Effects of the preparer’s justification on the reviewer’s hypothesis generation and judgment in analytical procedures

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Abstract

The process gains arising from the review process have been the subject of much research interest, but few studies have examined how features in the audit environment can influence the review process. In this paper, we investigate how one such feature — the preparer’s justification for a conclusion made — affects the nature of hypotheses generated by reviewers and their likelihood assessments. Using the context of an analytical procedures task, our results showed that exposure to a preparer’s justification for a non-error cause reduced the number of alternative error hypotheses generated by the reviewer, and increased the reviewer’s belief in the likelihood of a non-error cause. We also showed that three mechanisms moderated the influence of the preparer’s justification on the reviewer’s judgment — generation of alternative hypotheses, explaining an alternative hypothesis, and making an initial independent assessment. Implications of the results are discussed. © 2000 Elsevier Science Ltd. All rights reserved.

In this study, we investigate the effects of one feature of the review process — the preparer’s justification for a conclusion made — on the reviewer’s judgment in an analytical procedures task. One salient and important aspect of the review process is that the conclusion by the preparer is generally accompanied by a justification memo. Prior research has investigated the effects of a preparer’s initial judgment on the review process (e.g. Libby & Trotman, 1993), but little is known about the effect of the preparer’s justification memo on the reviewer’s cognition and judgment.

Investigating the influence of a preparer’s justification on the review process is important because of characteristics of the preparer and justification memos that have been documented in the literature. For example, Pecher (1996) reports that preparers’ judgments and search for alternative hypotheses in an analytical procedures setting are influenced by the preferences of their superiors. This finding, along with related literature (Rich, Solomon & Trotman, 1997a) that suggests that preparers engage in strategic behavior, indicate that justification memos by preparers are likely to be stylized to influence their reviewers (superiors). How the preparer’s justification memo, in turn, influences the reviewer’s judgment and hypothesis generation is the subject of investigation in this study.

Prior research also suggests that the preparer accords greater weight to supporting than non-supporting information (Libby & Trotman, 1993);
this suggests that the preparer’s justification memo is likely to contain relatively more consistent (and less inconsistent) evidence supporting his/her conclusion. Also, the preparer is typically less experienced than the reviewer and therefore more likely to make mistakes. As a result, the preparer’s justification memo may be structured in a manner that emphasizes consistent information, and/or contain mistakes. One of the primary purposes and benefits of the review process is that the reviewer identifies alternative explanations, omissions, or inconsistencies that the preparer may have missed, and assesses whether the preparer’s conclusions are adequately supported (Arens & Loebbecke, 1997; Libby & Trotman). Audit effectiveness and efficiency can be adversely affected if the reviewer is overconfident in the justification memo’s completeness and adequacy (Kennedy & Peecher, 1997).

In our experiment, we used an analytical procedures setting where a preparer suggested a non-error cause for an unusual increase in gross margin to a reviewer. Some reviewers were also exposed to a justification memo written by the preparer, while others were not shown the memo. The justification memo highlighted only supporting evidence and omitted reference to other evidence in the working papers that suggested the plausibility of alternative error causes. The preparer also made some potentially questionable assumptions in the memo. Our results showed that although the reviewers had access to all evidence (both supporting and non-supporting), exposure to the preparer’s justification memo produced two effects on the reviewers’ cognition and judgments. First, it reduced the number of alternative error hypotheses generated by the reviewers. Second, it increased the reviewers’ belief in the preparer’s hypothesized non-error cause.

We designed our experiment so that all auditors read a hypothesized non-error cause proposed by a subordinate, but some reviewers were also given a justification memo. This design enables us to examine the incremental effects of a justification memo, holding the hypothesized non-error cause constant. It also allows us to experimentally depict a situation that likely occurs in practice, where auditors may not undertake analytical procedures first hand; rather, they review the analysis performed by a subordinate together with the related justification. Whether and how analytical procedures will be influenced by this environmental condition is clearly important, given the increasing roles of analytical procedures in audit planning and error detection.

Concerns also have been expressed of a need for reviewers to maintain a critical and independent perspective (e.g. Arens & Loebbecke, 1997; Sullivan, Gnospelius, Defliese & Janicke, 1985), and not merely retrace the preparer’s steps and reasoning (Peat, Marwick, Mitchell & Co., 1976). Given these concerns, we investigated how three mechanisms moderate the influence of the preparer’s justification memo on the reviewers’ judgment — generating alternative hypotheses before making a likelihood assessment, generating and explaining a single alternative hypothesis before making a judgment, and forming an independent likelihood assessment before reading the preparer’s justification. We found these mechanisms to partially offset the impact of the preparer’s justification.

The rest of the paper is organized as follows. The next section develops the hypotheses to be tested, while the third section discusses the research method. Results are then presented. The final section discusses the implications of the results and suggests directions for future research.

1. Hypothesis development

1.1. Preparer’s justification and cognitive effects on the reviewer

Using a memory task, Libby and Trotman (1993) showed that reviewers recalled relatively more evidence that are inconsistent with the preparer’s judgment. Their results also showed that reviewers’ judgments are correlated with their recall of inconsistent evidence, which suggests that reviewers’ judgments may counteract any bias in the preparer’s judgments.

There are, however, at least two situations in which the effects described above may be moderated. The first situation can occur when the
reviewer does not have access to all inconsistent evidence because the preparer failed to document the evidence. Ricchiute (1997) showed that reviewers made biased judgments when they were denied access to all evidence and had access to only the subset of audit evidence documented by preparers. The second situation arises even when all consistent and inconsistent evidence is documented in the workpapers. Specifically, this situation pertains to an important environmental factor that has not been examined in prior research — the preparer’s justification memo that generally accompanies the preparer’s judgment. For example, the auditors who assumed the role of reviewers in Libby and Trotman’s (1993) experiment only received the preparer’s judgment but not the justification memo.

Extant research suggests that the justification memo may be stylized to support the preparer’s judgment and to persuade the reviewer to accept the views documented in the memo (Rich et al., 1997a). The need for the preparers to justify and defend their positions to the reviewer may also tempt them to selectively include, exclude, or differentially weight information to create a coherent account to provide support for the judgments to be justified (Gibbins, 1984). In the discussion that follows, we describe how the preparer’s justification memo can impact the reviewer’s cognition.

Consider an analytical procedures setting where there is an unexpected change in gross profit margin. The preparer submits a justification memo which documents evidence in support of a non-error cause (a change in sales mix) to explain the change in gross profit margin, but fails to highlight evidence that suggests other plausible error causes. The reviewer reads the justification memo (that contains the supporting evidence), but also has access to workpapers that contain the supporting evidence and other evidence that suggest that the change in gross profit margin may be caused by errors in the client’s system. Whether the reviewer decides to make further investigation of the issue depends in part on the persuasiveness of the justification memo.

To make predictions about the effects of a justification memo on the reviewer’s cognition, the model of impression management by Srull and Wyer (1989) may be useful. Applying this model to the analytical procedures context, an expectation (of a non-error cause) is formed and a non-error cause is made salient in the reviewer’s memory when he/she reads the preparer’s hypothesized non-error cause. Two major activities in the memory system then come into play — an inconsistency resolution activity and a bolstering activity. The inconsistency resolution activity attempts to reconcile the expectation (i.e. the non-error cause) with the inconsistent evidence (e.g. evidence suggesting error causes); in contrast, the bolstering activity assesses consistent evidence (e.g. evidence relating to the non-error cause) to confirm their validity. Based on empirical findings showing a recall advantage for inconsistent evidence, Srull and Wyer argue that the inconsistency resolution activity dominates the bolstering activity. In accounting, studies which provide subjects with an inherited judgment (but no justification memo) document findings indicating better recall of inconsistent evidence (e.g. Libby & Trotman, 1993; Tan, 1995).

The presence of a justification memo, however, is likely to alter these cognitive processes. When a reviewer reads the workpapers (that contains both supporting and non-supporting evidence) and the accompanying justification memo (that highlights only evidence supporting but not evidence against the hypothesized non-error cause), additional exposure is now accorded to the supporting information contained in the memo. Two related effects take place. First, more attentional resources are devoted to encoding the supporting evidence. Second, the bolstering activity, which involves a check for consistency of evidence with the phenomenon being explained, is facilitated because the memo identifies only supporting evidence. Consequently, the preparer’s hypothesized non-error cause and the associated supporting evidence become relatively more salient, whereas error causes and associated evidence become less salient in memory. In an accounting setting, auditors instructed to first think about and generate non-error causes generated fewer error causes than those who first generated error causes (Anderson, Kaplan & Reckers, 1992). This suggests that, in the context of our study, a salient non-error cause facilitates the generation of other related non-error
causes but inhibits the generation of error causes (see Nickerson, 1984). The following hypothesis is predicted:

**H1.** Reviewers who are exposed to the preparer’s justification will generate a smaller proportion of error hypotheses than those who are not exposed to the preparer’s justification.

### 1.2. Preparer’s justification and effects on judgment

The discussion above suggests that the justification memo will make the non-error cause hypothesized by the preparer and the supporting evidence documented in the memo more salient to the reviewer. Increased salience of supporting evidence likely causes the reviewer to increase his/her reliance on the preparer’s opinion (e.g. see Tversky & Kahneman, 1973). Moreover, the additional exposure to the logic underpinning the preparer’s judgment manifested through the selective inclusion of supporting evidence could further enhance the reviewers’ assessment of the validity of and reliance on the preparer’s opinions. Libby and Trotman (1993) suggest that the presence of a rationale memo containing largely consistent evidence may increase the cognitive demands on the reviewer in terms of detecting inconsistencies. This implies that the reviewer is more likely to accept the preparer’s conclusion in the presence of a justification memo than in its absence. We therefore predict that, in the absence of any of the moderating mechanisms (some of which are described later), exposure to the preparer’s justification memo will cause reviewers to assign a higher likelihood to the hypothesized cause suggested by the preparer.

**H2.** Reviewers who are exposed to the preparer’s justification will assign a higher likelihood to the preparer’s hypothesized cause than those who are not exposed to the preparer’s justification.

### 1.3. Moderating the influence of preparer’s justification

#### 1.3.1. Hypothesis generation

In the following sections, we develop predictions on how various mechanisms can moderate the influence of the preparer’s justification. We predicted in Hypothesis 1 that exposure to the preparer’s justification will inhibit the reviewer’s ability to generate error hypotheses. We suggest that, notwithstanding this inhibition, the very act of hypothesis generation may suffice to mitigate the persuasive influence of the preparer’s justification on the reviewer’s likelihood assessments. It may be that reviewers who have read the preparer’s justification may generate fewer error hypotheses; however, the mere cognitive process associated with alternative hypotheses generation is likely to reduce the salience of the preparer’s justification and/or increase the salience of alternative hypotheses in the reviewer’s memory (Anderson & Godfrey, 1987; Anderson, New & Speer, 1985; Gettys & Fisher, 1979).

When generating alternative hypotheses, reviewers are likely to attend to information that is not in the preparer’s justification. They will also be more likely, relative to those who do not engage in hypothesis generation, to think about the possibility of multiple causes despite the causal chain developed in the preparer’s justification. These cognitive activities likely weaken the associative links between the preparer’s justification and the relevant consistent information within the reviewer’s memory. This discussion suggests the following hypothesis:

**H3.** Among reviewers who read the preparer’s justification memo, those instructed to generate alternative hypotheses will assign a lower likelihood to the preparer’s hypothesized cause than those not instructed to generate alternative hypotheses.

#### 1.3.2. Explaining an alternative hypothesis

The focus in Hypothesis 4 is on the impact of explaining a single alternative hypothesis. Prior research has shown that where auditors do not generate more than one alternative hypothesis, hypothesis generation will not be effective in reducing auditors’ tendency to overestimate the likelihood of a hypothesized cause (Heiman, 1990). The question then arises as to whether we can promote auditors’ in-depth processing and multi-dimensional thinking, even when only one
alternative hypothesis is generated. This is important given the finding in Heiman that over 30% of the auditors in her study could not generate more than one alternative hypothesis.

Hirt and Markman (1995) showed that explaining an alternative encourages subjects to re-con- consider the evidence, think in more multi- dimensional ways, and assess the evidence with greater objectivity (see also Koehler, 1991). In Heiman’s (1990) study, auditors were not asked to explain the hypotheses generated; in this study, we assess whether subjects instructed to generate one alternative hypothesis and explain the rationale for this alternative hypothesis will be less influenced by the preparer’s justification. Our expectation is that when reviewers are asked to generate and explain an alternative hypothesis, the deliberation on the alternative hypothesis to be documented and the process of constructing an explanation should induce reviewers to engage in more in- depth and critical assessment of the audit evidence. We therefore predict that the “explain an alternative hypothesis” strategy would reduce the persuasive influence arising from the justification memo:

**H4.** Reviewers who have been exposed to the preparer’s justification will reduce their initial likelihood assessments after generating and explaining an alternative hypothesis.

1.3.3. Making an initial assessment

The need to maintain an independent, critical perspective when performing a review has been emphasized in the auditing literature (e.g. Arens & Loebbecke, 1997; Sullivan et al., 1985). In this study, we investigate the effects of having the reviewer make an initial independent assessment prior to reading the preparer’s justification. We had argued earlier that exposure to the preparer’s justification will increase its salience in the reviewer’s mind, and influence the reviewer’s judgment (e.g. Tversky & Kahneman, 1973). Following this argument, it may be that making an independent assessment before being exposed to the preparer’s justification will reduce its salience. Specifically, if reviewers are asked to make likelihood assessments before they are exposed to the preparers’ justification, they may be better able to retain a fresh perspective. Hence, we predict that:

**H5.** Reviewers who make an initial likelihood assessment before reading the preparer’s justification will be less influenced by the preparer’s justification than those who do not make a likelihood assessment before reading the preparer’s justification.

2. Experiment

2.1. Subjects

Fifty-five audit seniors with mean experience of 2.7 years (median = 2.5 years) and four assistant managers with mean experience of 6 years (median = 6 years) from two Big Six CPA firms participated in the experiment. Forty of the subjects were from one firm and the remaining 19 were from the other firm. We received assurance from the training managers that all the auditors participating in the study had experience in reviewing analytical procedures. The subjects in our study reported that they acted as reviewers in approximately 68% of their engagements. One subject did not complete the instrument and was dropped from the analysis. The experiment was administered during the firms’ in-house training sessions. The subjects were randomly assigned to the various experimental conditions. The case required about 30 minutes to complete.

2.2. Independent variables

2.2.1. Between subjects treatment

A 2 x 2 factorial design was used. The first variable had two levels: Justification and No Justification.

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1 For the strategies described in Hypotheses 4 and 5, other than cognitive factors, motivational factors arising from the personal involvement of the reviewer (in explaining an alternative hypothesis and making an initial assessment, respectively) may also be in operation. We do not partition the relative importance of cognitive or motivational factors in our study.

2 The four assistant managers were recently promoted and were sitting in one of the courses on technical-updates. Each of the four managers was randomly assigned to one of the four experimental conditions.
Subjects in the Justification condition were given memos which contained the preparer’s hypothesized cause (a change in sales mix) concerning an unexpected fluctuation in the client’s financial ratios (an increase in gross margin) and the relevant justification in support of the hypothesized cause. Subjects in the No Justification condition received the preparer’s hypothesized cause but not the preparer’s justification.

To test Hypothesis 3, we included a second variable, Hypotheses Generation, which had two levels: Hypothesis Generation and No Hypothesis Generation. Subjects in the Hypothesis Generation condition were asked to list alternative hypotheses before they were asked to assess the likelihood that the preparer’s hypothesized cause led to the increase in sales margin. In contrast, subjects in the No Hypothesis Generation condition were not asked to generate alternative hypotheses before they made the likelihood assessment. Subjects in the No Hypothesis Generation were also exposed to additional within-subject manipulations, described below.

2.2.2. Within subjects treatment

To test Hypothesis 4 concerning the effects of explaining an alternative hypothesis in reducing the influence of the preparer’s justification, subjects in the Justification/No Hypothesis Generation condition were asked to generate and explain one alternative hypothesis after they had made their initial likelihood assessment. They were then asked to assess the likelihood of the preparer’s hypothesized cause one more time. This design replicates a situation where the ‘explain an alternative hypothesis’ strategy is used after the reviewer has already read the preparer’s justification and made an initial judgment.3

To test Hypothesis 5 relating to the effects of making an independent initial assessment, subjects who were in the No Justification/No Hypothesis Generation condition were shown the preparer’s justification after they had made their initial likelihood assessments. They were then asked to assess the likelihood of the preparer’s hypothesized cause a second time. This design mimics a possible review strategy whereby a reviewer first makes an independent judgment before reading the preparer’s justification, and then re-adjusts his/her original judgment based on the preparer’s input.

2.3. Dependent variables

One dependent measure was the number of plausible error and non-error hypotheses generated by subjects. Hypotheses that were irrelevant to or inconsistent with the change in gross profit margin were excluded from the analyses. One of the authors and a rater with 3 years of audit experience independently coded the data. Using Cohen’s (1960) Kappa measure, an inter-rater reliability of 0.93 was obtained. The percentage of agreement was 95%. The small number of differences was subsequently reconciled.4

The other dependent measure was the subjects’ likelihood assessment of the preparers’ hypothesized cause. This was measured using an 11-point scale, with the two extreme points being 0 (extremely unlikely) and 1 (extremely likely); the midpoint of 0.5 represented a neutral point.

2.4. Experimental procedures

Fig. 1 summarizes the procedures for each experimental condition.

All subjects read a set of materials pertaining to a first year manufacturing client in the office equipment business. The materials used in the experiment were developed by reference to those used in Koonce (1992), and in consultation with a colleague who was an ex-audit manager. The materials contained background information and disaggregated financial data on selling price, cost, and gross profit margins for different product lines. Audit managers in our pretest found the task realistic and the materials adequate.

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3 It is possible that this within-subject design may sensitize subjects to the experimental conditions. However, because subjects had made an initial judgment before they explained an alternative hypothesis, they may have anchored on their initial judgments and the effects of explaining an alternative hypothesis may be diminished. This would have biased us from finding an effect.

4 Similar results were obtained using either rater’s coding.
Subjects were told to assume that they were the in-charge auditors for the audit of the financial statements of a first year manufacturing client, and that they had instructed a staff to perform some analytical procedures. They were told that the relevant workpapers were now ready for their review. The memo from the preparer contained figures for the gross profit and gross profit margin for the current and preceding years, indicating an increase in both. It also contained the preparer’s opinion that a change in sales mix (a non-error cause) was the most likely cause of the increase, interview notes made by the preparer based on interviews with various client personnel, and information on the various products. We used a non-error cause in our experiment because

Fig. 1. Summary of experimental procedure.
compromises on audit effectiveness are likely to be greater from accepting false non-error causes than from accepting false error causes.

The information so far was read by all subjects. Subjects in the Justification condition also were shown the preparer’s justification before being asked to make a likelihood assessment. Note that our experiment was designed such that in every condition, the preparer documented a non-error cause (change in sales mix). Also, in every condition, both evidence that was consistent and inconsistent with the preparer’s hypothesized cause (and justification) could be found in the interview notes and supporting workpapers, which the reviewer had access to. In addition, the preparer’s justification (read by those in the Justification condition) was designed to be inadequate in two major aspects. First, it was selective; only information provided by the client that was consistent with the hypothesized cause was included. Neither inconsistent client-provided information nor alternative error causes suggested in the supporting workpapers were considered. Second, the justification was insufficient. Specifically, the preparer’s quantification focused on the change in units sold while assuming that gross profit margins for the previous year would remain unchanged. This assumption was tenuous in the face of keen competition as margins were more likely to have fallen (which is in a direction opposite to the increase in gross profit; on average, every 1% change in gross margin could explain about 20% of the change in gross profit). Audit managers in our pretest confirmed that this assumption was questionable.5

The Hypothesis Generation condition was crossed with the Justification condition. Subjects in the Justification/Hypothesis Generation condition first read the preparer’s justification (and other supporting workpapers described earlier), after which they were instructed to generate as many alternative causes for the change in profit margin. They then made a likelihood assessment. Subjects in the No Justification/Hypothesis Generation condition did not read the preparer’s justification, but generated alternative hypotheses before making a likelihood assessment. Subjects in the Justification/No Hypothesis Generation condition read the preparer’s justification before they were asked to make a likelihood assessment. They were not instructed to generate alternative hypotheses. Finally, subjects in the No Justification/No Hypothesis Generation condition did not read the preparer’s justification or generate hypotheses before making the likelihood assessment.

As part of our within-subject manipulations, subjects in the Justification/No Hypothesis Generation and No Justification/No Hypothesis Generation conditions were also asked to make a second likelihood assessment. After reading the justification memo and making the first likelihood assessment, subjects in the Justification/No Hypothesis Generation condition were instructed to generate and explain one alternative hypothesis that could account for the change in profit margin. They then made a second likelihood assessment. Subjects in the No Justification/No Hypothesis Generation condition first made a likelihood assessment. They were next shown the preparer’s justification, and then made the second likelihood assessment.

The materials for each condition were divided into different sections, each of which was contained in a separate envelope. Subjects were asked to complete the materials sequentially, and were allowed to move on to the next section only after completing the previous section. As an added control, where subjects were asked to generate hypotheses before making the likelihood assessments, the hypotheses generation and likelihood assessment sections were given in separate envelopes that were to be completed sequentially. After subjects had completed all the case materials, they were given the debriefing questionnaires, which contained questions relating to manipulation checks and background information.

3. Results

To assess if there were firm effects, we first conducted analyses using the likelihood assessments...
with the three independent variables (Preparer’s Justification, Hypothesis Generation, and Firm). There was no main effect of Firm \((p = 0.396)\), nor did Firm interact with any of the other independent variables \((\text{smallest } p = 0.695)\), suggesting the absence of firm differences. We also did not find firm effects using the proportion of error hypotheses generated as a dependent measure \((\text{smallest } p = 0.544)\). Thus, our tests were conducted based on data aggregated across firms.

3.1. Effects of preparer’s justification on reviewer’s hypothesis generation

Hypothesis 1 predicted that exposure to the justification memo would lead to the generation of a smaller proportion of error hypotheses. This prediction was tested by examining the hypotheses generated by subjects in the Justification/Hypothesis Generation and No Justification/Hypothesis Generation conditions. We conducted distributional tests on the proportion of error hypotheses variable and the number of error hypotheses variables, and found some evidence that these variables were not normally distributed \((\text{smallest } p\text{-value }= 0.056)\). Hence, we analyzed the data using the Mann–Whitney test, a non-parametric test. Consistent with Hypothesis 1, subjects who were exposed to the justification memo generated a smaller proportion of error hypotheses than those who were not exposed to the justification memo \((\text{Mann–Whitney } U = 42, p = 0.002; \text{means }= 0.23 \text{ and } 0.64, \text{ respectively})\). Additional analyses showed that subjects who were shown the preparer’s memo also generated fewer error hypotheses than those who were not shown the preparer’s memo \((\text{Mann–Whitney } U = 53.5, p = 0.016; \text{means }= 0.80 \text{ and } 1.64, \text{ respectively})\); however, there was no significant difference in the number of non-error hypotheses generated \((\text{Mann–Whitney } U = 98.5, p = 0.764; \text{means }= 1.20 \text{ and } 0.93, \text{ respectively})\).

What is striking is that while only 7% of the subjects in the No Justification condition did not generate any error hypotheses, 67% of the subjects in the Justification condition failed to generate any error hypotheses, an almost 10-fold increase \((\chi^2 = 10.90, p = 0.001)\). These results suggest that although both groups read the hypothesized non-error cause, reviewers who read the preparer’s justification for the non-error cause suffered greater inhibition in terms of the proportion and number of error hypotheses generated.

3.2. Effects of preparer’s justification on reviewer’s judgment

Subjects’ likelihood assessments were used as the dependent variable for testing Hypotheses 2 to 5. A \(2 \times 2\) (Preparer’s Justification × Hypotheses Generation) ANOVA was run, with the two levels of Preparer’s Justification being Justification and No Justification, and the two levels of Hypotheses Generation being Hypothesis Generation and No Hypotheses Generation. Descriptive statistics and the results of the ANOVA analysis are shown in Tables 1 and 2, respectively.

We predicted in Hypothesis 2 that reviewers who were exposed to the preparers’ justification would make higher likelihood assessments than those who were not exposed to the preparer’s justification. The a-priori contrast showed that those who received the justification memo \((\text{Justification/No Hypothesis Generation condition})\) made significantly higher likelihood judgments than those who did not receive it \((\text{No Justification/No

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6 We also ascertained that experience did not interact with any of the other independent variables \((\text{smallest } p = 0.514)\) when the proportion of error hypotheses and likelihood assessment were used as dependent measures.

7 Subjects were asked in the debriefing questionnaire to indicate whether they had read the justification memos. All 58 participants responded positively. The subjects were also asked to indicate what their roles were in the audit tasks they had just performed. All subjects correctly identified themselves as reviewers.

8 We also analyzed the data using \(t\)-tests, and similar results were obtained.

9 All predictions were conducted using one-tailed tests.

10 Across treatment conditions, the number of error and non-error hypotheses generated by our subjects \((\text{means }= 1.06 \text{ and } 1.21, \text{ respectively})\) was comparable to those reported in related studies. For example, Peeker’s (1996) subjects generated an average of 0.79 error hypotheses and 1.28 non-error hypotheses.
Hypothesis Generation condition; means = 0.729 and 0.481, respectively; \( F = 28.25, p = 0.000 \).\(^{11}\)

### 3.3. Moderating the effects of the preparer’s justification

Hypotheses 3–5 relate to the effects of the various mechanisms designed to moderate the influence of the preparer’s justification memo. Hypothesis 3 predicted that the act of hypothesis generation would reduce the influence of the preparer’s justification. Consistent with Hypothesis 3, the difference in likelihood assessments between the Justification and No Justification conditions was smaller for those who generated hypotheses than those who did not generate hypotheses (\( t = 5.84, p = 0.010 \); mean difference = 0.089 and 0.248, respectively).

We also found that even if subjects had engaged in hypothesis generation before they made their likelihood assessments, those who had read the justification memo assigned higher likelihood assessments than those who had not (\( F = 4.88, p = 0.036 \); means = 0.537 and 0.448).

### 3.4. Explaining an alternative hypothesis

Hypothesis 4 tested whether explaining an alternative hypothesis moderated the influence of the preparer’s justification. Hypothesis 4 was tested by examining the pre and post hypothesis generation judgments made by subjects in the Justification/No Hypothesis Generation condition. Subjects in this condition made two likelihood assessments, one after reading the preparer’s justification but before explaining an alternative hypothesis, and one after explaining an alternative hypothesis. Subjects’ pre-hypothesis generation likelihood assessments were significantly higher than their post-hypothesis explanation likelihood assessments (\( t = 2.91, p = 0.006 \) using paired \( t \)-test;
means = 0.729 and 0.690, respectively), although the effect size was small.

3.5. Making an independent initial judgment

Hypothesis 5 predicted that subjects who had made initial likelihood assessments before reading the preparer’s justification would be less influenced by the justification memo than those who had read the memo before making an independent assessment. To test this hypothesis, we compared the responses of subjects in the No Justification/No Hypothesis Generation condition with those in the Justification/No Hypothesis Generation condition. Results were consistent with Hypothesis 5 in that the second assessment by the No Justification/No Hypothesis Generation group (who made an independent initial assessment) was lower than the first assessment made by the Justification/No Hypothesis Generation group (who were not instructed to make an independent initial assessment); their mean likelihood assessments were 0.637 and 0.729, respectively (F = 3.40, p = 0.036). However, the second likelihood assessment by subjects in the No Justification/No Hypothesis Generation condition was significantly higher than their initial likelihood assessment (t = 3.70, p = 0.002 using paired t-test; means = 0.637 and 0.481, respectively). Overall, the results indicate that although subjects who made an independent assessment before reading the justification memo were still influenced by the memo, the extent of influence was less than if they had not first made an independent assessment.

4. Discussion

In this paper, we document how the preparer’s justification memo can influence the reviewer’s judgment and hypothesis generation. In our experiment, all reviewers were given a non-error hypothesis that the preparer proposed was the cause of an unexpected fluctuation in gross profit margin. However, those reviewers who were additionally exposed to the preparer’s justification were significantly less able to generate error hypotheses. The results indicate that while only 7% of subjects who did not first read the justification memo failed to generate any error hypotheses, there was an almost tenfold increase among subjects who had read the justification memo. Given that the generation of error hypotheses is an important first step in the detection of errors and fraud, the failure to initially consider an error hypothesis may limit the ability of the auditor to detect errors (see Elstein, Shulman & Sprafka, 1978).

We also found that exposure to the preparer’s justification significantly increased the reviewer’s assessment of the likelihood of a non-error cause. Consider the case of reviewers who had read the preparer’s justification but did not engage in any of the mechanisms investigated in the study (Justification/No Hypothesis Generation condition). The non-error hypothesis justified by the preparer was assessed to have an above average likelihood (mean = 0.73) of having caused the change in profit margin. In contrast, when the reviewers did not read the preparer’s justification memo before making an assessment, or had engaged in hypothesis generation after reading the justification memo, their belief in the non-error hypothesis was significantly lower, and they considered the likelihood that it caused the gross margin change to be below or at chance level (mean = 0.48 and 0.54, respectively). Note that an auditor’s belief in the likelihood of a non-error cause may have implications for audit effectiveness if the actual cause involves an error. Our study also showed that the reviewers’ assessment of the likelihood of the non-error cause was reduced in three conditions: when they generated alternative hypotheses, when they explained one alternative hypothesis, and when they first made an independent assessment before reading the preparer’s justification memo.

The findings in this paper should also be considered in the light of some of the emerging trends in the review process described in Rich et al. (1997b). One trend relates to fewer details being documented in workpapers at the review stage. To the extent that such details are helpful to the reviewer to enable him/her to assess the conclusions reached in the justification memo, the impact of the justification memo on the reviewer’s judgment and cognition may be magnified. Another trend relates to the reviewer increasingly directing
the work of the preparer and being a co-preparer of the audit work, and the use of real-time oral reviews. Earlier involvement of more experienced auditors at the workpaper preparation stage (e.g. see Prawitt, 1995) and more timely reviews may lead to errors and omissions being more quickly detected [but see Tan (1995) on potential adverse effects of prior involvement].

The following limitations of this study should be noted. First, we used a specific form of justification memo, whereby the preparer documented only supporting evidence and also quantified the explanation. Whether the results reported in this study will generalize to justifications where mixed evidence and/or more qualitative explanations are documented is unknown. Future research can investigate how variations in format or content of the justification memo can influence the reviewer’s judgment. It would also be interesting to determine whether the contents of the preparer’s justification itself could provide cues on the preparer’s objectivity and competence (Hirst, 1994), and correspondingly influence the reviewers’ reliance on the preparer’s work. Second, the potential impact of persuasion knowledge was not examined in this study. Friestad and Wright (1994) suggest that persuasion knowledge (knowledge about persuasive attempts made by others) may determine how well people cope with persuasive attempts. If we view the preparer as someone engaging in persuasive attempts (Rich et al., 1997a), then the extent by which reviewers are influenced by these attempts may be a function of their knowledge of persuasion methods employed by preparers. Consistent with this argument, familiarity with the preparer has been found to improve reviewer effectiveness (Asare & McDaniels, 1996). Relatedly, the knowledge required for review effectiveness can also be related to tacit managerial knowledge (e.g. Tan & Libby, 1997). This issue is left to future research.

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