

Evaluation Apprehension: An Examination of Affect in the Audit Environment

Penelope Lee Bagley
Assistant Professor
Area of Accounting
Rawls College of Business
Texas Tech University
Pennie.Bagley@ttu.edu

November 2007

This paper is based on my dissertation completed at the University of Georgia. I wish to thank the members of my dissertation committee, Tina Carpenter, Jennifer Gaver, Jacqueline Hammersley, Adam Goodie, and especially my chair, Michael Bamber. In addition, I would like to thank Jeremy Griffin for his assistance, as well as Allen Blay, Todd DeZoort, and Hun Tong Tan for additional guidance and comments. I would also like to thank workshop participants at Texas Tech University, University of Georgia, University of North Carolina at Greensboro, and Virginia Polytechnic Institute and State University for their helpful comments.

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SUMMARY

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. 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 when auditors are accountable to multiple superiors, they are more likely to experience evaluation apprehension. By discovering this unintended outcome of accountability, my results have the potential to change the way academic researchers and audit practitioners think about accountability.

Keywords: evaluation apprehension; negative affect; accountability.

Data Availability: Data are available from author upon request.

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; Koonce et al. 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 paper 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.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.

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 is operationalized in prior research, i.e., performance review by a single source with unknown preferences (Tan and Kao 1999; Cloyd 1997).

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).

I conduct an experiment to examine how varying levels of accountability influence negative affect and evaluation apprehension. 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 and evaluation apprehension.

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. Although I was unable to document an influence of evaluation apprehension on the performance of the audit tasks tested in this study, the psychology literature implies that evaluation apprehension can negatively influence the performance of other audit tasks 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 in 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.

The remainder of the paper is organized as follows: section two reviews the relevant literature and develops the hypotheses, section three describes the research method, section four presents results, and section five summarizes the research and concludes.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Accountability

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

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

performance.⁴ The accounting literature finds that accountability improves performance by improving consensus and self-insight among auditors (Johnson and Kaplan 1991), reducing the likelihood that auditors will accept questionable accounting treatments (Lord 1992), mitigating effort related biases such as the recency bias (Kennedy 1993), increasing decision quality (Tan 1995), increasing auditors' justifications in analytical review procedures (Koonce et al. 1995), and improving performance on high-complexity tax and audit tasks (Cloyd 1997; Tan and Kao 1999).⁵

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. 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. In auditing, knowledge of a reviewer's preference influences auditors' assessments of client explanations (Peecher 1996), risk assessments of inventory obsolescence (Tan et al. 1997), decisions to accept or retain risky clients

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).

⁵ 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). 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. High-complexity tasks are more demanding and require more effort and complex information processing.

(Cohen and Trompeter 1998), accounts receivable collectibility reviews (Turner 2001), and going concern judgments (Wilks 2002). More recently, Gramling (1999) and Bierstaker and Wright (2001) have examined the idea that auditors have various sources of accountability, both superiors within the firm as well as clients, who often have competing preferences for performance. They find 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 (Gramling 1999; Bierstaker and Wright 2001).

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).⁶

⁶Accountability 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

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., 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.

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).

Negative Affect, Evaluation Apprehension, and Multiple Accountabilities

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, 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).⁷ 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 and find that 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. However, adding evaluators with less expertise results in an averaging effect on the performers’ evaluation apprehension; the low amount of evaluation apprehension the performer would experience when held accountable to an evaluator with less expertise

⁷ 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.

averages with the high amount of evaluation apprehension the performer would experience when held accountable to an evaluator with higher or equal expertise, thus resulting in only moderate 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 general affect rather than a one specific 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 levels increase, negative affect increases.

In my second hypothesis, I focus on the influence of increasing accountabilities on the specific negative affect of evaluation apprehension.⁸ 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 levels increase, evaluation apprehension increases.

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). Psychology theories focusing on the attention the performer devotes to the task (i.e., attentional theories) explain how evaluation apprehension influences task performance. To perform effectively, an individual must devote attention to pertinent information, processes, and behaviors, and be able to exclude irrelevant factors. Attentional theories predict that evaluation apprehension interferes with the attention a person devotes to completing the task. For high-complexity tasks that require a large amount of attention, this interference can harm task performance. For low-complexity tasks which require much less attention, the interference in attention is unlikely to harm performance and may in fact improve performance by initiating a compensatory process in the performer such as an increase in effort (Baumeister and Showers 1986). Consistently, the psychology literature shows that high evaluation apprehension facilitates performance on low-complexity tasks and harms

⁸ 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., Hency 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 a series of questions designed to measure a person's concern about his performance and the extent to which knowledge of poor performance by himself or others would bother him (e.g., Leary et al. 1986; Skinner and Brewer 1999).

performance on high-complexity tasks (e.g., Henchy and Glass 1968; Geen 1983; Dollinger et al. 1987; Seta et al. 1989a).

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. While Blay et al. (2006)'s findings suggest that negative affect could improve auditors performance on high-complexity tasks by enhancing search strategies, their study does

evaluate performance, nor does it examine negative affect among audit practitioners. Therefore, consistent with findings in 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.

RESEARCH METHOD

Participants

One hundred and thirty-six auditors from three public accounting firms, including 19 seniors (mean experience = 29.68 months, standard deviation = 15.81 months), and 117 staff auditors (mean experience = 10.82 months, standard deviation = 5.40 months) participated in the experiment.⁹

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.

⁹ There were 171 participants in my original pool; however 33 participants were eliminated for improper responses to manipulation check questions and 2 participants were eliminated for failing to complete the experimental instrument. In untabulated analysis, including these participants did not significantly influence the results.

Procedure

I conducted each administration of the experiment. All 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 and evaluation apprehension. Participants then completed the remaining audit task, again followed immediately by measures of negative affect and evaluation apprehension. Finally, participants completed a debriefing questionnaire. Participants were instructed to place the two audit tasks in one envelope and the measures of negative affect and evaluation apprehension and the debriefing questionnaire in the other 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 and evaluation apprehension measures and debriefing questions would not be viewed by the superiors. Except the instructions related to the accountability manipulations, the experimental materials were the same for all participants.

Independent Variables

Accountability

Participants were randomly assigned into 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 and induces greater effort than when participants are anonymous (e.g., Tan and Kao 1999; Cloyd 1997; Glover 1997; Tan 1995; Koonce et al. 1995).

In the multiple accountabilities condition, participants were held accountable to multiple sources (i.e., manager, partner, and faculty panel) at varying clarity levels of accountability (i.e., concern for quality and efficiency and preferences unknown) and also at varying levels of accountability pressure (i.e., review with feedback and 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.

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.¹⁰

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.¹¹

¹⁰ The multiple accountabilities condition participants were given feedback via email which contained an evaluation of his/her performance as well as descriptive statistics of the group's performance as a whole. I compiled the performance statistics and forwarded the participant's performance to the manager for review and elaboration (if deemed necessary by the manager) prior to emailing the feedback to the participants.

¹¹ 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 controls, substantive tests, and analytical procedures in practice and should therefore be familiar with the tasks (Abdolmohammadi 1999).

Dependent variables

I use three dependent variables to test the hypotheses in my study. I analyze negative affect for H1, evaluation apprehension for H2, and task performance for H3a and H3b. 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; Kida et al. 2001; Moreno et al. 2002; 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.¹² 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 using a subset of the PANAS scale. Consistent with Leary et al. (1986), evaluation apprehension was calculated using a subset of the affects related specifically

¹² 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).

to anxiety.¹³ The affects measured to assess evaluation apprehension are calm, nervous, tense, relaxed, and worried (Leary et al. 1986). 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 evaluation apprehension score is positively related to the amount of evaluation apprehension the participant experiences.¹⁴

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.

¹³ 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.

¹⁴ Factor analysis for the negative affect and evaluation apprehension measures is shown in the appendix. The negative and positive affect factors identified in factor analysis are consistent with those identified in previous psychology research on the PANAS scale (Tellegen 1985; Watson et al. 1988; Mano 1991).

RESULTS

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.¹⁵

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 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.

¹⁵ In untabulated analysis, order did not significantly influence any dependent variables. Therefore, all analyses are presented with order collapsed across accountability condition.

Hypothesis 1

In H1, I predict that as accountability levels 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 1 and Figure 1, Panel A. Table 1, 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.¹⁶ 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.

INSERT TABLE 1

¹⁶ Negative affect is measured after each task, therefore Table 1 includes means and standard deviations for each task, as well as average means and standard deviations.

Hypothesis 2

In H2, I predict that as accountability levels 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 2 and Figure 1, Panel B. Table 2, 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.¹⁷ Panel A reveals that mean evaluation apprehension increases as accountability increases. ANOVA results indicate 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

¹⁷ Evaluation apprehension is measured after each task, therefore Table 2 includes means and standard deviations for each task, as well as average means and standard deviations.

confronted with a single accountability requirement or when they are not held accountable.

INSERT TABLE 2

INSERT FIGURE 1

Hypotheses 3a and 3b

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. The results for H3a and H3b are presented in Table 3 and Figure 2. Table 3, 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. 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.¹⁸

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

¹⁸ In untabulated analysis, H3a and H3b results remained unchanged when high evaluation apprehension was defined as the top third evaluation apprehension scores and low evaluation apprehension was defined as the bottom third evaluation apprehension scores.

participants, Tan and Kao (1999) obtained an overall performance mean of approximately 2.68 using the same high-complexity task. The disparity in performance scores between my study and Tan and Kao (1999) indicates that the high-complexity audit task may have been too complex for the participants in my study.¹⁹ 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.²⁰

INSERT TABLE 3

INSERT FIGURE 2

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 this 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 measure evaluation apprehension. I contend the modified negative affect score represents negative affects other than evaluation apprehension. 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. Unreported ANOVA results

¹⁹ Tan and Kao (1999) use participants from an audit firm in Singapore. Cultural differences could be a factor in the variation of performance scores.

²⁰ 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.

indicate that modified negative affect is not significantly influenced by accountability condition ($F = 2.04$, two-tailed $p = 0.13$). Thus, the increase in negative affect observed in H1 testing is likely due to evaluation apprehension, not some other negative affect. 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 3, Panel A, reveal that as task complexity increases, negative affect increases. The repeated-measures ANOVA analysis performed for H1, presented in Table 1, 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.

SUMMARY AND CONCLUSION

I examine whether the multiple accountabilities inherent in the audit environment cause auditors to experience negative affect and, more specifically, evaluation apprehension. 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.

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 could test this prediction.

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 task performance and job satisfaction (e.g., Geen 1983; Diehl and Stroebe 1987; Thoreson et al. 2003). In my study, however, I did not find that evaluation apprehension affected performance on the high-complexity audit task. To explore this result, future research could examine the effect of evaluation apprehension on a high-complexity task that allows for more variability in performance. 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.

Lastly, my study highlights the negative affective responses elicited from the multiple accountabilities inherent in the audit environment, which can have important implications to practitioners. 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.

APPENDIX

Factor Analysis for Negative Affect and Evaluation Apprehension Measures

Factor analysis was performed on the 11 affects comprising the negative affect and evaluation apprehension measures. Factor analysis results are presented in Table 4. Table 4, 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 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). Factor analysis of the evaluation apprehension measure has never before been performed. The 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.

Untabulated analysis using factor coefficients as predictors of performance did not change H3a and H3b results. However, they did reveal a significant relationship between positive affect and low-complexity task performance. In particular, positive affect is a significant positive predictor of low-complexity task performance.

INSERT TABLE 4

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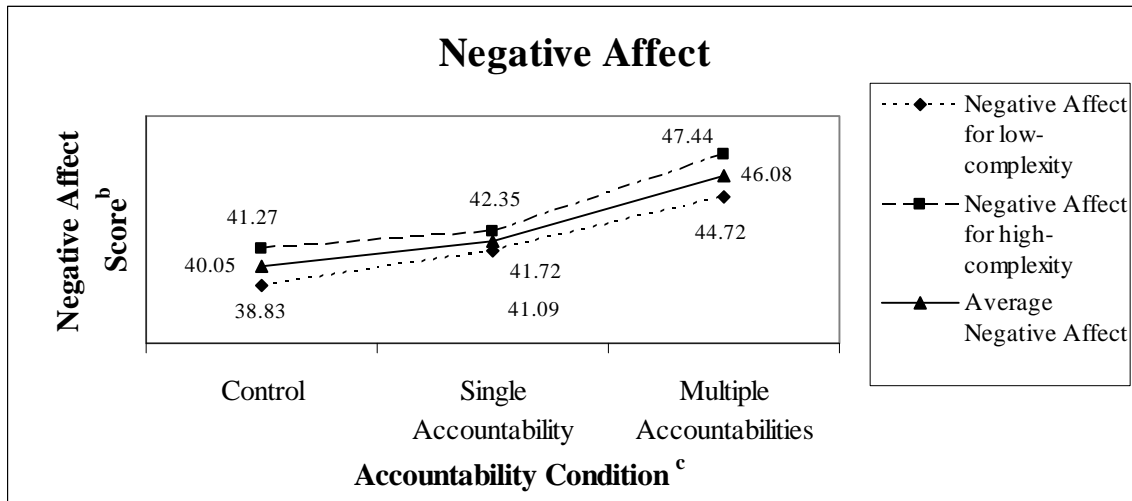
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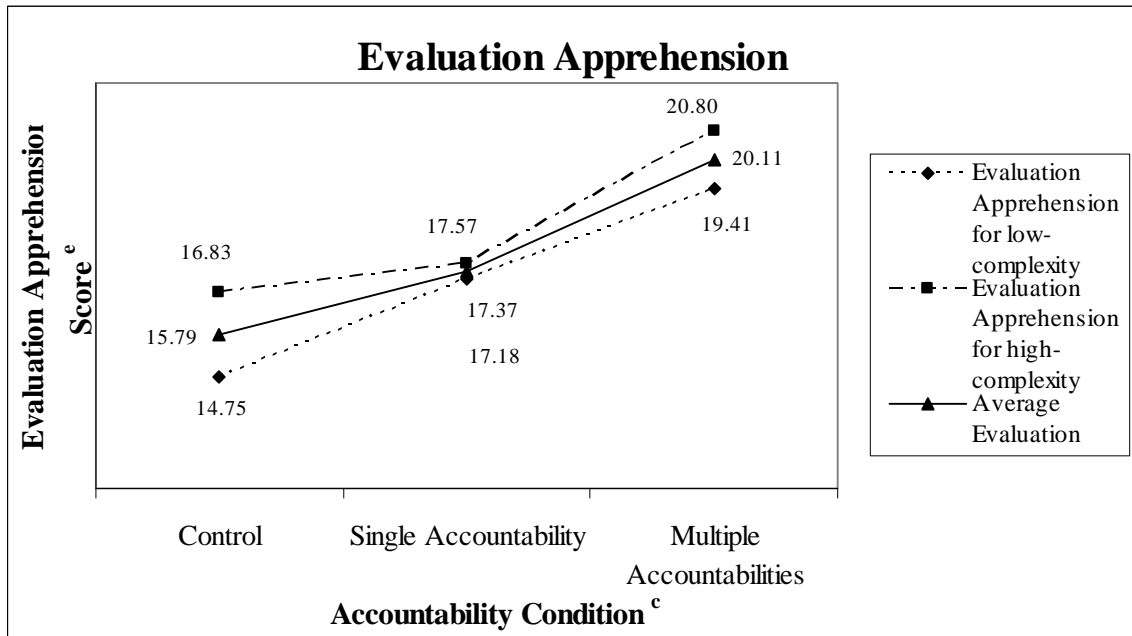
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FIGURE 1
Hypotheses 1 and 2 Results

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 levels 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.

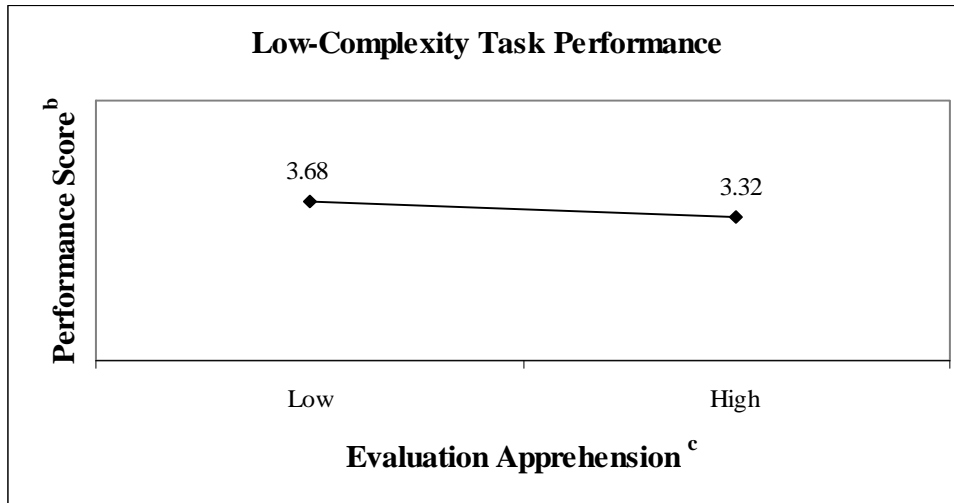
^c Accountability condition, the independent variable, is manipulated between participants.

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

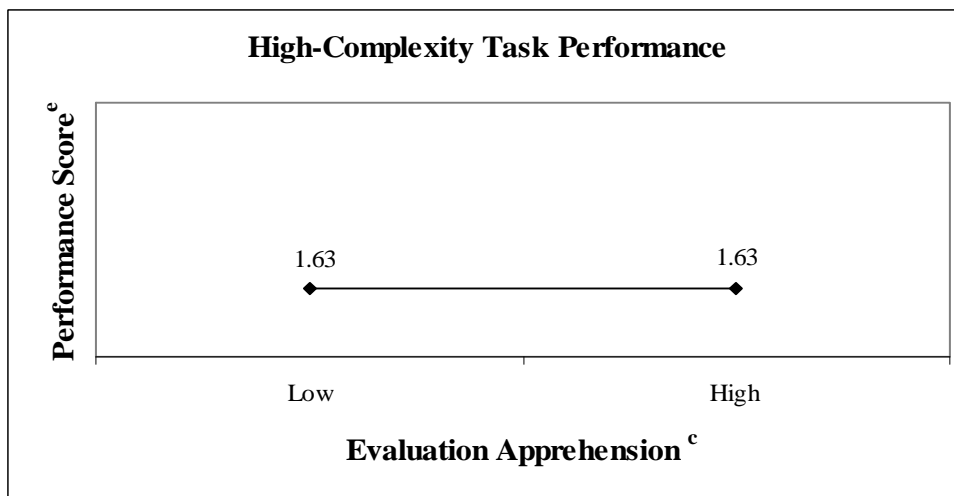
^e Evaluation apprehension, the dependent variable, is measured using a subset of the affects from the Positive and Negative Affect Schedule (PANAS) scale that relate specifically to anxiety.

FIGURE 2
Hypotheses 3a and 3b 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 Evaluation apprehension, the dependent 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. 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.

TABLE 1
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 1 continued
Negative Affect for Conditions

Panel C: Additional Contrast Analysis of Negative Affect by Condition

<i>Post-Hoc Contrasts</i>	<i>Bonferroni adjusted t-statistic</i>	<i>One-tailed p-value</i>
<i>Multiple Accountabilities > Control</i>	3.33	< 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 2
Evaluation Apprehension 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 2 continued
Evaluation Apprehension 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. 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. Evaluation apprehension is measured using a subset of the Positive and Negative Affect Schedule (PANAS) scale, consistent with Leary et al. (1986).

^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 3
Performance on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension

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>	3.50	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 3 continued
Performance on Low- and High-Complexity Tasks for Low and High Evaluation Apprehension

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 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 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.

^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
Factor Analysis of Negative Affect and Evaluation Apprehension Measures

<i>Panel A: Factor Loadings for Low-Complexity Affects^a</i>			
	<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	

<i>Panel B: Factor Loadings for High-Complexity Affects^a</i>			
	<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.