The Role of Behavioral Mind-Sets on Auditors' Professional Skepticism: An Experimental Investigation of Auditor Internal Control Evaluations

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ABSTRACT

During an audit, management frequently serves as an information source for auditors gathering evidence. Reliance on management's expertise requires auditors to exercise an adequate level of professional skepticism, because management is not an objective information source. In this respect, professional guidance urges auditors to maintain a skeptical mind-set since management's financial reporting incentives may lead to instances when it attempts to persuade the auditor into accepting a preferred accounting treatment. This study investigates how auditors' behavior when providing input on planning decisions common to an audit can influence an auditor's mind-set, and how this mind-set then influences the persuasiveness of subsequently encountered management information. My predictions are motivated by psychology theory on behavioral mind-sets, which indicates that in the course of completing a task, a mind-set can be activated that carries over and influences an individual's behavior in a subsequent, unrelated situation.

In a 2x2 experiment, 83 experienced auditors participated in an update meeting with the engagement partner and then made preliminary internal control evaluations. I manipulated the activation of different mind-sets (bolstering or counter-arguing) during the audit update meeting; I also manipulated the severity of the control deficiency (high or low) during the subsequent internal control evaluation task. I hypothesized that the behavior of providing arguments either supporting or opposing common scheduling arrangements during a planning meeting with the engagement partner can activate a mind-set that then influences the persuasiveness of

information subsequently received from the client. The increased severity of the deficiency was expected to mitigate the role of mind-sets in the audit environment.

The results support my expectations. Auditors who developed a bolstering mind-set during a planning meeting rated the adequacy of management's internal control explanation higher and made internal control assessments indicative of lower risk than auditors who developed a counter-arguing mind-set. I also find that the impact of an auditor's mind-set is attenuated when auditors evaluate a control problem potentially indicative of a material weakness (i.e., higher severity). These results indicate that routine audit planning tasks altered an auditors' skeptical mind-set, which impacted the persuasiveness of management information, even though the update meeting was unrelated to the internal control assessment. However, as the severity of the identified deficiency increased, risk sensitivity mitigated the auditors' mind-set effects, as their professional skepticism was naturally heightened. These results have important audit implications given the importance of maintaining appropriate levels of professional skepticism throughout an audit, especially amid recent concerns that auditors, at times, fail to do so. The findings also inform the psychology and behavioral mind-set literatures by extending the generalizability of prior studies while also establishing the boundaries of this stream of research by examining different levels of severity.

DEDICATION

This dissertation is dedicated to my wife, Erin. Without her endless love, support, and encouragement I would not have been able to complete this endeavor. Truly, I am blessed to have a partner willing to sacrifice so much so that I may pursue my dreams.

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CHAPTER 1

INTRODUCTION

Throughout an audit, much of the evidence collected by auditors is obtained directly from management. Management's expertise and depth of knowledge of the company's operations may lead auditors to place substantial reliance on the information obtained directly from them. However, management is not an objective source of information. Instead, when interacting with and providing information to the auditors, management may seek to influence the auditors to accept its preferred accounting treatment (e.g., Anderson, Kadous, and Koonce 2004; Kaplan, O'Donnell, and Arel 2008; Wolfe, Mauldin, and Diaz 2009). The persuasiveness of the information provided by management likely hinges on several factors, including management's credibility and incentives to mislead (Anderson et al. 2004; Pornpitakpan 2004), as well as attributes of the auditor such as auditor experience (Haynes 1999), persuasion knowledge (Kaplan et al. 2008), and trait skepticism (Hurtt 2010). However, it may also be the case that the effectiveness of management's persuasive appeal can be influenced by auditor experiences encountered prior to receiving the communication.

This study investigates how auditors' behavior when providing input on seemingly unrelated and inconsequential administrative decisions often performed during an engagement can influence an auditor's mind-set, and how this mind-set then influences the persuasiveness of subsequently encountered management communication. Both prior audit research (e.g., Hurtt 2010) and the PCAOB have described professional skepticism as a mind-set that auditors must maintain when evaluating evidence and interacting with management. For example, in its guide to public company auditing, the Center for Audit Quality describes how auditors perform their engagements with a skeptical mind-set, and that auditors cannot hesitate to challenge

management's assertions when they run counter to the audit evidence or the auditor's own skeptical judgment (Center for Audit Quality 2011). Thus, it is important to gain a better understanding of auditors' mind-set when conducting an audit.

Research in psychology has investigated the role of an individual's mind-set across a variety of judgment contexts, including how certain mind-sets can be activated during the pursuit of a goal or outcome. Collectively, this research indicates that performing a specific cognitive procedure in the course of attaining a goal can activate a behavioral mind-set such that individuals' cognitive behavior in one situation can generalize to subsequent, quite different situations (McCrea, Kozloski, and Kochetova-Kozloski 2012; Wyer and Xu 2010). For example, during audit planning meetings a mind-set may be created when auditors *evaluate* suggestions regarding logistical arrangements and provide counterarguments against certain suggestions. The activation of this mind-set and the ease in which it can be accessed increase the likelihood that the same procedure (e.g., providing counterarguments) will be called to mind and applied in a later situation where the same underlying cognitive task is performed, such as when *evaluating* evidence provided by client management. In this dissertation, I examine whether a mind-set that is activated prior to interacting with the audit client can influence the effectiveness of management's persuasive appeals and impact subsequent auditor judgments.

I examine this phenomenon within the context of decisions made during routine audit update meetings and subsequent audit planning tasks. Auditors routinely make administrative decisions within the context of conducting an audit, such as evaluating logistical and scheduling options. I examine one such instance when auditors are asked to evaluate certain scheduling and logistical suggestions during an audit update meeting. Initial audit planning typically includes procedures regarding client acceptance and continuance, obtaining an understanding of the

client's business and industry, preliminary risk assessments, and preliminary assessments of the effectiveness of internal control over financial reporting (PCAOB 2009, paras. 6 and 7). As preliminary decisions are made or subsequently revised, both formal planning meetings and less formal conference calls are held with members of the audit team to provide updates of the audit strategy and audit plan. Among the decisions previously described, the audit team must also make final travel arrangements, address changes in the audit team composition or client personnel from the prior year, and set overall expectations for the completion of the engagement.

Prior research on audit planning has examined how auditor risk assessments, management incentives, and partner preferences impact audit resource allocation decisions and auditor adjustments to the preliminary audit program (Bierstaker and Wright 2001, 2005; Glover, Jiambalvo, and Kennedy 2000; Houston 1999; Mock and Wright 1999). Since the additional administrative decisions are done independent of the client's risk assessment, the outcomes of these discussions are considered to be largely inconsequential to the audit. However, to the extent that the audit team members are providing input and collaborating to make these decisions, it is likely that multiple opinions and various alternatives will be discussed and evaluated. The mind-set literature has found that the behavior involved in elaborating and evaluating such discussion points can lead to the activation of a procedural mind-set, which often will carryover and influence subsequent unrelated tasks, such as when auditors are required to evaluate client evidence and consider alternatives.

This carryover effect is supported by research on behavioral mind-sets that suggests that an individual's prior cognitive behavior can influence their future behavior (McCrea et al. 2012; Shen and Wyer 2010; Wyer and Xu 2010). A behavioral mind-set is "evidenced by the effect of performing a cognitive or motor activity on the likelihood of performing a similar behavior in a

subsequent unrelated situation" (Xu and Wyer 2012, p. 21). Once a mind-set is activated, it can serve as a more general guide or road map (i.e., a cognitive procedure) in the completion of subsequent tasks. In essence, the use of one goal concept while engaging in goal-directed behavior can increase the accessibility of more general concepts that are associated with it. The activation of these general concepts increases the likelihood that they will be applied as a cognitive procedure in subsequent, similar goal-directed activity (Kruglanski, Shaw, Fishbach, Friedman, Chun, and Sleeth-Keppler 2002; Wyer and Xu 2010). This phenomenon has proven to be robust across a wide stream of scenarios in psychology research. For example, when individuals are prompted to generate reasons why a certain event may not occur, a counterfactual mind-set can be created that decreases confidence in predicting the occurrence of a later, unrelated event (Hirt, Kardes, and Markman 2004).

Within social psychology, McCrea et al. (2012) found that the type of construal mind-set, either more concrete or more abstract, induced in an earlier, unrelated task can influence the use of stereotype-consistent ratings of the self and a target group. Research also suggests that consumer decisions can be influenced by the spill-over effect of a mind-set into subsequent and unrelated tasks. In four related studies, Ulkumen, Chakravarti, and Morwitz (2010) found that exposure to different types of product categories (either narrow or broad assortments) impacted the depth of processing in a later, unrelated task. The behavioral mind-set literature recognizes that there is often more than one means for attaining a particular goal or objective, and individuals who are called upon to make a judgment will seldom consider all of their previous knowledge that may be applicable. Instead, as a simplifying mechanism, the goal-directed behavior performed in a prior task will often influence which of the alternatives is applied (Wyer 2004; Xu and Wyer 2012).

Two such mind-sets that should be of particular interest in an audit setting is the activation of a bolstering or counter-arguing mind-set. When auditors receive a persuasive communication from the audit client, they may attempt to either support (i.e., bolster) the validity of management's assertion or, instead, attempt to refute (i.e., counter-argue) the implications of the message. While prior client experience and management incentives to mislead should, and most likely do, impact how a message is interpreted by auditors, it is also likely that their response could be influenced by a mind-set that is activated by the cognitive behavior performed prior to receiving the message.

In response to management's persuasive tactics, auditors are required to maintain an adequate level of professional skepticism, an attitude that includes a questioning mind and critical assessment of the evidence, in all aspects of the audit engagement (PCAOB 2007, para. 4). More recently, the concept of an auditor's mind-set has also been included in descriptions of professional skepticism. In an August 2013 panel discussion on auditor skepticism, PCAOB Board Member Jeanette Franzel described professional skepticism as comprising three elements – auditor attributes, auditor mind-set, and auditor actions (Franzel 2013). Auditing research has also linked an auditor's mind-set to the application of professional skepticism. Hurtt (2010) includes skeptical mind-set as a mediator between trait skepticism and skeptical behavior in her professional skepticism framework. More recently, a synthesis project commissioned by the PCAOB raised the question of what role an auditor's initial mind-set may play in the audit process (Hurtt, Brown-Liburd, Earley, and Krishnamoorthy 2013). In their discussion of the current skepticism literature, Hurtt et al. 2013 also recognized that regulators often point to various audit outcomes when determining whether an appropriate level of professional skepticism was applied (e.g., PCAOB 2012; Center for Audit Quality 2010) without determining

the reasons why auditors lacked professional skepticism. Based upon the theory of behavioral mind-sets developed in psychology, I propose that the activation of a mind-set in an initial task is one such mechanism that may cause the level of skepticism applied to subsequent audit judgments to vary.

Auditing Standard No. 9 establishes the requirements and expectations regarding audit planning. Audit planning is expected to involve multiple members of the engagement team (PCAOB 2009, para. 3), and the activities involved in planning are expected to continue throughout the engagement until the audit is completed (para. 5). Together, these aspects of audit planning suggest that successful execution requires a collaborative effort with discussion and dialogue with multiple members of the audit team occurring throughout the audit. On continuing audit clients, audit seniors will typically meet with the manager and/or engagement partner to discuss the preliminary strategy, set the preliminary budget, and address identified risk factors (Houston 1999). However, not every decision made during these meetings will be based on modified risk assessments or impact the nature, timing, or extent of audit work. Decisions on the travel schedule, the availability of flexible work arrangements, and other engagement management issues are also likely to impact the timing and completion of the audit, but the outcomes should not be indicative of changes in client risk. During a planning meeting audit seniors may provide supporting arguments that favor the prescribed schedule based on predisposed preferences and prior experiences. Conversely, these auditors may provide arguments against certain proposed scheduling decisions. While the ultimate decisions will undoubtedly be made by the engagement leader, theory suggests that simply providing input favoring or opposing a view point is sufficient to activate a behavioral mind-set.

I propose that the actual behavior of providing arguments for or against certain scheduling and staffing arrangements discussed during planning meetings and update calls with the audit team can impact the persuasiveness of information subsequently received from the client. Research on behavioral mind-sets indicates that making supportive (opposing) elaborations in an earlier setting can activate a general procedure of constructing supportive (opposing) arguments, which is indicative of a bolstering (counter-arguing) mindset (Xu and Wyer 2012). In essence, auditors' goal-directed behavior performed prior to interacting with the client (e.g., elaborating on the audit schedule) can activate a more general procedure that the original task exemplifies. The ease of accessibility of this cognitive procedure increases the likelihood that it will be used in a later situation in which it is applicable (e.g., elaborating on client communication), independently of the initial task (Higgins 1996). That is, even though the information content of these tasks is unrelated, the underlying cognitive task is similar. Thus, the goal-directed behavior involved in an initial planning meeting can potentially influence the behavior of audit seniors when they receive persuasive communication from the audit client, even though these tasks are seemingly unrelated and the earlier decisions would otherwise be inconsequential to the audit.

I investigated the impact of an auditor's behavioral mind-set on the effectiveness of management's persuasion tactics in an audit planning scenario in which auditors made preliminary internal control over financial reporting (ICFR) evaluations. Auditing standards have identified these preliminary judgments as important considerations when developing the overall audit strategy and audit plan (PCAOB 2009, para. 7). If management has identified a deviation in controls during its own testing, the initial ICFR assessment made by auditors will likely occur prior to the auditors' internal control walkthroughs and design evaluations (Asare, Fitzgerald,

Graham, Joe, Negangard, and Wolfe 2012; Earley, Hoffman, and Joe 2008; PCAOB 2009). Therefore, these tasks are likely to be impacted by a mind-set that is activated during an update call that takes place during audit planning.

To the extent that finalizing engagement during an update call activates a counter-arguing mind-set, auditors who subsequently evaluate a persuasive appeal from the client regarding the client's ICFR position should be more inclined to generate elaborations questioning the validity of management's preference. This skeptical behavior should thus lead to a judgment that is less aligned with management. Conversely, if these pre-planning activities lead to the activation of a bolstering mind-set, auditors should be more likely to generate elaborations supporting management's assertions, leading to a decrease in the observed level of professional skepticism and a judgment closer aligned with management.

Importantly, the level of severity of ICFR classification differs, with a control deficiency being the lowest classification, followed by a significant deficiency, and then a material weakness. If a control weakness is deemed to be a deficiency, then the auditors must assess its overall severity to determine whether a material weakness exists (PCAOB 2007, para. 63). Deficiencies that rise to the level of a material weakness require the auditor to issue an adverse opinion for the audit of ICFR, which can lead to increased cost of capital and higher audit fees. Thus, management has an incentive to convince the auditor that a control deviation is less severe, and auditors' skepticism should naturally be heightened when the severity of the control deficiency increases. If auditors' professional skepticism is naturally aroused when evaluating a deficiency potentially indicative of a material weakness, then the carryover effects predicted by behavioral mind-set theory are likely to be muted. This is consistent with findings in psychology research indicated that the impact of carryover effects of mind-sets can be mitigated under

certain circumstances, such as when the task salience is high (Gilbert 1991; Shen and Wyer 2010). Collectively, this suggests that ICFR severity may interact with auditor mind-set such that the carryover influence of activating a mind-set will be stronger when auditors evaluate a control issue of lower severity than higher severity. As such, severity can serve as a boundary condition for the effects of activating a mind-set on auditors' subsequent internal control evaluations.

To assess the carryover impact of activating a behavioral mind-sets on auditors' subsequent, skeptical judgments, I conducted a 2x2 between-subjects experiment in which 83 auditors with an average of 3.53 years of professional audit experience served as participants. The activation of a behavioral mind-set was manipulated between-subjects at two levels (counter-arguing or bolstering). The second between-subjects variable manipulated was the severity of the management-detected control problem (either borderline between a control deficiency and a significant deficiency or borderline between a significant deficiency and a material weakness). The hypothetical scenario required professional judgment from the auditors, as the detected control problems are on the margin between two control severity classifications. Participants received management classifications that were favorable to management across all conditions (i.e., the less severe classification).

The activation of the behavioral mind-set took place during a hypothetical update meeting involving the audit seniors and the engagement leader. The auditors were given several assertions related to administrative details of the audit and were asked to compose brief responses indicating why they either support or oppose them. The phrasing of the propositions was manipulated such that auditors in the counter-arguing condition should naturally oppose them, while auditors in the bolstering condition should naturally support their implications. Importantly, the outcomes of these decisions were otherwise inconsequential to the audit because

they do not impact the nature, timing, or extent of audit work. After wrapping up the update meeting, the hypothetical scenario continued at the company's headquarters where the auditors were presented with dialogue from the controller related to the company's control testing and evaluation procedures. The results of the company's testing of ICFR indicated that a single control issue was discovered in the revenue cycle. The client narratives were used to manipulate the severity of the management-identified control deficiency (high/low). The auditors then made their own preliminary assessments of the ICFR problem, composed a brief memo describing the key factors and reasoning that led to their decision, and responded to demographic questions.

The results indicate that a skeptical mind-set can be altered due to decisions made during routine audit planning, resulting in a carryover effect that influences auditor behavior and judgments in a second, unrelated task during the audit. Auditors who developed a bolstering mind-set during a planning meeting rated the adequacy of management's internal control explanation higher and made preliminary internal control weakness assessments that were indicative of lower risk than auditors who developed a counter-arguing mind-set during the meeting. Further, regression analysis showed that it was the *behavior* involved in providing bolstering or counterarguments during the planning meeting that affected auditors' subsequent perceptions of management's explanation adequacy and their ICFR assessments during the control evaluation task. As such, I find that these administrative decisions made during planning tasks can alter auditors' skeptical mind-set, thus influencing the effectiveness of management's persuasive appeals and impacting subsequent auditor judgments.

However, the results also indicate that the severity of the identified control weakness interacts with auditor mind-sets. In the low severity condition, the activation of either a bolstering or counter-arguing mind-set impacted auditors' assessments of the control issue.

When auditors evaluated a control weakness potentially indicative of a material weakness (i.e., higher severity), activating a mind-set had a minimal effect on auditor judgment. In combination, the results indicate that the activation of a mind-set in an initial task has the greatest carryover effects when the subsequent task does not naturally lead to a specific evidence evaluation strategy. As control severity increases, the risk sensitivity mitigates the auditors' mind-set effects, as their professional skepticism is naturally heightened.

With this proposed study, I contribute to the auditing literature by introducing cognitive mind-set theory and applying it to an aspect crucial to mitigating audit risk: professional skepticism. To my knowledge, this is the first study to examine both the effects of a behavioral mind-set and also to examine how the dialogue of audit planning meetings and update calls, whose decisions are generally unrelated to the audit tasks and assessment of risk, can still impact judgments made during the course of an audit. Recent results from PCAOB inspection reports indicate a continued need to examine the components of professional skepticism and why auditors, at times, seem to lack the requisite skepticism. This study extends the research on professional skepticism by exploring the concept of an auditor's skeptical mind-set, and how task characteristics, including the completion of seemingly unrelated audit planning activities, may impact subsequent auditor judgments. These findings should be of interest to both audit regulators and practitioners who seek to improve audit quality by examining how the level of professional skepticism exhibited by auditors can be either strengthened or attenuated based on the completion of an earlier task. While the carryover effects are only significant when auditors evaluated a deficiency of lower severity (i.e., a potential significant deficiency), the audit implications remain because auditors frequently encounter significant deficiencies (Bedard and

Graham 2011) and lowering the assessed severity below a significant deficiency removes the requirement to alert the audit committee of the control weakness and remediate the deficiency.

This study contributes to the psychology and behavioral mind-set literatures by providing preliminary evidence about how domain knowledge and technical expertise impact the effects of behavioral mind-sets on complex judgments. Judgment and decision making research has demonstrated the benefits of examining professionals working on realistic tasks within their subject-matter expertise (Edwards 1983; Smith and Kida 1991). Professional skepticism is a fundamental audit principle that is acquired through education, training, and experience. This proposal examines whether a mind-set may bolster or counter-act the professional skepticism that is expected in every audit judgment. The implications of activating either a bolstering or counter-arguing mindset in such a setting help to extend the generalizability of prior studies while also establishing the boundaries of this stream of research by examining different levels of severity.

CHAPTER 2

BACKGROUND, THEORY, AND HYPOTHESES

Persuasiveness of Audit Evidence During Internal Control Assessment

A major goal in audit planning is to gain an understanding of the client's operations and business processes in order to identify high risk areas with a potential for a material misstatement of the financial statements. The activities involved in audit planning include establishing an overall audit strategy that considers the areas where there is greater risk of significant misstatements, making preliminary risk assessments, and making preliminary evaluations about the effectiveness of internal control over financial reporting (PCAOB 2009, para. 7). While the engagement leader is ultimately responsible for planning the audit (para. 3), the preliminary evaluations and risk assessments are typically performed by audit seniors (Abdolmohammadi and Usoff 2001; Bierstaker and Wright 2005; Earley et al. 2008). Performing these risk assessments requires interaction with client management, because management has the expertise and requisite domain knowledge of the company and its industry. Further, professional standards continue to stress the need to increase audit efficiency, with specific recommendations to rely on management during the audit of internal control (PCAOB 2007, paras. 16-19). The information provided by management, however, may not always be objective. That is, management may have incentives to persuade the auditors to accede to a preference that is not consistent with audit objectives.

The study of persuasion has long been a central focus of social psychology (Petty and Cacioppo 1986b). Persuasion is defined in Petty and Cacioppo (1986a) as "any change in attitude that results from exposure to a communication" (p. 5). Attitudes refer to the "general evaluations people hold in regard to themselves, other people, objects and issues" (p. 4). In an auditing

context, research examining persuasion typically focuses on the extent to which information obtained from management influences auditor judgment (e.g., Haynes 1999; Kaplan et al. 2008; Wolfe et al. 2009). The persuasiveness of the information provided by management is a complex process, and it is likely to be affected by attributes of management and the auditor, as well as attributes of the message (Pornpitakpan 2004).

One area where auditors are particularly susceptible to management persuasion is when making preliminary evaluations of a company's internal control during audit planning, because of management's influence over the internal control process and incentives to have a favorable internal control evaluation. Auditing standards require the auditor to obtain an understanding of the company's internal control procedures and to consider any available evidence related to the effectiveness of the company's ICFR when planning the audit (PCAOB 2009). The Sarbanes-Oxley Act of 2002 (SOX, U.S. House of Representatives 2002), Section 404, also requires the company's management to document, test, and evaluate the effectiveness of ICFR. Management will often make its assessment in advance of the audit in order to potentially remedy any control weaknesses before the fiscal year end (Earley et al. 2008). Therefore, management is likely to be privy to information on the effectiveness of ICFR in advance of the audit team. In fact, Earley et al. (2008) find that management's severity classifications of an ICFR deficiency directly influence senior auditors' preliminary ICFR assessments. These results suggest that management's role in testing the effectiveness of internal control can have unintendend consequences when auditors are unaware of management's intent, and also highlight the significance of persuasion in the internal control environment.

Evaluating Identified Control Deficiencies

In addition to management's influence over the ICFR evaluation process, the reporting requirements outlined in Auditing Standard No. 5 (AS 5) may also serve to incentivize management to unduly pressure or persuade the audit team into consenting to a favorable evaluation of an identified control deficiency. Under AS5, when a control deficiency is made known to the auditor, whether through communication with management or through the auditor's testing, its severity must be evaluated to determine whether a material weakness exists (PCAOB 2007, para. 63). The severity of the deficiency depends on the probability that the company's controls will fail to prevent a misstatement in the company's financial statements, as well as the magnitude of the potential misstatement. Importantly, the severity of the control deficiency does not depend on the actual occurrence of a misstatement, but rather on the probability of its undetected occurrence (PCAOB 2007, paras. 63-64). Deficiencies that are less severe but in which there is more than a remote likelihood that a misstatement of the company's financial statements would go undetected are classified as significant deficiencies. Auditors must report all significant deficiencies to the audit committee, and management must provide written representations stating that they have disclosed all known deficiencies to the auditor as part of management's evaluation (PCAOB 2007, paras. 75 and 80). If it is deemed by the auditor that a material weakness exists, then an adverse opinion on ICFR must be rendered.

Prior literature indicates that audit clients can suffer from receiving an adverse opinion on ICFR through higher costs of capital (e.g., Ashbaugh-Skaife, Collins, Kinney, and Lafond 2009; Cassell, Myers and Zhou 2011) and increases in subsequent audit fees (Hammersley, Myers, and Zhou 2012). Thus, management has an incentive to persuade the auditor that a control deviation is less severe. In fact, in a study of 3,990 control deficiencies documented in auditor workpapers,

Bedard and Graham (2011) found that management initially classified 13.6% of client-discovered problems as being less severe than the auditor's final classification. More importantly, 64.8% of significant deficiencies and 71.4% of material weaknesses were initially classified as less severe by management. These results provide empirical evidence that when a control deficiency is first identified by management it often underestimates the severity, which is consistent with management motivation to avoid a more severe control weakness evaluation.

Prior research examining auditor evaluations of an identified control deficiency has typically focused on deficiencies detected by the audit team during its testing of the operating effectiveness of ICFR. Bennett and Hatfield (2013) find that auditors facing deadline pressure rate the materiality of a control deficiency to be lower, especially when the auditor is at fault for creating the higher deadline pressure. Auditors also evaluate deficiencies more severely when the deficiencies have led to immaterial misstatements in account balances than when no such misstatements are detected (Asare, Majoor, and Wright 2011). These results suggest that auditors may be underestimating the severity of control deficiencies, as AS 5 states that the severity of a deficiency is not dependent on the actual occurrence of a misstatement.

Management's incentives to persuade auditors into accepting more favorable (i.e., less severe) ICFR assessments has led to several studies which examine the circumstances when management persuasion is most likely to be effective. Kaplan et al. (2008) examine the extent to which management-provided information about internal control reliablity influences related auditor internal control judgments. They find that less experienced auditors are more likely to be persuaded by favorable management control assessments than more experienced auditors. More experienced auditors, who presumably have gained persuasion knowledge through their experiences interacting with aggressive clients, appear to be more resistant to persuasion

attempts. Wolfe et al. (2009) investigate two types of persuasion tactics that management may employ when interacting with auditors regarding identified control deficiencies: concessions which admit that a control failure has occurred and denials which argue that the auditor's noted control exceptions were beyond the company's control. They find that when a deficiency is related to IT controls, auditors assess the severity of the deficiency lower and the adequacy of management's explanation higher for concessions than for denials. For deficiencies in manual controls, they find no differences between concessions and denials. These results provide evidence of a systematic bias in auditor judgment because the technology component of IT controls, while irrelevant to the severity assessment, reduces auditors' perceptions of management's blame for the deviation. Additionally, the results of Wolfe et al. (2009) indicate that the perceived adequacy of management's explanation has a mediating effect on subsequent and related auditor ICFR assessments. Thus, *how* auditors evaluate management's explanation is likely to strongly influence their own control assessment.

In a more recent study, Wolfe and Mauldin (2011) examine auditor control assessments for a management-driven control deviation that is due to either a promise violation or a lack of management competence. A promise violation occurs when management promises to perform a control activity but fails to do so. In a competence violation, management's lack of understanding of how the control operates leads to the control failure. The results indicate that audit seniors assess a control deviation resulting from a promise violation about twice as severe as a competence violation, unless management offers penance (i.e., to re-perform the control) for the promise violation. Importantly, the penance in their study is inconsequential, because the deficiency is discovered after the balance sheet date (making remediation of the control deficiency unavailable for the period under audit). These results suggest that management is able

to successfully persuade auditors into consenting to a more favorable control assessment by offering non-substantive penance. Collectively, this stream of literature indicates that management persuasion and, more importantly, auditors' response to management's persuasive attempts, is an integral part of the preliminary internal control assessment. Auditor susceptibility to management persuasion is likely to be highest during preliminary ICFR assessments because the audit team has yet to conduct its own walkthroughs and testing procedures (Asare et al. 2012), and auditors are likely to rely on evidence and information provided by management (Earley et al. 2008).

The audit literature examining management persuasion typically focuses on how management credibility and objectivity influence the persuasiveness of management-provided information. The general findings suggest that evidence obtained from a less credible source is less reliable (and thus less persuasive) than information that is more reliable (e.g., Anderson et al. 2004; Anderson, Koonce, and Marchant 1994; Bamber 1983; Kizirian, Mayhew, and Sneathen 2005). Also, auditors that receive information from a high competent source process the information systematically and rely primarily on the implications of the message when forming a judgment of the evidence (Bhattacharjee et al. 2012). In this dissertation, I am interested in whether the effectiveness of management's persuasive appeals can also be influenced by unrelated auditor experiences encountered prior to receiving the communication, such as interactions among audit team members.

Audit Planning Meetings

For continuing audit engagements, the audit senior will typically meet with the engagement manager and/or partner to plan the current year audit. These preliminary audit meetings serve to address important aspects of the prior year audit, any changes in client

personnel or business operations, and to review the client's risk factors (Houston 1999). These team planning events also allow for multiple members of the audit team to share in the responsibility for the audit strategy, audit quality, and any decisions made during the session. Including both experienced and less-experienced team members allows for knowledge sharing and a better understanding of the entire audit approach. Throughout planning, the audit team will also hold both formal and informal meetings to provide status updates and to evaluate and challenge aspects of the preliminary audit strategy and audit plan based on the audit team's preliminary risk assessments. However, not every proposal discussed during these planning meetings will be related to preliminary risk assessments or impact the scope of the planned audit procedures. Certain engagement management issues, such as the timing of audit work (i.e., whether certain work can be completed "off-season" or earlier in the year) and potential concerns over the busy season schedule and client travel must also be evaluated. The final outcomes of many of these administrative decisions are likely to be influenced by the preferences and expectations communicated by the audit team members. This study investigates how auditors' behavior when providing input on these seemingly innocuous administrative decisions can influence the persuasiveness of subsequently encountered management communication.

Behavioral Mind-Sets

Psychology research recognizes that the goal-directed behavior performed in one task can have carryover effects, such that an individual's cognitive behavior in one situation may influence the performance of a subsequent, seemingly unrelated task (McCrea et al. 2012; Wyer and Xu 2010). Thus, the behavior in making seemingly unrelated decisions may also impact subsequent audit judgment due to the activation of a behavioral mind-set during the initial task. This influence is indicative of a behavioral mind-set (Wyer, Xu, and Shen 2012).

The concept of a mind-set has been widely established in social psychology (e.g., Dweck 2006; Gollwitzer, Heckhausen, and Steller 1990; Oyserman, Sorensen, Reber, and Chen 2009; Wyer et al. 2012). A mind-set reflects the activation and use of a procedure that can be retrieved and used as a guide in subsequent goal-directed behavior (Kruglanski et al. 2002). For example, activating a counterfactual mind-set can lead to the consideration of multiple alternatives and courses of action. Similarly, a which-to-choose mind-set can lead to the selection of one option out of many alternatives, without considering the possibility of selecting none. As a final example, activating a bolstering (counter-arguing) mind-set can lead to the generation of arguments supporting (arguments against) the validity of a persuasive message, which impact the success of the appeal. These procedures provide the sequences of steps that can be taken to achieve a particular objective. Importantly, these procedures can be stored at different levels of abstractness and generality, which allow the more general procedures to be applicable across a variety of situations and for quite different objectives. Thus, "people's goal-directed behavior in one situation…can influence the behavior they later perform in the pursuit of objectives that are quite unrelated to the goal to which their original behavior was relevant. This influence is evidence of a mind-set" (Wyer and Xu 2010, p. 110).

The influence of a prior behavior on future behavior is often deliberate, such as when an individual chooses to repeat his or her past behavior because of its prior success rate in achieving a desirable outcome. This influence is guided in part by the concept of knowledge accessibility, which proposes that the likelihood that some stored knowledge will be activated and applied in situation is based on its accessibility and the fit between the stored knowledge and the present situation (Förster and Liberman 2007; Higgins 1996). A second implication of the theory of knowledge accessibility is that people's judgments and decisions are seldom based on their full

knowledge relevant to the situation, but rather on only a small subset of the knowledge that may be applicable (Wyer 2008, 2004). Thus, when several strategies are generally applicable, the goal concept that comes easiest to mind and is easiest to apply will often be applied (Kruglanski et al. 2002). In this regard, prior goal-directed behavior that is seemingly unrelated to the task at hand can influence the plan that is ultimately selected due to its ease in accessibility. That is, even though the information content of two tasks is unrelated, similarities in the underlying cognitive task (e.g., evaluating a stated proposition) can allow for the behavior performed in the initial task to influence performance on the subsequent task. This effect can also occur without the individuals' awareness of the factors that influenced their decision and can be conceptualized in terms of the impact of behavioral mind-sets (Wyer and Xu 2010). Thus, to the extent that audit team interaction via routine update calls can serve to activate a behavioral mind-set, it is likely that this cognitive behavior will carryover and influence subsequent auditor behavior, such as interactions with client management.

Research across several areas in psychology illustrates the effects of behavioral mind-sets on decision-making. For example, the generation of counterfactuals requires the consideration of multiple possible outcomes. Hirt et al. (2004) induced a counterfactual mind-set by asking participants to generate alternative possibilities for which TV sitcom would win a "best program" award. In a subsequent, seemingly unrelated task, these participants reported weaker beliefs than a control group that the basketball team favored to win the championship would actually do so. In a related study, Kray and Galinsky (2003) find that activating a counterfactual mind-set prior to pursuing a relatively attractive goal can lead to the recognition of both the advantages and disadvantages of the possible outcomes. In their study, student participants read a scenario about an individual who narrowly misses winning a raffle prize at a concert because she

decided to switch her seat at the last minute. Those students who were induced to generate thoughts of what might have been (i.e., to list counterfactual thoughts), were then more likely to seek disconfirmatory information when subsequently tasked with making a decision that paralleled the decision made by NASA officials concerning whether to launch the spaceship Challenger back in January 1986 compared to those in the non-counterfactual prime condition.

Research also finds that simply making an initial purchase can give rise to an implemental mind-set that leads participants to make similar purchasing decisions in a later situation without considering whether they even want to do so (Dhar, Huber, and Khan 2007). Also, making comparative judgments can activate a "which-to-choose" mindset that increases the likelihood of making a purchase in a later situation without the consideration of not making a purchase (Xu and Wyer 2007). For example, Xu and Wyer (2008) exposed participants to 10 pairs of wild animals and asked the participants to indicate either which animal in each pair they preferred or to compare the animals with respect to a particular attribute (e.g., which can run faster, which is heavier, etc.). Then, these participants, along with a control group who was not exposed to either task, were given descriptions of two computers and asked their willingness to purchase one of them (i.e., to purchase Computer X, Computer Y, or neither). The participants who had previously made comparative judgments were more likely to make a purchase than the control group, indicating that making almost any type of comparative judgment is sufficient to activate a which-to-choose mind-set.

It is important to note that in each of the studies previously described, while the subject matter of the two tasks was unrelated, the underlying cognitive task was quite similar. For example, in Xu and Wyer (2008) participants first must make a choice concerning an attribute of two animals. The participants are then given a task of deciding which of two products to buy.

The subject matter of the two tasks is clearly different. However, the underlying cognitive task (which to choose) is the same. The overlapping similarities in the cognitive structure of the tasks allows for a mind-set activated in a seemingly unrelated event to influence subsequent behavior and judgments.

Bolstering and Counter-Arguing Mind-sets

Two mind-sets that are likely to be most relevant in auditor judgments is the activation of a bolstering mind-set or a counter-arguing mind-set. When confronted with a persuasive appeal, a bolstering mind-set is indicated by the generation of supportive elaborations of the message's validity. Conversely, a counter-arguing mind-set is indicative of attempts to refute implications of the message. The persuasiveness of the appeal is thus impacted by the mind-set's influence on an individual's *attitude* and behavior applied toward the message (Wyer and Xu 2010). In an audit setting, professional guidance instructs auditors to maintain an *attitude* of professional skepticism that includes both a questioning mind and a critical assessment of evidence (PCAOB 2007, para. 4). The research on professional skepticism also recognizes the influence of having a skeptical mind-set on auditor behavior, and many accounting studies equate skepticism with suspicion, disbelief, or doubt (Hurtt 2010). However, auditors are often criticized for lacking professional skepticism (Messier, Kozloski, and Kochetova-Kozloski 2010; PCAOB 2008), and auditing research provides further evidence that the level of professional skepticism exhibited by auditors can be affected by both attributes of the audit environment and aspects of the individual auditor (see Nelson (2009) for a review of the professional skepticism literature). Therefore, it is also likely that the activation of a mind-set in an initial task can influence the level of skepticism applied to subsequent interactions with management.

The influence of activating a bolstering mind-set vs. a counter-arguing mind-set when encountering a persuasive message was recently investigated by Xu and Wyer (2012). In their study, student participants were initially induced to make either supportive or dissenting elaborations on various topics based on the phrasing of the proposition (e.g., "reading is bad for the mind" or "reading is good for the mind"). That is, the wording of these propositions is such that the participants would naturally agree or disagree. In a second, seemingly unrelated task, the students read an advertisement for a vacation spot and evaluated its desirability. The student participants evaluated the advertisement more favorably when they had listed supporting thoughts in the initial task and less favorably when they had listed counter-arguments than a control condition. These results indicate that the students utilized the same cognitive procedure (i.e., generating supporting arguments or generating counterarguments) when evaluating an advertisement as they used in evaluating a seemingly unrelated propositions in an earlier task. That is, the cognitive behavior elicited in an otherwise unrelated task influenced individuals' cognitive responses to a subsequent persuasive appeal, which moderated the message's impact.

Importantly, the cognitive mechanisms which underlie the influence of a bolstering and counter-arguing mind-set differ from prior research on belief perseverance examining the explanation and counter-explanation effects in auditing and other decision contexts. In explanation effect studies, participants are asked to explain how an outcome could occur. Explaining how an outcome can occur makes that *same* event appear more likely. Similarly, counter-explaining how an event may not occur makes it appear less likely (Anderson and Sechler 1986). Prior auditing research investigating these effects requires the participants to explain (counter-explain) client management's non-error cause of an account fluctuation, and then asks the participants to assess the probability that the *same* non-error cause accounts for

substantially all of the fluctuation (Hammersley, Kadous,and Magro 1997; Koonce 1992). In this dissertation, I examine how providing arguments in agreement or disagreement with propositions regarding logistical issues during an audit update meeting creates a mind-set that subsequently impacts how auditors interact with management and evaluate management-provided evidence. Activating a mind-set is not designed to change the probability that a past event has occurred, which is the predicted outcome in the explanation effect studies, but rather is expected to carryover and influence subsequent, even seemingly unrelated judgments. That is, inducing a mind-set in an initial task is expected to influence the procedure (i.e., the cognitive behavior) applied to reach subsequent judgments in seemingly unrelated settings.

Furthermore, the predicted effects of inducing a mind-set are not due to participant mood or motivation. That is, activating a bolstering mind-set (as compared to a counter-arguing mind-set) does not differentially affect the motivation or mood of an individual. The use of a mind-set serves as a satisficing mechanism by influencing the cognitive procedure applied to accomplish a goal when more than one procedure can potentially be used to attain the same goal. The results of Xu and Wyer (2012) provide further evidence that the reported effects of inducing a mind-set are unrelated to participant mood and motivation. The authors included manipulation check questions to measure these participant attributes, and they find no differences in participants' reports of their mood and their motivation to do well in the study across all conditions (i.e., across the bolstering, counter-arguing, and the control groups). I also included several measures of participant mood and motivation at the end of my instrument to rule out these potential alternative explanations for the results. As discussed in Chapter 4, participant's self-reported mood scores and motivation did not differ across the treatment groups, which confirm that the reported effects were not caused by these potential alternative explanations.

Collectively, the above discussion suggests that the level of professional skepticism exhibited by auditors, and thus how auditors evaluate management-provided information regarding an identified control deficiency, is likely influenced by an auditor's mind-set activated prior to interacting with the client. Auditors routinely make professional administrative decisions within the context of conducting an audit, such as evaluating logistical and scheduling options, which although unrelated to the audit, may nonetheless impact subsequent professional skepticism. I examine one such instance when auditors are asked to provide their opinion on certain scheduling and logistical suggestions during an audit update meeting. I expect that when auditors are prompted to *evaluate* certain audit scheduling propositions and induced to make either supportive elaborations or, instead, counterarguments on these logistical issues during audit planning meetings and update calls, a mind-set can be created which may carryover to subsequent audit planning tasks. The activation of this mind-set and the ease in which it can be accessed increase the likelihood that the same cognitive procedure (e.g., providing counter-arguments) will be applied in a later situation when the same underlying cognitive task is performed, such as *evaluating* management-provided evidence.

For example, after this type of status update meeting auditors may continue with the audit planning process. Part of audit planning involves evaluating the evidence provided by management related to management's testing of internal control, including management's assessment of the severity of any identified control deficiencies. When interacting with the client and evaluating the information management provides, the type of mind-set activated during the earlier audit meeting (e.g., a bolstering mind-set or a counter-arguing mind-set) will likely influence the auditor's cognitive response to the information, and thus affect the impact of the evidence. To the extent that finalizing these engagement issues activates a counter-arguing mind-

set, auditors who subsequently evaluate a control deficiency identified by management should be more skeptical of management and thus more likely to generate elaborations questioning the validity of management's assessment. This skeptical behavior should thus lead to a judgment that is less aligned with management. Conversely, if the update call induces a bolstering mind-set, auditors should be more inclined to generate elaborations supporting management's assertions, leading to a decrease in the observed level of professional skepticism and a judgment closer aligned with management. Formally, I hypothesize the following main effect hypothesis on the influence of behavioral mind-sets on auditor's preliminary evaluations of a control deficiency identified by management:

> **H1a:** Auditors are more skeptical of management's favorable control assessment (i.e., auditor severity judgments will be less aligned with managements') when a counter-arguing mind-set is activated than when a bolstering mind-set is activated.

The psychology literature on persuasion recognizes that when individuals are motivated to think about a message, it is their cognitive response to the message content, rather than the content of the message itself, that determines its influence (Petty and Cacioppo 1986a; Petty et al. 1981). Consistent with persuasion theory, Wolfe et al. (2009) find that the perceived adequacy of management's explanation for a discovered control deficiency has a strong effect on related auditor judgment. I expect that when a counter-arguing mind-set is induced, auditors will generate arguments which refute management's assessment. Therefore, a counter-arguing mind-set should cause auditors to view the explanations provided by management as being insufficient

to justify management's favorable internal control assessment. Accordingly, I test the following hypothesis:

> **H1b:** Auditors perceive the adequacy of management's explanation *lower* when a counter-arguing mind-set is activated than when a bolstering mind-set is activated.

Qualifications on the Impact of a Behavioral Mind-Set

The professional standards which govern the evaluation of identified deficiencies in internal control state that auditors must report all identified significant deficiencies to the audit committee (PCAOB 2007, para. 80). Deficiencies which result in one or more material weaknesses require the auditor to express an adverse opinion on the company's internal control over financial reporting (para. 90). Importantly, prior accounting literature finds that these severity classifications can differentially affect a company. As previously discussed, receiving an adverse opinion is associated with subsequent higher costs of capital and audit fees (Ashbaugh-Skaife et al. 2009; Cassell et al. 2011; Hammersley et al. 2012). The substantial penalties associated with an assessed material weakness in internal control thus increase management's incentives to persuade the audit team that a control deficiency that could lead to a material misstatement is nonetheless evaluated as a significant deficiency. As a result of training and prior auditing experience, evaluating an internal control weakness potentially indicative of a material weakness should naturally heighten auditor's professional skepticism. If auditors are naturally more skeptical in conditions of higher internal control severity, then severity may serve as a boundary condition on the impact of a mind-set in the audit environment.

The psychology literature on behavioral mind-sets recognizes several instances when activating a mind-set may not carryover to other tasks. For example, a behavioral mind-set is

unlikely to govern a goal-directed procedure that is either difficult to access in memory or difficult to apply (Higgins 1996; Wyer et al. 2012). Also, if participants become aware that their decision strategy was induced by an irrelevant prompt or by experimental priming, they may consciously choose to avoid applying it (Shen and Wyer 2010). The effect of a mind-set will also only manifest in situations where its intended behavior would not naturally be induced. Thus, a bolstering mind-set will have little additional effect if individuals automatically accept the implications of a message (Gilbert 1991). In the case of evaluating an internal control deficiency, these qualifications suggest that if auditors are naturally skeptical in cases of higher severity, then inducing a counter-arguing mind-set may have a minimal incremental effect.

Psychology research further indicates that management persuasion is likely to be most influential when targeted at less severe control deficiencies, because high-severity failure events can polarize judgment (Shapiro et al. 1994). Auditing research on professional skepticism also finds that auditors are less likely to accede to client pressure in situations of high ethical intensity, which is operationalized via the materiality of the misstatement (Ketchand, Morris, and Shafer 1999; Shafer, Morris, and Ketchand 1999; Shafer et al. 2001). In evaluating the severity of a control deficiency, the severity evaluation is directly related to the potential magnitude (i.e., materiality) of the potential misstatement. Therefore, theory suggests that auditors should be less influenced by management persuasion when evaluating a control deficiency of higher severity (i.e., the potential for a material weakness) than when evaluating a control deficiency that is less severe. That is, a questioning mind-set is likely to be naturally induced when evaluating management's assessment of a control deficiency that may be indicative of a material weakness, which may then diminish the carryover effects of a mind-set activated during an earlier task.

Collectively, this discussion leads to the following interaction hypotheses between auditor mind-set and the severity of the identified control deficiency:

H2a: Mind-set will interact with the severity of the ICFR deviation such that the difference in auditors' control assessment between auditors with a counter-arguing mind-set versus a bolstering mind-set will be larger when evaluating an ICFR deviation that is less severe than more severe.

H2b: Mind-set will interact with the severity of the ICFR deviation such that the difference in auditors' evaluation of the adequacy of management's explanation between auditors with a counter-arguing mind-set versus a bolstering mind-set will be larger when evaluating an ICFR deviation that is less severe than more severe.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presents the research methodology used to examine the hypotheses, beginning with a description of the participants who completed the experiment. The next section describes the research design, case materials, and experimental procedures. The final section summarizes the operationalization of the independent variables and the measures used for the dependent variables of interest.

Participants

Audit seniors with SOX 404 training and experience were recruited from Big-4 accounting firms and other large public accounting firms. Audit seniors are the appropriate participant pool because they typically perform the initial evaluations of ICFR problems (Earley et al. 2008; Wolfe et al. 2009), which is the focus of this study. Auditors of this professional rank have initial communication with the client personnel, and hence may be susceptible to persuasion attempts by client management. In fact, prior research indicates that auditors with less experience are more influenced by management persuasion attempts than auditors with more experience (Kaplan et al. 2008). Tabulated results presented in Chapter 4 include data from 83 professional auditors with an average of 3.53 years of experience. All of the participants indicated that they had received prior training on performing a SOX 404 audit. Of the 83 participants, 44 completed an electronically delivered packet comprising the experimental procedures, while 39 participants completed a hardcopy case which was administered at an in-house firm training attended by the researcher.[1]

[1] The overall level of professional auditing experience, as well as the self-reported motivation to perform well on the case study and comprehension of the case materials, for participants completing the electronic version of the case materials was not significantly different from the participants completing a hardcopy version of the case (all p-

Overview of the Research Design

The experimental design used to assess the impact of behavioral mind-sets on auditors' skeptical judgments was a 2x2 between-subjects design with simple random assignment (Whitley 2002). The participants were asked to take the role of an in-charge auditor for their firm on the integrated audit of a hypothetical audit client and were then provided background information and information on the revenue cycle for the client. Then, the participants were asked to participate in an audit update call with the engagement partner. The activation of a behavioral mind-set was generated during this audit update call and was manipulated at two levels (counter-arguing or bolstering). After completing the update call, the participants were asked to evaluate information on the internal controls of the client. The second manipulated variable is the severity of a control deficiency (high or low) identified by management during its own testing of internal control, which was manipulated during the evaluation of the internal control task. Finally, auditors were asked to provide their preliminary assessment of the strength of the company's internal control, document the evidence considered when making their assessment, and respond to manipulation check and post-experimental questions. Figure 1 provides a flowchart of the experimental procedures.

Case Materials and Procedures

Client Information and Audit Planning Meeting

Participants began the study by reading a welcome page informing them that the purpose of this study was to examine auditors' decision making during the audit planning process, and that they were assuming the role of an audit in-charge. They were then told that preliminary audit

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values > 0.10). Further, Chi-square results indicated that the frequency of responses of participants completing hardcopy and electronic versions of the case materials did not differ across the experimental conditions ($\chi^2 = 0.70$, p = 0.873, two-tailed), and the results of hypothesis testing are robust to including an indicator variable for case type.

planning has already begun and that they were taking part in an audit update call with the engagement partner who would also be seeking their opinion on scheduling and other audit logistic preferences related to the year-end fieldwork. The participants were then told that after wrapping up the update call, they would be presented dialogue from the client inquiry with the client's controller as part of their initial audit planning tasks regarding the client's internal controls. They would then be asked to record their preliminary planning judgments related to the client's internal controls over their revenue cycle.

Next, participants were presented with background information about the company, which included a company description and summary financial statements. The company was described as a leading global developer, publisher and distributor of interactive software games. The summary income statement and balance sheet included current year budgeted financial information and prior year audited financial amounts. The participants were then presented with information pertaining to the current year audit, which indicated that the company is subject to an integrated audit and that an opinion would be expressed on the financial statements, as well as on the effectiveness of the company's ICFR in accordance with PCAOB Auditing Standard No. 5. Additionally, the participants were informed that their firm has audited the company for several years, that relations between the audit team and management have been good in the past, and that each of the prior year audits resulted in an unqualified opinion for both the financial audit and internal control audit. To ensure that all participants had the same baseline knowledge going into the case, the participants were also given a brief synopsis of the requirements in auditing ICFR (e.g., the definitions of the severity levels, reporting requirements, and required communications with management and the audit committee). The background information

concluded with a summary of the company's revenue cycle and the applicable control processes in place.

After the participants viewed the company background information, they were asked to participate in an update call with the audit team's partner. Participants were presented with narratives indicative of a dialogue from the partner discussing the audit strategy. The use of narratives is consistent with prior studies that have provided written narratives to document discussions between members of the audit team and with client management (see, e.g., Bhattacharjee and Moreno 2002; Bhattacharjee, Moreno, and Riley 2012; Koonce 1992; Koonce and Phillips 1996; Wolfe et al. 2009). To enhance the participants' ability to view the dialogue as a true conversation, it was written in the first-person voice. The dialogue from the audit partner was kept consistent across all of the conditions, except for minor differences at the conclusion of the call, which allow for the set-up of the mind-set manipulations. In the narratives, the partner provided general information about the client, the preliminary materiality calculations, and information about the audit team's main client contact, Tom Davis. Tom is the company's controller and was described by the audit partner as being reliable and forthcoming with information, and with having an open door policy with the audit team. Information on source reliability was provided to make sure that the auditors viewed the information provided by the controller as reliable and trustworthy. The audit partner explained that the company recently completed its own testing of internal control, and therefore the audit team should meet with him to discuss whether any issues were identified that may impact their audit strategy.

Before concluding the meeting, the partner requested the opinion of the participants on a few aspects of the year-end audit schedule. The audit was described as requiring extensive travel and out-of-town work, so their opinions related to the schedule and certain logistical decisions

would help to make the audit a more meaningful work environment. The suggestions posed by the audit partner were used to manipulate the participants' behavioral mind-set. Two mind-set conditions were manipulated: bolstering and counter-arguing. In the bolstering condition, three propositions were provided by the partner and are phrased in such a way that participants were naturally expected to support their implications (e.g., "During busy season audit staff should not be expected to work every weekend until the audit report is issued if the job can still be completed in a timely and satisfactory manner"). In contrast, auditors in the counter-arguing condition were given the same propositions but worded in such a way as to lead to thoughts refuting their implications (e.g., "During busy season audit staff should be expected to work every weekend from the start of fieldwork until the audit report is issued, regardless of whether the workload is light"). Please see Appendix A for the complete copy of the mind-set manipulations.

To respond to the audit partner's suggestions, the participants were asked to evaluate each proposition individually and indicate whether they agreed or disagreed with the statement, and then asked to provide a written explanation for why they either agreed or disagreed with the partner's suggestion. In order to encourage candid responses, the participants were told that they have worked with this partner on prior engagements and found him to be very receptive to their ideas and opinions. The partner's dialogue during the conference call also reiterated that he would appreciate their honest opinion on these matters, and that they are just suggested actions. The arguments provided by the participants are expected to be similar in both the Bolstering and Counter-Arguing conditions. However, the cognitive *behavior* required to construct them constitutes bolstering in the first condition and counter-arguing in the second. The behavior performed is expected to induce the respective mind-set. Importantly, the outcomes of these

decisions are otherwise inconsequential to the audit because they do not impact the nature, timing, or extent of audit work.

Preliminary Internal Control Evaluations

After wrapping up the update call with the audit partner, the case continued with a scheduled meeting with the company's controller to discuss the results of management's tests of ICFR. For this task, participants were provided with information on a control deviation discovered by management, the controller's initial classification, and dialogue between the auditor and the controller discussing the scope of the deficiency and how the controller arrived at his severity classification. The participants were presented with information on a single control deviation discovered by management related to the audit department's failure to review certain modifications to the company's sales contracts. The dialogue between the controller and the auditor was used to manipulate the severity of the control deficiency. In the high severity condition, the control deficiency presented was intended to be at-the margin-between a significant deficiency and a material weakness. In the low severity condition, the deficiency presented was intended to be at-the-margin between a control deficiency and a significant deficiency.[2] Management's initial classification was always favorable to the company, such that in the lower severity condition management's classification was a control deficiency, while in the higher severity condition management's classification was a significant deficiency.

After reviewing the brief description of the control deviation identified by management and the controller's initial assessment, the case materials presented the conversational narratives between the company's controller and the auditor. The dialogue was written in the first-person voice to enhance the participants' ability to view it as a true conversation that would occur

[2] Analyses of participants' ICFR severity assessments presented in Chapter 4 confirm that the severity manipulation operated as intended.

during client inquiry. The use of management inquiry when assessing the significance of a deficiency is common because management is responsible for internal control and must make its own assessment of the effectiveness of ICFR (PCAOB 2007, para. 75). The use of a vignette between the auditor and the client is also consistent with prior studies investigating internal control assessments (e.g., Wolfe and Mauldin 2011; Wolfe et al. 2009). The dialogues conveyed by the narratives contain the auditor's questioning of the client controller regarding the controller's severity assessment and other factors relevant to evaluating the identified control weakness (e.g., whether improper revenue recognition has occurred, the potential for a material misstatement, and the existence of compensating controls). The responses provided by the controller acknowledged that improper revenue recognition has occurred due to the control failure and also provide justifications for the controller's assessment.

Recall that the narratives were also used to manipulate the severity of the ICFR problem, which is the second manipulation. The identified control issue in both the high and low severity conditions occurs in the company's revenue cycle and is due to the lack of review of certain modifications to standard sales contracts. This issue in the revenue cycle has led to improper revenue recognition.

In the lower severity condition, management describes a control deficiency where certain modifications to the standard shipping terms of the company's sales contracts are not reviewed. Specifically, it is determined that salespeople give discounts to customers but fail to record them into the online customer order system. This deficiency has led to a few instances of customers receiving excessive discounts, although the amounts are immaterial. In the higher severity condition, management describes a control deficiency where none of the modifications (e.g., sales price, shipping terms, discounts, etc.) to the standard sales contract are reviewed by the

accounting department. This control deficiency has led to several instances of improper revenue recognition, although none of the misstatements have been material to the company. Both manipulations are based off of guidance provided by the SEC for evaluating identified control deficiencies (SEC 2004), and were also pretested with current and former auditors to ensure realism and that the evidence cues were appropriately balanced between severity classifications. In order to persuade the auditor, the controller's dialogue contained justifications and evidence supportive of his position (i.e., the less severe classification). However, in responding to the auditor's questions, the controller must concede arguments refuting his assessment. In doing so, the narratives provide a balanced dialogue that included information both supporting and challenging management's favorable internal control assessment. Please see Appendix B and Appendix C for a copy of the high severity and low severity manipulations, respectively.

After reading the narratives, the participants were asked to complete an audit planning workpaper where they recorded their preliminary assessment of the company's control deviation over the review of sales contract modifications. The primary task for the auditor participants in this study is the evaluation of the control deviation initially discovered by management during the company's ICFR testing. Auditing standards require the auditor to evaluate the severity of each control deficiency that is brought to his or her attention to determine whether a material weakness in internal controls exists as of the date of management's assessment (PCAOB 2007, para. 62). Participants in this study were asked to make a preliminary assessment of the ICFR problem on a 0-100 point scale, where 0 = Absolutely a Control Deficiency, 50 = Absolutely a Significant Deficiency, and 100 = Absolutely a Material Weakness. This dependent variable is consistent with prior studies evaluating the significance of a control deficiency (e.g., Asare et al.

2011; Earley et al. 2008; Wolfe and Mauldin 2011). I use this dependent variable to test H1a and H2a.

Auditors frequently use management inquiry when assessing the significance of a control deficiency because management is responsible for maintaining internal controls and assessing their effectiveness. Prior research finds that the perceived adequacy of management's explanation of their control evaluation has a strong effect on the related auditor judgments (Wolfe et al. 2009). Therefore, I asked the participants to rate the perceived adequacy of management's explanation using a 100-point scale anchored on "Not Adequate" and "Very Adequate." I expect that the auditors will evaluate management's explanation in a manner consistent with the mind-set activated during the update call with the audit partner, which takes place prior to interacting with the client's management. This dependent variable is used to test H1b and H2b.[3]

In evaluating whether a control deficiency represents a material weakness, professional guidance indicates that the severity of a deficiency depends on the potential magnitude of the misstatement, the likelihood that a misstatement will occur, and the effectiveness of compensating controls (PCAOB 2007). Therefore, for additional analyses of the effect of auditor mind-set and ICFR severity, I captured the participants' perceptions of the potential magnitude of misstatement (anchored on "Inconsequential" and "Very Material"), the likelihood of misstatement (anchored on "Remote" and "Certain"), and the effectiveness of the compensating controls surrounding revenue recognition (anchored on "Ineffective" and "Very Effective"), each on 100-point scales. These questions are included in the audit planning workpapers that the

[3] After recording their preliminary evaluations of the control deficiency, the participants were also asked to complete an audit planning memorandum and to list the evidence that they considered when arriving at their severity assessment.

participants were asked to complete related to their preliminary assessments of the control deficiency.

Manipulation Checks and Demographics

The participants were asked to complete several manipulation checks and demographic responses. As a manipulation check for the activation of the behavioral mind-set, I used their dichotomous responses to the partner's propositions during the update call (i.e., agree/disagree), to support the activation of either a bolstering or counter-arguing mind-set. As a manipulation check for control deficiency severity, participants were asked to identify management's classification of the control deviation. Participants were also asked to respond to several questions aimed at assessing their current mood state and motivation to ensure that responding to the partner's suggestions did not manipulate mood. In doing so, these questions also serve to rule out participant mood and motivation as potential alternative explanations for the results. Additionally, participants were asked several demographic questions such as rank, whether they have experience as an audit in-charge, whether they have had training in Auditing Standard No. 5 (the guidance on performing an integrated audit and evaluating identified control deficiencies), and whether they have worked on an audit engagement in which a significant deficiency or material weakness in ICFR was discovered.

The case concluded with a 30-question scale developed by Hurtt (2010) to measure an individual's level of trait professional skepticism. Since the effect of a mind-set is only evident if it leads to behavior that would not automatically occur in its absence (Wyer et al. 2012; Xu and Wyer 2012), auditors with higher (lower) levels of trait skepticism may naturally be inclined to counter-argue (bolster) management's explanation. Therefore, auditors' responses to the skepticism scale were used to rule out trait professional skepticism as a potential alternative

explanation for the results. This scale is designed to capture six primary characteristics of an individual: questioning mind, suspension of judgment, need to search for knowledge, interpersonal understanding, self-confidence, and self-determination. The response to each of the 30 questions is captured on 6-point scales anchored on "Strongly Disagree" and "Strongly Agree." Thus, the scores can range from 30 to 180, with higher scores indicative of a higher level of trait professional skepticism.

Independent Variables

In summary, I considered the effect of two independent variables, behavioral mind-set and severity of an internal control deficiency, on two dependent variables: auditors' preliminary ICFR assessment and perception of management explanation adequacy. First, I examined the effects of inducing differing behavioral mind-sets on the dependent variables. Two mind-sets were manipulated by having the participants respond to scheduling and logistical propositions offered up by the engagement partner: bolstering and counter-arguing. The behavior required to construct the arguments was expected to induce the mind-sets.

Second, I examined whether the severity of an identified control deficiency qualifies the impact of a behavioral mind-set. The dialogue between the controller and the auditor was used to manipulate the two severity conditions (high or low). In the low severity condition, participants were presented with a control deviation that is at-the-margin between a control deficiency and a significant deficiency and told that management has classified the deviation as being a control deficiency. Auditors in the high severity condition were presented with a deviation at-the-margin between a significant deficiency and a material weakness and told that management's classification is that the deviation is a significant deficiency.

Dependent Variables

I measured the effects of behavioral mind-set and control weakness severity on two dependent variables: preliminary ICFR assessment (Earley et al. 2008), and the auditor's perception of the explanation adequacy of management's ICFR assessment (Wolfe et al. 2009). The preliminary internal control weakness assessment and evaluation of management's explanation can impact both the efficiency and effectiveness of the audit. A bias in auditors' initial judgments is likely to influence which controls auditors focus on when performing walkthroughs of a client's internal control system, the nature, timing, and extent of auditors' tests of controls, and potentially influence the extent they are able to rely on the work of others, such as internal audit. While preliminary audit judgments are subject to management and partner review, prior research indicates that audit reviewers can be influenced by the conclusions documented in audit workpapers (e.g., Ricchiute 1999). Therefore, the conclusions documented by the participants are likely to carryover and influence the final control weakness evaluation.

Pretesting of Experimental Materials

The experimental materials went through three rounds of pretesting, each with a distinct purpose, and one round of pilot testing to ensure that the mind-set manipulations embedded in the audit update call and the internal control deviations were realistic and representative of practice. First, the instrument was pretested with 13 ACIS PhD students with, on average, 4 years of former public accounting experience to ensure the task was realistic, the instructions were clear, and the duration to complete was reasonable. Minor changes to the task instructions were made based on the feedback received. Second, the manipulations (mind-set and severity) were separately pretested by Masters of Accounting students at a large southeastern university.

The purpose for pretesting the mind-set manipulation was twofold. First, to ensure the propositions were eliciting the expected behavior (i.e., bolstering or counterargument) in response to the three proposition provided by the audit partner; second, to confirm that activating the mind-set did not alter the participant's current mood state. This was performed to rule out a potential alternative explanation for the results. The results from pretesting with 37 Masters students indicated that the mind-set manipulation was operating as intended. Further, responses to a three-item scale used by prior research (see Chung, Cohen, and Monroe 2008) to measure current mood states indicated that activating the mind-set manipulations did not elicit differing mood states among the two groups ($p > 0.40$).

Pretests of the severity of the internal control weakness (high/low) was performed by a separate group of 28 Masters of Accounting students to verify that the low severity condition was at-the-margin between a control deficiency and significant deficiency and the high severity condition was at-the-margin between a significant deficiency and material weakness. The mind-set manipulations were excluded from the case materials provided to the participants for this pretesting. The participants only reviewed the case materials related to the internal control planning task. The participants made their internal control assessments on the same 0 – 100 point scale used in the study, where 0 = Control Deficiency, 50 = Significant Deficiency, and 100 = Material Weakness. As expected, the severity ratings reported by participants in the high severity condition (mean = 60.38) were significantly higher than the lower severity condition (mean = 37.33, $t = 3.90$, $p = 0.001$, two-tailed). The results further indicated that the manipulation operated as intended. Participants in the low severity condition (mean = 37.33) rated the severity as more severe than a control deficiency (test value = 0, $t = 8.67$, $p < 0.001$, two-tailed) and less severe than a significant deficiency (test value = 50, $t = -2.94$, $p = 0.011$, two-tailed). Participants

in the high severity condition (mean = 60.38) rated the internal control problem as more severe than a significant deficiency (test value = 50, $t = 2.63$, $p = 0.022$, two-tailed) and less severe than a material weakness (test value = 100, $t = -10.05$, $p < 0.001$, two-tailed). No significant changes were made to either manipulation as a result of the pretesting.

The full case materials were then pilot tested by 62 undergraduate accounting majors, 28 of which (45.2%) had previously interned at a public accounting firm, to ensure the clarity of the materials. Last, the final versions of the experimental materials were reviewed by two current senior members from the audit practice of a Big-4 accounting firm. This final review ensured that terminology was consistent with practice and ensured that the experimental task was appropriate for audit seniors. No substantive changes were recommended by the reviewers. The instruments reviewed by this panel were thus used for the purposes of data collection. Please see Appendix D for a sample of a full experimental case.

CHAPTER 4

RESULTS

This chapter presents the data analyses conducted for the study and the results of the hypothesis testing. Recall that participants were randomly assigned to one of four cases by crossing auditor mind-set (bolstering or counter-arguing) and ICFR severity (high or low): Bolster-High Severity, Bolster-Low Severity, Counter-Argue-High Severity, Counter-Argue-Low Severity.

Manipulation Checks

Prior to examining the effectiveness of the manipulated variables, I conducted an analysis to ensure that the participants paid adequate attention to the case materials. After providing responses to the dependent measures, all of the participants were then asked to identify management's internal control classification of the revenue control issue. The narrative between the auditor and the client's controller included in the case materials includes several references to the controller's classification and his arguments supporting his assessment. Thus, the response to this question indicates whether the participants paid sufficient attention to the case facts surrounding the identified control issue. This would be necessary in order to provide an independent assessment of the severity of the control weakness and an assessment of the adequacy of management's explanation. Of the 92 completed cases, 83 auditors were able to correctly identify management's internal control classification.

As an additional analysis to examine a potential cause for why these 9 auditors failed this post-experimental check question, I conducted an independent samples t-test to compare the self-assessed motivation to do well on the case between the 83 auditors who correctly identified management's classification and the 9 auditors who failed to correctly do so study. The

participants recorded their responses on a 9-point scale anchored with "Not Motivated" and "Very Motivated." A higher score is indicative of greater motivation to perform well. The results (untabulated) indicate that the 83 auditors who correctly identified management's classification (mean = 6.82) were more motivated to perform well than the 9 auditors who responded incorrectly (mean = 6.00, p = 0.072, two-tailed). Therefore, the 9 auditors who failed to accurately recall this pertinent case fact were excluded from further statistical analysis.[4]

Recall that successful manipulation of the severity of the identified control deficiency (high/low) was confirmed during pretesting. The pretesting provides a more accurate assessment of the effectiveness of this manipulation because it was performed absent of the mind-set manipulation. The results of pretesting the severity manipulation indicated that the severity of the control issue was rated higher in the high severity condition than the low severity condition. In particular, the low severity condition was rated more severe than a control deficiency but not reaching the level of a significant deficiency. The high severity condition was rated more severe than a significant deficiency but not reaching the level of a material weakness. Collectively, pretesting confirmed that the severity manipulation operated as intended.

To manipulate auditors' behavioral mind-set, recall that each participant reviewed three propositions regarding administrative and logistical details for the upcoming audit presented by the audit partner during an audit update meeting. The participants then indicated whether they agreed or disagreed with the partner's proposal and wrote out a brief explanation for their position. The proposals were of identical subject matter between the two mind-set conditions but were phrased in such a manner that participants in the counter-argument (bolstering) condition were expected to oppose (support) the proposals from the audit partner.

[4] The robustness of the reported results will be tested in the Supplemental Analysis section at the end of this chapter by including the 9 auditors who failed to accurately identify management's classification.

The effectiveness of the mind-set manipulation was assessed by totaling the number of propositions that participants supported and the number of propositions opposed across the three propositions. On average, participants in the counter-argument condition *opposed* the propositions 83.7% of the time. Participants in the bolstering condition, on average, *supported* the propositions 86.3% of the time. An independent samples t-test confirmed that participants in the bolstering condition (mean = 2.60 propositions supported out of a maximum possible of 3 agreements) were more likely to support the partner's propositions than participants in the counter-arguing condition (mean = 0.49, t = 15.19, p <0.001, two-tailed).[5] There were no significant differences between the number of propositions *supported* by participants in the Bolster-High Severity group (mean = 2.55) and the Bolster-Low Severity group (mean = 2.64, t = 0.44, p = 0.661, two-tailed). Similarly, there were also no differences between the number of propositions *opposed* by participants in the Counter-Argue-High Severity group (2.43) and the Counter-Argue-Low Severity group (2.60, t = 0.858, p = 0.396, two-tailed). Thus, the mind-set manipulation operated as intended.[6]

Preliminary Analyses

I analyzed the results using a 2x2 analysis of variance (ANOVA) model to test the effects of behavioral mind-set and the severity of an identified control deficiency on each of my dependent variables. My preliminary analysis considers whether the data meets the three basic assumptions of the ANOVA model: independent observations, normal distribution of the dependent variables, and homogeneity of variance. The first requirement, independent

[5]I find identical statistical results analyzing the number of propositions opposed by auditors in the counter-arguing mind-set condition (mean = 2.51) compared to the bolstering condition (mean = 0.40, t = 15.19, p <0.001).
[6] In a supplemental analysis reported later in this chapter, I also analyze the number of unique arguments the participants wrote when indicating why they either agreed (i.e., the number of unique bolstering arguments) or disagreed (i.e., the number of unique counterarguments) with the partner's proposals.

observations, is addressed in the experimental design by randomly assigning the participants to each of the four experimental conditions. A Shapiro-Wilk test for normality indicated that the data for the primary dependent measures (i.e., auditors' preliminary ICFR assessment and auditors' perception of the explanation adequacy of management's assessment) did not violate this assumption (all ps > 0.10).[7] Finally, when the data violated the homogeneity of variance assumption, the results from Levene's test were used to supplement the hypothesis testing.[8]

Auditor Characteristics

I collected several items of demographic data from the participants. Table 1 presents the discrete demographics of the 83 auditor participants aggregated across the four experimental groups. The auditors were primarily of the rank of audit senior (91.6%), 55% were male, 87% worked for a Big-4 accounting firm, 92% had in-charge experience, and 84% had SOX audit experience. To gain further insight into the nature of the participants' prior experience in conducting SOX 404 audits, they were also asked whether, on any prior engagements, they have observed (1) a significant deficiency and (2) a material weakness. Their responses indicate that a majority of the auditors have observed a significant deficiency when auditing a client's internal controls (52 of the participants, or 62.7% of the sample, responded affirmatively), and several have also identified a material weakness (22 of the participants, or 37.3% of the sample).[9]

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[7] Shapiro-Wilk tests for normality of additional dependent measures used to further explore auditors' severity assessments (i.e., Likelihood of a Misstatement, Magnitude of Misstatement and the Efficacy of Compensating Controls) identified potential violations of this assumption. Although ANOVA is robust to modest violations of normality (Ferguson and Takane 2005, pp. 261-262), in such instances, I supplemented my analysis with the Mann-Whitney two-sample rank-sum test, a nonparametric test that makes no assumptions regarding the distribution of the data (Mann and Whitney 1947; Wilcoxon 1945).

[8] Additionally, I conducted nonparametric tests for all variables (e.g., a Kruskal Wallis ANOVA and a Mann-Whitney rank-sum tests for two independent samples) and found the results were consistent with the results of the parametric tests.

[9] The results of Chi-square tests for independence indicated that none of the categorical variables differ across treatments (ps > 0.10), except for the proportion of auditors with experience conducting SOX 404 audits (χ^2 = 10.86, p-value = 0.01, two-tailed). Additional sensitivity tests excluding auditors without SOX audit experience, described

Collectively, the demographic responses indicate that the participants have the requisite experience for the study.

In addition to the demographic data, the auditors also provided responses to the following post-experimental questions: (1) professional experience, (2) motivation, (3) mood, (4) understanding of the control deviation, (5) management incentives, (6) management reliability, and (7) assessment of trait skepticism. I performed a one-way ANOVA on each of these continuous measures to test for differences by condition using the experimental treatment as a single four-level variable. Table 2 presents the descriptive statistics for each of these measures by experimental condition. The results of the one-way ANOVA are presented in the far right column of Table 2.

Experience

Overall, the participants have an average of 42.39 months (3.53 years) of professional audit experience. The one-way ANOVA results reported in Table 2 indicate that there is not a significant difference in the level of experience across the four experimental groups ($F = 0.51$, $p = 0.68$, two-tailed). Therefore, the level of experience of the auditors is not significantly different by condition.

Motivation

The auditors were also asked to assess their motivation to do well on the case study using a 9-point scale anchored by "Not Motivated" and "Very Motivated." The overall rating across the experimental groups is 6.82, which is significantly greater than the scale midpoint ($t = 13.69$, $p < 0.001$, two-tailed), indicating that the participants were motivated to perform well. Further, results of a one-way ANOVA to test for differences by condition are not significant ($F = 0.10$, p

in the Supplemental Analyses section, produce results substantially identical to those reported in the primary hypothesis tests. Therefore, all 83 participants were retained for hypothesis testing.

= 0.96, two-tailed), indicating that the level of motivation does not differ by experimental condition.

Mood

One potential alternative explanation for the expected results of activating a bolstering or counter-arguing mind-set is that auditors' judgments are influenced by their mood state generated by activating a mind-set. That is, the expected differences between experimental groups may be attributed to differences in the use of mood as a basis for audit judgment (Chung et al. 2008). To rule out mood as an alternative explanation for the results, the auditors recorded their mood by responding to three statements on 9-point scales: sad/happy, positive/negative, depressed/uplifted. The classification of moods into positive and negative extremes is consistent with the approach taken by Chung et al. (2008). The theoretical range is 3 (negative) to 27 (positive), with a lower score indicative of a more negative mood. The results presented in Table 2 indicate that participant mood did not differ by experimental condition ($F = 1.25$, $p = 0.30$, two-tailed). Therefore, the activation of a behavioral mind-set did not affect the mood state of the participants and any reported differences between the four experimental groups cannot be attributed to their mood. As a robustness test, I also use ANCOVA models with participant mood as a covariate when conducting my hypothesis testing. The results from the ANCOVA models are discussed separately in the hypothesis testing sections reported later in this chapter.

Understanding

The auditors appear to have understood the control deviation described in the case materials. The average rating is 7.36 on a 9-point scale assessing how well the auditors understood the control deficiency, with a higher score indicative of greater understanding of the control issue. This rating is significantly greater than the scale midpoint ($t = 15.44$, $p < 0.001$,

two-tailed). As expected, the results of a one-way ANOVA presented in Table 2 also indicate that the level of understanding does not differ across the four experimental groups ($F = 0.69$, $p = 0.56$, two-tailed).

Management Incentives

The auditors were also asked their perceptions of management's incentives to persuade them into accepting a more favorable control weakness assessment. The average rating across conditions is 66.15, on a 100-point scale where a higher rating is indicative of higher management incentives. Thus, it appears that the participants were aware of management's financial reporting and disclosure incentives. The results from the one-way ANOVA analysis also indicate that perceptions of management incentives does not differ across the four experimental groups ($F = 0.30$, $p = 0.83$, two-tailed).

Management Reliability

Information on source reliability was provided in the case materials to make sure that the auditors viewed the information provided by the controller as reliable and trustworthy. Participant responses indicate that they did view management as reliable (mean = 64.12 on a 100-point scale, where a higher rating is indicative of higher perceptions of management reliability). The mean reliability assessment of 64.12 is significantly greater than the scale midpoint ($t = 7.46$, $p < 0.001$, two-tailed). Further, the results of a one-way ANOVA indicate that management reliability ratings did not differ across the four groups ($F = 1.16$, $p = 0.33$, two-tailed).

Trait Skepticism

Prior auditing literature indicates that the level of innate, or trait skepticism can vary among auditors (Hurtt 2010). In this study, I examine whether auditors' level of trait skepticism

deferred across the four experimental groups by administering the 30-item Hurtt Skepticism Scale (Hurtt 2010) at the end of the case materials. The scale uses six characteristics developed from philosophical writings on skepticism (e.g., Burnyeat 1983) and based on the audit theory by Mautz and Sharaf (1961). These characteristics include a questioning mind, suspension of judgment, search for knowledge, interpersonal understanding, self-esteem, and autonomy. Scale scores can range from 30 to 180, with higher scores indicative of greater trait skepticism. The average skepticism score across all participants in this study is 136.23.[10] The level of trait professional skepticism, as measured by the Hurtt Skepticism Scale, does not differ across the four experimental groups ($F = 0.89$, $p = 0.45$, two-tailed). These findings are consistent with prior research that indicates that trait professional skepticism is fixed by the time auditors begin their professional career. Thus, any findings of the impact of mind-set on professional skepticism were not due to trait skepticism. As a robustness test, I also include participants' trait skepticism scores in ANCOVA models when conducting my hypothesis testing. The results from the ANCOVA models are discussed separately in the hypothesis testing sections reported later in this chapter.

The Impact of Mind-Set on Auditor Assessments of the ICFR Problem

After the auditors read the case narratives describing the discovered control issue regarding sales contract modifications, they are asked to complete an audit planning workpaper requiring them to make their own preliminary assessment of the company's internal control over financial reporting (ICFR). The primary task for the participants is the evaluation of the control issue initially discovered by management during the company's ICFR testing. Participants in this

[10] This rating is consistent with prior studies administering the Hurtt Skepticism Scale to professional Auditors. For example, Hurtt (2010) reports a mean score of 138.6 when administering the scale to 200 auditors of similar rank as the participants in this study.

study were asked to make an initial assessment of the significance of the deficiency on a 0-100 point scale, where 0 = Absolutely a Control Deficiency, 50 = Absolutely a Significant Deficiency, and 100 = Absolutely a Material Weakness. I use this dependent variable to test H1a and H2a.

Hypothesis 1a

The first set of hypotheses examines the effect of a behavioral mind-set on auditors' preliminary assessment of the ICFR issue. I expected that during the audit update audit call, a behavioral mind-set would be activated when auditors evaluated the propositions from the audit partner and either generated arguments supporting his suggestions or generated counterarguments which opposed the propositions. Hypothesis 1a stated my prediction that the activation of a behavioral mind-set during the update call conducted with the audit partner would carryover and subsequently impact auditors' preliminary ICFR assessments. I expected that auditor ICFR assessments would be less aligned with management's assessment (i.e., auditor severity assessments will be higher) when a counter-arguing mind-set is activated than when a bolstering mind-set is activated.

To test this hypothesis, I used an ANOVA model with mind-set (bolstering or counter-arguing) and the severity of the internal control issue (high or low) as independent variables and auditors' preliminary ICFR assessments as the dependent measure. Table 3 presents the results of the ANOVA model (Panel A) and descriptive statistics of the dependent measure across each of the four experimental conditions (Panel B). Auditors in the counter-arguing condition (mean = 50.73) rated the severity of the control weakness higher than auditors in the bolstering condition (mean = 42.98, $F = 2.71$, $p = 0.052$, one-tailed). Since management provided a favorable (i.e., less severe) classification across both severity conditions, the results indicate that auditor ICFR

judgments were less aligned with management's in the counter-arguing condition than the bolstering condition. Therefore, H1a is supported. This result suggests that an auditor's skeptical mind-set can be impacted during initial task performance, resulting in a carryover effect that impacts the professional skepticism applied to subsequent, even unrelated judgments.

Additionally, I ran multiple ANCOVA models which included the auditors' self-assessed mood state and their level of trait skepticism (as measured by the 30-item Hurtt Skepticism Scale) as potential covariates. Recall from Table 2 that these variables did not differ across the four treatment groups. The results (untabulated) indicated that neither of these variables was significant as a covariate (both ps > 0.10), nor did they have a substantive effect on the reported results.[11] Therefore, the results for H1a cannot be attributed to differences in the use of one's mood state as a basis for judgment, nor can the results be attributed to differences in the level of *trait* skepticism among the participants. While not hypothesized, the results also show that the severity assessments reported by auditors in the high severity condition (mean = 58.54) is significantly higher than the assessments by auditors lower severity condition (mean = 35.36, t = 5.45, p < 0.001, two-tailed). This indicates that one severity condition was higher than the other.

Hypothesis 2a

The psychology literature on behavioral mind-sets also recognizes certain instances when activating a mind-set may not elicit the expected carryover effects to subsequent tasks. Collectively, the results from this stream of literature indicate that the effects of activating a mind-set may be muted in instances when the intended behavior of a mind-set is likely to occur naturally. Because of the overall increase in risk associated with a potential material weakness in internal controls, I expected that the effects of an auditor mind-set explored in H1a would be

[11] Supplemental ANCOVA analysis was also conducted to consider other participant variables as potential covariates (e.g., experience and motivation). None of these variables was significant (all ps > 0.10) or had a substantive effect on the reported results.

attenuated when evaluating a control deficiency of higher severity. That is, I expected mind-set to interact with the severity of the ICFR issue such that the difference in auditors' ICFR assessments between auditors with a counter-arguing mind-set versus a bolstering mind-set would be larger when evaluating an internal control problem that is less severe than more severe.

The full ANOVA results of this predicted interaction are presented in Table 3, Panel A. Panel C of Table 3 presents the contrast results testing the difference in mean ICFR assessments between auditors in the Counter-Argue-Low Severity group and the Bolster-Low Severity group versus the Counter-Argue-High Severity group and the Bolster-High Severity group. The pattern of this interaction is consistent with my expectations, and the resulting contrast test is statistically significant ($F = 3.05$, $p = 0.042$, one-tailed). Planned t-test comparisons (Panel D) indicate that the ICFR assessments of auditors in the Counter-Argue-Low Severity group are significantly higher (mean = 42.75) than the severity assessments of auditors in the Bolster-Low Severity group (mean = 28.64, $t = 2.41$, $p = 0.011$, one-tailed).[12] Additional analysis of the ICFR assessments also indicates that the mean ICFR assessment of auditors in the Counter-Argue-Low Severity group is equivalent to a significant deficiency rating classification (test value = 50, $t = -1.40$, $p = 0.178$, two-tailed). In the Bolster-Low Severity group, the mean ICFR assessment does not reach the level of a significant deficiency (test value = 50, $t = -7.08$, $p < 0.001$, two-tailed).

To further assess the difference in internal control assessments between the two groups, I also used a dichotomous coding of the individual auditor assessments. Auditor ICFR assessments greater than or equal to a significant deficiency classification (i.e., a rating of 50 or higher) were coded 1; auditor assessments less than a significant deficiency (i.e., a rating of less than 50) were

[12] Levene's test for equality of variance indicated that the data for the low severity condition violated this assumption. Welch's t-test, an alternative two-sample t-test that does not assume the population standard deviations are the same, confirmed the significant difference in severity ratings for the Counter-Argue-Low Severity group and the Bolster-Low Severity group ($t = 2.35$, $p = 0.013$, one-tailed).

coded 0. Of the 22 responses in the Bolster-Low Severity group, 3 rated the control weakness as a significant deficiency (13.6%). Of the 20 responses in the Counter-Argue-Low Severity group, 8 classified the control weakness as a significant deficiency (40%). A chi-square test indicates significant differences in proportions ($\chi^2 = 3.77$, $p = 0.026$, one-tailed). In combination, these results indicate that activating a mind-set, either bolstering or counter-arguing, impacted auditors' severity classifications such that auditors in the counter-arguing condition were more likely to classify the weakness a significant deficiency than auditors in the bolstering condition.

In turning to the high severity conditions, the difference in the mean ICFR assessments of auditors in the Counter-Argue-High Severity group (mean = 58.33) and the Bolster-High Severity group (mean = 58.75) is not statistically significant ($t = 0.07$, $p = 0.944$, two-tailed). Collectively, these results support H2a and indicate that the effect of activating a behavioral mind-set during an audit planning meeting only has a substantial impact on subsequent auditor judgment when evaluating a less severe control issue. A visual depiction of the interaction between behavioral mind-set and control deficiency severity on auditors' ICFR assessment is presented in Figure 2.

Summary of the Impact of Mind-Set on Auditor Assessments of the ICFR Problem

The first set of hypothesis testing examined whether a mind-set activated by eliciting responses to common administrative and logistical proposals during an audit planning meeting would carryover and impact auditor behavior and judgment in a subsequent, seemingly unrelated internal control evaluation task. The results provide evidence that an auditors' skeptical mind-set can be influenced by common audit planning tasks (e.g., update meetings with the audit team leader) such that the behavior performed in the initial planning task can carryover and influence auditor behavior in subsequent tasks (e.g., conducting management inquiry), as indicated by the

significant difference in ICFR severity assessments between auditors in the bolstering and counter-arguing mind-set conditions. These results have practical implications for auditors because the auditor risk assessments made during audit planning become inputs when deciding the nature, timing, and extent of subsequent audit procedures. Further, control weaknesses that rise to the level of a significant deficiency, as indicated in the Counter-Argue-Low Severity group, must be reported to the audit committee and may also accumulate to the level of a material weakness resulting in an adverse audit opinion on internal controls.

Importantly, this result only holds in situations when auditors evaluate a control deficiency of lower severity. When the severity of the identified control issue rises to the level of a potential material weakness, auditor judgments were not influenced by the activation of a behavioral mind-set during the audit planning meeting. Therefore, the severity of the control weakness serves as a boundary condition for the impact of an auditor's mind-set.

The Impact of Mind-Set on Perception of Management's Explanation Adequacy

Prior research investigating auditor internal control evaluations finds that perceptions of the adequacy of management's explanation have a strong impact on related auditor judgments. Results from the second set of hypothesis testing address the impact of an auditor's mind-set on management explanation adequacy. After recording their preliminary planning judgments related to the company's internal controls, the auditors then made an assessment as to the adequacy of the controller's explanation for his ICFR assessment. The auditors recorded their assessment on a 0-100 point scale, where 0 = Not Adequate and 100 = Very Adequate. I use this dependent variable to test H1b and H2b.

Hypothesis 1b

As with the first set of hypotheses tested, I expected that the activation of a behavioral mind-set during the audit planning update call would carryover and impact auditors' assessment of the adequacy of management's explanation for his ICFR assessment. That is, when reading the narratives of the management inquiry, auditors in the bolstering mind-set condition, who had previously generated supporting arguments during the audit planning meeting, were expected to generate arguments supporting management's explanation. Auditors in the counter-arguing condition, who had previously generated opposing arguments during the audit planning meeting, were expected to generate arguments refuting management's assessment. In doing so, I expected the mind-set to impact auditors' assessment of the adequacy of management's explanation.

To test this main effect hypothesis, I used an ANOVA model with mind-set and control issue severity as independent variables, and auditors' assessment of the adequacy of the controller's explanation for his ICFR assessment as the dependent measure. Table 4 presents the results of the ANOVA model (Panel A) and descriptive statistics of the dependent measure across each of the four experimental conditions (Panel B). Auditors in the counter-arguing mind-set condition (mean = 49.15) perceived management's explanation for its control assessment to be less adequate than auditors in the bolstering mind-set condition (mean = 58.33, F = 3.33, p = 0.036, one-tailed).[13] Therefore, I find support for H1b and conclude that an auditor's evaluation of management's explanation is impacted by activating a behavioral mind-set during an unrelated prior task.

[13] As with H1a, all potential covariates were incorporated into an ANCOVA with Mind-Set and ICFR Severity as the independent variables and Management Explanation Adequacy as the dependent measure. None of the variables is significant when incorporated into an ANCOVA (all ps > 0.10). However, the main effect of auditor mind-set was no longer significant at traditional levels when auditor experience is included as a covariate (F = 1.51, p = 0.112, one-tailed). This effect is explored further in H2b due to the significant interaction between auditor mind-set and ICFR severity (F = 5.02, p = 0.028).

Hypothesis 2b

I also expected that the effects of an auditor mind-set on perceptions of management's explanation adequacy explored in H2a would be mitigated when auditors faced a more severe control deficiency. That is, I expected that mind-set would interact with the severity of the control issue such that the difference in auditors' evaluation of the adequacy of management's explanation between auditors with a counter-arguing mind-set versus a bolstering mind-set would be larger when evaluating an ICFR deviation that is less severe than more severe.

The results of this predicted interaction are also presented in Table 4. Panel C of Table 4 presents the contrast results testing the difference in mean adequacy assessments between auditors in the Counter-Argue-Low Severity group and the Bolster-Low Severity group versus the Counter-Argue-High Severity group and the Bolster-High Severity group. The pattern of this interaction is consistent with my expectations, and the resulting contrast test is statistically significant ($F = 3.75$, $p = 0.028$, one-tailed). Planned t-test comparisons (Panel D) indicate that the mean adequacy assessments of auditors in the Counter-Argue-Low Severity group is significantly lower (mean = 44.25) than the assessments of auditors in the Bolster-Low Severity group (mean = 62.96, $t = 2.59$, $p = 0.007$, one-tailed).[14] The difference in the mean adequacy assessments of auditors in the Counter-Argue-High Severity group (mean = 53.81) and the Bolster-High Severity group (mean = 53.25) is not statistically significant ($t = -0.08$, $p = 0.935$, two-tailed). Collectively, these results support H2b and indicate that the effect of activating a behavioral mind-set during an audit planning meeting only has an effect on auditor's evaluation of management's explanation when the control deficiency is less severe. A visual depiction of

[14] Levene's test for equality of variance indicated that the data for the low severity condition may be in violation of this assumption. To supplement the hypothesis testing, I used Welch's t-test, which corroborated the hypothesis results that the adequacy assessments of auditors in the Counter-Argue-Low Severity group are significantly lower than the adequacy assessments of auditors in the Bolster-Low Severity group ($t = 2.55$, $p = 0.008$, one-tailed).

the interaction between behavioral mind-set and control deficiency severity on the assessment of management's explanation adequacy is presented in Figure 3.

Summary of The Impact of Mind-Set on Management's Explanation Adequacy

The second set of hypothesis testing extended the analysis of the impact of an auditor's mind-set to perceptions of the adequacy of management's explanation of the control issue. The results provide corroborating evidence that an auditor's skeptical mind-set can be influenced by common audit planning tasks such that the behavior performed in the initial planning task may carryover and influence how auditors respond during management inquiry. This is important because prior research (e.g., Wolfe et al. 2009) finds that perceptions of management's explanation adequacy can impact auditor judgments. As with auditor's internal control severity assessments, the effects of activating a mind-set in the initial planning task was fully mitigated when auditors evaluated a control issue potentially indicative of a material weakness.

Effects of Mind-Set and ICFR Severity on the Determinants of ICFR Deficiency Severity

The next sections of this chapter discuss the additional analyses that I performed to further explore the significant results of the hypothesis testing. I begin by analyzing how a mind-set impacts auditors' assessments of the three determinants of internal control severity, as outlined by the professional standards. Auditing Standard No. 5 (AS 5) establishes the requirements for auditing management's assessment of the effectiveness of internal control over financial reporting. When evaluating the severity of a deficiency that comes to his or her attention, AS 5 establishes the following three factors as affecting the severity of a control deficiency: the likelihood of misstatement, the magnitude of the potential misstatement, and the efficacy of compensating controls (PCAOB 2007, paras. 62-68). To further explore the significant main and interaction effects of auditor mind-set and ICFR severity reported in H1a

and H2a, I analyzed participant responses to these three attributes of control weakness severity. The auditors provided their responses to these three attributes immediately after making their preliminary control weakness assessment. Table 5 reports a series of independent samples t-tests comparing auditors' judgments of these three determinants within the high and low severity conditions.

Likelihood of Misstatement

The severity of an identified control deficiency does not depend on whether a misstatement has actually occurred (PCAOB 2007, para 64). Rather, a deficiency may exist if there is a reasonable possibility that the company's internal controls will fail to prevent or detect a misstatement. In this study, auditors assessed the likelihood that the company's internal controls would fail to prevent or detect a misstatement on a 0 – 100 point scale, where 0 = Remote and 100 = Certain. The results presented in Table 5 indicate that, within the low severity condition, there is no difference in the likelihood assessments of auditors in the Bolster-Low Severity group (mean = 55.45) and auditors in the Counter-Argue-Low Severity group (mean = 56.75, $t = 0.16$, $p = 0.877$, two-tailed). Further, there is also no difference in the likelihood assessments between auditors in the Bolster-High Severity group and Counter-Argue-High Severity group ($t = 0.65$, $p = 0.949$). Thus, the significant effect of mind-set on auditors' preliminary ICFR assessments was not due to perceived differences in the likelihood that a misstatement may occur.

Magnitude of Misstatement

Factors that affect the magnitude of misstatement include the financial statement amounts, the total number of transactions affected by the control deficiency, and the volume of activity that is expected to occur in future periods. The auditor participants rated the potential

magnitude of misstatement on a 0 – 100 point scale, where 0 = Inconsequential and 100 = Very Material. The results presented in Table 5 indicate that in the low severity condition, auditors in the Bolster-Low Severity group (mean = 31.82) rated the magnitude of misstatement lower than auditors in the Bolster-High Severity group (mean = 45.50, t = 2.52, p = 0.016, two-tailed). Recall that in H2a, the mind-set effects were attenuated in the higher ICFR severity condition such that differences in the ICFR assessments of auditors in the Bolster-High Severity group and Counter-Argue-High Severity group were not statistically significant. Within the high severity condition, there also are no differences in auditor assessments of the magnitude of misstatement between auditors in the Bolster-High Severity and Counter-Argue-High Severity groups. (t = -0.54, p = 0.593).[15] Collectively, these results complement the results from the hypothesis testing and suggest that differences in auditor mind-set (bolstering or counter-arguing) impacted auditor assessments of the magnitude of the misstatement of an ICFR problem of lower severity, which in turn impacted their preliminary internal control weakness assessments. When evaluating a control problem of higher severity, the impact of activating a mind-set in a previous task was attenuated.

Effectiveness of Compensating Controls

Auditing standards also instruct auditors to assess the efficacy of any compensating controls when evaluating the severity of a control deficiency. In this study, management's compensating control was described as a high-level review of product line gross margins. Importantly, the auditing standards state that for a compensating control to have a mitigating

[15] Shapiro-Wilk tests for normality indicated that the distributions for the magnitude of misstatement and compensating control variables in the high severity condition may be in violation of this assumption. In the low severity condition, Shapiro-Wilk tests for normality indicated that the distributions for the likelihood of misstatement and the magnitude of misstatement variables may be in violation of this assumption. Mann-Whitney nonparametric tests, which are robust to the non-normality of the dependent variable, yielded results substantively identical to those reported using independent samples t-tests.

effect, it must operate at a sufficient level of precision to detect or prevent a misstatement. Auditors' judgment of the effectiveness of management's compensating control was assessed on a -50 to +50 scale, where -50 = Negatively Influenced, 0 = Not Influenced, and 50 = Positively Influenced. The average rating of auditors in the Counter-Argue-Low Severity group (mean = 9.75) is significantly lower than the average rating of auditors in the Bolster-Low Severity group (mean = 23.64, t = -1.92, p = 0.067, two-tailed). In the high severity condition, there were no differences in auditors' assessment of the compensating controls (t = 0.58, p = 0.562). Thus, within the low severity condition, auditors' behavioral mind-set impacted their perceptions of the effectiveness of the compensating controls, which in turn impacted their severity assessments.

Summary of the Effects of Mind-Set and ICFR Severity on the Determinants of ICFR Severity

Auditing standards identify three determinants as affecting the severity of an identified control weakness: likelihood of a misstatement, magnitude of misstatement, and the effectiveness of any compensating controls. In a supplemental analysis, I find that the differences in severity assessments for auditors in the Bolster-Low Severity group and the Counter-Argue-Low Severity group, as reported in the hypothesis testing, can be attributed to perceived differences in both the magnitude of misstatement and the effectiveness of compensating controls. Said another way, mind-set impacted auditors' perceptions of two determinants of internal control severity, despite the fact that management's explanation of the control issue and his control weakness assessment did not differ between the two experimental groups. In the high severity condition, the client's potential risk of a material weakness in internal controls mitigated the prior influence of activating a mind-set.

Regression Results of Net Arguments on ICFR Assessments and Management's Explanation Adequacy

Recall that during the update call, the auditors indicated whether they agreed or disagreed with each of three partner proposals and then listed their arguments for why they either agreed or disagreed. I expected in the bolstering condition auditors would agree with the partner's proposals and provide arguments supporting each of the propositions. In the counter-arguing condition, I expected auditors to disagree with the proposals and provide counterarguments opposing each of the propositions. This section revisits auditors' written responses to the three proposals provided by the audit partner during the audit update meeting.

The theory of behavioral mind-set predicts that the *behavior* involved in completing an initial task can activate a mind-set which is likely to carryover and influence an individual's behavior in a subsequent, seemingly unrelated task (Wyer and Xu 2010). To further explore whether differences in the auditors' *behavior* while participating in the audit update meeting significantly influenced their perceptions of management's explanation adequacy and subsequent ICFR assessments, the nature of the arguments (bolstering or counter-arguing) the auditors provided during the audit update call were examined. A former Big-4 auditor with four years of public accounting experience and six years of total accounting experience, blind to the purpose of this study and the experimental conditions, independently coded each of the arguments that the participants provided in response to the audit partner's propositions as either supporting (i.e., bolstering) or refuting (i.e., counter-arguing) the partner's proposals. I then verified the accuracy and completeness of the coding. For each participant, the total number of unique arguments bolstering the partner's propositions was netted against the total number of unique

counterarguments provided. Thus, a net positive (negative) number indicates that a participant provided more total bolstering arguments (counterarguments).

The participants provided net arguments ranging from -12 to + 12. The mean (standard deviation) for the net number of arguments across each of the four experimental conditions is as follows: Bolster – Low Severity: 5.64 (2.82); Bolster – High Severity: 5.30 (4.29); Counter-Argue – Low Severity: -5.35 (4.34); Counter-Argue – High Severity: -5.67 (3.64). Independent samples t-tests (untabulated) confirm that auditors in the bolstering mind-set condition generated a greater proportion of net positive items (mean = 5.48) than auditors in the counter-arguing mind-set condition (mean = -5.51, $t = 13.33$, $p < 0.001$, two-tailed). The net proportion of arguments for both conditions is significantly different from zero (ps < 0.001). There were no differences in the net arguments provided within the severity conditions (ps > 0.70). Therefore, it appears that the mind-set manipulation elicited the intended behavior from the auditors.

Next, I ran a series of regression models to examine whether the *behavior* of providing bolstering or counterarguments affects auditors' perceptions of management's explanation adequacy and their ICFR assessments. The independent variable specified in each regression is auditors' net arguments (*Net Arguments*) instead of the categorical mind-set variable tested in the previous ANOVAs. Table 6 reports the correlation matrix for the variables used in the statistical analyses performed to test the hypotheses. Notably, *Net Arguments* is negatively correlated with ICFR assessment ($r = -0.21$, $p = 0.058$) and positively correlated with management explanation adequacy ($r = 0.28$, $p = 0.009$) for the full sample.

Table 7, Panel A reports the results of two separate models regressing *Net Arguments* on auditors' preliminary ICFR assessment and perceptions' of management's explanation adequacy, respectively, in the low severity condition. Due to the interaction effects of mind-set and control

severity determined during hypothesis testing, I ran both of the regressions separately for the high severity and low severity groups.[16] The results of the first regression model indicate that *Net Arguments* is statistically significant (p = 0.035) and negative (-0.99), indicating that auditors' behavior during the planning meeting affected their subsequent judgments regarding the severity of the internal control issue. In particular, the more bolstering arguments the auditors generated during the planning meeting, the less they assessed the company's internal control risk. The results of the second model indicate that *Net Arguments* is statistically significant (p = 0.002) and positive (1.76), indicating that the more bolstering arguments generated during the planning meeting, the more adequate they assessed management's explanation of the control issue.

Panel B of Table 7 reports the results of identical regressions within the high severity condition. The results of both regression models indicate that *Net Arguments* does not have a significant effect on auditors' internal control assessments or perceptions of management's explanation adequacy. Collectively, these results complement the hypothesis testing results, suggesting that the behavior involved in activating a mind-set during audit planning can carryover and influence auditor judgments in a subsequent, unrelated audit task. Importantly, this effect is fully mitigated when auditors evaluate a control issue potentially rising to the level of a material weakness.

Sensitivity Analyses

Excluding Participants without SOX Audit Experience

This section describes the results of sensitivity tests performed by excluding auditors who had not previously performed a SOX 404 audit. All of the auditors in the hypothesis testing

[16] In a model regressing *Net Arguments* and an indicator variable for severity (1 = High Severity, 0 = Low Severity) on auditor ICFR Assessments across the full sample (n = 83), *Net Arguments* is negative (-0.61) and significant (p = 0.057, two-tailed). Further, regressing *Net Arguments* and an indicator variable for severity on Management Explanation Adequacy across the full sample, *Net Arguments* is positive (0.99) and significant (p = 0.010, two-tailed).

sample self-reported that they had received SOX 404 audit training. However, as a sensitivity test, I excluded auditors who reported not having previously performed a SOX 404 audit over a company's internal controls, which leaves a total sample of 70 auditors. In untabulated results, I find results that are substantively identical to those reported in the hypothesis testing. The main effect of mind-set is statistically significant on both auditor ICFR assessment ($F = 2.84$, $p = 0.050$, one-tailed) and explanation adequacy ($F = 3.14$, $p = 0.041$, one-tailed). The pattern of the contrast effect testing the predicted interaction of mind-set and ICFR severity is consistent with expectations and also significant for both audit ICFR assessment ($F = 4.14$, $p = 0.023$, one-tailed) and explanation adequacy ($F = 2.77$, $p = 0.050$, one-tailed).

Including Participants who Failed to Correctly Identify Management's ICFR Classification

As an additional sensitivity test, I include the 9 auditors who did not correctly identify management's internal control assessment and thus were excluded from the hypothesis testing, which provides for a total sample of 92 auditors. In an untabulated ANOVA including these participants, the main effect of mind-set on the internal control assessment is marginally significant ($F = 1.72$, $p = 0.097$, one-tailed). The interaction between mind-set and internal control severity remains significant ($F = 3.05$, $p = 0.042$, one-tailed). Both the main effect of mind-set and the interaction between mind-set and internal control severity on perceptions of the adequacy of management's explanation remain significant ($F = 4.07$, $p = 0.024$, one-tailed, and $F = 3.63$, $p = 0.030$, one-tailed, respectively).

CHAPTER 5

CONTRIBUTIONS, LIMITATIONS, AND FUTURE RESEARCH

This final chapter reviews the results of the hypothesis testing presented in Chapter Four. It also includes a discussion of the contributions this study makes to extant literature and the implications for research and practice. The chapter concludes with a discussion of the limitations of the study and avenues for future research.

Summary and Conclusions

In this dissertation, I examined how the manner in which audit planning and update meetings are conducted can influence how auditors evaluate subsequently encountered audit evidence. The auditing profession recognizes professional skepticism as an essential element to the performance of effective audits. However, PCAOB inspections continue to raise concerns that auditors do not consistently apply adequate levels of skepticism when conducting an audit. Both audit practitioners and audit researchers link attributes of professional skepticism to the auditor's mind-set. The purpose of this study is therefore to examine factors within the audit environment that may change an auditor's mind-set when evaluating audit evidence. Specifically, this study provides the initial evidence that an auditor's mind-set can be influenced by the completion of an initial task and subsequently carried over to a second, unrelated audit task. My predictions were motivated by psychology theory on behavioral mind-sets, which indicates that performing a specific cognitive procedure in the course of attaining a goal can activate a behavioral mind-set such that individuals' behavior in one situation can carry over to subsequent, quite different situations (Wyer et al. 2012).

In an experiment involving 83 professional auditors, I examined whether the behavior of providing arguments for or against scheduling and other logistical arrangements discussed during

planning meetings and update calls can impact the persuasiveness of information subsequently received from the client. After completing the update call, the auditors completed an audit planning task that required them to evaluate an internal control deficiency identified by management during its testing of revenue controls. The auditors were also provided with management's classification of the deficiency, which was favorable to management across all conditions. The main judgment elicited from the participants was their preliminary control weakness assessment.

To the extent that finalizing these engagement issues activates a counter-arguing mind-set, I expected auditors who subsequently evaluated a persuasive appeal from the client to be more skeptical and questioning of the validity of management's preference. This skeptical mind-set should thus lead to a judgment that is less aligned with management. Conversely, when a bolstering mind-set was activated, I expected auditors to be more supportive of management's assessment, leading to a judgment closer aligned with management. The first set of hypotheses examined this predicted main effect of behavioral mind-set on auditor judgment. The results indicated that activating a mind-set during an audit planning meeting can carryover and influence auditor behavior and judgments in a subsequent, unrelated task. When a bolstering mind-set was activated, auditors viewed the adequacy of management's explanation for the control deficiency *higher* and consequently rated the severity of the identified control weakness *lower* than when a counter-arguing mind-set was activated.

These findings confirm my expectation, and suggest that an auditor's skeptical mind-set can be altered during initial task performance, resulting in a carryover effect that impacts behavior in subsequent, even unrelated activities. Additional analysis of participants' self-ratings of their mood state eliminated an alternative interpretation of the significant effect of the mind-

sets. That is, if the behavior involved in bolstering (counter-arguing) a proposition elicited positive (negative) affect, then auditors may rely on their affective state as a basis for their subsequent judgments. Results indicate that participant mood was unaffected by the mind-set manipulations and also that mood states had no influence on auditor judgment.

The psychology literature on behavioral mind-sets also recognizes certain instances when activating a mind-set may not carryover to other tasks, such as when the intended behavior of a mind-set is naturally induced. In the case of evaluating internal controls, this qualification suggests that if auditors are naturally skeptical of management, such as in cases of higher control weakness severity, then inducing a counter-arguing mind-set may have a minimal incremental effect. The second set of hypotheses examined the potential interaction between auditor mind-set and the severity of the ICFR deviation. I predicted that the difference in the control assessment and the perceived adequacy of management's explanation between auditors with a counter-arguing mind-set versus a bolstering mind-set will be larger when evaluating an ICFR deviation of lower severity than higher severity. The results confirmed my expectations. The impact of an auditor's mind-set was stronger when evaluating a control deficiency of lower severity than higher severity. When auditors evaluated a potential deficiency that was at-the-margin between a significant deficiency and a material weakness, auditors' judgments were unaffected by the prior audit planning task. This finding indicates that auditors may naturally heighten their professional skepticism in situations of heightened risk that mitigates the effects of activating a mind-set in an earlier task. In combination, the results from the hypothesis testing provide support for the more general expectation that activating a mind-set in an initial task will have the greatest carryover effects when the subsequent task does not naturally lead auditors to employ a certain evidence evaluation strategy.

Research Implications

This study contributes to the auditing literature by introducing cognitive mind-set theory and examining how a mind-set may impact auditor risk assessments. To my knowledge, this is the first study to examine both the effects of a behavioral mind-set, and also to examine how the dialogue of planning and general audit update meetings, even when unrelated to client risk assessment, can still impact the judgments made during the course of the audit. While effective communication among the audit team is critical for knowledge sharing (Vera-Munoz, Ho, and Chow 2006), auditor interaction continues to be one of the most under-researched areas in the auditing literature (Bobek, Daugherty, and Radtke 2012; Nelson and Tan 2005). This dissertation examined how routine status update calls with the audit engagement leader can unintentionally influence the judgments of audit seniors during subsequent planning tasks. Further, the results from PCAOB inspection reports indicate a continued need to understand the components of professional skepticism and why auditors, at times, seem to lack the requisite skepticism when executing an audit. This study extends the research on professional skepticism by exploring the concept of an auditor's skeptical mind-set, and how task characteristics, including the completion of seemingly inconsequential prior tasks (e.g., update meetings), can influence auditor judgment.

This study contributes to the psychology and behavioral mind-set literatures by examining how the complex judgments made by professionals working on domain-specific tasks are impacted by the activation of a behavioral mind-set. Auditors are expected to acquire the attributes of professional skepticism, which include a questioning mind, through education, formal training, and experience. This study examined whether a behavioral mind-set may bolster or counter-act the level of skepticism which professional standards state should be apparent in

every audit judgment. In doing so, this study extends the generalizability of prior studies, while also establishing the boundaries of this line of research by examining different levels of severity.

Practical Implications

The results of this study suggest that an auditor's mind-set can either strengthen or weaken the skepticism applied to evaluating audit evidence, thus impacting auditor judgments. The malleability of an auditor's mind-set has potential audit efficiency and effectiveness consequences. For example, lowering the assessed severity of an identified control deficiency to less than a significant deficiency eliminates the requirement to inform the company's audit committee and can also have a substantive impact on auditors' reliance on the company's internal controls. Even in instances when the control weakness is less severe (i.e., not indicative of a material weakness), prior research still indicates that management has a tendency to underestimate the severity (Bedard and Graham 2011), suggesting that incentives for underreporting exist regardless of the significance of the identified deficiency.

These findings should be of interest to both audit regulators and practitioners who seek to both understand why auditors sometimes lack adequate levels of professional skepticism, and also find ways to increase the level of skepticism applied when examining evidence. The PCAOB has defined professional skepticism as an attitude that includes a questioning mind and critical assessment of audit evidence, and both the CAQ and members of the PCAOB have linked effective application of professional skepticism to an auditor's mind-set. Therefore, it is important to understand how an auditor's mind-set may be impacted when performing common audit tasks and the extent to which the behaviors associated with a particular mind-set may carryover and influence subsequent judgments. This study provides the initial evidence linking prior, seemingly benign tasks to an auditor's skeptical mind-set.

These results can also inform the general accounting literature. There are many instances when an accounting-based decision-maker will perform multiple, unrelated tasks sequentially. For example, financial analysts may make a presentation to prospective investors where they bolster the merits of investing in a particular company and later participate in a conference call where they have to evaluate management's future earning's expectations. The results of this study suggest that these evaluations may be unintentionally influenced by a mind-set activated in the initial task. In the previous example given, activating a bolstering mind-set during the presentation may lead to a carryover effect that causes the analyst to provide an overly optimistic analyst forecast.

Limitations and Future Research

This study may suffer from some limitations due to choices made in the experimental design and execution. The experimental materials are contextually rich, but they are necessarily restricted due to access limits with the auditor participants. The control deficiencies also pertain to a single issue: the lack of review of modifications to the company's standard sales contract. The expected results may not generalize to all types of control deviations or to other audit planning tasks. It is also important to note that the participants in this study make preliminary ICFR classifications. This evaluation is routinely made by audit seniors, but it is beyond the scope of this study to address how these initial assessments ultimately impact the final evaluations made by the audit team. In addition, the participants in this study are unable to request additional information to aid them in their assessments.

Lastly, great care was taken to ensure that the propositions used to activate the bolstering and counter-arguing mind-set were realistic and also did not impact perceived client risk. Results from extensive pre-testing and pilot confirmed that the propositions did not affect risk

assessments. In this regard, the participants were also asked to respond to several mood assessment questions to confirm that the activation of either a bolstering or counter-arguing mind-set did not influence the participants' mood state, a potential alternative explanation for the results. Future research could examine how other audit related tasks can serve to activate a behavioral mind-set.

FIGURES

Figure 1. Cases Presented and Task Progression

<table>
<tr><th></th><th colspan="2"><u>Bolstering Mind-Set</u></th><th colspan="2"><u>Counter-Arguing Mind-Set</u></th></tr>
<tr><th></th><th><u>Case 1</u></th><th><u>Case 2</u></th><th><u>Case 1</u></th><th><u>Case 2</u></th></tr>
<tr><td>Background Information</td><td colspan="4">Same for all conditions</td></tr>
<tr><td>Summary Financials</td><td colspan="4">Same for all conditions</td></tr>
<tr><td>Revenue Cycle Description</td><td colspan="4">Same for all conditions</td></tr>
<tr><td>Audit Update Narratives</td><td colspan="2">Participants are induced to bolster 3 statements on audit scheduling & logistics</td><td colspan="2">Participants are induced to refute 3 statements related to audit scheduling & logistics.</td></tr>
<tr><td rowspan="2">Client Inquiry ICFR Evaluation</td><td>High Severity</td><td>Low Severity</td><td>High Severity</td><td>Low Severity</td></tr>
<tr><td colspan="4">All conditions contain a single control deviation identified by management that relates to the accounting department’s review of changes to the company’s standard sales contract.

The high severity case presents a deficiency that is at the margin between a significant deficiency (SD) and a material weakness (MW). The low severity case presents a deficiency that is at the margin between a control deficiency (CD) and a significant deficiency (SD).

Management’s classification is favorable across all conditions (i.e., the less severe classification).</td></tr>
<tr><td>Preliminary Control Weakness Assessments</td><td colspan="4">Participants complete an audit planning workpaper by providing their preliminary control weakness assessments, as well as assessing the likelihood of misstatement, magnitude of misstatement, and the effectiveness of compensating controls.</td></tr>
<tr><td>Post-Experiment Questions & Demographics</td><td colspan="4">Participants respond to several post-experimental questions related to the case, provide demographic information, and complete the 30-item Hurtt Trait Professional Skepticism Scale.</td></tr>
</table>

Figure 2. Interaction Between Behavioral Mind-Set and Control Deficiency Severity on Auditors' Preliminary Internal Control Weakness Assessments

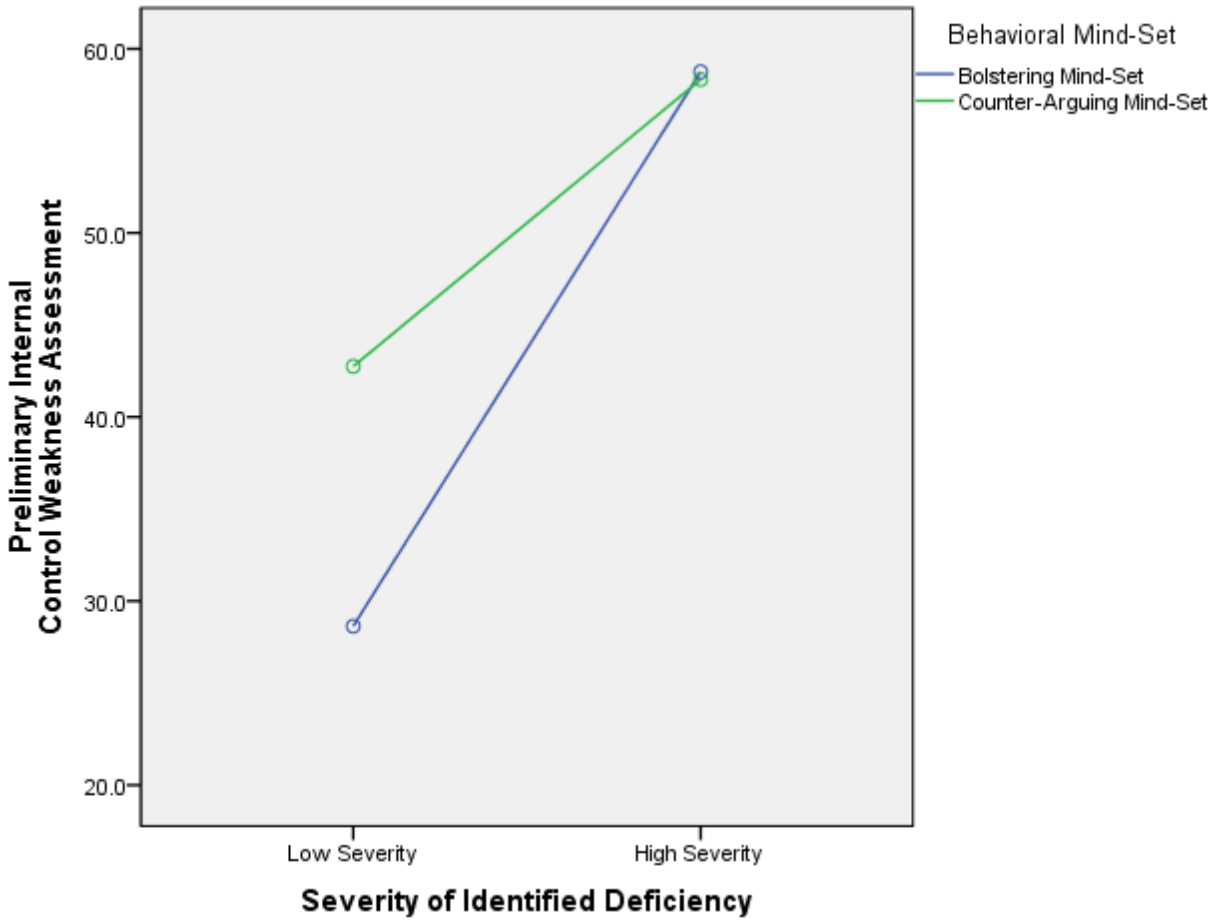
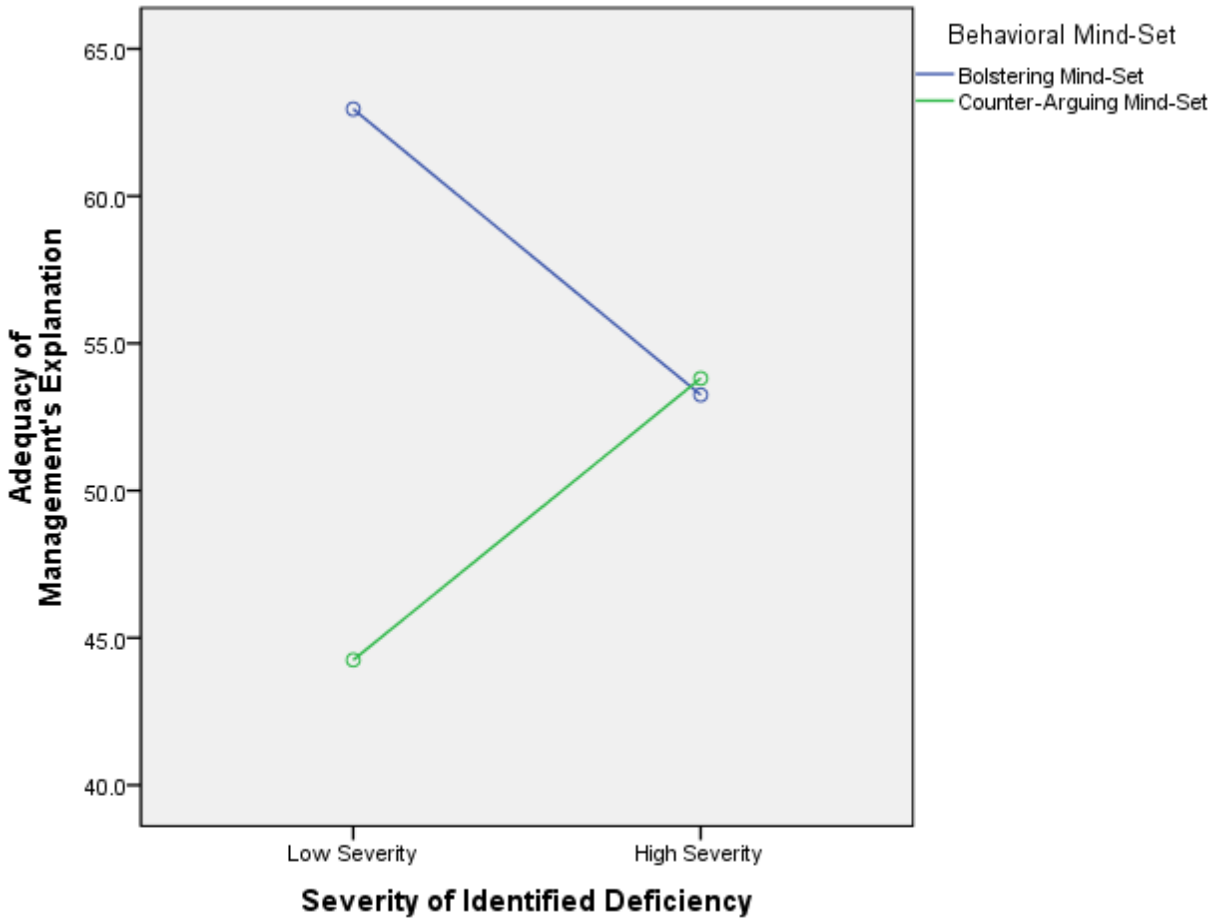


Figure 3. Interaction Between Behavioral Mind-Set and Control Deficiency Severity on Assessments of Management's Explanation Adequacy



TABLES

TABLE 1
Participant Characteristics
(n = 83)

	Frequency	Percent
Experience		
Experienced Associate	2	2.4%
Senior Associate	76	91.6%
Manager	5	6.0%
Total	83	100.0%
Gender		
Male	46	55.4%
Female	37	44.6%
Total	83	100.0%
Big-4 Affiliation		
Yes	72	86.7%
No	11	13.3%
Total	83	100.0%
In-Charge Experience		
Yes	76	91.6%
No	7	8.4%
Total	83	100.0%
SOX Audit Experience		
Yes	70	84.3%
No	13	15.7%
Total	83	100.0%
Observed a Significant Deficiency During a Prior Audit		
Yes	52	62.7%
No	31	37.3%
Total	83	100.0%
Observed a Material Weakness During a Prior Audit		
Yes	22	26.5%
No	61	73.5%
Total	83	100.0%

TABLE 2
Descriptive Statistics of Post-Experiment Responses by Condition
(n = 83)

	Mean (Standard Deviation)				
	Bolster Low Severity (n = 22)	**CA Low Severity (n = 20)**	**Bolster High Severity (n = 20)**	**CA High Severity (n = 21)**	**F-statistic (p-value)**
Experience[a]	40.76 (13.72)	42.00 (10.72)	41.26 (12.55)	45.74 (18.04)	0.51 (0.68)
Motivation[b]	6.86 (1.36)	6.70 (0.98)	6.90 (1.29)	6.81 (1.25)	0.10 (0.96)
Mood[c]	20.18 (4.34)	19.50 (4.06)	17.80 (4.27)	19.05 (3.64)	1.25 (0.30)
Understanding[d]	7.41 (1.22)	7.40 (1.47)	7.00 (1.78)	7.62 (1.07)	0.69 (0.56)
Mgt. Incentives[e]	70.46 (24.97)	64.00 (26.78)	65.00 (26.85)	68.81 (23.76)	0.30 (0.83)
Mgt. Reliability[f]	67.27 (17.23)	59.00 (17.96)	62.75 (17.13)	67.62 (16.70)	1.16 (0.33)
Skepticism[g]	134.59 (7.75)	139.75 (11.27)	136.30 (14.43)	134.52 (12.68)	0.89 (0.45)

Notes:
All p-values are two-tailed.
[a] Months of work experience as an audit professional.
[b] Self-rating of the motivation to perform well on the case study (1 = Not Motivated; 9 = Very Motivated).
[c] Auditors were asked to record how they currently feel by responding to three, 9-point scales that have been used in prior research to assess an individual's mood (see Chung et al. 2008). The scores were then aggregated to obtain a single mood score for each participant. The theoretical range is 3 (negative) to 27 (positive).
[d] Auditors' self-rating of how well they understood the internal control issue (1 = Not Well; 9 = Very Well).
[e] Auditors were asked to assess management's incentives to convince the audit team that the identified deficiency is less severe on a 0 – 100 point scale, where 0 = Strongly Disagree and 100 = Strongly Agree.
[f] Auditors were asked to assess the source reliability of the client's controller on a 0 – 100 point scale, where a higher score is indicative of greater source reliability.
[e] Aggregate score on the 30-item Hurtt (2010) skepticism scale. Scale scores can range from 30 to 180. A higher score is indicative of greater trait skepticism.

TABLE 3
Overall ANOVA, Descriptive Statistics, and Contrast Results for Auditors' Initial ICFR Assessments
(n = 83)

Panel A: Overall ANOVA for Auditors' ICFR Assessments

Source	DF	Sum of Squares	F-statistic	p-value
Mind-Set	1	971.69	2.71	0.052*
Severity	1	10815.63	30.20	<0.001
Mind-Set X Severity	1	1093.52	3.05	0.042*

Panel B: Cell Means (SD) [n] for the ICFR Assessments

	Severity		
Mind-Set	**Low**	**High**	**Overall**
Bolster	28.64 (14.16) [22]	58.75 (19.39) [20]	42.98 (22.55) [42]
Counter-Argue	42.75 (23.20) [20]	58.33 (18.33) [21]	50.73 (22.04) [41]
Overall	35.93 (20.18) [42]	58.54 (18.62) [41]	46.81 (22.50) [83]

Panel C: Contrast Test: CA/Low – Bolster/Low > CA/High – Bolster/High

Contrast Estimate**	DF	Sum of Squares	F-statistic	p-value
14.53	1	1093.52	3.05	0.042*

Panel D: t-Test Comparisons of *Mind-Set* groups Within *Severity* conditions

Comparisons	t-statistic	p-value
Counter-Argue – Low Severity vs. Bolster – Low Severity	2.41	0.011*
Counter-Argue – High Severity vs. Bolster – High Severity	0.07	0.944

Notes:
*p-values for directional tests are one-tailed. All other tests are two-tailed.
**The contrast coding is +1, -1, -1, +1.
The dependent variable is auditors' preliminary assessment of the ICFR problem (0 = Absolutely a Control Deficiency; 50 = Absolutely a Significant Deficiency; 100 = Absolutely a Material Weakness).

TABLE 4
Overall ANOVA, Descriptive Statistics, and Contrast Results for Management Explanation Adequacy
(n = 83)

Panel A: Overall ANOVA for Management Explanation Adequacy.

Source	DF	Sum of Squares	F-statistic	p-value
Mind-Set	1	1705.27	3.33	0.036*
Severity	1	0.00	0.00	0.988
Mind-Set X Severity	1	1922.09	3.75	0.028*

Panel B: Cell Means (SD) [n] for Management Explanation Adequacy.

	Severity		
Mind-Set	**Low**	**High**	**Overall**
Bolster	62.96 (19.68) [22]	53.25 (18.94) [20]	58.33 (19.71) [42]
Counter-Argue	44.25 (26.96) [20]	53.81 (24.18) [21]	49.15 (25.71) [41]
Overall	54.19 (24.71) [42]	53.54 (21.51) [41]	53.80 (23.20) [83]

Panel C: Contrast Test: CA/Low – Bolster/Low > CA/High – Bolster/High

Contrast Estimate**	DF	Sum of Squares	F-statistic	p-value
-19.26	1	1922.09	3.75	0.028*

Panel D: t-Test Comparisons of *Mind-Set* groups Within *Severity* conditions

Comparisons	t-statistic	p-value
Counter-Argue – Low Severity vs. Bolster – Low Severity	2.59	0.007*
Counter-Argue – High Severity vs. Bolster – High Severity	-0.08	0.935

Notes:

*p-values for directional tests are one-tailed. All other tests are two-tailed.
**The contrast coding is +1, -1, -1, +1.
The dependent variable is auditors' assessment of the adequacy of the controller's explanation for his ICFR assessment (0 = Not Adequate; 100 = Very Adequate).

TABLE 5
The Effects of Mind-Set on Auditor Judgments within Severity Conditions
(n = 83)

	Mean (Standard Deviation)					
	Low Severity Condition			High Severity Condition		
	Bolster (n = 22)	Counter-Argue (n = 20)	T-statistic (p-value)	Bolster (n = 20)	Counter-Argue[a] (n = 21/20)	t-statistic (p-value)
Likelihood of Misstatement[b]	55.45 (24.00)	56.75 (29.75)	0.16 (0.877)	54.00 (21.74)	53.50 (26.80)	0.65 (0.949)
Magnitude of Misstatement[c]	31.82 (14.60)	45.50 (20.38)	**2.52 (0.016)**	45.25 (22.27)	49.00 (21.74)	-0.54 (0.593)
Compensating Controls[d]	23.64 (29.22)	9.75 (27.26)	**-1.92 (0.067)**	14.40 (20.92)	10.48 (22.02)	0.58 (0.562)

Notes:
All p-values are two-tailed.
[a] One participant failed to provide ratings for the magnitude of the misstatement and the efficacy of the compensating controls.
[b] Auditors' preliminary assessment of the severity of the control issue (0 = Absolutely a Control Deficiency; 50 = Absolutely a Significant Deficiency; 100 = Absolutely a Material Weakness).
[b] The likelihood that the company's controls would fail to prevent or detect a misstatement in recorded sales revenue (0 = Remote; 100 = Certain).
[c] The potential magnitude of misstatement from the deficiency in controls that ensure the accurate recording of sales revenue (0 = Inconsequential; 100 = Very material).
[d] The efficacy of the compensating controls described by management (-50 = Negatively Influenced; 0 = Not Influenced; 50 = Positively Influenced).

TABLE 6
Pearson Correlation Matrix of Variables

	Bol. Low	CA Low	Bol. High	CA High	Net Arg.	ICFR Assess	MGT Adeq	Like	Mag.	Comp Ctrl	Mood Score	Motiv	Under-stand	Gend.	Exp	In Charge	Skep Score
Bol. Low	**1**	-.338**	-.338**	-.350**	.506**	-.488**	.239*	0.012	-.319**	.236*	0.151	0.022	0.021	-0.07	-0.07	-0.084	-0.09
(p-value)		0.002	0.002	0.001	0	0	0.03	0.912	0.003	0.032	0.173	0.843	0.853	0.556	0.532	0.45	0.447
CA Low	-.338**	**1**	-.317**	-.328**	-.459**	-0.102	-.233*	0.041	0.08	-0.124	0.047	-0.06	0.016	0.052	-0.02	0.032	0.171
	0.002		0.003	0.002	0	0.358	0.034	0.715	0.476	0.264	0.67	0.616	0.888	0.641	0.884	0.776	0.123
Bol. High	-.338**	-.317**	**1**	-.328**	.446**	.301**	-0.01	-0.02	0.073	-0.008	-0.19	0.038	-0.147	-0.01	-0.05	0.133	0.003
	0.002	0.003		0.002	0	0.006	0.905	0.85	0.516	0.94	0.09	0.735	0.185	0.966	0.686	0.23	0.975
CA High	-.350**	-.328**	-.328**	**1**	-.502**	.300**	0	-0.03	0.177	-0.11	-0.02	-0.01	0.108	0.02	0.137	-0.077	-0.09
	0.001	0.002	0.002		0	0.006	0.997	0.772	0.112	0.324	0.889	0.966	0.33	0.856	0.229	0.49	0.443
Net Arg.	.506**	-.459**	.446**	-.502**	**1**	-0.209	.284**	-0.03	-0.17	.287**	-0.02	0.009	-0.087	-0.05	-0.14	0.148	-0.12
	0	**0**	0	0		0.058	0.009	0.788	0.14	0.009	0.833	0.938	0.433	0.688	0.21	0.181	0.3
ICFR Assess	-.488**	-0.1	.301**	.300**	-0.21	**1**	-.248*	0.2	.470**	-.448**	-.218*	-0.11	0.006	.251*	0.13	-0.063	-0.04
	0	0.358	0.006	0.006	0.058		0.024	0.072	0	0	0.048	0.338	0.956	0.022	0.255	0.57	0.715
MGT Adeq	.239*	-.233*	-0.01	0	.284**	-.248*	**1**	-.395**	-.274*	.431**	-0.1	0.148	0.01	-0.21	-0.15	-0.059	-0.09
	0.03	0.034	0.905	0.997	0.009	0.024		0	0.013	0	0.392	0.181	0.929	0.057	0.18	0.594	0.443
Like	0.012	0.041	-0.02	-0.03	-0.03	0.2	-.395**	**1**	.384**	-.253*	0.03	0.016	0.178	-0.11	-0.11	0.079	-0.1
	0.912	0.715	0.85	0.772	0.788	0.072	0		0	0.022	0.791	0.887	0.109	0.306	0.332	0.481	0.384
Magnitude	-.319**	0.08	0.073	0.177	-0.17	.470**	-.274*	.384**	**1**	-.237*	-0.18	-0.07	0	0.002	0.095	0.014	-0.15
	0.003	0.476	0.516	0.112	0.14	0	0.013	0		0.032	0.11	0.531	0.997	0.983	0.407	0.9	0.184
Comp Controls	.236*	-0.12	-0.01	-0.11	.287**	-.448**	.431**	-.253*	-.237*	**1**	-0.07	0.037	-0.175	-.219*	-0.09	-0.198	-0.01
	0.032	0.264	0.94	0.324	0.009	0	0	0.022	0.032		0.551	0.739	0.113	0.046	0.41	0.073	0.963

Mood Score	0.151	0.047	-0.19	-0.02	-0.02	-.218*	-0.1	0.03	-0.18	-0.066	**1**	.261*	.259*	-0.01	-0.14	0.084	0.157
	0.173	0.67	0.09	0.889	0.833	0.048	0.392	0.791	0.11	0.551		0.017	0.018	0.949	0.235	0.451	0.155
Motiv	0.022	-0.06	0.038	-0.01	0.009	-0.106	0.148	0.016	-0.07	0.037	.261*	**1**	0.169	-0.03	-0.04	-0.026	0.086
	0.843	0.616	0.735	0.966	0.938	0.338	0.181	0.887	0.531	0.739	0.017		0.126	0.761	0.755	0.812	0.442
Underst	0.021	0.016	-0.15	0.108	-0.09	0.006	0.01	0.178	0	-0.175	.259*	0.169	**1**	0.059	0.113	0.015	0.17
	0.853	0.888	0.185	0.33	0.433	0.956	0.929	0.109	0.997	0.113	0.018	0.126		0.596	0.323	0.895	0.124
Gender	-0.07	0.052	-0.01	0.02	-0.05	.251*	-0.21	-0.11	0.002	-.219*	-0.01	-0.03	0.059	**1**	0.192	-0.077	0.036
	0.556	0.641	0.966	0.856	0.688	0.022	0.057	0.306	0.983	0.046	0.949	0.761	0.596		0.09	0.491	0.744
Exp	-0.07	-0.02	-0.05	0.137	-0.14	0.13	-0.15	-0.11	0.095	-0.094	-0.14	-0.04	0.113	0.192	**1**	-0.078	0.099
	0.532	0.884	0.686	0.229	0.21	0.255	0.18	0.332	0.407	0.41	0.235	0.755	0.323	0.09		0.496	0.385
InCharge	-0.08	0.032	0.133	-0.08	0.148	-0.063	-0.06	0.079	0.014	-0.198	0.084	-0.03	0.015	-0.08	-0.08	**1**	-0.08
	0.45	0.776	0.23	0.49	0.181	0.57	0.594	0.481	0.9	0.073	0.451	0.812	0.895	0.491	0.496		0.49
Skep Score	-0.09	0.171	0.003	-0.09	-0.12	-0.041	-0.09	-0.1	-0.15	-0.005	0.157	0.086	0.17	0.036	0.099	-0.077	**1**
	0.447	0.123	0.975	0.443	0.3	0.715	0.443	0.384	0.184	0.963	0.155	0.442	0.124	0.744	0.385	0.49	

TABLE 7
Regression Analysis of Auditors' Net Arguments on ICFR Severity Assessments and Management Explanation Adequacy

Panel A: Regressions of Net Arguments Within the Low Severity Condition.

Model	IV (n = 42)	DV	R^2	Beta Coeff.	Std. Error	t-stat	p-value
1	*Net Arguments*	*ICFR Assessment*	0.11	-0.99	0.45	-2.18	0.035
2	*Net Arguments*	*Management Explanation Adequacy*	0.22	1.76	0.53	3.32	0.002

Panel B: Regressions of Net Arguments Within the High Severity Condition

Model	IV (n = 41)	DV	R^2	Beta Coeff.	Std. Error	t-stat	p-value
1	*Net Arguments*	*ICFR Assessment*	0.01	-0.24	0.43	-0.56	0.581
2	*Net Arguments*	*Management Explanation Adequacy*	0.01	0.24	0.50	0.48	0.636

Notes:
All p-values are two-tailed.
Net Arguments is coded as the total number of bolstering arguments minus the total number of counterarguments that each participant provided during the audit update call in response to the audit partner's three propositions. A positive number is indicative of a greater number of bolstering arguments than counterarguments.

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APPENDICES

APPENDIX A

Behavioral Mind-Set Manipulations

Bolstering Mind-Set	
Proposition	
1	Auditors should, at times, be permitted to travel during the weekday rather than solely on weekends for out-of-town clients if the job can still be completed in a satisfactory manner.
2	I believe, at times, there can be benefits to working from the firm's local office instead of at the client site, especially when the audit requires extensive travel or is in a remote location.
3	If the job can still be completed in a timely and satisfactory manner, auditors should be allowed to have some weekends off from work during busy season.

Counter-Arguing Mind-Set	
Proposition	
1	Auditors should always be expected to travel on weekends rather than weekdays for out-of-town clients to maximize the time spent onsite at the client.
2	I don't see any benefits to working from the firm's local office instead of at the client site, even when the audit requires extensive travel or is in a remote location.
3	Regardless of the workload, auditors should be expected to work every weekend during busy season.

APPENDIX B

High Severity Manipulation

MicroTech Management's Assessment of Internal Control Over Financial Reporting (ICFR)

The audit team has spoken several times with Tom Davis, controller for MicroTech, Inc. He oversees the company's internal control over financial reporting (ICFR). He has provided information regarding the company's control testing and evaluation procedures. During the company's most recent control testing of the revenue cycle, the following issue was found.

Please familiarize yourself with the control issue and read the dialogue reported below of the client inquiry with Tom Davis, which includes management's evaluation of the control issue.

Results of Testing Application Controls in the Revenue Cycle

Issue(s) Found	Cycle	Management's Classification:
1. Modifications to standard sales contract terms are not reviewed to evaluate the impact on the timing and amount of revenue recognition. Improper revenue recognition has occurred.	Revenue	Significant Deficiency

Presentation of Client Inquiry Dialogue with MicroTech, Inc. Controller

Transcript of discussion with:

Name:	Title:
Tom Davis	Controller

Dialogue

You (In-Charge Auditor): "Hi Tom. I scheduled this meeting with you to discuss the findings on MicroTech's control testing. It is my understanding that one issue in controls was found in the revenue cycle. Can you go over the specific findings and your assessment of the significance of the control issue?"

Tom (Controller): "I'd be happy to discuss that with you. Here at MicroTech we have a standard sales contract, but sales personnel are authorized to modify the contract terms if need be. In doing so, the timing and amount of revenue recognition can be affected. During our last cycle of controls testing it was determined that while the accounting department is provided copies of new and renegotiated contracts, there are not procedures in place for the accounting function to regularly review modifications to sales contract terms. In my opinion, our accounting department is already overloaded with their financial reporting duties, and it is simply unfeasible

to have them cross-check every submitted sales order for changes to the standard contract and review manually applied customer discounts."

You (In-Charge Auditor): "Have there been any instances of improper revenue recognition due to sales contract modifications?"

Tom (Controller): "During our testing we did note a few instances of improper revenue recognition that were not discovered until after the customers remitted their payment; and some of the unrecorded price discounts were deemed to be excessive. Importantly, none of the amounts were material, and most of the sales were executed using our standard contracts. When they've been brought to my attention, I have immediately corrected the transactions."

You (In-Charge Auditor): "Are individual sales transactions ever material to MicroTech?"

Tom (Controller): "Yes, individual sales transactions are, at times, material for us, but only those transactions occurring in the fourth calendar quarter (the fourth and first fiscal quarters) as a result of increased demand for the games during the holiday season."

You (In-Charge Auditor): "Is anyone doing anything else to ensure the accuracy of recorded revenue around quarter ends?"

Tom (Controller): "My main concern is ensuring the accuracy of recorded revenue, especially around quarter ends. In this regard, I also review a gross margin report for each product on a monthly basis to make sure that something like excessive changes to our standard sales contracts doesn't get out of control. This review also ensures that a material misstatement in profits doesn't get reported in the financials. While our product line can have wide variations in margins, I have enough experience and expertise to detect any serious deviations.

Let me reiterate that we are very concerned in maintaining strong internal controls. I've rated this control issue as being a Significant Deficiency because with the controls we have in place and the standardization of our contracts, the only incidents of improper revenue recognition have been immaterial. Also, my review of gross margin reports each month, along with the fact that only in certain instances are individual transactions even material for us, should mitigate any concern that a material misstatement in our financials could occur. Our accounting staff is great at their jobs, and I am very confident in the control systems we have in place. I know there are improvements that could be made, but that would require hiring several more accountants, which just isn't feasible in this economy. Let me know if you have any more questions as you go through the audit. I'd be happy to help."

Please turn to the next page when you are ready to record your preliminary planning judgments related to MicroTech's internal controls.

APPENDIX C

Low Severity Manipulation

MicroTech Management's Assessment of Internal Control Over Financial Reporting (ICFR)

The audit team has spoken several times with Tom Davis, controller for MicroTech, Inc. He oversees the company's internal control over financial reporting (ICFR). He has provided information regarding the company's control testing and evaluation procedures. During the company's most recent control testing of the revenue cycle, the following issue was found.

Please familiarize yourself with the control issue and read the dialogue reported below of the client inquiry with Tom Davis, which includes management's evaluation of the control issue.

Results of Testing Application Controls in the Revenue Cycle

Issue(s) Found	Cycle	Management's Classification:
1. An analysis of daily unapplied cash exception reports indicated that certain modifications to the company's standard sales contract are not detected timely by the audit function. After further investigation, it was determined that salespeople gave discounts to customers but failed to record them into the online customer order system.	Revenue	Control Deficiency

Presentation of Client Inquiry Dialogue with MicroTech, Inc. Controller

Transcript of discussion with:

Name:	Title:
Tom Davis	Controller

Dialogue

You (In-Charge Auditor): "Hi Tom. I scheduled this meeting with you to discuss the findings on MicroTech's control testing. It is my understanding that one issue was found in the revenue cycle. Can you go over the specific findings and your assessment of the significance of the control issue?"

Tom (Controller): "I'd be happy to discuss that with you. Here at MicroTech we use a standard sales contract for most transactions, but within specified limits, sales personnel have discretion in the amount of the price discount they are able to offer. To close the sale, the salesperson enters the order into an online ordering system on their laptop computer. The online system also checks the order against the customer's available credit and discount limits. However, should a

salesperson fail to record the customer discounts in our system at the time of sale, then the required pricing adjustments may not be detected until after the customer remits payment."

You (In-Charge Auditor): "Have there been any instances of improper revenue recognition related to unapproved discounts?"

Tom (Controller): "During our last cycle of controls testing it was determined that the discounts negotiated by our sales team are not always recorded in the system. Review of the unapplied cash exception reports also provided evidence that some of the unrecorded discounts are excessive. The sales team is required to enter sales orders on their laptops into our online ordering system. However, the salespeople don't always remember to enter the discounts into the online system when they finalize their orders. If the sales team forgets to enter them, then it's simply impossible to uncover the error in recorded revenue until the customers remit payment."

You (In-Charge Auditor): "Are individual sales transactions ever material to MicroTech?"

Tom (Controller): "No, individual transactions are not material. But as I mentioned, some of the discounts were deemed to be outside the predetermined customer limits."

You (In-Charge Auditor): "Is anyone doing anything else to ensure the accuracy of invoice totals and recorded revenue around quarter ends?"

Tom (Controller): "My main concern is ensuring the accuracy of recorded revenue, especially around quarter ends. In this regard, I also review a gross margin report for each product on a monthly basis to make sure that something like excessive price discounts doesn't get out of control. This review also ensures that a material misstatement in profits doesn't get reported in the financials. While our product line can have wide variations in margins, I have enough experience and expertise to detect any serious deviations.

Let me reiterate that we are very concerned in maintaining strong internal controls. I've rated this control issue as being a Control Deficiency because this singular issue is isolated, and again, with our compensating controls, nothing has occurred that caused or would be expected to cause a material misstatement of profits. Our accounting staff does a great job reviewing the submitted sales contracts, and I am very confident in the control systems we have in place. I've met with each member of our sales force individually, and I reiterated the importance of inputting all discounts into the online sales order forms. I don't foresee this being an issue going forward. Let me know if you have any more questions as you go through the audit. I'd be happy to help."

Please turn to the next page when you are ready to record your preliminary planning judgments related to MicroTech's internal controls.

APPENDIX D

Sample Experimental Materials: Bolstering/High Severity Condition

Introduction

Welcome!

I am a PhD student at Virginia Tech and this research case is part of my program of study for my doctorate. In this research case study I plan to examine auditors' decision making during the audit planning process. As a former auditor, I realize that your time is very valuable and I appreciate your willingness to participate.

The following case study will ask you to assume the role of an in-charge auditor for your firm on the integrated audit of a hypothetical audit client with an October 31 year-end. You will first read background information about the audit client and then be asked to participate in an update call with the Audit Partner on the engagement. Next, you will be asked to record your preliminary assessment of the client's internal controls based on information provided. There are no right or wrong answers in this study; rather, you will be asked to come up with your best judgment given the information provided.

This study should take approximately 25 minutes to complete. All data are being collected in a manner that ensures your complete anonymity. All firm and individual responses will only be analyzed in the aggregate. If you have any questions or concerns about the study, please contact Owen Brown (obrown@vt.edu) or my doctoral advisor Professor Sudip Bhattacharjee (sudipb@vt.edu).

Please place all of your responses directly onto the provided Word document and, once completed, save the file and email to obrown@vt.edu**.** If you prefer, you can print the document, complete the case study, and e-mail a scanned document to me or hand mail it to me at:

Owen Brown
Ph.D. Student in Residence
Department of Accounting and Information Systems
Virginia Tech University
3007 Pamplin Hall
Blacksburg, VA 24061

Thank you in advance for your valuable time!

Please scroll to the next page to begin the case.

Background Information – MicroTech, Inc.

MicroTech, Inc. is a leading global developer, publisher and distributor of interactive software games. The company's software operates on PCs and video game consoles manufactured by Sony and Nintendo. They develop software internally and also engage third parties to develop software on their behalf. They publish software under multiple well-known labels.

They sell internally developed software as well as third-party software to retail outlets in the United States. The margins on MicroTech's products can vary widely and are largely dependent on expected demand, the type of platform running the software, and whether the software was developed in-house or via a third party.

MicroTech releases games with potential for broad consumer appeal. They plan to deliver high-profile game content for both PC and evolving console markets, particularly for next-generation platforms with potential for significant market penetration. Sales of the games are seasonal, with peak shipments typically occurring in the fourth calendar quarter (the fourth and first fiscal quarters) as a result of increased demand for the games during the holiday season.

The company's marketing and promotional efforts are intended to maximize exposure and broaden distribution of their games, promote brand name recognition, assist retailers and properly position, package and merchandise their games. They market the games by implementing well established public relations campaigns, primarily using print and on-line advertising and to a lesser extent television and radio spots.

Please turn to the next page to review summary balances of the company's 2012 budgeted financial statements and 2011 audited financial statements.

The Financial Statements

Selected financial results for 2012 (budgeted amounts) and the audited results for 2011 are provided below. The 2012 budget reports the annualized amounts based on the 3rd Quarter results.

MicroTech, Inc. Income Statement For the years ended October 31, 2012 and 2011 (in thousands)				
	2012 (Budgeted)		**2011 (Audited)**	
Net Sales	$ 316,875	100%	$ 305,932	100%
Cost of Goods Sold	221,452	70%	215,122	70%
Gross Profit	95,423	30%	90 ,810	30%
Operating Expenses	65,718	21%	63,429	21%
Interest Expense	2,874	1%	2,910	1%
Income Before Taxes	26,831	8%	24,471	8%
Net Income	17,442	5%	15,907	5%
Earnings Per Share (EPS)	$0.81		$0.77	

MicroTech, Inc. Balance Sheet As of October 31, 2012 and October 31, 2011 (in thousands)		
	2012 (Budgeted)	**2011 (Audited)**
Total Assets	$ 288,932	$ 231,712
Total Liabilities	177,326	146,609
Total Stockholders' Equity	111,606	85,103
Total Liabilities & Stockholders' Equity	$ 288,932	$ 231,712

Please turn to the next page to receive information pertaining to the integrated audit of MicroTech.

The Audit

You are part of the audit team assigned to the October 31, 2012 year-end audit of MicroTech, Inc. Preliminary audit planning has already begun, and interim controls work is currently underway. The company is subject to the normal reporting requirements of a publicly-owned company. That is, an integrated audit will be performed and an opinion will be expressed on the financial statements, as well as on the effectiveness of the company's internal control over financial reporting (ICFR) in accordance with PCAOB Auditing Standard No. 5.

Your firm has audited MicroTech, Inc. for several years. Each of those years, the company has received an unqualified audit opinion for both the financial audit and internal control audit. Relations between the audit team and management have been good in the past.

The Engagement Partner for the audit of MicroTech has organized an update meeting to discuss the results of management's ICFR testing and to begin planning for the year-end audit work. Prior to attending the update call, please familiarize yourself with the PCAOB requirements for conducting an audit of a company's ICFR, and the overview of MicroTech's revenue cycle.

PCAOB Requirements: Audit of ICFR

In accordance with PCAOB Auditing Standard No. 5, an auditor must evaluate the severity of each control deficiency that comes to his or her attention. The severity of a deficiency depends on the *likelihood* that the deficiency could result in a misstatement of the financial statements and the *magnitude* of such a misstatement. Importantly, the severity of a deficiency does not depend on whether a misstatement actually has occurred. Thus, a material weakness may exist even when financial statements are not materially misstated.

ICFR Terminology

Auditing standards provide the following definitions of deficiencies in internal control, material weaknesses, and significant deficiencies:

Control Deficiency	A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis.
Significant Deficiency	A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.
Material Weakness	A material weakness is a deficiency, or combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis.

Required Communications & Reporting of Internal Control

Auditors must report all significant deficiencies to the audit committee. If there are deficiencies that, individually or in combination, result in one or more material weaknesses, the auditor must express an adverse opinion on the company's internal control over financial reporting

Please turn to the next page and read the overview of MicroTech's Revenue Cycle.

Summary of MicroTech Revenue Cycle

Salespeople contact current and potential customers based on sales leads from the firm's marketing efforts. If a customer decides to make a purchase, the salesperson then negotiates the sales contract. To close the sale, the salesperson enters the order into an ordering system on their laptop computer. As a control, the accounting department is provided copies of new and renegotiated contracts to ensure that sales contract entries provide for proper revenue recognition.

Product orders are flagged for shipping by the system according to the sales contract entry. When the order reaches shipping, the shipping department picks the product(s) from current inventory and prepares the item(s) for shipping. A packing slip is prepared and the packaged items are taken to the shipping docks.

The accounting department receives an electronic copy of the approved customer order and the packing slip. Once these documents are matched, an invoice is generated by the accounts receivable module. This module prepares the invoice and automatically generates the journal entry to debit accounts receivable and credit revenues.

Customer payments are received via electronic funds transfers. At the end of each day, the accounts receivable clerk receives an electronic report from the bank detailing the customers and amounts paid. The accounts receivable clerk uses this report to apply cash to customers' accounts. The entry to debit cash and credit accounts receivable is automatically recorded by the system. Each day, a cash applications report and unapplied cash exception report are generated. The senior accountant follows up on items that are unapplied to ensure that cash has been properly applied.

Additionally, the controller reviews gross margins on a monthly basis as a supervisory control. While differences in the gross margin on individual transactions make it difficult to identify potential misstatements, the review ensures that the relationship between costs and revenues are relatively consistent.

Walkthrough procedures performed by your audit firm have verified the above description of MicroTech's revenue cycle.

Please turn to the next page to proceed to the update call organized by the lead engagement partner.

Audit Update Call

Transcript of Conference Call with:

Name:	**Title:**
Chris Mitchell	Audit Engagement Partner

Chris Mitchell, the engagement partner, has organized a conference call with the audit team to update the audit team with some preliminary audit planning decisions and to discuss the upcoming year-end audit work for MicroTech, Inc. You have worked with Chris on previous engagements and found him to be very receptive to your ideas and opinions. Overall, you have a good working relationship with him, and the prior engagements have always run smoothly.

Please read the transcript of the conference call with Chris Mitchell reported below.

Conference Call

Chris Mitchell (Audit Partner): "Good afternoon, everyone, and thank you for jumping on this call to go over a few aspects of our integrated audit of MicroTech, Inc.

I'd like to first highlight a few important decisions that were made during preliminary audit planning. Our preliminary audit strategy is generally consistent with prior years'. For interim work, our preliminary materiality assessment is based on 5% of annualized pre-tax income, or $1.3 million.

It is also my understanding that the company has recently finished its own testing of internal controls over financial reporting. You will want to meet with Tom Davis, the company's controller, to discuss whether any issues were found so we can determine if our standard audit program needs to be adjusted. Tom has been the controller for some time now and has always been reliable and forthcoming with information. He pretty much has an open door policy with the audit team.

I would also like to get your perspective on a couple aspects of the scheduling arrangements for MicroTech. The year-end audit, once again, is going to require some pretty extensive travel and require the team to be out-of-town for a couple of months. Since you may be serving as the lead auditor during both controls testing and year-end, I am going to put forward a couple of suggestions that I would like your input on. After each suggestion, please let me know if you agree or disagree with what I am proposing and provide some comments to back up your opinion. I would appreciate your candid opinion, as these are just suggested actions. Your honest remarks will help make this audit a more meaningful work environment."

Please turn to the following page to provide your input.

Audit Update Call

Conference Call – Proposition 1 of 3

Chris Mitchell (Audit Partner): "Auditors should, at times, be permitted to travel during the weekday rather than solely on weekends for out-of-town clients if the job can still be completed in a satisfactory manner."

Please think about the above proposition for a few moments. Then, please indicate below whether you agree or disagree with it.

AGREE _____ **DISAGREE _____**

In the space provided below, please provide as many reasons as you can for why you either agreed or disagreed with the proposition.

Please continue to proposition 2 of 3.

Audit Update Call

Next, the partner would like to discuss the option of performing some of the work from the local office. Below are his thoughts.

Conference Call – Proposition 2 of 3

Chris Mitchell (Audit Partner): "I believe, at times, there can be benefits to working from the firm's local office instead of at the client site, especially when the audit requires extensive travel or is in a remote location."

Please think about the above proposition for a few moments. Then, please indicate below whether you agree or disagree with it.

AGREE _____ **DISAGREE _____**

In the space provided below, please provide as many reasons as you can for why you either agreed or disagreed with the proposition.

Please continue to proposition 3 of 3.

Audit Update Call

The third and final issue that the partner would like your candid opinion on is an issue related to weekend work. Here is what he proposes.

Conference Call – Proposition 3 of 3

Chris Mitchell (Audit Partner): "If the job can still be completed in a timely and satisfactory manner, auditors should be allowed to have some weekends off from work during busy season."

Please think about the above proposition for a few moments. Then, please indicate below whether you agree or disagree with it.

AGREE _____ **DISAGREE _____**

In the space provided below, please provide as many reasons as you can for why you either agreed or disagreed with the proposition.

Please Continue

Audit Update Call

Chris Mitchell (Audit Partner): "Thank you for providing your opinion on these issues. I think we can make sure that the year-end audit is positive and keeps the audit team energized."

You will now proceed to a scheduled meeting with MicroTech's Controller, Tom Davis, to discuss the company's internal control testing. Please turn to the next page to continue.

MicroTech Management's Assessment of Internal Control Over Financial Reporting (ICFR)

The audit team has spoken several times with Tom Davis, controller for MicroTech, Inc. He oversees the company's internal control over financial reporting (ICFR). He has provided information regarding the company's control testing and evaluation procedures. During the company's most recent control testing of the revenue cycle, the following issue was found.

Please familiarize yourself with the control issue and read the dialogue reported below of the client inquiry with Tom Davis, which includes management's evaluation of the control issue.

Results of Testing Application Controls in the Revenue Cycle

Issue(s) Found	**Cycle**	**Management's Classification:**
2. Modifications to standard sales contract terms are not reviewed to evaluate the impact on the timing and amount of revenue recognition. Improper revenue recognition has occurred.	Revenue	Significant Deficiency

Presentation of Client Inquiry Dialogue with MicroTech, Inc. Controller

Transcript of discussion with:

Name:	**Title:**
Tom Davis	Controller

Dialogue

You (In-Charge Auditor): "Hi Tom. I scheduled this meeting with you to discuss the findings on MicroTech's control testing. It is my understanding that one issue in controls was found in the revenue cycle. Can you go over the specific findings and your assessment of the significance of the control issue?"

Tom (Controller): "I'd be happy to discuss that with you. Here at MicroTech we have a standard sales contract, but sales personnel are authorized to modify the contract terms if need be. In doing so, the timing and amount of revenue recognition can be affected. During our last cycle of controls testing it was determined that while the accounting department is provided copies of new and renegotiated contracts, there are not procedures in place for the accounting function to regularly review modifications to sales contract terms. In my opinion, our accounting department is already overloaded with their financial reporting duties, and it is simply unfeasible to have them cross-check every submitted sales order for changes to the standard contract and review manually applied customer discounts."

You (In-Charge Auditor): "Have there been any instances of improper revenue recognition due to sales contract modifications?"

Tom (Controller): "During our testing we did note a few instances of improper revenue recognition that were not discovered until after the customers remitted their payment; and some of the unrecorded price discounts were deemed to be excessive. Importantly, none of the amounts were material, and most of the sales were executed using our standard contracts. When they've been brought to my attention, I have immediately corrected the transactions."

You (In-Charge Auditor): "Are individual sales transactions ever material to MicroTech?"

Tom (Controller): "Yes, individual sales transactions are, at times, material for us, but only those transactions occurring in the fourth calendar quarter (the fourth and first fiscal quarters) as a result of increased demand for the games during the holiday season."

You (In-Charge Auditor): "Is anyone doing anything else to ensure the accuracy of recorded revenue around quarter ends?"

Tom (Controller): "My main concern is ensuring the accuracy of recorded revenue, especially around quarter ends. In this regard, I also review a gross margin report for each product on a monthly basis to make sure that something like excessive changes to our standard sales contracts doesn't get out of control. This review also ensures that a material misstatement in profits doesn't get reported in the financials. While our product line can have wide variations in margins, I have enough experience and expertise to detect any serious deviations.

Let me reiterate that we are very concerned in maintaining strong internal controls. I've rated this control issue as being a Significant Deficiency because with the controls we have in place and the standardization of our contracts, the only incidents of improper revenue recognition have been immaterial. Also, my review of gross margin reports each month, along with the fact that only in certain instances are individual transactions even material for us, should mitigate any concern that a material misstatement in our financials could occur. Our accounting staff is great at their jobs, and I am very confident in the control systems we have in place. I know there are improvements that could be made, but that would require hiring several more accountants, which just isn't feasible in this economy. Let me know if you have any more questions as you go through the audit. I'd be happy to help."

Please turn to the next page when you are ready to record your preliminary planning judgments related to MicroTech's internal controls.

Preliminary Assessment of ICFR problem

Internal Control Assessment
Audit Planning Memorandum

Client	Year-End	WP No.
MicroTech Incorporated	*10/31/2012*	*EG-96*

This workpaper requires you to:

(a) Make a *preliminary* assessment of MicroTech's Internal Control Over Financial Reporting (ICFR).
(b) List the evidence that you considered when arriving at your preliminary audit conclusion.
(c) Assess the *likelihood* of misstatement resulting from any problems in MicroTech's ICFR.
(d) Estimate the potential *magnitude* of misstatement resulting from any problems in MicroTech's ICFR.
(e) Assess the *effectiveness* of any compensating controls in place.

PCAOB Auditing Standard No. 5 requires auditors to make an independent assessment of the client's internal control system. Based on your review of the materials, what is your preliminary judgment of the following issues relevant to the control environment of MicroTech? Type your response (0 to 100) in the space provided below each scale. Choose the number that best corresponds to your opinion about the question.

I. ICFR ASSESSMENT: What is your initial control weakness assessment of the company's control issue surrounding accurate recording of sales revenue?

0---------10---------20---------30---------40---------50---------60---------70---------80---------90---------100
* * *

Absolutely a Control Deficiency | Absolutely a Significant Deficiency | Absolutely a Material Weakness

Please type your response here _____

After you have responded to the question listed above, please scroll to the next page.

Preliminary Assessment of ICFR problem

Internal Control Assessment
Audit Planning Memorandum

Client	Year-End	WP No.
MicroTech Incorporated	*10/31/2012*	*EG-96*

Please complete this audit planning memorandum by listing the evidence that you considered when arriving at your preliminary control weakness assessment. You may type your evidence directly on this page. After you have listed the evidence, please turn to the next page.

Internal Control Assessment
Audit Planning Memorandum

Client	Year-End	WP No.
MicroTech Incorporated	*10/31/2012*	*EG-96*

II. LIKELIHOOD OF MISSTATEMENT: What is the likelihood that the company's controls will fail to prevent or detect a misstatement in recorded sales revenue?

0------10------20------30------40------50------60------70------80------90------100
* *
Remote Certain

Please type your response here _____

III. MAGNITUDE OF MISSTATEMENT: What is your estimate of the potential magnitude of misstatement from the deficiency in controls that ensure the accurate recording of sales revenue?

0------10------20------30------40------50------60------70------80------90------100
* *
Inconsequential Very Material

Please type your response here _____

IV. COMPENSATING CONTROLS: How influenced were you by the compensating controls described by management?

-50 -40 -30 -20 -10 0 10 20 30 40 50
* * *
Negatively Influenced Not Influenced Positively Influenced

Please type your response here _____

Preliminary Assessment of ICFR problem

Please answer the following **3** questions regarding Tom Davis, MicroTech's Controller:

1. EXPLANATION ADEQUACY: How adequate was the Controller's explanation for his ICFR assessment?

0------10------20------30------40------50------60------70------80------90------100
* *
Not Adequate Very Adequate

Please type your response here _____

2. MANAGEMENT INCENTIVES: I believe that MicroTech's Controller, Tom Davis, has strong incentives to convince the audit team that the identified control deficiency is less severe.

0------10------20------30------40------50------60------70------80------90------100
* *
Strongly Disagree Strongly Agree

Please type your response here _____

3. MANAGEMENT RELIABILITY: I believe that Tom Davis is a *reliable* source of information.

0------10------20------30------40------50------60------70------80------90------100
* *
Strongly Disagree Strongly Agree

Please type your response here _____

You will now be asked a series of demographic and general case questions. Please turn to the next page to continue. Once you leave this page, do NOT return back to the previous case materials.

General Case Questions

Please complete the following **4** questions regarding the case:

1. What was the company's controller, Tom Davis', evaluation of the ICFR control problem?

____Unsure ____Control Deficiency ____Significant Deficiency ____Material Weakness

2. How motivated were you to do well on this case study?

1--------2--------3--------4--------5--------6-------7--------8--------9
* *
Not Very
Motivated Motivated

Please type your response here _____

3. Please use the following 3 scales to record how you currently feel:

1--------2--------3--------4--------5--------6-------7--------8--------9
* *
Sad Happy

Please type your response here _____

1--------2--------3--------4--------5--------6-------7--------8--------9
* *
Positive Negative

Please type your response here _____

1--------2--------3--------4--------5--------6-------7--------8--------9
* *
Depressed Uplifted

Please type your response here _____

4. How well did you understand the internal control deficiency in the MicroTech case example?

1--------2--------3--------4--------5--------6-------7--------8--------9
* *
Not Well Very Well

Please type your response here _____

Demographic Information

1. What is your gender?

   ___ Female ___Male

2. Please provide your current job title (e.g., senior, manager, etc.)

   _____

3. How long have you worked as an auditor?

   _____ Years _____ Months

4. Do you have In-Charge experience?

   ___ Yes ___ No

5. Have you been involved in SOX 404 audit?

   ___ Yes ___ No

6. Have you received training on SOX 404?

   ___ Yes ___ No

7. When you have been involved in SOX 404 internal control audits, on how many engagements have you observed a **significant deficiency**?

   ___ None ___ 1-3 engagements ___ More than 3 engagements

8. When you have been involved in SOX 404 internal control audits, on how many engagements have you observed a **material weakness**?

   ___ None ___ 1-3 engagements ___ More than 3 engagements

9. Did you complete this case in one sitting without interruption?

   ___ Yes ___ No

Individual Characteristics

I would now like you to respond to some statements below that people use to describe themselves. Please record the response that indicates how you ***generally*** feel in the space provided to the right of each question. There are no right or wrong answers. Do not spend too much time on any one statement.

Statement	Strongly Disagree					Strongly Agree	Response
1. I often accept other people's explanations without further thought……..	1	2	3	4	5	6	
2. I feel good about myself…….	1	2	3	4	5	6	
3. I wait to decide on issues until I can get more information…...	1	2	3	4	5	6	
4. The prospect of learning excites me……..	1	2	3	4	5	6	
5. I am interested in what causes people to behave the way they do……	1	2	3	4	5	6	
6. I am confident of my abilities……	1	2	3	4	5	6	
7. I often reject statements unless I have proof that they are true..	1	2	3	4	5	6	
8. Discovering new information is fun……...	1	2	3	4	5	6	
9. I take my time when making decisions……..	1	2	3	4	5	6	
10. I tend to immediately accept what other people tell me…….	1	2	3	4	5	6	
11. Other peoples' behavior doesn't interest me……..	1	2	3	4	5	6	
12. I am self-assured……	1	2	3	4	5	6	
13. My friends tell me that I usually question things that I see or hear…….	1	2	3	4	5	6	
14. I like to understand the reason for other peoples' behavior…...	1	2	3	4	5	6	
15. I think that learning is exciting……..	1	2	3	4	5	6	
16. I usually accept things I see, read or hear at face value…….	1	2	3	4	5	6	
17. I do not feel sure of myself……	1	2	3	4	5	6	
18. I usually notice inconsistencies in explanations……	1	2	3	4	5	6	
19. Most often I agree with what the others in my group think…..	1	2	3	4	5	6	
20. I dislike having to make decisions quickly……	1	2	3	4	5	6	
21. I have confidence in myself……...	1	2	3	4	5	6	
22. I do not like to decide until I've looked at all of the readily available information…….	1	2	3	4	5	6	
23. I like searching for knowledge……..	1	2	3	4	5	6	
24. I frequently question things that I see or hear……	1	2	3	4	5	6	
25. It is easy for other people to convince me……..	1	2	3	4	5	6	
26. I seldom consider why people behave in a certain way…….	1	2	3	4	5	6	
27. I like to ensure that I've considered most available information before making a decision……...	1	2	3	4	5	6	
28. I enjoy trying to determine if what I read or hear is true……...	1	2	3	4	5	6	
29. I relish learning……..	1	2	3	4	5	6	
30. The actions people take and the reasons for those actions are fascinating……..	1	2	3	4	5	6	

You have finished the case study. Thank you very much for your participation. Please make sure all of your responses have been recorded, then save the file and email it to

obrown@vt.edu

APPENDIX E

IRB Approval Letter

VirginiaTech

Office of Research Compliance
Institutational Review Board
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website http://www.irb.vt.edu

MEMORANDUM

DATE: November 19, 2012

TO: Sudip Bhattacharjee, Jeffrey Owen Brown

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)

PROTOCOL TITLE: Behavioral Mind-Sets and Professional Skepticism

IRB NUMBER: **12-900**

Effective November 19, 2012, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Exempt, under 45 CFR 46.110 category(ies) 2**
Protocol Approval Date:	**November 19, 2012**
Protocol Expiration Date:	**N/A**
Continuing Review Due Date*:	**N/A**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.