

EVALUATION APPREHENSION: AN EXAMINATION OF AFFECT IN THE AUDIT
ENVIRONMENT

by

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(Under the Direction of E. Michael Bamber)

ABSTRACT

Accounting research finds that auditors perform better when they are required to account for their actions to a superior. However, this research assumes that the auditor is accountable to one superior, when in practice auditors are accountable to multiple parties. Psychology research suggests that when an individual is accountable to multiple parties, they suffer negative affect (emotional distress). In this study, I experimentally examine whether the multiple accountabilities inherent in the audit environment cause auditors to experience negative affect in the form of evaluation apprehension. Consistent with my expectations, I find that as accountabilities increase, auditors' evaluation apprehension increases. The psychology literature implies this evaluation apprehension can negatively influence the performance of complex audit tasks through its influence on the cognitive encoding of information. However, I was unable to document an influence of evaluation apprehension on the performance and cognitive encoding of a high-complexity audit task. Additional research should be performed to determine whether the evaluation apprehension resulting from accountability negatively influences other audit tasks and auditor attitude, as indicated in the psychology literature.

INDEX WORDS: Evaluation apprehension; Negative Affect; Accountability

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DEDICATION

To my husband Matt, for his constant love and support

AND

To Garrett, for being my inspiration

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CHAPTER 1

INTRODUCTION

As I said before, what you do does matter. I understand your audit and business practices have undergone significant change. You now report to the audit committee. You work long hours. You are under an enormous amount of pressure, and there is great concern about you being second guessed. I appreciate your efforts, and I understand the anxiety, especially as you take on new responsibilities such as reporting on internal controls.

- Donald T. Nicolaisen (2004)

As noted by then SEC chief accountant Donald Nicolaisen, the audit environment subjects auditors to heavy scrutiny, not only by superiors within the firm, but also by various stakeholders, including clients, investors, and regulators. The prior accountability literature focuses on review from one superior (i.e., a single accountability requirement) and finds predominantly positive consequences of accountability on performance (e.g., Johnson and Kaplan 1991; Lord 1992; Kennedy 1993; Tan 1995; Cloyd 1997; Tan and Kao 1999). However, the intense scrutiny when held accountable to multiple parties can lead to negative consequences including negative affective (i.e., emotional) responses (Seta et al. 1989a; 1989b). The purpose of this study is to examine whether the multiple accountabilities inherent in the audit environment cause auditors to experience negative affect.¹ In particular, I examine whether multiple accountabilities cause one specific negative affect, evaluation apprehension, and how

¹ The construct “multiple accountabilities” has not been clearly defined in prior literature. Prior literature discusses the multiple aspects of accountability in the context of different types (i.e., outcome versus process, legitimate versus illegitimate), different sources, different pressure levels, and different clarity levels (i.e., preferences known versus unknown) of accountability (Lerner and Tetlock 1999; Gibbins and Newton 1994; DeZoort et al. 2006). In this study, I define multiple accountabilities as the combination of accountability sources, clarity levels, and pressure levels that auditors encounter in the typical audit environment. My definition of multiple accountabilities is detailed further in the literature review and hypothesis development section of the paper. I define single accountability as accountability operationalized in prior research, i.e., performance review by a single source with unknown preferences (Tan and Kao 1999; Cloyd 1997).

the subsequent evaluation apprehension influences task performance and auditor cognition.²

Evaluation apprehension is a specific type of anxiety that arises when a subject knows that he or she will be evaluated (Geen 1980), as is the case in an audit environment.

I conduct an experiment to examine how varying levels of accountability influence negative affect and evaluation apprehension and how that evaluation apprehension influences task performance and cognitive encoding of information related to the task. One hundred and thirty-six auditors in one of three accountability conditions (no accountability, single accountability, or multiple accountabilities) completed both a low-complexity audit procedures task and a high-complexity ratio analysis task. Immediately following each task, participants answered a series of questions to assess their negative affect, evaluation apprehension, and cognitive encoding of task information.

I predict and find that as accountability increases, negative affect and evaluation apprehension increase. In particular, auditors confronted with multiple accountabilities experience significantly more negative affect and evaluation apprehension than auditors in the single accountability or no accountability conditions. Auditors in the single accountability and no accountability conditions do not experience significantly different negative affect or evaluation apprehension. My study indicates that, by focusing on a single accountability requirement, the previous accountability literature does not capture the full impact that accountabilities can have on auditors' affective states. Also consistent with my predictions, I find that evaluation apprehension does not influence performance or cognitive encoding for the low-complexity audit task. Contrary to my expectations, evaluation apprehension does not influence performance or cognitive encoding for the high-complexity audit task. Despite these

² Affect refers to a range of emotional states and moods (Kida et al. 2001). Emotional affect responses are typically classified as either positive affect, such as excitement, enthusiasm, and happiness, or negative affect, such as frustration, anger, and anxiety (Stone and Kadous 1997; Kida et al. 2001).

results, the psychology literature implies that evaluation apprehension can negatively influence other audit types of audit tasks, auditor cognition, and auditors' job satisfaction (e.g., Diehl and Stroebe 1987; Thoreson et al. 2003).

My study contributes to both the accounting literature and auditing practice. I contribute to the current accountability literature by exploring multiple accountabilities. While the prior literature focused on the influence of a single accountability requirement, the audit environment has a more complex accountability structure in which auditors are accountable to multiple sources whose preferences may or may not be clear (Gibbins and Newton 1994). My study indicates that these multiple accountabilities cause auditors to experience increased negative affect, including evaluation apprehension. Unlike the positive influences associated with single accountability, the high negative affect and evaluation apprehension resulting from multiple accountabilities can have negative implications for the performance of various tasks (e.g., Geen 1983; Diehl and Stroebe 1987; Kida et al. 2001).

Prior affect research in accounting has focused on the role of general positive and negative affect on decision making (e.g., Kida et al. 2001; Moreno et al. 2002; Bhattacharjee and Moreno 2002). I contribute to the affect literature by identifying the specific negative affect, evaluation apprehension, caused by the audit environment's accountability. The psychology literature suggests that evaluation apprehension can adversely impact audit task performance, and thus could negatively influence overall audit quality (e.g., Geen 1983; Diehl and Stroebe 1987).

Understanding that accountability can cause evaluation apprehension is important for audit practitioners because an auditor's affective state can influence audit effectiveness, audit efficiency, auditor job satisfaction, and ultimately, auditor turnover (e.g., Geen 1983; Diehl and

Stroebe 1987; Kida et al. 2001; Bhattacharjee and Moreno 2002; Thoreson et al. 2003).

Practitioners can begin to explore solutions to reduce or manage the evaluation apprehension auditors experience and thus minimize any negative impact evaluation apprehension has on the audit.

Overall, my results indicate that the everyday accountabilities auditors encounter can cause them to experience significant negative affect and evaluation apprehension. Researchers can extend my study further by determining if and how auditors' negative affect and evaluation apprehension influence areas of the audit including the performance of various audit tasks and auditors' job satisfaction and turnover intentions. Researchers can also search for tools to help reduce auditors' negative affect and evaluation apprehension and their potentially harmful consequences.

The remainder of this document is organized as follows: Chapter 2 reviews the relevant literature and develops the hypotheses, Chapter 3 describes the research method, Chapter 4 presents results, and Chapter 5 summarizes the research and concludes.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Accountability to Evaluators with Unknown Preferences

Every audit includes a review in which superiors evaluate the work of subordinates. Thus, auditors expect to be and are held accountable to superiors (Koonce et al. 1995). Accountability affects task performance differently depending on whether or not the performer is aware of the preferences of the evaluator.³ An individual accountable to an audience with unknown preferences will engage in ‘pre-emptive self-criticism’ (Tetlock and Boettger 1989; Lerner and Tetlock 1999). An individual engaging in pre-emptive self-criticism will think in a more integrative and self-critical manner and try to prepare for potential objections by the evaluator, thus analyzing the evidence more carefully and from multiple perspectives, paying particular attention to inconsistent evidence (Tetlock and Boettger 1989; Buchman et al. 1996; Lerner and Tetlock 1999). Ultimately, pre-emptive self-criticism causes individuals to tend to the information more thoroughly and enables more vigilant and complex processing of information (Johnson and Kaplan 1991).

The increased effort and complex information processing put forth by the individual engaging in pre-emptive self-criticism is typically positively related to performance of tasks that rely on judgment.⁴ Accordingly, the accounting literature confirms that accountability predominately improves performance on various judgmental audit tasks. Johnson and Kaplan

³ Accountability is defined as the requirement to justify one’s actions to others (Peecher 1996; Lerner and Tetlock 1999).

⁴ While most accountability studies show that accountability improves performance, research has found that accountability does not mitigate data-related biases (e.g., Kennedy 1995) and may in fact attenuate them (e.g., Tetlock and Boettger 1989).

(1991) examine the influence of accountability on auditors' ability to assess the risk of inventory obsolescence and find that holding auditors accountable to the persons conducting the experiment yields improved consensus and self-insight among the auditors. Lord (1992) examines the influence of accountability on the propensity of the auditor to accept questionable accounting treatments and find auditors believed to be accountable to a senior partner exhibit a reduced likelihood of accepting the accounting treatment.⁵ Both Kennedy (1993) and Tan (1995) examine the influence of accountability on a client's financial viability. Kennedy (1993) employs M.B.A. student participants in her study and finds holding those students accountable to professors mitigates the recency bias when they are evaluating evidence in a client's ability to continue as a going concern. Similarly, Tan (1995) finds that holding auditors accountable to superiors increases the quality of their assessments of a client's financial viability.

Accountability can also influence the performance of audit tasks that do not require significant judgment. The influence of accountability on performance will depend on the amount of effort and complex information processing needed to complete the task (i.e., task complexity). Task complexity is related to the amount of attentional capacity or mental processing required for the individual to complete a task (Kahneman 1973; Cloyd 1997).⁶ In particular, the more cues and coordination needed to complete the task, the more attention and mental processing required, thus the more complex the task (Wood 1986; Tan and Kao 1999). Low-complexity tasks require minimal amounts of attention and coordination and thus do not require significant effort. Therefore, performance on a low-complexity task is unlikely to be improved by the additional effort induced by accountability (Tan and Kao 1999). High-complexity tasks are more

⁵ Lord (1992) uses deception in his accountability treatment condition. Auditors are told their performance will be reviewed by the senior partner, however, it is not. The participants were informed of the deception in a debriefing session immediately following the experiment.

⁶ Task complexity and difficulty are generally synonymous terms and inversely related to task structure (Bonner 1994).

demanding and require more effort and complex information processing. Thus, the increase in effort and complex information processing induced by accountability can improve performance on high-complexity tasks (Tan and Kao 1999).

In order for accountability to improve performance on a high-complexity task, the task must be one in which an increase in effort and complex information processing alone can improve performance (Cloyd 1997). If an individual must possess sufficient knowledge or problem solving ability to complete the high-complexity task, then accountability alone should not improve performance for an individual lacking in those skills, regardless of the additional effort and complex information processing she puts into the task (Tan and Kao 1999). Alternatively, the individual might view the task as one of such high-complexity that she believes she cannot perform well and therefore decides to withhold exerting any additional effort to complete the task. In this situation as well, accountability would not improve performance (Cloyd 1997).

Cloyd (1997) and Tan and Kao (1999) explore the relationship between accountability, knowledge, and performance, and how each influences performance in tasks of varying complexity. Cloyd (1997) finds that accountability increases effort and thus improves performance on a high-complexity tax research task, regardless of the prior knowledge level of participants. His results indicate that the effort induced by accountability can act as a partial substitute for knowledge in a high-complexity task. Tan and Kao (1999) examine how accountability influences performance on both a low-complexity audit procedures task and a high-complexity ratio analysis task. The low-complexity task does not require significant effort, thus they find that the additional effort induced by accountability has no significant influence on performance. In the high-complexity task, they find accountability improves performance when

both knowledge and problem-solving ability are high. Accountability also improves performance on the high-complexity task when both knowledge and problem solving ability are low, suggesting that the increased effort and complex information processing induced by accountability can act as a substitute for knowledge and problem solving ability. In summary, both Cloyd (1997) and Tan and Kao (1999)'s studies suggest that accountability to an evaluator with unknown preferences alone can improve performance on high-complexity tasks.

2.2 Accountability to Evaluators with Known Preferences

In the audit environment, however, subordinates will likely know something about the preferences of their reviewer. Auditors not only expect to be and are held accountable to superiors, but they often know what superiors expect from them. The effect of accountability when the preferences of the evaluator are known is contingent upon those preferences, i.e., for what they are accountable. When the evaluator's preferences are known, individuals tend to adopt positions that are likely to coincide with the preference of those to whom they are accountable and therefore they do not engage in the unnecessary cognitive work of analyzing the pros and cons of various positions (Lerner and Tetlock 1999).

The accounting literature confirms that individuals adopt positions consistent with the evaluator's preferences. Peecher (1996) and Turner (2001) show that reviewer preferences influence auditors' willingness to rely on client explanations. Peecher (1996) finds that auditors whose firm advocates reliance on client explanations assess higher likelihoods that the client's explanation accounts for an increase in account balances than those whose firm promotes an attitude of objectivity or skepticism. Similarly, Turner (2001) finds that auditors whose reviewer advocates reliance on client explanations examine less evidence and follow a more client prompted strategy when performing an accounts receivable collectibility review than those

whose reviewer promotes an attitude of skepticism or has no preference. Tan et al. (1997) finds that reviewer preferences also influence auditor risk assessments of inventory obsolescence and the amount of effort auditors utilize when performing the task. In particular, auditors who are provided with a reviewer's assessment of inventory obsolescence were influenced by the reviewer when making their own risk assessments and utilized less effort than auditors who did not have reviewer assessments. Cohen and Trompeter (1998) show that knowledge of reviewer preferences can also influence an auditor's client retention decisions; auditors accountable to a more aggressive partner are more likely to accept or retain risky clients than those who are not. More recently, Wilks (2002) finds that reviewer preferences can influence auditors' going concern judgments. Auditors who know the preference of the partner evaluate evidence more consistent with the partner's views and also make going concern judgments more consistent with the partner's view.

A few auditing studies have examined the idea that auditors have various sources of accountability who often have competing preferences for performance. Both Gramling (1999) and Bierstaker and Wright (2001) examine the influence on auditor judgments of the competing preferences of clients and superiors within the firm. Gramling (1999) examines the influence of client versus partner preference on the manager's reliance on the work of internal auditors and finds that managers rely more on the work of internal auditors when the client emphasizes a concern for fee pressure over audit quality, however, there is no significant influence of partner preference or interaction effect of partner and client preferences. Similarly, Bierstaker and Wright (2001) examine the influence of client and partner preferences on auditors' preparation of time budgets and audit programs. Consistent with Gramling (1999), they find a significant effect of client fee pressure on time budgets and audit programs, but no significant influence of partner

preference. In summary, both Gramling (1999) and Bierstaker and Wright (2001) show that when auditors are confronted with such competing preferences, their performance on audit planning decisions is influenced more by the client's preference than by the superior's preference.

2.3 Defining Multiple Accountabilities

Accountability is often not the unitary phenomenon predominately examined in the auditing literature, where auditors are accountable to one evaluator with one preference (Gibbins and Newton 1994; Lerner and Tetlock 1999; Lerner and Tetlock 2003). Auditors are regularly confronted with multiple accountabilities, which differ according to source, clarity level, and accountability pressure. The diverse sources of accountability include various superiors, clients, regulators, and financial statement users (Gibbins and Newton 1994; DeZoort and Lord 1997; Bierstaker and Wright 2001). Each source of accountability can have different levels of clarity concerning preferences, such as a preference for efficiency, a preference for effectiveness, a combination of preferences, or unknown preferences (Gibbins and Newton 1994). Also, each source may hold the auditor accountable at different levels of accountability pressure; the source may simply review the performance, review and provide feedback, or review and require auditor justification (DeZoort et al. 2006).⁷

Previous accountability studies have examined the individual components of multiple accountabilities and found predominately positive consequences of accountability.

Accountability to an individual with unknown preferences induces effort and complex information processing, which typically has a positive influence on auditor performance (e.g.,

⁷Accountability pressure can be categorized into four levels of increasing strength: (1) anonymity occurs when there is an absence of accountability; (2) review or identifiability occurs when the performer can be linked to their performance; (3) justification or reason-giving occurs when performers are reviewed and are expected to justify their performance; and (4) evaluation or feedback occurs when performers are reviewed and receive explicit feedback regarding their performance (Lerner and Tetlock 1999; DeZoort et al. 2006).

Johnson and Kaplan 1991; Lord 1992; Kennedy 1993; Tan 1995; Koonce et al. 1995; Tan and Kao 1999). Accountability to individuals with known preferences results in auditors adopting performance strategies consistent with that of their evaluators, which is most likely viewed as a positive consequence of accountability by the evaluators (e.g., Peecher 1996; Tan et al. 1997; Cohen and Trompeter 1998; Turner 2001; Wilks 2002). DeZoort et al. (2006) show that auditors confronted with high accountability pressures (i.e., where auditors are reviewed and provided feedback or reviewed and required to justify responses) are more conservative and less variable in their materiality assessments than auditors confronted with low accountability pressures (i.e., where auditors are anonymous or reviewed only). This supports the view of accountability as a positive influence.

None of the above studies, however, fully capture the accountability environment faced by auditors, which includes multiple sources with disparate clarity and pressure levels. Although individual components of multiple accountabilities might have positive consequences, the psychology literature implies that the combination of such accountability pressures can result in harmful consequences such as negative affect and, more specifically, evaluation apprehension.

2.4 Multiple Accountabilities, Negative Affect, and Evaluation Apprehension

Affect refers to a range of emotional states and moods (Kida et al. 2001). Emotional affect responses are typically classified as either positive affect, such as excitement, enthusiasm, and happiness, or negative affect, such as frustration, anger, and anxiety (Stone and Kadous 1997; Kida et al. 2001). Anxiety is a particular negative affect defined as a “cognitive and affective response characterized by apprehension about an impending, potential negative outcome that one thinks one is unable to avert” (Schlenker and Leary 1982, pg 642). The specific type of anxiety related to the prospect of possible evaluation, whether the evaluation is

implied or explicitly stated, is known as evaluation apprehension (e.g., Cohen 1980; Geen 1980).⁸ Auditors perform in an environment where they are subject to evaluation by several parties, including superiors within the firm, clients, investors, and regulators. Therefore, auditors are likely to experience anxiety in the form of evaluation apprehension.

The psychology research explores evaluation apprehension as a function of both the number and status of the persons to whom the performer is accountable (i.e., the evaluators) (Seta et al. 1989a; 1989b). Seta et al. (1989b) propose an averaging/summation model to describe how various evaluative audiences influence a person's evaluation apprehension. They contend that adding an evaluator can have either an additive impact on a person's evaluation apprehension or an averaging impact, depending on the perceived expertise of the evaluator. Adding evaluators with higher expertise or equal expertise to the performer results in an additive effect on the performer's evaluation apprehension, that is, the performer will experience incrementally more evaluation apprehension (Seta et al. 1989b). The incremental increase in evaluation apprehension could be attributed to the knowledge that an additional evaluator of high or moderate status could generate severe rather than minimal consequences (Seta et al. 1989a). However, adding evaluative members with less expertise than the performer results in an averaging effect on the performer's evaluation apprehension (Seta et al. 1989a, Seta et al. 1989b). The low amount of evaluation apprehension the performer would experience when held accountable to an evaluator with less expertise than herself averages with the high amount of evaluation apprehension she would experience when held accountable to an evaluator with

⁸ The idea of anxiety as a result of actual or perceived evaluation has been examined extensively in the psychology literature under the labels of social anxiety, evaluation apprehension, evaluation anxiety, and test anxiety (e.g., Henchy and Glass 1968; Schlenker and Leary 1982; Skinner and Brewer 1999; Wine 1971). While the definitions vary slightly for the above mentioned labels, the underlying construct is the same.

higher or equal expertise than herself, resulting in only moderate evaluation apprehension when the performer is held accountable to both high and low expertise evaluators.

To test their averaging/summation model, Seta et al. (1989b) hold undergraduate students accountable to either two high expert (faculty members) evaluators, two high expert and two moderate expert (peer) evaluators, and two high expert and two low expert (high school students) evaluators. They find the students held accountable to the two high expert and two moderate expert evaluators experience significantly more evaluation apprehension than those held accountable to only two high expert evaluators. Their results indicate, consistent with their theory, when the evaluators are of the same or higher expertise than the performer, adding an additional evaluator will have an incremental influence on the performer's evaluation apprehension. They also find that students held accountable to two high expert evaluators experience significantly more evaluation apprehension than those held accountable to two high expert and two low expert evaluators. Their results again corroborate their theory, adding evaluators with less expertise than the performer results in an averaging effect on the performers' evaluation apprehension.

Seta et al. (1989b)'s results suggest that the amount of evaluation apprehension an auditor experiences will be contingent upon the sources of accountability. An auditor accountable to several sources of equal or higher status would experience more evaluation apprehension than an auditor accountable to one source of equal or higher status. Thus, auditors confronted with multiple accountabilities should experience significantly more evaluation apprehension than auditors confronted with a single accountability requirement. Further, auditors confronted with a single accountability requirement should experience more evaluation apprehension than those

confronted with no accountability. In short, as auditors' accountability requirements increase, their evaluation apprehension should also increase.

My first hypothesis examines the influence of increasing accountabilities on an auditor's general negative affect. I examine general negative affect for two reasons: first, previous accounting literature focuses on categorical affect (e.g., Blay et al. 2006), and secondly, the scale used to measure negative affect (i.e., the Positive and Negative Affect Scale), is widely used and validated in the psychology literature (Tellegen 1985; Watson et al. 1988; Mano 1991).

Formally, I hypothesize the following:

H1: As accountability requirements increase, negative affect increases.

In my second hypothesis, I focus on the influence of increasing accountabilities on the specific negative affect of evaluation apprehension.⁹ Consistent with the psychology literature, I predict that increasing an auditor's accountabilities will also increase an auditor's evaluation apprehension. Formally, I hypothesize the following:

H2: As accountability requirements increase, evaluation apprehension increases.

These hypotheses are summarized in Figure 2.1.

2.5 Evaluation Apprehension and Task Performance

The psychology literature indicates that negative affect and, in particular, evaluation apprehension influence task performance (e.g., Seta et al. 1989a). There are two categorical psychology theories for how affect can influence task performance: (1) affect-as-information and (2) attentional theories. The affect as information theory suggests that people use their affective

⁹ There is no standard scale in psychology used to measure evaluation apprehension. Evaluation apprehension is measured in prior literature using physical measures, such as heart rate and sweat indexes (e.g., Henchy and Glass 1968), questionnaires such as the State-Trait Anxiety Inventory (e.g., Geen 1983), simple questions asking participants to rate felt emotions (e.g., Dollinger et al. 1987; Leary et al. 1986), and the Indices of Evaluation Concern, a four question scale used to measure a person's evaluation anxiety (e.g., Leary et al. 1986; Skinner and Brewer 1999).

reaction as relevant information when making judgmental decisions (Schwarz and Clore 1988; Schwarz 1990). The accounting literature examines how affect influences the performance of various judgmental tasks and finds support for the affect-as-information theory. Kida et al. (2001) and Moreno et al. (2002) find that affect influences managers' judgments about capital budget investments. Similarly, Kadous (2001) finds that affect influences jurors' evaluation of auditor blameworthiness in an auditor negligence case. Particular to auditing, Bhattacharjee and Moreno (2002) find negative affect towards a client can influence the inventory obsolescence risk judgments of auditors with five years or less of experience. While the affect-as-information theory describes how affect influences judgmental tasks, it does not clearly indicate how a person would use affect as information when performing non-judgmental tasks, nor does it explain why performance on such tasks declines when people experience negative affect. Attentional theories better explain how affect influences the performance of non-judgmental tasks.

At present, there are two related categories of attentional theories that attempt to explain the influence of both negative affect and evaluation apprehension on task performance: (1) distraction theories and (2) self-awareness theories (Baumeister and Showers 1986; Beilock and Carr 2001). Attentional theories, in general, contend that negative affect influences task performance by interfering with the attention a person devotes to completing the task. To perform effectively, an individual must devote attention to pertinent information, processes, and behaviors, and be able to exclude irrelevant factors (Baumeister and Showers 1986). Therefore, interference in focus of attention can lead to ineffective performance (Baumeister and Showers 1986).

Distraction theories contend that individuals pay attention to task irrelevant cues, such as the negative affect the individual is experiencing or negative consequences that can ensue from poor performance (Wine 1971; Sanders 1981; Baumeister and Showers 1986; Beilock and Carr 2001). Contrary to the affect-as-information theory, task performance is not adversely affected because the individual uses the task irrelevant cues as information, rather performance is adversely affected because the focus of attention on task irrelevant cues, such as worry or anxiety, can detract from the focus on task relevant cues (Baumeister and Showers 1986; Stone and Kadous 1997). This is particularly likely when a task requires a large amount of attentional capacity or mental processing to complete (i.e., a high-complexity task). Distraction theories explain the positive effect on the performance of low-complexity or simple tasks by concluding that distraction initiates a compensatory process in the performer, such as increased effort, which will override the negative impact of distraction when the task is simple (Baumeister and Showers 1986).

Self-awareness theories focus more on how the one particular affect of evaluation apprehension influences task performance. Self-awareness theories contend that evaluation apprehension causes an individual to become aware of her image and thus enhances her desire to present a favorable picture of herself and/or to achieve performance goals (Wicklund and Duval 1971; Sanders 1984). This awareness causes an individual to focus attention upon herself as the object to be evaluated (Wicklund and Duval 1971; Liebling and Shaver 1973). Self-awareness will act to emphasize any discrepancy between one's performance and some standard and lead to an increase in effort; however, it can also encourage the person to spend time evaluating oneself rather than focusing on the task at hand (Innes and Young 1975). That is, for simple task performance, self-awareness will point out easily remedied discrepancies between performance

and some standard and thus lead to better performance (Innes and Young 1975; Sanders 1984). However, when a task is more complex, the same manipulation may produce too much interference and draw attention away from the task at hand, thus impairing performance (Innes and Young 1975; Sanders 1984).

Several psychology studies have examined the influence of evaluation apprehension on performance and have found that, consistent with the predictions of both distraction and self-awareness theories, high evaluation apprehension facilitates performance on low-complexity tasks and harms performance on high-complexity tasks (e.g., Henchy and Glass 1968; Geen 1983; Dollinger et al. 1987; Seta et al. 1989a). Henchy and Glass (1968) examine the impact of evaluation apprehension on a simple word recognition task and find that performance is enhanced by high evaluation apprehension. In their study, they induce high evaluation apprehension by increasing the expertise and number of audience members viewing performance. Similarly, Geen (1983) induces high evaluation apprehension in his participants by having them perform in the presence of an expert who will evaluate their performance versus performing alone with no prospect of evaluation. He finds that participants who are evaluated perform significantly better on the simple word memorization task than participants who are not evaluated. The opposite is true for the complex list; participants who are evaluated perform significantly worse on the complex memorization task than participants who are not evaluated. Dollinger et al. (1987) examine the effect of evaluation apprehension on a high-complexity judgmental task and find similar results; participants in the high evaluation apprehension condition performed significantly worse on the judgment task than the control group. Seta et al. (1989a) also document a negative effect of evaluation apprehension on high-complexity task performance. Similar to Henchy and Glass (1968), they vary evaluation apprehension by

varying the size and expertise of audience viewing performance. They find participants performing in front of an audience have significantly more errors on a complex paired associates learning task than those who perform alone, indicating that high evaluation apprehension inhibits performance on complex tasks.

If the multiple accountability requirements in the audit context do increase an auditor's negative affect and evaluation apprehension as predicted in H1 and H2, then the psychology findings suggest that the auditor's evaluation apprehension will interfere with the performance of audit tasks. In particular, auditors experiencing high evaluation apprehension should perform better on low-complexity tasks and worse on high-complexity tasks than those auditors experiencing low evaluation apprehension. However, there is evidence in the accounting literature that suggests auditors' performance on both low- and high-complexity audit tasks might not follow the predictions of psychology theory. Tan and Kao (1999) find that accountability does not influence low-complexity task performance, therefore implying that, inconsistent with psychology theory, the evaluation apprehension resulting from accountability requirements does not influence auditors' performance of low-complexity tasks. Blay et al. (2006) note that accounting students who experience negative affect demonstrate more focused and effective search strategies when confronted with a high-complexity task than students in a control condition or who experience positive affect. More effective strategies could translate into better performance on high-complexity tasks for auditors experiencing evaluation apprehension.

Consistent with the implications of Tan and Kao (1999), I expect evaluation apprehension will not influence auditor performance on a low-complexity audit task. Blay et al. (2006)'s study suggests that evaluation apprehension will improve performance on a high-

complexity task; however, they use student participants in their study. Unfortunately, student participants are poor substitutes for auditors when examining aspects of attitude, such as experienced evaluation apprehension (Ashton and Kramer 1980). Therefore, consistent with the psychology literature, I expect evaluation apprehension will harm performance on a high-complexity task. Formally, I hypothesize the following:

H3a: High evaluation apprehension will have no influence on the performance of a low-complexity audit task.

H3b: High evaluation apprehension will harm performance on a high-complexity audit task.

These hypotheses are summarized in Figure 2.2.

2.6 Cognition and Evaluation Apprehension

Evaluation apprehension's influence on task performance is a direct result of its influence on cognitive information processing. Rarely, if ever, does negative affect exist independently of cognition (Ellis 1985). Every step of cognitive information processing can be influenced by affective states, from the direction and amount of attention given to information to the encoding of information and lastly to the retrieval of information from memory (Ellis and Ashbrook 1988; Clore et al. 1994). Based on memory recall tests, researchers have confirmed that anxiety, and therefore evaluation apprehension, is most likely to influence cognitive encoding of information (Mueller 1980; Russo et al. 2001; Dowens and Calvo 2003; Cassady 2004).¹⁰

The relationship between affect and cognition is best described by the resource allocation model (Ellis and Ashbrook 1988). The model assumes that negative affective states regulate the amount of cognitive effort that can be afforded to a given task, and that the normal cognition

¹⁰ In a word recall task, Mueller (1980) found evidence that high anxiety participants engage in less 'clustering' of similar words than low anxiety participants, and thus recall less words than low anxiety participants. He accredits the lack of clustering to a cognitive encoding error. In a separate word recall task, Russo et al. (2001) find high anxiety participants more easily recall threatening words than non-threatening words. He also accredits the bias in recall to a cognitive encoding error.

process requires attention and effort. Consistent with the attentional theories that describe the influence of evaluation apprehension on task performance, the theory predicts that the induction of strong affect will consume some of the person's attention, and therefore lessen the amount of attention that the person will allocate to the task (Ellis and Moore 1999). In particular, strong affect will lead to an increase in irrelevant thoughts that will compete with the relevant cognitive activities important for task performance (Ellis and Moore 1999). These intrusive, irrelevant thoughts interfere with the attention devoted to the task at hand, thus impairing the encoding process of information related to the task. This impairment in cognition, however, is not uniform across tasks. Specifically, the model predicts that when the encoding demands for a task are harder, i.e. when the task is more difficult, the cognition effects will be larger (Ellis and Moore 1999).

Several psychology studies find support for the predictions of the resource allocation model. Mueller (1978) examines the influence of trait anxiety on cognition using a free recall task. He divides the participants into low and high trait anxiety groups and finds that high anxiety participants recall less and engage in less clustering of similar words than do low anxiety participants. He interprets the results as evidence of an impairment of cognitive encoding, consistent with the resource allocation model predictions. Ellis et al. (1995) and Seibert and Ellis (1991) find the predictions of the resource allocation model hold not only when the negative affect is an inherent trait in participants, but also when the negative affect is induced. Both studies find participants in an induced negative affective state recall significantly fewer words than participants in a neutral affective state, again evidencing an impairment in cognitive processing. Ellis et al. (1984) further extend the validity of the resource allocation model by examining the influence of negative affect on tasks of varying complexity. They find, consistent

with the model's predictions, no influence of affect on participants' recall of low effort words, however, when asked to recall high effort words, participants in negative affective states recalled significantly less words than participants in neutral affective states. Their study indicates that the cognition effects of negative affect are indeed larger when the encoding demands for the task are harder.

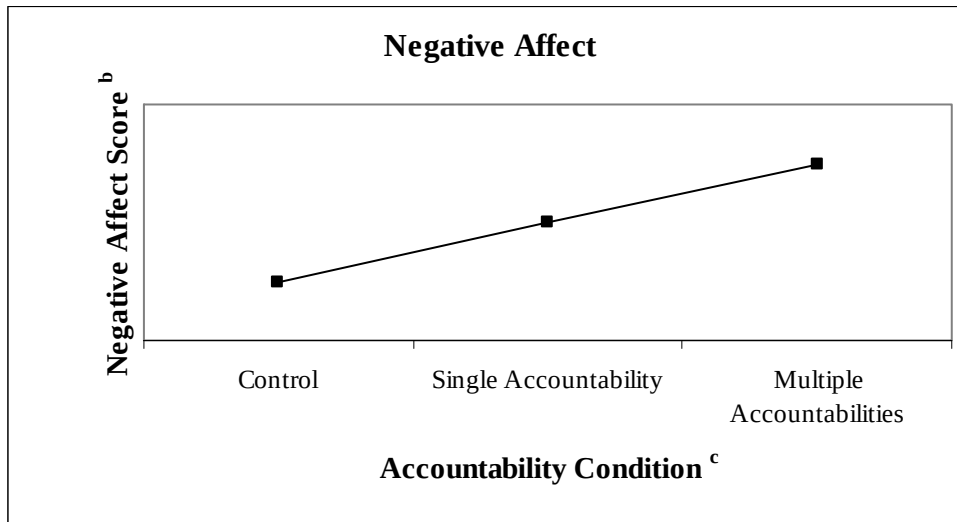
Consistent with the resource allocation model predictions, I do not expect high evaluation apprehension to impair cognitive encoding on the low-complexity audit task, where the encoding demands on the participants are minimal. For the high-complexity audit task where the encoding demands are harder than those for the low-complexity task, I expect evaluation apprehension to impair cognitive encoding. Formally, I hypothesize the following:

H4a: High evaluation apprehension will have no influence on the cognitive encoding of information for a low-complexity audit task.

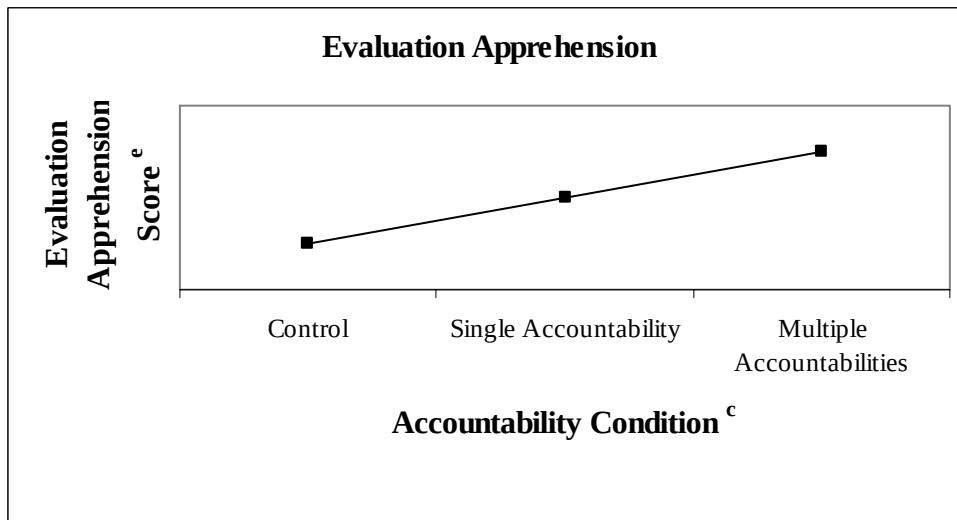
H4b: High evaluation apprehension will harm the cognitive encoding of information for a high-complexity audit task.

These hypotheses are summarized in Figure 2.3.

Panel A: Hypothesis 1^a



Panel B: Hypothesis 2^d



^a H1: As accountability requirements increase, negative affect increases.

^b Negative affect, the dependent variable, is measured using the Positive and Negative Affect Schedule (PANAS) scale.

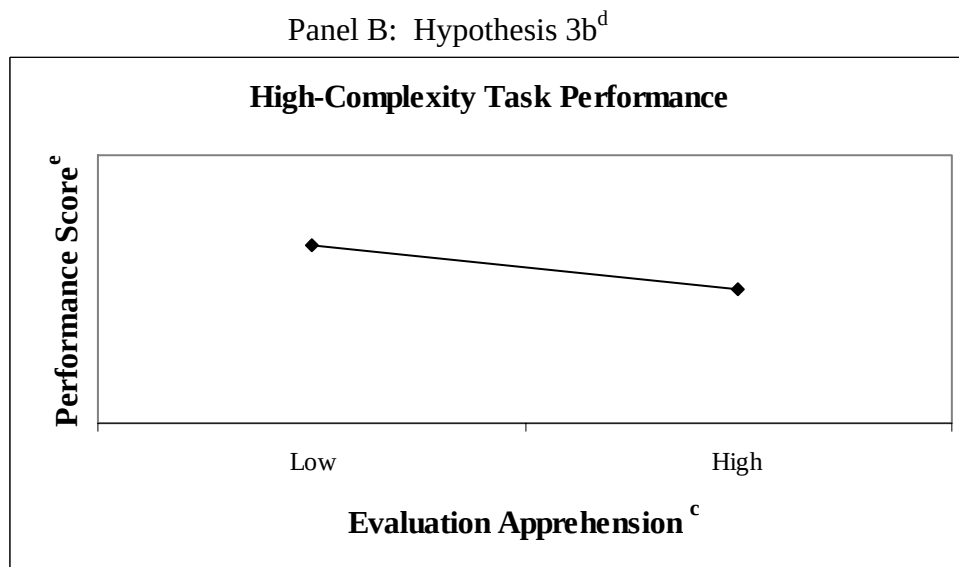
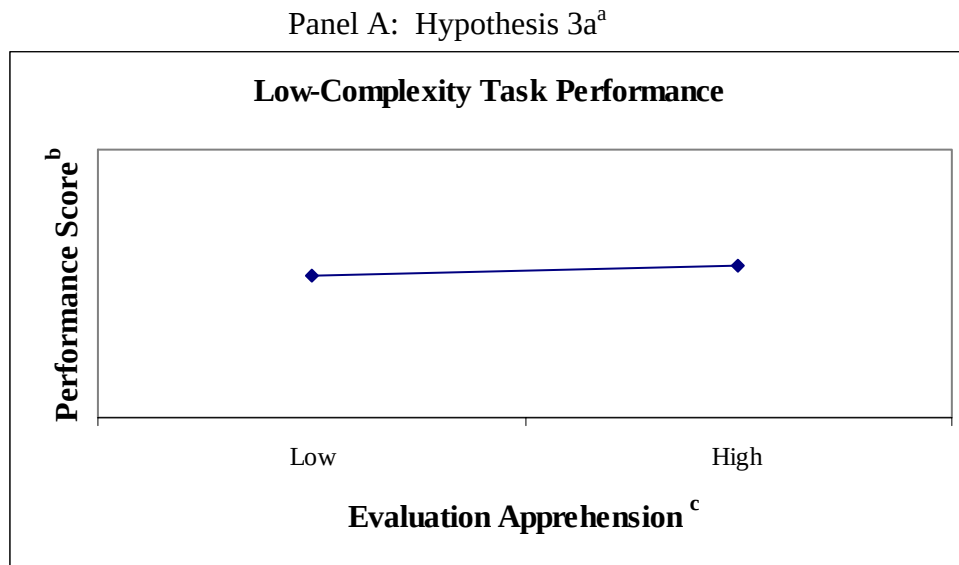
^c Accountability condition, the independent variable, is manipulated between participants.

^d H2: As accountability requirements increase, evaluation apprehension increases.

^e Primary analysis for evaluation apprehension, the dependent variable, is measured using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects).

Figure 2.1

Hypotheses 1 and 2 Predictions



^a H3a: High evaluation apprehension will have no influence on the performance of a low-complexity task.

^b For the low-complexity task, participants listed controls tests to determine whether client's controls over payables and liabilities were effective and listed substantive tests that would discover unrecorded liabilities. Performance on the low-complexity task is measured as the number of correct controls and substantive tests listed.

^c Primary analysis for evaluation apprehension, the independent variable, is measured immediately after the task using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects).

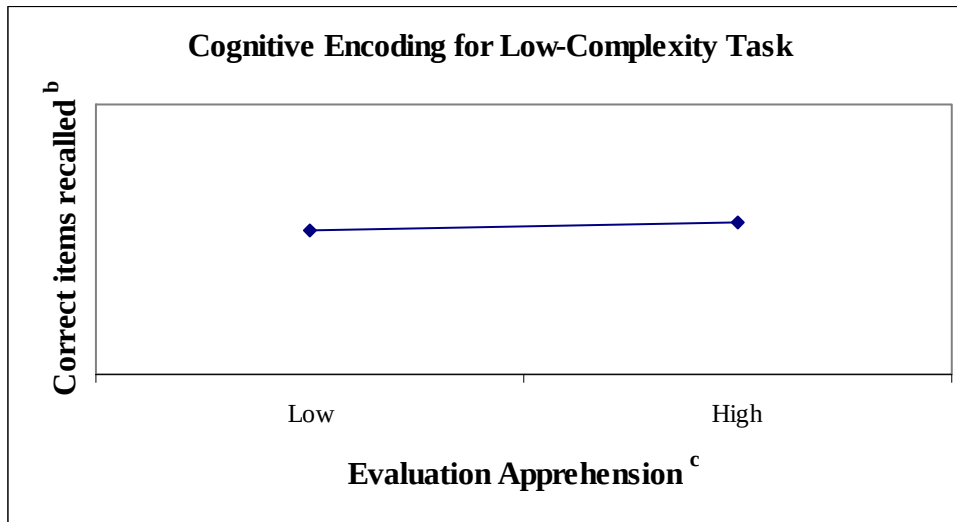
^d H3b: High evaluation apprehension will harm performance on a high-complexity audit task.

^e For the high-complexity task, participants listed errors that would cause changes in the financial ratios they were provided. Performance on the high-complexity task is measured as the number of plausible errors listed.

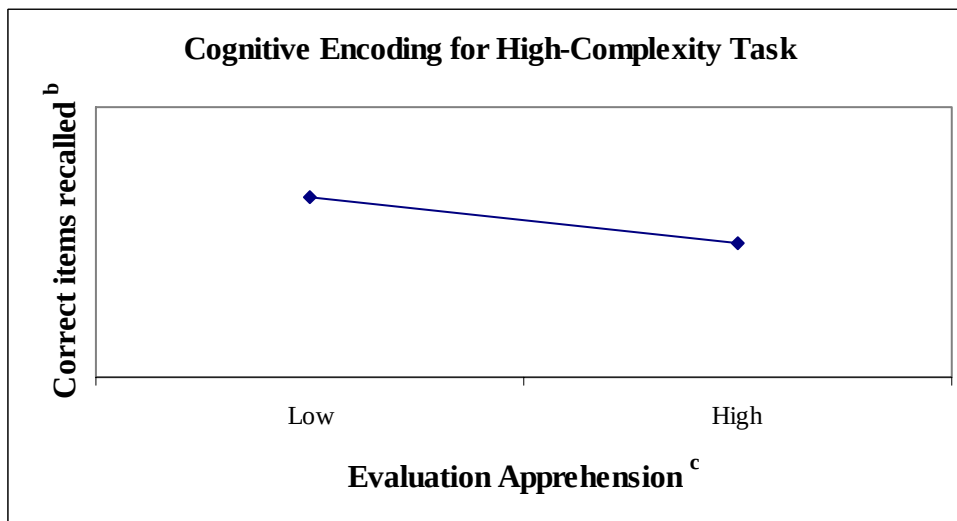
Figure 2.2

Hypotheses 3a and 3b Predictions

Panel A: Hypothesis 4a^a



Panel B: Hypothesis 4b^d



^a H4a: High evaluation apprehension will have no influence on the cognitive encoding of information for a low-complexity audit task.

^b For both the low- and high-complexity task, cognitive encoding is measured as the number of correct items recalled from the respective task information.

^c Primary analysis for evaluation apprehension, the independent variable, is measured immediately after the task using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects).

^d H4b: High evaluation apprehension will harm the cognitive encoding of information for a high-complexity audit task.

Figure 2.3

Hypotheses 4a and 4b Predictions

CHAPTER 3

RESEARCH METHOD

3.1 Participants

One hundred and seventy-one auditors from three public accounting firms, including 24 seniors (mean experience = 29.50 months, standard deviation = 14.26 months) and 145 staff auditors (mean experience = 10.96 months, standard deviation = 4.94 months), participated in the experiment. Thirty-three participants were eliminated for improper recognition of their accountability condition and two participants were eliminated for not completing all of the experimental materials. The responses from the remaining 136 participants, including 19 seniors (mean experience = 29.68 months, standard deviation = 15.81) and 117 staff auditors (mean experience = 10.82, standard deviation = 5.40), were used for hypotheses testing.¹¹

3.2 Research Design

The experiment employed a 3 (accountability) x 2 (task complexity) x 2 (order) design. Accountability was manipulated between participants, with participants randomly assigned to either a no accountability condition (i.e., control), single accountability condition, or multiple accountabilities condition. Task complexity was a within-participant variable, manipulated by having participants complete both a low- and high-complexity audit task. Lastly, the order of the tasks was manipulated between participants.

¹¹ In untabulated analysis, including participants who incorrectly identified his/her accountability condition did not significantly influence the results.

3.3 Procedure

I conducted each administration of the experiment. Prior to viewing the experimental materials, participants were asked to read and sign two copies of a consent form summarizing what their participation entailed and contact information for myself and my faculty advisor. I retained one copy of the consent form; the second copy was for the participant (see Appendix A and Appendix B). Upon signing the consent forms, participants received the experimental instrument and two envelopes. The experimental materials began with instructions which included the accountability manipulation. After reading the instructions, participants were asked to complete one of the two audit tasks, followed immediately by measures of negative affect, evaluation apprehension, and cognition. Participants then completed the remaining audit task, again followed immediately by measures of negative affect, evaluation apprehension, and cognition. Finally, participants completed a debriefing questionnaire. Participants were instructed to place the two audit tasks in one envelope and the measures of negative affect, evaluation apprehension, and cognition as well as the debriefing questionnaire in the second envelope. For the single accountability and multiple accountabilities conditions, participants were told that only the envelope containing the two audit tasks would be given to the manager for review. The purpose of separating the completed experimental materials was to encourage honest reporting of affect by emphasizing to the participants that their responses to the negative affect, evaluation apprehension and cognition measures as well as debriefing questions would not be viewed by the superiors. The experimental materials were the same for all participants, with the exception of the consent forms and instructions related to the accountability manipulations (see Appendix C for the experimental instrument for control participants).

3.4 Independent Variables

Accountability

Participants were randomly assigned to one of three accountability conditions: control, single accountability, or multiple accountabilities. Participants in the control condition were told not to provide their names and were assured that their responses were anonymous and non-traceable. Participants in the single accountability condition were informed that their responses would be reviewed by a manager and were asked to provide their names at the beginning of the experiment and then again before completing each task. Participants were not told any preferences of their reviewer. The single accountability manipulation is consistent with the manipulation of accountability in the previous literature which suggests that greater effort is induced than when participants are anonymous (e.g., Tan and Kao 1999; Cloyd 1997; Glover 1997; Tan 1995; Koonce et al. 1995) (See Appendix D for the single accountability manipulation).

In the multiple accountabilities condition, participants were held accountable to multiple sources (i.e., manager, partner, and faculty panel) who had varying clarity levels of accountability (i.e., manager concern for quality and efficiency, partner and faculty panel preferences unknown) and also imposed varying levels of accountability pressure (i.e., manager review with feedback, partner and faculty panel review only). Participants in the multiple accountabilities condition were informed that their performance would be evaluated by a manager and the manager was concerned with both the quality and efficiency of task completion. They were also informed that they would receive feedback from the manager and that a sample of the participants would be subject to a second review performed by a partner. The participants were told that they would be informed whether they were selected for partner review when they

received their feedback. Lastly, participants were informed that approximately 5% of the participants would be subject to a Public Company Accounting Oversight Board (PCAOB) type review to be conducted by a panel of faculty members. Participants were asked to provide their names and email addresses at the beginning of the experiment and then again before completing each task (See Appendix E for the multiple accountabilities manipulation).

The multiple accountabilities condition is designed to be more characteristic of the accountability pressures auditors encounter in practice. The performance of staff and senior auditors is reviewed by at least one superior and is often reviewed by more than one superior of varying levels. Superiors are concerned with both the quality of work performed and the ability to meet set time budgets. The superiors typically provide the auditors with feedback regarding their performance in the form of review notes. In addition, informal discussions with a PCAOB representative indicate that approximately 5% of all Big 4 audits are reviewed by the PCAOB. The faculty panel review is intended to represent a PCAOB review.

Task Complexity

Each participant performed two audit tasks of varying complexity. The two tasks were consistent with the low- and high-complexity tasks used in Tan and Kao (1999) and Tan et al. (2002). For the low-complexity task (i.e., the audit procedures task), participants were asked to list control tests to determine whether a client's controls over payables and liabilities were effective and to list substantive tests that would discover unrecorded liabilities. For the high-complexity task (i.e., the ratio analysis task), participants were given background information and financial ratios for a fictitious company and asked to list errors that could have caused the changes in financial ratios.¹²

¹² Tan and Kao (1999) use audit managers, seniors, and staff to complete identical audit tasks, therefore audit seniors and staff are deemed appropriate participants for my study. Also, senior and staff auditors regularly perform tests of

3.5 Dependent Variables

I use four dependent variables to test the hypotheses in my study. I analyze negative affect for H1, evaluation apprehension for H2, task performance for H3a and H3b, and cognition for H4a and H4b. The dependent variables are described in more detail below.

Negative Affect

Negative affect was measured after each task. Negative affect is measured in psychology and accounting literature using the Positive and Negative Affect Schedule (PANAS) scale. The PANAS scale is administered by providing participants with a list of affects and asking them how well each term describes how they felt during the completion of the experimental task (e.g., Watson et al. 1988; Blay et al. 2006). Participants responded on a seven-point scale with endpoints labeled 'not well at all' and 'extremely well' and the midpoint labeled 'neutral.' The affects measured are excited, nervous, enthusiastic, anxious, inspired, worried, determined, upset, calm, tense, and relaxed.¹³ The negative affect score is calculated by adding the reversed scale responses for excited, enthusiastic, inspired, calm, and relaxed to the responses for nervous, anxious, worried, determined, upset, and tense. The negative affect score is positively related to the amount of negative affect the participant experiences.

Evaluation Apprehension

Evaluation apprehension was measured after each task. Evaluation apprehension was measured two ways, consistent with Leary et al. (1986). The first measure of evaluation apprehension was calculated using a subset of the affects used to measure negative affect (i.e., Evaluation Apprehension Affects). Evaluation apprehension was calculated using a subset of the

controls, substantive tests, and analytical procedures in practice and should therefore be familiar with the tasks (Abdolmohammadi 1999).

¹³ The affects measured in my study represent a subset of the terms from the PANAS Scale (Watson et al. 1988) and, with the exception of calm, tense, and relaxed, are consistent with the affects measured in Blay et al. (2006).

affects related specifically to anxiety (Leary et al. 1986).¹⁴ Consistent with Leary et al. 1986, the affects measured to assess evaluation apprehension are calm, nervous, tense, relaxed, and worried. The evaluation apprehension score is calculated by adding the reversed scale responses for calm and relaxed to the scale responses for nervous, tense and worried.

The second measure of evaluation apprehension is the Indices of Evaluation Concern scale, a four question scale to measure a person's evaluation anxiety (Skinner and Brewer 1999; Leary et al. 1986). The Indices of Evaluation Concern scale, a scale of state social anxiety, measures the participant's concern about their performance and the extent to which their own and other's knowledge of poor performance would bother them (Skinner and Brewer 1999). Participants were asked to respond to each question using a five-point scale with endpoints labeled 'very slightly or not at all' and 'extremely'. This measure of evaluation apprehension is calculated by adding together the responses to the four questions. Both measures of evaluation apprehension are positively related to the amount of evaluation apprehension the participant experiences.

Although I measure evaluation apprehension using both the Evaluation Apprehension Affects and the Indices of Evaluation Concern scale, consistent with Leary et al. 1986, each measures a different aspect of evaluation apprehension and therefore may not yield consistent results. The Evaluation Apprehension Affects measure of evaluation apprehension is intended to measure experienced evaluation apprehension, whereas the Indices of Evaluation Concern scale better captures the cause of the evaluation apprehension. In particular, the Indices of Evaluation Concern scale is intended to differentiate whether the cause of evaluation apprehension is due to

¹⁴ Evaluation apprehension is defined earlier as a specific type of anxiety related to the prospect of evaluation (e.g, Cohen 1980; Geen 1980). Therefore, consistent with Leary et al. (1986), any change in the anxiety related affects by varying levels of evaluation (i.e., accountability condition) is assumed to be measuring changes in evaluation apprehension.

a self-threat (knowing you performed poorly) or a social threat (others knowing you performed poorly) to the individual (Leary et al. 1986). Any inconsistent results between the two measures could be driven by the difference in measurement intentions or the hypothetical nature of two of the questions asked on the Indices of Evaluation Concern scale (i.e., how much would it bother you) as opposed to the actual nature of the Evaluation Apprehension Affects measure (i.e., indicate how you felt).¹⁵

Task Performance

Low-complexity task performance was measured as the number of correct control and substantive tests listed. High-complexity task performance was measured as the number of plausible errors listed. Items were considered plausible if they could explain all of the ratio changes in the correct direction. Items were considered implausible if they explained ratio changes in the wrong direction, did not explain all of the ratio changes, or were inconsistent with the accounting policies presented with the task. A doctoral student with auditing experience and I independently coded performance on both the low- and high-complexity tasks. The doctoral student was blind to the conditions for all of the coding. Inter-rater agreement for the low-complexity task was 90.79%, and all differences were mutually resolved. Inter-rater agreement for the high-complexity task was 89.53%, and all differences were mutually resolved. Cohen's Kappa is 0.82 and 0.78 for the low- and high-complexity tasks, respectively; both are significantly different from zero ($p < 0.01$).

Cognition

Cognition was measured after each task using a free recall task. Free recall tasks are used in psychology and accounting research to measure cognitive processing, including problem

¹⁵ Pilot testing was done using 77 undergraduate accounting students and 47 graduate accounting students to assure the reasonableness of the accountability manipulations and measures of evaluation apprehension.

representation formation and cognitive encoding of information (Mueller 1978; Christ 1993; Hammersley et al. 1997; Hammersley 2006).¹⁶ Consistent with psychology, I measure cognitive encoding of information as the number of correct items recalled from the case information (Mueller 1978; Ellis et al. 1984; Ellis et al. 1995; Seibert and Ellis 1991). The information correctly recalled is positively related to the level of cognitive encoding done by the participant (Mueller 1978). A doctoral student with auditing experience and I independently coded cognitive encoding on both the low- and high-complexity tasks. The doctoral student was blind to the conditions for all of the coding. Inter-rater agreement for the low-complexity task was 88.63%, and all differences were mutually resolved. Inter-rater agreement for the high-complexity task was 93.18%, and all differences were mutually resolved. Cohen's Kappa is 0.76 and 0.65 for the low- and high-complexity tasks, respectively; both are significantly different from zero ($p < 0.01$).

¹⁶ A problem representation is a person's understanding and interpretation of a problem situation. It is developed by mapping together existing knowledge structures related to the task at hand and the information given for completing the task (Christ 1993).

CHAPTER 4

RESULTS

4.1 Manipulation Checks

To verify the success of the accountability manipulations, I asked participants to identify their accountability condition and how much pressure they felt to perform well on the tasks on a seven point likert scale (1 = no pressure at all; 7 = a great deal of pressure). As previously noted, all participants who were unable to identify their accountability condition were excluded from the final analysis. Participants in the single accountability condition felt significantly more pressure to perform well (mean = 4.29) than did participants in the control condition (mean = 3.75, $p = 0.05$). In addition, participants in the multiple accountabilities condition felt significantly more pressure to perform well (mean = 4.81) than did participants in the single accountability condition ($p = 0.05$), indicating that as accountabilities increased, auditors felt incremental increases in pressure. Thus, I conclude the accountability manipulations were successful.¹⁷

To verify the success of the task complexity manipulation, participants used seven point likert scales to rate both the complexity of each task (1 = not at all complex; 7 = extremely complex) and the amount of effort required to complete each task (1 = no effort at all; 7 = extreme effort). The results indicate that participants felt the ratio analysis task (i.e., high-complexity task) was significantly more complex (mean = 4.22) than the audit procedures task (i.e., low-complexity task, mean = 3.46, $p < 0.01$). In addition, participants indicated that the

¹⁷ In untabulated analysis, order did not significantly influence any dependent variables. Therefore, all analyses are presented with order collapsed across accountability condition.

ratio analysis task required significantly more effort (mean = 4.46, $p < 0.01$) than the audit procedures task (mean = 3.96). Thus, I conclude the task complexity manipulation was successful.

4.2 Factor Analysis for Negative Affect and Evaluation Apprehension Measures

I performed a factor analysis on the 11 affects comprising the negative affect measure (i.e., the PANAS scale) and the Evaluation Apprehension Affects measure of evaluation apprehension to determine what underlying constructs were measured. Factor analysis for the 11 affects is presented in Table 4.1. Table 4.1, Panel A presents the factor loadings for the affects measured following the low-complexity audit task; Panel B presents the factor loadings for the affects measured following the high-complexity audit task. For the affects measured after both the low- and high-complexity tasks, three principal components with eigenvalues greater than one were identified, explaining a total of 79.48% and 78.60%, respectively, of the variance of the 11 affects. The first factor explains 39.77% and 38.39%, respectively, of the total variance and includes the negative affects measured: nervous, anxious, worried, upset, and tense. The second factor explains 29.55% and 29.06%, respectively, of the total variance and includes the positive affects measured: enthusiastic, inspired, excited, and determined. The third factor explains 10.16% and 11.15%, respectively, of the total variance and includes the affects calm and relaxed.

The Evaluation Apprehension Affects measure of evaluation apprehension includes a subset of the affects identified in the first factor, the negative affect factor (i.e., nervous, tense, and worried), and the affects included in the third factor, calm and relaxed. Factor analysis of the Evaluation Apprehension Affects is of interest because it has never before been performed. Factor analysis has previously been performed on the measure of negative affect, the PANAS scale. The negative and positive affect factors identified in my study are consistent with those

identified in previous psychology research on the PANAS scale and have been found to relate directly to an individual's differences in positive and negative emotional reactions (Tellegen 1985; Watson et al. 1988; Mano 1991).

I also ran a factor analysis of the 11 affects as well as the responses to the four Indices of Evaluation Concern scale questions. Factor analysis for the 11 affects and the Indices of Evaluation Concern questions are presented in Table 4.2. Table 4.2, Panel A presents the factor loadings for the affects and questions following the low-complexity audit task; Panel B presents the factor loadings for the affects and questions following the high-complexity audit task. Factor analysis reveals three factors with eigenvalues greater than one for the affects and questions measured after both the low- and high-complexity tasks. The three factors explain 73.78% and 71.82% of the total variance, respectively. Contrary to the results of the factor analysis of only the 11 affects, the three factors identified for the low- and high-complexity tasks are not of the same composition. For the low-complexity task, the first factor explains 34.12% of the variance and includes mostly the negative affects measured (i.e., nervous, anxious, worried, and tense) as well as the first three questions from the Indices of Evaluation Concern scale.¹⁸ Interestingly, the affect determined loaded negatively on the first factor, indicating a negative relationship between participants' determination and their negative affect. The second factor explains 24.87% of the variance and includes predominantly the positive affects measured (i.e., enthusiastic, inspired, and excited) as well as the affects calm and relaxed. Unexpectedly, the affect upset loaded with the positive affects. It should be noted, however, upset also loaded very similarly on the first and

¹⁸ The Indices of Evaluation Concern scale is composed of four questions. Question 1 asks participants how concerned they were with performing well on the respective task. Question 2 asks participants how important it was for them to do well on the respective task. Question 3 asks participants how much it would bother them if they found out they had performed poorly on the respective task. Lastly, question 4 asks participants how much it would bother them if a manager or partner found out they had performed poorly on the task.

third factors. The final factor for the low-complexity task explains 14.79% of the variance and simply includes the fourth question to the Indices of Evaluation Concern scale.

For the high-complexity task, the first factor explains 33.84% of the total variance and, similar to the low-complexity task, includes predominantly the negative affects measured (i.e., nervous, anxious, worried, and tense) as well as the first three questions of the Indices of Evaluation Concern scale. Unlike the low-complexity task, the affect determined loaded onto the second factor, which explains 22.31% of the total variance and includes the remainder of the positive affects (i.e., enthusiastic, inspired, excited, and determined) as well as the affects calm and relaxed. The third factor for the high-complexity task explains 15.66% of the variance and includes the affect upset, as well as the fourth question of the Indices of Evaluation Concern scale.

The PANAS scale used in this study, the Evaluation Apprehension Affects measure, and the Indices of Evaluation Concern scale, have never before been measured in the same study. Likewise, no previous factor analysis has been performed on the three measures combined. The results for the factor analysis of the affects and questions combined for the high-complexity task are similar to the results from the factor analysis when only examining the 11 affects measured. The results for the factor analysis of the affects and questions combined for the low-complexity task, particularly the loadings of the affects upset and determined, are puzzling. The puzzling results may indicate that the Indices of Evaluation Concern scale is indeed measuring a different aspect of evaluation apprehension (i.e., the cause) rather than experienced evaluation apprehension itself.

4.3 Correlations Among Negative Affect and Evaluation Apprehension Measures

Pearson correlations for measures of negative affect and evaluation apprehension are presented in Table 4.3. Pearson correlations reveal that negative affect scores (i.e., PANAS) are significantly correlated with the Evaluation Apprehension Affects measures of evaluation apprehension. These significant correlations are expected due both to the definition of evaluation apprehension as a particular type of negative affect and also to the calculation of the Evaluation Apprehension Affects measure as a subset of the negative affect measure. Pearson correlations also confirm that the Evaluation Apprehension Affects measures and the Indices of Evaluation Concern measures of evaluation apprehension are significantly correlated. This indicates that there is overlap in the emotional response each is measuring. Interestingly, there are no significant correlations between the negative affect measures and the Indices of Evaluation Concern scale measures of evaluation apprehension. The lack of significant correlation between the negative affect measures and the Indices of Evaluation Concern measures of evaluation apprehension again highlights the notion that the Indices of Evaluation Concern scale may be measuring a different aspect of evaluation apprehension (i.e., the cause) than the Evaluation Apprehension Affects measure.

4.4 Hypothesis 1 Results

In H1, I predict that as accountability requirements increase, negative affect increases. To test H1, I perform a repeated-measures ANOVA with accountability as a between-participant variable, task as a within-participant variable and negative affect scores as the dependent variables. The results are presented in Table 4.4 and Figure 4.1, Panel A. Table 4.4, Panel A presents means and standard deviations of negative affect

for each condition; Panel B presents the results of the repeated-measures ANOVA; and Panel C presents the results of post-hoc contrast tests.¹⁹ Panel A reveals that mean negative affect increases as accountability increases. ANOVA results indicate that the increase in negative affect across accountability conditions is significant, thus H1 is supported ($F = 5.85$, one-tailed $p < 0.01$). Further post-hoc contrast tests reveal that the significant increase in negative affect is due to the multiple accountabilities condition, the participants in the multiple accountabilities condition experienced significantly more negative affect than those in either the control (one-tailed $p < 0.01$) or the single accountability condition (one-tailed $p = 0.03$). There was no significant difference in negative affect between participants in the control and single accountability condition (one-tailed $p = 0.50$). Overall, H1 analysis reveals that auditors subject to multiple accountabilities experience significantly more negative affect than anonymous auditors and auditors subject to a single accountability requirement.

4.5 Hypothesis 2 Results

I rely on the Evaluation Apprehension Affects measure of evaluation apprehension for primary testing for H2 because it measures experienced evaluation apprehension rather than the Indices of Evaluation Concern measure which measures the cause of evaluation apprehension. However, results using both the Evaluation Apprehension Affects measure and the Indices of Evaluation Concern measure of evaluation apprehension are presented and discussed in more detail below.

¹⁹ Negative affect is measured after each task, therefore Table 4.4 includes means and standard deviations for each task, as well as average means and standard deviations.

Evaluation Apprehension Affects

In H2, I predict that as accountability requirements increase, evaluation apprehension increases. To test H2, I perform a repeated-measures ANOVA with accountability as a between-participant variable, task as a within-participant variable and evaluation apprehension scores as the dependent variables. The results are presented in Table 4.5 and Figure 4.1, Panel B. Table 4.5, Panel A presents means and standard deviations of evaluation apprehension for each condition; Panel B presents the results of the repeated-measures ANOVA; and Panel C presents the results of post-hoc contrast tests.²⁰ Panel A reveals that mean evaluation apprehension increases as accountability increases. ANOVA results confirm that the increase in evaluation apprehension across accountability conditions is significant, thus H2 is supported ($F = 6.33$, one-tailed $p < 0.01$). Further post-hoc contrast tests reveal that, as with negative affect, the significant increase in evaluation apprehension is due to the multiple accountabilities condition, the participants in the multiple accountabilities condition experienced significantly more evaluation apprehension than those in either the control (one-tailed $p < 0.01$) or the single accountability condition (one-tailed $p = 0.04$). There was no significant difference in evaluation apprehension between participants in the control and single accountability condition (one-tailed $p = 0.29$). Overall, H2 analysis reveals that auditors experience significantly more evaluation apprehension when they are confronted with multiple accountabilities than when confronted with a single accountability requirement or when they are not held accountable.

²⁰ The Evaluation Apprehension Affects measure of evaluation apprehension is measured after each task, therefore Table 4.5 includes means and standard deviations for each task, as well as average means and standard deviations.

Indices of Evaluation Concern

H2 analysis using the Indices of Evaluation Concern measure of evaluation apprehension is presented in Table 4.6. Table 4.6, Panel A presents means and standard deviations of evaluation apprehension for each condition; Panel B presents the results of the repeated-measures ANOVA; and Panel C presents the results of post-hoc contrast tests.²¹ ANOVA results reveal no significant difference in the hypothesis results; H2 is supported when using the Evaluation Apprehension Affects measure of evaluation apprehension and when using the Indices of Evaluation Concern measure ($F = 2.27$, one-tailed $p = 0.05$). Post-hoc comparisons using the Indices of Evaluation Concern measure show a significant difference between the multiple accountabilities condition and the control (one-tailed $p = 0.05$) on evaluation apprehension, however, no significant difference between the multiple accountabilities and the single accountability condition (one-tailed $p = 0.37$).

4.6 Hypotheses 3a and 3b Results

I rely on the Evaluation Apprehension Affects measure of evaluation apprehension for primary testing for H3a and H3b because it measures experienced evaluation apprehension rather than the Indices of Evaluation Concern measure which measures the cause of evaluation apprehension. However, results using both the Evaluation Apprehension Affects measure and the Indices of Evaluation Concern measure of evaluation apprehension are presented and discussed in more detail below.

²¹ The Indices of Evaluation Concern scale is measured after each task, therefore Table 4.6 includes means and standard deviations for each task, as well as average means and standard deviations.

Evaluation Apprehension Affects

H3a predicts that high evaluation apprehension has no influence on the performance of a low-complexity audit task. H3b predicts that high evaluation apprehension harms performance on a high-complexity audit task. To test H3a and H3b, I perform an ANOVA using a median split of evaluation apprehension (low, high) as a predictor of task performance.²² The results for H3a and H3b are presented in Table 4.7 and Figure 4.2. Table 4.7, Panels A and B present the means and standard deviations of low- and high-complexity task performance by evaluation apprehension and condition; Panels C and D present the ANOVA results. As predicted in H3a, high evaluation apprehension has no influence on the performance of a low-complexity audit task ($F = 1.29$; two-tailed $p = 0.26$). Thus, H3a is supported.²³ Contrary to expectations, high evaluation apprehension also has no influence on the performance of a high-complexity audit task ($F = 0.00$; one-tailed $p = 0.50$). Thus, H3b is not supported.²⁴

Further examination of the performance means on the high-complexity task indicates that performance was poor across low and high evaluation apprehension conditions (means = 1.63 and 1.63, respectively) as well as across accountability conditions (mean for control condition = 1.60; mean for single accountability condition = 1.64; mean for multiple accountabilities condition = 1.66). Despite the use of similar participants, Tan and Kao (1999) obtained an overall performance mean of approximately 2.68 using the same high-complexity task. The

²² Evaluation apprehension is divided using a median split of the Evaluation Apprehension Affect measure of evaluation apprehension for each task. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.75. Mean evaluation apprehension score for the high evaluation apprehension condition for the low-complexity task is 22.38. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition for the high-complexity task is 13.47. Mean evaluation apprehension score for the high evaluation apprehension condition for the high-complexity task is 23.25. The means are significantly different (two-tailed $p < 0.01$).

²³ Observed power for H3a testing is 0.20. Power is the tests ability to reject the null hypothesis when it is in fact false.

²⁴ In untabulated analysis, H3a and H3b results remained unchanged when high evaluation apprehension was defined as the top third of the Evaluation Apprehension Affect measure scores and low evaluation apprehension was defined as the bottom third of the Evaluation Apprehension Affect measure scores.

disparity in performance scores between my study and Tan and Kao (1999) indicates that, despite self-reported measures of task complexity, the high-complexity audit task may have been too complex for the participants in my study. Thus, any negative influence of evaluation apprehension would be overshadowed by the fact that participants, regardless of experienced evaluation apprehension, performed poorly simply because the task was too complex.²⁵

Indices of Evaluation Concern

H3a and H3b analysis using the Indices of Evaluation Concern measure of evaluation apprehension is presented in Table 4.8. Table 4.8, Panel A presents the means and standard deviations of low- and high-complexity task performance by evaluation apprehension; Panels B and C present the ANOVA results. ANOVA analysis reveals, inconsistent with the Evaluation Apprehension Affects measure, that high evaluation apprehension improves performance on the low-complexity task (two-tailed $p < 0.01$), thus indicating H3a is not supported.²⁶ There was no significant difference in H3b hypothesis results; H3b was not supported regardless of the measure of evaluation apprehension.²⁷

4.7 Hypotheses 4a and 4b Results

I rely on the Evaluation Apprehension Affects measure of evaluation apprehension for primary testing for H4a and H4b because it measures experienced

²⁵ Untabulated analysis also reveals that experience did not significantly influence high-complexity task performance (two-tailed $p = 0.97$), thus further indicating that the high-complexity task was too complex for the participants in my study.

²⁶ Evaluation apprehension is divided using a median split of the Indices of Evaluation Concern scale measure of evaluation apprehension for each task. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.67. Mean evaluation apprehension score for the high evaluation apprehension condition for the low-complexity task is 17.53. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition for the high-complexity task is 11.78. Mean evaluation apprehension score for the high evaluation apprehension condition for the high-complexity task is 17.38. The means are significantly different (two-tailed $p < 0.01$).

²⁷ In untabulated analysis, H3a and H3b results remained unchanged when high evaluation apprehension was defined as the top third of the Indices of Evaluation concern scores and low evaluation apprehension was defined as the bottom third of the Indices of Evaluation concern scores.

evaluation apprehension rather than the Indices of Evaluation Concern measure which measures the cause of evaluation apprehension. However, results using both the Evaluation Apprehension Affects measure and the Indices of Evaluation Concern measure of evaluation apprehension are presented and discussed in more detail below.

Evaluation Apprehension Affects

H4a predicts that high evaluation apprehension has no influence on the cognitive encoding of information for a low-complexity audit task. H4b predicts that high evaluation apprehension harms the cognitive encoding of information for a high-complexity audit task. To test H4a and H4b, I perform an ANOVA using a median split of evaluation apprehension (low, high) as the predictor of cognitive encoding of information. The results for H4a and H4b are presented in Table 4.9 and Figure 4.3. Table 4.9, Panels A and B present the means and standard deviations of low- and high-complexity task cognitive encoding of information by evaluation apprehension and condition; Panels C and D present the ANOVA results. As predicted in H4a, high evaluation apprehension has no influence on the cognitive encoding of information for a low-complexity audit task ($F = 0.01$; two-tailed $p = 0.97$). Thus, H4a is supported. Contrary to my prediction for H4b, high evaluation apprehension also has no significant influence on the cognitive encoding of information for the high-complexity audit task ($F = 1.55$; one-tailed $p = 0.11$). Thus, H4b is not supported.²⁸ However, the results for H4b are consistent with the results

²⁸ In untabulated analysis, H4a results remained unchanged when high evaluation apprehension was defined as the top third of the Evaluation Apprehension affect measure scores and low evaluation apprehension was defined as the bottom third of the Evaluation Apprehension affect measure scores. H4b, however, is supported. Untabulated analysis reveals the mean cognitive encoding for the high evaluation apprehension condition on the high-complexity task (mean = 7.37) is significantly lower than the mean cognitive encoding for the low evaluation apprehension condition on the high-complexity task (mean = 9.09; two-tailed $p = 0.05$).

for H3b.²⁹ High evaluation apprehension did not influence high-complexity task performance, nor did it interfere with the cognitive encoding of information related to this task.

Indices of Evaluation Concern

H4a and H4b analysis using the Indices of Evaluation Concern measure of evaluation apprehension is presented in Table 4.10. Table 4.10, Panel A presents the means and standard deviations of low- and high-complexity task cognitive encoding of information by evaluation apprehension; Panels B and C present the ANOVA results. ANOVA analysis reveals, inconsistent with the Evaluation Apprehension Affects measure, that high evaluation apprehension improves the cognitive encoding of information on the low-complexity task (two-tailed $p = 0.06$), thus indicating H4a is not supported. There was no significant difference in H4b hypothesis results; H4b was not supported regardless of the measure of evaluation apprehension.³⁰

4.8 Additional Analysis

Negative Affect and Evaluation Apprehension

Recall that I found support for H1; as accountabilities increase, negative affect increases. I perform additional analysis to determine if the observed increase in negative affect is driven by evaluation apprehension. To test this assertion, I first calculate a Modified Negative Affect Score for each participant and task. The Modified Negative Affect Score is equal to the negative affect score less the affects used to determine the Evaluation Apprehension Affects measure of evaluation apprehension (i.e., calm, nervous, tense, relaxed, and worried). I contend the Modified Negative Affect Score represents negative affects other than evaluation apprehension.

²⁹ Observed power for H4b testing is 0.24. Power is the tests ability to reject the null hypothesis when it is in fact false.

³⁰ In untabulated analysis, H4a and H4b results remained unchanged when high evaluation apprehension was defined as the top third of the Indices of Evaluation Concern scores and low evaluation apprehension was defined as the bottom third of the Indices of Evaluation Concern scores.

I next perform a repeated-measures ANOVA with accountability as a between-participant variable, task as a within-participant variable and Modified Negative Affect Scores as the dependent variables. The results are presented in Table 4.11. Table 4.11, Panel A presents means and standard deviations of modified negative affect for each condition and Panel B presents the results of the repeated-measures ANOVA. ANOVA results indicate that modified negative affect is not significantly influenced by accountability condition ($F = 2.04$, two-tailed $p = 0.13$). This means that the increase in negative affect observed in H1 testing is likely due to evaluation apprehension, not the other elements of the PANAS scale that make up the negative affect score. These results point to evaluation apprehension as the specific negative affect caused by multiple accountabilities.

Task Complexity

DeZoort and Lord (1997) indicate that task complexity can contribute to auditors' experienced negative affect, particularly when auditors perceive a task to be above their knowledge level. Consistent with DeZoort and Lord (1997)'s implication, examination of the mean negative affect scores by accountability and task, presented in Figure 4.1, Panel A, reveal that as task complexity increases, negative affect increases. The repeated-measures ANOVA analysis performed for H1, presented in Table 4.4, reveals the increase in negative affect due to task complexity is significant ($F = 11.30$, two-tailed $p < 0.01$). In particular, as the task complexity increases the auditor's negative affect increases.

Additional Measure of Evaluation Apprehension

Recall that factor analysis of the negative affect measure and both measures of evaluation apprehension measured after the high-complexity task revealed one factor that contained the negative affects of nervous, anxious, worried, and tense, as well as questions one, two, and three

of the Indices of Evaluation Concern scale.³¹ I perform additional analysis using the components of this factor as my measure for evaluation apprehension.³² In particular, I test whether high evaluation apprehension harms performance and cognitive encoding of information for the high-complexity task as predicted in hypotheses 3b and 4b.³³ Untabulated analysis indicates that high evaluation apprehension does not significantly influence high-complexity task performance (mean performance for high and low evaluation apprehension is 1.65 and 1.62, respectively, $F = 0.02$, one-tailed $p = 0.45$). This is consistent with prior results found for H3b. Similarly, untabulated analysis also indicates that high evaluation apprehension does not significantly influence cognitive encoding of information for the high-complexity task (mean cognitive encoding for high and low evaluation apprehension is 8.51 and 7.78, respectively, $F = 0.93$, one-tailed $p = 0.17$).³⁴ This is consistent with prior results found for H4b.

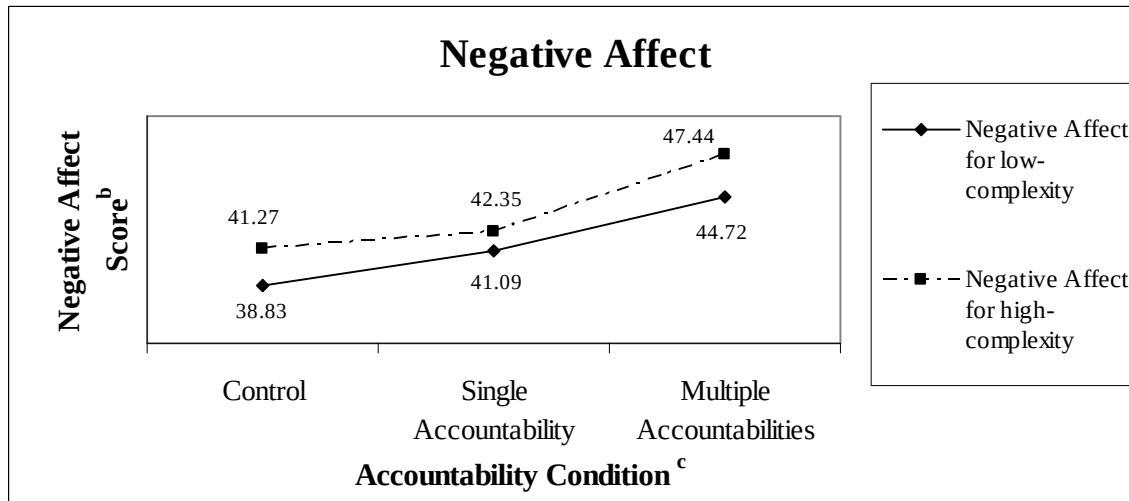
³¹ The affects nervous, worried, and tense are components of the Evaluation Apprehension Affects measure of evaluation apprehension. Questions one, two, and three of the Indices of Evaluation concern scale, are as follows. Question 1 asks participants how concerned they were with performing well on the respective task. Question 2 asks participants how important it was for them to do well on the respective task. Question 3 asks participants how much it would bother them if they found out they had performed poorly on the respective task.

³² The new measure of evaluation apprehension is calculated as the sum of the responses to the affects nervous, anxious, worried, and tense, as well as the sum of the responses to questions one, two, and three of the Indices of Evaluation Concern scale.

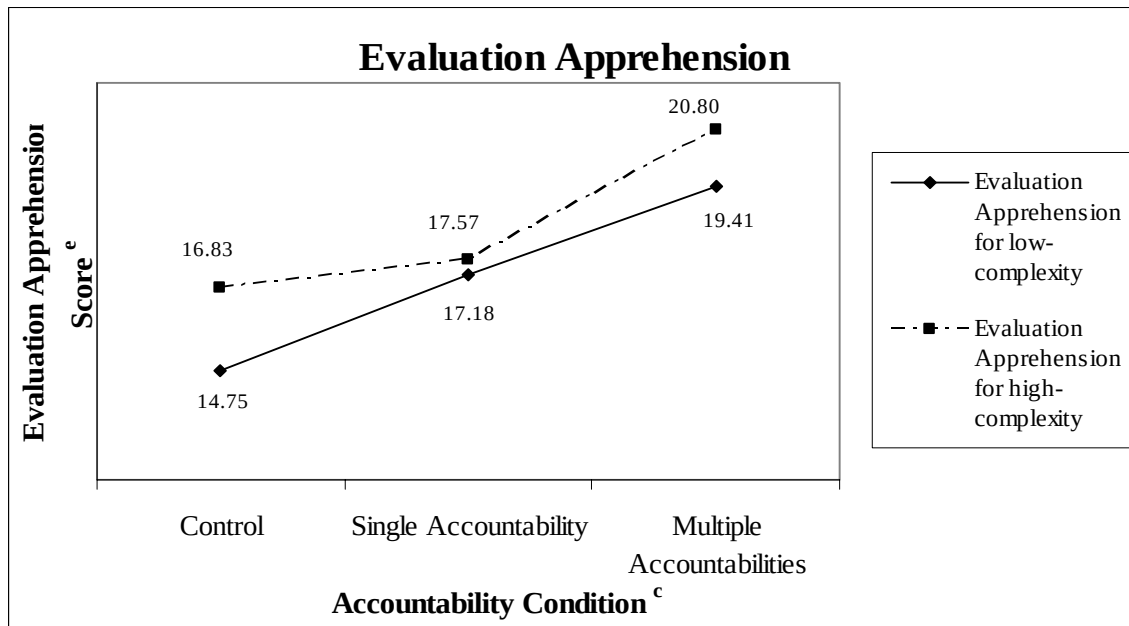
³³ Evaluation apprehension is divided using a median split of the sum of the responses to the questions identified in the first factor of factor analysis for negative affect and evaluation apprehension measures taken after the high-complexity task. The mean evaluation apprehension score for the low evaluation apprehension condition is 18.98. The mean evaluation apprehension score for the high evaluation apprehension condition is 30.28. The means are significantly different (two-tailed $p < 0.01$). Evaluation apprehension is categorized into low and high evaluation apprehension based on a median split.

³⁴ I also ran additional analysis of H3b and H4b using the Evaluation Apprehension Affects measure of evaluation apprehension and including question four of the Indices of Evaluation Concern scale (how much would it bother you if a manager or partner found out you performed poorly on the task) as a covariate. Factor analysis indicates that question four of the Indices of Evaluation Concern scale loads on a separate factor than the other questions within the Indices of Evaluation Concern scale and the Evaluation Apprehension Affects measure of evaluation apprehension. Question four was not a significant covariant for high-complexity task performance ($F = 1.72$, two-tailed $p = 0.19$), nor was it a significant covariant for high-complexity cognitive encoding of information ($F = 0.88$, two-tailed $p = 0.35$).

Panel A: Hypothesis 1^a



Panel B: Hypothesis 2^d



^a This figure illustrates the mean negative affect scores by task and condition. H1 predicts that as accountability requirements increase, negative affect increases. H1 is supported. No formal predictions were made regarding negative affect differences between tasks.

^b Negative affect, the dependent variable, is measured using the Positive and Negative Affect Schedule (PANAS) scale.

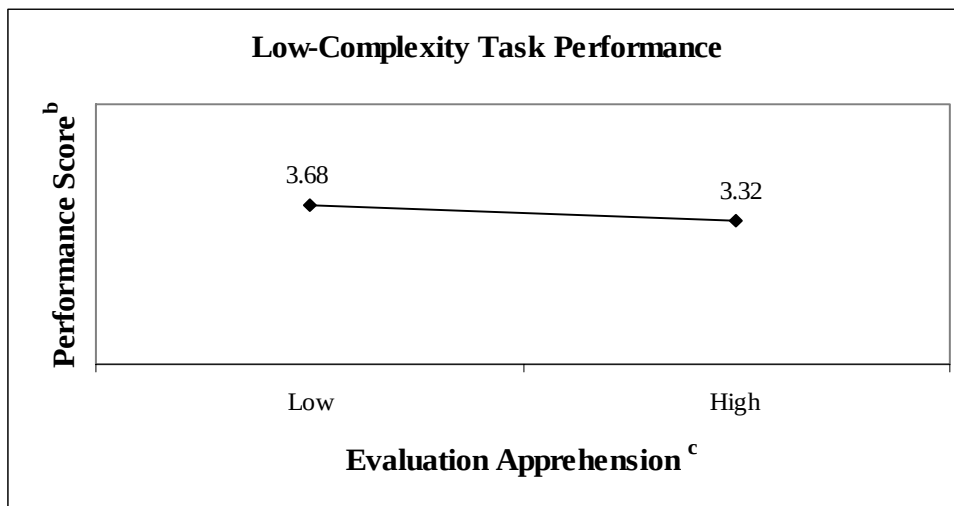
^c Accountability condition, the independent variable, is manipulated between participants.

^d This figure illustrates the mean evaluation apprehension scores by task and condition. H2 predicts that as accountability requirements increase, evaluation apprehension increases. H2 is supported. No formal predictions were made regarding evaluation apprehension differences between tasks.

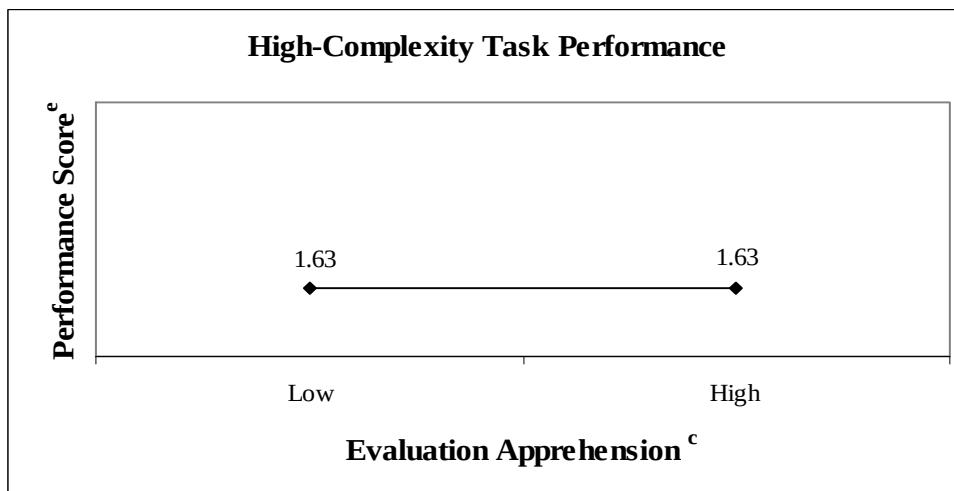
^e Primary analysis for evaluation apprehension, the dependent variable, is measured using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects).

Figure 4.1
Hypotheses 1 and 2 Results

Panel A: Hypothesis 3a^a



Panel B: Hypothesis 3b^d



^a This figure illustrates the mean low-complexity task performance results by low and high evaluation apprehension scores. H3a predicts that high evaluation apprehension will have no influence on the performance of a low-complexity task. H3a is supported.

^b For the low-complexity task, participants listed controls tests to determine whether client's controls over payables and liabilities were effective and listed substantive tests that would discover unrecorded liabilities. Performance on the low-complexity task is measured as the number of correct controls and substantive tests listed.

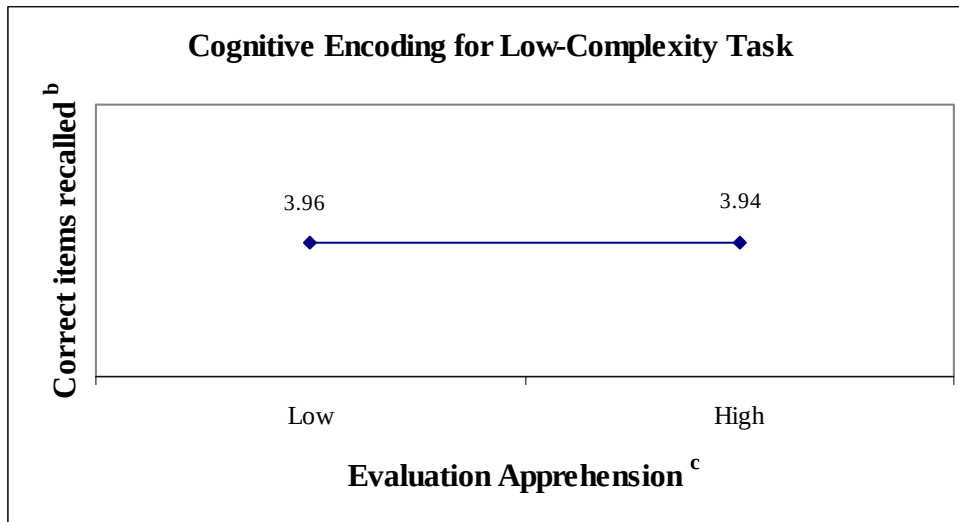
^c Primary analysis for evaluation apprehension, the independent variable, is measured immediately after the task using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects). Evaluation apprehension scores were split into high and low categories based on the median.

^d This figure illustrates the mean high-complexity task performance results by low and high evaluation apprehension scores. H3b predicts that high evaluation apprehension will harm performance on a high-complexity audit task. H3b is not supported.

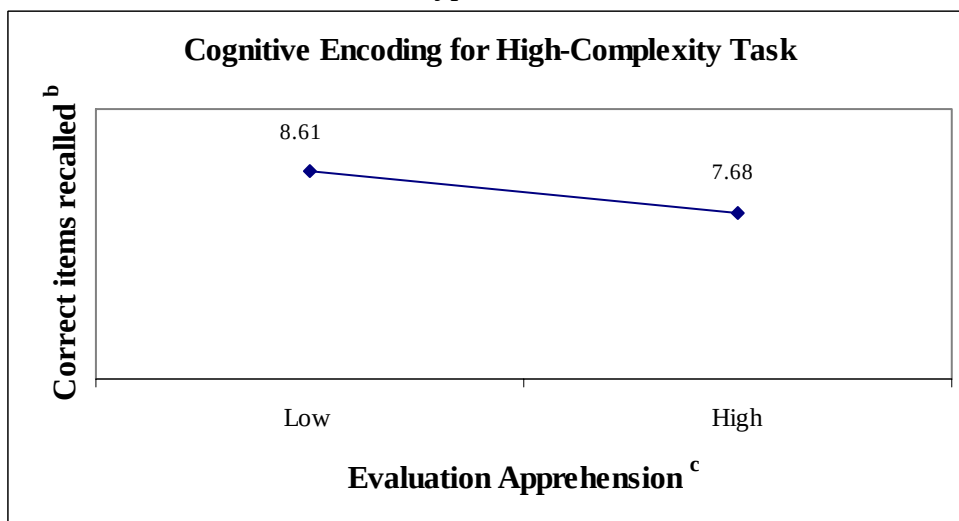
^e For the high-complexity task, participants listed errors that would cause changes in the financial ratios they were provided. Performance on the high-complexity task is measured as the number of plausible errors listed.

Figure 4.2
Hypotheses 3a and 3b Results

Panel A: Hypothesis 4a^a



Panel B: Hypothesis 4b^d



^a This figure illustrates the mean low-complexity task cognitive encoding of information by low and high evaluation apprehension scores. H4a predicts that high evaluation apprehension will have no influence on the cognitive encoding of information for a low-complexity audit task. H4a is supported.

^b For both the low- and high-complexity task, cognitive encoding is measured as the number of correct items recalled from the respective task information.

^c Primary analysis for evaluation apprehension, the independent variable, is measured immediately after the task using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects). Evaluation apprehension scores were split into high and low categories based on the median.

^d This figure illustrates the mean high-complexity task cognitive encoding of information by low and high evaluation apprehension scores. H4b predicts high evaluation apprehension will harm the cognitive encoding of information for a high-complexity audit task. H4b is not supported.

Figure 4.3
Hypotheses 4a and 4b Results

Table 4.1**Factor Analysis of Negative Affect (PANAS) and Evaluation Apprehension Affects***Panel A: Factor Loadings for Low-Complexity Affects^a*

	<i>Component^b</i>		
	1	2	3
<i>Nervous</i>	0.91		
<i>Anxious</i>	0.86		
<i>Worried</i>	0.90		
<i>Upset</i>	0.72		
<i>Tense</i>	0.89		
<i>Calm</i>			-0.64
<i>Relaxed</i>			-0.56
<i>Enthusiastic</i>		0.86	
<i>Inspired</i>		0.81	
<i>Excited</i>		0.88	
<i>Determined</i>		0.71	

Panel B: Factor Loadings for High-Complexity Affects^a

	<i>Component^c</i>		
	1	2	3
<i>Nervous</i>	0.84		
<i>Anxious</i>	0.88		
<i>Worried</i>	0.86		
<i>Upset</i>	0.69		
<i>Tense</i>	0.87		
<i>Calm</i>			-0.64
<i>Relaxed</i>			-0.59
<i>Enthusiastic</i>		0.86	
<i>Inspired</i>		0.76	
<i>Excited</i>		0.83	
<i>Determined</i>		0.70	

^aThe reversed scale responses to the affects of calm, relaxed, enthusiastic, inspired, excited, and determined are used in the factor analysis.

^bThe three components have eigenvalues higher than one and explain 79.48% of the total variance.

^cThe three components have eigenvalues higher than one and explain 78.60% of the total variance.

Table 4.2

Factor Analysis of Negative Affect (PANAS), Evaluation Apprehension Affects, and Indices of Evaluation Concern

<i>Panel A: Factor Loadings for Low-Complexity Affects^b</i>			
	<i>Component^c</i>		
	1	2	3
<i>Nervous</i>	0.75		
<i>Anxious</i>	0.71		
<i>Worried</i>	0.74		
<i>Upset</i>	0.47	0.48	-0.46
<i>Tense</i>	0.70		
<i>Calm</i>		0.58	
<i>Relaxed</i>		0.63	
<i>Enthusiastic</i>		0.64	
<i>Inspired</i>		0.54	
<i>Excited</i>		0.66	
<i>Determined</i>	-0.63		
<i>I of EC Question 1</i>	0.70		
<i>I of EC Question 2</i>	0.67		
<i>I of EC Question 3</i>	0.64		
<i>I of EC Question 4</i>			0.65
<i>Panel B: Factor Loadings for High-Complexity Affects^b</i>			
	<i>Component^d</i>		
	1	2	3
<i>Nervous</i>	0.71		
<i>Anxious</i>	0.77		
<i>Worried</i>	0.74		
<i>Upset</i>			-0.56
<i>Tense</i>	0.70		
<i>Calm</i>		0.58	
<i>Relaxed</i>		0.60	
<i>Enthusiastic</i>		0.75	
<i>Inspired</i>		0.58	
<i>Excited</i>		0.72	
<i>Determined</i>		0.62	
<i>I of EC Question 1</i>	0.74		
<i>I of EC Question 2</i>	0.61		
<i>I of EC Question 3</i>	0.63		
<i>I of EC Question 4</i>			0.56

Table 4.2 continued

Factor Analysis of Negative Affect (PANAS), Evaluation Apprehension Affects, and Indices of Evaluation Concern

^a The Indices of Evaluation Concern scale is composed of four questions. Question 1 asks participants how concerned they were with performing well on the respective task. Question 2 asks participants how important it was for them to do well on the respective task. Question 3 asks participants how much it would bother them if they found out they had performed poorly on the respective task. Lastly, question 4 asks participants how much it would bother them if a manager or partner found out they had performed poorly on the task.

^b The reversed scale responses to the affects of calm, relaxed, enthusiastic, inspired, excited, and determined are used in the factor analysis.

^c The three components have eigenvalues higher than one and explain 73.78% of the total variance.

^d The three components have eigenvalues higher than one and explain 71.82% of the total variance.

Table 4.3

**Pearson Correlations among Negative Affect and Evaluation Apprehension Measures
(n=136)**

	<i>PANAS (i.e., Negative Affect) for low- complexity task</i>	<i>Evaluation Apprehension Affects for low-complexity task</i>	<i>Indices of Evaluation for low- complexity task</i>	<i>PANAS (i.e., Negative Affect) for high- complexity task</i>	<i>Evaluation Apprehension Affects for high-complexity task</i>
<i>Evaluation Apprehension Affects for low-complexity task</i>	0.88**				
<i>Indices of Evaluation for low-complexity task</i>	-0.01	0.24**			
<i>PANAS (i.e., Negative Affect) for high- complexity task</i>	0.71**	0.67**	0.12		
<i>Evaluation Apprehension Affects for high-complexity task</i>	0.66**	0.79**	0.30**	0.88**	
<i>Indices of Evaluation for high-complexity task</i>	0.03	0.25**	0.81**	0.10	0.33**

** Correlations are significant at the 0.01 level (two-tailed).

Measures of negative affect and evaluation apprehension are measured immediately after the respective task. Negative affect is measured using the Positive and Negative Affect Schedule. Evaluation apprehension is measured two ways: using a subset of the affects from the PANAS scale that relate specifically to anxiety (i.e., Evaluation Apprehension Affects) and using the Indices of Evaluation Concern scale, a four question scale used to measure a person's evaluation anxiety.

Table 4.4**Negative Affect for Conditions***Panel A: Mean (Standard Deviation) of Negative Affect by Conditions ^a*

	<i>Negative affect for low-complexity task</i>	<i>Negative affect for high-complexity task</i>	<i>Average negative affect</i>
<i>Control</i> (n=47)	38.83 (9.65)	41.27 (9.41)	40.05 (8.68)
<i>Single Accountability</i> (n=45)	41.09 (8.65)	42.35 (6.94)	41.72 (7.05)
<i>Multiple Accountabilities</i> (n=44)	44.72 (10.37)	47.44 (10.89)	46.08 (9.95)
<i>Overall Means</i>	41.48	43.62	42.55

Panel B: Results of a Repeated-Measures ANOVA of Condition and Task on Negative Affect Scores ^b

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Within Participants</i>					
<i>Task</i>	1	311.71	311.71	11.30	< 0.01
<i>Task * Accountability</i>	2	26.66	13.33	0.48	0.62
<i>Error</i>	133	3,668.62	27.58		
<i>Between Participants</i>					
<i>Intercept</i>	1	493,626.83	493,626.83	3,312.00	< 0.01
<i>Accountability</i>	2	1,744.57	872.29	5.85	< 0.01
<i>Error</i>	133	19,822.55	149.04		

Table 4.4 continued

Negative Affect for Conditions

<i>Panel C: Additional Contrast Analysis of Negative Affect by Condition</i>		
<i>Post-Hoc Contrasts</i>	<i>Bonferroni adjusted t-statistic</i>	<i>One-tailed p-value</i>
<i>Multiple Accountabilities > Control</i>	3.33	< 0.01
<i>Multiple Accountabilities > Single Accountability</i>	2.38	0.03
<i>Single Accountability > Control</i>	0.93	0.50

^a Descriptive statistics for participants' negative affect. Negative affect was measured after each task. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity). Average negative affect score is also reported. Negative affect is measured using the Positive and Negative Affect Schedule (PANAS) scale.

^b Task is a within-participant variable, all participants completed both a low- and high-complexity audit task. Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition.

Table 4.5**Evaluation Apprehension Affects for Conditions***Panel A: Mean (Standard Deviation) of Evaluation Apprehension by Conditions ^a*

	<i>Evaluation apprehension for low-complexity task</i>	<i>Evaluation apprehension for high-complexity task</i>	<i>Average evaluation apprehension</i>
<i>Control</i> (n=47)	14.75 (5.78)	16.83 (6.31)	15.79 (5.62)
<i>Single Accountability</i> (n=45)	17.18 (5.97)	17.57 (5.19)	17.37 (5.25)
<i>Multiple Accountabilities</i> (n=44)	19.41 (7.02)	20.80 (6.74)	20.11 (6.58)
<i>Overall Means</i>	17.06	18.36	17.71

Panel B: Results of a Repeated-Measures ANOVA of Condition and Task on Evaluation Apprehension Scores ^b

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Within Participants</i>					
<i>Task</i>	1	112.27	112.27	13.09	< 0.01
<i>Task * Accountability</i>	2	33.37	16.69	1.95	0.15
<i>Error</i>	133	1,140.89	8.58		
<i>Between Participants</i>					
<i>Intercept</i>	1	85,705.98	85,705.98	1,259.19	< 0.01
<i>Accountability</i>	2	861.65	430.83	6.33	< 0.01
<i>Error</i>	133	9,052.55	68.07		

Table 4.5 continued

Evaluation Apprehension Affects for Conditions

Panel C: Additional Contrast Analysis of Evaluation Apprehension by Condition

<i>Post-Hoc Contrasts</i>	<i>Bonferroni adjusted t-statistic</i>	<i>One-tailed p-value</i>
<i>Multiple Accountabilities > Control</i>	3.53	< 0.01
<i>Multiple Accountabilities > Single Accountability</i>	2.21	0.04
<i>Single Accountability > Control</i>	1.30	0.29

^a Descriptive statistics for participants' evaluation apprehension. Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension scores and analysis in this table is done using the Evaluation Apprehension Affects measure. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity). Average evaluation apprehension score is also reported.

^b Task is a within-participant variable, all participants completed both a low- and high-complexity audit task. Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition.

Table 4.6**Indices of Evaluation Concern for Conditions***Panel A: Mean (Standard Deviation) of Evaluation Apprehension by Conditions ^a*

	<i>Evaluation apprehension for low-complexity task</i>	<i>Evaluation apprehension for high-complexity task</i>	<i>Average evaluation apprehension</i>
<i>Control</i> (n=47)	13.83 (3.79)	13.93 (3.85)	13.88 (3.82)
<i>Single Accountability</i> (n=45)	14.45 (3.65)	14.66 (3.27)	14.56 (3.46)
<i>Multiple Accountabilities</i> (n=44)	15.58 (3.41)	15.21 (3.41)	15.40 (3.41)
<i>Overall Means</i>	14.60	14.58	14.59

Panel B: Results of a Repeated-Measures ANOVA of Condition and Task on Evaluation Apprehension Scores ^b

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Within Participants</i>					
<i>Task</i>	1	0.03	0.03	0.01	0.91
<i>Task * Accountability</i>	2	4.24	2.12	0.85	0.43
<i>Error</i>	133	331.33	2.49		
<i>Between Participants</i>					
<i>Intercept</i>	1	58,006.06	58,006.06	2,518.82	0.00
<i>Accountability</i>	2	104.71	52.35	2.27	0.11
<i>Error</i>	133	3,062.87	23.03		

Table 4.6 continued

Indices of Evaluation Concern for Conditions

Panel C: Additional Contrast Analysis of Evaluation Apprehension by Condition

<i>Post-Hoc Contrasts</i>	<i>Bonferroni adjusted t-statistic</i>	<i>One-tailed p-value</i>
<i>Multiple Accountabilities > Control</i>	2.13	0.05
<i>Multiple Accountabilities > Single Accountability</i>	1.17	0.37
<i>Single Accountability > Control</i>	0.96	0.50

^a Descriptive statistics for participants' evaluation apprehension. Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension scores and analysis in this table is done using the Indices of Evaluation Concern scale measure. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity). Average evaluation apprehension score is also reported.

^b Task is a within-participant variable, all participants completed both a low- and high-complexity audit task. Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition.

Table 4.7

Performance on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Evaluation Apprehension Affects measure)

Panel A: Mean (Standard Deviation) Number of Correct Responses by Low and High Evaluation Apprehension for Tasks^{a,b}

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Low Evaluation Apprehension</i> (n=68)	3.32 (1.69)	1.63 (1.17)
<i>High Evaluation Apprehension</i> (n=68)	3.68 (1.93)	1.63 (1.28)
<i>Overall Means</i>	3.65	1.63

Panel B: Mean (Standard Deviation) Number of Correct Responses by Condition for Tasks^c

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Control</i> (n=47)	3.62 (1.87)	1.60 (1.30)
<i>Single Accountability</i> (n=45)	3.44 (1.80)	1.64 (1.32)
<i>Multiple Accountabilities</i> (n=44)	3.43 (1.80)	1.66 (1.06)
<i>Overall Means</i>	3.50	1.63

Table 4.7 continued

Performance on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Evaluation Apprehension Affects measure)

Panel C: Results of an ANOVA of Low and High Evaluation Apprehension on Low-Complexity Task Performance

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	4.24	4.24	1.29	0.26
<i>Error</i>	134	439.77	3.28		

Panel D: Results of an ANOVA of Low and High Evaluation Apprehension on High-Complexity Task Performance

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	0.00	0.00	0.00	1.00
<i>Error</i>	134	201.62	1.51		

^a Descriptive statistics for participants' performance. Means and standard deviations represent the cell mean and standard deviations for evaluation apprehension (high, low) and task type (low-complexity, high-complexity). Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension is scored and analyzed in this table using the Evaluation Apprehension Affects measure and is divided using a median split. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.75. Mean evaluation apprehension score for the high evaluation apprehension condition on the low-complexity task is 22.38. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition on the high-complexity task is 13.47. Mean evaluation apprehension score for the high evaluation apprehension condition on the high-complexity task is 23.25. The means are significantly different (two-tailed $p < 0.01$).

^b Participants performed both a low- and high-complexity task. For the low-complexity task, participants listed controls to determine whether client's controls over payables and liabilities were effective and listed substantive tests that would discover unrecorded liabilities. Performance on the low-complexity task is measured as the number of correct control and substantive tests listed. For the high-complexity task, participants listed errors that would cause the changes in the financial ratios they were provided. Performance on the high-complexity task is measured as the number of plausible errors listed.

^c Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition. Descriptive statistics are provided by condition for participants' performance. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity).

Table 4.8

Performance on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Indices of Evaluation Concern measure)

Panel A: Mean (Standard Deviation) Number of Correct Responses by Low and High Evaluation Apprehension for Tasks^{a,b}

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Low Evaluation Apprehension</i>		
	3.06	1.41
(n=68)	(1.53)	(1.01)
<i>High Evaluation Apprehension</i>		
	3.94	1.83
(n=68)	(1.98)	(1.37)
<i>Overall Means</i>	3.50	1.63

Panel B: Results of an ANOVA of Low and High Evaluation Apprehension on Low-Complexity Task Performance

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	26.47	26.47	8.50	< 0.01
<i>Error</i>	134	417.53	3.12		

Panel C: Results of an ANOVA of Low and High Evaluation Apprehension on High-Complexity Task Performance

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	6.62	6.62	4.55	0.04
<i>Error</i>	134	195.00	1.46		

^a Descriptive statistics for participants' performance. Means and standard deviations represent the cell mean and standard deviations for evaluation apprehension (high, low) and task type (low-complexity, high-complexity). Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension is scored and analyzed in this table using the Indices of Evaluation Concern measure and is divided using a median split. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.67. Mean evaluation apprehension score for the high evaluation apprehension condition for the low-complexity task is 17.53. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition for the high-complexity task is 11.78. Mean evaluation apprehension score for the high evaluation apprehension condition for the high-complexity task is 17.38. The means are significantly different (two-tailed $p < 0.01$).

^b Participants performed both a low- and high-complexity task. For the low-complexity task, participants listed controls tests to determine whether client's controls over payables and liabilities were effective and listed substantive tests that would discover unrecorded liabilities. Performance on the low-complexity task is measured as the number of correct control and substantive tests listed. For the high-complexity task, participants listed errors that would cause the changes in the financial ratios they were provided. Performance on the high-complexity task is measured as the number of plausible errors listed.

Table 4.9

Cognitive Encoding of Information on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Evaluation Apprehension Affects measure)

Panel A: Mean (Standard Deviation) Number of Correct Items Recalled by Low and High Evaluation Apprehension for Tasks^{a b}

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Low Evaluation Apprehension</i> (n=68)	3.96 (2.31)	8.61 (4.53)
<i>High Evaluation Apprehension</i> (n=68)	3.94 (2.39)	7.68 (4.21)
<i>Overall Means</i>	3.95	8.14

Panel B: Mean (Standard Deviation) Number of Correct Items Recalled by Condition for Tasks^c

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Control</i> (n=47)	4.47 (2.56)	8.45 (4.44)
<i>Single Accountability</i> (n=45)	4.07 (2.19)	8.58 (4.18)
<i>Multiple Accountabilities</i> (n=44)	3.27 (2.14)	7.35 (4.52)
<i>Overall Means</i>	3.95	8.14

Table 4.9 continued

Cognitive Encoding of Information on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Evaluation Apprehension Affects measure)

Panel C: Results of an ANOVA of Low and High Evaluation Apprehension on Low-Complexity Cognitive Encoding of Information

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	0.01	0.01	0.01	0.97
<i>Error</i>	134	742.63	5.54		

Panel D: Results of an ANOVA of Low and High Evaluation Apprehension on High-Complexity Cognitive Encoding of Information

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	29.53	29.53	1.55	0.22
<i>Error</i>	133	2,540.79	19.10		

^a Descriptive statistics for participants' performance. Means and standard deviations represent the cell mean and standard deviations for evaluation apprehension (high, low) and task type (low-complexity, high-complexity). Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension is scored and analyzed in this table using the Evaluation Apprehension Affects measure and is divided using a median split. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.75. Mean evaluation apprehension score for the high evaluation apprehension condition on the low-complexity task is 22.38. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition on the high-complexity task is 13.47. Mean evaluation apprehension score for the high evaluation apprehension condition on the high-complexity task is 23.25. The means are significantly different (two-tailed $p < 0.01$).

^b For both the low- and high-complexity task, cognitive encoding is measured as the number of correct items recalled from the respective task information.

^c Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition. Descriptive statistics are provided by condition for participants' performance. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity).

Table 4.10

Cognitive Encoding of Information on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension (Indices of Evaluation Concern measure)

Panel A: Mean (Standard Deviation) Number of Correct Items Recalled by Low and High Evaluation Apprehension for Tasks ^{a b}

	<i>Low-Complexity Task</i>	<i>High-Complexity Task</i>
<i>Low Evaluation Apprehension</i> (n=68)	3.57 (2.36)	7.82 (4.68)
<i>High Evaluation Apprehension</i> (n=68)	4.32 (2.29)	8.46 (4.07)
<i>Overall Means</i>	3.95	8.14

Panel B: Results of an ANOVA of Low and High Evaluation Apprehension on Low-Complexity Cognitive Encoding of Information

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	19.13	19.13	3.54	0.06
<i>Error</i>	134	723.52	5.40		

Panel C: Results of an ANOVA of Low and High Evaluation Apprehension on High-Complexity Cognitive Encoding of Information

<i>Source of Variation</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-Statistic</i>	<i>p-value</i>
<i>Evaluation Apprehension</i>	1	13.61	13.61	0.71	0.40
<i>Error</i>	133	2,556.72	19.22		

^a Descriptive statistics for participants' performance. Means and standard deviations represent the cell mean and standard deviations for evaluation apprehension (high, low) and task type (low-complexity, high-complexity). Evaluation apprehension was measured after each task using both a subset of the Positive and Negative Affect Schedule (PANAS) scale (i.e., the Evaluation Apprehension Affects) and the Indices of Evaluation Concern scale, consistent with Leary et al. (1986). Evaluation apprehension is scored and analyzed in this table using the Indices of Evaluation concern measure and is divided using a median split. Mean evaluation apprehension score for the low evaluation apprehension condition for the low-complexity task is 11.67. Mean evaluation apprehension score for the high evaluation apprehension condition for the low-complexity task is 17.53. The means are significantly different (two-tailed $p < 0.01$). Mean evaluation apprehension score for the low evaluation apprehension condition for the high-complexity task is 11.78. Mean evaluation apprehension score for the high evaluation apprehension condition for the high-complexity task is 17.38. The means are significantly different (two-tailed $p < 0.01$).

^b For both the low- and high-complexity task, cognitive encoding is measured as the number of correct items recalled from the respective task information.

Table 4.11

Modified Negative Affect for Conditions			
Panel A: Mean (Standard Deviation) of Modified Negative Affect by Conditions ^a			
	Modified negative affect for low-complexity task	Modified negative affect for high-complexity task	Average modified negative affect
Control (n=47)	24.08 (5.65)	24.44 (4.96)	24.26 (4.79)
Single Accountability (n=45)	23.90 (4.84)	24.79 (4.34)	24.34 (4.09)
Multiple Accountabilities (n=44)	25.31 (4.83)	26.64 (5.43)	25.97 (4.61)
Overall Means	24.42	25.26	24.84

Panel B: Results of a repeated-measures ANOVA of Condition and Task on Modified Negative Affect Scores ^b					
Source of Variation	Df	SS	MS	F-Statistic	p-value
Within Participants					
Task	1	49.84	49.84	5.02	0.03
Task * Accountability	2	10.78	5.39	0.54	0.58
Error	133	1,319.47	9.92		
Between Participants					
Intercept	1	167,960.61	167,960.61	4,127.45	< 0.01
Accountability	2	166.35	83.18	2.04	0.13
Error	133	5,412.24	40.69		

^a Descriptive statistics for participants’ modified negative affect scores. Negative affect was measured after each task. Means and standard deviations represent the cell mean and standard deviations for the condition (control, single accountability, multiple accountabilities) and task type (low-complexity, high-complexity). Average modified negative affect is also reported. Modified negative affect is calculated using the Positive and Negative Affect Schedule (PANAS) scale, less the subset of affects used to determine the Evaluation Apprehension Affects measure of evaluation apprehension.

^b Task is a within participant variable, all participants completed both a low- and high-complexity audit task. Accountability was manipulated between participants. Participants were randomly assigned to either a control, single accountability, or multiple accountabilities condition.

CHAPTER 5

SUMMARY AND CONCLUSION

In my study, I examine whether the multiple accountabilities inherent in the audit environment cause auditors to experience negative affect and, more specifically, evaluation apprehension. I also examine the influence of that evaluation apprehension on low- and high-complexity task performance and the related cognitive encoding of information. I find that auditors confronted with multiple accountabilities experience significantly higher negative affect and evaluation apprehension than auditors confronted with single or no accountability. Additional analysis reveals that the observed increase in auditors' negative affect is driven by their increased evaluation apprehension. I also find that the evaluation apprehension auditors experienced did not influence performance or cognitive encoding for the low- and high-complexity tasks tested in my study.

My results provide several insights regarding accountability and evaluation apprehension in the audit environment. First, I find that multiple accountabilities can generate negative affect and evaluation apprehension. Prior auditing research shows that negative affect can influence performance on audit tasks that require significant judgment (Bhattacharjee and Moreno 2002). This suggests that findings from the accountability literature, which assume that the auditor answers to a single supervisor, may not generalize to a multiple accountability environment. Future research should examine whether the previous findings in the accountability literature hold in a multiple accountabilities setting.

Second, my results suggest that evaluation apprehension influences auditors in ways not predicted by the psychology literature. Published research in psychology indicates that evaluation apprehension negatively influences cognitive encoding of information and thus subsequent task performance as well as auditor attitude (e.g., Ellis 1995; Geen 1983; Diehl and Stroebe 1987; Thoreson et al. 2003). In my study, however, I did not find that evaluation apprehension affected cognitive encoding of information or performance on the high-complexity audit task. To explore this result, future research could examine the effect of evaluation apprehension on the cognitive encoding and performance on other types of high-complexity tasks. In addition, future research could examine the impact of increased evaluation apprehension on various other audit tasks, auditor job satisfaction, and auditor job turnover intentions. Relatedly, future research could continue to examine other environmentally induced affects and the influence those affects can have on various audit tasks and audit personnel retention.

Lastly, my study highlights the negative affective responses elicited from the multiple accountabilities inherent in the audit environment, which can have important implications for practitioners. Negative affect in auditors can have harmful consequences to audit task performance, as well as auditor attitude (e.g., Bhattacharjee and Moreno 2002; Thoreson et al. 2003). Future researchers can search for alternative review structures for firms that would lessen the level of accountability auditors confront, and thus, the negative affect they experience. Alternatively, future researchers can search for tools (e.g., interventions) to help reduce the negative affect and evaluation apprehension auditors experience and thus reduce the potential harmful consequences to audit efficiency, audit effectiveness, and auditor job satisfaction that can result from these negative affective states.

My study is subject to the following limitations. In conflict with the PANAS scale used to measure positive and negative affect, there is no standard measurement of evaluation apprehension. Further research should be performed to verify the validity of the evaluation apprehension measures used in my study, as well as compare and explore other measures of evaluation apprehension to determine which measure best captures experienced evaluation apprehension.

Second, the high-complexity task auditors performed in my study, although previously used in auditing literature with similar participants, yielded low performance scores across all accountability conditions. The overall poor performance of the participants may have overshadowed any negative influence that evaluation apprehension had on performance. Therefore, as previously noted, future research could examine the generalizability of my results by exploring the influence of evaluation apprehension on other types of high-complexity audit tasks that would allow for more variance in performance scores.

Lastly, the multiple accountabilities manipulation is not an all encompassing measure of the multiple accountabilities auditors confront. Future research can continue to create and examine different manipulations of multiple accountabilities and examine how those combined accountabilities influence various aspects of the audit.

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APPENDIX A

Consent Form Given to Participants in the Control Condition

CONSENT FORM

Your participation in today's activities is important and I thank you for your time and consideration. Today's activities relate to a research study titled "Audit Task Performance" conducted by Penelope Bagley from the J.M. Tull School of Accounting at the University of Georgia (542-1616) under the direction of Dr. E. Michael Bamber, J.M. Tull School of Accounting, University of Georgia (542-3601). Your participation in this study is voluntary and you can stop taking part at any time, without giving any reason, and without penalty.

The purpose of this study is to examine audit judgment on various audit tasks. The benefit you will receive for participating in this study is additional practice on audit tasks which may help improve performance on these tasks during future audits.

You will be asked to complete two audit tasks in class today, an internal control evaluation task and an analytical procedures task, and to answer a series of questionnaires. Detailed instructions regarding each audit task and questionnaire are provided in the test instrument. Your participation is expected to take approximately 30 minutes. You are not expected to experience any greater stress than you would when completing these procedures for an actual audit.

Your responses in this study are anonymous and are not traceable to you. All responses will be anonymous in the researcher's data files, and any publications or presentations of the findings will include only aggregated data.

You are encouraged to ask any questions that you might have about the research, now or during the course of today's activities. Please direct any questions to the proctor. If you have questions after today, the researcher can be reached by telephone at 706-542-1616. Please print and sign your name below if you voluntarily agree to participate in this project.

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

<u>Penelope Lee Bagley</u>	_____	_____
Name of Researcher	Signature	Date
Telephone: <u>706-542-3608</u>		
Email: <u>penniec@uga.edu</u>		

_____	_____	_____
Name of Participant	Signature	Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX B

Consent Form Given to Participants in the Single and Multiple Accountabilities Conditions

CONSENT FORM

Your participation in today's activities is important and I thank you for your time and consideration. Today's activities relate to a research study titled "Audit Task Performance" conducted by Penelope Bagley from the J.M. Tull School of Accounting at the University of Georgia (706-542-1616) under the direction of Dr. E. Michael Bamber, J.M. Tull School of Accounting, University of Georgia (706-542-3601). Your participation in this study is voluntary and you can stop taking part at any time, without giving any reason, and without penalty.

The purpose of this study is to examine audit judgment on various audit tasks. The benefit you will receive for participating in this study is additional practice on audit tasks which may help improve performance on these tasks during future audits.

You will be asked to complete two audit tasks today, an internal control evaluation task and an analytical procedures task, and to answer a series of questionnaires. Detailed instructions regarding each audit task and questionnaire are provided in the test instrument. Your participation is expected to take approximately 30 minutes. You are not expected to experience any greater stress than you would when completing these procedures for an actual audit.

Because your superiors are interested in how well you perform various audit tasks, a sample of your responses will be selected for their review. All future work with the data will assure your confidentiality. All responses will be coded without names in the researcher's data files, thus they will not be traceable to you. Also, any publications or presentations of the findings will include only aggregated data.

You are encouraged to ask any questions that you might have about the research, now or during the course of today's activities. Please direct any questions to the proctor. If you have questions after today, the researcher can be reached by telephone at 706-542-1616. Please print and sign your name below if you voluntarily agree to participate in this project.

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

Penelope Lee Bagley
Name of Researcher
Telephone: 706-542-3608
Email: penniec@uga.edu

Signature

Date

Name of Participant

Signature

Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX C

Experimental Materials for Control Participants

Instructions

INSTRUCTIONS

Thank you for participating in today's activity. In the following packets, you will complete two audit tasks, Audit Task 1 and Audit Task 2, and complete a series of summary questions. The two audit tasks are unrelated. Please complete all of the information in the order provided and on your own. Also, please do not talk while the study is in progress. If you have any questions, please raise your hand and the proctor will come to you.

Please **carefully read** the following information.

Please do not write your name on any of the pages. Your responses are **anonymous** and will not be traceable to you.

Upon reading the above, **please place packet A (pages 1 and 2) in Envelope 1** and proceed to packet B. Please **do not seal Envelope 1**, as you will be putting more materials in the envelope later.

Audit Task 1

Please remember that your performance on this task is anonymous and not traceable to you.

Using the clock at the front of the room, state the exact time you begin:
_____hrs _____min _____sec

For Questions 1 and 2, assume that you are assigned to audit Inspiron, Inc. The following is a brief account of Inspiron, Inc. The entire exercise does not make any reference to the financial statements of Inspiron.

Case Scenario of Inspiron, Inc.

Inspiron, Inc. was founded in the Atlanta area in 1990. Your firm audited Inspiron for the first time in 2004 and gave an unqualified opinion on its financial statements. Inspiron purchases components to assemble aviation computer displays. A perpetual inventory system is used to account for high value components and finished goods. Inventories are carried at lower of cost or market value. Cost is determined by the FIFO method.

Note: Questions 1 and 2 are unrelated and independent.

Question 1 – *Listing Tests of Controls*

The client claims that Inspiron has internal controls to ensure that recorded liabilities on purchases are for goods and services received, and are recorded consistent with Inspiron's policies. What tests of controls can you perform to ascertain that the controls are present and effective? Please list **as many tests of controls** as you can think of.

1.

2.

3.

4.

5.

Proceed to the next page.

6.

7.

8.

9.

Question 2 – Listing Substantive Tests

What *substantive tests* could you carry out to search for unrecorded liabilities at year end? Please list in the spaces below **as many substantive tests** as you can think of.

1.

2.

3.

4.

5.

Proceed to the next page.

6.

7.

8.

9.

Using the clock at the front of the room, state the exact time you finish:
_____hrs _____min _____sec

Please place packet B (pages 3-6) in Envelope 1 before proceeding to packet C. Please do not seal Envelope 1.

Part A: Please rate as accurately as possible how well each term describes **how you felt as you were performing Audit Task 1**. Place an X on the scale to indicate your response.

Excited

1 2 3 4 5 6 7

not well at all extremely well

Nervous

1 2 3 4 5 6 7

not well at all extremely well

Enthusiastic |-----|-----|-----|-----|-----|-----|
1 2 3 4 5 6 7
not well at all extremely well

Anxious

1 2 3 4 5 6 7

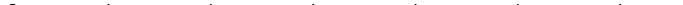
not well at all extremely well

Inspired

1 2 3 4 5 6 7

not well at all extremely well

Worried



1 2 3 4 5 6 7

not well at all extremely well

Determined

1 2 3 4 5 6 7

not well at all extremely well

Upset

1 2 3 4 5 6 7

not well at all extremely well

Calm

1 2 3 4 5 6 7

not well at all extremely well

Tense

1 2 3 4 5 6 7

not well at all extremely well

Relaxed

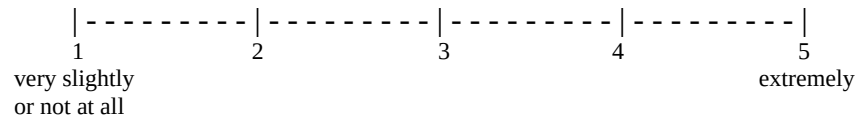
1 2 3 4 5 6 7

not well at all extremely well

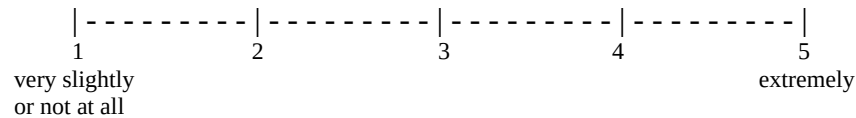
Proceed to the next page.

Part B: Please read each question and then place an X on the scale provided after each question to indicate your response.

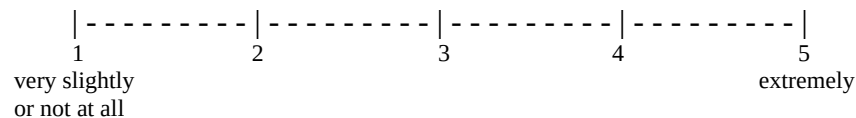
1. How concerned were you with doing well on Audit Task 1?



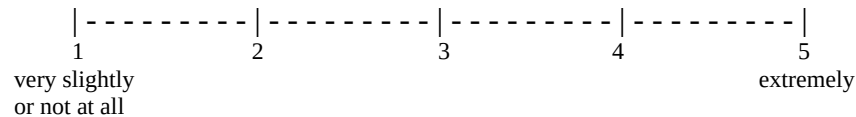
2. How important was it for you to do your best on Audit Task 1?



3. How much would it bother you to find out that you had performed very poorly on Audit Task 1?

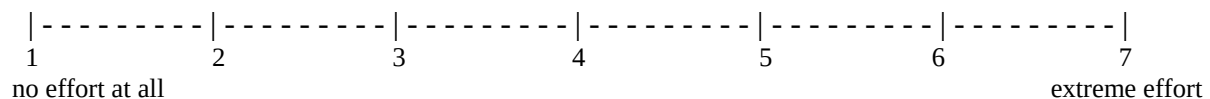


4. How much would it bother you if your manager or your partner found out that you had performed very poorly on Audit Task 1?

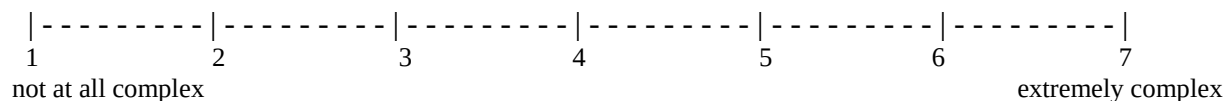


Part C: Place an X on the scale to indicate your response.

1. How much effort did Audit Task 1 require?



2. Based on the information provided and analysis required to complete the task, how complex was Audit Task 1?



Proceed to the next page.

This image shows a single page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Please place packet C (pages 7-9) in Envelope 2 before proceeding to packet D. Please do not seal Envelope 2.

Audit Task 2

Please remember that your performance on this task is anonymous and not traceable to you.

Using the clock at the front of the room, state the exact time you begin:

_____hrs _____min _____sec

For the purpose of this task, assume that you are a staff auditor assigned to the Roxie Reprints, Inc. audit. A brief summary of the background of Roxie Reprints, Inc. is provided below.

Case Scenario of Roxie Reprints, Inc.

Your firm has audited Roxie Reprints, a medium-sized company, since its incorporation in 1993. The audit opinion has always been unqualified. Roxie Reprints sells photocopiers, printers and fax machines to consumers.

Accounting Practices and Policies Adopted by Roxie Reprints Inc.

Sales:

1. All sales are made on credit; credit policy has not changed.
2. Sales prices have not changed.
3. Sales and accounts receivable are recorded at gross; cash discounts given to customers for early payment are recorded when taken.
4. The *allowance* method is used for timely recognition of losses from uncollectible accounts; bad debt expense is an operating expense.

Inventories:

1. A perpetual inventory system is used. Cost is determined by the FIFO method. Sales invoices are used to relieve perpetual inventory records.
2. Vendor's prices have not changed.
3. Purchases are all made on credit; the inventory policy has not changed.
4. Purchases and accounts payable are recorded at gross after any trade discounts. Cash discounts received on early payment are recorded when taken.

Financial Ratios for Roxie Reprints Inc.

	<u>2005 Expected</u>	<u>2005 Actual (Unaudited)</u>
Gross Profit Percentage ³⁵	0.261	0.263
Current Ratio ³⁶	2.43	2.72
Quick Ratio ³⁷	1.04	1.25

Task – Listing Single Errors

You are required to perform ratio analysis by comparing the actual unaudited ratios (column 2) to the expected ratios (column 1) in the table above. For the purpose of this study, assume that the differences between actual and expected ratios are caused by a **single** error or multiple occurrences of the same error.

Proceed to the next page.

³⁵ Gross Profit Percentage = (Net Sales – Cost of Goods Sold) / Net Sales

³⁶ Current Ratio = Current Assets / Current Liabilities

³⁷ Quick Ratio = (Cash + Marketable Securities + Net Accounts Receivable) / Current Liabilities

In the space provided below, write **as many single errors** as you can think of that could have caused the change in ratios. Include a description of the error, the accounts affected by the error, and the direction (i.e., understatement or overstatement) the accounts are affected.

1	Example – Several sales transactions were recorded twice, resulting in an overstatement of sales and an overstatement of accounts receivable.
2	
3	
4	
5	
6	Proceed to the next page.

7	
8	
9	
10	
11	

Using the clock at the front of the room, state the exact time you finish:

_____hrs _____min _____sec

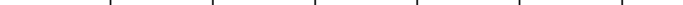
Please place packet D (pages 10-13) in Envelope 1. Please seal Envelope 1 at this time and proceed to packet E.

Part A: Please rate as accurately as possible how well each term describes **how you felt as you were performing Audit Task 2**. Place an X on the scale to indicate your response.

Excited

1 2 3 4 5 6 7

not well at all extremely well

Nervous 

Enthusiastic |-----|
1 2 3 4 5 6 7
not well at all extremely well

Anxious

1 2 3 4 5 6 7

not well at all extremely well

Inspired

1 2 3 4 5 6 7

not well at all extremely well

Worried

1 2 3 4 5 6 7

not well at all extremely well

Determined

1 2 3 4 5 6 7

not well at all extremely well

Upset

1 2 3 4 5 6 7

not well at all extremely well

Calm

1 2 3 4 5 6 7

not well at all extremely well

Tense

1 2 3 4 5 6 7

not well at all extremely well

Relaxed

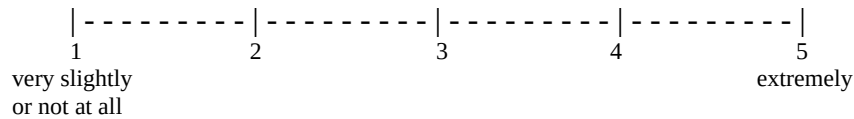
1 2 3 4 5 6 7

not well at all extremely well

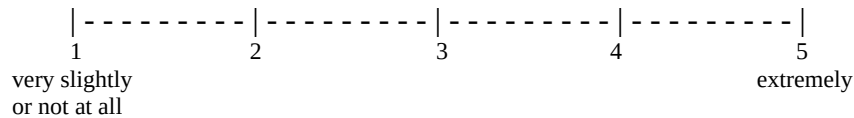
Proceed to the next page.

Part B: Please read each question and then place an X on the scale provided after each question to indicate your response.

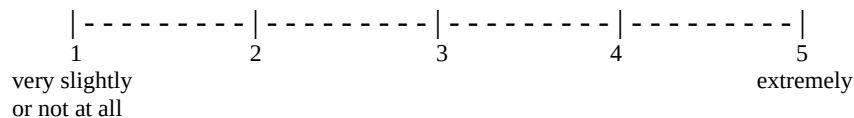
1. How concerned were you with doing well on Audit Task 2?



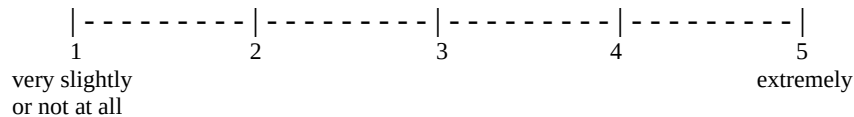
2. How important was it for you to do your best on Audit Task 2?



3. How much would it bother you to find out that you had performed very poorly on Audit Task 2?

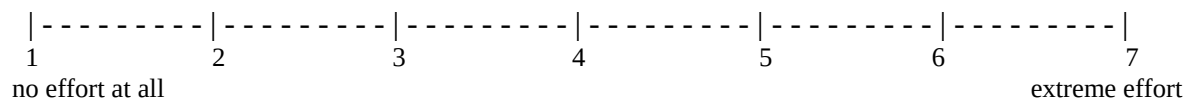


4. How much would it bother you if your manager or your partner found out that you had performed very poorly on Audit Task 2?

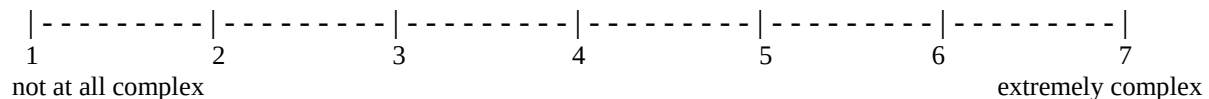


Part C: Place an X on the scale to indicate your response.

1. How much effort did Audit Task 2 require?



2. Based on the information provided and analysis required to complete the task, how complex was Audit Task 2?



Proceed to the next page.

[illegible]

Please place packet E (pages 14-16) in Envelope 2 before proceeding to packet F. Please do not seal Envelope 2.

Final Questions

FINAL QUESTIONS

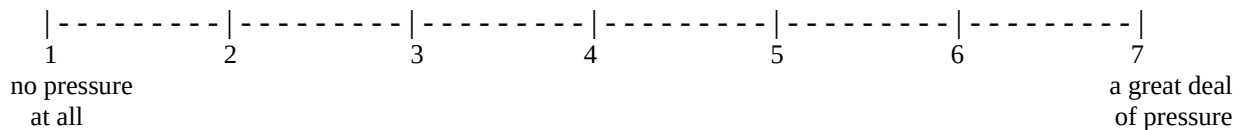
Finally, please complete the following questions.

1. In the **Instructions** (packet A), you were told which one of the following? Please circle **only one** of the following responses that best describes your instructions.
 - a. Your responses are anonymous and will not be traceable to you.
 - b. A manager will review your performance.
 - c. Your work will be evaluated by a manager and you will receive feedback. A random sample of your work will be reviewed by a partner. Approximately 5% of the responses will be forwarded to a faculty panel for a PCAOB type review.

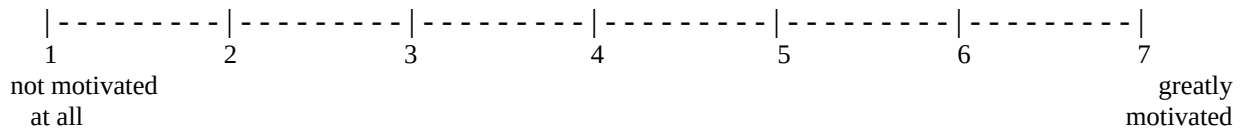
2. Of the two audit tasks, which required the most mental effort to complete? Check the line provided beside the task to indicate your response (check only one).
Audit Task 1 – Listing Control and Substantive tests _____
Audit Task 2 – Analytical Procedures (Listing Errors) _____

3. Of the two audit tasks, which was the most complex? Check the line provided beside the task to indicate your response (check only one).
Audit Task 1 – Listing Control and Substantive tests _____
Audit Task 2 – Analytical Procedures (Listing Errors) _____

4. How much pressure did you feel to perform well? Place an X on the scale to indicate your response.



5. How motivated were you to perform well on the tasks? Place an X on the scale to indicate your response.

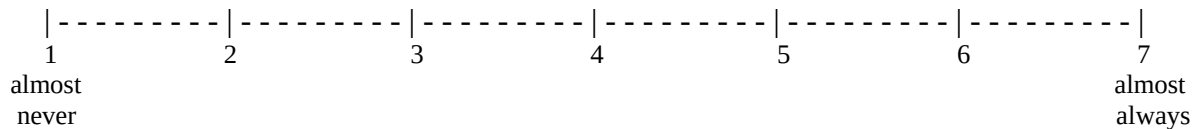


Proceed to the next page.

1 2 3 4 5 6 7

not concerned at all greatly concerned

7. I have a tendency to get anxious when placed under pressure.



12. On approximately how many audits have you performed analytical procedures? _____
audits

Thank you again for your participation in this activity. Your time and effort are greatly appreciated.

APPENDIX D

Single Accountability Manipulation

INSTRUCTIONS

Thank you for participating in today's activity. In the following packets, you will complete two audit tasks, Audit Task 1 and Audit Task 2, and complete a series of summary questions. The two audit tasks are unrelated. Please complete all of the information in the order provided and on your own. Also, please do not talk while the study is in progress. If you have any questions, please raise your hand and the proctor will come to you.

Please **carefully read** the following information.

A manager will review your performance.

Please print your name below.

Name _____

Upon reading and providing your name above, **please place packet A (pages 1 and 2) in Envelope 1** and proceed to packet B. Please **do not seal Envelope 1**, as you will be putting more materials in the envelope later. **Envelope 1 will be given to the manager for review.**

APPENDIX E

Multiple Accountabilities Manipulation

INSTRUCTIONS

Thank you for participating in today's activity. In the following packets, you will complete two audit tasks, Audit Task 1 and Audit Task 2, and complete a series of summary questions. The two audit tasks are unrelated. Please complete all of the information in the order provided and on your own. Also, please do not talk while the study is in progress. If you have any questions, please raise your hand and the proctor will come to you.

Please **carefully read** the following information.

As an auditor, you will find yourself accountable for multiple attributes of your work to multiple parties including superiors, regulators, and clients. Your success as an auditor is contingent upon your ability to satisfy all parties by performing high quality work as efficiently as possible. Poor audit quality and inefficient use of time is damaging to the audit as well as your career. Accordingly, the following will occur:

- Upon returning your materials to the proctor, your performance on both audit tasks will be given to a manager for his/her review. The manager will evaluate your performance, focusing on both the accuracy and the efficiency with which you perform the tasks. You will later be provided with feedback, similar to the feedback you receive in a typical audit.
- After manager review, some of you will have your work selected for a second review performed by a partner. If chosen for partner review, you will be notified when you are provided with your feedback.
- The PCAOB inspects approximately 5% of public company audits performed by registered public accounting firms. Accordingly, after manager and possibly partner review, a panel of accounting faculty at a large southeastern university will perform a PCAOB type review and evaluate your performance.

Please print your name and email address below and on each audit task for evaluation and feedback purposes.

Name _____

E-mail address _____

Upon reading and providing your name and email address above, **please place packet A (pages 1 and 2) in Envelope 1** and proceed to packet B. Please **do not seal Envelope 1**, as you will be putting more materials in the envelope later. **Envelope 1 will be given to the manager for review.**