

核閱方式與核閱者立場對查核績效之 影響

杜榮瑞*

國立臺灣大學會計學系

林靖傑

國立屏東大學會計學系

廖容翎

資誠聯合會計師事務所審計部

摘要

本文探討查核過程中，核閱方式與核閱者立場等兩種解釋責任對查核績效的聯合影響，是否查核人員在電子核閱下能減少其策略性行為。經以 78 位查核人員實驗後發現，在面對面核閱下，若受試者主管傾向懷疑客戶解釋，相對於主管傾向信任客戶，受試者對於應收帳款餘額評以較低程度允當表達，此種策略性態度移轉在電子核閱下並未減輕。此外，在面對面核閱下，懷疑組的受試者比信任組搜尋更多反向（更少正向）的查核證據，在電子核閱下，正向與反向證據量差距縮小。本文認為，核閱方式在查核人員傾向主管立場的行為中，具調節效果，但此調節效果僅存在於過程而非結果的解釋責任。

關鍵詞：解釋責任、核閱方式、核閱者立場、查核績效

*通訊作者電子信箱：rrduh@ntu.edu.tw。地址：臺北市大安區羅斯福路四段 1 號。

收稿日：2014年12月

接受日：2016年 2月

二審後接受

主審領域主編：俞洪昭教授

DOI: 10.6552/JOAR.2016.63.2

The Effect of Review Mode and Reviewer Preference on Auditors' Performance

Rong-Ruey Duh*

Department of Accounting
National Taiwan University

Ching-Chieh Lin

Department of Accounting
National Pingtung University

Jung-Ling Liao

Auditing Department
PricewaterhouseCoopers Taiwan

Abstract

This study examines the joint effect on auditor performance of two accountability features in the audit review process: review mode and reviewer preference. It investigates whether the auditors' strategic behavior can be mitigated under the e-mail review mode. Seventy-eight auditors participated in an experiment. Results suggest that, under the face-to-face review mode, auditors whose supervisors are known to be skeptical about client-provided explanations make lower likelihood assessment that the explanations can substantially account for the fluctuation of accounts receivable balance than auditors whose supervisors are known to trust the client-provided explanations. Such attitudinal shift is not reduced under the e-mail review mode. In addition, under the face-to-face review mode, auditors in the skeptical condition search for more opposing (less supporting) audit evidence than those in the credence condition. However, such differences diminish under the e-mail review mode. Our finding suggests that auditors' conformity to the reviewer preference can be moderated by review mode for process accountability but not outcome accountability.

Keywords: *Accountability, Review mode, Reviewer preference, Auditor performance.*

* Corresponding author, email: rrdh@ntu.edu.tw. Address : No.1, Sec. 4, Roosevelt Rd., Da'an Dist., Taipei City 106, Taiwan (R.O.C.).

Submitted December 2014

Accepted February 2016

After 2 rounds of review

Field Editor: Professor Hung-Chao Yu

DOI: 10.6552/JOAR.2016.63.2

1. INTRODUCTION

Auditors perform auditing procedures and have their workpapers reviewed by their supervisors. The review process is designed as a quality control mechanism (Solomon 1987; AICPA 2006; Knechel, Krishnan, Pevzner, Shefchik, and Velury 2013) and this accountability requirement is found to increase auditors' effort, and improve audit performance (Koonce, Anderson, and Marchant 1995; Tan 1995; Hoffman and Patton 1997; Tan and Kao 1999). However, as auditors work together with their supervisors for a period of time, they may know the preference of their supervisors (Fargher, Mayorga, and Trotman 2005) and align their views with the preference of supervisors, resulting in strategic attitudinal shift (Kennedy 1993; Gibbins and Newton 1994; Peecher 1996; Tan, Jubb, and Houghton 1997; Wilks 2002). Also, when auditors know that their supervisors tend to trust the audit client's explanations for fluctuations in key account balances, they will search for more client-prompted information than when they know that supervisors tend to be skeptical about the client's explanations (Turner 2001). While this finding is consistent with psychology research (Tetlock, Skitka, and Boettger 1989), it raises a concern about the intended function of review in the audit process. It also gives rise to a question whether such a phenomenon dissipates in other audit environments.¹

With the advancement of information technology, audit firms increasingly adopt the electronic mode of review such as e-mail review through which auditors submit their working papers to their supervisors and in turn supervisors send their review note to the auditors (Janvrin, Bierstaker, and Lowe 2008; Agoglia, Brazel, Hatfield, and Jackson 2010). Electronic communication provides an audit environment that is less bound by time and physical location, making collaboration between dispersed individuals more convenient and less expensive than traveling to meet face-to-face (Kock 2005). Such information technology applications improve efficiency of auditing (Janvrin et al. 2008; Chang, Chen, Duh, and Li 2011), however, prior research indicates that the increased use of electronic review may have a negative impact on auditor performance (Brazel, Agoglia, and Hatfield 2004; Bible, Graham, and Rosman 2005).

Another factor that involves in the effect of accountability is the distinction between outcome accountability and process accountability (Lerner and Tetlock 1999). Process accountability refers to the requirement of justifying the decision process whereas outcome

¹ While the supervisors (reviewers) can devise coping behaviors to "undo" the subordinate auditors' (preparers') strategic behaviors (Rich, Solomon, and Trotman 1997), it is not clear how pervasive the supervisors can anticipate such strategic behaviors, and even if they can, research findings are mixed regarding the effectiveness of such coping behaviors. For example, Tan and Yip-Ow (2001) show that reviewers put less weight on the preparer's conclusion when the preparer structures the working paper in a stylized manner. However, Tan and Trotman (2003) find that the effectiveness depends on the complex interactions of the preparer's attributes and the reviewer's attributes. Rich (2004) indicates that the extent to which the reviewer agrees with the preparer depends on the interactive effects of perceived probability of preparer error and relative accountability to the client and financial statement users.

accountability refers to the requirement of justifying the decision outcome. Psychology literature suggests that process accountability can improve more than outcome accountability in judgments/decisions (e.g., Simonson and Staw 1992; Siegel-Jacobs and Yates 1996). In accounting, Chang, Cheng, and Trotman (2013) have participants in an experiment play the role of either the customer or the supplier to negotiate the service level that both can agree upon, and find that participants under the process accountability condition achieve lower joint costs than those under the outcome accountability condition.² Auditing research that distinguishes between these two types of accountability is rather scant. Peecher, Solomon, and Trotman (2013) provide a framework arguing that auditors' regulatory accountability generally is in the form of penalty rather than reward, and depends on judgmental outcomes rather than processes, and call for more empirical research.

While having auditors' working papers reviewed by their supervisors with known preferences, and having the working papers reviewed through an electronic mode both in separation can result in unintended consequences, it is still unknown about their joint effects on auditor performance. In this paper, we argue that the auditors' strategic behavior can be mitigated under the electronic mode such as e-mail review (Brazel et al. 2004; Koch, Weber, and Wüstemann 2012). Further, the effect may differ depending on whether auditor performance is measured by judgment per se (outcome) or information search (process). We conduct an experiment to examine the joint effect of review mode and reviewer preference on auditor performance. Results with seventy-eight auditors as the participants indicate that, under the face-to-face review mode, auditors reviewed by skeptical supervisors search for less (more) evidence that supports (opposes to) the client's explanation than auditors reviewed by the supervisor with credence preference. Such a difference in evidence search due to reviewer preference diminishes under the e-mail review mode. In contrast to the information search behavior, we do not find an interactive effect between reviewer preference and review mode on auditors' likelihood assessment that the client's explanation can substantially account for the substantial fluctuation of a key account balance.

Our study contributes to the literature in the following ways. First, we provide evidence that review form can interact with reviewer preference to affect auditor's information search behavior. Second, unlike prior research (e.g., Brazel et al. 2004, Bible et al. 2005) that documents an unintended effect of applying information technology, we provide evidence that the use of technology can mitigate the auditors' selective information

² Libby, Salterio, and Webb (2004) compare managerial judgment under process accountability with that under no accountability. Kadous and Sedor (2004) examine a managerial decision issue where both outcome and process accountabilities are included in an experimental setting but does not compare the effects of these two types of accountability.

search. Third, we contribute to the accountability literature by identifying a condition under which the tendency of strategic behavior can be attenuated. Finally, we find that the mitigating effect is more pronounced when auditors are required to provide evidence than when they are to provide the judgment, contributing to the literature on process and outcome accountability. The remainder of this paper is structured as follows. Next section reviews prior literature, which is followed by the development of hypotheses. The third section explains the research method. The fourth section presents experimental results and the final section is conclusion and limitations.

2. BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 Process Accountability and Outcome Accountability

Following the accountability paradigm in social psychology (e.g., Tetlock 1983a, 1983b; Tetlock 1985; Tetlock and Kim 1987), accounting researchers use review as a representation of accountability and find that when the reviewer's preference is unknown to the subordinate auditors, accountability leads to higher effort (e.g., Koonce et al. 1995; Hoffman and Patton 1997), enhances the accuracy of auditors' judgments (Ashton 1990; Tan and Kao 1999; Koch et al. 2012), and results in higher consensus and self-insight of auditors (Johnson and Kaplan 1991).³

While early research in auditing does not distinguish between outcome accountability and process accountability, psychology research suggests that process accountability encourages individuals to try to understand the environment surrounding their decisions rather than merely attaining better outcomes. Individuals thus focus their attention on ensuring that their decision processes are appropriate and defensible, leading them to make a greater effort and be more systematic in acquiring and processing information about their environment (Simonson and Staw 1992; Lerner and Tetlock 1999; Brtek and Motowidlo 2002). In contrast, outcome accountability induces directional motivation, which focuses an individual's attention on acquiring and processing information that enables an individual to reach a desired outcome (De Dreu, Koole, and Steinel 2000). De Dreu et al. (2000) argue that outcome accountability will induce individuals to process information in accordance with their pre-disposed conclusions. Although process accountability can improve judgments more than outcome accountability in these aspects, Lerner and Tetlock (1999) suggest that such an improvement does not always hold. For example, when the preference of the reviewer is known to the auditor, the auditor's search for information may not be as complete as when she is not aware of the reviewer's preference. Motivated

³ Accountability also makes auditors more conservative (Lord 1992), and over-interpret irrelevant or non-diagnostic information, resulting in the dilution effect (Glover 1997; Hoffman and Patton 1997). See Nelson and Tan (2005), and Knechel et al. (2013) for reviews.

reasoning may lead the auditor to biased information search toward the evidence that aligns with the preference (Kunda 1990), an issue that we will examine in this paper.

2.2 Reviewer Preference and Auditor Performance

While accountability has the above-mentioned positive effects on auditor judgment and efforts, auditors are yet conscious of, and attempt to manage, their professional image when interacting with supervisors (Stefaniak and Robertson 2010). Consistent with this view, prior auditing research finds that under certain circumstances, accountability can lead to auditors' strategic attitudinal shift. Fargher et al. (2005) indicate that the preferences of reviewers are often known to the subordinate auditors, and Tan and Shankar (2010) find that subordinates whose workpapers are consistent with reviewer opinion are accorded better performance ratings, giving the subordinates incentives to align with the preference of their reviewers. In line with this implication, Peecher (1996) examines the influence of reviewer preferences on auditors' likelihood assessments of clients' explanations of income-increasing account balance fluctuations. He finds that when the client's integrity level is high, the participants in the credence condition give higher assessments about the plausibility of the client's explanations than those in the objectivity and skepticism conditions. No such an effect is found when the client's integrity is low. Tan et al. (1997) manipulate the judgments of the supervisor in an experiment and require the participants to complete a preliminary risk assessment of inventory obsolescence. Results indicate that the risk assessments of the supervisor significantly influence the subordinates' risk assessments. Turner (2001) further reports differences in auditors' search behavior associated with reviewer preference and the nature of the response mode (belief versus action) in the context of an accounts receivable collectability review. She finds that auditors in the credence-preference condition examine fewer evidence items and follow a more client-prompted search (i.e., search for evidence that follows directly from the client's explanation) than those in the skepticism- or unknown- preference condition. Dukerich and Nichols (1991) indicate that auditors do not make appropriate judgments due to excessive weight on evidence preferred by the reviewers. Wilks (2002) finds that auditors distort evidence toward the known preference of their reviewers before making decisions. Favere-Marchesi (2006) examines how reviewers' familiarity with preparers affects the audit team performance. Results suggest that post-review discussion and familiarity with the preparers are both important sources of audit team performance gains in a review process that includes face-to-face discussions.

2.3 Review Mode and its Effect on Auditor Performance

It is worthy of note that the review mode in the above mentioned studies is a face-to-face one and the findings may not be applied to other environments. Libby and Luft (1993) suggest that environmental factors may affect auditor performance. Advanced

technology has led auditors to perform audit work in electronic environments, including the communication between auditors and their supervisors such as using electronic mode in lieu of face-to-face mode in conducting the review process (Galletta, Hartzel, Johnson, Joseph, and Rustagi 1996; Brazel et al. 2004). Such a different review mode creates another type of accountability (Nelson and Tan 2005), and can have implications for auditor performance (Brazel et al. 2004; Rosman, Biggs, Graham, and Bible 2007; Agoglia et al. 2010).

Brazel et al. (2004) manipulate review mode (electronic versus face-to-face review form) to examine its effect on auditor performance. The experimental results reveal that participants in the face-to-face review group produce workpapers with higher quality than those in the electronic review group. Moreover, participants in the face-to-face review group spend more time preparing workpapers. Rosman et al. (2007) use detailed concurrent verbal protocols to directly measure auditors' behavior and find that auditors successfully identify material errors in the electronic review when they reduce navigation (i.e., less planning and cue acquisition) and increase processing (i.e., more elaboration and integration). Agoglia et al. (2010) examine reviewers' choice of review mode, and find that face-to-face review is perceived to be more effective (i.e., identifying inadequacies and weaknesses in the work performed by a preparer) and electronic review more convenient (i.e., minimizing workload pressure). They also find that when misstatement risk is low, workload pressure can increase the likelihood of using electronic review. However, when misstatement risk is high, face-to-face review is preferred regardless of workload pressures.

These studies have provided useful insights into the effect of electronic review on auditor performance. However, they are conducted in a setting where auditors' knowledge about their supervisors' preference is not taken into account. As a result, whether electronic review can mitigate the auditors' strategic attitudinal shift and their evidence search behavior is unknown. The current study examines these issues. Below, we develop hypotheses for investigations.

2.4 The Effect of Reviewer Preference and Review Mode on Audit Judgement: Outcome Accountability

Reviewer preference affects auditor performance when the preference is known to the auditor and when the review is performed face-to-face. When the review is through electronic mode such as e-mails, the pressure of accountability will be less instant (Brazel et al. 2004; Koch et al. 2012) and therefore the need and tendency of conforming to the known reviewer preference may be weakened. However, when auditors are asked to make a judgment, they will be directed to simply consider whether their judgment per se is aligned with their reviewer's preference, while paying less attention to the defensibility of

evidence (Simonson and Staw 1992; Lerner and Tetlock 1999; Brtek and Motowidlo 2002). Further, it is easier for the reviewer to ascertain whether the auditor's judgment is consistent with her position than to evaluate the evidence that the auditor provides; therefore the reviewer tends to evaluate the auditor in terms of judgmental outcome which is likely to be subject to outcome bias (Kennedy 1995; Peecher et al. 2013). Given this situation, auditors may simply adopt an acceptability heuristic (Lerner and Tetlock 1999) by making a judgment that conforms to the reviewer's preference. Since justifying judgmental outcome is less cognitively demanding than defending judgment processes, the difference in accountability pressure will not lead to much difference, if any, in the judgment (Chen and Chaiken 1999). As such, when the review mode is face-to-face, the difference in judgments between auditors who face the skepticism preference condition and those who face the credence preference condition will not differ from that when the review mode is e-mail review mode. Thus, in making a judgment about the likelihood that the client's explanation can substantially account for fluctuations of a key account balance, when the reviewer is known to be skeptical about (as opposed to trusting) the client's explanation, the assessed likelihood of the subordinate auditor under the email review mode will be lowered to an extent not different from that under the face-to-face review mode. We posit the hypotheses as follows:

H1: The difference in audit judgment between auditors who face the skepticism preference condition and those who face the credence preference condition under the e-mail review mode will not be different from that under the face-to-face review mode.

2.5 The Effect of Reviewer Preference and Review Mode on Search Behavior: Process Accountability

Psychology research suggests that an individual accountable to an important person for the decision process will engage in "pre-emptive self-criticism" by thinking in a more integrative and self-critical manner (Tetlock et al. 1989; Lerner and Tetlock 1999). This causes the individual to attend to the information more thoroughly and enable more complex processing of information (Tetlock 1983a). Accounting research has also found auditors in such a condition to raise vigilance (Johnson and Kaplan 1991), and provide more justifications (Koonce et al. 1995). However, when the preference of a supervisor is known to an auditor and is accountable for the decision process, the auditor will not engage in the necessary cognitive work of analyzing the pros and cons of various positions. Motivated reasoning (Kunda 1990) suggests that, in a reasonable constraint, the auditor will search for more evidence that supports the pre-disposed position and less evidence that opposes to the position. Further, recall of evidence searched during the judgment process may be more demanding and require more effort than just making a judgment. Thus, when

there is less pressure to bias the search for evidence, the auditor, as a cognitive miser, will be less likely to do so (Tetlock et al. 1989).

Since the electronic review mode does not induce the pressure of accountability as much as that under the face-to-face review mode, the tendency of selective evidence search will be attenuated. Audit evidence items can be supporting or opposing to the client's explanations. When an auditor knows the preference of her supervisor, due to the motivation of conforming to the known reviewer preference, the auditor will rely on simple, low effort heuristics that allow her to be confident (Tetlock et al. 1989). Thus, auditors in the credence preference condition will particularly focus on evidence that supports the client-provided explanations. Similarly, to conform to the reviewer preference which is known to be skeptical, auditors will challenge client-provided explanations more vigorously and search for more evidence that refutes the client's explanation to justify their judgments. As such, auditors in the credence preference condition will search for more supporting evidence and less opposing evidence, whereas auditors in the skepticism condition will search for more opposing evidence and less supporting evidence (Rich et al. 1997; Tan and Yip-Ow 2001). Such a difference in the search for supporting or opposing evidence due to the difference in the reviewer preference will be more pronounced for auditors under the face-to-face mode than for auditors under the e-mail mode. This is because auditors in the former condition are under immediate accountability pressure, while in the latter condition the asynchronous nature of electronic review mode provides an opportunity for alleviating such pressure (Brazel et al. 2004). We thus develop the hypotheses as follows:

H2: The difference in the amount of supporting audit evidence searched between the skepticism preference condition and the credence preference condition will be smaller for auditors under the electronic review mode than under the face-to-face review mode.

H3: The difference in the amount of opposing audit evidence searched between the skepticism preference condition and the credence preference condition will be smaller for auditors under the electronic review mode than under the face-to-face review mode.

3. RESEARCH METHOD

3.1 Materials and Task

This study employs a 2 x 3 between-subjects design. One independent variable is the review mode, which is manipulated at two levels: face-to-face review mode and e-mail review mode. The other independent variable is reviewer preference, which is manipulated at three levels: skepticism preference, unknown preference, and credence preference. The unknown preference condition serves as a benchmark in evaluating the effect of known preference on auditor performance. Participants were randomly assigned to one of the 6 groups.

Each participant was given a five-part experimental instrument for making auditing judgments. The first part of the instrument states that the purpose of the study is to understand auditors' judgments. The participants were informed that their work would be reviewed by their audit manager. Participants in the face-to-face review mode were given the information: "After you complete the workpapers, the manager will meet with you and review your workpapers face-to-face. During the review, you are supposed to answer the manager's questions, and provide rationale for your assessment face-to-face." Participants in the e-mail review mode were given the information: "After you complete the workpapers, the manager will review your workpapers via e-mail. During the review, you are supposed to answer manager's questions, and provide rationale for your assessment via e-mail. You do not have to meet the manager in person." As to the manipulation of reviewer preference, participants in the unknown preference condition were given no further information aside from the instruction that their work would be reviewed by their manager. For participants in the credence or skepticism condition, we provided further information following Peecher (1996) with minor modification based on a pilot study. Participants in the skepticism condition were told: "Your manager reminds you that the credibility of the client's explanations is low and that he is concerned about the potential for auditors to accept, without adequate justification, client-provided explanations for the cause of any unusual account balance fluctuations. He emphasizes that auditors should maintain professional skepticism in utilizing client-provided explanations. You and your colleagues have also observed that the manager pays particular attention to audit quality. He will go through any details documented in the working papers prepared by his subordinates."

Participants in the credence condition were provided the information as follows: "Your manager reminds you to finish the audit task on time. He is concerned about the potential for auditors to undertake, without adequate justification, costly investigations when determining the cause of unusual account balance fluctuations. He emphasizes that the information offered by the client is credible and should be adequately utilized to

increase audit efficiency. You and your colleagues have also observed that the manager pays particular attention to audit efficiency. Auditors should be prepared to explain to him the necessity for any excessive audit hours.”

The second part of the instrument provides the participants with the background of the audit client, including the industry, product (game player), and competition. A summary of financial position and operating performance, an aging analysis of accounts receivable, information on confirmations and cash collections subsequent to the balance sheet date, and the audit client’s explanations for the change in accounts receivable are also provided.

In the third part, participants are required to judge the extent to which the client’s explanation can substantially account for fluctuations in accounts receivable balance on a 1-10 scale where 1 represents definitely no and 10 definitely yes. In addition, participants were required to list all evidence items they considered in making the judgment. Part 4 of the instrument is a post-experimental questionnaire for collecting data on the pressure that participants perceived, their familiarity with the task, their self-rated efforts exerted on the task and the degree to which they felt the manager gave credence to the client’s explanation. Finally, the participants provided their demographic information in Part 5.

3.2 Participants

We recruited practicing auditors from a Big 4 firm as participants who have experiences with auditing accounts receivable and allowance for doubtful accounts. A senior partner in the audit firm identified the required minimum experience for such an audit task to be three years though more experienced auditors will be more knowledgeable. We thus recruited 90 auditors with three to five years of audit experience as participants. Since we adopt a 2 x 3 between-subjects design, each of the six versions of materials was randomly distributed to 15 auditors. Ninety returned responses were collected, among which 78 responses are useable.⁴ On average, their length of experience is 4.01 years. A majority of them earned a bachelor’s degree (38.46%) with the remainder (61.54%) holding a master’s degree. ANOVAs indicate that the demographic background including audit experience, gender, and education does not significantly differ across the conditions (p 's > 0.10).

3.3 Procedures

The experiment was conducted during training sessions of the firm. One session is for the face-to-face review mode, and the other is for the e-mail review mode.

⁴ Incomplete responses (e.g., failure to provide information on evidence items) were not used for analysis.

All participants were asked to prepare a workpaper on which they judged the extent to which the client's explanation can substantially account for the fluctuation in accounts receivable balance on the 1-10 scale. They were asked to list the evidence items they considered in making the judgment. Finally, participants completed the post-experimental questionnaire and provided demographic information.

Participants under the face-to-face review mode met with their manager for the audit review after submitting their workpapers. Those in the e-mail review mode were asked to submit via e-mails their workpapers to their respective manager for review and were told that their manager would send the review notes to them via e-mails.

3.4 Dependent Measures

3.4.1 Audit judgment

The participants' likelihood assessment that the client's explanation can account for the substantial fluctuation in accounts receivable balance is the dependent variable for testing H1.

3.4.2 Audit evidence

We classify the evidence that the participants considered into supporting evidence or opposing evidence. The evidence that supports the client-provided explanations is termed "supporting evidence" whereas the evidence that refutes or disconfirms the client-provided explanation is "opposing evidence." The number of supporting evidence and the number of opposing evidence listed by the participants are analyzed for testing H2 and H3, respectively. One author and an auditor not involved in the study independently performed coding on supporting items, and opposing items, respectively. The Kappa coefficients are 0.86 and 0.80 (p 's < 0.01), respectively, suggesting substantial agreement (Sim and Wright 2005). Differences are resolved by discussions.

4. RESULTS

4.1 Manipulation Checks

We asked participants to rate how accountable they felt when making the judgments on a 1-10 scale (1 = Not at all Accountable, 10 = Extremely Accountable) in the post-experimental questionnaire. Participants under the face-to-face review mode report an average of 7.42 whereas those under the e-mail review mode report an average of 6.65. Thus, while both groups felt accountability pressure, participants under the face-to-face mode condition perceive significantly higher pressure than those under the e-mail mode condition ($p < 0.05$; two-tailed). Participants were also asked to indicate the degree to which they felt that the manager gave credence to the client-provided explanations on a

1-10 scale (with 1 =Not at all, 10 = To a Very Large Extent). ANOVA results indicate that participants responded differently among the skepticism, unknown, and credence conditions ($p < 0.01$), with the mean of 4.87, 7.05, and 8.72, respectively. Pair-wise comparisons suggest that the difference between skepticism (or unknown) and credence conditions is significant (p 's < 0.01), and the difference between skepticism and unknown conditions is not significant ($p < 0.01$). Overall, our manipulations on review modes and reviewer preferences are successful.

4.2 Descriptive Statistics⁵

TABLE 1 shows the evidence items provided by the participants and their respective frequency. There are seven supporting evidence items and eight opposing evidence items. Among the supporting items, “The confirmation of accounts receivable revealed that all discrepancies were reconciled” appeared 32 times, accounting for about one-third of the total frequency of the supporting evidence items. “The amendment of credit terms may imply poor collectability of accounts receivable” is the opposing evidence item that appeared most (33 times, accounting for about one-third of total frequency). Overall, the evidence items can be classified as: confirmation reconciliation, collectability subsequent to the balance sheet date, accounts receivable turnover rate, percentage of uncollectible accounts after the amendment of credit terms, the growth of net sales compared to accounts receivable, percentage of uncollectible over-due accounts receivable, response rate of confirmations, analysis of industry and competitors, analysis of major customers, and related parties transactions.

TABLE 2 presents descriptive statistics of audit judgment, the number of supporting evidence, and the number of opposing evidence by participants in the three conditions of reviewer preference. Panels A, B, and C present the means and standard deviations of all dependent measures. Panel A shows that, under the face-to-face review mode, skepticism and unknown participants have the lowest likelihood assessments with an average of 5.846 and 5.833, respectively, with the credence condition has the highest assessment (mean = 6.923). It is worthy of note that the likelihood judgment in the “unknown” condition is almost the same as that in the skepticism condition. Under the e-mail review mode, the lowest likelihood assessments lie in skepticism and unknown conditions, with averages of

⁵ ANOVA assumes normality, randomization, and homogeneity. This study sets the significance level at $p = 0.05$ (lower than $p = 0.1$) to overcome the violation of the normality assumption (Kirk 1995). Randomization is assured since the participants were randomly assigned to one of the six conditions. In all but one ANOVA, the dependent variables are with homogeneous variance. In the case that violates the homogeneity assumption (i.e., number of opposing evidence items), we perform the ANOVA with the heterogeneous variance, and the result remains unchanged. In addition, we also perform regression analyses to check the robustness of our findings. Please refer to the “Robustness Tests and Additional Analyses” section.

TABLE 1 List of Supporting and Opposing Evidence Items

Panel A: Supporting Evidence	Frequency	
The confirmation of accounts receivable revealed that all discrepancies were reconciled.	32	(31%)
The portion of accounts receivable that did not respond to confirmations was collected subsequent to the balance sheet date.	24	(23%)
Accounts receivable turnover rate is reasonable according to the new credit terms.	24	(23%)
Percentage of allowance for doubtful accounts is consistent with prior years.	10	(10%)
It is reasonable that both sales and accounts receivable increase due to the new promotion program.	7	(6%)
Company A performed reasonable aging analysis of accounts receivable and careful evaluation of the customers' credit status periodically.	4	(4%)
The ratio of accounts receivable to total assets is reasonable.	<u>3</u>	<u>(3%)</u>
Total	104	(100%)
<hr/>		
Panel B: Opposing Evidence		
The amendment of credit terms may imply poor collectability of accounts receivable.	33	(35%)
Decreases in market share should have a negative effect on sales revenue, but the fact that the company increases sales revenue may imply the occurrence of false transactions which should lead to higher percentage of allowance.	22	(24%)
Company A should provide additional information to support the assessments of allowance for doubtful accounts, e.g., customers' solvency, major customers, aging analysis of three years, related party transactions, etc.	11	(12%)
Accounts receivable turnover rate is lower than industry average.	7	(8%)
Allowance for doubtful accounts related to over-due accounts receivable should increase.	6	(6%)
Among the undue accounts receivable, those not collected subsequent to the balance sheet date should increase allowance for doubtful accounts.	6	(6%)
The response rate of confirmation requests is low.	5	(5%)
The increase in accounts receivable is more than the increase in sales.	<u>4</u>	<u>(4%)</u>
Total	94	(100%)

5.461 and 5.214 respectively. The credence condition is still the highest in audit judgment (mean = 6.384). This shows that skepticism and unknown conditions auditors assess lower likelihoods than credence condition auditors, consistent with findings by Peecher (1996). While both review modes indicate that auditors in skepticism and unknown conditions assess lower likelihoods than credence condition auditors, it appears that the differences in the likelihood assessments among the preference conditions do not vary with the review mode. We will revert to this when we discuss the results of hypothesis testing.

TABLE 2 Descriptive Statistics

Panel A: Audit Judgment				
<i>Reviewer preference</i>	<i>Face-to-face review</i>		<i>E-mail review</i>	
	Mean	SD	Mean	SD
Skepticism n=13,13	5.846	1.214	5.461	1.761
Unknown n=12,14	5.833	2.037	5.214	2.154
Credence n=13,13	6.923	1.255	6.384	1.192
Average n=38,40	6.210	1.579	5.675	1.788

Panel B: Amount of Supporting Evidence				
<i>Reviewer preference</i>	<i>Face-to-face review</i>		<i>E-mail review</i>	
	Mean	SD	Mean	SD
Skepticism n=13,13	0.846	1.068	0.692	0.947
Unknown n=12,14	1.250	1.138	1.000	1.038
Credence n=13,13	2.846	1.281	1.385	0.768
Average n=38,40	1.658	1.438	1.025	0.947

Panel C: Amount of Opposing Evidence				
<i>Reviewer preference</i>	<i>Face-to-face review</i>		<i>E-mail review</i>	
	Mean	SD	Mean	SD
Skepticism n=13,13	2.462	1.808	0.923	0.954
Unknown n=12,14	1.917	0.515	1.500	1.401
Credence n=13,13	0.077	0.277	0.385	0.650
Average n=38,40	1.474	1.502	0.950	1.131

Panel B of TABLE 2 indicates that participants in the credence condition consider more supporting evidence (mean = 2.846) than those in the skepticism or unknown condition (mean = 0.846 and 1.250 respectively) under the face-to-face review mode. Consistent with Turner (2001), this finding suggests that auditors in the unknown condition behave more like those in the skepticism condition than those in the credence condition. Under the e-mail review mode, the average amount of supporting evidence considered by the participants is 1.385, 0.692, and 1.000 respectively for the credence, skepticism, and unknown condition. This pattern of statistics shows that the participants in the credence condition attend to more supporting evidence than those in the skepticism condition but the difference is larger under the face-to-face review mode (2.846 vs. 0.846) than under the e-mail review mode (1.385 vs. 0.692). In addition, participants under the face-to-face review mode attend to more supporting evidence items than those under the e-mail review mode.

Panel C of TABLE 2 shows that participants in the skepticism condition consider more opposing evidence (mean = 2.462) than in the credence or unknown condition (mean = 0.077 and 1.917 respectively) under the face-to-face review mode. Again, consistent with Turner (2001), this finding suggests that auditors in the unknown condition behave more like those in the skepticism condition. Under the e-mail review mode, the average amount of opposing evidence considered by the participants is 0.923, 0.385, and 1.500 respectively for the skepticism, credence, and unknown conditions. This pattern of statistics is similar to that for the supporting evidence.

4.3 Hypothesis Tests

ANOVA is conducted to test H1. Panel A of TABLE 3 shows that the effect of review mode on audit judgment is not significant ($p > 0.10$). However, the effect of reviewer preference is statistically significant ($p < 0.05$). Besides, the interactive effect of these two variables is not significant ($p > 0.10$). While the insignificant interactive effect does not necessitate the performance of simple main effect tests, to further understand the effect of reviewer preference under each review mode we conduct such tests. The results in Panel B of TABLE 3 show that reviewer preference does not have a significant effect under both modes although the face-to-face mode has a lower p -value ($p = 0.134$, two-tailed). Planned contrast analysis reveals similar results (Panel C). Thus, H1 is supported.

The above analysis includes the unknown condition; we further exclude this condition to more directly test H1. The ANOVA results in Panel A of TABLE 4 indicate that while the main effect of reviewer preference is significant ($p < 0.05$), the main effect of review mode and the interactive effect are not significant ($p > 0.10$). The results of simple main effect tests indicate a similar pattern though under the face-to-face mode, reviewer preference has a significant effect on audit judgment ($p < 0.05$).

To test H2 that the difference in the amount of supporting audit evidence searched between the skepticism preference condition and the credence preference condition will be smaller for auditors under the electronic review mode than under the face-to-face review mode, we conduct an ANOVA. The results in Panel A of TABLE 5 indicate that both main effects and the interactive effect are significant (p 's < 0.05), suggesting that the effect of reviewer preference on the search for supporting evidence is smaller under the e-mail mode than under the face-to-face mode. Overall, the results suggest that when auditors are asked to make a judgment with their reviewers' preference known to them, they tend to make a judgment that conforms to the reviewers' preference whether the accountability pressure is high or moderate.

TABLE 3 Results of H1: Audit Judgment
(3 levels of reviewer preference)

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		2750.218	1	2750.218	1005.427	<0.001
Review mode (<i>RM</i>)		5.142	1	5.142	1.880	0.175
Reviewer preference (<i>RPR</i>)		19.853	2	9.927	3.629	0.032
<i>RM</i> × <i>RPR</i>		0.184	2	0.092	0.034	0.967
Error		196.947	<u>72</u>	2.735		
Total			78			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	10.034	2	5.017	2.134	0.134
	Within subjects	<u>82.282</u>	<u>35</u>	2.351		
	Total	92.316	37			
E-mail	Between subjects	10.110	2	5.055	1.631	0.209
	Within subjects	<u>114.665</u>	<u>37</u>	3.099		
	Total	124.775	39			

Panel C: Planned Contrast Analysis					
<i>Review mode</i>	<i>Reviewer Preference</i>	<i>Reviewer Preference</i>	<i>diff</i>	<i>SE</i>	<i>p-value</i>
Face-to-face	Skepticism	Unknown	0.01	0.613	1.000
		Credence	-1.08	0.601	0.187
		Unknown	-1.09	0.613	0.193
E-mail	Skepticism	Unknown	0.24	0.678	0.929
		Credence	-0.92	0.690	0.384
		Unknown	-1.17	0.678	0.209

TABLE 4 Results of H1: Audit Judgment
(2 levels of reviewer preference)

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		1969.231	1	1969.231	1039.594	<0.001
Review mode (<i>RM</i>)		2.769	1	2.769	1.462	0.233
Reviewer preference (<i>RPR</i>)		13.000	1	13.000	6.863	0.012
<i>RM</i> × <i>RPR</i>		0.077	1	0.077	0.041	0.841
Error		90.923	48	1.894		
Total			52			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	7.538	1	7.538	4.941	0.036
	Within subjects	36.615	24	1.526		
	Total	44.153	25			
E-mail	Between subjects	5.538	1	5.538	2.448	0.131
	Within subjects	54.308	24	2.263		
	Total	59.846	25			

Panel B of TABLE 5 shows the results of simple main effect tests and indicates that under the face-to-face review mode the effect of reviewer preference on the attention to supporting evidence is significant ($p < 0.01$). Under the e-mail review mode, such an effect becomes insignificant ($p > 0.10$). Panel C shows the results of planned contrast analyses, and suggests that participants in the skepticism condition consider fewer amount of supporting evidence than those in the credence condition under the face-to-face review mode ($p < 0.01$). Under the e-mail review mode, the difference is not significant ($p > 0.10$). The result of a comparison between the unknown condition and the credence condition is similar. Thus, while the participants tend to consider more supporting evidence in the credence condition than in the skepticism condition under both modes, the tendency of selective attention is more pronounced under the face-to-face review mode.

**TABLE 5 Results of H2: Amount of Supporting Evidence
(3 levels of reviewer preference)**

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		139.058	1	139.058	125.970	<0.001
Review mode (<i>RM</i>)		7.524	1	7.524	6.816	0.011
Reviewer preference (<i>RPR</i>)		25.296	2	12.648	11.458	<0.001
<i>RM</i> × <i>RPR</i>		6.900	2	3.450	3.125	0.050
Error		79.481	<u>72</u>	1.104		
Total			78			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	28.918	2	14.459	10.624	<0.001
	Within subjects	<u>47.635</u>	<u>35</u>	1.361		
	Total	76.553	37			
E-mail	Between subjects	3.129	2	1.564	1.818	0.177
	Within subjects	<u>31.846</u>	<u>37</u>	0.861		
	Total	34.975	39			

Panel C: Planned Contrast Analysis					
<i>Review mode</i>	<i>Reviewer Preference</i>	<i>Reviewer Preference</i>	<i>diff</i>	<i>SE</i>	<i>p-value</i>
Face-to-face	Skepticism	Unknown	-0.40	0.467	0.666
		Credence	-2.00	0.458	<0.001
		Unknown	Credence	-1.60	0.467
E-mail	Skepticism	Unknown	-0.31	0.357	0.668
		Credence	-0.69	0.364	0.152
		Unknown	Credence	-0.38	0.357

We further exclude the unknown condition from analysis. Panel A of TABLE 6 shows the ANOVA results. Again, both main effects and the interactive effect are all significant (p 's < 0.05). Panel B of TABLE 6 shows the simple main effect results, and suggests the effect of reviewer preference on the search for supporting evidence being primarily driven by the face-to-face review mode. These results support H2.

**TABLE 6 Results of H2: Amount of Supporting Evidence
(2 levels of reviewer preference)**

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		108.173	1	108.173	101.351	<0.001
Review mode (<i>RM</i>)		8.481	1	8.481	7.946	0.007
Reviewer preference (<i>RPR</i>)		23.558	1	23.558	22.072	<0.001
<i>RM</i> × <i>RPR</i>		5.558	1	5.558	5.207	0.027
Error		51.231	48	1.067		
Total			52			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	26.000	1	26.000	18.691	<0.001
	Within subjects	33.385	24	1.391		
	Total	59.385	25			
E-mail	Between subjects	3.115	1	3.115	4.190	0.052
	Within subjects	17.846	24	0.744		
	Total	20.961	25			

To test H3 that the difference in the amount of opposing audit evidence searched between the skepticism preference condition and the credence preference condition will be smaller for auditors under the electronic review mode than under the face-to-face review mode, we perform similar analyses. The ANOVA results as shown in Panel A of TABLE 7 indicate that both main effects and the interactive effect are all significant (p 's < .05).

The findings of simple main effects and planned contrast analyses for opposing evidence are in Panels B and C. Under the face-to-face review mode, Panel B shows that the effect of reviewer preference on the consideration of opposing evidence is significant ($p < 0.01$). Such an effect is less significant under the e-mail review mode ($p < 0.05$). Planned contrast analysis in Panel C suggests that the simple main effect under face-to-face mode in Panel A is driven by the difference between the skepticism condition and the credence condition; but such a difference disappears under the e-mail mode.⁶

⁶ The difference in the amount of opposing evidence between the unknown condition and the credence condition under the e-mail mode is significant at a p-value ($p < 0.05$) higher than the p-value under the face-to-face review mode ($p < 0.001$). While this test is not the main objective of our study, this finding is consistent with the accountability literature which suggests that when the reviewer's preference is unknown to the auditor, the auditor will tend to be more integrative in information processing. In addition, since reviewers are more sensitive to opposing evidence than to supporting evidence (Libby and Trotman 1993), auditors will search for more opposing evidence when the preference of the reviewers is unknown. The higher p-value under the e-mail review mode is also consistent with our argument and manipulation check result that e-mail review is lower than the face-to-face review in inducing accountability pressure.

**TABLE 7 Results of H3: Amount of Opposing Evidence
(3 levels of reviewer preference)**

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		114.062	1	114.062	97.108	<0.001
Review mode (<i>RM</i>)		5.869	1	5.869	4.996	0.029
Reviewer preference (<i>RPR</i>)		37.398	2	18.699	15.920	<0.001
<i>RM</i> × <i>RPR</i>		11.247	2	5.624	4.788	0.011
Error		84.571	<u>72</u>	1.175		
Total			78			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	40.403	2	20.202	16.416	<0.001
	Within subjects	<u>43.071</u>	<u>35</u>	1.231		
	Total	83.474	37			
E-mail	Between subjects	8.400	2	4.200	3.745	0.033
	Within subjects	<u>41.500</u>	<u>37</u>	1.122		
	Total	49.900	39			

Panel C: Planned Contrast Analysis					
<i>Review mode</i>	<i>Reviewer Preference</i>	<i>Reviewer Preference</i>	<i>diff</i>	<i>SE</i>	<i>p-value</i>
Face-to-face	Skepticism	Unknown	0.55	0.444	0.446
		Credence	2.38	0.435	<0.001
		Unknown	Credence	1.84	0.444
E-mail	Skepticism	Unknown	-0.58	0.407	0.344
		Credence	0.54	0.415	0.406
		Unknown	Credence	1.12	0.408

We further exclude the unknown condition from analyses and repeat the above procedures. The ANOVA in TABLE 8 indicates a significant interactive effect ($p < 0.01$). The simple main effects results indicate that under the face-to-face mode, reviewer preference significantly affects the amount of opposing evidence ($p < 0.01$), but under the e-mail mode, the effect becomes insignificant ($p > 0.10$). Thus, the results provide strong support for H3.

**TABLE 8 Results of H3: Amount of Opposing Evidence
(2 levels of reviewer preference)**

Panel A: ANOVA						
<i>Source of Variance</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
<i>Intercept</i>		48.077	1	48.077	41.096	<0.001
Review mode (<i>RM</i>)		4.923	1	4.923	4.208	0.046
Reviewer preference (<i>RPR</i>)		27.769	1	27.769	23.737	<0.001
<i>RM</i> × <i>RPR</i>		11.077	1	11.077	9.468	0.003
Error		56.154	48	1.170		
Total			52			

Panel B: Simple Main Effect						
<i>Review mode</i>		<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>
Face-to-face	Between subjects	36.962	1	36.962	22.092	<0.001
	Within subjects	40.154	24	1.673		
	Total	77.116	25			
E-mail	Between subjects	1.885	1	1.885	2.827	0.106
	Within subjects	16.000	24	0.667		
	Total	17.885	25			

4.4 Robustness Tests and Additional Analyses

While H2 and H3 are supported, the results may be influenced by the differential total amount of evidence across the conditions. To rule out this possibility, we use the total amount of evidence searched by the participants as the covariate to conduct the ANCOVA, the results (untabulated) obtained above are not affected. As another robustness test, following Tan (1995), we subtract the number of opposing evidence from the number of supporting evidence to obtain a net number of supporting evidence to conduct the ANOVA and the subsequent analyses, untabulated results indicate that the effect of reviewer preference on net number of supporting evidence is significant under the face-to-face mode but not under the e-mail mode.

Since the amount of supporting (and opposing) evidence items may be affected by the judgment, resulting in a possible confounding between the main independent variables and the judgment, we conduct ANCOVAs using the participants' likelihood assessment that the client's explanation can account for the substantial fluctuation in accounts receivable balance as a covariate to control for the effect of judgments. The results (untabulated) remain qualitatively unchanged.

We further use the data collected in the post-experiment questionnaire to examine the robustness of H2 and H3 results. In so doing, the self-reported accountability pressure ($X1$, representing review-mode induced pressure), self-reported perceived credence ($X2$, representing reviewer preference), and their interaction term ($X1 \times X2$) as well as the likelihood assessment ($X3$, serving as the control variable) are included in the regression model below:

$$Y = \alpha + \beta_1 X1 + \beta_2 X2 + \beta_3 X1 \times X2 + \beta_4 X3 + \varepsilon. \quad (1)$$

where,

- Y : amount of supporting/opposing evidence;
- $X1$: self-reported accountability pressure;
- $X2$: self-reported feeling that manager gave credence to the client-provided explanations;
- $X1 \times X2$: interaction between variables $X1$ and $X2$;
- $X3$: the participants' likelihood assessment that the client's explanation can account for the substantial fluctuation in accounts receivable balance;
- ε : residuals.

A positive and significant coefficient of $X1 \times X2$ is consistent with H2 when Y is the amount of supporting evidence; and a negative and significant coefficient is consistent with H3 when Y is the amount of opposing evidence. Due to high multi-collinearity between $X1$, $X2$, and their interaction term, we divide the sample into two sub-samples by the median of self-reported accountability ($X1$), i.e. high accountability vs. low accountability, and perform the regression analysis for each sub-sample.⁷ In the high accountability sub-sample, the coefficient of $X2$ is positive and statistically significant ($t = 3.948, p < 0.01$) when using the amount of supporting evidence as the dependent variable, while negative and statistically significant ($t = -3.614, p < 0.01$) when using the amount of opposing evidence as the dependent variable. However, the coefficient of $X2$ is not significant for both supporting and opposing evidence in the low accountability sub-sample. These results are consistent with the H2 and H3. We further exclude the unknown condition and also divide the sample into two sub-samples by the median of self-reported accountability ($X1$) to repeat the analyses, the results are unchanged.

⁷ The resulting regression model becomes $Y = \alpha + \beta_2 X2 + \beta_4 X3 + \varepsilon$.

5. SUMMARY AND LIMITATIONS

Accounting literature finds that auditors conform to their reviewer preference under the face-to-face review mode (e.g., Gibbins and Newton 1994; Peecher 1996; Tan et al. 1997; Turner 2001). The advancement of information technology introduces electronic review modes to the audit practice, which is found to have adverse effects on auditor performance (Brazel et al. 2004; Bible et al. 2005). While these two features of accountability each in isolation have unintended consequences, their joint effects on auditor performance is unknown. This study extends prior research by jointly examining the two features of accountability: review mode and reviewer preference. Review mode is manipulated at two levels: face-to-face review mode and e-mail review mode. Reviewer preference is manipulated at three levels: skepticism, unknown, and credence. In the skepticism condition, the auditor's superior is known to be skeptical about the client's explanation, whereas in the credence condition, the auditor's superior is known to trust the client's explanation. Participants in the unknown preference condition are given no further information except that their work would be reviewed by their manager.

We do not find that the auditors' strategic attitudinal shift under the face-to-face review mode can be mitigated under the e-mail review mode. With respect to the evidence considered, we hypothesize and find that the difference in the amount of supporting evidence considered between auditors in the credence condition and those in the skepticism condition is greater under the face-to-face review mode than under the e-mail review mode. We also hypothesize and find that the difference in the amount of opposing evidence considered between auditors in the skepticism condition and those in the credence condition is greater under the face-to-face review mode than under the e-mail review mode. These results suggest that the reviewer preference effect on selective evidence search exists under the face-to-face review mode. But such an effect diminishes under the e-mail review mode. The above findings hold after several robustness checks and additional analyses.

In summary, our results support the hypotheses. Our results are consistent with the notion that the moderating effect of review mode rests on process accountability, but not outcome accountability. In our experiment, we manipulate reviewer preference and review mode, and require the participants to make a likelihood assessment. We also ask them to list the evidence items they considered in making the assessment. While our manipulation reported earlier is successful, it appears that the manipulation does not result in the differential effect of reviewer preference on the likelihood assessment (outcome) under different review modes, but does yield the differential effect on the search for supporting and opposing evidence to justify their assessment (process).

Our study contributes to the literature by suggesting the use of information technology to alleviate the auditors' tendency of selective evidence search that is induced by reviewer

preference. Our finding that review mode moderates the process accountability effect but not the outcome accountability effect is new in the literature. Such a finding further suggests the importance of the distinction between outcome accountability and process accountability (Lerner and Tetlock 1999) that has not attracted much attention in accounting and auditing research. Peecher et al. (2013) suggest avenues to the accountability research, among which the complementarity between outcome accountability and process accountability is relevant to our paper. Future research may investigate whether outcome accountability coupled with process accountability decreases the likelihood of outcome bias and improve audit quality.

This study has following limitations and suggestions for future research. First, we include the audit judgment on the amount of allowance for doubtful accounts as the audit task in the current study. Though it is an important and increasingly manipulated account, other accounts are to be further examined to validate our findings. Second, the assessment of audit quality in our experiment pertains to finishing preliminary working papers. However, the review process is not finished until the review note is cleared by auditors. Finally, participants in our study come from a Big 4 firm, whether the findings apply to other firms requires further study.

REFERENCES

- Agoglia, C. P., J. F. Brazel, R. C. Hatfield, and S. B. Jackson. 2010. How do audit workpaper reviewers cope with the conflicting pressures of detecting misstatements and balancing client workloads? *AUDITING: A Journal of Practice & Theory* 29 (November): 27-43. (DOI: 10.2308/aud.2010.29.2.27)
- American Institute of Certified Public Accountants (AICPA). 2006. *Planning and Supervision*. Statement on Auditing Standards No.108. New York, N.Y.: AICPA.
- Ashton, R. H. 1990. Pressure and performance in accounting decision settings: Paradoxical effect of incentives, feedback, and justification. *Journal of Accounting Research* 28 (Supplement): 148-180. (DOI: 10.2307/2491253)
- Bible, L., L. Graham, and A. Rosman. 2005. The effect of electronic audit environments on performance. *Journal of Accounting, Auditing & Finance* 20 (January): 27-42. (DOI: 10.1177/0148558X0502000102)
- Brazel, J. F., C. P. Agoglia, and R. C. Hatfield. 2004. Electronic versus face-to-face review: The effects of alternative forms of review on auditors' performance. *The Accounting Review* 79 (October): 949-966. (DOI: 10.2308/accr.2004.79.4.949)
- Brtek, M. D., and S. J. Motowidlo. 2002. Effects of procedure and outcome accountability on interview validity. *Journal of Applied Psychology* 87 (February): 185-191. (DOI:

10.1037//0021-9010.87.1.185)

- Chang, H. H., J. F. Chen, R. R. Duh, and S. H. Li. 2011. Productivity growth in public accounting industry: The role of information technology and human capital. *AUDITING: A Journal of Practice & Theory* 30 (February): 21-48. (DOI: 10.2308/aud.2011.30.1.21)
- Chang, L. J., M. M. Cheng, and K. T. Trotman. 2013. The effect of outcome and process accountability on customer-supplier negotiations. *Accounting, Organizations and Society* 38 (February): 93-107. (DOI: 10.1016/j.aos.2012.12.002)
- Chen, S., and S. Chaiken. 1999. *Dual-Process Theories in Social Psychology*. New York, N.Y.: Guilford Press.
- De Dreu, C. K. W., S. L. Koole, and W. Steinel. 2000. Unfixing the fixed pie: A motivated information-processing approach to integrative negotiation. *Journal of Personality and Social Psychology* 79 (December): 975-987. (DOI: 10.1037//0022-3514.79.6.975)
- Dukerich, J. M., and M. L. Nichols. 1991. Causal information search in managerial decision making. *Organizational Behavior and Human Decision Processes* 50 (October): 106-122. (DOI: 10.1016/0749-5978(91)90036-S)
- Fargher, N. L., D. Mayorga, and K. T. Trotman. 2005. A field-based analysis of audit workpaper review. *AUDITING: A Journal of Practice & Theory* 24 (November): 85-110. (DOI: 10.2308/aud.2005.24.2.85)
- Favere-Marchesi, M. 2006. Audit review: The impact of discussion timing and familiarity. *Behavioral Research in Accounting* 18 (February): 53-64. (DOI: 10.2308/bria.2006.18.1.53)
- Galletta, D. F., K. S. Hartzel, S. E. Johnson, J. L. Joseph, and S. Rustagi. 1996. Spreadsheet presentation and error detection: An experimental study. *Journal of Management Information Systems* 13 (Winter): 45-63. (DOI: 10.1080/07421222.1996.11518133)
- Gibbins, M., and J. D. Newton. 1994. An empirical exploration of complex accountability in public accounting. *Journal of Accounting Research* 32 (Autumn): 165-186. (DOI: 10.2307/2491280)
- Glover, S. M. 1997. The influence of time pressure and accountability on auditors' processing of nondiagnostic information. *Journal of Accounting Research* 35 (Autumn): 213-226. (DOI: 10.2307/2491361)
- 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. (DOI: 10.2307/2491362)

- Janvrin, D., J. Bierstaker, and D. J. Lowe. 2008. An examination of audit information technology use and perceived importance. *Accounting Horizons* 22 (March): 1-21. (DOI: 10.2308/acch.2008.22.1.1)
- 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.
- Kadous, K., and L. M. Sedor. 2004. The efficacy of third-party consultation in preventing managerial escalation of commitment: The role of mental representations. *Contemporary Accounting Research* 21 (Spring): 55-82. (DOI: 10.1506/R0MH-W9H9-CQJD-1356)
- Kennedy, J. 1993. Debiasing audit judgment with accountability: A framework and experimental results. *Journal of Accounting Research* 31 (Autumn): 231-245. (DOI: 10.2307/2491272)
- Kennedy, J. 1995. Debiasing the curse of knowledge in audit judgment. *The Accounting Review* 70 (April): 249-273.
- Kirk, R. E. 1995. *Experimental Design*. Pacific Grove, CA: Brooks/Cole Publishing.
- Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U.K. Velury. 2013. Audit quality: Insights from the academic literature. *AUDITING: A Journal of Practice & Theory* 32 (Supplement): 385-421. (DOI: 10.2308/ajpt-50350)
- Koch, C., M. Weber, and J. Wüstemann. 2012. Can auditors be independent? Experimental evidence on the effects of client type. *European Accounting Review* 21 (4): 797-823. (DOI: 10.1080/09638180.2011.629416)
- Kock, N. 2005. Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behavior toward e-communication tools. *IEEE Transactions on Professional Communication* 48 (June): 117-130. (DOI: 10.1109/TPC.2005.849649)
- Koonce, L., U. Anderson, and G. Marchant. 1995. Justification of decisions in auditing. *Journal of Accounting Research* 33 (Autumn): 369-384. (DOI: 10.2307/2491493)
- Kunda, Z. 1990. The case for motivated reasoning. *Psychological Bulletin* 108 (November): 480-498. (DOI: 10.1037/0033-2909.108.3.480)
- Lerner, J. S., and P. E. Tetlock. 1999. Accounting for the effects of accountability. *Psychological Bulletin* 125 (March): 255-275. (DOI: 10.1037//0033-2909.125.2.255)
- Libby, R., and J. Luft. 1993. Determinants of judgment performance in accounting settings:

- Ability, knowledge, motivation, and environment. *Accounting, Organizations and Society* 18 (July): 425-450. (DOI: 10.1016/0361-3682(93)90040-D)
- Libby, R., 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. (DOI: 10.1016/0361-3682(93)90003-O)
- Libby, T., S. E. Salterio, and A. Webb. 2004. The balanced scorecard: The effects of assurance and process accountability on managerial judgment. *The Accounting Review* 79 (October): 1075-1094. (DOI: 10.2308/accr.2004.79.4.1075)
- Lord, A. T. 1992. Pressure: A methodological consideration for behavioral research in auditing. *AUDITING: A Journal of Practice & Theory* 11 (Fall): 89-108.
- Nelson, M., and H. T. Tan. 2005. Judgment and decision making research in auditing: A task, person, and interpersonal interaction perspective. *AUDITING: A Journal of Practice & Theory* 24 (Supplement): 41-71. (DOI: 10.2308/aud.2005.24.s-1.41)
- Peecher, M. E. 1996. The influence of auditors' justification process on their decisions: A cognitive model and experiment evidence. *Journal of Accounting Research* 34 (Spring): 125-140. (DOI: 10.2307/2491335)
- Peecher, M. E., I. Solomon, and K. T. Trotman. 2013. An accountability framework for financial statement auditors and related research questions. *Accounting, Organizations and Society* 38 (November): 596-620. (DOI: 10.1016/j.aos.2013.07.002)
- Rich, J. S. 2004. Reviewers' responses to expectations about the client and the preparer. *The Accounting Review* 79 (April): 497-517. (DOI: 10.2308/accr.2004.79.2.497)
- 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. (DOI: 10.1016/S0361-3682(97)80165-1)
- Rosman, A., S. Biggs, L. Graham, and L. Bible. 2007. Successful audit workpaper review strategies in electronic environments. *Journal of Accounting, Auditing & Finance* 22 (January): 57-83. (DOI: 10.1177/0148558X0702200105)
- Siegel-Jacobs, K., and J. F. Yates. 1996. Effects of procedural and outcome accountability on judgment quality. *Organizational Behavior and Human Decision Processes* 65 (January): 1-17. (DOI: 10.1006/obhd.1996.0001)
- Sim, J., and C. C. Wright. 2005. The kappa statistic in reliability studies: Use, interpretation, and sample size requirements. *Physical Therapy* 85 (March): 257-268.
- Simonson, I., and B. M. Staw. 1992. Deescalation strategies: A comparison of techniques for reducing commitment to losing courses of action. *Journal of Applied Psychology*

77 (August): 419-426. (DOI: 10.1037/0021-9010.77.4.419)

Solomon, I. 1987. Multi-auditor judgment/decision making research. *Journal of Accounting Literature* 6: 1-25.

Stefaniak, C., and J. C. Robertson. 2010. When auditors err: How mistake significance and superiors' historical reactions influence auditors' likelihood to admit a mistake. *International Journal of Auditing* 14 (March): 41-55. (DOI: 10.1111/j.1099-1123.2009.00402.x)

Tan, C. E. L., C. A. Jubb, and K. A. Houghton. 1997. Auditor judgments: The effects of the partner's views on decision outcomes and cognitive effort. *Behavioral Research in Accounting* 9 (Supplement): 157-175.

Tan, H. T. 1995. Effects of expectations, prior involvement, and review awareness on memory for audit evidence and judgment. *Journal of Accounting Research* 33 (Spring): 113-135. (DOI: 10.2307/2491295)

Tan, H. T., 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. (DOI: 10.2307/2491404)

Tan, H. T., and P. G. Shankar. 2010. Audit reviewers' evaluation of subordinates' work quality. *AUDITING: A Journal of Practice & Theory* 29 (May): 251-266. (DOI: 10.2308/aud.2010.29.1.251)

Tan, H. T., and K. T. Trotman. 2003. Reviewers' responses to anticipated stylization attempts by preparers of audit workpapers. *The Accounting Review* 78 (April): 581-604. (DOI: 10.2308/accr.2003.78.2.581)

Tan, H. T., and J. Yip-Ow. 2001. Are reviewers' judgments influenced by memo structure and conclusions documented in audit workpapers? *Contemporary Accounting Research* 18 (Winter): 663-678. (DOI: 10.1506/UG8M-8H3D-1GA2-7BYK)

Tetlock, P. E. 1983a. Accountability and complexity of thought. *Journal of Personality and Social Psychology* 45 (July): 74-83. (DOI: 10.1037//0022-3514.45.1.74)

Tetlock, P. E. 1983b. Accountability and the perseverance of first impressions. *Social Psychology Quarterly* 46 (December): 285-292. (DOI: 10.2307/3033716)

Tetlock, P. E. 1985. Accountability: A social check on the fundamental attribution error. *Social Psychology Quarterly* 48 (September): 227-236. (DOI: 10.2307/3033683)

Tetlock, P. E., and J. I. Kim. 1987. Accountability and judgment processes in a personality prediction task. *Journal of Personality and Social Psychology* 52 (April): 700-709. (DOI: 10.1037/0022-3514.52.4.700)

- Tetlock, P. E., L. Skitka, and R. Boettger. 1989. Social and cognitive strategies for coping with accountability: Conformity, complexity, and bolstering. *Journal of Personality and Social Psychology* 57 (October): 632-640. (DOI: 10.1037/0022-3514.57.4.632)
- Turner, C. W. 2001. Accountability demands and the auditor's evidence search strategy: The influence of reviewer preferences and the nature of the response (belief vs. action). *Journal of Accounting Research* 39 (December): 683-706. (DOI: 10.1111/1475-679X.00034)
- Wilks, T. J. 2002. Predecisional distortion of evidence as a consequence of real-time audit review. *The Accounting Review* 77 (January): 51-71. (DOI: 10.2308/accr.2002.77.1.51)