tests:				
Audit committee members' level of questioning is greatest when there is less disclosure and the primary shareholders are sophisticated, lower when there is less disclosure and the primary shareholders are unsophisticated, and lowest when there is greater disclosure.	1	4.44	0.76	0.19
Contrast Weights (3, 1, -2, -2)				

\* Reported *p*-values are two-tailed for the simple effect of investor type given the presence of disclosure in the audit report, and one-tailed equivalent for all other tests given my directional predictions.