AN EXPERIMENTAL ANALYSIS OF COMPETING PRESSURES ON AUDITORS' PROFESSIONAL JUDGMENTS

INTRODUCTION

This paper examines practicing auditors' professional judgments and decision behaviors when tasked with making audit scope decisions in the presence of two competing pressures stemming from passage of the Sarbanes-Oxley Act (SOX): (i) pressure imposed internally by the audit firm (organizational pressure), and (ii) pressure imposed externally by legislated mandate (environmental pressure). An experiment tests whether simultaneously imposed pressures of differing types and levels cause practicing auditors to choose qualitatively different methods (statistical versus non-statistical selection) of completing a required audit task (confirmation of accounts receivable balances. These competing pressures are hypothesized to influence the way in which auditors perform certain audit tasks.

The experiment involved a hypothetical audit engagement in which practicing auditors (from an anonymous large international public accounting firm) assumed the role of engagement manager on an important client and were asked to choose between qualitatively different methods of completing a required audit task. Organizational pressure, manipulated at low and high levels, was operationalized as the likelihood that overrunning an audit budget would cause the auditor's firm to terminate the audit relationship. Environmental pressure, also manipulated at low and high levels, was operationalized as the likelihood that the engagement would be selected by the Public Company Accounting Oversight Board (PCAOB) for inspection. Since the consequences of failing even a single PCAOB inspection can be severe (to both the firm and the individual auditor), as compared to the potential consequences stemming from an audit

budget overrun, a model was employed that predicted environmental pressure would moderate the effect of organizational pressure on auditors' methodological preference for completing the required task.

Auditors have always faced both organizational and environmental pressures in the conduct of audits. This study seeks to determine if recent legislative reforms have had *unintended* consequences, through increased and shifting pressures, on the judgments and decision behaviors of *individual* auditors. The *intended* benefits of SOX (investor protection, improved reliability, and accuracy of corporate disclosures) (U.S. House of Representatives 2002) have been discussed and debated by legislators, enforcement agencies, and the previously self-regulated auditing profession, as have the costs of implementation.[1] DeFond and Francis (2005) believe many of the intended solutions embedded in the SOX legislation are not only unlikely to solve the auditing profession's problems, but may instead lead to serious unintended negative consequences.

Further investigation of possible unintended consequences evolving from SOX, its creation of the PCAOB, and the resultant shift from self-regulation to governmental oversight for the auditing profession are all important in order to assess the overall impact, both positive and negative, of recent reforms. Recent changes in conditions confronting audit firms have increased the organizational and environmental pressures faced by individual auditors. SOX, through its ban on non-attest services that CPA firms may provide their clients, as well as expanded reporting requirements on internal controls, creates internal pressure to achieve greater *efficiency* in the conduct of audits because of fee pressures. It is possible that auditors may feel *no* pressure if they can simply expand procedures and pass along fee increases to the client. However, the PCAOB cautions against overauditing, believing it equally likely that PCAOB inspections will

find audit work to be excessive as it is to be found inadequate, and warns the consequences of excessive auditing may be severe (AccountingWEB 2005a).

Conversely, the inspection of firms conducting public company audits by the newly formed PCAOB increases external pressure, influencing the *effectiveness* of audits. Audit firms must continuously work to increase both efficiency and effectiveness to survive in the competitive audit market (Lowe et al. 2002). Prior research suggests an auditor might be motivated to maximize the efficiency of an audit for purposes of maximizing self-interest (normative influence) or, alternatively, may be motivated to maximize the effectiveness of an audit in order to comply with professional standards (informational influence) (DeZoort and Lord 1997). This continuation and strengthening of the ever present efficiency versus effectiveness conflict in a public accounting setting may result in unintended consequences.

Auditors facing high audit budget pressure were hypothesized to be motivated to perform an efficient audit and be *less* likely to employ a more time consuming method (statistical) for accounts receivable confirmation selection than those in a low audit budget pressure setting. Conversely, auditors anticipating that their engagement would be inspected by the PCAOB were hypothesized to be motivated to perform an effective audit and thus be *more* likely to employ a statistical methodology than those not anticipating an inspection. The consequences of failing a PCAOB inspection are more severe than a budget overrun, to both the firm and the individual auditor, thus auditors in all pressure combinations were hypothesized to exhibit a stronger preference for the use of a statistical method than a non-statistical method of receivables confirmation. Audit budget pressure and PCAOB inspection pressure were hypothesized to interact to affect auditors' preference for confirmation methodology, and externally imposed

inspection pressure was hypothesized to moderate the effect of internally imposed budget pressure.

Results suggest participating auditors preferred a statistical method to confirm accounts receivable balances that was qualitatively superior (AICPA 1982; Hitzig 2004) to the alternative (non-statistical method) under all pressure combinations. The main effects of audit budget pressure and PCAOB inspection pressure did not significantly influence respondents' confirmation methodology choice. However, the simultaneous imposition of the pressures interacted to significantly influence the respondents' choice preference. Supplemental analyses revealed that the significant interaction resulted from the low and high organizational cell means, only when environmental pressure was held high, and from the low and high environmental cell means, only when organizational pressure was held low. The interaction did not hold when environmental pressure was low and organizational pressure was manipulated, nor did it hold when organizational pressure was high and environmental pressure was manipulated. The interaction diminished when participants' prior beliefs were introduced as covariates. The anticipated moderation was not supported. Importantly, the participating auditors made professional judgments and exhibited decision behaviors that appeared to be influenced more by a desire to maximize compliance with professional standards than to maximize their own self-interest.

BACKGROUND AND HYPOTHESES DEVELOPMENT

Background

Professional judgments and decision behaviors are not readily observable such that unintended consequences stemming from recent changes impacting the auditing profession may exist, yet go undetected for an extended period of time. Pressure effects research in accounting

has focused on features unique to the accounting and auditing professions as motivation for research topics affecting practitioners due to concern about the impact that pressure can have on such judgments and decisions (DeZoort and Lord 1997).

Recent Changes

Recent legislative and firm-imposed changes have shifted certain pressures and increased environmental pressures facing practicing auditors. Large public accounting firms have been particularly impacted by SOX's creation of the PCAOB. The PCAOB performs inspections on large accounting firms annually, and once every three years for smaller firms. Accounting firms not registered with the PCAOB are prohibited from preparing or issuing audit reports on U.S. public companies (U.S. House of Representatives 2002).[2] This increased environmental pressure from SOX has had an immediate impact on the auditing profession (through PCAOB registrations, internal control auditing and reporting, and expanded workpaper documentation requirements, among others), and such environmental pressure is likely to increase as the results of PCAOB inspections are released to the public.[3]

SOX impacts organizational pressures as well. The remaining large public accounting firms, especially the Big 4, have been stretched thin in absorbing former Arthur Andersen (Andersen) clients. At the time of its conviction related to the Enron engagement (unanimously overturned by the U.S. Supreme Court in 2005), Andersen performed attest services for approximately 2,400 public companies in the U.S. (GAO 2003b). The U.S. Government Accountability Office (GAO), formerly the General Accounting Office, tracked selected Andersen clients switching to a new audit firm and found 87 percent selected one of the remaining Big 4 firms (GAO 2003b). Increased client loads, coupled with a ban on most non-attest services that auditors can provide to their attest clients, has increased organizational

pressure on auditors to conduct audits more efficiently or terminate relationships. PricewaterhouseCoopers reported terminating relationships representing over 250,000 audit hours relating to high-risk and aggressive clients (Stock 2003).[4] Prior to the ban on non-attest services, many accounting firms found that the provision of such services was more profitable than the actual financial statement audit (Stelzer 2004). This focus on risk management and efficiency puts pressure on practicing auditors to attain budgets and increase realizations on their remaining engagements. The loss of a client to an individual auditor and resulting career ramifications may cause the individual to be motivated to retain a client, though the firm itself might be better advised to end the relationship.

Firms must now take a closer look at the profitability of audits without reference to an overall package of professional services provided, increasing internal pressure related to achieving audit budgets. More clients of firms will now be at the 'margin' of profitability, and the firm may elect to continue ongoing audit relationships only if engagement realization is improved. This can be accomplished through increased billings, a reduction in hours incurred to perform the audit, or a combination of both. Auditors must balance a reduction in hours with the risk that sufficient competent audit evidence is not obtained or that other Generally Accepted Auditing Standards (GAAS) are not complied with. This must all be accomplished while maintaining sufficient levels of client satisfaction in an era of increased client *dissatisfaction* with auditors (GAO 2003a).

Prior research has extensively investigated the influence that pressure from clients (an environmental pressure) has on auditors and firms (e.g., Goldman and Barlev 1974; Nichols and Price 1976; Bartunek and Reynolds 1983; Knapp 1985 and 1987; Lindsay 1990; Gul 1991; Windsor and Ashkanasy 1995; Tsui and Gul 1996; Hackenbrack and Nelson 1996). Research

prior to 2002 pre-dates SOX and the resulting transition of the auditing profession from internal oversight to external oversight by the PCAOB.

The loss of a client to an individual auditor, and resulting career ramifications, may cause the motives of the individual to be substantially different than those of the firm. Ribstein (2004) observed that while *firms* are incented to build and maintain reputations through the monitoring of their personnel and clients, *individual members* of those firms may have incentives to cater to their own clients, even at the risk of non-compliance with firms' policies and regulations, consistent with DeZoort and Lord's (1997) normative influence perspective. This study examines pressure effects resulting from stressors placed on *individual* auditors, not the auditing firms themselves.

Budget Pressures

Firms typically impose time budgets limiting auditors' ability to expand the extent of audit tests (Asare et al. 2000). These restraints are imposed by firms in response to limited personnel resources as well as prior arrangements (such as fee agreements) with clients (DeZoort and Lord 1997). Time budgets are important in the context of public accounting as they are closely aligned with firms' reward structures, but may cause cost and quality goals to compete with each other (McNair 1991). When the attainment of budgets was a principal consideration in performance evaluation, auditors exhibited dysfunctional behaviors, including reduction of follow-up procedures, underreporting of time, and overriding auditing procedures in the work program (Azad 1994). Historically low levels of errors associated with a client may influence an auditor to truncate work to achieve efficiency, though potential costs associated with a failure to detect errors would suggest otherwise (Asare et al. 2000). Auditors are not as responsive to increased levels of audit risk when fee pressure is present, overweighting fee considerations

relative to client risk and losing a degree of objectivity when presented with cues suggesting increased risk (Houston 1999).

Audit firms are simultaneously driven to increase efficiency to maximize return, while at the same time imposing heavy structure to promote consistency in an effort to avoid adverse legal consequences. When structure and time pressure were jointly imposed, underauditing increased, and consistency of sampling adequacy decreased (McDaniel 1990). In this instance, two *competing* pressures were shown to have unintended consequences. The negative consequence related to the adequacy of sampling procedures employed was not observed in the absence of time pressure.

Competitive Pressures

DeZoort and Lord (1997) define competitive pressure as "the pressure to succeed professionally or financially either as an individual, engagement team, or accounting firm relative to other individuals, teams, or firms" (p. 61), and believe this pressure may become a profitability pressure when the individual auditor has an incentive to cut costs to achieve budget. Goldman and Barlev (1974) suggested that auditor and client conflicts are influenced by the relative power of each party, with clients' sources of power including the ability to hire, fire, and compensate the auditor, while the auditors' sources of power include the level of ambiguity involved in decision-making and the state of professional ethics. Iyer and Rama (2004) documented that ambiguity in authoritative guidance leads to audit judgments that are significantly impacted by the preference of the client.

Competitive pressures have increased for individual auditors, for engagement teams, and for public accounting firms as a result of SOX and PCAOB measures. Firms themselves may deal with increased engagement pressure at two extremes by terminating the client relationship

or increasing fees such that they are commensurate with the associated audit risk. This study focuses on the judgments of *individual* auditors for a hypothetical audit engagement where the audit fees are marginally acceptable and the retention of the client is important to the future career prospects of the individual auditor.

Applications of Increased Pressures in Practice

Increased pressures have practical implications if they cause practicing auditors to exhibit differing judgments and decisions in the completion of required tasks. The experiment conducted to examine if SOX has had unintended consequences on auditors' professional judgments and decisions looks at participants' decisions when completing a required audit task (confirmation of accounts receivable balances), where GAAS provides leeway in qualitatively different methods used to select receivable balances for confirmation (statistical versus non-statistical sampling), when differing levels (high and low) of competing pressures (organizational and environmental) are simultaneously imposed.

Confirmations

Statement on Auditing Standards (SAS) No. 67, *The Confirmation Process*, (AICPA 1992) requires confirmation of accounts receivable on an audit unless (i) accounts receivable are immaterial, (ii) confirmations would be ineffective, or (iii) combined inherent and control risk are low (assuming evidence from analytical or other substantive tests would achieve acceptably low levels of audit risk). Pervasive and fundamental violations of the provisions of SAS No. 67 have previously been detected in the peer review process (McConnell and Banks 1998).

Sampling

SAS No. 39, *Audit Sampling*, (AICPA 1982) provides auditors with guidance on sampling procedures consisting of two general approaches: statistical and non-statistical.

Statistical sampling assists in assessing the sufficiency of results and evaluating results objectively, though those advantages come with additional costs such as training, design, and item selection (AICPA 1982). Statistical and non-statistical sampling both lie within the realm of GAAS, with statistical being more effective and non-statistical more efficient.[5] Hitzig (2004) stated "the PCAOB should provide explicit recognition of the superiority of statistical sampling in situations where the auditor has no specific knowledge as to the location and amounts of individual misstatements in an accounting population" (p. 35). Discussion with a member of the PCAOB's Standing Advisory Group confirms that the relative merits of statistical and non-statistical sampling are on the PCAOB's agenda for future discussion.

Individual auditors facing high internal pressure are hypothesized to be *less* likely to employ a statistical method for accounts receivable confirmation because they are motivated to reduce cost overruns in order to maximize their likelihood of retention and promotion opportunities in the firm. The following hypothesis, in alternative form, is set forth:

> **H1:** Subjects in a high audit budget pressure setting will be *less* likely to employ a statistical method for accounts receivable confirmation than will subjects in a low audit budget pressure setting.

Environmental Pressures

Audit firm inspections by the PCAOB increase external pressure on auditors as inspector expectations, at least in the program's beginning, are not well known to auditors, unlike the profession's previous self-regulation under the peer review process. Another distinction between peer review and public company inspection relates to the level of public disclosure. While firms conducting peer review issued a report to the reviewed firm that ultimately became a matter of public record, all of the reports for large firms were so-called 'clean' opinions with separate

letters (not in the public domain) issued discussing compliance with matters not deemed to be of sufficient importance to impact the opinion. In his critique of SOX, Ribstein (2002) opined "The current system of peer review within the AICPA obviously has not filled in the gaps, as indicated by the recent corporate frauds themselves and by the fact that no major accounting firm has failed a peer review" (p. 14).

Public company inspections, on the other hand, result in reports that are posted on the PCAOB website (PCAOB 2004; PCAOB 2005a).[6] Initial public company inspection reports by the PCAOB have been anything but 'clean' opinions. These inspections are the most visible measure of the degree of success (or shortfall) of the government's legislation of external responsibility for what was once a self-regulating activity (peer review) of the auditing profession. The PCAOB's 2003 initial inspections of the Big 4 auditing firms, and subsequent full inspections of registered firms, revealed a number of significant audit deficiencies and resulted in certain client restatements of previously issued financial statements (AccountingWEB 2004a; PCAOB 2004 and 2005a). Public company inspections have both *shifted* a prior mixed pressure (peer review) to an environmental pressure and *increased* pressure on practicing auditors.[7] The adaptability of public accounting firms has taken on increased importance as the auditing profession transitions from self-regulation to governmental oversight and enforcement. The PCAOB not only conducts public company inspections, but can also ban firms from auditing public companies. Individual auditors anticipating a high likelihood of receiving a public company inspection from unknown PCAOB reviewers are hypothesized to be *more* likely to employ a statistical method for confirming accounts receivable balances because they are motivated to maximize GAAS effectiveness to avoid receiving a negative inspection, which

would diminish, and perhaps eliminate, retention and promotion opportunities in the firm.[8] The following hypothesis, in alternative form, is set forth:

> **H2:** Subjects facing a high likelihood that their engagement will be selected for public company inspection will be *more* likely to employ a statistical method for confirming accounts receivable balances than will subjects facing a low likelihood of selection for public company inspection.

Competing Pressures

This study seeks to determine the influence of *competing* pressures on auditors' decision behaviors when confronted with pressures imposed internally by the audit firm and externally by legislated mandate. The first two hypotheses look at the main effects of internal and external pressures on audit scope decisions made by auditors. A low pressure setting (both internal and external) is viewed as a baseline, or the least amount of pressure that practicing auditors can face on an engagement. Budget overruns on an audit are not disclosed outside of the firm, occur frequently in practice, and individually are not necessarily detrimental to an auditor's career aspirations.[9] On the other hand, sanctions by the PCAOB against individuals or firms violating SOX are substantial and may include suspension or revocation of registration, a ban on association with registered firms, monetary penalties for each violation of up to $750,000 (individual) or $15 million (firm), and censure. Further, disciplinary sanctions are reported to the SEC, state regulatory authorities, and the public (U.S. House of Representatives 2002). Since the consequences of a *single* inspection failure can be severe for both the individual auditor and the audit firm, and statistical sampling is qualitatively superior to non-statistical sampling (AICPA 1982, Hitzig 2004), auditors in all pressure settings are expected to exhibit a preference for the use of a statistical method for selecting accounts receivable balances for

confirmation, relative to the use of a non-statistical method.[10] The following hypothesis, in alternative form, is set forth:

> **H3:** Subjects in each pressure setting combination will exhibit a stronger preference for the use of a statistical methodology than for a non-statistical methodology for confirming accounts receivable balances.

Interaction and Moderation

DeZoort and Lord (1997) suggest the inclusion of interactive pressures in behavioral accounting research to better understand the judgments and decision behaviors of professionals. Determining whether organizational (budget) pressure or environmental (PCAOB inspection) pressure dominates will help to determine if SOX has had unintended consequences on practicing auditors' judgments and decision behaviors by influencing their selection of qualitatively different methods of completing a required audit task. Organizational pressure (manipulated as the likelihood of achieving or exceeding an audit budget) is hypothesized to influence auditors to focus on the *efficiency* of an audit in order to achieve budget or avoid an overrun. Conversely, environmental pressure (manipulated as the likelihood that an audit engagement will be selected for public company inspection by the PCAOB) is hypothesized to influence auditors to focus on the *effectiveness* of an audit in order to receive a favorable public company inspection report. These jointly imposed pressures are both hypothesized to interact to influence auditors' judgments and decisions, though in ways that are at odds with one another.

Since the consequences of failing even a single public company inspection by the PCAOB can be severe, relative to organizational pressure consequences, environmental pressure is anticipated to moderate organizational pressure. When environmental pressure is high, organizational pressure is expected to have little effect on auditors' methodological preference

for confirming accounts receivable balances. However, when environmental pressure is low, organizational pressure is anticipated to have a greater influence on auditors' preference. Specifically, the greatest preference by auditors for a *non-statistical* method for confirming accounts receivable balances is expected when environmental pressure is low and organizational pressure is high. The following hypothesis, in alternative form, is set forth:

> **H4:** Organizational and environmental pressures will interact to affect auditors' preference for method of confirming accounts receivable balances, with environmental pressure moderating the effect of organizational pressure on auditors' preference for method of confirming accounts receivable balances.

Figure 1 presents the pattern of predicted effects of the degree of organizational and environmental pressures on auditors' preference of methodology (non-statistical or statistical) for confirmation of accounts receivable balances.

[Insert Figure 1 here]

METHODOLOGY

Participants

The experimental instrument was mailed in late 2005 to 425 practicing auditors at an anonymous large international public accounting firm, with the firm's consent. The participating firm announced the study, followed by a second notice, in electronic communications to its employees. Participants were randomly assigned to one of four pressure treatment combinations (high and low organizational pressure fully crossed with high and low environmental pressure). Ninety-three responses were received from 12 partners, 42 managers, 26 seniors, and 13 staff (22 percent response rate). Table 1 provides demographic information for the responding auditors.

[Insert Table 1 here]

Development of Competing Pressures Experimental Instrument

The experimental instrument is framed as a hypothetical audit of a publicly traded manufacturer. Manufacturing was chosen because it is a common industry that should be familiar to practicing auditors. Participants were instructed to assume the role of engagement manager. The client's saliency to the individual auditor is conveyed through background information describing the client as (i) important to the local office for a number of years, (ii) a client that the auditor spends more than 50 percent of his or her time auditing, and (iii) a client that is important to the auditor for future promotion opportunities.

Independent Variables

The two independent variables manipulated in this experiment are organizational (internal) pressure and environmental (external) pressure. The sequence of presentation of the independent variables was counterbalanced in the instruments provided to participants to control for recency and primacy effects.

Organizational (Internal) Pressure

Pressure from within the firm was manipulated at two levels (low and high) as the likelihood that an overrun on the current year's audit would cause the firm to terminate the audit relationship. DeZoort and Lord (1997) observed that pressure is more acute on auditors who perceive a threat of losing a client. Participants were informed the audit fees were previously arranged following the loss of consulting work stemming from the SOX ban on most consulting work that an auditor may provide to attest clients, and were also told it was unlikely a budget overrun could be collected. In the low pressure setting, participants were told that it was *not likely* an overrun on the audit would cause the firm to terminate the audit relationship, while

those receiving the high pressure manipulation were told that it was *likely* an overrun would cause termination of the audit relationship.

Environmental (External) Pressure

Pressure originating outside the firm was also manipulated at two levels (low and high) as the likelihood that the PCAOB would select the hypothetical audit for public company inspection. To control for the possibility that the relative risk level of the specific engagement might influence participants' dependent variable selection, the case materials stated that the audit engagement's risk profile was average, relative to other clients of the firm. Firms are not allowed to limit or influence the engagements the PCAOB selects for inspection, but the PCAOB has indicated that it focuses on higher risk engagements (PCAOB 2004; 2005a). In the low pressure setting, participants were informed that it was considered *unlikely* the audit would be selected for PCAOB inspection, while those in the high pressure setting were told it was considered *likely* the audit would be selected for PCAOB inspection.

Dependent Variable

The dependent variable was participants' relative preference for using a non-statistical or statistical methodology for selecting a sample of accounts receivable balances for confirmation, measured on an 11-point Likert scale, ranging from 0 ('Prefer non-statistical') to 10 ('Prefer statistical'). The requirement to choose between qualitatively different methods of completing a required audit task addresses the observations of the SEC (2000) and Johnstone et al. (2001) that auditor objectivity is most frequently jeopardized in situations where auditor judgment is required and authoritative guidance is ambiguous. The various versions of the instrument were randomly distributed to participants. One version of the research instrument (high organizational pressure and high environmental pressure) is attached as Appendix A.

Audit Planning

Participants were told they must decide on a sampling methodology (statistical or non-statistical) for selecting accounts receivable balances for positive confirmation. Accounts receivable confirmation was chosen as the required audit task in this experiment since the majority of audit firms report using sampling in the completion of substantive audit procedures, with accounts receivable being the most common substantive area (Hitzig 1995). Further, Ge and McVay (2005) found the most common account specific material weaknesses in internal control occur in areas such as accounts receivable and inventory. The case material is worded such that confirmations are required under the auditor's professional standards (AICPA 1992), the composition of receivables is similar to that of previous audits, and misstatements related to receivable balances have occasionally resulted in audit adjustments on prior audits. The case materials did not specify the location or magnitude of potential receivable balance misstatements, if any, consistent with Hitzig's (2004) observation that the statistical sampling methodology is superior to the non-statistical methodology in such circumstances.

Budget Considerations and Confirmation Methods

Participants were informed the only way to meet budget on the hypothetical audit was by choosing the less effective, but more efficient method (non-statistical) of selecting a sample of accounts receivable balances for confirmation. Participants were told that choosing the more effective, but less efficient method (statistical) of completing the required audit task would result in a budget overrun of approximately ten percent of the audit budget. Participants were told all other areas of the audit were anticipated to come in substantially in line with the previously arranged time and fee budget. The confirmation methodology employed on prior audits was purposely not provided to participants to avoid influencing their choice of sampling technique.

DATA AND RESULTS

Results were analyzed using a 2 X 2 (organizational pressure condition by environmental pressure condition) analysis of variance (ANOVA) and planned comparisons. Table 2 presents treatment means and the results of testing hypotheses H1 through H4.

[Insert Table 2 here]

Organizational Pressure

Hypothesis 1 predicted subjects in a high organizational pressure setting would be less likely to employ a statistical method for accounts receivable confirmation than would subjects in a low organizational pressure setting. Subject responses relating to strength of preference, measured on an 11-point Likert scale (0 = 'Prefer non-statistical', 10 = 'Prefer statistical'), were recorded. Table 2, Panel A, provides marginal means for the low and high organizational pressure settings of 7.44 and 7.45, respectively. Panel B shows no statistical difference ($F = .077$, $p = .782$) between the strength of respondents' preferences in the low and high organizational pressure settings. The likelihood that the audit budget would or would not be met (organizational pressure manipulation) did not appear to influence the method employed for selection of accounts receivable balances for confirmation and thus H1 is not supported.

Environmental Pressure

Hypothesis 2 predicted subjects facing high environmental pressure would be more likely to employ a statistical method for confirming accounts receivable balances than would subjects facing low environmental pressure. Table 2, Panel A, provides marginal means for the low and high environmental pressure settings of 7.33 and 7.59, respectively. Panel B shows no statistical difference ($F = .002$, $p = .962$) between the strength of respondents' preferences in the low and high environmental pressure settings. The likelihood that the audit engagement would or would

not be selected for public company inspection by the PCAOB (environmental pressure manipulation) did not appear to influence the method employed for selection of accounts receivable balances for confirmation and thus H2 is not supported.

Strength of Preference

Hypothesis 3 predicted subjects in each pressure setting combination would exhibit a stronger preference for the use of a statistical methodology for confirming accounts receivable balances. To test this hypothesis, one sample *t*-tests were conducted to compare cell means for each of the four pressure setting combinations versus the dependent variable measurement scale (11-point Likert scale) mid-point of 5. Table 2, Panel C, shows that respondents' mean preference for methodology exceeded the mid-point for all four pressure pairings, suggesting a stronger preference for the use of a statistical methodology.

Participants in the low organizational and low environmental pressure setting had a mean preference of 6.87, exceeding the mid-point of 5.00 by 1.87 ($t = 4.18$, $p = .000$). The mean in the high organizational and high environmental pressure setting was 6.75, exceeding the mid-point by 1.75 ($t = 2.24$, $p = .041$). Participants in pressure pairings with different levels (low organizational/high environmental or high organizational/low environmental) had mean preferences greater than the participants in the equal pressure combinations. Those in the low organizational and high environmental pressure setting had a mean preference of 8.12, exceeding the mid-point by 3.12 ($t = 8.12$, $p = .000$), while respondents in the high organizational and low environmental pressure cell had a mean preference of 7.95, exceeding the mid-point by 2.95 ($t = 6.45$, $p = .000$). Participants in each pressure combination exhibited a statistically stronger preference for the use of a statistical methodology for confirming accounts receivable balances and thus H3 is supported.

Interaction of Organizational Pressure and Environmental Pressure

Hypothesis 4 predicted, in part, that organizational and environmental pressures would interact to affect auditors' preference for method of confirming accounts receivable balances. Table 2, Panel B, provides results of the between-subjects analysis of variance (ANOVA) to test the interaction prediction. There is a statistically significant interaction ($F = 5.861$, $p = .018$) between organizational pressure and environmental pressure in their effect on participants' strength of preference for a non-statistical or statistical methodology of completing the required audit task of confirming accounts receivable balances and the interaction predicted in H4 is supported. A supplemental analysis of the simple effects of the particular cell means are discussed later.

Moderating Effect of Environmental Pressure on Organizational Pressure

Hypothesis 4 also predicted that environmental pressure would moderate organizational pressure such that subjects would exhibit a stronger preference for a statistical methodology for confirmation of accounts receivable balances when environmental pressure was high (without regard to the level of organizational pressure), and the strongest preference for a non-statistical method when environmental pressure was low and organizational pressure was high. A planned comparison (see Figure 1) was conducted for the dependent variable measure to test the moderation prediction in H4. The planned comparison tests whether:

[Cell 1 mean – Cell 2 mean] > [Cell 3 mean = Cell 4 mean], where:

Cell 1 = Low organizational pressure and low environmental pressure

Cell 2 = High organizational pressure and low environmental pressure

Cell 3 = Low organizational pressure and high environmental pressure

Cell 4 = High organizational pressure and high environmental pressure

As depicted in Figure 1, it was anticipated that the mean for Cell 1 would exceed the mean for Cell 2. As shown in Panel C of Table 2 (and depicted in Figure 2), the mean of Cell 2 (7.95) actually exceeds the mean of Cell 1 (6.87). The planned comparison results in Table 2, Panel D, reveal that there is no significant difference ($t = .048$, $p = .962$) between the Cell 1 and Cell 2 absolute difference (1.08) and the Cell 3 and Cell 4 absolute difference (1.37), therefore the moderation predicted in H4 is not supported.

[Insert Figure 2 here]

To determine whether participants' prior beliefs (measured on a 7-point Likert scale) related to the statistical method's perceived higher level of GAAS compliance (see Panel E of Table 2) were driving these results, an ANOVA was performed. The results (not tabulated) revealed that there was a significant ($F = 3.336$, $p = .023$) difference between groups in the GAAS compliance belief. Post-hoc analysis (not tabulated) showed that the only significant ($p = .016$) difference was between cell # 2 (prior belief mean of 6.18) and cell # 1 (prior belief mean of 5.27). In this circumstance it appears that random assignment of participants to treatment conditions did not eliminate the influence that their prior beliefs may have had on their dependent variable selection in the experimental manipulation and may have contributed to the 'reversal' of the two cells relative to the hypothesized expectation.

Supplemental Analysis – Simple Effects

As discussed in the test of H4 above, competing pressures were found to interact to significantly affect auditors' preference for method (statistical or non-statistical) of confirming accounts receivable balances, indicating the effect of one independent variable (organizational or environmental pressure) depends on the level of the other independent variable. The initial test of the interaction does not provide an indication of which cell means are different from the other

means. Additional tests were conducted, using planned comparisons, to explore the nature of the interaction. Figure 2 illustrates the simple effects of the degree of organizational and environmental pressure on auditors' preference of methodology for confirmation of accounts receivable balances on a hypothetical audit.

Low and high organizational pressure

The planned comparisons (not tabulated) revealed that the low and high organizational pressure cell means of 6.87 and 7.95, respectively, when environmental pressure was *low*, were not significantly different ($t = 1.625$, $p = .108$). When environmental pressure was low, and the organizational pressure was manipulated at the two levels, the participants did not exhibit a statistically different strength of preference for method of selecting accounts receivable balances for confirmation. The low and high organizational pressure cell means of 8.12 and 6.75, respectively, when environmental pressure was *high*, were significantly different ($t = -1.795$, $p = .076$). As anticipated, when environmental pressure was high, and the organizational pressure was manipulated at the low (high) levels, the participants exhibited a stronger (weaker) preference for the statistical method of selecting accounts receivable balances for confirmation.

Low and high environmental pressure

The planned comparisons revealed that the low and high environmental pressure cell means of 6.87 and 8.12, respectively, when organizational pressure was *low*, were significantly different ($t = 1.941$, $p = .055$). As anticipated, when organizational pressure was low, and the environmental pressure was manipulated at the low (high) levels, the participants exhibited a weaker (stronger) preference for the statistical method of selecting accounts receivable balances for confirmation. The low and high environmental pressure cell means of 7.95 and 6.75, respectively, when organizational pressure was *high*, were not significantly different ($t = -1.537$,

p = .128). When organizational pressure was high, and the environmental pressure was manipulated at the two levels, the participants did not exhibit a statistically different strength of preference for method of selecting accounts receivable balances for confirmation.

Supplemental Analysis - Analysis of Covariance (ANCOVA)

Prior Beliefs

Participants were asked three questions, based on their actual auditing experience, related to their views on compliance with auditing standards and PCAOB inspection outcomes for non-statistical and statistical confirmation methodologies, as well as their beliefs related to the relative importance of achieving audit budgets versus receiving a successful public company inspection from the PCAOB. These responses were used to conduct an ANCOVA.[11]

In order to examine the potential influence of external factors on participants' dependent variable choice, an ANCOVA was performed that included as covariates the responses related to participants' prior beliefs for (i) confirmation methodology and GAAS compliance, (ii) confirmation methodology and anticipated impact on PCAOB inspections, and (iii) relative importance of achieving budget on an audit versus maximizing the likelihood of a favorable PCAOB inspection. Table 2, Panel E, provides the covariate means for these three prior beliefs of 5.69, 5.58, and 5.74, respectively. The covariate means were measured on a 7-point Likert scale with higher numbers representing a preference for (i) statistical methodology for GAAS compliance, (ii) statistical methodology to increase likelihood of a favorable PCAOB inspection, and (iii) a favorable inspection viewed as more important than achieving budget.

The ANCOVA results are presented in Panel F of Table 2. The results indicate there is a significant relationship (F = 10.197, p = .002) between the first covariate (participants' prior belief related to confirmation methodology and GAAS compliance) and the dependent variable,

while controlling for the two independent variables. It appears that the selection of a statistical methodology for accounts receivable confirmation was largely driven by the participants' belief that such a method represents a higher level of compliance with GAAS. The eta squared (not tabulated) for this covariate shows that it explains 11 percent of the variance in the dependent variable. The remaining two covariates did not exhibit a significant relationship ($F = .390$, $p = .534$ and $F = .736$, $p = .393$, respectively) with the dependent variable. Further inspection of the ANCOVA results showed the inclusion of covariates also caused the previously significant interaction of the two independent variables to become insignificant ($F = 1.894$, $p = .172$), again suggesting that the prior belief related to GAAS compliance influenced the dependent variable selection, without respect to the pressure treatment group participants were assigned to.

Supplemental Analysis – Perceived Superiority of Statistical Methodology

In order to examine whether the participants themselves agreed with prior research (AICPA 1982, Hitzig 2004) suggesting the statistical confirmation selection methodology is qualitatively superior to a non-statistical methodology, an one-sample *t*-test (not tabulated) was conducted to compare participants' prior belief related to confirmation methodology and GAAS compliance versus the mid-point of the measurement scale. Participants were asked to indicate, on a 7-Point Likert scale, the method of confirming receivable balances that they believed represented a higher level of compliance with GAAS, with the endpoint of 1 labeled 'Non-Statistical' and the endpoint of 7 labeled 'Statistical'. The mean participant response of 5.69 (Table 2, Panel E) was compared against the scale's mid-point of 4.00. There was a significant difference ($t = 14.628$, $p = .000$) between the participants' mean response and the mid-point, suggesting that the participants also viewed the statistical methodology as qualitatively superior.

DISCUSSION AND IMPLICATIONS

This study experimentally investigated whether individual practicing auditors chose qualitatively different methods of selecting accounts receivable balances for confirmation when competing organizational and environmental pressures were each manipulated at two different levels. Organizational pressure was operationalized as the likelihood (low or high) that a budget overrun on a hypothetical audit engagement would cause the firm to terminate an audit relationship while environmental pressure was operationalized as the likelihood (low or high) that the engagement would be selected for inspection by the recently formed PCAOB. These pressures on individual auditors have recently increased as a result of the passage of SOX, its ban on consulting services that firms may provide their attest clients, and the mandated external inspections of audit firms by the PCAOB. Participants were 93 practicing auditors, at all career levels, from three offices of an anonymous large international public accounting firm.

The results indicated auditors' professional judgments and decisions were not significantly influenced by either organizational or environmental pressure when such pressures were manipulated at high and low levels. However, a significant interaction between the jointly imposed pressure types and their influence on auditors' preference for confirmation methodology was found. Supplemental ANCOVA results show this influence appeared to be driven in large measure by the participants' prior beliefs with respect to the confirmation methodology (statistical) they thought represented a higher level of GAAS compliance. A supplemental analysis of the simple effects provided further insight, revealing that the significant interaction resulted from the low and high organizational cell means, when environmental pressure was high, and the low and high environmental cell means, when organizational pressure was low.

The other two pressure combinations did not reveal a statistically significant difference in the dependent variable cell means.

Auditors were tasked with indicating their degree of preference for a statistical or non-statistical confirmation selection methodology, with the statistical method viewed as qualitatively superior by prior literature (AICPA 1982, Hitzig 2004), as well as by the participants themselves. Discussion with an audit partner at the participating firm confirms that both statistical and non-statistical methods are used to select accounts receivable balances for positive confirmation (an engagement team decision), with the statistical method generally viewed as providing more persuasive audit evidence, though more time consuming in terms of appropriate design and execution.

Drawing from the observations of DeZoort and Lord (1997), a preference for a non-statistical confirmation methodology would be suggestive of a normative influence whereby the auditor seeks to maximize outcome for self-interested purposes (achieve budget and retain the client), while a statistical confirmation methodology preference would suggest an informational influence where the auditor desires to make the most appropriate decision (selecting the qualitatively superior methodology of GAAS compliance). Statistical analyses (Pearson Correlations and independent-samples *t*-tests), not tabulated, showed both experimental manipulations were in the anticipated direction and quantitatively different between their respective high and low levels. Results of the experiment revealed that auditors in each of the four possible pressure combinations all demonstrated a significant preference ($p = .000$ in three of the groups, $p = .041$ in the fourth pairing) for the statistical methodology, as compared to the mid-point of the measurement scale.

This finding should be encouraging to the audit profession, regulators, and the general public as the participating auditors appeared to be able to suppress a normative influence to maximize self-interest, instead demonstrating more of an informational influence by indicating a preference for the qualitatively superior method. It is also consistent with the failure to find support for the hypothesis (H4) that predicted environmental pressure would moderate organizational pressure such that the strongest preference for a non-statistical method would occur in the participant grouping where environmental pressure was low and organizational pressure was high. It was precisely this pressure combination where the normative influence was anticipated to drive the experimental results related to moderation since the participants were under high pressure from the audit firm to achieve budget to avoid losing a client that was important to their career aspirations, while at the same time being informed it was unlikely their engagement would be selected for inspection by the PCAOB.

The results suggest that individual auditors have responded to increased organizational and environmental pressures in an appropriate fashion and have not allowed personal self-interest to outweigh their professional obligations and responsibilities. Further research is needed to determine if the findings are specific to the participating large international public accounting firm, or if they generalize to other public accounting firms. Additional research is also required to determine why a significant interaction was found when organizational and environmental pressures were jointly imposed. The results suggest that participants' prior beliefs influenced the interaction. Further research may clarify this finding or point to other covariates influencing auditors' judgments and decision behaviors.

This experimental study is subject to a number of limitations. Auditors draw upon a wide array of quantitative and qualitative information in determining the scope and extent of audit

procedures that can neither be fully or economically replicated in an experiment designed to be completed in a relatively short period of time. Further, the participating auditors were instructed to complete the experiment independently. In practice, auditors frequently consult with engagement team members and with other firm resources. Participants were asked to provide their professional judgment with respect to the completion of a single required substantive audit task. Additional research is required to determine if these results generalize to other substantive audit procedures, to tests of internal controls, and so forth.

The finding that subjects in each pressure setting exhibited a stronger preference for the use of a statistical methodology than for a non-statistical methodology for confirming accounts receivable balances may in part be a function of the *relative* strength of the organizational and environmental pressure manipulations. The reported strength of organizational and environmental pressures by participants in the high pressure settings were about equal while participants in the low environmental pressure setting reported a higher level of environmental pressure, relative to the reported organizational pressure of participants in the low organizational pressure setting.

The participating firm was a large international public accounting firm and care should be exercised in generalizing any results to a different level of firm. Future research using participants from smaller firms would help address this limitation. It would also be important to determine if auditors from smaller firms, especially firms that are only inspected by the PCAOB once every three years, respond in a similar fashion when exposed to varying degrees of organizational and environmental pressures.

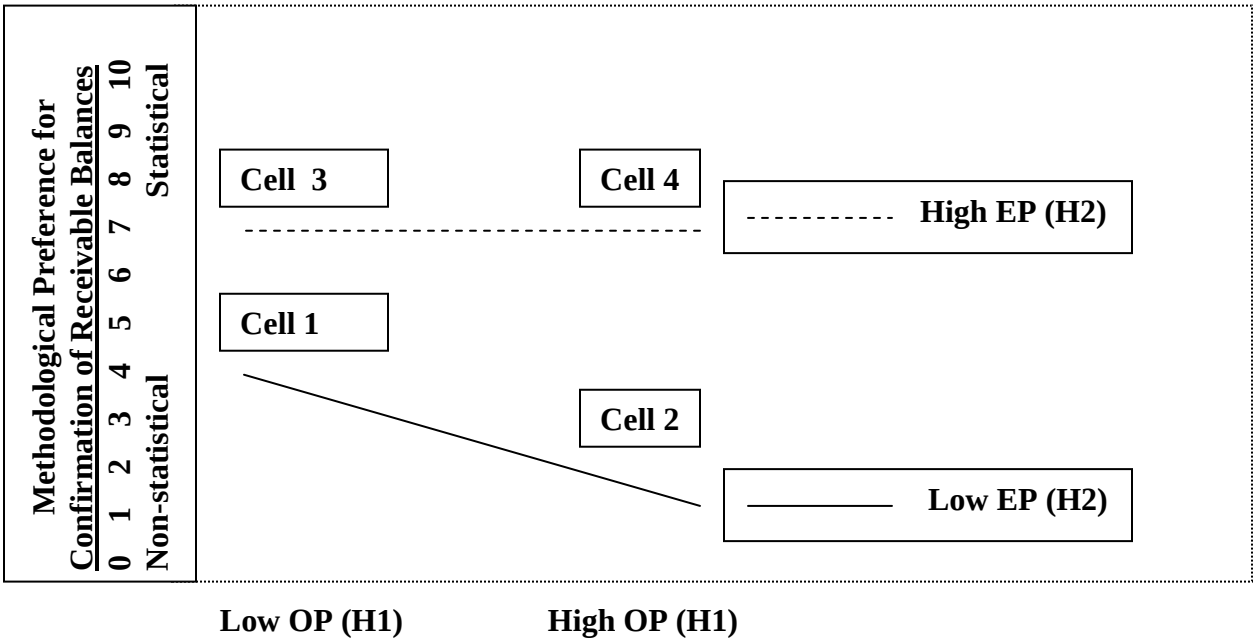

FIGURE 1

Predicted effects of the degree (low or high) of organizational pressure (OP) and environmental pressure (EP) on auditors' preference of methodology (non-statistical or statistical) for confirmation of accounts receivable balances on a hypothetical audit.

This figure depicts the predicted pattern of participants' methodological preference for accounts receivable confirmation for a hypothetical audit engagement when faced with differing levels of competing organizational and environmental pressures. Participants were asked to assess their preference for methodology (non-statistical or statistical) for positive confirmation of accounts receivable balances for an upcoming audit on an 11-point Likert scale from 0 ('Prefer non-statistical') to 10 ('Prefer Statistical'). Organizational pressure is internally imposed as pressure to meet an audit budget and environmental pressure is externally imposed as the likelihood that an engagement will be selected by the PCAOB for public company inspection. This pattern is used to derive the contrast coefficient for the planned contrast to test the moderation prediction in H4. H4 predicts that subjects will exhibit a stronger preference for using a statistical methodology for accounts receivable confirmation when environmental pressure is high, and the strongest preference for using a non-statistical methodology when environmental pressure is low and organization pressure is high. Because the career ramifications to an individual auditor of failing a single PCAOB inspection are more severe than failing to meet budget on a given audit, I expect that environmental pressure will moderate organizational pressure. Thus, the slope of the high environmental pressure line depicted above is flat. Cell references are to the cells in Table 2, Panel C.

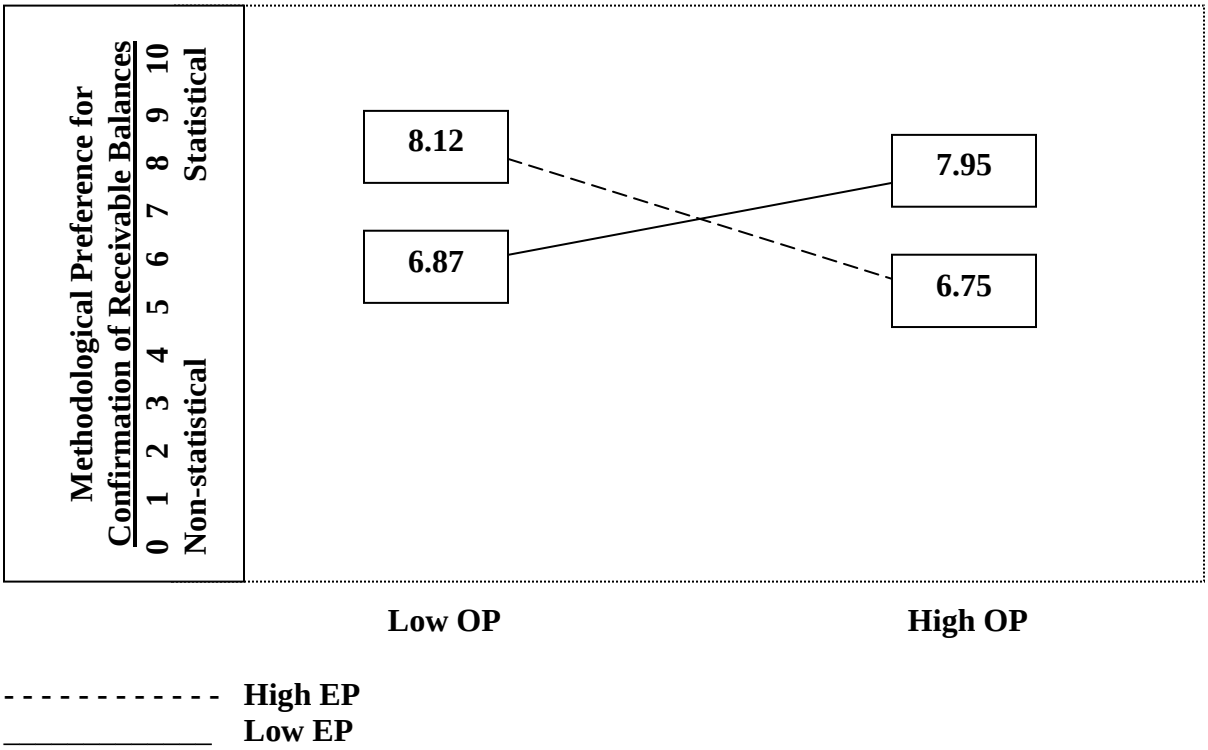

FIGURE 2

Simple effects of the degree (low or high) of organizational pressure (OP) and environmental pressure (EP) on auditors' preference of methodology (non-statistical or statistical) for confirmation of accounts receivable balances on a hypothetical audit.

This figure depicts the simple effects of participants' methodological preference for accounts receivable confirmation for a hypothetical audit engagement when faced with differing levels of competing organizational and environmental pressures. Participants were asked to assess their preference for methodology (non-statistical or statistical) for positive confirmation of accounts receivable balances for an upcoming audit on an 11-point Likert scale from 0 ('Prefer non-statistical') to 10 ('Prefer Statistical'). Organizational pressure is internally imposed as pressure to meet an audit budget and environmental pressure is externally imposed as the likelihood that an engagement will be selected by the PCAOB for public company inspection. The low and high organizational pressure cell means of 8.12 and 6.75, respectively, when environmental pressure was high were significantly different ($t = -1.795$, $p = .076$), suggesting participants preferred the qualitatively superior statistical method when there was lower pressure to bring the engagement in on budget. The low and high environmental pressure cell means of 6.87 and 8.12, respectively, when organizational pressure was low, were also significantly different ($t = 1.9414$, $p = .055$), suggesting participants preferred the qualitatively superior statistical method when there was a greater likelihood the engagement would be selected by the PCAOB for public company inspection. The simple effects analyses for the other two combinations were not significant ($p > .10$).

TABLE 1
Demographic Information of Participating Auditors

Respondents' Title:	**N = 93**
- Partner (13 %)	12
- Manager (45 %)	42
- Senior (28 %)	26
- Staff (14 %)	13
Total	93
	Mean
Professional Experience:	**(s.d.)**
Years in current level (ranging from 0 to 20 years)	2.63
	(3.34)
Years with current firm (ranging from 0 to 25 years)	5.91
	(5.07)
Total years of auditing experience (ranging from 0 to 25 years)	6.87
	(5.48)
Total years of full-time work experience (ranging from 0 to 34 years)	8.10
	(6.31)
Relevant Background and Exposure to Case Materials:	**Percentages**
Mean percentage of respondents with publicly traded companies audit experience	62 %
Mean percentage of respondents' engagements using statistical sampling	74 %
Mean percentage of respondents' engagements using non-statistical sampling	38 %
Mean percentage of respondents' engagements using positive confirmations	88 %
Percentage of respondents with CPA designation	82 %
Percentage prior reviewee for peer or practice review or PCAOB inspection	43 %
Percentage prior reviewer for peer or practice review	20 %

TABLE 2
Treatment Means, Results of Testing Hypotheses H1 Through H4, and Supplemental Analyses

Panel A: Treatment means (standard deviation) – methodological preference (statistical versus non-statistical) for positive confirmation of accounts receivable balances[a]

	Organizational Pressure (OP)[b]		
Environmental Pressure (EP)[c]	Low	High	Marginal Means
Low	6.87 (2.45)	7.95 (2.15)	7.33 (2.37)
High	8.12 (1.92)	6.75 (3.13)	7.59 (2.52)
Marginal Means	7.44 (2.29)	7.45 (2.64)	7.44 (2.43)

Panel B: Between-Subjects ANOVA

Source	*df*	Mean Square	F-statistic	p-value
OP (H1)	1	.439	.077	.782
EP (H2)	1	.013	.002	.962
OP X EP (H4)	1	33.324	5.861	.018
Residual	89	5.686		

Panel C: Planned Means Comparison (Methodological Preference versus Mid-point)

Hypothesis (cell #)	N	Mean	Mid-point	Difference	t-statistic	p-value[d]
(H3)						
Low OP, Low EP (Cell 1)	30	6.87	5.00	1.87	4.18	.000
Low OP, High EP (Cell 3)	25	8.12	5.00	3.12	8.12	.000
High OP, Low EP (Cell 2)	22	7.95	5.00	2.95	6.45	.000
High OP, High EP (Cell 4)	16	6.75	5.00	1.75	2.24	.041
All Cells	93	7.44	5.00	2.44	9.71	.000

Panel D: Planned Comparison

Hypothesis	Comparison (Panel C)	t-statistic	p-value[d]
(H4)	[Cell 1 – Cell 2] > [Cell 3 – Cell 4]	.048	.962

Panel E: Prior Beliefs[e]

Belief	Mean	(s.d.)
1. Higher Level of GAAS Compliance	5.69	1.11
2. Higher Likelihood of Favorable Inspection	5.58	1.41
3. Budget Versus Inspection Performance	5.74	1.19

TABLE 2 (continued)

Panel F: Supplemental Analysis – ANCOVA Source	*df*	Mean Square	F-statistic	p-value
OP	1	4.531	.921	.340
EP	1	.242	.049	.825
OP X EP	1	9.320	1.894	.172
Prior Belief 1[e]	1	50.187	10.197	.002
Prior Belief 2[e]	1	1.918	.390	.534
Prior Belief 3[e]	1	3.623	.736	.393
Residual	86	4.922		

Notes:

[a] Participants were asked to assess their preference for methodology (non-statistical or statistical) for positive confirmation of accounts receivable balances for an upcoming audit on an 11-point Likert scale ranging from 0 ('Prefer non-statistical') to 10 ('Prefer statistical').

[b] Participants receiving the low organizational pressure treatment read "it is not likely an overrun on this year's audit would cause your firm to terminate the ASA audit relationship" while those receiving the high organizational pressure treatment read "it is likely an overrun . . .".

[c] Participants receiving the low environmental pressure treatment read "in the local office it is considered unlikely the ASA engagement will be selected by PCAOB for inspection" while those receiving the high environmental pressure treatment read "in the local office it is considered likely . . .".

[d] Results are one-tailed, unequal variances assumed.

[e] Participants were asked to indicate their beliefs based on their actual auditing experience for the following three items (all measured on a 7-point Likert scale):

(i) Method of confirmation they believe represents a higher level of compliance with Generally Accepted Auditing Standards ranging from 1 ('Non-statistical') to 7 ('Statistical'),

(ii) Method of confirmation they believe results in a higher likelihood of receiving a favorable PCAOB inspection ranging from 1 ('Non-statistical') to 7 ('Statistical'), and

(iii) Relative importance of achieving budget on an audit engagement or maximizing the likelihood of a favorably PCAOB inspection ranging from 1 ('Budget') to 7 ('Inspection').

APPENDIX A

INSTRUCTIONS: Carefully read the information on Pages 1 and 2 relating to one of your audit clients and then respond to the requested information on Pages 3 through 6.

BACKGROUND

Assume you are the audit engagement manager of Athletic Spirit Affiliates (ASA), a manufacturer of uniforms for cheerleading squads. ASA is a large publicly traded enterprise, has been an important client of the local office for a number of years, and is a client you spend more than half of your time auditing. You have invested a lot of time and effort to understand ASA's industry and risks and you intend to keep this client as you position yourself for promotion. Realizations on past ASA audits have been marginal. Your firm has never considered ending the ASA audit relationship as the client has historically provided your firm a substantial amount of consulting projects with favorable realizations.

LOST CONSULTING WORK

Following enactment of Sarbanes-Oxley, ASA recently shifted all consulting work to a competitor. This consulting work was significant to the local office with higher realizations than the audit work. The loss of all consulting work has increased pressure to meet this year's audit budget. Upcoming audit fees were arranged following loss of the consulting work and it is unlikely a budget overrun, if any, could be collected. **Given the importance of the consulting work lost, it is likely an overrun on this year's audit would cause your firm to terminate the ASA audit relationship.**

PCAOB PUBLIC COMPANY INSPECTIONS

The Public Company Accounting Oversight Board (PCAOB) might select the upcoming ASA audit for inspection. Engagements selected will be determined by characteristics including client profile and risk characteristics and engagements to be inspected are not within the control of your firm. Your managing partner believes it is likely your office will be selected for public company inspection. **Although ASA's client profile and risk characteristics are average for your firm, in the local office it is considered likely the ASA engagement will be selected by PCAOB for inspection.**

AUDIT PLANNING

You are planning the upcoming ASA audit and must decide how to select a sample of accounts receivable balances for positive confirmation. Accounts receivable have been and continue to be material to ASA's balance sheet, past confirmation efforts have been effective with good response rates, and combined inherent risk and control risk is assessed as moderate. The composition of receivables is relatively unchanged from past audits. On occasion, audit adjustments have been recorded for receivable balance misstatements. No discrepancies with ASA's accounts receivables were identified in any of the three quarterly reviews conducted earlier this year.

BUDGET CONSIDERATIONS

It is your firm's policy to send positive confirmations under the circumstances described. The only way to meet budget on the upcoming ASA audit is through the use of a non-statistical method to select a sample of accounts receivable balances for confirmation. You anticipate all other areas of the audit will come in substantially in line with the time and fee budget. You must now choose a method for selecting a sample of receivable balances for positive confirmation.

CONFIRMATION METHODS

Non-Statistical Method

The use of a non-statistical method to confirm receivables will result in meeting the audit budget. If misstatements are identified as a result of the confirmation process using a non-statistical method, the ability to project identified misstatements to the receivable population as a whole is historically not as accurate as it would be if a statistical method had been employed.

Statistical Method

The use of a statistical method to confirm receivables will result in a budget overrun, approximating 10 percent of the audit budget. If misstatements are identified as a result of the confirmation process using a statistical method, the ability to project identified misstatements to the receivable population as a whole is historically much more accurate than it would be if a non-statistical method had been employed.

On the next page, please provide the requested information with respect to your assumed role of engagement manager for the ASA audit.

You must now choose a method for confirming receivable balances. Please indicate the type of methodology (non-statistical or statistical) you would prefer for selecting a sample of accounts receivable balances for positive confirmation on the upcoming ASA audit. Lower numbers indicate you prefer a non-statistical method while higher numbers indicate you prefer a statistical method (circle one number on the scale provided):

0	1	2	3	4	**5**	6	7	8	9	**10**

Prefer non-statistical **Prefer statistical**

In the space provided below, please list as many factors you can think of that influenced your choice of method for confirming receivable balances on the ASA audit engagement:

Please answer the two questions on the next page.

Please answer the following two questions with respect to your assumed role of engagement manager for the ASA audit:

1. In the case material background you read, how likely was it that a budget overrun would result in loss of the client? Please circle one number on the scale provided:

1	2	3	**4**	5	6	**7**
Not Likely						**Likely**

2. In the case material background you read, how likely was it that the ASA audit would be inspected by the PCAOB? Please circle one number on the scale provided:

1	2	3	**4**	5	6	**7**
Not Likely						**Likely**

Please complete the demographic information on the next page.

Please provide the following information:

Your current level in your firm (check one): ___Partner ___Manager ___Senior ___Staff

Years in current level: _____years.

Years with current firm: ____years

Total number of years of auditing experience: _____years

Years auditing with a local firm: _____years

Years auditing with a national firm: _____years

Years auditing with an international firm: _____years

Number of years of full-time work experience: _____years

Percent of your auditing experience related to publicly traded companies:_____%

Percent of your engagements using statistical sampling: _____%

Percent of your engagements using non-statistical sampling: _____%

Percent of your engagements using positive form of receivables confirmation: ____%

Percent of your engagements using negative form of receivables confirmation: ____%

Have you ever been the ***reviewee*** for peer or practice review or public company inspection? _____If yes, how many engagements? _____ engagements

Have you ever been the ***reviewer*** for peer or practice review? _____If yes, how many engagements? _____engagements

Your CPA status: _____CPA _____Not a CPA

Please answer the three questions on the next page.

Please answer the following questions with respect to your actual auditing experience. Your responses should be based on your own experience and should not be related to the case materials you previously read:

1. Which method of confirming receivable balances do you believe represents a higher level of compliance with Generally Accepted Auditing Standards (GAAS)? Lower numbers indicate you believe a non-statistical method is more GAAS compliant while higher numbers indicate you believe a statistical method is more GAAS compliant. Please circle one number on the scale provided:

1	2	3	**4**	5	6	**7**
Non-Statistical						**Statistical**

2. Which method of confirming receivable balances do you believe results in a higher likelihood of receiving a favorable PCAOB inspection? Lower numbers indicate you believe a non-statistical method increases likelihood of a favorable inspection while higher numbers indicate you believe a statistical method increases likelihood of a favorable inspection. Please circle one number on the scale provided:

1	2	3	**4**	5	6	**7**
Non-Statistical						**Statistical**

3. What do you believe is most important on an audit engagement: Bringing the engagement in on budget or maximizing the likelihood of a favorable inspection by the PCAOB? Lower numbers indicate you place more importance on achieving budget while higher numbers indicate you place more importance on receiving a favorable inspection. Please circle one number on the scale provided:

1	2	3	**4**	5	6	**7**
Budget						**Inspection**

Thank you for participating in this research. Please return this completed survey instrument in the postage paid envelope provided.

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Endnotes

[1] The average cost of being public for registrants with less than $1 billion in revenues increased 130 percent ($1.6 million) since the passage of SOX through 2003 (Foley & Lardner LLP 2004), and an additional 33 percent ($851,000) through 2004 (Foley & Lardner LLP 2005). Compliance with Section 404 of SOX (internal controls assessment), which began to phase in for 2004 audits, is cited as the largest driver. The average increase in audit fees for firms comprising the S&P 500 increased 27 percent from 2001 to 2002, 24 percent from 2002 to 2003 (Foley & Lardner LLP 2004), and 55 percent from 2003 to 2004 (Foley & Lardner LLP 2005).

[2] As of August 10, 2006, 1,685 firms have registered and been approved by the PCAOB (PCAOB 2006).

[3] Full inspections commenced in 2004 and began to be publicly released in 2005. The Big 4 public accounting firms, [Deloitte & Touche LLP (DT), Ernst & Young LLP (EY), KPMG LLP (KPMG), and PricewaterhouseCoopers LLP (PwC)], volunteered for limited public company inspections by the PCAOB in 2003. Then PCAOB Chairman McDonough said significant accounting and auditing issues were uncovered in these initial reviews. The PCAOB plans to examine five percent of 2004 audits by the Big 4 and 15 percent of audits by the next four largest firms (Grant Thornton, BDO Seidman, Crowe Chizek & Co., and McGladrey & Pullen). Approximately 650 audits will be subject to public company inspection for the first year of full inspections (AccountingWEB 2004a).

[4] In 2003, for the first time in more than a decade, the Big 4 firms lost more public company audit clients than they acquired. PwC, EY, DT, and KPMG had net audit client losses of 91, 76, 65, and 51, respectively. While some of these losses moved to another Big 4 firm, smaller national firms acquired 21 percent of the losses and regional and local firms collectively acquired

34 percent of the client losses (AccountingWEB 2004b). The trend continued in 2004 with the Big 4 firms combining for 400 net audit client losses (AccountingWEB 2005b).

[5] Ninety six percent of public accounting firms reported using some form of audit sampling, with 39 percent using statistical sampling and 94 percent using non-statistical sampling (Hitzig 1995). Most of the firms reported using audit sampling for both controls testing and substantive audit procedures. Accounts receivable was the most common substantive area (79 percent), followed closely by inventories (74 percent) (Hitzig 1995). Other results show non-statistical procedures are used in 85 percent of sampling applications. The most common non-statistical form is known as haphazard selection. Samples chosen using haphazard techniques were influenced by a number of physical characteristics of population elements, contrary to the guidance provided by AICPA literature (Hall et al. 2000).

[6] Public version reports on the 2003 limited inspections of DT, EY, KPMG, and PwC were posted on the PCAOB website in August 2004 (PCAOB 2004). Subsequent reports on full inspections of registered firms are periodically released, commencing in January 2005 (PCAOB 2005a).

[7] Two main types of oversight review were conducted by the auditing profession prior to the mandated external oversight embodied in SOX. Practice review involved true internal oversight, within a firm, whereby auditors from different offices and geographic regions, would review audit quality and compliance with firm and professional standards of other offices. Peer review, on the other hand, involved the review of one audit firm by personnel employed by a separate audit firm. Peer review may be viewed as both an internal pressure, since it was conducted by auditors *within* the profession, and as an external pressure, since the reviewers were employed by an *external* firm.

[8] Arguably, this is an *intended* consequence of SOX and examines the main effect of increased external pressure on auditors' selection of qualitatively different methods of selecting accounts receivable balances for confirmation. The next section examines the influence of competing organizational and environmental pressures.

[9] Confirmed through discussions with practicing auditors.

[10] In May 2005, the PCAOB instituted the first disciplinary actions related to public company inspections resulting in the revocation of a firms' registration, the barring of a managing partner from associating with any registered firm, and the censure of two former partners of a firm (PCAOB 2005b). Through August 31, 2006, the PCAOB had instituted disciplinary proceedings against five registered firms and certain of their personnel.

[11] Analysis of covariance (ANCOVA) allows the inclusion of other independent variables to improve the precision of an experimental instrument. These covariates may eliminate other possible sources of variance in the dependent variable related to factors not controllable by the researcher (Lattin et al. 2003). The ANCOVA eliminates noise due to imperfect randomization or lack of equivalency between groups due to sampling error.