THE ACCOUNTING REVIEW
Vol. 79, No. 4
2004
pp. 949–966

Electronic versus Face-to-Face Review: The Effects of Alternative Forms of Review on Auditors' Performance

Joseph F. Brazel
North Carolina State University

Christopher P. Agoglia
Drexel University

Richard C. Hatfield
The University of Texas at San Antonio

ABSTRACT: Due to recent technological advancements such as online workpapers and email, audit firms have alternative methods of workpaper review that they did not have in the past. While audit workpaper preparers typically know they will be reviewed, and know the *form* their review will take, prior research has focused on comparing the judgments of auditors who expect to be reviewed with auditors who expect to remain anonymous. This study examines the effects on preparers of using two different methods of review: face-to-face and electronic review. The study also compares both review groups to a no-review control group. Consistent with the Heuristic-Systematic Model, we find that the method of review affects preparer effectiveness and efficiency. Specifically, preparers anticipating a face-to-face review are more concerned with audit effectiveness, produce higher quality judgments, are less efficient at their task, are less likely to be influenced by prior year workpapers, and feel more accountable than preparers in both the electronic review and no-review conditions. Interestingly, electronic review preparers generally do not differ from the no-review group. These results suggest that *how* a review will be conducted, and not merely the expectation that a review will occur, affects the decision-maker's judgments and perceptions.

Keywords: *review process; audit effectiveness; audit efficiency; accountability; heuristic-systematic model.*

Data Availability: *Data are available upon request.*

We thank Tom Kida, Hun Tong Tan, Mark Peecher, Jay Rich, Jean Bedard, Hank Jaenicke, Jim Bierstaker, Terence Ng, Scott Jackson, Kevin Brown, Maria Sanchez, Tom Kozloski, Hyokjin Kwak, Srini Swaminathan, Jane Kennedy, two anonymous reviewers, participants at the 2002 International Symposium on Audit Research, the 2002 American Accounting Association Annual Meeting, and workshop participants at the University of Mississippi, Virginia Polytechnic Institute & State University, Mississippi State University, University of Vermont, Kansas State University, Temple University, University of Montana, University of Manitoba, and Boise State University for their helpful comments.

Editor's note: This paper was accepted by Jane Kennedy, Editor.

Submitted September 2002
Accepted April 2004

I. INTRODUCTION

This study examines the effects of alternative methods of audit workpaper review on the performance of auditors who prepare the workpapers. The audit review process is an essential part of an audit (Trotman 1985; Libby and Trotman 1993; Tan 1995). However, it is a costly process, with more than 50 percent of audit manager time and 30 percent of total audit hours allocated to review (Bamber and Bylinski 1987; Asare and McDaniel 1996). Given the significant allocation of auditor time and audit costs to the review process, firms are carefully examining workpaper review in their efforts to re-engineer their audit processes (Rich et al. 1997). With the technological advancements of the past decade, firms have at their disposal alternative methods of review that they did not have in the past. For example, in contrast to a traditional method of review in which a reviewer and the auditor who prepared the workpapers (preparer) meet face-to-face to discuss the reviewer's concerns, today online workpapers can be emailed from a preparer to a reviewer. The reviewer can review the workpapers online and return them with related review notes via email.

Given that feedback through the review process takes different forms, preparers can view these forms as relatively more or less demanding. These varying demands of different review methods will likely affect preparer performance. While prior research indicates that the anticipation of a review can, under certain circumstances, affect preparer judgments (e.g., Johnson and Kaplan 1991; Lord 1992; Kennedy 1993; Tan 1995; Tan and Kao 1999), these studies have typically focused on differences in judgment between auditors who expected their work to be reviewed and auditors who expected their work to remain anonymous. In practice, however, preparers expect that their work will be reviewed (Johnson and Kaplan 1991; Ismail and Trotman 1995).[1] Furthermore, they are typically aware of how that review will be conducted.[2] Thus, while Tan and Kao (1999) suggest that varying the demands of the review process is one way firms can influence auditor performance, little is known about the potential effects that alternative review methods have on preparers.

In this study, two review formats currently used in practice are investigated: (1) *face-to-face review* in which preparers meet with reviewers and discuss review notes in person, and (2) *electronic review* in which review notes are emailed to preparers, allowing preparers more time to formulate their initial responses. Audit seniors were given prior year workpapers (which reflected positively on the client's financial condition) and current year evidence (which indicated declining financial conditions) and were asked to make and document a preliminary going concern assessment.[3] These auditors were informed that their work would be reviewed, and of the format that review would take (either face-to-face or via email). A third group of audit seniors were told their work would remain confidential. Preparer effectiveness was measured with the aid of audit experts.

The results of this study are consistent with the Heuristic-Systematic Model, which predicts, in this context, greater emphasis on effectiveness (relative to efficiency) for face-to-face preparers compared to electronic review preparers. Results indicate that face-to-face

[1] A major purpose of these prior studies (e.g., Johnson and Kaplan 1991; Lord 1992; Kennedy 1993; Tan and Kao 1999) was to investigate the effects of accountability on audit judgment. Therefore, low-accountability conditions in these studies were typically operationalized to emulate conditions present in earlier studies (i.e., nonaccountable), and not necessarily to replicate conditions found in practice.

[2] In a post-experimental questionnaire, participants indicated their agreement with the statement that, in practice, they are generally aware of the method their review will take (mean response = 5.00 on a 1 to 6 scale, with the low and high endpoints labeled "strongly disagree" and "strongly agree," respectively).

[3] The going concern assumption, made for the purposes of financial reporting, refers to the expectation that an entity will continue operations (i.e., will not fail) in the absence of significant information to the contrary (AICPA 1988).

preparers are more concerned with the pre-review effectiveness of their going concern workpapers and arrive at higher quality pre-review judgments, but take longer to prepare their workpapers than preparers in an electronic review group. Also, given the client's declining financial condition, face-to-face preparers appear to appropriately focus more on current year conditions. Their assessments deviate farther from the prior year assessment, and they document and recall more evidence that is inconsistent with the prior year assessment than do preparers who are reviewed via email. It appears that the method of review also influences preparer perceptions of accountability, with face-to-face review preparers feeling more accountable to their managers than those anticipating an electronic review. Interestingly, while the face-to-face preparers' performance and perceptions differ significantly from those of the no-review group, the electronic review preparers' do not. These findings suggest that it is not prudent to view these two commonly utilized review formats (face-to-face and electronic review) as wholly interchangeable or equivalent substitutes for one another.

The remainder of this paper is organized as follows. The next section discusses the background and related research and develops the hypotheses. Sections III and IV present the method and results, respectively. Section V offers conclusions and implications.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Alternative Methods of Review

During financial statement audits, the workpapers describing the work performed, methods used, and conclusions drawn by a preparer are subject to review by a supervising auditor (Emby and Gibbins 1988; Agoglia et al. 2003). Workpaper review serves, among other purposes, to ensure the adequateness of procedures performed and appropriateness of conclusions drawn (AICPA 1978). The significant allocation of audit resources to the review process has prompted firms to carefully examine workpaper review in an effort to streamline their audit processes (Rich et al. 1997). Due to recent technological enhancements, firms have at their disposal alternative methods of review such as electronic review of online workpapers.

While alternative review methods are employed in practice, prior research has typically focused on examining the effects of the expectation of workpaper review versus no review (e.g., Lord 1992; Kennedy 1993; Hoffman and Patton 1997; Tan and Kao 1999). Johnson and Kaplan (1991), for example, found that auditors expecting a review of their inventory obsolescence assessments exhibited greater consensus and self-insight than those who were told their responses would remain anonymous, while Koonce et al. (1995) found that auditors expecting to have their audit-planning decisions reviewed recorded more information in their planning memoranda than those who expected their decisions would remain anonymous. Thus, prior research indicates that the anticipation of a review can affect preparer judgments when compared to a no-review condition. However, in practice, auditors who prepare workpapers expect that they will be reviewed (Johnson and Kaplan 1991; Ismail and Trotman 1995). Moreover, these auditors are typically aware of how that review will be conducted (see footnote 2). Since prior studies were designed to examine the effects of an expectation of review versus no review, it is difficult to ascertain if the *form* of review will affect preparer judgments. The current study extends the literature by examining the effects that alternative methods of review have on preparers' performance.

Based on a survey of practicing auditors, two alternative methods of review were selected for investigation: face-to-face review and electronic review.[4] *Face-to-face review* occurs when the preparer meets with the reviewer in person. During this meeting, the reviewer relays his or her review notes to the preparer and the preparer responds to these concerns. This more traditional approach is generally interactive and discussion-filled, and often requires preparers to respond "on-the-spot" to reviewer inquiries, which can induce added stress on the preparer.[5] *Electronic review* involves preparers receiving and responding to review notes via email. This approach allows the preparer time to craft an initial response to the reviewer and potentially manage reviewer perceptions of his or her performance. Use of electronic review has risen with the proliferation of online workpapers. An advantage of this method is that it permits reviewers to review several jobs concurrently at their offices (where the majority of the firm's resources are located) or from remote locations, reducing the time spent traveling between clients and the necessity to coordinate schedules with preparers (Shumate and Brooks 2001). However, the often rich and detailed interactions between reviewer and preparer may be lost. These differences between face-to-face and electronic communication have the potential to affect judgment performance (e.g., Baltes et al. 2002; Kachelmeier and Towry 2002).

Overview of the Heuristic-Systematic Model

The Heuristic-Systematic Model (HSM) suggests that contextual features of a judgment affect how an individual processes information (Chen and Chaiken 1999). HSM predicts two modes of information processing by which individuals make judgments (Chaiken 1980, 1987; Chaiken et al. 1989; Chen and Chaiken 1999). *Systematic processing* involves the analytical and comprehensive treatment of judgment-relevant information, while *heuristic processing* involves the activation of judgmental rules (or "heuristics") that help to process cues more easily (Chen and Chaiken 1999). Thus, relative to systematic processing, heuristic processing requires less cognitive effort. The choice between the two modes of processing depends on contextual features of the judgment. Decision makers attempt to balance the desire to minimize cognitive effort while maintaining confidence in their decision (Beach and Mitchell 1978; Payne et al. 1993; Chen and Chaiken 1999). HSM predicts that systematic processing is more likely when accuracy and confidence in judgment are the overriding concerns, while heuristic processing is more likely when time constraints and conservation of effort are the overriding concerns (Chen and Chaiken 1999). Thus, more systematic processing is expected when an individual places an emphasis on judgment effectiveness, while an emphasis on judgment efficiency should result in more heuristic processing.

Consistent with HSM, prior accountability research indicates that, under certain circumstances, individuals place greater emphasis on accuracy, use more systematic modes of processing information, and increase time and cognitive effort when they feel more accountable to others (e.g., McAllister et al. 1979; Chaiken 1980; Tetlock and Kim 1987; Kennedy 1993). Particular characteristics of the decision environment can lead individuals

[4] Out of 14 audit managers surveyed, all 14 indicate that they utilize both of these methods of review and report that, on average, they utilize face-to-face and electronic review for about 35 percent and 63 percent of their reviews, respectively. While some report occasionally using telephone and voicemail, half of the managers indicate that they utilize face-to-face and electronic review exclusively. Six of the 14 managers were asked, informally, about methods they use to review going concern evaluation workpapers. All six indicate that they use both electronic and face-to-face methods to review this type of workpaper.

[5] Similar to our face-to-face review condition, accountability manipulations in prior studies have typically involved some form of face-to-face interaction (or the anticipation of such an interaction) with the individual(s) to whom the participant was accountable (see, e.g., Johnson and Kaplan 1991; Kennedy 1993; Glover 1997).

to feel more or less accountable. For example, the differences between face-to-face and electronic review can affect preparer accountability perceptions (Kreitner and Kinicki 2001). When a preparer receives a review note, he or she encounters a situation that may threaten to undermine the desired image the individual wishes to present to a reviewer (Schlenker 1980). The individual may feel his or her image more or less threatened depending on the perceived severity of the situation (Schlenker 1980; Tetlock 1985). Face-to-face reviews (that require immediate, and in-person, oral responses) increase the perceived severity of the situation relative to electronic reviews (that allow the preparer time to assemble a response and transmit it in writing electronically). In turn, face-to-face reviews will likely elicit stronger feelings of accountability.

Peecher and Kleinmuntz (1991) suggest that preparers anticipate accountability demands early in the judgment process and these anticipated demands are likely to influence how they plan and carry out their work. Given that the formal evaluation process of preparers rewards both efficient and effective workpaper preparation, preparers typically attempt to balance the often conflicting goals of audit efficiency and effectiveness (Bierstaker and Wright 2001). The form of the impending review will likely influence the relative weight placed on these two concerns.

Efficiency

Efficiency in the audit environment is typically defined and measured as the time taken to perform a particular audit task (Salterio 1994). Given the nature of a face-to-face review, preparers understand that they need to be ready to respond knowledgeably and immediately to any reviewer concerns. Preparers anticipating a face-to-face review (face-to-face preparers) need to be prepared for any potential reviewer questions, since it is difficult to predict the concerns on which the reviewer may focus. In preparation for their reviews and for potential reviewer questioning, face-to-face preparers will expend more effort analytically and comprehensively evaluating evidence (i.e., use a more systematic mode of processing) in order to project a desired image during the review process (e.g., McAllister et al. 1979; Chaiken 1980; Tetlock and Kim 1987; Kennedy 1993). This greater effort should result in greater time spent to complete the task (McAllister et al. 1979; Bettman et al. 1990).

In contrast, synchronous communication between preparer and reviewer is not characteristic of electronic review. Preparers anticipating an electronic review (e-review preparers) have the advantage of knowing the reviewer's specific issues well before a response is expected by the reviewer.[6] Because e-review preparers have more time to craft a response to reviewer concerns (and may therefore be able to manage perceptions of effectiveness), they will be less concerned with the potential for image deterioration during their reviews than will face-to-face preparers. Further, the asynchronous nature of electronic review provides an opportunity for efficiency during workpaper preparation as preparers can later direct their time toward the reviewer's specific issues. Given that they are evaluated by their reviewers based on their efficiency, as well as their effectiveness, e-review preparers can conserve time and effort by utilizing a more heuristic mode of processing with respect to the full evidence set. Thus, we test the following hypothesis:

H1: Face-to-face preparers will spend more time on workpaper preparation than will e-review preparers.

[6] A survey of 14 audit managers confirms that they expect a significantly quicker initial response to their comments when conducting a face-to-face review than for an electronic review.

Effectiveness

Effectiveness has been operationalized a number of different ways in the audit literature (e.g., Gibbins and Emby 1984; Davis and Solomon 1989; Tan 1995; Bhattacharjee et al. 1999; Low 2004). One such measure that is relevant to our task relates to overall "workpaper effectiveness." Workpaper effectiveness considers the appropriateness (given the evidence set) of the supporting evidence and conclusions documented in the workpapers, and how well the preparers' documentation corresponds with their conclusions. This measure is determined by audit experts. Additionally, an indirect measure of effectiveness relates to "judgment quality." Tan (1995) utilizes a measure of judgment quality that compares participants' conclusions to those of a criterion group of experts (see also Libby and Libby 1989). We employ both measures in our study, which requires participants to prepare a going concern evaluation workpaper documenting a going concern assessment (conclusion) and supporting evidence.

In order to minimize the possibility of negative consequences from their review (e.g., image deterioration), face-to-face preparers perceive that their workpaper should be of higher quality, and that they must have a better working knowledge of the evidence, prior to review.[7] The balance between effectiveness and efficiency is tipped in favor of effectiveness (i.e., a more systematic processing approach) as audit budgets are somewhat sacrificed in an attempt to arrive at the most appropriate conclusions and prepare high-quality workpapers. More effective workpapers help minimize potential reviewer concerns in advance and help ready the preparer for the impending face-to-face meeting with the reviewer. In contrast, e-review preparers likely place less emphasis on the pre-review effectiveness of their workpapers because they have additional time to respond to reviewer concerns. The asynchronous nature of reply inherent in electronic review allows preparers the opportunity to conserve effort prior to review (i.e., use a more heuristic processing approach). Effort can be selectively directed later if specific issues are raised by the reviewer, reducing the likelihood of image deterioration during review. Therefore, the following hypotheses are tested:

H2a: Face-to-face preparers will prepare more effective workpapers than will e-review preparers.

H2b: The quality of going concern assessments will be higher for face-to-face preparers than for e-review preparers.

One of the most prevalent heuristics in public accounting is "anchoring" on prior year workpapers (Libby 1981; Wright 1988). Prior research has demonstrated the use of the anchoring heuristic, commonly referred to as SALY (Same As Last Year), in auditing contexts (e.g., Joyce and Biddle 1981; Butler 1986). Using last year's workpapers and audit plans as the basis for the current year provides obvious opportunities for efficiency (e.g., using the same procedures as last year to test an inventory reserve). However, when conditions at the client have changed from the prior year, a SALY approach, while efficient, will not appropriately reflect those changes (Joyce and Biddle 1981; Tan 1995). Thus, the auditor's responsiveness to changing client conditions can, indirectly, impact their effectiveness.

[7] Discussions with auditors indicate that they generally do not have the time or opportunity to access the relevant evidence when providing an initial face-to-face response to a reviewer and that, if they did, they would be concerned that they may appear less prepared/competent to their reviewers (i.e., that they did not display the level of knowledge expected by the reviewer).

Prior research suggests that the expectation of review (relative to no review) can affect reliance on prior year workpapers (Tan 1995). Using a financial viability task, Tan (1995) found that review awareness led to (1) better recall of current year evidence that was inconsistent with prior year data, and (2) assessments that deviated farther from prior year assessments. HSM suggests that, not only the *presence*, but also the *demands* of an anticipated review can affect reliance on prior year workpapers (Chen and Chaiken 1999). Anticipation of a more demanding review can lead to greater emphasis on effectiveness and more systematic processing of current year evidence. In contrast, expectation of a less demanding review can lead preparers to place greater emphasis on efficiency (relative to pre-review workpaper effectiveness) and greater reliance on prior year workpapers and conclusions in an effort to conserve their budgets. We therefore posit that, under changing client conditions, current year going concern assessments of preparers anticipating a face-to-face review will deviate farther from prior year assessments than will those of preparers anticipating an electronic review. The increased attention to more relevant evidence suggested by HSM should result in greater documentation and recall of that evidence. Additionally, given (1) their potential deviation from prior year conclusions due to changes in client conditions, and (2) that they expect to be questioned in person by their reviewers, preparers anticipating a face-to-face review perceive a greater need to have evidence that is inconsistent with prior year conclusions (but supports their current year assessments) readily available in their workpapers and retrievable from memory. Such availability would be less necessary if the preparer were expecting an electronic review because there would be time to reexamine any items the reviewer may have questioned before having to respond. Thus, based on the discussion above, we test the following hypotheses:

H3: Deviations from prior year going concern assessments will be greater for face-to-face preparers than for e-review preparers.

H4a: Face-to-face preparers will document relatively more evidence items that are inconsistent than consistent with prior year conclusions compared to e-review preparers.

H4b: Face-to-face preparers will recall relatively more evidence items that are inconsistent than consistent with prior year conclusions compared to e-review preparers.

III. METHOD

Participants

Participants were 45 audit seniors from a large international accounting firm who had, on average, about three years experience.[8] Prior research and discussions with audit managers revealed that audit seniors would be familiar with the various stages of assessing the financial viability of their clients (e.g., Libby and Trotman 1993; Rau and Moser 1999).

Experimental Task

Participating auditors completed a preliminary going concern evaluation task within a computer-based instrument. Participants received a diskette, along with a set of instructions

[8] There are no significant differences in mean months of audit experience between the groups (means = 32.27, 35.53, and 38.60, $F = .860$, $p = .431$, for the face-to-face, email, and no-review auditors, respectively). Also, there are no differences (for all $p > .50$) between groups on other demographic variables (e.g., perception of the percentage of firms that fail, interest in the task, client size).

for running the simulation program. Within the simulated audit exercise, we provided participants with detailed instructions pertaining to the task, relevant authoritative guidance, prior year workpapers, current year audit facts, and current year workpapers (which required them to make and document their preliminary conclusions).

The going concern task and evidence presented to participants were adapted from Tan (1995) and Kida (1984). Prior year workpapers documented a conclusion regarding the client's going concern assumption, along with a corresponding memo summarizing the important evidence. The memo, presented in paragraph form, contained ten items that were largely positive with respect to the financial condition of the client (see Tan 1995). The prior year preparer's preliminary conclusion regarding the reasonableness of the client's going concern assumption was presented on a 15-point scale (–7 to +7, with endpoints labeled "definitely not reasonable" and "definitely reasonable," respectively). Consistent with Tan (1995), this conclusion was favorable, with the prior year preparer having indicated that the "going concern assumption appears reasonable" and assessed the reasonableness of the assumption at +4 (labeled "fairly likely to be reasonable"). Current year audit facts included ten items that supported the going concern assumption, ten items that undermined the going concern assumption, and ten irrelevant items. This current year evidence reflected a decline in client financial conditions (see Tan 1995). Similar to Cohen et al. (2000), auditor performance under declining financial conditions was investigated due to the increased risk associated with audit decisions under such conditions (e.g., the failure to modify the audit opinion prior to client bankruptcy).

Participants were asked to prepare a current year workpaper providing a preliminary audit conclusion (along with supporting documentation) regarding the reasonableness of the going concern assumption of the hypothetical client. Preparers were randomly assigned to one of three conditions: face-to-face review, electronic review, or no review. Those in the two review conditions were informed that their work would be reviewed by an audit manager who would (1) have access to the prior year workpaper along with their current year workpaper, and (2) evaluate them based on their combined audit effectiveness and efficiency after all review notes were addressed and their percentage of budget utilized reported. Preparers in the face-to-face review group were informed that they would meet in person with their reviewer to discuss any review notes regarding their going concern evaluation workpaper. Electronic review preparers were informed that all correspondence with their reviewers (including receipt of review notes and the preparers' response to their reviewer) would take place via email. Preparers in the no-review group were informed that their responses were confidential. The no-review group serves as a baseline with which to compare the two review groups (face-to-face and electronic review). A manipulation check revealed that preparers understood and anticipated their respective review conditions (i.e., face-to-face review, electronic review, or no review).[9]

Preparers were informed of their budget for the preparation of the workpapers (20 minutes).[10] The budget began to count down after preparers read the task instructions. The "percentage of budget remaining" was displayed in the top right corner of each screen. If a preparer went over budget, a negative percentage was displayed on the "percentage of budget remaining" clock. All preparers had access to relevant excerpts from Statement on Auditing Standards No. 59 (AICPA 1988) and viewed identical prior year going concern

[9] One participant in the face-to-face review condition indicated that he did not expect a face-to-face review. Removing this participant's responses from the analysis does not affect the conclusions drawn.

[10] The 20-minute budget was determined, through pretests utilizing auditors and students, to be appropriate given the task (i.e., demanding, yet achievable).

evaluation workpapers and current year audit facts. Preparers were able to access this data while preparing their workpapers. Current year audit facts were randomized to control for order effects.

After viewing the prior year workpapers and current year audit facts, preparers provided their assessment of the reasonableness of the going concern assumption for the current year on a scale identical to the one on which the prior year conclusion was presented to them. They then provided documentation to support their conclusion and preparers in the two review conditions signed-off on their workpapers, ending the timed portion of the task. Preparers then answered a series of case-related questions, including a self-assessment of perceived accountability. After a distracter task, preparers were asked to recall as many of the current year audit facts as they could, and to answer some demographic questions. Preparers in the two review conditions later met or corresponded via email with a reviewer.

IV. RESULTS

For clarity of presentation, the discussion of results focuses on the hypotheses, which relate only to the face-to-face and email review conditions. Comparisons of the review groups to the no-review condition are presented in the section labeled "Comparison with No-Review Control Group."[11]

Accountability Perceptions

The characteristics of face-to-face review elicit stronger feelings of accountability than electronic review. Preparers were asked to indicate how accountable they felt "to [their] manager when performing the current year going concern evaluation." They recorded their response on an 11-point scale, with endpoints labeled "not at all accountable" (coded as 0) and "extremely accountable" (coded as 10). Preparers in the face-to-face review group report feeling more accountable (mean = 8.27), on average, than those in the email review group (mean = 5.20, $p < .001$, Table 1). We obtain similar results when preparers are asked to indicate their motivation to complete the task, the mental effort they expend on the task, how demanding they anticipate their review process will be, and the pressure they feel to impress their reviewer (see Table 1). HSM suggests that these differences will lead to trade-offs in preparers' desire for efficiency and effectiveness (Chen and Chaiken 1999).

Efficiency

Efficiency is measured as the total time taken to perform the going concern evaluation task. Table 2 reveals that, consistent with H1, preparers in the face-to-face group take significantly more time to prepare their workpapers (28.33 minutes) than preparers in the email review condition (20.20 minutes, $p = .012$). More specifically, preparers in the face-to-face group spend more time in the actual workpaper documentation stage than do preparers facing an email review (nontabulated means = 14.27 minutes versus 8.53 minutes, respectively, $p < .005$). Presumably, this extra time (representing over 28.7 percent of the total budget of 20 minutes) is spent in an effort to prepare a higher quality workpaper. In addition to taking more time to perform their task, face-to-face preparers indicate in a post-experimental questionnaire that they are more likely to request additional budgeted time from their manager. On an 11-point scale from 0 ("not at all likely [to request more time]")

[11] Significance levels of contrast-tests presented in this study are one-tailed when expectations were directional, and two-tailed when no directional expectations were formed *a priori*. Also, in instances where homogeneity of variance is an issue, we perform tests of differences between groups that do not require the assumption of equal group variances. The resulting p-values of these tests using non-pooled variances are reported in the tables where noted.

TABLE 1
Accountability and Other Preparer Perceptions

Variable[a]		Face-to-Face Review (n = 15)	Email Review (n = 15)	t-statistic[b]	p-value
Self-perceptions of:					
Accountability to reviewer	Mean	8.27	5.20	4.372	< 0.001
	(SD)	1.39	2.34		
Motivation to perform well	Mean	7.80	5.13	3.941	< 0.001
	(SD)	1.78	1.92		
Mental Effort expended on task	Mean	8.13	5.20	4.580	< 0.001
	(SD)	1.85	1.66		
How *demanding* the anticipated review would be	Mean	6.80	5.13	1.958	0.030
	(SD)	2.27	2.39		
Pressure to impress reviewer	Mean	7.33	4.33	3.473	0.001
	(SD)	1.91	2.74		

[a] Responses were coded from 0 to 10, with the low and high endpoints labeled "not at all accountable" and "extremely accountable," respectively, for the accountability assessment. Endpoint label pairings for the other self-perception assessments were: "not at all motivated" and "extremely motivated"; "no mental effort" and "extreme mental effort"; "not at all demanding" and "extremely demanding"; and "no pressure" and "extreme pressure."

[b] Due to homogeneity of variance issues, the t-tests conducted for *Accountability* and *Pressure* did not use pooled variances. All tests are one-tailed.

to 10 ("extremely likely [to request more time]"), the self-reported mean for the face-to-face review group is significantly greater than that of the email review group (nontabulated means = 7.80 and 6.07, respectively, p = .032).

Effectiveness

Three experts from different offices of the same accounting firm evaluated the effectiveness of the workpapers prepared by the participating auditors (i.e., appropriateness of conclusions and supporting documentation). These experts had an average of 10.55 years of audit experience.[12] On an 11-point scale from 0 ("strongly disagree") to 10 ("strongly agree"), the experts expressed their agreement with a statement indicating that the preparer's workpaper was effective. The average of the experts' ratings was used to create an overall workpaper effectiveness rating for each preparer. Hypothesis 2a predicts that the face-to-face group will prepare more effective workpapers than the email review group. While the expert workpaper effectiveness ratings are in the expected direction, with experts rating the face-to-face group's workpapers as more effective than email (5.18 versus 4.40), these differences are significant only at the p = .125 level (see Table 2). Participants also report their concern with preparing an effective workpaper. These results provide some support that the face-to-face group is more concerned with their effectiveness than the email group. On an 11-point scale from 0 ("not at all concerned with effectiveness") to 10 ("very concerned with effectiveness"), participants in the face-to-face group indicate higher levels

[12] Prior to their involvement, the experts were informed that they would (1) examine evidence in order to assess the reasonableness of a hypothetical client's going concern assumption and (2) evaluate the workpapers of others auditing the same client. The experts were provided with the same evidence presented to preparers and were blind to review condition and to preparer identity.

TABLE 2
Dependent Variables for H1–H4b

Variable[a]		Face-to-Face Review (n = 15)	Email Review (n = 15)	t-statistic[b]	p-value
H1: *Audit Efficiency* (time consumed in minutes)	Mean	28.33	20.20	2.464	0.012
	(SD)	11.40	5.78		
H2a: *Workpaper Effectiveness* (expert assessment)	Mean	5.18	4.40	1.175	0.125
	(SD)	2.04	2.16		
H2b: *Judgment Quality* (deviation from expert criterion)	Mean	2.60	3.51	−1.963	0.030
	(SD)	1.37	1.17		
H3: *Deviation from Prior Year Assessment*	Mean	3.40	1.47	2.408	0.013
	(SD)	2.72	1.51		
H4a: *Relative Documentation* (positive minus negative items)	Mean	−2.87	0.40	−2.665	0.007
	(SD)	3.58	3.11		
H4b: *Relative Recall* (positive minus negative items)	Mean	−2.40	0.27	−2.534	0.009
	(SD)	2.69	3.06		

[a] The dependent variables are defined as follows:
Audit Efficiency = the time taken to complete the going concern assessment task;
Workpaper Effectiveness = determined by averaging the responses of three experts to a statement indicating that the preparer's workpaper was effective. Responses were coded from 0 to 10, with the low and high endpoints labeled "strongly disagree" and "strongly agree," respectively;
Judgment Quality = the absolute deviation of each preparer's assessment from the experts' mean assessment;
Deviation from Prior Year Assessment = the absolute deviation of each preparer's assessment from the prior year assessment;
Relative Documentation = the number of positive minus negative items documented; and
Relative Recall = the number of positive minus negative items recalled.
[b] Due to homogeneity of variance issues, the t-tests conducted for *Audit Efficiency* and *Deviation from Prior Year Assessment* did not use pooled variances. All tests are one-tailed.

of concern than the email review group (nontabulated means of 7.27 and 6.27 respectively, p = .087).

Preparers' current year going concern assessments differ across the two review groups. Hypothesis 2b examines an indirect measure of effectiveness, judgment quality. Judgment quality is measured by computing the absolute deviations of preparers' assessments from the mean of an expert group (Libby and Libby 1989; Tan 1995). Tan (1995, 131) presents this measure as a "useful effectiveness benchmark in public accounting." Similar to H2a, H2b predicts higher judgment quality for face-to-face preparers than email preparers. In our study, the face-to-face group's mean going concern assessment (0.60) is nearly identical to that of the three experts (mean = 0.67), while the email group mean (2.57) differs considerably from the experts' assessment.[13] Mean absolute deviations from the expert

[13] The mean going concern assessment of these three experts (0.67) is consistent with that obtained from four audit partners (0.50), provided with identical prior year and current year information, in Tan (1995).

group are significantly smaller for the face-to-face group (2.60) than the email group (3.51, p = .030, Table 2), providing support for H2b.[14]

Hypothesis 3 examines preparers' absolute deviations from the prior year assessment. Consistent with H3, preparers anticipating a face-to-face review deviate farther from the prior year assessment of +4 than preparers anticipating an email review (mean absolute deviations = 3.40 and 1.47, respectively, p = .013, Table 2). This deviation by the face-to-face group appears to be appropriate as their current year assessments are more in line with those of the audit experts.

Given that the prior year's conclusion indicates that the "going concern assumption appears reasonable," items that undermine the going concern assumption (i.e., negative items) are inconsistent with the prior year's conclusion, while items that support the assumption (i.e., positive items) are consistent.[15] Hypotheses 4a and 4b state that face-to-face preparers will document and recall relatively more evidence items that are inconsistent (i.e., negative) rather than consistent (i.e., positive) with the prior year workpapers' conclusion compared to preparers anticipating email review. The results support these hypotheses. On average, participants in the face-to-face group document 2.87 more *negative* items than positive items, while those in the email review group document 0.40 more *positive* items than negative items (p = .007, Table 2). Also, face-to-face preparers recall 2.40 more *negative* than positive items, while email review preparers recall, on average, 0.27 more *positive* than negative items (p = .009, Table 2).

Implicit in the expectations expressed in H3 and H4 is the assumption that email review should result in greater heuristic processing (specifically, use of the anchoring heuristic) relative to face-to-face review. Some evidence (nontabulated) supports this notion. Consistent with a SALY (or anchoring) approach, the email group appears to be more focused on the prior year data than the face-to-face group. For example, the email group spends significantly more time on prior year evidence and conclusions (2.73 minutes) than does the face-to-face group (1.80 minutes, p = .020), even though they spend significantly less time *in total* to complete the task (20.20 versus 28.33 minutes). Additionally, while examining the current year and prior year evidence, the email group focuses less on current year data than does the face-to-face group, with 62 percent of their total evidence examination time spent examining current year data versus 81 percent for the face-to-face group (p = .006). Also consistent with a SALY approach, the email group spends less time preparing the

[14] Given that prior research suggests that greater accountability can increase the desire for accuracy and confidence in judgment (e.g., Johnson and Kaplan 1991; Kennedy 1993; Tan 1995), we conduct a mediation analysis to consider the role of perceived accountability within an HSM context. Results indicate that preparers' perceived accountability and concern for effectiveness partially mediate the relationship between review method and their going concern assessment.

[15] Evidence items were classified as positive (supports the going concern assumption), negative (undermines the going concern assumption), or irrelevant with respect to the going concern assumption (see Tan 1992). Three individuals with significant audit experience coded the documented and recalled evidence. Coders were blind to the experimental condition. Cohen's (1960) kappa measure of agreement between the three coders was .89 (p < .001). The small number of differences between coders was subsequently reconciled.

current year workpaper (8.53 minutes) than does the face-to-face group (14.27 minutes, $p = .001$).[16]

Comparison with No-Review Control Group

To facilitate comparison with prior studies investigating the effect of the review process on auditor decision behavior, this study compares both experimental groups with a control group that did not anticipate a review (see Table 3). Based on analyses of the dependent variables discussed in H1 through H4 as well as preparer perceptions of accountability, motivation, and effort, the face-to-face group is significantly different from the control group. However, the email group is not significantly different from the control group. These results suggest that it is not merely an impending review that affects the decision processes of audit workpaper preparers, but rather the characteristics of face-to-face review (e.g., less initial response time, the physical presence of the other party, synchronization of communication, etc.). Possibly, for this type of task, an email review is unable to increase the motivation, effort, and feelings of accountability beyond that already experienced by auditors not anticipating a review. Prior studies have shown that auditors in no-review conditions generally report moderate levels of motivation and effort, despite the fact that their responses remain confidential (see, e.g., Kennedy 1993; Glover 1997; Tan and Kao 1999). Indeed, Anderson and Maletta (1999) suggest that auditors bring a certain level of accountability to audit tasks irrespective of accountability manipulations.

V. DISCUSSION AND CONCLUDING REMARKS

Due to technological advancements such as online workpapers and email, audit firms have at their disposal alternative methods of workpaper review that they did not have in the past. While, in practice, preparers typically know they will be reviewed and know the form their review will take, prior research has focused on comparing the judgments and judgment processes of auditors who were aware their work could be reviewed with auditors who expected their work would remain anonymous (e.g., Johnson and Kaplan 1991; Lord 1992; Kennedy 1993; Tan and Kao 1999). This study extends the literature by demonstrating that the form of review chosen by reviewers can influence preparer performance.

The results of this study are consistent with the Heuristic-Systematic Model, which, in this context, predicts greater emphasis on effectiveness (relative to efficiency) for face-to-face preparers compared to electronic review preparers. Results indicate that, compared to an electronic form of review (which was conducted via email), preparers anticipating a face-to-face review are more concerned with audit effectiveness, produce higher quality judgments, are less efficient at their task, are less likely to be influenced by prior year workpapers, and feel more accountable. These findings suggest that these alternative review formats affect preparers' preferences for the often conflicting goals of audit effectiveness

[16] Given that in-person, synchronous interaction does not typically allow much time for reference, face-to-face preparers were informed they would not have "immediate access to the relevant audit evidence when meeting with [their] reviewer to discuss review notes." In contrast, the email group was told they would be able "to access all the relevant audit evidence when developing [their] responses to review notes after receiving them via email." To better understand the mechanism driving our results (the form of interaction with the reviewer or the ability to access evidence), we created a modified face-to-face review condition in which, similar to the email condition, preparers were informed they would be able "to access all the relevant audit evidence" during their meetings with reviewers. With respect to the dependent variables, results obtained with this modified face-to-face condition (utilizing ten auditors with similar demographics to the original 45 participants) are in the expected directions and significantly different from those of the email preparers (all $p < .05$), yet not significantly different than those of the original face-to-face group (all $p > .50$). This supports the notion that the anticipated method of interaction with the reviewer, not the accessibility of evidence, drives our results.

TABLE 3
No-Review Control Group Comparisons

Variable[a,b]		No-Review Control (n = 15)		Comparison to Face-to-Face Review	Comparison to Email Review
Audit Efficiency (time consumed in minutes)	Mean	19.73	test stat	2.907	0.158
	(SD)	5.79	p-value	0.017	0.875
Workpaper Effectiveness (expert assessment)	Mean	3.76	test stat	2.150	0.974
	(SD)	1.00	p-value	0.025	0.307
Judgment Quality (deviation from expert criterion)	Mean	3.54	test stat	−1.871	−0.043
	(SD)	1.54	p-value	0.068	0.966
Deviation from Prior Year Assessment	Mean	1.80	test stat	2.043	−0.405
	(SD)	2.37	p-value	0.047	0.688
Relative Documentation (positive minus negative items)	Mean	0.67	test stat	−2.489	−0.188
	(SD)	4.78	p-value	0.017	0.852
Relative Recall (positive minus negative items)	Mean	0.00	test stat	−2.048	0.228
	(SD)	3.78	p-value	0.047	0.821
Accountability	Mean	4.67	test stat	4.891	0.725
	(SD)	2.19	p-value	<0.001	0.473
Motivation to perform well	Mean	4.67	test stat	4.151	0.618
	(SD)	2.44	p-value	<0.001	0.540
Mental Effort expended on task	Mean	4.40	test stat	5.773	1.237
	(SD)	1.81	p-value	<0.001	0.223

[a] The dependent variables are defined as follows:

Audit Efficiency = the time taken to complete the going concern assessment task;
Workpaper Effectiveness = determined by averaging the responses of three experts to a statement indicating that the preparer's workpaper was effective. Responses were coded from 0 to 10, with the low and high endpoints labeled "strongly disagree" and "strongly agree," respectively;
Judgment Quality = the absolute deviation of each preparer's assessment from the experts' mean assessment;
Deviation from Prior Year Assessment = the absolute deviation of each preparer's assessment from the prior year assessment;
Relative Documentation = the number of positive minus negative items documented;
Relative Recall = the number of positive minus negative items recalled;
Accountability = responses coded from 0 to 10, with the low and high endpoints labeled "not at all accountable" and "extremely accountable," respectively;
Motivation = responses coded from 0 to 10, with the low and high endpoints labeled "not at all motivated" and "extremely motivated," respectively; and
Mental Effort = responses coded from 0 to 10, with the low and high endpoints labeled "no mental effort" and "extreme mental effort," respectively.

[b] Due to homogeneity of variance issues regarding comparisons between the face-to-face and no-review groups, the t-tests conducted for *Audit Efficiency*, *Workpaper Effectiveness*, and *Accountability* did not use pooled variances. With respect to email and no-review group comparisons, the t-test conducted for *Workpaper Effectiveness* did not use pooled variances. All tests are two-tailed.

and efficiency. Specifically, an impending face-to-face review appears to cause preparers to utilize a more systematic approach and to be more concerned with the pre-review effectiveness of their workpapers, while electronic review appears to cause preparers to utilize a more heuristic approach and to place more value on efficiency. As a result, it may not be prudent to view these two commonly utilized review formats as wholly interchangeable or equivalent substitutes for one another.

To facilitate comparisons to prior research and to contribute to the understanding of the accountability construct in the audit environment, we include a no-review group in the experiment. Consistent with prior literature (e.g., Kennedy 1993; Glover 1997), preparers in the face-to-face group are significantly different than those in the no-review group with respect to their performance and perceptions of accountability. However, the electronic group does not differ significantly from the no-review group. These findings suggest that, more than simply an *awareness* of an impending review, the *method* of the review can affect preparer performance. Electronic review (a popular method currently used in practice) does not appear to create the same effects as more traditional "accountability" manipulations found in prior studies that typically involve the expectation of meeting in-person with a superior to justify conclusions (see, e.g., Johnson and Kaplan 1991; Kennedy 1993; Glover 1997).[17]

As with all research, our study's limitations should be considered when evaluating the findings. While our results suggest that electronic review can lower the quality of the going concern judgment relative to face-to-face review, our study does not address whether this lower quality is below an acceptable level for this judgment. Also, our study investigates the initial workpaper submission phase. The efficiency gains of electronic review may attenuate by the time of the final workpaper submission (i.e., after review notes have been cleared) due to preparers being less concerned with initial workpaper effectiveness and, thereby, preparers and reviewers potentially spending greater time clearing review notes. This issue was beyond the scope of our study. It is also possible that differences in judgment quality between the two review methods diminish by the final workpaper phase. However, recent research suggests that differences in pre-review judgment are likely to persist after review (Agoglia et al. 2003). Finally, in this study we examine only the two most common forms of review. There are other formats under which a review could be conducted such as by telephone or voicemail, and still others may evolve such as "live" electronic exchanges via the Internet.

The findings of this study have implications for practice and future research. Because the form of review may affect the behavior of preparers, both researchers and audit firms should consider the ramifications of alternative review methods with respect to the potential impact on preparers' performance of the task at hand. For example, in a high-risk audit environment where audit effectiveness is of greatest concern, reviewers may consider using

[17] The results regarding the email review and no-review conditions are not necessarily inconsistent with the results of prior accounting studies showing differences between review/accountable conditions and no-review/nonaccountable conditions. Email review is an inherently different form of review than those typically used in prior studies (e.g., Johnson and Kaplan 1991; Lord 1992; Hoffman and Patton 1997). Those studies generally employed a threat of review similar to, or stronger than, our face-to-face review condition (e.g., the anticipation of meeting in-person with a superior(s) to justify conclusions). Thus, one might expect comparisons between our face-to-face review and no-review conditions to be similar to comparisons between review and no-review conditions of prior studies, and our results are consistent with that expectation. However, the less threatening nature of our email review condition, in conjunction with the relatively high baseline levels of accountability generally found with no-review conditions (including our no-review participants), should reduce one's expectations of differences between our email and no-review conditions.

face-to-face review. In contrast, electronic review may offer benefits beyond potential efficiency gains (such as enhanced coordination of information between audit team members) for lower risk tasks and tasks in which effectiveness is not significantly reduced by using this format. Future research could explore other possible effects of these two, and other, methods of review found in practice. For example, future research comparing alternative methods of review could examine issues such as task complexity (and other task characteristics) and preparer expertise to determine what methods may be most appropriate under differing circumstances. Other important outcomes of the review process (e.g., training and evaluation of preparers) could be examined with respect to review formats. Also, the effect of alternative review methods on the perceptions and performance of reviewers (e.g., the effectiveness and efficiency of their review procedures) represents a fruitful area of research. Such research will further our understanding of the potential advantages and disadvantages of the possible methods of review for audit workpapers.

REFERENCES

Agoglia, C. P., T. Kida, and D. M. Hanno. 2003. The effects of alternative justification memos on the judgments of audit reviewees and reviewers. *Journal of Accounting Research* 41 (March): 33–46.

American Institute of Certified Public Accountants (AICPA). 1978. *Planning and Supervision.* Statement on Auditing Standards No. 22. New York, NY: AICPA.

———. 1988. *The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern.* Statement on Auditing Standards No. 59. New York, NY: AICPA.

Anderson, B. H., and M. J. Maletta. 1999. Primacy effects and the role of risk in auditor belief-revision processes. *Auditing: A Journal of Practice & Theory* 18 (Spring): 75–89.

Asare, S. K., and L. McDaniel. 1996. The effect of familiarity with the preparer and task complexity on the effectiveness of the audit review process. *The Accounting Review* 71 (April): 139–159.

Bamber, E. M., and J. H. Bylinski. 1987. The effects of the planning memorandum, time pressure and individual auditor characteristics on audit managers' review time judgments. *Contemporary Accounting Research* 3 (Fall): 501–513.

Baltes, B. B., M. W. Dickson, M. P. Sherman, C. C. Bauer, and J. S. LaGanke. 2002. Computer-mediated communication and group decision making: A meta-analysis. *Organizational Behavior and Human Decision Processes* 87 (January): 156–179.

Beach, L. R., and T. R. Mitchell. 1978. A contingency model for the selection of decision strategies. *Academy of Management Review* 3: 439–449.

Bettman, J. R., E. J. Johnson, and J. W. Payne. 1990. A componential analysis of cognitive effort in choice. *Organizational Behavior and Human Decision Processes* 45 (February): 111–139.

Bhattacharjee, S., T. Kida, and D. M. Hanno. 1999. The impact of hypothesis set size on the time efficiency and accuracy of analytical review judgments. *Journal of Accounting Research* 37 (Spring): 83–100.

Bierstaker, J. F., and A. Wright. 2001. The effects of fee pressure and partner pressure on audit planning decisions. *Advances in Accounting* 18: 25–46.

Butler, S. A. 1986. Anchoring in the judgmental evaluation of audit samples. *The Accounting Review* 61 (January): 101–111.

Chaiken, S. 1980. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology* 39: 752–766.

———. 1987. The heuristic model of persuasion. In *Social Influence: The Ontario Symposium*, 5, edited by M. P. Zanna, J. M. Olson, and C. P. Herman, 3–39. Hillsdale, NJ: Erlbaum.

———, A. Lieberman, and A. H. Eagly. 1989. Heuristic and systematic processing within and beyond the persuasion context. In *Unintended Thought*, edited by J. S. Uleman and J. A. Bargh, 212–252. New York, NY: Guilford Press.

Chen, S., and S. Chaiken. 1999. The heuristic-systematic model in its broader context. In *Dual-Process Theories in Social Psychology*, edited by S. Chaiken and Y. Trope, 73–96. New York, NY: Guilford Press.

Cohen, J. 1960. A coefficient of agreement for nominal scales. *Educational and Psychological Measurement* 20 (Spring): 37–46.

Cohen, J. R., G. Krishnamoorthy, and A. M. Wright. 2000. Evidence on the effect of financial and nonfinancial trends. *Auditing: A Journal of Practice & Theory* 19 (Spring): 27–48.

Davis, J. S., and I. Solomon. 1989. Experience, expertise, and expert-performance research in public accounting. *Journal of Accounting Literature* 8: 150–164.

Emby, C., and M. Gibbins. 1988. Good judgment in public accounting: Quality and justification. *Contemporary Accounting Research* 4 (Spring): 287–313.

Gibbins, M., and C. Emby. 1984. Evidence on the nature of professional judgment in public accounting. In *Auditing Research Symposium*, edited by A. R. Abdel-khalik and I. Solomon, 449–471. Champaign, IL: University of Illinois.

Glover, S. M. 1997. The influence of time pressure and accountability on auditors' processing on nondiagnostic information. *Journal of Accounting Research* 35 (Autumn): 213–226.

Hoffman, V. B., and J. M. Patton. 1997. Accountability, the dilution effect, and conservatism in auditors' fraud judgments. *Journal of Accounting Research* 35 (Autumn): 227–237.

Ismail, Z., and K. T. Trotman. 1995. The impact of the review process in hypothesis generation tasks. *Accounting, Organizations and Society* 20 (July): 345–357.

Johnson, V. E., and S. E. Kaplan. 1991. Experimental evidence on the effects of accountability on auditor judgments. *Auditing: A Journal of Practice & Theory* 10 (Supplement): 96–107.

Joyce, E. J., and G. C. Biddle. 1981. Anchoring and adjustment in probabilistic inference in auditing. *Journal of Accounting Research* 19 (Spring): 120–145.

Kachelmeier, S. J., and K. L. Towry. 2002. Negotiated transfer pricing: Is fairness easier said than done? *The Accounting Review* 77 (July): 571–593.

Kennedy, J. 1993. Debiasing audit judgment with accountability: A framework and experimental results. *Journal of Accounting Research* 31 (Autumn): 231–245.

Kida, T. 1984. The impact of hypothesis-testing strategies on auditor's use of judgment data. *Journal of Accounting Research* 22 (Spring): 332–340.

Koonce, L., U. Anderson, and G. Marchant. 1995. Justification of decisions in auditing. *Journal of Accounting Research* 33 (Autumn): 369–384.

Kreitner, R., and A. Kinicki. 2001. *Organizational Behavior.* 5th edition. New York, NY: Irwin McGraw-Hill.

Libby, R. 1981. *Accounting and Human Information Processing: Theory and Applications.* Englewood Cliffs, NJ: Prentice Hall.

———, and P. A. Libby. 1989. Expert measurement and mechanical combination in control reliance decisions. *The Accounting Review* 64 (October): 729–747.

———, and K. T. Trotman. 1993. The review process as a control for differential recall of evidence in auditor judgments. *Accounting, Organizations and Society* 18 (August): 559–574.

Lord, A. T. 1992. Pressure: A methodological consideration for behavioral research in auditing. *Auditing: A Journal of Practice & Theory* 11 (Fall): 90–108.

Low, K. 2004. The effects of industry specialization on audit risk assessments and audit-planning decisions. *The Accounting Review* 79 (January): 201–219.

McAllister, D. W., T. R. Mitchell, and L. R. Beach. 1979. The contingency model for the selection of decision strategies: An empirical test of the effects of significance, accountability, and reversibility. *Organizational Behavior and Human Performance* 24: 228–244.

Payne, J. W., J. R. Bettman, and E. J. Johnson. 1993. *The Adaptive Decision Maker.* New York, NY: Cambridge University Press.

Peecher, M. E., and D. N. Kleinmuntz. 1991. Accountability and justification in audit judgment processes: A comment on Johnson and Kaplan. *Auditing: A Journal of Practice & Theory* 10 (Supplement): 108–113.

Rau, S. E., and D. V. Moser. 1999. Does performing other audit tasks affect going concern judgments? *The Accounting Review* 74 (October): 493–508.

Rich, J. S., I. Solomon, and K. T. Trotman. 1997. The audit review process: A characterization from the persuasion perspective. *Accounting, Organizations and Society* 22 (July): 481–505.

Salterio, S. 1994. Researching for accounting precedents: Learning, efficiency, and effectiveness. *Contemporary Accounting Research* 11 (Fall): 515–542.

Schlenker, B. R. 1980. *Impression Management: The Self-Concept, Social Identity, and Interpersonal Relations.* Belmont, CA: Belmont-Cole.

Shumate, J. R., and Brooks, R. C. 2001. The effect of technology on auditing in government: A discussion of the paperless audit. *The Journal of Government Financial Management* 50 (Summer): 50–55.

Tan, H. 1992. Effects of expectations and prior involvement on memory for audit judgment: The moderating role of accountability. Doctoral dissertation, University of Michigan, Ann Arbor, MI.

———. 1995. Effects of expectations, prior involvement, and review awareness on memory for audit evidence and judgment. *Journal of Accounting Research* 33 (Spring): 113–135.

———, and A. Kao. 1999. Accountability effects on auditors' performance: The influence of knowledge, problem-solving ability, and task complexity. *Journal of Accounting Research* 37 (Spring): 209–223.

Tetlock, P. E. 1985. Accountability: The neglected social context of judgment and choice. In *The Self and Social Life*, edited by B. R. Schlenker. New York, NY: McGraw-Hill.

———, and J. I. Kim. 1987. Accountability and judgment processes in a personality prediction task. *Journal of Personality and Social Psychology* 52 (No. 4): 700–709.

Trotman, K. T. 1985. The review process and the accuracy of auditor judgments. *Journal of Accounting Research* (Autumn): 740–52.

Wright, A. 1988. The impact of prior working papers on auditor evidential planning judgments. *Accounting, Organizations and Society* 13 (6): 595–605.