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How Do Auditors Order Their Tasks, and How Does Task Ordering Affect Performance?

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How Do Auditors Order Their Tasks, and How Does Task Ordering Affect Performance?

By

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B.S., B.B.A., The University of Notre Dame, 2007

Advisor: Kathryn Kadous, Ph.D.

An abstract of
A dissertation submitted to the Faculty of the
James T. Laney School of Graduate Studies of Emory University
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Abstract

How Do Auditors Order Their Tasks, and How Does Task Ordering Affect Performance?
By Robert P. Mocadlo

I examine how the subjectivity of task criteria influences auditors' ordering and performance of audit tasks under time pressure. Tasks with more objective criteria provide little flexibility in how well they can be completed (i.e. they are either performed correctly or incorrectly). On the other hand, tasks with more subjective criteria have a wider range of performance levels which can satisfy the "letter" of the criteria, but not necessarily the "spirit." I predict that as time pressure increases, auditors will prioritize completion of objective tasks over subjective tasks, potentially decreasing performance on subjective tasks. By decreasing performance only on subjective tasks, auditors can address all of the task criteria if only in letter, rather than in spirit. I also predict that this effect will be mitigated by informing auditors of heightened risk related to the subjective task. I tested my hypotheses in an experiment in which auditors attempt to complete both an objective task and a subjective task within an overall time limit. I find that auditors tend to prioritize objective tasks over subjective tasks and that task order affected performance as predicted when auditors worked on the objective task first. I did not find support for risk mitigating these effects.

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CONTENTS

I. Introduction

Auditors face deadlines and budget pressure while performing audits (McNair 1991; Pierce and Sweeney 2004). Missing an announced, regulatory, or bank-imposed deadline can have severe consequences for the audit client and the auditor (Begley and Fischer 1998; Bagnoli et al. 2002; Boulland and Dessaint 2015; Livnat and Zhang 2015). Similarly, exceeding a budget will make an audit engagement less profitable and reduce available resources for other engagements.

On the other hand, reducing audit effort to meet the time limit is much less likely to be noticed given the very low frequency of discovered audit failures (Francis 2004; Francis 2011). Peer reviews or PCAOB inspections may also detect reduced audit quality, but only a small fraction of audits are reviewed each year and consequences for a failed inspection vary. This implies that there may be an acceptable reduction of audit quality that does not result in an audit failure. Therefore, auditors may choose to accept the possible consequences of reducing audit quality over the certain consequences of missing a time limit. Indeed, archival research shows that auditors have reduced audit quality as their clients file closer to deadlines (López and Peters 2012; Bryant-Kutcher et al. 2013; Lambert et al. 2015; Glover et al. 2015).

If auditors decide to reduce audit effort, they must decide how to allocate this reduction across tasks. In this study, I consider how features of a task cause auditors to prioritize some tasks over others as time pressure increases. In particular, I examine *criteria subjectivity*, the degree to which the guidance or criteria for a given task is subjective or open to interpretation. *Objective tasks* (tasks with relatively low criteria subjectivity) have specific instructions, making it easy to verify whether the task was

completed well. For example, agreeing a subledger total to the trial balance is an objective task. *Subjective tasks* (tasks with relatively high criteria subjectivity) have more general guidance because completing these tasks requires adapting the procedures to each client and account and/or applying subjective financial standards. For example, determining whether assumptions underlying a complex estimate are reasonable is a subjective task.

To assess how audit performance differs across tasks with different levels of criteria subjectivity, I define two levels of task performance. The first level, *perfunctory performance*, is the *minimum* level of performance needed to show that the task criteria are addressed, i.e. satisfying the "letter" of the guidance. The second level, *consummate performance*, is the level of performance needed to *properly* satisfy the task criteria, i.e. satisfying the "spirit" of the guidance.[1] I label the difference between these two levels the *performance range*.

I assert that for objective tasks, the performance range is relatively small or zero; satisfying the criteria for these tasks results in consummate performance, while not doing so results in less than perfunctory performance. For instance, agreeing a subledger to the trial balance is either performed correctly (consummate performance) or incorrectly (less than perfunctory performance); these are the only possible outcomes. Therefore, I expect that as time pressure increases, auditors are unlikely to reduce the time and effort dedicated to objective tasks because they would not gain much time by decreasing performance from consummate to perfunctory.

[1] I borrow the terms "perfunctory performance" and "consummate performance" from Hart and Moore (2008), who use the terms to represent different levels of agent effort in a principal-agent setting.

Subjective tasks, on the other hand, have a relatively large performance range. On these tasks, perfunctory performance is verifiable (e.g. whether an auditor formed an independent expectation for a substantive analytical procedure). However, consummate performance is difficult to assess (e.g. whether the auditor incorporated all the relevant factors into the aforementioned expectation). Therefore, as time pressure increases, auditors can move from consummate to perfunctory performance on subjective tasks to save time and effort. Because there is less uncertainty regarding the effort required for either level of performance on objective tasks relative to subjective tasks, I predict that auditors will work on objective tasks before subjective tasks. I also predict that when auditors have both objective and subjective tasks, increases in time pressure will cause auditors to reduce performance on subjective tasks more than on objective tasks.

Finally, I consider whether informing auditors of higher assessed risk related to the subjective task reduces auditors' willingness to decrease effort on this task as time pressure increases. During audit planning, auditors assess whether certain accounts or transaction cycles have elevated risk and develop specific procedures to address the risk. Although auditors generally prioritize riskier audit areas (Margheim and Pany 1986; Pratt and Stice 1994; Houston 1999; Lee 2002; Coram et al. 2004), these areas may be incomplete as the audit deadline approaches. The increased risk implies that task reviewers will scrutinize audit work on these tasks more than work on less risky tasks. Therefore, I predict that when the subjective task covers an account with a high inherent risk, auditors will prioritize performance on the subjective task over the objective task, even if it results in less than perfunctory performance on a lower-risk objective task.

To test my theory, I conducted a 2 × 2 × 2 nested mixed-design experiment. In my experiment, experienced auditors completed two tasks: an objective task (verifying that sales transactions were recorded correctly) and a subjective task (performing a substantive analytical procedure over an estimate). Auditors decided which task to complete first and then completed the tasks in the chosen order. I manipulated the total time participants had to complete both tasks (either lower or higher than the initially estimated completion time) and the assessed inherent risk for the account tested by the subjective task (either high or low). The objective task always has low assessed inherent risk for its related account. To test my hypotheses, I measured task order and performance on each task.

I find that participants tended to perform the objective task before the subjective task, as predicted. Participants who performed the objective task first behaved as expected; increased time pressure resulted in decreased performance on the subjective task, but not the objective task. However, when participants performed the subjective task first, increased time pressure caused auditors to decrease performance evenly across both tasks. Finally, communicating a higher level of risk for the subjective task did not increase performance on that task or influence task order.

My study demonstrates that auditors delay tasks with subjective criteria when under time pressure and that performance on these tasks suffers as a result. To the extent that tasks with subjective criteria concern important or risky accounts, this may cause auditors to work too little on the audit tasks that need it the most. For instance, auditing regulators and academics are concerned about auditor performance for the subjective task of auditing complex estimates (Christensen et al. 2012; Bell and Griffin 2012; Bratten et

al. 2013; Public Company Accounting Oversight Board (PCAOB) 2014; Griffith et al. 2015). In particular, Griffith et al. (2015) report that 68.6% of audit deficiencies noted in 2007 and 2008 PCAOB inspection reports involved subjective tasks including auditing fair values, impairments, and other estimates. The results of my study indicate that quality might be lower here because the inherent subjectivity could allow auditors to delay these tasks in response to time pressure. This concern may grow given the ever-increasing complexity of financial reporting standards (Ciesielski and Weirich 2006; Dzinkowski 2007; Williams 2007; Pozen 2008; Chand et al. 2010; Dye et al. 2015).

II. Background and Hypothesis Development

Time pressure is endemic in auditing. This pressure stems from budgets (constraints on resource availability and the desire to minimize costs) and deadlines (points in time by when tasks must be completed) (Solomon and Brown 1992; DeZoort and Lord 1997). In particular, deadlines are often inflexible and can carry severe consequences for violation. Accordingly, archival evidence shows that deadline pressure reduces audit quality. Firms audited during the "busy season" when firms' resources are stretched more thinly have greater abnormal accruals, particularly if audited by a geographic office location that has more or larger clients (López and Peters 2012). Accelerated filers affected by the SEC's 2003 decision to reduce their 10-K filing period have reduced earnings quality (Lambert et al. 2015) and an increased likelihood of restatement, especially for December fiscal year-end firms (Bryant-Kutcher et al. 2013). Finally, audits of companies filing at or near their required filing deadlines have lower audit quality (Glover et al. 2015). These findings indicate that time pressure impacts audit quality, but they do not consider which financial statement areas have reduced audit quality.

Experimental research has examined moderators of the effects of time pressure on audit quality and efficiency (see Bonner (2008) for a recent discussion). However, Solomon and Brown (1992) express concern that this research focuses on *unanticipated* time pressure and that results may not generalize to situations where auditors can anticipate this pressure. When time pressure is unanticipated, auditors are limited to tactical responses such as trying to work faster, working longer hours, bringing more auditors in, and prematurely signing off on work (Kelley et al. 1999; Hyatt and Prawitt

2011; Hyatt and Taylor 2013). However, auditors can respond more strategically when they anticipate time pressure, modifying the audit plan in a manner that minimizes reduction in effectiveness. Solomon and Brown's (1992) review notes that strategic responses to time pressure remain mostly unexplored.[2] In this study, I consider how auditors might consider various task aspects in order to develop strategic responses to anticipated time pressure.

Although there are many aspects of tasks that can affect people's decisions, accounting and auditing are relatively unique in how standardized they are (Madsen 2011). Audit regulators and firms provide guidance for all of the tasks that auditors perform, and this guidance differs significantly across tasks. In particular, the degree to which the criteria for performing a given task are specific or open to interpretation and judgment, which I call *criteria subjectivity*, varies widely across audit tasks. Criteria subjectivity also affects the difficulty of verifying that the task was completed correctly (Maksymov et al. 2014). As noted earlier, I refer to tasks with relatively low (high) criteria subjectivity as *objective (subjective) tasks*.

Although no studies to my knowledge have explicitly examined criteria subjectivity, several auditing studies (Bonner 1994; Bonner 2008) have examined it implicitly as part of task complexity or task structure. For instance, McDaniel (1988, 1990) compares audit effectiveness and efficiency on a single audit task under different levels of structured guidance, finding that structure can increase audit effectiveness and efficiency, but time pressure reduced this increased efficiency. McDaniel (1988) finds

[2] An exception to this is Low and Tan (2011), who find that auditors who are forewarned about time pressure tend to perform better on an audit task, especially when they are instructed to develop alternative audit procedures. More recently, Bennett and Hatfield (2014) find that increased deadline pressure results in reduced testing when the auditor was responsible for the deadline pressure.

that in reaction to increased time pressure, auditors with a structured program eliminated some subtasks entirely and fully completed the other subtasks. With an unstructured program, auditors who could not complete all the subtasks were more likely to perform a portion of each subtask without finishing any of them. Braun (2000) examines performance on different aspects of a single audit task, finding that auditor performance on the dominant, objective aspect was consistent regardless of time pressure while time pressure decreased performance on the secondary, subjective aspect. Finally, Bowrin and King (2010) give auditors two open-ended audit tasks which vary in complexity. Each task has a time limit that was independent of the other task. They find that auditor performance did not change when the time limit was reduced for the simple task but was lower when the time limit was reduced for the subjective task.[3]

Why would auditors perform a set of objective and subjective tasks differently when under time pressure? I argue that objective vs. subjective tasks are dissimilar in terms of the time and effort that an auditor could spend on the task in order for it to be considered "complete." At one extreme, an auditor exerts the minimum amount of effort on a task that addresses the "letter" of firm-provided criteria or auditing standards (akin to a child throwing toys into a closet when told to put them away), which I define as *perfunctory performance*. At the other, the auditor ensures that enough evidence is obtained to satisfy the "spirit" of the criteria (akin to the child from the previous example putting each toy in its proper place), which I define as *consummate performance*. I call

[3] Although this study is similar in nature to mine, it does not consider how the time spent on one task may alter the time left to complete any remaining tasks as well as how auditors order their tasks to facilitate the completion of both tasks. The open-ended nature of their audit tasks, which involve generating a lists of control tests and potential causes of a pattern of financial statement ratios, also makes it difficult to know if or when the task would be considered "complete."

the range between perfunctory and consummate performance the *performance range*. I illustrate these concepts in in Figure 1.

In these terms, objective tasks have relatively *narrow* performance ranges (or no performance range at all). For these tasks, a task reviewer can tell if the auditor completed all of the task's procedures. For instance, if an auditor must complete five specific subtasks, the reviewer would notice if only four of them were completed and would require the auditor to complete the fifth procedure; therefore, the auditor initially completing the work knows that all five parts will need to be completed and that only addressing four is not enough.

In the case of subjective tasks, the performance range is relatively *wide*. These tasks have much more general guidance and require auditor judgment to tailor performance to the specific audit. Ideally, an auditor will consider and document all relevant information needed to arrive at the correct conclusion, thereby achieving consummate performance. For instance, in auditing a complex estimate, auditors should consider many different factors such as changes in economic circumstances, industry or company trends, and consistency with other audit evidence in order to perform the task correctly. However, auditors could reduce the amount of work done on the task while ensuring that the "letter" of the task criteria are satisfied (perfunctory performance), although the desired level of assurance for the task may not be met. For example, using only the prior year's estimate as the basis for the current year's complex estimate would amount to perfunctory performance.[4] Therefore, I assert that the performance range is

[4] A similar situation contributed to the failure of Arthur Anderson to detect the fraud that occurred at WorldCom. WorldCom fraudulently inflated capitalized its telecommunication line costs instead of expensing them. This caused their line cost expense-to-revenue ratio to remain consistent with previous

larger for subjective tasks than for objective tasks. Figure 2 illustrates this relationship between criteria subjectivity and the performance range.

In order to ensure that the work meets the minimum regulatory or guidance requirements, auditors must achieve at least perfunctory performance on all tasks. However, audit tasks have a large amount of uncertainty surrounding the time and effort it will take to achieve a given level of performance. This uncertainty arises from issues discovered while performing the tasks; for instance, an analysis may be more difficult than expected or misstatements found during testing a sample of transactions may require a larger sample to be tested. The clear, straightforward criteria for objective tasks are likely to reduce this uncertainty relative to subjective tasks. If auditors are ambiguity averse, a common assertion in the auditing literature (Nelson and Kinney Jr. 1997; Zimbelman and Waller 1999; Bigus 2012), they may be naturally inclined to complete objective tasks before subjective tasks.

This difference in uncertainty between the two types of tasks also has implications for auditors' ability to complete all of their tasks. If auditors complete the objective task first, they will likely be able to achieve consummate performance on the objective task since it does not require much (if any) additional effort to move from perfunctory to consummate performance. They can then spend the remaining time working on subjective tasks to get as close to consummate performance as possible, while still having a relatively high probability of achieving perfunctory performance due to the wide performance range. However, if they work on the subjective task first, they may not have

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years, even though the telecommunications industry was in decline (Kaplan and Kiron 2004). The official report on the WorldCom fraud noted that "instead of wondering how this could be, Andersen appeared to have been comforted by the absence of variances. Indeed, this absence led Andersen to conclude that no follow-up work was required" (Beresford et al. 2003).

enough time to achieve even perfunctory performance on the objective task since the performance range is narrow and the effort needed to reach perfunctory performance is still uncertain. Therefore, I predict that auditors will prioritize work on objective tasks before subjective tasks. Stated formally:

H1: When auditors are assigned both an objective and subjective task, they will be more likely to choose to perform the objective task first regardless of time pressure.

Given the discussion of the performance range above, I predict that auditors will be less willing to remove effort from objective tasks, since there is little time to be reclaimed by moving from consummate to perfunctory performance. Instead, I hypothesize that as time pressure increases, auditors are more likely to reduce effort on subjective tasks. While auditors may have originally intended to achieve consummate performance, the flexibility inherent in the criteria for subjective tasks allows auditors to reduce effort (and performance) on the subjective task while still satisfying the letter of the criteria. Stated formally:

H2: When auditors are assigned both an objective and subjective task, performance will decrease more with time pressure for the subjective versus the objective task.

These hypotheses have a disturbing implication to the extent that subjective tasks relate to particularly difficult to audit accounts, such as complex estimates. However, auditors would likely assess a higher level of inherent risk for these accounts. Auditors tend to allocate more audit effort towards higher-risk accounts (Margheim and Pany 1986; Pratt and Stice 1994; Houston 1999; Lee 2002). The PCAOB's risk-based inspections of audit engagements also increase the chance that audit tasks covering higher-risk accounts will be inspected (Church and Shefchik 2011). If time pressure

increases, this implies that auditors will selectively reduce effort on tasks with lower assessed risk.

However, studies provide mixed evidence on how time pressure and risk jointly affect auditor performance. Houston (1999) finds that when client risk increases, auditors are likely to increase budgeted audit hours only when audit fees are consistent with the prior year. However, auditors are strategic about changing the budgeted hours to respond to the increased risk rather than simply allocating changes in audit hours proportionately across tasks. Coram et al. (2004) find that lower risk causes auditors to truncate sample size as budget pressure increases but has no effect on their acceptance of a dubious client explanation.

Why does a general increase in client risk result in an uneven change in audit effort across tasks? I argue that auditors may be constrained by the amount of work they must perform in certain areas that have tasks with more objective criteria. For instance, auditors may want to spend significant time ensuring that a high-risk accounting estimate is reasonable, but they are constrained by all the other work that, while concerning accounts of much lower risk, is required by firm policy or professional standards. However, given the increased scrutiny from the PCAOB on high risk clients and audit procedures, auditors may be willing to forego even perfunctory performance on objective tasks if investigations overlook these tasks in favor of higher risk tasks requiring consummate performance on subjective tasks.[5] I hypothesize the following:

H3: Regardless of time pressure, when auditors are assigned both an objective and subjective task, auditors will be more likely to choose to perform the subjective

[5] Since the performance range is relatively small on the objective task, I do not consider the effect of increasing risk on the objective task since there should theoretically be very little change in performance on this task.

task first if the assessed inherent risk for the account covered by the subjective task is high versus low.

H4: Regardless of time pressure, when auditors are assigned both an objective and subjective task, performance will increase on the subjective task relative to the objective task if the assessed inherent risk for the account covered by the subjective task is high versus low.

III. Method

Participants

To test my hypotheses, I conducted an experiment using 120 experienced auditors from two Big 4 accounting firms and one large international public accounting firm. All participants did not answer all of the post-experimental questions; my analyses report all responses received. In addition, all data were excluded for seven participants who did not provide any correct answers during the main section of the experiment, leaving data from 113 participants. Fifty-seven participants were male and 51 were female (five did not provide their gender). A majority of participants (88) were senior associates; the remaining participants consisted of 18 staff, one manager, one partner, and five who did not respond to the inquiry about their position.

Participants had a mean (standard deviation) of 3.06 (1.68) years of experience, with a minimum of eleven months and a maximum of twelve years. About two-thirds of participants were CPAs. Participants also reported that they had experienced extreme deadline pressure on over half of their engagements (58.9%), on average. No significant differences in these attributes were found across experimental conditions.

Experimental Procedure

My experiment had a 2 × 2 × 2 mixed nested design with one within-participant variable and two between-participant variables. Participants were instructed to complete two tasks, one objective and one subjective (Task Type: Objective, Subjective). I manipulated the total amount of time participants have to complete both tasks (Time Pressure: Low, High). I also nest assessed risk of the account tested for the subjective

task only (Subjective Task Risk: Low, High). Participants were randomly assigned to one of four experimental conditions.

The experiment was administered using Qualtrics. Participants from two firms completed the study online on their own time while participants from the third firm completed materials online during a firm training session. Although I give up some experimental control by running the experiment online, I am able to provide instant feedback to participants regarding the amount of time they have remaining during the experiment.

In the experiment, auditors were first provided background on an audit situation in which a deadline is approaching. They were then informed about the two tasks (objective and subjective) they were required to complete by this deadline. I counterbalanced the order of task presentation. Participants selected a task to tackle first, worked on the selected task, then spent any remaining time working on the other task. If participants ran out of time, they were automatically forwarded to the next part of the study, and any work they had completed up to that point was saved. The experiment concluded by asking participants about the tasks they completed, factors they considered related to their task choice and performance, and psychometric/demographic information.

I used a test of details as the objective task and a substantive analytical procedure as the subjective task.[6] The test of details required participants to test a sample of five sales from half of the last month of the fiscal year; the instrument provided test results

[6] A test of details is an audit procedure involving inspection, observation, inquiry, confirmation, recalculation or reperformance in order to gain assurance over an account balance or disclosure. A substantive analytical procedure is a comparison between a client's figures (such as an account balance or financial ratio) and an auditor-generated expectation of what the figure should be. Official guidance regarding tests of details and substantive analytical procedures can be found in PCAOB Auditing Standard 15, *Audit Evidence* (PCAOB 2010) and PCAOB Interim Standard AU 329, *Substantive Analytical Procedures* (PCAOB 2003), respectively.

from the rest of the year. For each sale, participants were required to vouch an invoice to the underlying shipping documentation in order to make sure that the transaction was recorded properly. When the objective task began, the participants were provided with the selected invoices, purchase orders, and shipping documentation. Participants were required to document any errors, project the error to the population of sales, determine whether the projected error exceeds a given materiality threshold, and conclude on the existence, accuracy, and cut-off assertions for sales. I seeded three errors in the documentation (e.g. numbers not matching across documents, sales recognized in the wrong period due to shipping terms). I measure performance on the objective task as the number of seeded errors identified correctly.[7]

For the subjective task, participants conducted a substantive analytical procedure on a contingent liability account. The account consisted of the total potential claims that will need to be paid out as a result of worker exposure to a hazardous chemical.[8] Participants were required to calculate an independent expectation and compare this expectation to the client's actual liability. Auditors were instructed to indicate that follow-up is required if the difference exceeded a provided threshold.

The instrument provided three possible approaches for the auditor to use to generate an expectation for the account balance. All of the approaches involve multiplying numbers of potentially affected workers by expected claim sizes. However, each approach uses a different degree of disaggregation of the underlying data. Auditors

[7] I use this dependent measure instead of the number of sales tied correctly to the supporting documentation. I am interested in measuring performance as decreasing the likelihood of an audit failure rather than possible inefficiencies resulting from improperly flagging an issue which would likely be reversed during the review process. Regardless, I consider this alternative measure in supplemental analyses.

[8] The task is adapted from Clor-Proell and Maines (2014); I thank Shana Clor-Proell for providing their instrument.

must spend more time and effort on the task if they use more disaggregated data, as more calculations are required to arrive at the expectation. However, using more disaggregated information also increases the precision and power of the analytical procedure (PCAOB 2003; Glover et al. 2005), resulting in better performance. Participants achieved perfunctory performance by completing the task using any level of disaggregation, as the auditor completed the task's requirement to develop an independent expectation. Using more disaggregated data approaches consummate performance.

The first approach based the expectation on this information for the company as a whole. The second approach disaggregated the information by expected claim size (low, medium, and high). Finally, the third approach disaggregated the information even further by providing information by claim size and country (the U.S., Mexico, and Asia). The exact wording for each approach is presented in Appendix A. Participants could only view the detail needed for the expectation calculation for one approach at a time (they can switch between them as desired, however). The instrument noted that last year, the first approach (using the least disaggregated data) was used; however, there was more information available in the current year as the company learned more about the effects of exposure to the chemical. I measure performance on the subjective task as the level of disaggregation that participants use when forming their expectation.

Independent and Dependent Variables

In my experiment, I manipulated Time Pressure and Subjective Task Risk. I manipulated Time Pressure by changing the amount of time participants have to complete both tasks. I informed auditors at the beginning of the study that each task, on average, should take 10 minutes to complete based on time estimates for the types of tasks

performed. This average task length was validated using pilot testing. In the Low Time Pressure condition, participants had 25 minutes to complete both tasks, resulting in sufficient time on average to achieve consummate performance on both tasks based on the time estimate. In the High Time Pressure condition, participants only had 15 minutes to complete both tasks, which is insufficient time based on the estimate. The implementation of the manipulation is presented in Appendix B.

My second independent variable, Subjective Task Risk, was manipulated via inherent risk assessment information. I provided participants with inherent risk assessments from the planning phase of the audit for the two accounts being tested. Both tasks were rated on a scale of low, medium, or high based on the risk assessment; the sales account (tested by the objective task) always had a low risk assessment, whereas the contingent liability account had either a low or high risk assessment based on the condition. The wording of the manipulation is shown in Appendix A. Finally, as auditors complete both the objective and subjective task, I use task type as a within-participants independent variable.[9]

My dependent variables are the task chosen to complete first (First Task Chosen) and the performance on each task (Task Performance). As noted above, I measured performance on the objective task as the number of seeded errors (out of three) that participants identified correctly. Performance on the subjective task was measured by the level of disaggregation that participants use in forming their expectations. Following the first, second, and third approach as stated above is measured as a one, two, or three,

[9] Note that because the two tasks are fundamentally different, I cannot draw any conclusions about main effects of Task Type on my dependent measures. However, my hypotheses predict an interaction between Task Type and Time Pressure, so I compare changes in performance across Time Pressure.

respectively. If the participant did not complete the subjective task, used a different approach than the three given, or did not complete the calculation correctly, the performance measure is given a value of zero. The full instrument is shown in Appendix D.

IV. Results

Manipulation Checks

I asked three questions after the study had been completed in order to ensure that participants assessed the substantive analytical procedure as having more subjective criteria than the test of details. The questions asked participants how (1) flexible and (2) open to interpretation the steps of each task were, as well as (3) how easy or difficult it would be for a reviewer to verify that the questions had been completed correctly. Auditors responded to each question on a five-point Likert scale; I average the responses together to create a scale of criteria subjectivity. Participants rated the substantive analytical procedure as having more subjective criteria than the test of details (means (standard deviations) of 3.01 (0.06) versus 2.15 (0.08), respectively; $t_{96} = 8.89$, $p < 0.001$), indicating that the manipulation of Task Type was successful.

I also asked participants two questions about their experienced time pressure on five-point Likert scales. The questions, based on Bowrin and King (2010), asked the extent to which the participants agree with the following statements: "completing the tests required me to work very fast" and "the time allotted was sufficient for proper performance on the tests" (reverse-coded). Comparing the averaged answers to the two questions across Time Pressure conditions indicates that the manipulation was successful; the mean (standard deviations) in the high time pressure condition was 4.18 (0.09) versus 3.30 (0.13) in the low time pressure condition ($t_{110} = 5.94$, $p < 0.001$).

In order to determine whether the Subjective Task Risk manipulation was successful, I asked participants to recall the level of assessed risk for each task. Based on the results, it is questionable whether the risk manipulation was successful; only 61

participants (52.1%) identified both assessed risks correctly. Responses of 74 participants (65.5%) indicated the correct ordering of risk across the two tasks. While these results cast doubt on the success of the manipulation, there is reason to believe that the participants attended to the manipulation as it affected participants' allocation of time between the two tasks. Therefore, for my main analysis, I retain the Subjective Task Risk manipulation and the participants who did not pass the manipulation check.

Results for the First Task Chosen

H1 predicts that more participants will choose to perform the objective task before the subjective task than will choose the reverse order. Of the 113 participants, 67 (59.2%) chose to perform the objective task first, which is significantly different from chance (binomial probability test: $p = 0.030$). This indicates support for H1. I examine whether any of the other independent variables affect this result. When split by Time Pressure conditions, 31 of 50 (36 of 63) participants choose the objective task first in the Low (High) Time Pressure conditions; there is no support for Time Pressure influencing the first task chosen (Fisher's exact test: $p = 0.701$). Likewise, there is no evidence that the Subjective Task Risk affected participants' choice of their first task to perform; 33 of 52 participants performed the objective task first in the Low Subjective Task Risk condition, whereas 34 of 61 participants did so in the High Subjective Task Risk condition (Fisher's exact test: $p = 0.446$).

The order in which descriptions of the two tasks were presented did have a significant effect on the first task chosen. When participants learned about the objective task first, 43 of 56 participants performed this task first. However, when participants learned about the subjective task first, only 24 of 57 participants performed the objective

task first (Fisher's exact test: $p < 0.001$). This suggests that participants tended to choose to perform first whichever task they learned about first. Since task presentation order was counterbalanced across conditions, the effect of task type on task choice is incremental to the presentation order effect. H1 remains supported.

Results for Audit Task Performance Across Both Tasks

Table 1 presents descriptive statistics for task performance across the four independent variables: the two manipulated variables (Time Pressure and Subjective Task Risk), the endogenous variable (First Task Chosen), and the within-participants variable (Task Type). Table 2, Panel A presents a four-way mixed-design ANOVA with Task Performance as the dependent variable and the four independent variables included in Table 1.

H2 predicts an interaction between Time Pressure and Task Type on Task Performance. This interaction is not significant in the ANOVA in Table 2, Panel A ($F_{1,105} = 0.78$; $p = 0.378$); however, I find a significant three-way interaction among Time Pressure, First Task Chosen, and Task Type ($F_{1,105} = 10.23$; $p = 0.002$). I conduct follow-up two-way ANOVAs (split on First Task Chosen), which are provided in Panels B and C of Table 2. When participants chose the objective task to perform first, participants behaved as predicted by H2: the interaction between Task Type and Time Pressure is significant ($F_{1,63} = 10.31$; $p = 0.002$). When time pressure increased, performance on the objective task remained relatively the same (2.00 vs. 2.06); however, performance on the subjective task decreased from 1.94 to 0.94, matching my predicted pattern. However, the same interaction is insignificant when participants chose to perform the subjective task first ($F_{1,42} = 2.29$; $p = 0.138$). When the subjective task was performed first,

performance on both tasks decreased; objective task performance decreased from 2.16 to 1.19, while subjective task performance fell from 2.21 to 1.93. These results indicate conditional support for H2; auditors reduced performance on the subjective task more than the objective task as time pressure increased, but only when they selected the objective task to perform first. These results are illustrated in Figure 3.

The Effect of Risk on Task Ordering and Performance

H3 predicts that Subjective Task Risk will affect First Task Chosen. When the two tasks had the same risk, 19 of 52 participants (36.5%) performed the subjective task first. When the account tested by the subjective task had higher assessed risk, 27 of 61 participants (44.3%) performed the subjective task first. This pattern is directionally consistent with H3 but is not significant (one-sided Fisher's exact test: $p = 0.261$). Therefore, I find no effect of Subjective Task Risk on which task participants chose to perform first.

H4 proposes an interaction between Subjective Task Risk and Task Type for Task Performance. The descriptive statistics and ANOVAs presented in Tables 1 and 2, respectively, consider the effects of Subjective Task Risk alongside the other independent variables. The ANOVA presented in Table 2, Panel A shows that there are no significant interactions between Subjective Task Risk and any other variables (smallest $p = 0.389$), indicating that H4 is not supported; elevated risk related to the subjective task does not affect auditor performance of the two tasks. Note that relatively small cell sizes leave open the possibility that my tests of H3 and H4 lack power to detect a meaningful effect of Subjective Task Risk; however, I do find that risk did affect other outcome variables. I discuss this below.

Supplemental Analyses

In this section, I perform several additional tests to check the robustness of my findings. First, I consider the effect of loosening statistical assumptions related to my analyses. As task performance is measured at only four discrete levels, I rerun my analyses using an ordinal logistic mixed-model regression (untabulated) with Task Performance as my dependent variable and all of the factors and their interactions included in my original ANOVA model. I find that all of my statistical inferences are the same using this model as in the ANOVA model, indicating that my analysis is robust to unequal differences between each of the measured task performance levels.

Another way of measuring task performance for the objective task is to identify how many of the five sales transactions in the objective task were vouched correctly instead of how many of the three seeded errors were caught. I reanalyze results using this measure along with a rescaled measure of performance on the subjective task (multiplying my original measure by five-thirds so that performance is on the same range for both tasks). As expected, there is a very high correlation between the original measure of objective task performance and this alternative measure (Pearson's correlation coefficient = 0.91, $p < 0.001$). Using this alternative measure of task performance as a dependent variable in a four-way ANOVA using the same factors as the original ANOVA does not change any reported statistical inferences.

In my experiment, the tasks were designed to require more time in order to increase performance. However, if this relationship does not hold, time spent on the two tasks may be a better representation of auditors' intention to influence performance across the tasks. Therefore, I next examine whether the time spent on each task was

affected in the same way as performance across my independent variables. Table 3 and Table 4, Panel A show descriptive statistics and an ANOVA, respectively, using time spent on each task as the dependent variable. Based on H2, I would expect that participants would decrease time spent on the subjective task when time pressure increases while the time spent on the objective task would not change (i.e. an interaction between Time Pressure and Task Type). I do not find this interaction ($F_{1,105} = 0.64$; p = 0.425); however, I do find two three-way interactions, one among First Task Chosen, Time Pressure, and Task Type ($F_{1,105} = 6.76$; p = 0.011) and one among Subjective Task Risk, Time Pressure, and Task Type ($F_{1,105} = 8.20$; p = 0.005).

I conduct follow-up two-way ANOVAs for the two Subjective Task Risk and two Time Pressure conditions in Table 4, Panels B through E. These ANOVAs reveal a significant interaction between Time Pressure and Task Type in two situations: first, when Subjective Task Risk is High and First Task Chosen is the Objective task ($F_{1,67} = 6.70$; p = 0.014) and second, when Subjective Task Risk is Low and First Task Chosen is the Subjective task ($F_{1,37} = 7.75$; p = 0.013). In the first situation, auditors responded to increased time pressure by decreasing time spent on the subjective task (from 365 seconds to 114 seconds) but not the objective task (from 755 seconds to 694 seconds), consistent with H2. However, in the second situation, auditors performing the subjective task first spent similar amounts of time on the subjective task in both time pressure conditions (443 seconds in the low time pressure condition and 450 seconds in the low time pressure condition) but decreased time spent on the *objective* task when time pressure increased (821 seconds in the low time pressure condition versus 417 seconds in the high time pressure condition), contrary to H2. This suggests that when both tasks

have the same level of risk, participants performing the subjective task first may not be reserving enough time for the objective task; they cannot take advantage of the flexibility afforded by the subjective task once this task has been completed.

I also consider how the chosen task order affects participants' ability to complete both tasks. My theory predicts that participants performing the subjective task first would be less likely to reserve enough time to complete the objective task after the subjective task.[10] In order to determine whether both tasks were completed, I examine whether the task was documented correctly. In other words, each task had a set of criteria that had to have a response provided; I identify a task as "completed" if participants responded to each criterion and if the responses were appropriate to the criteria (e.g. the total documented misstatement was equal to the total of each individual misstatement). This is a measure of perfunctory performance, as all the criteria are addressed, although possibly incorrectly. Twenty-eight of 67 auditors (41.8%) completed both tasks when they performed the objective task first compared to 12 of 46 participants (26.1%) who performed the subjective task first (1-sided Fisher's exact test: $p = 0.064$). This marginally significant difference supports my theoretical explanation for auditors performing the objective task first.

An alternative explanation for auditors' task performance may be that one task was more difficult than the other. To examine whether differences in task difficulty, rather than criteria subjectivity, caused the reported results, I asked participants how

[10] The auditor could alternatively try to achieve perfunctory performance on both tasks, then return to the subjective task to improve performance on that task afterwards. However, this would result in switching costs that would reduce efficiency (Jersild 1927), as the auditor would have to refamiliarize himself or herself with the task and/or redo work already completed. Therefore, I do not incorporate the ability to switch tasks into my experiment.

difficult it would be to arrive at the correct answer for each task if there was unlimited time. I subtracted the difficulty score for the objective task from the difficulty score for the subjective task to create a measure of relative difficulty of the subjective task. Although including relative difficulty as a covariate in an analysis comparable to the ANOVA in Table 2, Panel A does not change any inferences related to task performance, the covariate is significant ($F_{1,204} = 7.53$; $p = 0.007$). Therefore, while assessed relative difficulty may explain some of the difference in task performance across conditions, the inferences related to my hypothesized relationships are the same.

V. Conclusions

I examine how auditors prioritize and perform tasks with different levels of criteria subjectivity. I predict and find that auditors tend to perform objective tasks before subjective tasks, for which they can reduce their effort yet still address the "letter" of the criteria. I find that auditors' performance on a subjective, but not objective task increases under time pressure. This apparently occurs because auditors are unable to reduce effort on the objective task while still completing it. However, this only occurs when auditors perform the objective task first. Finally, I did not find support for a higher risk assessment on the subjective task mitigating the effect of time pressure on task prioritization or performance.

My results imply that subjectivity in auditing guidance can be both a blessing and a curse. While subjective auditing standards allow auditors to exercise their professional judgment, they may also use the flexibility in these standards to pursue goals other than maximizing audit quality (Kadous et al. 2003). Of course, objective guidance has its own caveats. The constraints that objective guidance place on auditors may cause them to ignore relevant information (Pincus 1989) or work backwards to achieve a desired outcome (Kachelmeier and Messier Jr. 1990). Objective guidance also must be more comprehensive in order to be relevant to a wider array of situations. Therefore, in designing auditing guidance, audit firms and standard setters must find a balance between the two extremes.

This is especially important given audit firms' recent interest in using "Big Data" to enhance their audits (Agnew 2015). While the analysis of voluminous and varied

client data may help auditors to identify complex patterns of transactions that may be indicative of misstatement or fraud, this analysis is highly subjective (Brown-Liburd et al. 2015). If audit firms pursue the use of Big Data in auditing, my results imply that firm guidance in this area should put some constraints on what auditors include or exclude as part of their analysis. For instance, guidance could require auditors to incorporate economic or specific industry trends into their analyses.

My study also introduces auditors' task ordering into the experimental auditing literature, a topic only explored to date in theoretical research. Task ordering is important because, as I show in my study, it can affect auditors' performance across tasks. Future research can explore other determinants of auditor task ordering as well as task ordering in other domains. For instance, multitasking or task switching between clients reduces auditor performance (Mullis 2014). However, it could also allow auditors to allocate their limited time more efficiently by switching between tasks once perfunctory performance is reached, although this may not always be possible.

VII. References

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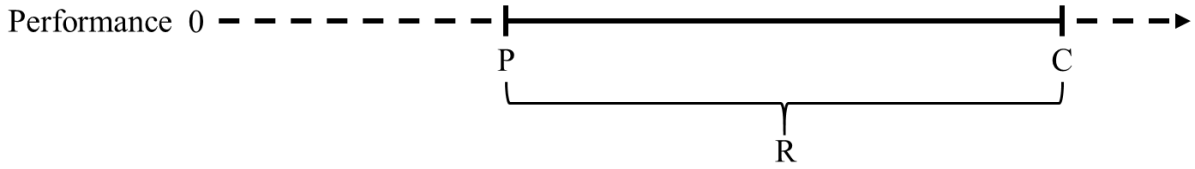
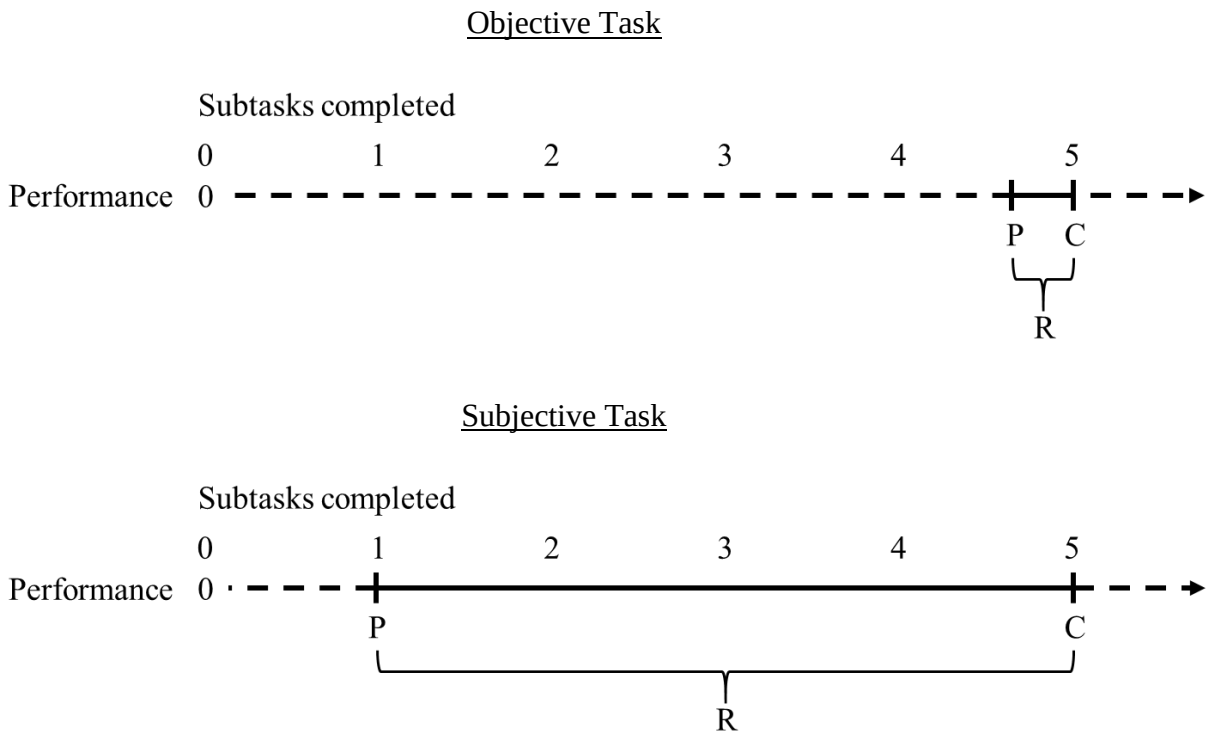
FIGURE 1. Illustration of Criteria Subjectivity



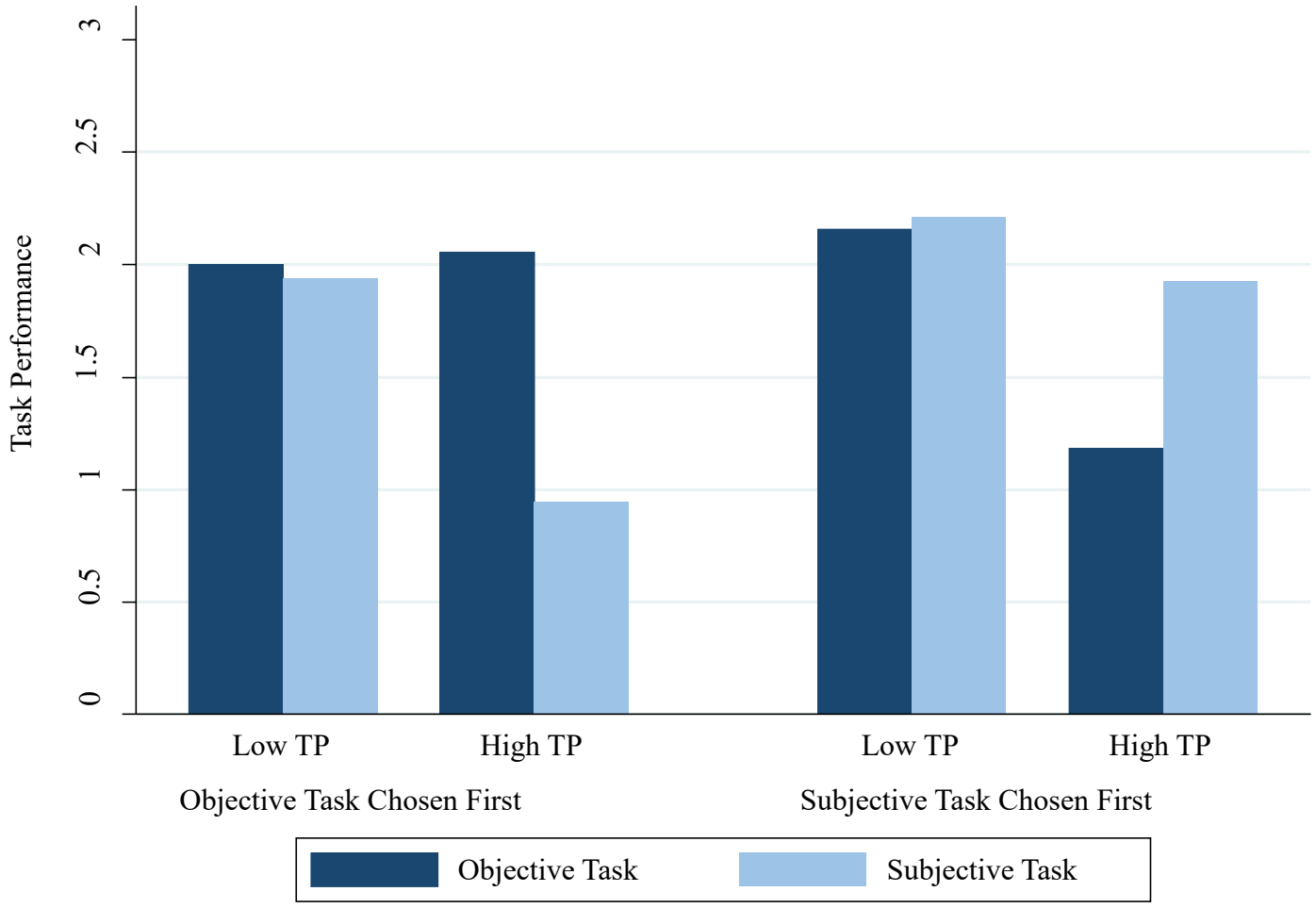
The axis represents the level of performance on the task. The solid line represents the performance range (R) from perfunctory performance (P) to consummate performance (C). The dashed lines represent performance levels that are assumed to not be relevant; the range to the left of P represents a level of performance that does not even address the letter of the criteria, whereas the range to the right of C represents audit inefficiency (performing more work than necessary to satisfy the objectives of the task).

FIGURE 2. Effect of Time Pressure on Objective versus Subjective Tasks



See Figure 1 for abbreviations. The numbers above the axis represent the number of subtasks completed at corresponding points of performance on the axis, with each task having 5 subtasks that need to be completed. (Note that for a truly objective task, R would be effectively zero; however, since virtually all audit tasks have at least some degree of professional judgment, I show R as non-zero.)

FIGURE 3. Graph of Results for H1 and H2



Results are collapsed across Subjective Task Risk. TP = Time Pressure. Refer to the note in Table 1 for descriptions of the independent and dependent variables.

TABLE 1

Descriptive Statistics for Task Performance

Panel A. Objective Task Chosen First

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	
Objective	1.91	2.05	2.05	2.07	2.00	2.06	2.00	2.06	2.03
	(1.38)	(1.21)	(1.10)	(0.83)	(1.18)	(1.07)	(1.25)	(0.98)	(1.11)
	n = 11	n = 22	n = 20	n = 14	n = 31	n = 36	n = 33	n = 34	n = 67
Subjective	2.09	0.95	1.85	0.93	1.94	0.94	1.33	1.47	1.40
	(0.83)	(1.21)	(1.09)	(1.07)	(1.00)	(1.15)	(1.22)	(1.16)	(1.18)
	n = 11	n = 22	n = 20	n = 14	n = 31	n = 36	n = 33	n = 34	n = 67

Panel B. Subjective Task Chosen First

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	
Objective	2.18	1.38	2.13	1.11	2.16	1.19	1.84	1.41	1.59
	(1.17)	(1.19)	(1.13)	(0.94)	(1.12)	(1.00)	(1.21)	(1.08)	(1.15)
	n = 11	n = 8	n = 8	n = 19	n = 19	n = 27	n = 19	n = 27	n = 46
Subjective	2.09	2.00	2.38	1.89	2.21	1.93	2.05	2.04	2.04
	(0.94)	(0.93)	(0.74)	(0.81)	(0.85)	(0.83)	(0.91)	(0.81)	(0.84)
	n = 11	n = 8	n = 8	n = 19	n = 19	n = 27	n = 19	n = 27	n = 46

TABLE 1 (Continued)

Panel C. Collapsed Across First Task Chosen

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	
Objective	2.05 (1.25) n = 22	1.87 (1.22) n = 30	2.07 (1.09) n = 28	1.52 (1.00) n = 33	2.06 (1.15) n = 50	1.68 (1.12) n = 63	1.94 (1.23) n = 52	1.77 (1.07) n = 61	1.85 (1.14) n = 113
Subjective	2.09 (0.87) n = 22	1.23 (1.22) n = 30	2.00 (1.02) n = 28	1.48 (1.03) n = 33	2.04 (0.95) n = 50	1.37 (1.13) n = 63	1.60 (1.16) n = 52	1.72 (1.05) n = 61	1.16 (1.10) n = 113

Participants were asked to complete two tasks by a specified time limit. The objective task required participants to perform a test of details by vouching five invoices to supporting documentation (purchase orders and bills of lading). The subjective task required participants to perform a substantive analytical procedure by forming an expectation for an account balance using provided background information, calculating the difference between their expectation and the company-provided account balance, and comparing this difference to a tolerable threshold. Task Performance is measured as the number of seeded errors which were correctly identified in the objective task and the level of disaggregation chosen as the basis for the expectation calculation for the subjective task (both are on a scale of zero to three). Participants chose which task to perform first; task performance for those who performed the objective (subjective) task first is shown in Panel A (Panel B). Participants were randomly assigned to a Subjective Task Risk and Time Pressure condition. Participants in the Low (High) Subjective Task Risk condition were informed that the inherent risk for the account tested by the subjective task was low (high) while the inherent risk for the account tested by the objective task was always low. Participants in the Low (High) Time Pressure condition had 25 (15) minutes to complete both tasks.

TABLE 2

ANOVA Results for Task Performance

Panel A. Mixed-Design ANOVA for Task Performance

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
First Task Chosen	1	1.190	1.190	0.89	0.349
Subjective Task Risk	1	0.048	0.048	0.04	0.851
First Task Chosen × Subjective Task Risk	1	0.002	0.002	0.00	0.969
Time Pressure	1	14.207	14.207	10.58	0.002
First Task Chosen × Time Pressure	1	0.193	0.193	0.14	0.706
Subjective Task Risk × Time Pressure	1	0.189	0.189	0.14	0.708
First Task Chosen × Subjective Task Risk × Time Pressure	1	0.379	0.379	0.28	0.597
Error	105	140.928	1.342		
Within-Participants Effects:					
Task Type	1	0.353	0.353	0.39	0.533
First Task Chosen × Task Type	1	11.234	11.234	12.43	< 0.001
Subjective Task Risk × Task Type	1	0.004	0.004	0.00	0.948
First Task Chosen × Subjective Task Risk × Task Type	1	0.677	0.677	0.75	0.389
Time Pressure × Task Type	1	0.708	0.708	0.78	0.378
First Task Chosen × Time Pressure × Task Type	1	9.248	9.248	10.23	0.002
Subjective Task Risk × Time Pressure × Task Type	1	0.018	0.018	0.02	0.888
First Task Chosen × Subjective Task Risk × Time Pressure × Task Type	1	0.197	0.197	0.22	0.642
Error	105	94.905	0.904		
Total	225	283.615	1.261		

TABLE 2 (Continued)

Panel B. Mixed-Design ANOVA for Task Performance (Holding First Task Chosen = Objective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Subjective Task Risk	1	0.019	0.019	0.01	0.912
Time Pressure	1	7.002	7.002	4.46	0.039
Subjective Task Risk × Time Pressure	1	0.019	0.019	0.01	0.912
Error	63	98.900	1.570		
Within-Participants Effects:					
Task Type	1	9.836	9.836	10.65	0.002
Subjective Task Risk × Task Type	1	0.365	0.365	0.40	0.532
Time Pressure × Task Type	1	9.521	9.521	10.31	0.002
Subjective Task Risk × Time Pressure × Task Type	1	0.211	0.211	0.23	0.634
Error	63	58.184	0.924		
Total	133	187.224	1.408		

TABLE 2 (Continued)

Panel C. Mixed-Design ANOVA for Task Performance (Holding First Task Chosen = Subjective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Subjective Task Risk	1	0.029	0.029	0.03	0.865
Time Pressure	1	7.335	7.335	7.33	0.010
Subjective Task Risk × Time Pressure	1	0.461	0.461	0.46	0.501
Error	42	42.028	1.001		
Within-Participants Effects:					
Task Type	1	3.146	3.146	3.60	0.065
Subjective Task Risk × Task Type	1	0.325	0.325	0.37	0.546
Time Pressure × Task Type	1	2.002	2.002	2.29	0.138
Subjective Task Risk × Time Pressure × Task Type	1	0.040	0.040	0.05	0.833
Error	42	36.721	0.874		
Total	91	95.859	1.053		

TABLE 3
Descriptive Statistics for Time Spent Performing a Task

Panel A. Objective Task Chosen First

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	**Time Pressure**
Objective	1,000	760	694	755	802	758	840	719	779
	(267)	(158)	(308)	(177)	(325)	(163)	(227)	(260)	(250)
	n = 11	n = 22	n = 20	n = 14	n = 31	n = 36	n = 33	n = 34	n = 67
Subjective	278	109	365	114	334	111	165	261	214
	(137)	(114)	(171)	(153)	(163)	(129)	(145)	(204)	(183)
	n = 11	n = 22	n = 20	n = 14	n = 31	n = 36	n = 33	n = 34	n = 67

Panel B. Subjective Task Chosen First

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	**Time Pressure**
Objective	821	417	752	497	792	473	651	573	605
	(238)	(203)	(185)	(163)	(215)	(175)	(299)	(204)	(248)
	n = 11	n = 8	n = 8	n = 19	n = 19	n = 27	n = 19	n = 27	n = 46
Subjective	433	450	612	392	509	409	441	457	450
	(175)	(202)	(219)	(174)	(210)	(181)	(182)	(211)	(197)
	n = 11	n = 8	n = 8	n = 19	n = 19	n = 27	n = 19	n = 27	n = 46

TABLE 3 (Continued)

Panel C. Collapsed Across First Task Chosen

	Low Subjective Task Risk		High Subjective Task Risk		Collapsed across Subjective Task Risk		Collapsed across Time Pressure		Collapsed across Subjective Task Risk and Time Pressure
Task Type	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Time Pressure**	**High Time Pressure**	**Low Subjective Task Risk**	**High Subjective Task Risk**	
Objective	911 (263) n = 22	669 (227) n = 30	711 (276) n = 28	606 (211) n = 33	799 (286) n = 50	636 (219) n = 63	771 (269) n = 52	654 (246) n = 61	708 (263) n = 113
Subjective	356 (173) n = 22	200 (207) n = 30	435 (214) n = 28	274 (215) n = 33	400 (199) n = 50	239 (212) n = 63	266 (207) n = 52	348 (228) n = 61	310 (221) n = 113

Time spent performing a task was measured by how long participants were viewing the screen that had the task on it. See Table 1 for a description of the conditions.

TABLE 4

ANOVA Results for Time Spent Performing a Task

Panel A. Mixed Design ANOVA for Time Spent Performing a Task

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
First Task Chosen	1	70061	70061	3.67	0.058
Subjective Task Risk	1	6256	6256	0.33	0.568
First Task Chosen × Subjective Task Risk	1	94904	94904	4.98	0.028
Time Pressure	1	1643337	1643337	86.19	< 0.001
First Task Chosen × Time Pressure	1	54255	54255	2.85	0.095
Subjective Task Risk × Time Pressure	1	13688	13688	0.72	0.399
First Task Chosen × Subjective Task Risk × Time Pressure	1	73084	73084	3.83	0.053
Error	105	2001918	19066		
Within-Participants Effects:					
Task Type	1	6650519	6650519	120.32	< 0.001
First Task Chosen × Task Type	1	2333905	2333905	42.22	< 0.001
Subjective Task Risk × Task Type	1	201590	201590	3.65	0.059
First Task Chosen × Subjective Task Risk × Task Type	1	66135	66135	1.20	0.277
Time Pressure × Task Type	1	35411	35411	0.64	0.425
First Task Chosen × Time Pressure × Task Type	1	373422	373422	6.76	0.011
Subjective Task Risk × Time Pressure × Task Type	1	453453	453453	8.20	0.005
First Task Chosen × Subjective Task Risk × Time Pressure × Task Type	1	8	8	0.00	0.991
Error	105	5803818	55274		
Total	225	22142464	98411		

TABLE 4 (Continued)

Panel B. Mixed-Design ANOVA for Time Spent Performing a Task (Holding Subjective Task Risk = Low and First Task Chosen = Objective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Time Pressure	1	613638	613638	71.48	< 0.001
Error	31	266135	8585		
Within-Participants Effects:					
Task Type	1	6914599	6914599	150.04	< 0.001
Time Pressure × Task Type	1	18318	18318	0.40	0.533
Error	31	1428644	46085		
Total	65	9841029	151400		

Panel C. Mixed-Design ANOVA for Time Spent Performing a Task (Holding Subjective Task Risk = Low and First Task Chosen = Subjective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Time Pressure	1	346918	346918	10.76	0.004
Error	17	548189	32246		
Within-Participants Effects:					
Task Type	1	291294	291294	5.50	0.031
Time Pressure × Task Type	1	410436	410436	7.75	0.013
Error	17	900775	52987		
Total	37	2627537	71015		

TABLE 4 (Continued)

Panel D. Mixed-Design ANOVA for Time Spent Performing a Task (Holding Subjective Task Risk = High and First Task Chosen = Objective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Time Pressure	1	148411	148411	4.14	0.050
Error	32	1148429	35888		
Within-Participants Effects:					
Task Type	1	3876382	3876382	64.75	< 0.001
Time Pressure × Task Type	1	400881	400881	6.70	0.014
Error	32	1915707	59866		
Total	67	7173181	107062		

Panel E. Mixed-Design ANOVA for Time Spent Performing a Task (Holding Subjective Task Risk = High and First Task Chosen = Subjective)

	df	SS	MS	F	Two-tailed p-value
Between-Participants Effects:					
Time Pressure	1	638727	638727	407.72	< 0.001
Error	25	39165	1567		
Within-Participants Effects:					
Task Type	1	169231	169231	2.71	0.112
Time Pressure × Task Type	1	3473	3473	0.06	0.815
Error	25	1558692	62348		
Total	53	2419975	45660		

Appendix A: Substantive Analytical Procedure Approach Language

This appendix provides the wording that appears when each of the three approaches is clicked during the substantive analytical procedure task.

Approach 1

This approach bases the expectation on the size of the average potential claim. Implementing the approach requires multiplying the estimated average claim by the number of potentially affected employees

The relevant excerpt from the client's 2014 CNX Claim Liability Update Report is as follows:

> During 2014, a number of claims were settled and new claims were filed. 26 of the 185 employees who had been exposed to CNX have settled claims. Therefore, 159 employees have a potential claim at the end of 2014. Potential outstanding claims are estimated to average $47,250 per claim.

Approach 2

This approach bases the expectation on the size of potential claims and the proportion of affected employees that are expected to have claims of a given size. Implementing the approach requires determining the number of potentially affected employees that could have small, medium, and large claims. Then it requires multiplying the number of potentially affected employees by the corresponding claim size.

The relevant excerpt from the client's 2014 CNX Claim Liability Update Report is as follows:

> Thirteen small claims were settled last year, resulting in 87 employees remaining in the small potential claims group. We expect each claim to average $3,000. Of the medium potential claims, nine claims were settled during 2014; the remaining 56 employees have an expected average claim $45,000. Finally, four large claims were settled; there are 16 employees who still have a large potential claim expected on average to be $425,000.

Approach 3

This approach bases the expectation on the size of potential claims and the proportion of affected employees that are expected to have claims of a given size. It also takes into account the geographic region in which the affected employees are located and the effect that this will have on the possible payouts. Implementing the approach requires determining the number of potentially affected employees in each geographic region that could have small, medium, and large claims. Then it requires multiplying the number of potentially affected employees by the corresponding claim size.

The relevant excerpt from the client's 2014 CNX Claim Liability Update Report is as follows:

> In the U.S., there are 39 employees with small potential claims averaging $3,000. 37 employees are expected to have medium potential claims averaging $54,000. Finally, large potential claims averaging $487,500 are expected for ten employees.
>
> At our Asia plants, 15 employees have small potential claims averaging $2,850. 11 employees have medium potential claims estimated at $50,000 each, and we have four employees with large potential averaging $525,000.
>
> Finally, in our Mexico locations, 33 employees have small potential claims of $3,500, eight have medium potential claims of $44,000 on average, and two have large potential claims estimated at $425,000 each.

Appendix B: Subjective Task Risk Manipulation

Subjective Task Risk was manipulated in two places. First, in the "Background" section of the instrument shown in Appendix D, the wording is shown below for the [Low] {High} Subjective Task Risk conditions:

> *Substantive Analytical Procedure over Legal Liability*: Perform a substantive analytical procedure on the company's reserve for a liability related to potential lawsuits from a plant health hazard. **The assessed inherent risk regarding the reserve is [low] {high}.**

Second, at the screen where the task order decision is made, the wording is shown below for the [Low] {High} Subjective Task Risk conditions:

> Substantive analytical procedure on the legal liability **(estimated time to complete: 10 minutes; assessed inherent risk: [low] {high})**

Appendix C: Deadline Pressure Manipulation

Subjective Task Risk was manipulated in two places. First, in the "Background" section of the instrument shown in Appendix D, the wording is shown below for the [Low] {High} Deadline Pressure conditions:

> You will have [25] {15} minutes to complete BOTH of these steps so that the senior on the engagement can review the results. Based on your time estimates of 10 minutes for each test, [you should have enough time to complete both tasks] {it will be a challenge to complete both tasks}.

Second, at the screen where the task order decision is made, the wording is shown below for the Low [High] Subjective Task Risk conditions:

> **Please select which procedure you wish to perform first.** Remember, you have [**25] {15} minutes** to complete both procedures, and you cannot return to the first test after you have moved on to the second test.

Appendix D: Experiment Instrument

Note: Emory logo indicates a new page. Yellow-highlighted text indicates wording that differs across conditions. The wording shown reflects the condition where Subjective Task Risk is High and Deadline Pressure is Low.

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INTRODUCTION

Thank you so much for taking part in this study!

This study is designed to help us better understand how auditors perform on tasks under time pressure. The entire study should take approximately 45 minutes to complete. **Your responses are anonymous.** After reading the informed consent form, you will read background information on the audit situation, complete audit procedures related to the situation, and complete a final questionnaire.

Please fully complete your audit documentation and respond to all questions. Incomplete responses will limit the extent to which your work can contribute to the research study. It is very important that, given the information provided in this study, you respond as you would in practice. Also, other participants may have different questions or tasks than you, so they may finish earlier or later than you.

Note that you will need Excel, other spreadsheet software, or a calculator (handheld or application) to complete the study. Please also ensure that you have not disabled JavaScript on your browser.

>>

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Emory University
Consent to be a Research Subject

Title: Multiple Task Performance Study (Study No.: IRB00074468)

Principal Investigator: Robert P. Mocadlo, Ph.D. Student, Goizueta Business School, Emory University

Funding Source: Emory University Departmental Research Funds

Introduction
You are being asked to be in a research study. This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. **It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study.**

Before making your decision:
- Please carefully read this form or have it read to you
- Please ask questions about anything that is not clear

You can save or print a copy of this consent form, to keep. Feel free to take your time thinking about whether you would like to participate. By signing this form you will not give up any legal rights.

Study Overview
You have been invited to voluntarily participate in a task performance study, the purpose of which is to increase our understanding of individuals' performance across multiple tasks. I plan to recruit approximately 80 participants in total. All participants must be 18 years of age or older.

Procedures
This study involves performing a set of tasks. You will be asked to complete a series of judgment tasks similar to those you would encounter in a typical audit. There will be a time limit to complete the set of tasks. Afterwards, you will fill out information about the study and yourself. The study is expected to take approximately 45 minutes.

Risks and Discomforts
There is minimal foreseeable risk associated with this study other than loss of confidentiality of your study data. You have the right to decline to participate further at any time and for any reason.

Benefits
This study is not designed to benefit you directly. This study is designed to learn more about auditors' performance across multiple tasks. The study results may be used to help others in the future.

Compensation
You will not be offered payment for being in this study.

Confidentiality
Certain offices and people other than the researchers may look at study records. Government agencies and Emory employees overseeing proper study conduct may look at your study records. These offices include the Emory Institutional Review Board and the Emory Office of Research Compliance. Study funders may also look at your study records. Emory will keep any research records we create private to the extent we are required to do so by law. A study number rather than your name will be used on study records wherever possible. Your name and other facts that might point to you will not appear when we present this study or publish its results.

Study records can be opened by court order. They may also be produced in response to a subpoena or a request for production of documents.

Voluntary Participation and Withdrawal from the Study
You have the right to leave a study at any time without penalty. You may refuse to do any procedures you do not feel comfortable with, or answer any questions that you do not wish to answer. The information you provide in the study up to that point may still be used.

Contact Information
Contact Bette Kozlowski at bkozlowski@kpmg.com:
- if you have any questions about this study or your part in it, or

- if you have questions, concerns or complaints about the research

Contact the Emory Institutional Review Board at 404-712-0720 or irb@emory.edu:

- if you have questions about your rights as a research participant.
- if you have questions, concerns or complaints about the research.
- You may also let the IRB know about your experience as a research participant through our Research Participant Survey at http://www.surveymonkey.com/s/6ZDMW75.

Consent

Please type AGREE in the text box below if you agree to be in this study. By doing so, you will not give up any of your legal rights. You may obtain a copy of this consent form to keep.

By typing "Agree" in the box below and continuing, you are agreeing to participate in this study and that you have read this consent form.

>>

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BACKGROUND

You are a member of the engagement team for the 12/31/14 year-end audit of Tucker Plastics Inc., a publicly traded plastics manufacturing corporation. Your firm has audited Tucker for the past 10 years and has issued unqualified (clean) audit opinions each year. This is your second year serving on the Tucker engagement.

The overall fraud risk assessment of Tucker is low (based on a scale ranging from low to medium to high). No significant deficiencies or material weaknesses were found during testing of internal controls over financial reporting.

Among your other work, you have two audit tests that you need to finish. **Based on your previous experience with these tests and this client, each of the two tests generally takes about 10 minutes to complete if no follow-up work is required.** The two tests and the assessed inherent risk from the audit plan (on a scale of low, medium, or high) are as follows:

- *Test of Details over Sales Revenue:* Test a sample of 5 sales transactions from the sales ledger by comparing them to supporting documentation (transactions through mid-December were tested throughout the year). **The assessed inherent risk regarding the sales account is low.**
- *Substantive Analytical Procedure over Legal Liability:* Perform a substantive analytical procedure on the company's reserve for a liability related to potential lawsuits from a plant health hazard. **The assessed inherent risk regarding the reserve is high.**

A few notes regarding your situation:

- **You will have 25 minutes to complete BOTH of these tests so that your supervisor on the engagement can review the results.**
- Based on your time estimates of 10 minutes for each test, **you should have enough time to complete both tasks.**

You will see a timer on the side of the screen that will let you know how much time you have left. If you run out of time, any work you have entered up to that point will be put into the documentation.

On the following screen, you will learn information and firm-provided guidance regarding the two tests. Afterwards, you will choose which audit test to complete first. Once you are done with that test, continue to the other test with whatever time remains. **You cannot switch between tests; once you continue to the second test, you will not be able to return to the first test.** Again, your supervisor wants both tests completed and ready for review at the end of your allotted time. You will be provided with a documentation template for you to enter the results of your testing at the bottom of the information for each test.

>>

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Test Steps

The steps and documentation needed to complete the two tests are below. **You will be given this information while you perform the tests, but you should familiarize yourself with the procedure since you only have a certain amount of time to complete the tests.**

Test of Details over Sales Revenue

You will test the existence and accuracy over Tucker's U.S. bulk plastic sales by performing a test of details based on a non-statistical sampling procedure. This account has been tested throughout the year; only testing for the end of December 2014 remains. The sample has already been selected for you. The documentation template has the following documentation to date:

Number of items tested to date	272
Tolerable misstatement threshold	$4,500,000
Misstatement amount detected to date	$212,361
Projected misstatement	$4,247,220

You will complete testing of the remaining 5 items by comparing the amounts from the U.S. bulk plastics sales subledger to the invoices and receiving documentation and projecting the total amount of any differences noted to the population. The misstatement projection will be 20 times the size of any differences noted (already completed for the testing done to date as shown above).

You will complete the following procedures for each selected item:

1. Agree the invoice subtotal (which excludes sales tax and shipping) to the subledger.
2. Recalculate the balance of the purchase order and invoice, ensuring that each subtotal and total agree to your recalculation.
3. Match the quantities, unit prices, and amounts between the purchase order, invoice, and bill of lading.
4. Ensure that the item was properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading. (If the terms are FOB Shipping Point, the item must have shipped before the end of 2015. If the terms are FOB Destination, the item must have been received before the end of 2015.)

For each item, you will be provided a documentation template, where you should include the following:

1. Any discrepancies noted in the above procedures.
2. A projection of any identified discrepancies to the population (multiply the total misstatement amount by 20 and add it to the current projected misstatement).
3. A conclusion as to whether the balance appears to be properly stated based on the results or if more testing will be required.

You will be provided the relevant support for the 5 items at the beginning of the test.

Substantive Analytical Procedure over Legal Liability

Tucker has an outstanding contingent liability related to the health effects of a chemical, CNX, previously used in the plastics production process. Tucker has accrued for this liability since its discovery two years ago, adjusting the amount as claims are settled and new claims are filed. You will be testing the accuracy of the accrual by performing a substantive analytical procedure over the liability balance of $6,750,000.

In reviewing last year's test, the amount of the accrual was also tested via a substantive analytical procedure. **Last year's expectation was equal to the total number of expected claims multiplied by the expected claim size.** However, claims have started to settle, and the client has more detailed information for the current

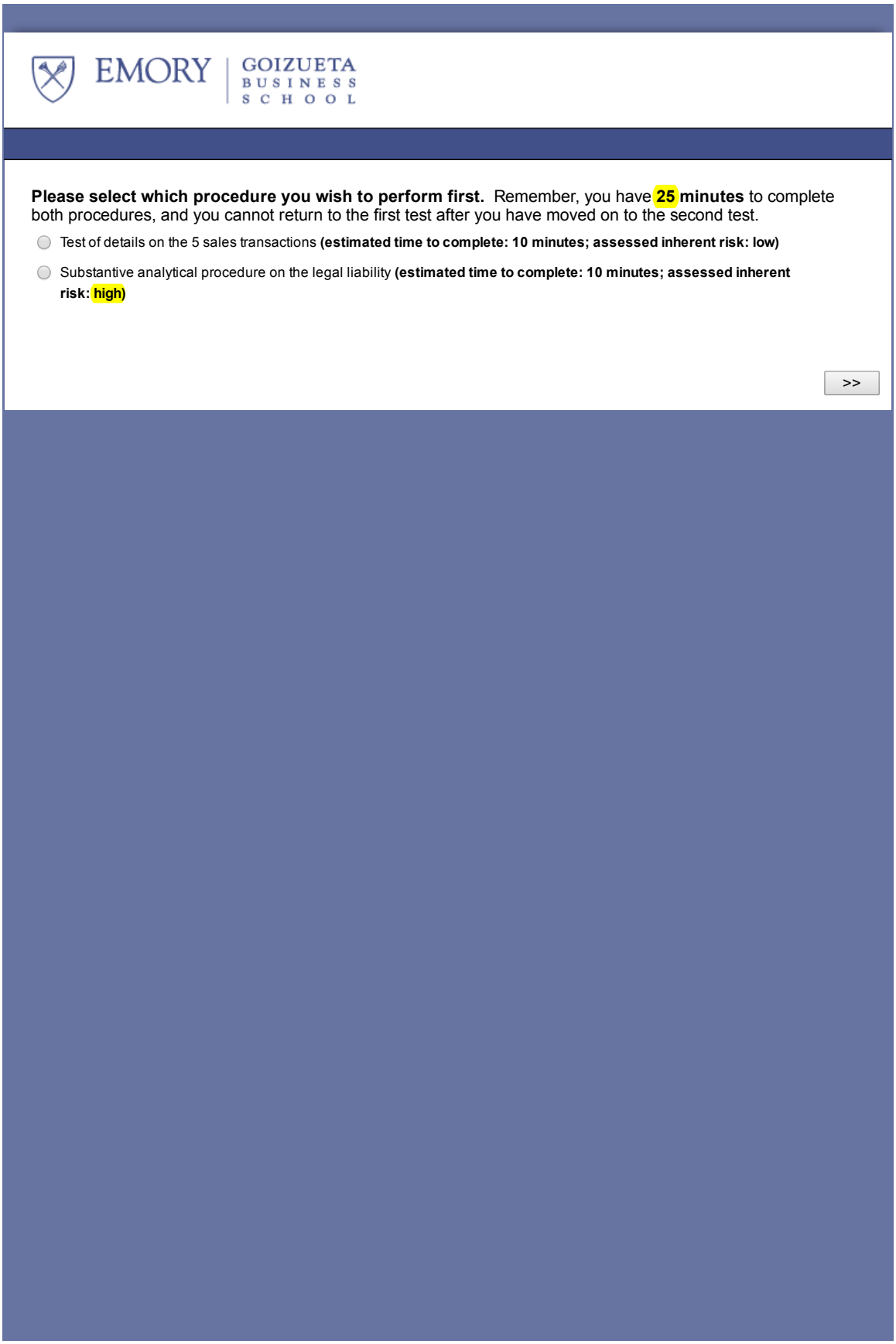
year that may help you to develop a more precise expectation. Given this extra information, **you have identified three possible approaches to calculate your expectation this year.**

You will complete the following steps, documenting each step according to the provided template:

1. Formally develop an expectation for the account using one of the three approaches. Document how you formed your expectation.
2. Calculate the difference between the unaudited book balance and your expectation.
3. Conclude whether the difference is material or not (based on a threshold that will be given to you). If the difference is material, indicate what further testing you would perform.

You will be provided with the three approaches and the client support to use for each approach at the beginning of the test.

>>


EMORY
GOIZUETA
BUSINESS
SCHOOL
Please select which procedure you wish to perform first. Remember, you have 25 minutes to complete both procedures, and you cannot return to the first test after you have moved on to the second test.
Test of details on the 5 sales transactions (estimated time to complete: 10 minutes; assessed inherent risk: low)
Substantive analytical procedure on the legal liability (estimated time to complete: 10 minutes; assessed inherent risk: high)
>>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You have chosen to perform the test of details first and the substantive analytical procedure second. Before you complete each procedure, you will be given an example of completed documentation for the task; the timer will not be running during the example.
Please go to the next screen, where you will be given an example of the documentation for the test of details.
>>

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You will now perform the test of details. **The timer is not running; it will begin when you proceed to the next screen.**

The instructions are provided again below and will be given to you when you perform the test. Below that is an example of the support you will receive for each item of the sample with notes of what is to be performed. Finally, example documentation for this transaction is shown.

Test of Details over Sales Revenue

You will complete a test of details over Tucker's U.S. bulk plastics sales transactions based on a non-statistical sampling procedure. This account has been tested throughout the year; only testing for the end of December 2014 remains. The sample has already been selected for you. The documentation template has the following documentation to date:

Number of items tested to date	472
Tolerable misstatement threshold	$4,500,000
Misstatement amount detected to date	$212,361
Projected misstatement	$4,247,220

You will complete testing of the remaining 5 items by comparing the amounts from the U.S. bulk plastics sales subledger to the invoices and receiving documentation and projecting the total amount of any differences noted to the population. The misstatement projection will be 20 times the size of any differences noted (already completed for the testing done to date as shown above).

You will complete the following procedures for each selected item:

1. Agree the invoice subtotal (which excludes sales tax and shipping) to the subledger.
2. Recalculate the balance of the purchase order and invoice, ensuring that each subtotal and total agree to your recalculation.
3. Match the quantities, unit prices, and amounts between the purchase order, invoice, and bill of lading.
4. Ensure that the item was properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading. (If the terms are FOB Shipping Point, the item must have shipped before the end of 2015. If the terms are FOB Destination, the item must have been received before the end of 2015.)

For each item, you will be provided a documentation template, where you should include the following:

1. Any exceptions noted in the above procedures.
2. A projection of any identified exceptions to the population (multiply the total misstatement amount by 20 and add it to the current projected misstatement).
3. A conclusion as to whether the balance appears to be properly stated based on the results or if more testing will be required.

Sales Transaction X

Subledger Information: $5,092.50 - Invoice 24692

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE #24692
DATE: 12/19/2014

TO:
Dan Krider
The DFG Bottling Co.
410 Mountain Pass Road
Boise, ID 83680

P.O. # 30018

2. Recalculate amounts

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
PZ200 – HDPE – clear sheet .2 mil	4,750	0.50/LB	2,375.00
PZ205 – HDPE – clear sheet .4 mil	2,150	0.45/LB	967.50
IFGHCU – HDPE sheet cutter	5	350/EA	1,750.00
1. Agree amount to subledger		Subtotal	5,092.50
		Sales Tax	328.13
		Shipping	435.94
		TOTAL	5,856.57

DISCREPANCY: quantity does not match purchase order or bill of lading

3. Match the quantity, unit price, amounts, and subtotal to the purchase order and bill of lading

Make all checks payable to Tucker Plastics Inc.
Terms are net 30, FOB shipping point

Thank you for your business!

PURCHASE ORDER

4. FOB Shipping Point: Ensure shipping date on bill of lading is before 2015; FOB Destination: Ensure receipt date on bill of lading is before 2015

Date: December 17, 2014
PO # 30018

Vendor

Jim Maines
Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084

Ship To

Dan Krider
The DFG Bottling Co.
410 Mountain Pass Road
Boise, ID 83680

2. Recalculate amounts

Shipping Method	Shipping Terms	Delivery Date
Landstar	FOB Shipping Point	By 12/23/14

Qty	Item #	Description	Units	Unit Price	Line Total
4,750	PZ200	HDPE – clear sheet .2 mil	LBS	0.50	2.375.00
1,250	PZ205	HDPE – clear sheet .4 mil	LBS	0.45	562.50
5	IFGHCU	HDPE sheet cutter	EA	350	1,750
				Total	4,687.50

Authorized by *Bertrand Mackie* Date 12/19/14

December 21, 2014 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43354956
Tucker Plastics Inc. – Alpharetta Plant 550 Pasqualle Lane Alpharetta, GA 30009	
SHIP TO	**Carrier Name: Landstar**
The DFG Bottling Co. 410 Mountain Pass Road Boise, ID 83680	Trailer number: 211640

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
30018	24	6425	
Grand Total			

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	Commodity Description Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
4750	LBS	4790		PZ200 – HDPE – clear sheet .2 mil
1250	LBS	1260		PZ205 – HDPE – clear sheet .4 mil
5	EA	375		IFGHCU – HDPE sheet cutter

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Chuck Chester 12/21/14	Benjamin Phillips 12/21/14	Derek Watkins 12/23/14
This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes (●) No ( )

Were all of the calculations of the invoice and purchase order correct?

Yes (●) No ( )

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes	No
○	◉

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes	No
◉	○

If you answered "No to any of the above questions, what is the discrepancy?

The quantity of PZ205 is incorrect on the invoice and does not agree to the purchase order or bill of lading.

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

405

When you continue to the next screen, the test of details procedure will begin along with the timer.

>>

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Test of Details over Sales Revenue

You will complete a test of details over Tucker's U.S. bulk plastics sales transactions based on a non-statistical sampling procedure. This account has been tested throughout the year; only testing for the end of December 2014 remains. The sample has already been selected for you. The documentation template has the following documentation to date:

Number of items tested to date	472
Tolerable misstatement threshold	$4,500,000
Misstatement amount detected to date	$212,361
Projected misstatement	$4,247,220

You will complete testing of the remaining 5 items by comparing the amounts from the U.S. bulk plastics sales subledger to the invoices and receiving documentation and projecting the total amount of any differences noted to the population. The misstatement projection will be 20 times the size of any differences noted (already completed for the testing done to date as shown above).

You will complete the following procedures for each selected item:

1. Agree the invoice subtotal (which excludes sales tax and shipping) to the subledger.
2. Recalculate the balance of the purchase order and invoice, ensuring that each subtotal and total agree to your recalculation.
3. Match the quantities, unit prices, and amounts between the purchase order, invoice, and bill of lading.
4. Ensure that the item was properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading. (If the terms are FOB Shipping Point, the item must have shipped before the end of 2015. If the terms are FOB Destination, the item must have been received before the end of 2015.).

For each item, you will be provided a documentation template, where you should include the following:

1. Any exceptions noted in the above procedures.
2. A projection of any identified exceptions to the population (multiply the total misstatement amount by 20 and add it to the current projected misstatement).
3. A conclusion as to whether the balance appears to be properly stated based on the results or if more testing will be required.

Sales Transaction 1

Subledger Information: $8,600.00 - Invoice 24599

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE #24599
DATE: 12/17/2014

TO:
Barry Moran
A&G Inc.
220 Donald J. Lynch Boulevard
Marlborough, MA 01752

Customer P.O. # 3441Z

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
IFGPEL – Pellet shaper	10.00	435/EA	7,350.00
IFGPRZ – Pellet shaper line	10.00	125/EA	1,250.00
		Subtotal	8,600.00
		Sales Tax	392.00
		Shipping	520.80
		TOTAL	9,512.80

Make all checks payable to Tucker Plastics Inc.
Terms are net 60, FOB destination

Thank you for your business!

PURCHASE ORDER

Date: December 16, 2014
Customer PO # 3441Z

Vendor		Ship To	
	John Roberts Tucker Plastics Inc. 1005 Industrial Way Tucker, GA 30084		Barry Moran A&G Inc. 220 Donald J. Lynch Blvd. Marlborough, MA 01752

Shipping Method	Shipping Terms	Delivery Date
Landstar	FOB Destination	By 12/23/14

Qty	Item #	Description	Units	Unit Price	Line Total
10	IFGPEL	Pellet shaper	EA	435.00	4,350.00
10	IFGPRZ	Pellet shaper line	EA	125.00	1,250.00
				Total	5,600.00

Authorized by Jim Crews Date 12/17/14

December 21, 2014 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43354921
Tucker Plastics Inc. – Independence Plant 6100 Oak Tree Blvd. Independence, OH 44131	
SHIP TO	**Carrier Name: Landstar**
A&G Inc. 220 Donald J. Lynch Blvd. Marlborough, MA 01752	Trailer number: 305587

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
3441Z	20	620	
Grand Total	20	620	

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
10	EA	500		IFGPEL – Pellet shaper
10	EA	120		IFGPRZ – Pellet shaper line

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Dave Price 12/21/14 This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	Harry Goodman 12/21/14 rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	Glenn Martin 12/23/14 This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes ○ No ○

Were all of the calculations on the invoice and purchase order correct?

Yes No

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes ○ No ○

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes ○ No ○

If you answered "No" to any of the above questions, what is the discrepancy?

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

Sales Transaction 2

Subledger Information: $6,572.75 - Invoice 24701

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE #24701
DATE: 12/22/2014

TO:
Pat Brown
Kiddie Toys and Games
900 Minnesota Street
San Francisco, CA 94107
415-555-6900

P.O. # A52388

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
RZ355 – PET – white pelletized	2,550	1.00/LB	2,550.00
RZ356 – PET – gray pelletized	2,550	1.05/LB	2,677.50
RZ357 – PET – black pelletized	500	1.05/LB	525.00
RZ358 – PET – red pelletized	250	1.10/LB	275.00
RZ360 – PET – blue pelletized	250	1.10/LB	275.00
RZ361 – PET – orange pelletized	235	1.15/LB	270.25
		Subtotal	6,572.75
		Sales Tax	460.09
		Shipping	611.27
		TOTAL	

Make all checks payable to Tucker Plastics Inc.
Terms are net 30, FOB shipping point

Thank you for your business!

PURCHASE ORDER

Date: December 19, 2014
PO # A52388

Vendor

Jim Maines
Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084

Ship To

Pat Brown
Kiddie Toys and Games
9000 Minnesota Street
San Francisco, CA 94107
415-555-6900

Shipping Method	Shipping Terms	Delivery Date
Landstar	FOB Shipping Point	By 12/26/14

Qty	Item #	Description	Units	Unit Price	Line Total
2,550	RZ355	PET – white pelletized	LBS	1.00	2,550.00
2,550	RZ356	PET – gray pelletized	LBS	1.05	2,677.50
500	RZ357	PET – black pelletized	LBS	1.05	525.00
250	RZ358	PET – red pelletized	LBS	1.10	275.00
250	RZ360	PET – blue pelletized	LBS	1.10	275.00
235	RZ361	PET – orange pelletized	LBS	1.15	270.25
				Total	6,572.75

Authorized by Jan Crews

Date 12/22/14

December 23, 2014 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43354972
Tucker Plastics Inc. – Independence Plant 6100 Oak Tree Blvd. Independence, OH 44131	
SHIP TO	**Carrier Name: Landstar**
Kiddie Toys and Games 9000 Minnesota Street San Francisco, CA 94107	Trailer number: 055641

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
A52388	24	6385	
Grand Total			

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
2550	LBS	2565		RZ355 – PET – white pelletized
2550	LBS	2565		RZ356 – PET – gray pelletized
500	LBS	505		RZ357 – PET – black pelletized
250	LBS	255		RZ358 – PET – red pelletized
250	LBS	255		RZ360 – PET – blue pelletized
235	LBS	240		RZ361 – PET – orange pelletized
		6385		

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Dave Price 12/23/14	*Peter Bryant* 12/23/14	*Martin Cooper* 12/26/14
This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes ○ No ○

Were all of the calculations on the invoice and purchase order correct?

Yes ○ No ○

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes ○ No ○

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes ○ No ○

If you answered "No" to any of the above questions, what is the discrepancy?

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

Sales Transaction 3

Subledger Information: $359.75 - Invoice 24715

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE # 24715
DATE: 12/22/2014

TO:
Jenny Holman
Pro Siding, Inc.
7220 Industrial Loop
Rapid City, SD 57400

P.O. # 4352RP

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
VC094 – PVC – black sheet .2 mil	295	0.65/LB	191.75
VC099 – PVC – slate sheet .2 mil	280	0.60/LB	168.00
		Subtotal	359.75
		Sales Tax	25.18
		Shipping	33.46
		TOTAL	418.39

Make all checks payable to Tucker Plastics Inc.
Terms are net 30, FOB shipping point

Thank you for your business!

PURCHASE ORDER

Date: December 19, 2014
PO # 4352RP

Vendor		Ship To	
	John Roberts Tucker Plastics Inc. 1005 Industrial Way Tucker, GA 30084		Jenny Holman Pro Siding, Inc. 7220 Industrial Loop Rapid City, SD 57400

Shipping Method	Shipping Terms	Delivery Date
United Parcel Service	FOB Shipping Point	By 12/29/14

Qty	Item #	Description	Units	Unit Price	Line Total
295	VC094	PVC – black sheet .2 mil	LBS	0.65	191.75
280	VC099	PVC – slate sheet .2 mil	LBS	0.60	168.00
				Total	359.75

Authorized by Bertrand Mackie Date 12/22/14

December 27, 2014 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43354978
Tucker Plastics Inc. – Alpharetta Plant 550 Pasqualle Lane Alpharetta, GA 30009	
SHIP TO	**Carrier Name: United Parcel Service**
Pro Siding, Inc. 7220 Industrial Loop Rapid City, SD 57400	Trailer number: 8556

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
4352RP	6	585	
Grand Total			

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
295	LBS	300		VC094 – PVC – black sheet .2 mil
280	LBS	285		VC099 – PVC – slate sheet .2 mil

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Dave Price 12/27/14 This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	Dennis Watson 12/27/14 rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	Jennifer Johnson 12/29/14 This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes ○ No ○

Were all of the calculations on the invoice and purchase order correct?

Yes ○ No ○

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes ○ No ○

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes ○ No ○

If you answered "No" to any of the above questions, what is the discrepancy?

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

Sales Transaction 4

Subledger Information: $772.50 - Invoice 24764

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE #24764
DATE: 12/23/2014

TO:
Don Miller
Seamus Food Packing Co.
3100 Steer Dr.
Choctaw, OK 73099

P.O. # 4441M

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
LD540 – LDPE – black sheet .4 mil food grade	500	0.95/LB	475.00
LD541 – LDPE – white sheet .4 mil food grade	350	0.85/LB	297.50
		Subtotal	772.50
		Sales Tax	54.08
		Shipping	71.84
		TOTAL	898.42

Make all checks payable to Tucker Plastics Inc.
Terms are net 60, FOB destination

Thank you for your business!

PURCHASE ORDER

Date: December 22, 2014
PO # 4441M

Vendor		Ship To	
	John Roberts		Don Miller
	Tucker Plastics Inc.		Seamus Food Packing Co.
	1005 Industrial Way		3100 Steer Dr.
	Tucker, GA 30084		Choctaw, OK 73099

Shipping Method	Shipping Terms	Delivery Date
United Parcel Service	FOB Destination	By 1/2/15

Qty	Item #	Description	Units	Unit Price	Line Total
500	LD540	LDPE – black sheet .4 mil food grade	LBS	0.95	475.00
350	LD541	LDPE – white sheet .4 mil food grade	LBS	0.85	297.50
				Total	772.50

Authorized by Jan Crews Date 12/23/14

December 30, 2014 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43354988
Tucker Plastics Inc. – Presque Isle Plant 160 Cross St. Presque Isle, ME 04769	
SHIP TO	**Carrier Name: United Parcel Service**
Seamus Food Packing Co. 3100 Steer Dr. Choctaw, OK 73099	Trailer number: 0966

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
4441M	4	865	
Grand Total			

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
500	LBS	510		LD540 – LDPE – black sheet .4 mil food grade
350	LBS	355		LD541 – LDPE – white sheet .4 mil food grade

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Chuck Chester 12/30/14 This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	Richard Diaz 12/30/14 rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	Carl Edwards 1/2/15 This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes ○ No ○

Were all of the calculations on the invoice and purchase order correct?

Yes ○ No ○

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes ○ No ○

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes ○ No ○

If you answered "No" to any of the above questions, what is the discrepancy?

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

Sales Transaction 5

Subledger Information: $5,117.50 - Invoice 24803

Tucker Plastics Inc.
1005 Industrial Way
Tucker, GA 30084
Phone 404-555-2000
Fax 404-555-2354

INVOICE

INVOICE #24803
DATE: 12/30/2014

TO:
Deborah Coch
Marklar Toys
122 Courier Blvd.
Indianapolis, IN 46987

P.O. # 58903

DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
RZ355 – PET – white pelletized	1,000	1.00/LB	1,000.00
RZ356 – PET – gray pelletized	1,200	1.05/LB	1,260.00
RZ357 – PET – black pelletized	650	1.05/LB	682.50
IFGPEL – Pellet shaper	5	435/EA	2,175.00
		Subtotal	5,117.50
		Sales Tax	358.23
		Shipping	475.93
		TOTAL	5,951.65

Make all checks payable to Tucker Plastics Inc.
Terms are net 30, FOB shipping point

Thank you for your business!

PURCHASE ORDER

Date: December 26, 2014
PO # 58903

Vendor		Ship To	
	Sarah May Tucker Plastics Inc. 1005 Industrial Way Tucker, GA 30084		Deborah Coch Marklar Toys 122 Courier Blvd. Indianapolis, IN 46987

Shipping Method	Shipping Terms	Delivery Date
Landstar	Net 30, FOB Shipping Point	By 1/4/15

Qty	Item #	Description	Units	Unit Price	Line Total
1,000	RZ355	PET – white pelletized	LBS	1.00	1,000.00
1,200	RZ356	PET – gray pelletized	LBS	1.05	1,260.00
650	RZ357	PET – black pelletized	LBS	1.05	682.50
5	IFGPEL	Pellet shaper	EA	435	2,175.00
				Total	5,117.50

Authorized by *Bertrand Mackie* Date 12/29/14

January 2, 2015 **BILL OF LADING – SHORT FORM – NOT NEGOTIABLE** Page 1 of 1

SHIP FROM	Bill of Lading Number: 43355016
Tucker Plastics Inc. – Independence Plant 6100 Oak Tree Blvd. Independence, OH 44131	
SHIP TO	**Carrier Name: Landstar**
Marklar Toys 122 Courier Blvd. Indianapolis, IN 46987	Trailer number: 489160

CUSTOMER ORDER INFORMATION

Customer Order No.	# of Packages	Weight	Additional Shipper Information
58903	12	2960	
Grand Total			

CARRIER INFORMATION

Handling Unit				
Qty	Type	Gross Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360
1000	LBS	1020		RZ355 – PET – white pelletized
1200	LBS	1220		RZ356 – PET – gray pelletized
650	LBS	660		RZ357 – PET – black pelletized
5	EA	60		IFGPEL – Pellet shaper

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

Shipper Signature/Date	Carrier Signature/Pickup Date	Receiver Signature/Receipt Date
Dave Price 1/2/15	*Tim Urban* 1/2/15	*Charles Alexander* 1/4/15
This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	rrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.	This is to certify that the above named materials were received in acceptable condition and accepted by the receiver.

Did the invoice amount agree to the subledger?

Yes ○ No ○

Were all of the calculations on the invoice and purchase order correct?

Yes ○ No ○

Did the quantities, unit prices, and amounts agree between the purchase order, invoice, and bill of lading?

Yes ○ No ○

Was the item properly included in sales based on the shipping terms per the invoice and shipment/receipt dates on the bill of lading?

Yes ○ No ○

If you answered "No" to any of the above questions, what is the discrepancy?

What is the amount of the misstatement (in dollars) which needs to be projected to the population? (If there was no discrepancy, enter 0.)

Misstatement Projection and Conclusion

Please enter the total of all misstatement amounts (add all the amounts together whether it's an increase or decrease in sales).

Multiple the above amount by 20.

Add this amount to the projected misstatement to date of $4,247,220 and enter this number below.

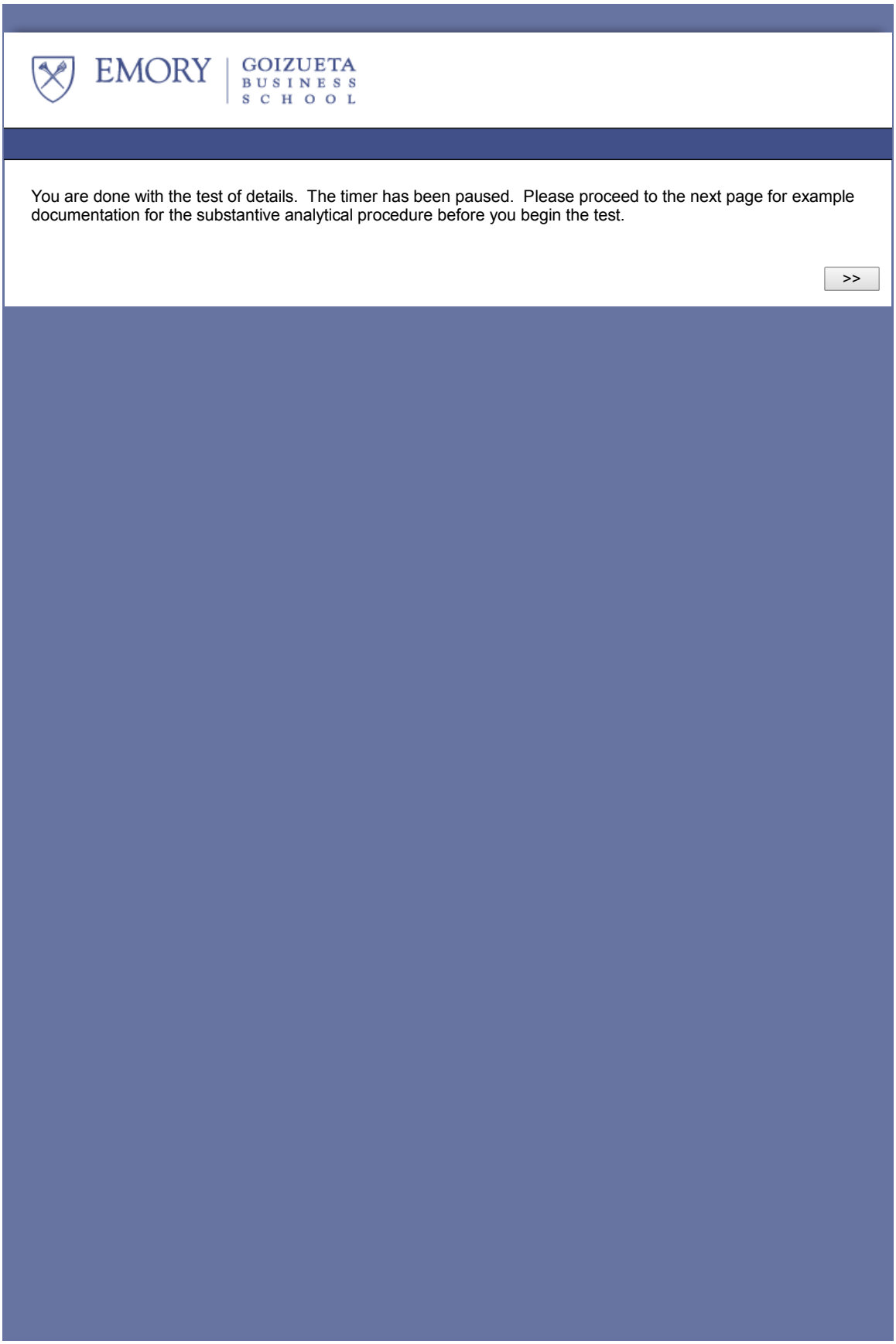
Is the total projected misstatement greater than the tolerable misstatement threshold of $4,500,000?

- ○ Yes
- ○ No

Based on the above results, please conclude as to whether the account balance appears to be fairly stated.

- ○ The balance appears to be **fairly stated**.
- ○ The balance appears to be **not fairly stated**.

>>


EMORY
GOIZUETA
BUSINESS
SCHOOL
You are done with the test of details. The timer has been paused. Please proceed to the next page for example documentation for the substantive analytical procedure before you begin the test.
>>

EMORY | GOIZUETA BUSINESS SCHOOL

You will now perform the substantive analytical procedure. **The timer is not running; it will begin when you proceed to the next screen.**

The instructions are provided again below and will be given to you when you perform the test. The documentation you will need to complete is shown below the instructions.

Tucker has an outstanding contingent liability related to the health effects of a chemical, CNX, previously used in the plastics production process. Tucker has accrued for this liability since its discovery two years ago, adjusting the amount as claims are settled and new claims are filed. You will be performing a substantive analytical procedure over the liability balance of $6,750,000.

In reviewing last year's test, the amount of the accrual was also tested via a substantive analytical procedure. **Last year's expectation was equal to the total number of expected claims multiplied by the expected claim size**. However, claims have started to settle, and the client has more detailed information for the current year that may help you to develop a more precise expectation. Given this extra information, **you have identified three possible approaches to calculate your expectation this year**.

You will complete the following procedure, documenting each step according to the provided template:

1. Formally develop an expectation for the account. Document how you formed your expectation.
2. Calculate the difference between the unaudited book balance and your expectation.
3. Conclude whether the difference is material or not (based on a threshold that will be given to you). If the difference is material, indicate what further testing you would perform.

Support will be provided here: each of the three approaches will have a link to click that will show you the information on how to calculate the expectation for the approach and the required information to perform the calculation.

In the box below, please show your expectation and the calculation used to arrive at it..

Example: Expectation = X. X = (Y * Z) + (A * B). (letters are dollar amounts)

Please provide the difference between your expectation and the client's balance of $6,750,000.

e.g. 3,000,000

Does the above difference exceed the tolerable threshold of $4,500,000?

- ○ Yes
- ◉ No

Based on the above results, please conclude as to whether the account balance appears to be fairly stated.

- ◉ The balance appears to be **fairly stated**.
- ○ The balance appear to be **not fairly stated**.

When you continue to the next screen, the substantive analytical procedure will begin along with the timer.

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Substantive Analytical Procedure over Legal Liability

Tucker has an outstanding contingent liability related to the health effects of a chemical, CNX, previously used in the plastics production process. Tucker has accrued for this liability since its discovery two years ago, adjusting the amount as claims are settled and new claims are filed. You will be performing a substantive analytical procedure over the liability balance of $6,750,000.

In reviewing last year's test, the amount of the accrual was also tested via a substantive analytical procedure. **Last year's expectation was equal to the total number of expected claims multiplied by the expected claim size**. However, claims have started to settle, and the client has more detailed information for the current year that may help you to develop a more precise expectation. Given this extra information, **you have identified three possible approaches to calculate your expectation this year**.

You will complete the following procedure, documenting each step according to the provided template:

1. Formally develop an expectation for the account. Document how you formed your expectation.
2. Calculate the difference between the unaudited book balance and your expectation.
3. Conclude whether the difference is material or not (based on a threshold that will be given to you). If the difference is material, indicate what further testing you would perform.

Note: when you click on the below links, it may take a couple of seconds for the information to appear.

Approach 1: Based on the size of the average potential claim

Approach 2: Based on the size of potential claims and the proportion of affected employees that are expected to have claims of a given size

Approach 3: Based on the size of potential claims, the proportion of affected employees that are expected to have claims of a given size, and the effect on claim size of the geographic region in which the affected employees are located

Which approach are you using to calculate your expectation?

- ○ Approach 1
- ○ Approach 2
- ○ Approach 3

In the box below, please show your expectation and the calculation used to arrive at it..

Please provide the difference between your expectation and the client's balance of $6,750,000.

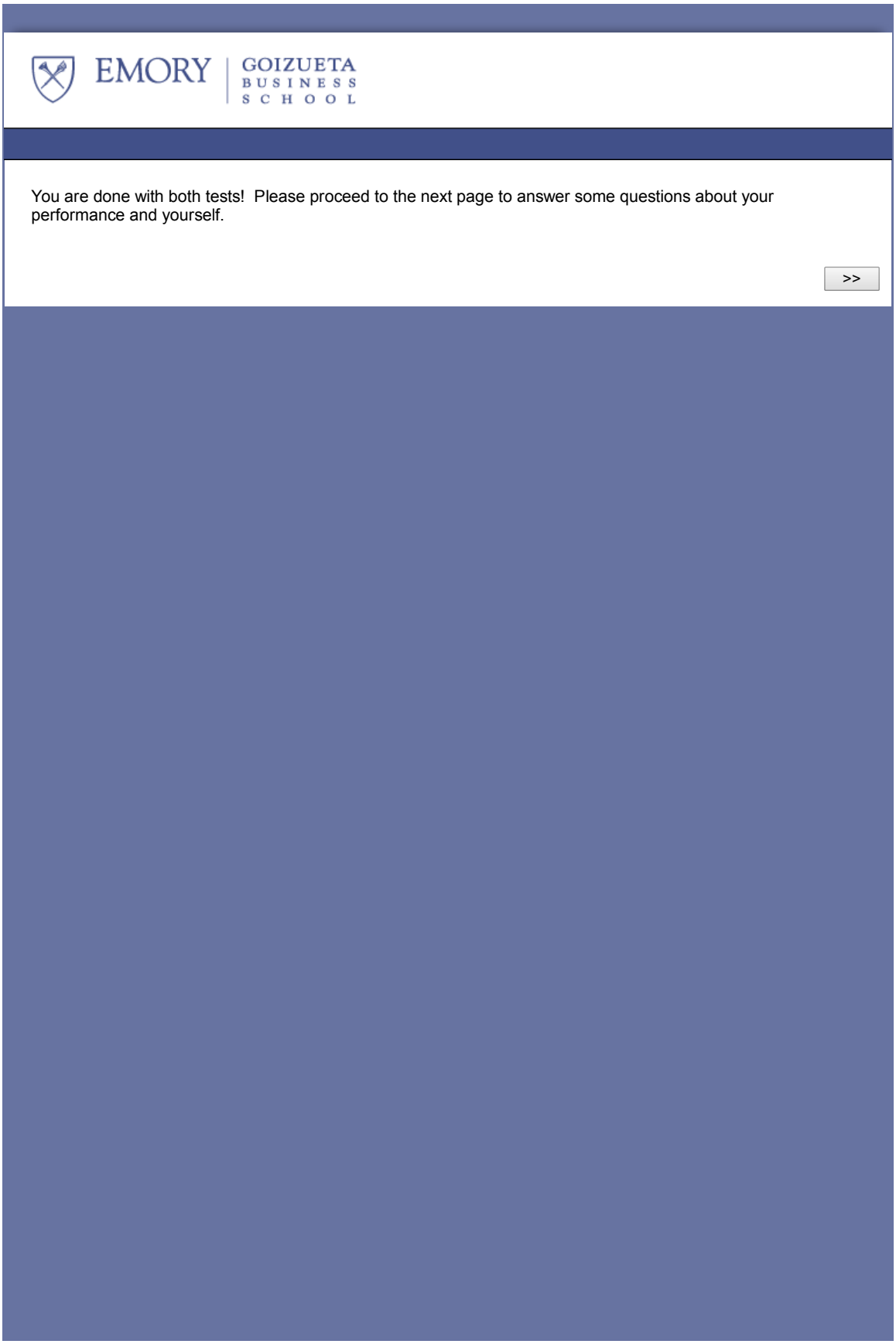
Does the above difference exceed the tolerable threshold of $4,500,000?

- Yes
- No

Based on the above results, please conclude as to whether the account balance appears to be fairly stated.

- The balance appears to be **fairly stated**.
- The balance appears to be **not fairly stated**.

>>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You are done with both tests! Please proceed to the next page to answer some questions about your performance and yourself.
>>

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Please answer the following questions about the tests you just performed. Please do not spend too much time on any one question.

Did you find anything confusing or unclear about how to perform either of the tests? If so, please describe briefly below.

Were there any issues with the website itself (couldn't see all the information, timer didn't appear, etc.) that made it impossible to complete the tests? If so, please describe briefly below.

>>

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Please answer the following questions about various goals you may have had during the study. You will be provided with several goals; please rate your agreement with each statement in regards to the goal. **Please do not spend too much time on any one statement.**

Please use the following definitions for the words given below:

Test: the overall task that you had to perform (e.g. test of details or substantive analytical procedure) *Step*: the individual parts of the procedure that you had to perform and document in order to complete the procedure (e.g. compare a sales transaction to supporting detail or form an expectation)

I wanted to ensure that I was able to document responses to all of the tests' steps.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I thought this was a good goal to shoot for.	○	○	○	○	○
I was strongly committed to pursuing this goal.	○	○	○	○	○
It was hard to take this goal seriously.	○	○	○	○	○
Quite frankly, I didn't care if I achieved this goal or not.	○	○	○	○	○
It wouldn't have taken much to make me abandon this goal.	○	○	○	○	○

I wanted to ensure that I was able to arrive at the correct conclusions on the tests.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I thought this was a good goal to shoot for.	○	○	○	○	○
I was strongly committed to pursuing this goal.	○	○	○	○	○
It was hard to take this goal seriously.	○	○	○	○	○
Quite frankly, I didn't care if I achieved this goal or not.	○	○	○	○	○
It wouldn't have taken much to make me abandon this goal.	○	○	○	○	○

I wanted to make sure that I completed both tests before I ran out of time.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I thought this was a good goal to shoot for.	○	○	○	○	○
I was strongly committed to pursuing this goal.	○	○	○	○	○
It was hard to take this goal seriously.	○	○	○	○	○
Quite frankly, I didn't care if I achieved this goal or not.	○	○	○	○	○
It wouldn't have taken much to make me abandon this goal.	○	○	○	○	○

Finally, please rank these three goals by most important to least important while you were performing the tests. (Drag them into order from the most important at the top to the least important at the bottom.)

- I wanted to ensure that I was able to document responses to all of the tests' steps.
- I wanted to ensure that I was able to arrive at the correct conclusions on the tests.
- I wanted to make sure that I completed both tests before I ran out of time.

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You chose to perform the test of details **first** and the substantive analytical procedure **second**. Please explain why you chose to do the tests in this order.

What did you use for calculations during the study?

- Microsoft Excel
- Other spreadsheet software
- Computer calculator application
- Handheld calculator

Please rate your agreement with the following sentences.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Completing the tests required me to work very fast.					
The time allotted was sufficient for proper performance on the tests.					

Did you feel more time pressure in completing the test of details (ToD) or the substantive analytical procedure (SAP)?

Much more for the ToD than the SAP	Somewhat more for the ToD than the SAP	Same on both	Somewhat more for the SAP than the ToD	Much more for the SAP than the ToD

How stressed did you feel while completing the tests under time pressure?

Not at all stressed	Slightly stressed	Fairly stressed	Very stressed	Extremely stressed

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Please answer the following questions related to the **test of details over sales revenue** that you performed.

Again, use the following definitions for the words given below:

- *Test*: the overall task that you had to perform (the test of details)
- *Step*: the individual parts of the procedure that you had to perform and document in order to complete the procedure (e.g. compare a sales transaction to supporting detail)

Please do not spend too much time on any one question/statement.

Based on the background information, **what level of risk was assessed on the tested account?**

Low | Moderate | High

How much **flexibility** did the steps give you in terms of how to complete the test?

None | Little | Some | A Lot | Complete

How **open to interpretation** were the steps in terms of how to complete the test?

Not at all | A little | Somewhat | Very | Completely

if all the steps of the test were addressed, **how easy or difficult would it be for a reviewer to verify that the work was properly performed?**

Very Difficult | Difficult | Neutral | Easy | Very Easy

Are you familiar with completing or reviewing a test similar to this in you auditing experience?

Yes | No

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Please answer the following questions about your performance on the **test of details over sales revenue**.

Again, use the following definitions for the words given below:

- *Test*: the overall task that you had to perform (the test of details)
- *Step*: the individual parts of the procedure that you had to perform and document in order to complete the procedure (e.g. compare a sales transaction to supporting detail)

Please do not spend too much time on any one question/statement.

Based on your performance on this test, how likely is it that you **provided enough documentation to respond to the test's steps**?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, how likely is it that you **arrived at the correct conclusion for the test**?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, if the client was filing a **month** from today (e.g. the audit needed to be completed a month from today), how likely is it that your work on this test would pass review by your supervisor?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, if the client was filing **tomorrow** (e.g. the audit needed to be completed by tomorrow), how likely is it that your work on this test would pass review by your supervisor?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Please provide the number of additional minutes you think you would need to **provide enough documentation to respond to the test's steps**. (If you think that you provided enough documentation, enter 0.)

Please provide the number of additional minutes you think you would need to ensure that you **arrived at the correct conclusion**. (If you think that you arrived at the correct conclusion, please enter 0.)

Given the **limited amount of time** that you had to perform this test, **how difficult do you feel it was to arrive at the correct conclusion on this test** based on the information given?

Very Difficult | Difficult | Neutral | Easy | Very Easy

If you had an **unlimited amount of time** to perform this test, **how difficult do you feel it would be to arrive at the correct conclusion on this test** based on the information given?

Very Difficult	Difficult	Neutral	Easy	Very Easy
○	○	○	○	○

>>

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Please answer the following questions related to the **substantive analytical procedure over the legal liability** that you performed.

Again, use the following definitions for the words given below:

- *Test*: the overall task that you had to perform (the substantive analytical procedure)
- *Step*: the individual parts of the procedure that you had to perform and document in order to complete the procedure (e.g. generate an expectation)

Please do not spend too much time on any one question/statement.

Based on the background information, **what level of risk was assessed on the tested account?**

Low ○ Moderate ○ High ○

How much **flexibility** did the steps give you in terms of how to complete the test?

None ○ Little ○ Some ○ A Lot ○ Complete ○

How **open to interpretation** were the steps in terms of how to complete the test?

Not at all ○ A little ○ Somewhat ○ Very ○ Completely ○

if all the steps of the test were addressed, how **easy or difficult would it be for a reviewer to verify that the work was properly performed?**

Very Difficult ○ Difficult ○ Neutral ○ Easy ○ Very Easy ○

Are you familiar with completing or reviewing a test similar to this in you auditing experience?

Yes ○ No ○

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Please answer the following questions about your performance on the **substantive analytical procedure over the legal liability**.

Again, use the following definitions for the words given below:

- *Test*: the overall task that you had to perform (the substantive analytical procedure)
- *Step*: the individual parts of the procedure that you had to perform and document in order to complete the procedure (e.g. generate an expectation)

Please do not spend too much time on any one question/statement.

Based on your performance on this test, how likely is it that you **provided enough documentation to respond to the test's steps**?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, how likely is it that you **arrived at the correct conclusion** for the test?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, if the client was filing a **month** from today (e.g. the audit needed to be completed a month from today), how likely is it that your work on this test would pass review by your supervisor?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Based on your performance on this test, if the client was filing **tomorrow** (e.g. the audit needed to be completed by tomorrow), how likely is it that your work on this test would pass review by your supervisor?

Very Unlikely | Unlikely | Undecided | Likely | Very Likely

Please provide the number of additional minutes you think you would need to **provide enough documentation to respond to the test's steps**. (If you think that you provided enough documentation, enter 0.)

Please provide the number of additional minutes you think you would need to ensure that you **arrived at the correct conclusion**. (If you think that you arrived at the correct conclusion, please enter 0.)

Given the **limited amount of time** that you had to perform this test, **how difficult do you feel it was to arrive at the correct conclusion on this test** based on the information given?

Very Difficult | Difficult | Neutral | Easy | Very Easy

If you had an **unlimited amount of time** to perform this test, **how difficult do you feel it would be to arrive at the correct conclusion on this test** based on the information given?

Very Difficult	Difficult	Neutral	Easy	Very Easy
○	○	○	○	○

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Before providing some demographic information, please complete a set of questions about yourself.

Questions About Yourself

Several statements that people use to describe themselves are given below. Please select the response that indicates how you generally feel. There are no right or wrong answers. **Please do not spend too much time on any one statement.**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I don't tolerate ambiguous situations well.	○	○	○	○	○
I would rather avoid solving a problem that must be viewed from several different perspectives.	○	○	○	○	○
I try to avoid situations that are ambiguous.	○	○	○	○	○
I prefer familiar situations to new ones.	○	○	○	○	○
Problems that cannot be considered from just one point of view are a little threatening.	○	○	○	○	○
I avoid situations that are too complicated for me to easily understand.	○	○	○	○	○
I am tolerant of ambiguous situations.	○	○	○	○	○
I enjoy tackling problems that are complex enough to be ambiguous.	○	○	○	○	○
I try to avoid problems that don't seem to have only one "best" solution.	○	○	○	○	○
I generally prefer novelty over familiarity.	○	○	○	○	○
I dislike ambiguous situations.	○	○	○	○	○
I find it hard to make a choice when the outcome is uncertain.	○	○	○	○	○
I prefer a situation in which there is some ambiguity.	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I find myself working on less important tasks when I should be working on the more important.	○	○	○	○	○
Even when I start working, I'll put off the more important aspects of the work.	○	○	○	○	○
I delay my work too much.	○	○	○	○	○
I end up doing other things					

when I need to be working.	○	○	○	○	○
I delay work to the point that I unnecessarily suffer.	○	○	○	○	○
I would be better off if I started work earlier.	○	○	○	○	○
I put off work too long.	○	○	○	○	○
I procrastinate about my work.	○	○	○	○	○
I often regret that I start working late.	○	○	○	○	○
I do my work when I plan to do it.	○	○	○	○	○
When I have a work responsibility, I get started on it early enough.	○	○	○	○	○
I work on what I should when I should.	○	○	○	○	○

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Finally, just a few quick questions about yourself and your experience in auditing.

Please indicate your gender (optional).

- Male
- Female

How much auditing experience do you have in years and months?

Years:	
Months:	

What is your position at your firm?

- Staff
- Senior
- Manager
- Senior Manager
- Partner

What professional certifications do you hold? Choose all that apply.

- CPA
- CFE
- Other(s)

During your time working in audit, please indicate the **percentage of engagements that you were on where you have been under extreme deadline pressure.**

How many **public client** busy season engagements have you been on through the end of the engagement?

How many **private client** busy season engagements have you been on through the end of the engagement?

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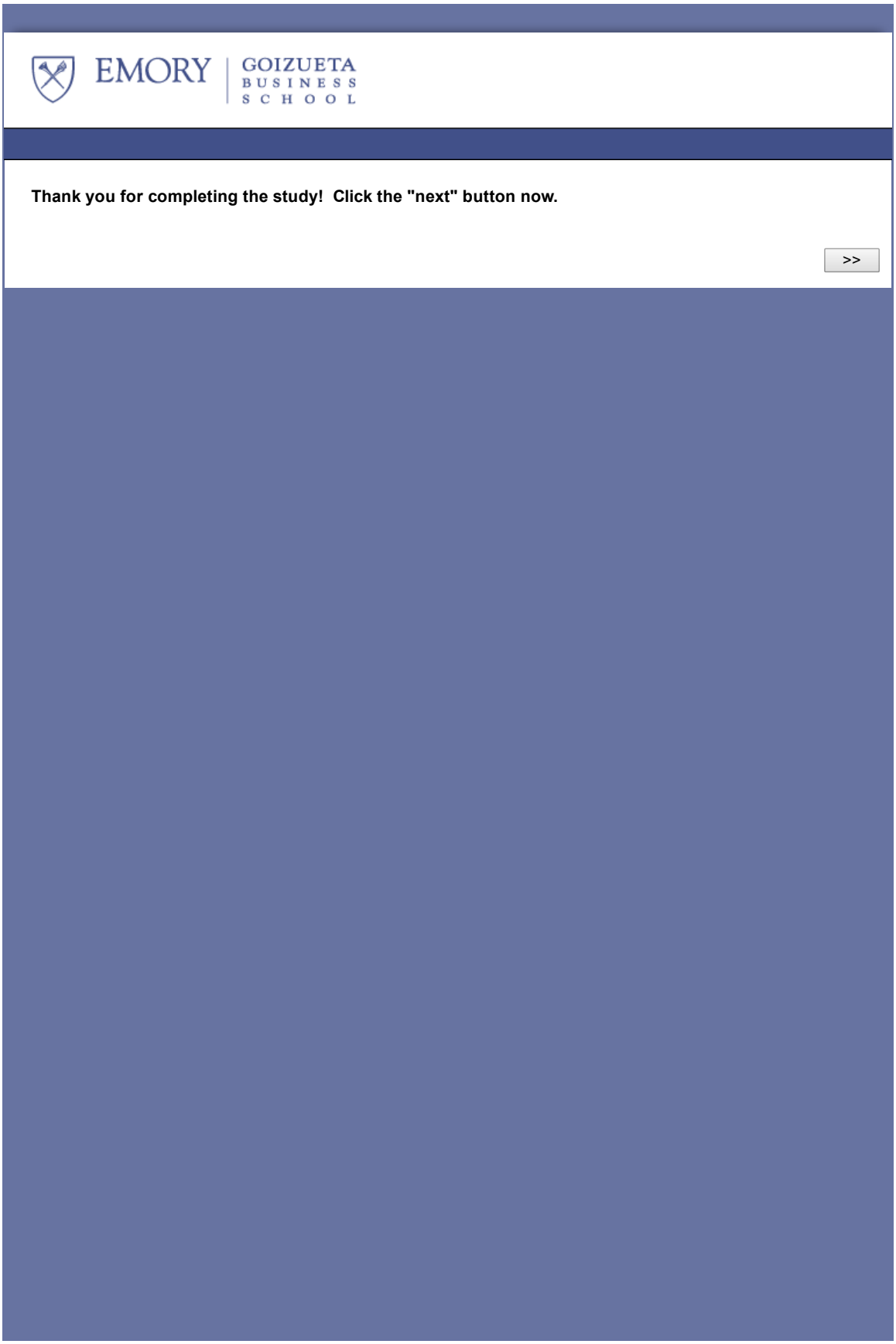
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Thank you for completing the study! Click the "next" button now.
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We thank you for your time spent taking this survey.
Your response has been recorded.