

# **The Effects of Auditor Rotation and Client Pressure on Proposed Audit Adjustments**

Richard C. Hatfield  
Assistant Professor of Accounting  
University of Alabama

Scott B. Jackson  
Assistant Professor of Accounting  
University of South Carolina

Scott D. Vandervelde  
Assistant Professor of Accounting  
University of South Carolina

October 2007

We thank Hollis Ashbaugh-Skaife, Joe Brazel, Michael Cipriano, Tim Douppnik, Audrey Gramling, Noah Jackson, Al Leitch, Kelvin Liu, Elaine Mauldin, Terence Pitre, Brad Tuttle, Rich White, YiJing Wu, and workshop participants at the University of South Carolina for helpful comments.

## **The Effects of Auditor Rotation and Client Pressure on Proposed Audit Adjustments**

**SUMMARY:** In the wake of recent accounting and auditing scandals throughout the world, the issue of audit firm versus audit partner rotation has become the subject of debate among politicians, business leaders, and regulators. In connection with this debate, questions have also been raised about the ability of auditors to withstand client pressure in a significantly changed regulatory environment. This study draws upon research on escalation of commitment (Staw 1976) and motivated reasoning (Kunda 1990) to formulate and test hypotheses about the effects of auditor rotation and client pressure on the magnitude of proposed audit adjustments. Consistent with our theory, the results of an experiment reveal that auditors in the firm rotation and partner rotation conditions propose audit adjustments that are insignificantly different from one another but which are significantly larger (i.e., more income decreasing and asset decreasing) than those proposed by auditors in the no rotation condition (i.e., continuing auditors). This finding not only supports the view that audit partner rotation may produce many of the benefits of audit firm rotation without the attendant costs, but it highlights the need to conduct research on audit firm versus audit partner rotation before enacting potentially costly and unnecessary reforms (Nelson 2006). Additionally, while we find that client pressure significantly reduces the magnitude of proposed audit adjustments, the predicted moderating interaction between auditor rotation and client pressure was not significant. This finding suggests that neither partner rotation nor firm rotation may eliminate the effects of client pressure, which is consistent with concerns expressed by Moore et al. (2006) that recent accounting and auditing reforms may not be adequate.

**Keywords:** Audit adjustments; Auditor rotation; Firm rotation; Auditor rotation; Client pressure.

## INTRODUCTION

In response to accounting and auditing scandals throughout the world (e.g., Adecco in Switzerland, Ahold in The Netherlands, Enron in the United States, and Parmalat in Italy), various regulatory organizations have taken steps to enhance auditor independence and audit quality (e.g., European Union, International Organization of Securities Commissions, Securities and Exchange Commission). In connection with deliberations about how to achieve these objectives, regulatory organizations have discussed the merits and demerits of mandatory audit firm rotation (Cameran et al. 2005).<sup>1</sup> At the same time, there has been some speculation that auditors have become less susceptible to client pressure because of new regulations (i.e., mandatory audit partner rotation) and intensified public scrutiny (Nelson 2006).

This study experimentally examines the effects of auditor rotation and client pressure on one of the most important decisions auditors make—their decisions about the magnitude of proposed audit adjustments.<sup>2</sup> Accordingly, this study provides empirical evidence relevant to the debate about whether one of the benefits of audit firm rotation can be obtained by audit partner rotation, which is a less costly and less disruptive regulatory mechanism (AICPA 1978, 1992; GAO 2004). While Moore et al. (2006) contend that mandatory audit firm rotation is necessary to curtail the intrusion of unconscious bias on the judgments of incumbent auditors, Nelson (2006) contends that audit firm rotation engenders its own set of problems (discussed below) which may outweigh the potential benefits.<sup>3</sup> Moreover, while Moore et al. (2006) contend that current auditing reforms are clearly insufficient, Nelson (2006) contends that Moore et al. (2006)

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<sup>1</sup> In some countries, such as Brazil, India, Italy, Singapore, and South Korea, there is a legal requirement to rotate auditors after a specified number of years. However, mandatory audit firm rotation is not required in most countries.

<sup>2</sup> In this study we define client pressure as a client who both opposes a particular adjustment and is significant enough to the auditor to incent them to adopt the client position.

<sup>3</sup> Others have argued that the only effective way to prevent accounting scandals is to eliminate the relationship between the auditor and the management of the company to be audited (e.g., Ronen 2002).

do not sufficiently consider how recent reforms (or potential incremental changes to existing auditing standards, such as limiting auditors' ability to waive detected misstatements) may impact the incentives and actions of both auditors and their clients.

The differing views of Moore et al. (2006) and Nelson (2006) about the effects of audit firm rotation versus audit partner rotation highlight the importance of empirically examining this issue.<sup>4</sup> Unlike prior research (e.g., Dopuch et al. 2001; Wang and Tuttle 2007), we examine the effect of rotation in the period following rotation rather than in the periods prior to that event. Examining the effect of rotation in the period following the rotation allows us to examine the effect of rotation on proposed audit adjustments in one of the period often contemplated by regulators. This is an important feature of our study because one of the primary motivating factors for the partner rotation provision in the Sarbanes-Oxley Act of 2002 (SOX) is to have a "fresh set of eyes" examine auditees' financial statements. Given that the "fresh set of eyes" occurs *after* rotation, it makes sense for researchers to explore the effects of partner rotation versus audit firm rotation after rotation occurs.

We also provide empirical evidence relevant to the debate about whether client pressure has a significant affect on auditor judgments in alternative auditor rotation regimes. Moore et al. (2006) suggest that conflicts of interest inherent in auditor-client relationships will cause auditors to unknowingly slant their judgments in favor of their clients, even in the presence of recent auditing reforms. On the other hand, Nelson (2006) contends that recent reforms, including audit partner rotation, may improve auditors' ability to resist client pressure. Kadous et al. (2003) find that auditors are biased in favor of client-preferred treatments. The competing views in the literature raise questions about whether rotation produces one of its intended benefits, which is to

mitigate any bond that forms between the audit firm and the client over time as such bonds may lead to auditors succumbing to client preferences. Our study explores whether rotation helps to reduce the effect of client pressure.

The theories upon which our hypotheses are based are escalation of commitment (Arkes and Blumer 1985; Bazerman et al. 1983; Bowen 1987; Brockner 1992; Staw 1976 and 1981) and motivated reasoning (Kadous et al. 2003; Kunda 1990). These theories suggest that auditor rotation and client pressure may affect the magnitude of proposed audit adjustments by influencing whether auditors allow a prior period waived audit adjustment to rollover into the current period and offset a current period proposed audit adjustment.<sup>5</sup> The professional auditing literature in most countries either (i) permits auditors to *consider or ignore* the current period effects of prior period waived audit adjustments or (ii) is silent about this matter. However, the leeway afforded to auditors in this matter may result in different conclusions about the magnitude of proposed audit adjustments.<sup>6</sup>

Our experiment reveals that auditors in the audit firm rotation and partner rotation conditions propose significantly larger audit adjustments (i.e., adjustments that are more income and asset decreasing) than auditors in the no rotation condition. Moreover, the magnitude of proposed audit adjustments in the firm rotation and partner rotation conditions are insignificantly different from one another. The finding that auditors who personally waive an immaterial audit

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<sup>4</sup> Verrecchia (2003) argues that when management is intent on committing fraud, there is little that can be done to prevent such behavior. The experimental setting in this study contemplates a situation that is inherently judgmental and, in our view, does not involve fraudulent behavior.

<sup>5</sup> The phrase “rollover” refers to the notion that waived audit adjustments in one period influence earnings in a subsequent period.

<sup>6</sup> Nelson et al. (2005) examine the two quantitative materiality approaches used in practice. The income statement approach (also referred to as the “current period” or “rollover” approach) focuses on the audit adjustment that is necessary to correctly state net income. Under this approach, the effect of prior period waived audit adjustments offset current period proposed audit adjustments (assuming that the audit adjustments in both periods are income decreasing). The balance sheet approach (also referred to as the “cumulative” or “iron curtain” approach) focuses on the audit adjustment that is necessary to correctly state accounts on the balance sheet. Under this

adjustment in the prior year (i.e., the auditors assigned to the no rotation condition) propose significantly smaller current year audit adjustments is consistent with the concern expressed by Bazerman et al. (2002, p. 100) that continuing auditors may “...unknowingly adapt over time to small imperfections in a client’s financial practices.”

The finding that auditors’ judgments in the audit firm rotation and audit partner rotation conditions are insignificantly different from one another is noteworthy in light of anecdotal evidence indicating that audit firm rotation (i) is costly to both auditors and their clients (AICPA 1978, 1992; GAO 2004), (ii) results in the loss of institutional knowledge gained by incumbent auditors (AICPA 1992; GAO 2004; Zeff 2003), (iii) potentially increases the likelihood of audit failure in the years immediately following audit firm rotation (AICPA 1992; Stice 1991; St. Pierre and Anderson 1984), and (iv) may impede auditors’ willingness to make investments in specialized industry knowledge (Catanach and Walker 1999). Although we recognize that there are many dimensions of an audit that might be influenced by rotation, our results support the view that audit partner rotation may produce some of the benefits of audit firm rotation without the attendant negative consequences.

The experiment also reveals that auditors in the high pressure condition propose significantly smaller audit adjustments than the auditors in the low pressure condition. This result is consistent with research on motivated reasoning, which suggests that individuals search for, interpret, and process information in a way that enables them to arrive at client preferred yet professionally justifiable conclusions (Kunda 1990). However, the interaction between auditor rotation and client pressure is not significant, suggesting that neither firm rotation nor partner rotation eliminate the effects of client pressure on proposed audit adjustments.

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approach, the effect of prior period waived audit adjustments *do not* offset current period proposed audit adjustments.

The remainder of this paper proceeds as follows. In the next section, we develop our hypotheses that this study experimentally tests. We then discuss the experiment and the results followed by a summary of the results and a discussion of certain limitations.

## **HYPOTHESES DEVELOPMENT**

### **Auditor Rotation**

Currently the majority of countries do not require audit firm rotation after a specified number of years, and most regulatory bodies throughout the world favor that position (Cameran et al. 2005). Audit firm rotation is generally viewed as being costly and disruptive relative to the alternative of audit partner rotation. For example, in the United States, the General Accounting Office (GAO) studied the issue of mandatory audit firm rotation. This study succinctly reflects the consensus views of the accounting profession (GAO 2004, p. 38), business leaders (GAO 2004, p. 85), and audit committee members (GAO 2004, p. 100):

Mandatory rotation of lead and reviewing partners sufficiently achieves the intended benefits of the “fresh look” and is less costly than mandatory audit firm rotation.

An important assumption underlying this view is that audit firm rotation and audit partner rotation are substitute regulatory mechanisms, although there is no empirical evidence directly examining this matter.

We examine the effects of auditor rotation on the magnitude of proposed audit adjustments in a setting in which escalation behavior may influence audit judgments. Escalation of commitment refers to the tendency of individuals to allocate additional resources (i.e., money, time, effort, emotion, and/or self-identity) to a failed or failing course of action (Brockner 1992; Staw 1976 and 1981). The most commonly advanced reason why individuals engage in this behavior is to maintain the illusion that they have not erred in making a past decision (Bowen 1987; Brockner 1992), which could include past quantitatively immaterial adjustments that have

grown into larger quantitatively or qualitatively material adjustments. With respect to the issue of escalation in audit settings, Bazerman et al. (2002, p. 100) state the following:

...an auditor's biases may lead her to unknowingly adapt over time to small imperfections in a client's financial practices. Eventually, though, the sum of these small judgments may become large and she may recognize the long-standing bias. But at that point, correcting the bias may require admitting prior errors.

Escalation of commitment reflects the notion that when an individual is personally involved in making an initial decision, he/she is more likely to make subsequent decisions that are influenced by his/her prior decisions (Arkes and Blumer 1985; Bazerman et al. 1983; Bowen 1987; Staw 1976 and 1981). For example, Bazerman et al. (1983) find that when individuals make an initial decision, they are significantly more likely to escalate commitment to a project than individuals who were not involved in the initial decision.

Applying the findings of the escalation literature to the audit context suggests that auditors who were involved in the decision to waive an immaterial adjustment in a prior period (i.e., continuing auditors) may feel compelled to permit that waived audit adjustment to offset a proposed audit adjustment in the current period.<sup>7</sup> On the other hand, auditors who were not involved in the decision to waive an immaterial audit adjustment in a prior period (i.e., auditors who rotate onto the audit) have no reason to be committed to allowing the waived audit adjustment from the prior period to offset a proposed audit adjustment in the current period. Thus, continuing auditors may be more likely to consider the effect of waived audit adjustments rolling over into the current year's income statement, while auditors who rotate onto an audit

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<sup>7</sup> The professional auditing literature permits auditors to waive *immaterial* audit adjustments (Arens et al. 2005), although we acknowledge that auditors are certainly much more cautious about doing so in the post-SOX environment. In the design of our experiment, there is a single immaterial audit adjustment in the prior year that was waived. The waived audit adjustment is immaterial relative to either the current year materiality threshold or the prior year materiality threshold.

engagement are more likely to disregard the effect of waived audit adjustments rolling over into the current year's income statement.

The notion that audit adjustments engender auditor discretion is broadly consistent with prior research. The results of Braun (2001), Nelson et al. (2005), and Wright and Wright (1997) reveal that audit adjustments are sometimes waived by auditors, including material audit adjustments. Libby and Kinney (2000) find that audit managers believe that the correction of a quantitatively immaterial (but qualitatively material) financial statement error is less likely when the correction causes a missed forecast, even in the presence of mandated audit communication.

Similarly, the notion that waived prior period audit adjustments will influence current period proposed audit adjustments is indirectly supported by research on the effect of auditors' prior involvement in an audit task. Tan (1995) finds that auditors who have prior involvement in an audit task (i.e., they generated an audit conclusion in the prior year) recall more conclusion-consistent facts than conclusion-inconsistent facts, compared to auditors who have no prior involvement in the audit task. This finding suggests that, in the context of our study, auditors who waived an immaterial audit adjustment in the prior year may focus their attention on current period judgments that are consistent with their prior period judgments. Thus, Tan's (1995) findings suggest that firm rotation and partner rotation, when compared to no rotation, may create an environment where current year decisions are more divorced from prior year decisions, which is consistent with the previous discussion of escalation of commitment.

Accordingly, we expect auditors who personally waived the audit adjustment in the prior year (i.e., auditors in the no rotation condition) to propose smaller audit adjustments than auditors who had no involvement in waiving the audit adjustment in the prior year (i.e., auditors in the partner rotation and firm rotation conditions). Hypotheses 1a and 1b are as follows:

**Hypothesis 1a:** When there is an unbooked audit adjustment in the prior year that rolls over into the current year, auditors who personally waived the adjustment in the prior year (i.e., auditors in the no rotation condition) will propose smaller current year audit adjustments than auditors who rotate onto one of their firm's continuing audit clients (i.e., auditors in the partner rotation condition).

**Hypothesis 1b:** When there is an unbooked audit adjustment in the prior year that rolls over into the current year, auditors who personally waived the adjustment in the prior year (i.e., auditors in the no rotation condition) will propose smaller current year audit adjustments than auditors whose firm was previously not involved in the audit (i.e., auditors in the firm rotation condition).

Research also suggests that when an individual is not involved in the initial decision related to a course of action, his/her tendency to escalate commitment is either eliminated or significantly reduced (Bowen 1987; Brockner 1992; Staw 1976). Auditors in the partner rotation condition and firm rotation condition have no direct involvement in the decision to waive an immaterial audit adjustment in the prior period, so they may not be committed to allowing the waived audit adjustment in the prior period to offset the proposed audit adjustment in the current period.<sup>8</sup> Hypothesis 1c is as follows:

**Hypothesis 1c:** When there is an unbooked audit adjustment in the prior year that rolls over into the current year, auditors whose firm was previously not involved in the audit (i.e., auditors in the firm rotation condition) will propose current year audit adjustments that are insignificantly different from auditors who rotate onto one of their firm's continuing audit clients (i.e., auditors in the partner rotation condition).

## **Client Pressure**

Many of the recent accounting and auditing reforms seek to (i) reduce the ability of clients to pressure auditors, (ii) increase auditors' ability to withstand client pressure, and/or (iii) insulate auditors from client pressure (Nelson 2006). For example, Section 303 of SOX directed the Securities and Exchange Commission (SEC) to adopt rules that limit officers and directors

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<sup>8</sup> We recognize that there may be reasons to expect differences between the magnitude of audit adjustments proposed by auditors in the firm rotation and partner rotation conditions. However, on balance we believe that theory (i.e., escalation of commitment) and anecdotal evidence (i.e., AICPA 1978, 1992; GAO 2004) tend to suggest that any differences will be insignificant.

ability to pressure or coerce auditors. To date, little evidence has been provided about whether SOX has succeeded in reducing client pressure, particularly in the context of proposed audit adjustments.

Client pressure may affect auditor judgments by motivating auditors to search for evidence that supports a client preferred outcome. Motivated reasoning refers to the tendency of individuals to search for, interpret, and process information in a way that enables them to arrive at a desired conclusion (Kunda 1990). In a review of research on motivated reasoning, Kunda (1990, p. 493) states that “directional goals have been shown to affect people’s attitudes, beliefs, and inferential strategies in a variety of domains and in studies conducted by numerous researchers in many paradigms.” For example, economic considerations may motivate auditors to adopt directional goals that are consistent with the desires of a client. However, the ability of individuals to arrive at preferred conclusions is constrained by their ability to find seemingly justifiable reasons for those conclusions.

Consistent with motivated reasoning, prior audit research suggests that auditors may exploit the ambiguity inherent in accounting authority to justify client preferred treatments (Hackenbrack and Nelson 1996; Ng and Tan 2003; Salterio and Koonce 1997). In our context, motivated reasoning suggests that auditors may use the flexibility inherent in auditing standards to reach conclusions that are professionally justifiable and consistent with client preferences. In support of this view, Kadous et al. (2003) find that auditors often make judgments consistent with client-preferred treatments. Thus, when auditors evaluate a judgmentally determined audit adjustment, we expect that the presence (absence) of client pressure may lead them to propose smaller (larger) audit adjustments.

**Hypothesis 2:** Auditors will propose significantly smaller audit adjustments in the presence of client pressure than in the absence of client pressure.

## **Rotation by Client Pressure Interaction**

Given our expectation that auditors may be willing to yield to client pressure, we explore whether the effect of client pressure is mitigated by rotation. Recall that motivated reasoning necessitates a rationale for reaching the client preferred conclusion. In the current context, this rationale is provided by a commitment to (or a desire to be consistent with) a prior period judgment. However, by eliminating auditors' attachment to waived prior period audit adjustments through rotation, we expect that audit partner and audit firm rotation will moderate the effect of client pressure.

**Hypothesis 3:** Client pressure has a larger downward effect on the magnitude of proposed audit adjustments when the auditor was personally involved in the previous decision to waive a proposed audit adjustment than when the auditor was not personally involved in that decision.

## **EXPERIMENT**

### **Participants and Demographic Information**

We mailed an instrument and cover letter to 1,200 audit professionals. This mailing occurred in August 2004, well after accounting and auditing reforms were widely known and implemented in the country in which the auditors practice (the United States). The addresses for our mailing were obtained from a state board of accountancy and consisted of practicing audit professionals who have managerial responsibilities on audit engagements. Of the 1,200 instruments mailed out, 208 instruments were returned. Of the 208 returned instruments, 18 were eliminated from the sample because they were incomplete. Of the resulting 190 instruments, 33 were eliminated from the sample because the participants indicated that they either provide no input into decisions related to proposed audit adjustments or do not currently participate in the conduct of audits. Finally, of the resulting 157 instruments, two were eliminated because the

participants provided a response to the dependent variable which indicated that they misunderstood information contained in the instrument.<sup>9</sup> Thus, the sample used in our statistical analyses consists of 155 practicing audit professionals.<sup>10</sup>

Table 1 provides demographic and descriptive information. The participants consist of 77 partners (50 percent of the sample), 42 managers (28 percent of the sample), 20 seniors (13 percent of the sample), and 14 who hold other titles (9 percent of the sample).<sup>11</sup> Participants in this study indicate that they (i) have significant professional audit experience (second item in Table 1), (ii) have significant experience making materiality decisions, and (iii) provide significant input into audit adjustment decisions.<sup>12</sup>

[Insert Table 1 about here]

### **Experimental Materials, Design, and Manipulation Checks**

The experimental materials place participants in a leadership and decision-making position on an audit engagement of a hypothetical manufacturing firm. Participants are provided with information about the prior year audit, which includes client background information, selected client financial data, information about a waived audit adjustment, and the materiality

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<sup>9</sup> The experimental task requires participants to make a judgment about the magnitude of a proposed audit adjustment in the current year. Two participants provided a response of \$48,000 to this question despite the fact that the expected understatement was \$30,000. It appears that these two participants viewed the unbooked prior year audit adjustment of \$18,000, which rolls over into the current year, as adding to, rather than offsetting the current year audit adjustment. Because these two responses do not appear to be representative of the judgments likely to be expressed by practicing auditors, we have excluded them from our analyses. However, the results and conclusions of this study are unaffected by their inclusion.

<sup>10</sup> Our response rate of 17.33 percent for all responses and 12.92 percent for usable responses is comparable to mailed survey response rates in other studies. Nelson et al. (2002) report a response rate of 16 percent for managers and partners in a single accounting firm. Graham and Harvey (2001) report a response rate of 9 percent for senior financial managers, while Graham et al. (2005) report a response rate of 8.40 percent for chief financial officers.

<sup>11</sup> The 14 participants who indicate that they hold some other title are “managing partners,” “senior managers,” “principals,” and “supervisors.” The results and conclusions of this study are completely unaffected by excluding participants with the title of “senior” from our statistical analyses.

<sup>12</sup> To evaluate whether participants were successfully randomized across experimental conditions, we examined whether the demographic variables in Table 1 differ across experimental conditions. The differences are insignificant.

threshold. Participants are then provided with information about the current year audit, which includes selected client financial data, information about a proposed audit adjustment, and the materiality threshold. Participants then respond to several questions about the proposed current year audit adjustment and complete the post-experimental questionnaire.

The experiment uses a 3 (auditor rotation)  $\times$  2 (client pressure) between subjects, complete factorial design. The three levels of auditor rotation are “firm rotation,” “partner rotation,” and “no rotation.” Client pressure is manipulated at two levels. In the “low pressure” condition, the client comprises a small portion of auditor’s billable hours and is not opposed to making the adjustment, while in the “high pressure” the client represents a large portion of billable hours and is strongly opposed to making the proposed adjustment.<sup>13</sup> The Appendix provides the language for these manipulations.

One level of the auditor rotation manipulation requires additional clarification. In the no rotation condition, participants are informed that they have been part of the audit team for the past three years. Therefore, unlike the materials in the partner rotation and firm rotation conditions, which indicate that the proposed audit adjustment in the prior year was waived because it was immaterial, the experimental materials in the no rotation condition also require participants to first decide whether to waive the proposed audit adjustment of \$18,000 in the prior year. The vast majority of participants waive this adjustment because it is approximately 50 percent of the prior year materiality threshold of \$34,000.<sup>14</sup> Following their decision about whether to waive this audit adjustment, participants in the no rotation condition are asked to provide one or two reasons why they did or did not require the client to book the adjustment.

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<sup>13</sup> To make this manipulation particularly meaningful to auditors, the pressure manipulation contains two components (client importance and client opposition to posting adjustment).

This feature of the experiment is consistent with the practice of providing justification and explanation in audit work papers for significant audit related decisions (Ashton 1990).

The experimental materials provide participants with information about a proposed current year audit adjustment of \$30,000, which involves debiting operating expenses and crediting the allowance for bad debts. While this amount is above the current year materiality threshold of \$22,000, it is an inherently subjective adjustment.<sup>15</sup> Participants are then informed that the CFO believes that while an adjustment may be necessary, the amount of the adjustment should be \$12,000, not \$30,000. The rationale given by the CFO is that the unbooked audit adjustment of \$18,000 in the prior year rolled over into the current year, causing expenses in the current year to be higher than they would be otherwise. Therefore, the CFO suggests that current year expenses are actually understated by only \$12,000 (\$30,000 minus \$18,000), which is the amount of the adjustment that the CFO believes should be recorded. After receiving this information, participants are then told that the CFO either strongly opposes or does not oppose the proposed \$30,000 audit adjustment (recall that this is the second part of the pressure manipulation). The dependent variable is participants' proposed audit adjustment. All but 10 participants completed three manipulation checks correctly and results are unaffected if these participants are removed.

## **RESULTS**

### **Main Results**

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<sup>14</sup> Of the 57 participants in the no rotation condition, 52 participants (91 percent) elect to waive the proposed audit adjustment. The inferences of this study are unaffected by excluding from the analyses the participants who did not elect to waive the immaterial proposed audit adjustment.

<sup>15</sup> Because the allowance for bad debts is a subjectively determined account, the experimental materials inform participants that "Your review of the audit work related to accounts receivable and discussion with the staff auditor leads you to conclude that \$30,000 is the most appropriate proposed adjustment, but that the appropriate adjustment could be as little as \$20,000 or as much as \$40,000."

Table 2 reports the ANCOVA results. The dependent variable in the ANCOVA is participants' proposed current year audit adjustment. The independent variables in the ANCOVA are *ROTATION* (manipulated as firm rotation, partner rotation, and no rotation) and *PRESSURE* (manipulated as low pressure and high pressure). We include a control variable, *MINIMUM*, in order to control for the variation in what individual auditors view as necessary to keep the financial statements from being materially misstated. *MINIMUM* represents participants' response to the question "what is the minimum audit adjustment amount necessary to keep the financial statements from being materially misstated in the current year." Table 3 provides descriptive statistics for the dependent variable (i.e., participants' proposed audit adjustments) in the six experimental conditions, which helps us to further analyze the ANCOVA results in Table 2. Both means and least square means are reported in Table 3, although hypothesis tests are based on least squares means.<sup>16</sup>

[Insert Tables 2 and 3 about here]

To test Hypotheses 1a through 1c, we observe that *ROTATION* in Table 2 has a significant main effect on proposed audit adjustments ( $F$ -statistic = 5.40,  $p$ -value = 0.006). Hypothesis 1a predicts that participants in the firm rotation condition will propose larger audit adjustments than participants in the no rotation condition. As shown in Table 4, the least squares mean of \$27,448.07 in the firm rotation condition is significantly larger than the least squares mean of \$24,635.70 in the no rotation condition ( $t$ -statistic = 2.68,  $p$ -value = 0.004 with a one-tailed test). Thus, we find support for Hypothesis 1a.

[Insert Table 4 about here]

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<sup>16</sup> Given that the number of participants differ across the cells, it is appropriate to use least squares means for testing pairwise comparisons (Searle et al. 1980; Sprinkle and Tubbs 1998). However, if conventional means are used in place of least squares means, the results are virtually identical and none of the inferences are affected.

Hypothesis 1b predicts that participants in the partner rotation condition will propose larger audit adjustments than participants in the no rotation condition. As shown in Table 4, the least squares mean of \$27,297.81 in the partner rotation condition is significantly larger than the least squares mean of \$24,635.70 in the no rotation condition ( $t$ -statistic = 2.94,  $p$ -value = 0.002 with a one-tailed test). Thus, we find support for Hypothesis 1b.

Hypothesis 1c predicts that participants in the firm rotation condition will propose audit adjustments that are insignificantly different from participants in the partner rotation condition. As shown in Table 4, the least squares mean of \$27,448.07 in the firm rotation condition is not significantly different from the least squares mean of \$27,297.81 in the partner rotation condition ( $t$ -statistic = 0.03,  $p$ -value = 0.976). Thus, the results are consistent with Hypothesis 1c.

Hypothesis 2 predicts that participants who face high client pressure will propose smaller audit adjustments than participants who face no client pressure. Table 2 reports the ANCOVA results to test this hypothesis. *PRESSURE* has a significant effect on participants' proposed audit adjustments ( $F$ -statistic = 16.64,  $p$ -value < 0.001 with a one-tailed test). To determine whether the effect of *PRESSURE* on proposed audit adjustments is consistent with expectations, we examine the least squares means in Table 3. As predicted, the mean proposed audit adjustment in the low pressure condition of \$28,023.62 is greater than the mean proposed audit adjustment in the high pressure condition of \$24,897.43. Thus, we find support for Hypothesis 2.

Hypothesis 3 predicts that client pressure has a larger downward effect on the magnitude of proposed audit adjustments when the auditor was personally involved in the previous decision to waive a proposed audit adjustment (i.e., participants in the no rotation condition) than when the auditor was not personally involved in that decision (i.e., participants in the firm rotation and partner rotation conditions). Table 2 reveals that the predicted interaction between *ROTATION*

and *PRESSURE* is insignificant ( $F$ -statistic = 1.60,  $p$ -value = 0.206), which indicates that *PRESSURE* does not have a differential effect on proposed audit adjustments across different levels of *ROTATION*. Even if we collapse *ROTATION* into a two-level variable (i.e., audit firm rotation and audit partner rotation are collapsed to form a single condition), the ANCOVA results indicate that there is no significant interaction between *ROTATION* and *PRESSURE*. Thus, we find no support for Hypothesis 3. The lack of a significant interaction suggests that neither partner nor firm rotation may mitigate problems associated with client pressure.

Beyond the variables of direct interest in Table 2, the variable *MINIMUM* ( $F$ -statistic = 42.45,  $p$ -value < 0.001) and the interaction between *PRESSURE* and *MINIMUM* ( $F$ -statistic = 9.36,  $p$ -value = 0.003) are significant.<sup>17</sup> We expected *MINIMUM* to be highly significant because it has a direct and obvious relation with the magnitude of proposed audit adjustments. The form of the interaction between *PRESSURE* and *MINIMUM* suggests that when pressure is applied (not applied) by clients, auditors respond to that pressure (lack of pressure) by proposing audit adjustments that are about equal to (significantly above) the minimum adjustment necessary to keep the financial statements from being materially misstated.

### **Additional Analyses**

As previously discussed, the experimental materials inform participants that \$30,000 is the most appropriate audit adjustment. Given this fact, a participant who proposes an audit adjustment below \$30,000 is likely to have considered factors other than the adjustment itself, such as the effect of the prior period unbooked audit adjustment rolling over into the current year. To explore this matter, we estimate an ANCOVA that contains the same independent variables as the ANCOVA shown in Table 2, but has an alternative dependent variable. The

alternative dependent variable is coded as 1 for participants who propose an audit adjustment equal to \$30,000 and 0 otherwise.<sup>18</sup> Table 5 provides the ANCOVA results using the alternative dependent variable. The results reveal *ROTATION* is significant ( $F$ -statistic = 2.56,  $p$ -value = 0.081) as is *PRESSURE* ( $F$ -statistic = 9.58,  $p$ -value = 0.002), consistent with the ANCOVA results reported in Table 2.

[Insert Table 5 about here]

Table 6 provides a frequency analysis of the number of proposed audit adjustments that are equal to \$30,000. In the firm rotation, partner rotation, and no rotation conditions, the frequencies are 87.50 percent, 81.03 percent, and 73.68 percent, respectively. As shown in Table 7, the planned comparison reveals that the frequency in the no rotation condition is significantly less than the frequencies in the firm rotation and partner rotation conditions ( $t$ -statistic = 2.03,  $p$  = 0.022 and  $t$ -statistic = 1.83,  $p$  = 0.035 with one-tailed tests, respectively). These planned comparison results are consistent with both Hypotheses 1a and 1b. Consistent with Hypothesis 1c, the planned comparison results reveals that the frequency of proposed audit adjustments that are equal to \$30,000 in the firm rotation and partner rotation conditions are insignificantly different from one another ( $t$ -statistic = 0.05,  $p$  = 0.964). Also, as shown in Table 5, the interaction between *ROTATION* and *PRESSURE* remains insignificant using the alternative dependent variable ( $F$ -statistic = 1.60,  $p$ -value = 0.126).

[Insert Tables 6 and 7 about here]

## SUMMARY AND LIMITATIONS

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<sup>17</sup> We find that the inferences of this study are unaltered by excluding *MINIMUM* in Table 2. We also find that the inferences of this study are unaltered by including *MINIMUM* but excluding interaction terms involving *MINIMUM* in Table 2.

<sup>18</sup> Using the alternative threshold of \$22,000, which is the audit firm's materiality threshold in the current year, produces similar results.

In this study, we experimentally examine the effects of auditor rotation and client pressure on the magnitude of proposed audit adjustments, which is a critically important audit decision. We focus on the issue of auditor rotation because research demonstrating that some of the benefits of audit firm rotation can be obtained by audit partner rotation, which is a less costly and less disruptive regulatory mechanism, would be directly relevant to policy makers who continue to deliberate whether to mandate periodic audit firm rotation. In addition, we manipulate client pressure to examine the efficacy of auditor rotation at reducing/mitigating the effect of client pressure.

The results of our experiment reveal that auditors in the firm rotation and partner rotation conditions propose audit adjustments that are insignificantly different from one another but which are significantly larger than those proposed by auditors in the no rotation condition. This finding supports the position that audit partner rotation may produce many of the benefits of audit firm rotation without the attendant costs. However, the finding that continuing auditors make relatively small audit adjustments suggests that when auditors personally waive an immaterial audit adjustment in the prior year, they behave as though they are committed to permitting the waived adjustment to roll over into the current year and offset current year audit adjustments.

Our experiment also reveals that auditors in the high client pressure condition propose significantly smaller audit adjustments than the auditors in the low client pressure condition. This result suggests that auditors may exploit the flexibility in auditing standards to reach a client preferred conclusion about the magnitude of audit adjustments. This finding is also broadly consistent with the assertion by Moore et al. (2006) that recent accounting and auditing reforms may be inadequate. The results of our study also suggest that auditors should be judicious about

waiving immaterial audit adjustments because doing so may engender adverse consequences in subsequent periods (i.e., an increased propensity to succumb to client pressure). Finally, the lack of a significant interaction between auditor rotation and client pressure suggests that auditor rotation may not mitigate problems associated with client efforts to influence auditors. This finding seems consequential because it suggests that forms of regulatory intervention beyond auditor rotation may be necessary.

Finally, we wish to discuss certain limitations of this study. First, the use of a mail-out experiment results in some loss of experimental control. However, one meaningful benefit of having participants independently complete the instrument in their own work environment is that it simulates the actual conditions under which auditors routinely make decisions. Second, audit adjustments are the outcome of a negotiation between auditors and their clients (Antle and Nalebuff 1991; Hatfield et al. 2005; Messier et al. 2005; Wright and Wright 1997), yet our study focuses on proposed audit adjustments, not negotiated audit adjustments. However, research suggests that the starting point in a negotiation (i.e., a proposed audit adjustment) influences the final outcome of the negotiation (i.e., a booked audit adjustment) (Pruitt and Carnevale 1993). Third, this study examines one aspect of an audit that might be influenced by auditor rotation, although we acknowledge that there are other dimensions of an audit that auditor rotation might also influence. While no single study can possibly examine all of the ways auditor rotation might influence an audit, we examine a critically important aspect of most audits.

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**Appendix**  
**Descriptions of the Experimental Manipulations**

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***Panel A: Rotation manipulations***

In the ***firm rotation condition***, the experimental materials inform participants of the following:

One of your new audit clients is Outdoor Apparel Company...Your firm has not audited the Company in previous years...The previous audit firm set materiality for the prior year (2003) audit at \$34,000.

In the ***partner rotation condition***, the experimental materials inform participants of the following:

One of your new audit clients is Outdoor Apparel Company...Your firm has audited the Company for the past three years, but you have not been involved in previous audits...Your firm's audit team set materiality for the prior year (2003) audit at \$34,000.

In the ***no rotation condition***, the experimental materials inform participants of the following:

One of your continuing audit clients is Outdoor Apparel Company...You have been part of the engagement team for the past three years...You set materiality for the 2003 audit at \$34,000.

***Panel B: Client pressure manipulations***

In the ***low pressure condition***, the experimental materials inform participants of the following:

The Company is one of your firm's smallest clients based on the amount of billable hours that are generated from audit and tax services. Approximately 2 percent of your time will be dedicated to serving this client in 2004 and future years...The CFO is not opposed to making the \$30,000 audit adjustment.

In the ***high pressure condition***, the experimental materials inform participants of the following:

The Company is one of your firm's largest clients based on the amount of billable hours that are generated from audit and tax services. Approximately 25 percent of your time will be dedicated to serving this client in 2004 and future years...The CFO is strongly opposed to making the \$30,000 audit adjustment.

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**TABLE 1**  
**Demographic and Descriptive Information**

Questions	Responses		
1. What is your actual position at your firm?	Partner =	77 (50%)	
	Manager =	42 (28%)	
	Senior =	20 (13%)	
	Other =	14 (9%)	
2. How many years of audit experience do you have?	10 or more =	95 (62%)	
	7 – 9 years =	27 (18%)	
	4 – 6 years =	24 (16%)	
	0 – 3 years =	7 (4%)	
3. To what extent do you participate in making decisions about materiality on your audits?	I often make final decisions about such matters =	93 (60%)	
	I often provide significant input into such decisions =	55 (36%)	
	I often provide some input into such decisions =	5 (3%)	
	I usually provide no input into such decisions =	2 (1%)	
4. To what extent do you participate in making decisions about audit adjustments?	I often make final decisions about such matters =	96 (62%)	
	I often provide significant input into such decisions =	55 (35%)	
	I often provide some input into such decisions =	4 (3%)	
5. What percent of your time is spent performing each of the following types of tasks?	Audit =	67.14	
	Tax =	17.54	
	Consulting =	8.88	
	Other =	6.44	
6. Approximately how many accounting professionals are in your office?	Mean =	118.06	
	Median =	15.00	
	Std. dev. =	377.08	
7. When you have made decisions about the materiality of proposed audit adjustments, what was your primary concern with respect to the income statement and balance sheet? Please allocate 100 points between the options to indicate their relative importance. A higher number of points indicate that the option is more important.	The impact of the proposed audit adjustment on the balance sheet		
	Mean =	47.92	
	Median =	50.00	
	Std. dev. =	24.77	
	The impact of the proposed audit adjustment on the income statement		
	Mean =	52.08	
	Median =	50.00	
	Std. dev. =	24.77	
	8. Do you think that the materiality threshold of \$22,000 in 2004 was appropriate under the circumstances? <sup>b</sup>	Yes =	83 (53%)
		No =	74 (47%)
If you answered “No” please indicate the amount that you would have set as the materiality threshold.		Mean =	\$51,074.38
		Median =	\$42,500.00
		Std. dev. =	\$24,964.67

Two of the 155 participants did not respond to the first two demographic questions.

**TABLE 2**  
**ANCOVA Results (n=155)**

<b>Variable</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F-statistic</b>	<b>p-value</b>
<i>ROTATION</i>	513.96	2	256.98	5.40	0.006
<i>PRESSURE</i>	791.47	1	791.47	16.64	< 0.001
<i>MINIMUM</i>	2,019.54	1	2,019.54	42.45	< 0.001
<i>ROTATION*PRESSURE</i>	152.03	2	76.01	1.60	0.206
<i>PRESSURE*MINIMUM</i>	445.13	1	445.13	9.36	0.003
<i>ROTATION*MINIMUM</i>	270.70	2	135.35	2.85	0.061
<i>ROTATION*PRESSURE*MINIMUM</i>	90.65	2	45.33	0.95	0.388
<b>Error</b>	6,802.95	143	47.57		

The dependent variable is participants' proposed current year audit adjustment. *ROTATION* is manipulated between subjects as firm rotation, partner rotation, and no rotation. *PRESSURE* is manipulated between subjects as low pressure and high pressure. *MINIMUM* is participants' judgment about the minimum audit adjustment necessary to keep the financial statements from being materially misstated. The variables are discussed in the Experiment section. The dependent variable and *MINIMUM* are divided by 1,000 for purposes of tabulating the results.

**TABLE 3**  
**Descriptive Statistics for Proposed Audit Adjustments in Experimental Conditions (n=155)**

Pressure conditions	Rotation conditions			Row means
	Firm rotation	Partner rotation	No rotation	
<b>Low pressure</b>	Mean = \$30,000.00	Mean = \$28,433.33	Mean = \$26,620.69	Mean = \$28,164.56
	LS mean = \$30,000.00 (n = 20)	LS mean = \$28,479.85 (n = 30)	LS mean = \$25,591.03 (n = 29)	LS mean = \$28,023.62 (n = 79)
<b>High pressure</b>	Mean = \$25,300.00	Mean = \$26,000.00	Mean = \$22,357.14	Mean = \$24,473.68
	LS mean = \$24,896.13 (n = 20)	LS mean = \$26,115.78 (n = 28)	LS mean = \$23,680.37 (n = 28)	LS mean = \$24,897.43 (n = 76)
<b>Column means</b>	Mean = \$27,650.00	Mean = \$27,258.62	Mean = \$24,526.32	
	LS mean = \$27,448.07 (n = 40)	LS mean = \$27,297.81 (n = 58)	LS mean = \$24,635.70 (n = 57)	

The dependent variable is participants' proposed current year audit adjustment. The rotation and pressure conditions are discussed on pages 11-12. Mean values are reported for descriptive purposes only. Least square means are used in statistical tests.

**TABLE 4**  
**Summary of Planned Comparisons to Tests Hypotheses 1a, 1b, and 1c**

<b>Hypotheses</b>	<b>Comparisons</b>		<b>Std. error</b>	<b><i>t</i>-statistic</b>	<b><i>p</i>-value</b>
<b>Hypothesis 1a</b>	LS mean <sub>Firm rotation</sub> \$27,448.07	> LS mean <sub>No rotation</sub> \$24,635.70	2,538.61	2.68	0.004
<b>Hypothesis 1b</b>	LS mean <sub>Partner rotation</sub> \$27,297.81	> LS mean <sub>No rotation</sub> \$24,635.70	2,343.11	2.94	0.002
<b>Hypothesis 1c</b>	LS mean <sub>Firm rotation</sub> \$27,448.07	= LS mean <sub>Partner rotation</sub> \$27,297.81	2,520.21	0.03	0.976

The *p*-values are one-tailed for Hypotheses 1a and 1b because there is a directional prediction.

**TABLE 5**  
**ANCOVA Results Using Alternative Dependent Variable (n=155)**

<b>Variable</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F-statistic</b>	<b>p-value</b>
<i>ROTATION</i>	0.69	2	0.35	2.56	0.081
<i>PRESSURE</i>	1.29	1	1.29	9.58	0.002
<i>MINIMUM</i>	2.89	1	2.89	21.40	< 0.001
<i>ROTATION*PRESSURE</i>	0.57	2	0.28	1.60	0.126
<i>PRESSURE*MINIMUM</i>	0.44	1	0.44	3.27	0.073
<i>ROTATION*MINIMUM</i>	0.48	2	0.24	1.77	0.174
<i>ROTATION*PRESSURE*MINIMUM</i>	0.41	2	0.20	1.52	0.223
<b>Error</b>	19.29	143	0.13		

The dependent variable is coded as 1 for participants who proposed an audit adjustment of \$30,000 and 0 otherwise. *ROTATION* is manipulated between subjects as firm rotation, partner rotation, and no rotation. *PRESSURE* is manipulated between subjects as low pressure and high pressure. *MINIMUM* is participants' judgment about the minimum audit adjustment necessary to keep the financial statements from being materially misstated. The variables are discussed in Section 4. *MINIMUM* is divided by 1,000 for purposes of tabulating the results.

**TABLE 6**  
**Frequency Analysis of Proposed Audit Adjustments that are Equal to \$30,000 (n=155)**

<b>Pressure conditions</b>	<b>Rotation conditions</b>			<b>Row means</b>
	<b>Firm rotation</b>	<b>Partner rotation</b>	<b>No rotation</b>	
<b>Low pressure</b>	100.00% (n = 20)	86.67% (n = 30)	82.76% (n = 29)	88.61% (n = 79)
<b>High pressure</b>	75.00% (n = 20)	75.00% (n = 28)	64.29% (n = 28)	71.05% (n = 76)
<b>Column means</b>	87.50% (n = 40)	81.03% (n = 58)	73.68% (n = 57)	

**TABLE 7****Summary of Planned Comparisons to Tests Hypotheses 1a, 1b, and 1c Using Alternative Dependent Variable**

<b>Hypotheses</b>	<b>Comparisons</b>		<b>t-statistic</b>	<b>p-value</b>
<b>Hypothesis 1a</b>	Frequency <sub>Firm rotation</sub> 87.50%	>	Frequency <sub>No rotation</sub> 73.68%	2.03 0.022
<b>Hypothesis 1b</b>	Frequency <sub>Partner rotation</sub> 81.03%	>	Frequency <sub>No rotation</sub> 73.68%	1.83 0.035
<b>Hypothesis 1c</b>	Frequency <sub>Firm rotation</sub> 87.50%	=	Frequency <sub>Partner rotation</sub> 81.03%	0.05 0.964

The dependent variable is coded as 1 for participants who proposed an audit adjustment of \$30,000 and 0 otherwise. The *p*-values are one-tailed for Hypotheses 1a and 1b because there is a directional prediction.