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THE EFFECT OF EXPLANATION SOURCE AND TYPE
ON AUDITORS' JUDGMENT PERFORMANCE

by

Patricia McGarry Myers

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A Dissertation Submitted to the Faculty of the
COMMITTEE ON BUSINESS ADMINISTRATION
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

1995
As members of the Final Examination Committee, we certify that we have read the dissertation prepared by Patricia McGarry Myers entitled "THE EFFECT OF EXPLANATION SOURCE AND TYPE ON AUDITORS' JUDGMENT PERFORMANCE" and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy/Business Administration.

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I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

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6/26/95
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STATEMENT BY AUTHOR

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PATRICIA DREYER
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ABSTRACT

The purpose of this paper is to investigate the effect of others' explanations for unexpected test results on auditors' judgments of the likelihood that the explanation is correct. Auditors may inherit explanations from various sources. Two primary sources of such explanations are the auditee (client) and a fellow auditor. Two basic types of explanations are error and non-error. Without gathering additional information, auditors cannot know whether a particular unexpected difference is caused by an error (misstatement) or non-error (no misstatement).

A between-subjects design is employed to examine how different combinations of source and type of explanation influence auditors' likelihood assessments. This study utilizes an audit scenario wherein subjects inherit an explanation for an unexpected test result. The explanation is attributed to either a fellow auditor or to an auditee. The explanation specifies either an error cause or a non-error cause for the unexpected test result. The description of each source is identical with respect to competency. However, professional skepticism suggests that subjects will attribute varying reliability to the two sources. The two explanations, although different in type, are equally plausible (as determined by a separate group of subjects who responded to a plausibility survey).

Experimental results provide evidence that type of explanation has a significant effect on participants' judgment performance in the form of their assessments of the likelihood of the inherited explanation. Explanations specifying a non-error cause
were judged as more likely than explanations specifying an error cause. However, contrary to predictions, the source of the explanation did not affect participants' likelihood assessments.

Findings of this study suggest that auditors are more likely to begin with a non-error explanation for an unexpected difference than an error explanation and that the source of an inherited explanation does not have a strong effect on auditors' selection of an initial preferred hypothesis.
CHAPTER I

INTRODUCTION

1.1 Overview

Auditing standards addressing analytical procedures call for the auditor to develop expectations for unaudited amounts, identify and analyze discrepancies between expected and actual unaudited amounts, and hypothesize explanations for and resolve unexpected differences (SAS No 56 AICPA, 1988; SIAS No 8 11A, 1991). According to Solomon and Krogstad (1988, 4):

Once the auditor has identified a difference, . . . two classes of hypotheses are candidates for evaluation: (1) misstatement hypotheses and (2) innocuous (no misstatement) hypotheses. Interesting and important issues for future research relate to which type of hypotheses the auditor starts with and how the starting point is determined.

This study examines the effect of inheriting hypothetical explanations for unexpected differences from others because such an event occurs frequently in auditing.

Inherited explanations have been shown to affect subsequent hypothesis generation (Heiman 1990, Koonce 1992). Hypothesis generation plays a pivotal role not only in analytical procedures in an auditing context, but also in any setting where an unexpected phenomenon must be explained or diagnosed (Einhorn 1976; Elstein and Bordage 1978; Elstein, Shulman, and Sprafka 1978).
1.2 Nature of the Problem

At the time auditors perform analytical procedures, they cannot know whether a particular unexpected difference is caused by an error (misstatement) or non-error (no misstatement). Auditors must gather additional information before that general distinction can be made. Errors and non-errors have at least two inherent dissimilarities: (1) non-errors occur more frequently than errors (Ashton 1991), and (2) errors necessitate audit adjustments to correct misstated account balances, while non-errors do not. Because of the inherent dissimilarities between errors and non-errors, judgment performance may be different when the auditor's initial hypothesis involves an error explanation than when it involves a non-error explanation. Studies that utilize research paradigms where subjects consider only one basic type of explanation ignore an important component of the audit task (e.g., determining the true explanation type). The source of explanations is a second component of the audit task that has not been given adequate attention in prior research. The source of explanations is important because characteristics of an evidence source such as objectivity and competence may be considered when auditors exercise professional skepticism (Koonce 1992). The two primary sources of an auditee and a fellow auditor are distinctly different, especially in terms of objectivity. Objectivity is an element of professional skepticism. While auditing researchers generally agree that the hypothesis generation process is important and recognize that the two basic types of explanations are regularly encountered by auditors, the typical explanation sources
and explanation types have not previously been combined and examined in a single study.

1.3 Contributions of the Study

Although auditors seek explanations from two primary sources during an audit, the effect of an auditee source versus a fellow auditor source has not previously been studied. Because the audit task components of different explanation type and source have not been completely crossed in prior research, it is not known whether past findings can be generalized to more realistic contexts where the true explanation type is unknown and explanations may be provided by sources with inherently dissimilar characteristics.

The purpose of this paper is to investigate the effect of others' explanations for unexpected test results on auditors' judgments of the likelihood that the explanation is correct. A between-subjects design is employed to examine how different combinations of source and type of explanation might influence auditors' likelihood assessments. This study utilizes an audit scenario wherein subjects inherit an explanation for an unexpected test result. The explanation is attributed to either a

\[\text{In the body of research cited and for purposes of this study, others' explanations are defined as messages stating a distinct cause of unexpected test results. The "explanations" in this study are unsupported by additional evidence. The term "explanation" is used so as not to confuse "others' explanations" (inherited hypotheses) with "research hypotheses."} \]
fellow auditor or to an auditee. The explanation specifies either an error cause or a non-error cause for the unexpected test result. The description of each source is identical with respect to competency. However, auditing standards suggest that subjects will nevertheless attribute varying reliability to the two sources due to differences in objectivity. The two explanations, although different in type, were equally plausible.\(^2\) This study should also provide findings relevant to the question posed by Solomon and Krogstad (1988) concerning which type of hypotheses the auditor would begin with and how the auditor selects an initial preferred hypothesis.

Experimental results provide evidence that type of explanation has a significant effect on participants' judgment performance, as evidenced by their assessments of the likelihood of the inherited explanation. Explanations specifying a non-error cause were judged as more likely than explanations specifying an error cause. However, contrary to predictions, the explanation source did not affect participants' likelihood assessments.

\(^2\) A sample of internal auditors who did not participate in the experiment rated several explanations for the unexpected test result. The two explanations chosen for the experiment were those explanations judged by these individuals to be equally plausible. The plausibility survey is discussed in greater detail in Chapter IV.
1.4 Organization of the Paper

The remainder of this document is organized as follows. Chapter II contains a review of directly relevant previous literature. Chapter III develops theoretical arguments upon which the research hypotheses are based. Chapter IV describes the experimental design and development of experimental materials. Chapter V discusses the data gathering, data analysis, results, and implications from the tests of the research hypotheses. Chapter VI contains a summary and general discussion including limitations and possible extensions.
CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Libby developed a diagnostic model of auditor judgment, based on the assumption that audit expertise incorporates error frequency knowledge, which in turn assists auditors in diagnosing error causes of unexpected analytical procedures. However, because errors are infrequent events (Ashton 1991), tests of the diagnostic model, which have concentrated on errors, may not generalize to non-errors. Recent studies demonstrate that auditors perceive fundamental differences in the likelihood of non-error and error explanations (Kaplan, Moeckel, and Williams 1992; Asare and Wright 1992). In the natural course of performing analytical procedures, auditors are often provided with an explanation for unexpected test results. Inheriting an explanation for unexpected test results can influence auditors' subsequent judgment performance (Heiman 1990 and Koonce 1992).

2.2 Cognitive Representation of Analytical Procedures

Cognitive representations of analytical procedures have been developed by Bedard and Biggs (1991a) and by Koonce (1993). These cognitive representations are similar. Bedard and Biggs (1991a) used protocol analysis to develop a cognitive model which specifies four steps which auditors follow during analytical procedures. These steps are similar to the cognitive representation developed by Koonce, which
suggests that the following four cognitive processes interact during analytical procedures: (1) mental representation, (2) hypothesis generation, (3) information search, and (4) hypothesis evaluation.

In performing analytical procedures the auditor recognizes an unexpected difference, and often generates or inherits a set of hypotheses, each of which is a potential explanation for the unexpected test results. The auditor may consult with an auditee, with another member of the audit team, and/or with other sources to create the hypothesis-set. After plausible explanations have been generated, the auditor conducts information search to reduce uncertainty, and evaluates the currently held explanation or hypothesis-set.

2.3 Error Frequency Knowledge and the Diagnostic Model of Auditor Judgment

Many prior studies of hypotheses generation have examined auditors' error-frequency knowledge (e.g., Libby 1985, Libby and Frederick 1990). Libby (1985) found that auditors' judgments of error-cause frequencies are highly correlated with actual frequencies. Libby and Frederick (1990) found that as experience increases, auditors' perceptions of the frequency of the occurrence of error-causes becomes more accurate, and that errors that occur more frequently are more often generated as explanations for unexpected analytical procedures results.
2.4 Challenges to the Diagnostic Model of Auditor Judgment

Ashton (1991) suggests that the diagnostic model of auditor judgment may not describe auditor expertise because financial statement errors are rare events. In two studies where auditors ranked multiple hypotheses which included both non-error and error types of explanations, non-error explanations were ranked as more explanatory than error or irregularity explanations (Asare and Wright 1992), and non-error explanations were ranked as more explanatory than infrequent error explanations (Kaplan, Moeckel, and Williams 1992). These findings suggest that auditors perceive fundamental differences in the likelihood of non-error and error explanations.

2.5 Inherited Explanations

Heiman (1990) found that auditors who inherited a plausible error explanation from an unspecified source did not automatically consider alternative hypotheses. Similarly, Koonsce (1992) found that auditors who were provided with an auditee's plausible non-error explanation did not automatically consider alternative error or non-error hypotheses. Findings from these two inherited explanation studies demonstrate that inheriting an explanation can adversely influence auditors' subsequent judgment performance.

2.6 Potential Implications for Audit Practice

During the course of an audit, auditors must recognize conditions that require
them to deviate from an established audit program (i.e., add, delete, or revise audit procedures). Unexpected test results constitute a common audit condition which might necessitate deviations from an established audit program. Generating potential explanations and selecting the most likely explanation precedes revising the audit program; the revised audit program then guides the auditor's information search for evidence and conclusions on auditee assertions or audit objectives. If auditors are misled by acquiring different types of explanations from different sources, they may not consider the correct explanation as a possibility. As a result, the audit program would not be designed to gather evidence to enable the auditor to test the correct explanation. Thus, audit efficiency and effectiveness can be potentially compromised.

2.7 Summary

If auditors' experience with errors leads them to learn frequency information with regard to errors (Libby 1985, Libby and Frederick 1990), and if financial statement errors are relatively rare events as compared with non-errors (Ashton 1991), it follows that auditors would also learn frequency information with regard to non-errors. Differences in auditors' likelihood assessments between types of explanations might be expected because auditors perceive fundamental differences in the likelihood of non-error and error explanations (Asare and Wright 1992; Kaplan, Moeckel and Williams 1992). Perceived differences in the frequency of non-errors and errors are expected to influence assessments of the likelihood of the two types of inherited
explanations. Further, auditors' likelihood assessments might also be influenced by the source (fellow auditor versus auditee) of the inherited explanations because auditing standards call for auditors to be cognizant of source objectivity (SAS No 31 AICPA 1980) and because auditors' judgment performance can be influenced by inheriting an explanation from an unspecified source (Heiman 1990) or from an auditee (Koonce 1992).
CHAPTER III
THEORY DEVELOPMENT

3.1 Overview

Three primary factors would influence how the likelihood of others' explanations is assessed: (1) plausibility, (2) source credibility, and (3) the frequency with which the event described in the explanation tends to occur in practice. In this study the results of a plausibility survey are utilized to obtain two explanations judged by practicing internal auditors to be equivalent in plausibility. Further, the technical competence of the two sources is described as equivalent. In cases where explanations are provided by the same objective source, differential ratings in source credibility would not occur and source credibility would explain none of the variability in likelihood assessments. However, certain types of explanations, when provided by a source that is not objective, can increase the credibility that is associated with that source (O'Keefe 1990). The third factor that would influence the auditor's likelihood assessment is the frequency with which the provided explanation tends to occur in practice.

3.2 Explanations Provided by a Fellow Auditor

Because a fellow auditor is presumed to be an objective source, differential ratings on source credibility among auditors is not expected. Over time, auditors acquire error frequency knowledge (Libby 1985, Libby and Frederick 1990). The
cause of unexpected differences can more often be attributed to non-errors than to errors (Gibbins 1984, Ashton 1991). If auditors acquire frequency knowledge of relatively infrequently occurring material errors, it follows that experienced auditors would also encode frequency knowledge of more frequently occurring non-errors.

Prior research has demonstrated that auditors make distinctions between the two primary types of explanations and have knowledge of the frequency of non-errors relative to errors (Kaplan, Moeckel, and Williams 1992, Asare and Wright 1992). Specifically, when auditors were provided with five explanations for unexpected test results, they ranked the two non-error causes as more likely than the two error causes and the irregularity cause (Asare and Wright 1992). In Asare and Wright's study, the source of all five explanations was a fellow auditor, thus source credibility was not an issue. Because the base rate of non-errors is higher than that of errors, and because auditors learn error frequency knowledge (Libby 1985, Libby and Frederick 1990), it seems reasonable to expect that auditors also learn non-error frequency knowledge. For these reasons, a non-error explanation provided by a fellow auditor would tend to be assigned a higher likelihood assessment than an equally plausible error explanation from the same source. This leads to the following hypothesis:

---

3 The five explanations for unexpected test results consisted of two frequent errors, two frequent non-errors and one irregularity (Asare and Wright 1992).
**H1**: The mean of likelihood assessments assigned to a fellow auditor's explanations will be greater for the non-error explanation than for the error explanation.

Auditors collect and assess information from differentially reliable sources (Smith and Kida 1991). Auditors are directed to consider the credibility and objectivity of the source in assessing others' explanations. For example, SAS No 56 (AICPA 1988) calls for the auditor to "assess the reliability of the data by considering the source of the data" used to develop expectations and SAS No 65 (AICPA 1991) provides guidance on assessing the objectivity of internal auditors. Schum (1989) posits that the credibility of human evidence sources is based on the competence and objectivity of the source. Thus, when sources are equally competent, the more objective source would be perceived as more credible.

3.3 **Explanations Provided by an Auditee**

An auditee is a less objective source than is a fellow auditor. As discussed earlier, explanations may be classified as either non-errors or errors. There are at least two reasons why the auditor should expect an auditee to provide a non-error explanation rather than an error explanation: (1) in practice, non-errors occur more frequently than errors and, (2) non-errors are consistent with an auditee's self-
interest. While some may argue that an auditee would rarely offer an error explanation because knowledge of the existence of an error implies that an auditee would have corrected that error, this is not necessarily the case. Auditees do offer error explanations in practice and at least occasionally in other academic studies (Bedard and Biggs 1991b). One such scenario follows. Other scenarios where auditees might offer error explanations are presented in Appendix A.

Over time an auditee might have observed a number of apparently unrelated events that were somewhat unusual but individually were not judged to be significant enough to trigger a conscious concern and subsequent investigation. Thus, because of insufficient evidence, the auditee would not have diagnosed an error because it was not apparent from the cues that a diagnostic problem existed. When the auditee receives one more diagnostic cue in the form of an auditor's unexpected analytical procedures test result, the combination of earlier events and analytical procedures result could provide the auditee with sufficient material to diagnose (and suggest to the auditor) an error explanation.

Because an auditee is not independent (SAS No 31 AICPA 1980), assessing the likelihood of an explanation provided by an auditee might be a more complex process than assessing the same explanation provided by a fellow auditor. Base-rate

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4 As discussed later, an auditee would prefer that financial statements and account balances be error free. This implies that an auditee would prefer that unexpected differences be explained by non-errors rather than errors.
considerations alone imply a higher likelihood assessment for a non-error explanation than for an error explanation. However, the auditor should also be influenced by an auditee's lack of independence and objectivity. This implies the auditor would evaluate source credibility before assessing the likelihood of an explanation provided by a source that is not objective.

The social psychology literature suggests that certain combinations of type of message and expectations can influence the perceived reliability level of the source (O'Keefe 1990). In an auditing context, the type of message that the auditor would expect an auditee to provide would be a non-error explanation because, among other things, a non-error explanation is consistent with an auditee's self-interest. An error explanation provided by an auditee would disconfirm the auditor's expectations and cause the perceived reliability of such an auditee to increase. The auditor would then attribute a higher level of perceived reliability to the auditee. On the other hand, a non-error explanation provided by an auditee would be consistent with the auditor's expectations and would not trigger a change in the perceived reliability of an auditee.

The increase in perceived reliability brought about by an auditee's error explanation should lead to increased likelihood assessments of an auditee's error explanation relative to an auditee's non-error explanation. However, the auditor's frequency knowledge would suggest that because non-errors occur more frequently than errors, a non-error explanation should receive the higher likelihood assessment. Since a comparison between an auditee's non-error and error explanations has not
been made before, no empirical results exist to suggest which "theory" is relevant. Thus, it is not known which type of explanation provided by an auditee would receive a higher likelihood assessment. It is even possible that the two forces cancel each other. This leads to the following hypothesis, presented in the null form.

**H2:** The mean of likelihood assessments assigned to an auditee's non-error explanation will be equivalent to the mean of likelihood assessments assigned to the auditee's error explanation.

### 3.4 Non-Error Explanations

The accounting profession requires the auditor to be independent and defines independence as possessing the ability to act with integrity and objectivity. Because an auditee lacks independence (SAS No 31 AICPA 1980), representations from an auditee are not normally accorded the same degree of reliability as independent sources of evidence. Thus, professional standards suggest that a fellow auditor is more objective than an auditee. It follows that the auditor would tend to perceive a fellow auditor as more credible than an auditee. In laboratory studies, auditors have demonstrated a sensitivity to source reliability (Joyce and Biddle 1981, Bamber 1983).

Audit quality has always been a goal of the accounting profession. In recent years, the litigation crisis has increased the pressure on audit firms to demonstrate that auditors' judgment performance quality is sufficient (Gibbins 1984, 116). It is difficult to determine audit quality because outcomes can be far removed from
actions. Even the subsequent failure of an audited company does not conclusively indicate audit failure. For these reasons, auditors are mindful of whether their judgments and choices are justifiable (defensible) (Kinney and Smith 1992). Gibbins (1984, 122) pointed out that while the initial choice normally precedes justification, "the next time the accountant meets a similar situation, the justification is likely to affect the choice itself."

Ceteris paribus, an auditee would prefer that financial statements and account balances be error free. This implies that an auditee would prefer that unexpected differences be explained by non-errors rather than errors. Therefore it is in an auditee's self-interest for unexpected test results to be explained by non-errors. In general, when auditors are provided with an explanation, it is expected that the relatively higher reliability of a fellow auditor as compared with an auditee will lead the auditor to assess a higher likelihood for an explanation provided by a fellow auditor. Additionally, auditors would find it easier to justify a higher level of assessed likelihood for a fellow auditor's non-error explanation than for the same explanation provided by an auditee. This leads to the following hypothesis:

H3: The mean of likelihood assessments assigned to the non-error explanation provided by a fellow auditor will be greater than the mean of likelihood assessments assigned to the same explanation provided by an auditee.
3.5 Error Explanations

The question of whether an error explanation provided by a fellow auditor tends to be assigned a higher likelihood assessment than the same explanation provided by an auditee is an empirical issue which cannot be predicted from prior research. Theories are competing with respect to this question. Source credibility issues alone suggest a lower likelihood assessment for any explanation from a less objective source such as the auditee. However, social psychology suggests that an auditee's explanation contrary to the auditee's self-interest could influence the perceived reliability level of the source (O'Keefe 1990). This change in perceived reliability could possibly overcome basic source credibility issues. If the results of H2 show that the likelihood of an auditee's explanations are assessed in a manner similar to the explanations of a fellow auditor, it would follow that a fellow auditor's error explanation would receive higher likelihood assessments than the same explanation provided by an auditee. However, if the assessment process is different (involves a source credibility evaluation step) when the error explanation is provided by an auditee than when the same explanation is provided by a fellow auditor, the results cannot be predicted. This leads to the following hypothesis presented in the null form:

**H4:** The mean of likelihood assessments assigned to the error explanation provided by a fellow auditor will be equivalent to the mean of likelihood assessments assigned to the same error explanation provided by an auditee.
3.6 Research Questions

While it seems desirable to make a prediction based only on the source of an explanation (e.g., fellow auditor's explanations lead to higher likelihood assessments than an auditee's explanation) and to make another prediction based only on the type of an explanation (e.g., non-error explanations lead to higher likelihood assessments than error explanations), such predictions are precluded until the results of the manipulation described in H2 are known.

H2 considers how auditors assess the likelihood of an auditee's explanations. Findings from past literature that might be relevant to this question are mixed. Because of conflicting implications from past research, H2 was presented in the null form to investigate this empirical issue. If the results of H2 show that the likelihood of an auditee's explanations are assessed in a manner similar to the explanations of a fellow auditor, it would follow that non-errors from either source would receive higher likelihood assessments than errors from either source, and that a fellow auditor's explanations would received higher likelihood assessments than an auditee's explanations. The following research questions will be evaluated after the results of H1-H4 are obtained.

**RQ1:** Will the mean of likelihood assessments assigned to a fellow auditor's explanations be greater than that assigned to an auditee's explanations?

**RQ2:** Will the mean of likelihood assessments assigned to the non-error explanation be greater than that assigned to error explanations?
CHAPTER IV

EXPERIMENTAL DESIGN AND DEVELOPMENT OF EXPERIMENTAL MATERIALS

4.1 Overview

Practicing internal auditors took part in a between-subjects experiment designed to examine how different combinations of source and type of explanation might effect auditors' judgment performance. Judgement performance was measured as the subject's assessment of the likelihood of an inherited explanation. Judgment performance is modeled as:

\[ L = f (T, S) \]

Where:

- **L** = likelihood assessment
- **T** = type of explanation for unexpected test results
- **S** = source of explanation

4.11 Experimental Design

The type of explanation (non-error versus error) and the source of those explanations (a fellow auditor versus an auditee) varied between subjects in a 2 x 2 design. A graphical representation of the basic experimental design appears below. The experimental hypotheses are restated using notation that specifies the relationship among cells in the experimental design.
Predicted results are as follows:

H1: \( A > B \)

H2: \( C = D \) (stated in the null form)

H3: \( A > C \)

H4: \( B = D \) (stated in the null form)

RQ1: \( (A+B) = (C+D) \) (stated in the null form)

RQ2: \( (A+C) = (B+D) \) (stated in the null form)

4.12 Subjects

Domain specific experience has been shown to influence the performance of analytical procedures in certain cases (Bedard and Biggs 1991a). As such, subjects in this experiment were practicing internal auditors who perform analytical procedures tasks and who had recent experience with audits of sales and/or receivables. Measures of participants' experience with sales and/or receivable audits
and specific measures of experience in performing analytical procedures were gathered.

4.13 Experimental Materials

The experimental materials presented background information and an audit scenario that are identical for all participants. Background information was brief in order to maintain participants' motivation. In the audit scenario, an audit in process was described and results of an analytical procedure were provided to participants. The analytical procedures results (unexpected significant increase in receivables turnover ratio) were identical in all four versions of the experimental materials. Subjects in the error treatment condition were provided with an error explanation for the unexpected test results (i.e., goods returned by customers during the audit period were erroneously not recorded until the subsequent period, thereby overstating net credit sales in the audit period). Subjects in the non-error treatment condition were provided with a non-error explanation for the unexpected test results (i.e., collections improved due to the implementation of more stringent credit policies, which caused a decrease in net average receivables). These explanations were attributed to either a highly competent member of the audit team or a highly competent auditee.

4.2 Classification of Explanation Types

Explanations that describe the cause of unexpected differences can be divided
into two basic groups: non-errors and errors.

An error explanation is a hypothesis that the unexpected difference encountered during analytical procedures was caused by a misstatement. Errors would necessitate audit adjustments to correct misstated account balances and/or audit deficiency findings.

A non-error explanation is a hypothesis that the unexpected difference encountered during analytical procedures was caused by changes in the environment. Non-errors would not involve any misstatement. Thus, they would require no audit adjustments and would result in no audit deficiency findings.

4.3 Create Non-error and Error Explanations

It was necessary to create two explanations to be used in the experimental materials (one non-error explanation and one error explanation). Potential explanations were gathered from practicing internal auditors, from individuals with auditing experience, and from accounting and auditing texts. The two explanations used in the final experimental documents were selected based on the results of a plausibility survey completed by a sample of ten practicing internal auditors experienced in audits of sales and/or receivables. Respondents rated the plausibility of 15 potential explanations for a significant increase in the receivables turnover ratio. In addition, respondents were provided space to list other explanations that did not appear on the list. Respondents were instructed to indicate their opinion
concerning the plausibility of each explanation (five errors and ten non-errors). Each respondent received one version of the plausibility survey which contained 15 explanations listed in one of two random orders. The respondents evaluated each explanation as either plausible or not plausible. (See Appendix B for a copy of one version of the Plausibility Survey.)

4.31 Judged Frequency of Occurrence (over many audits)

In addition to judging the plausibility of each explanation, respondents also provided their perception of the frequencies with which the explanations would tend to occur over many audits. The mean frequency for each explanation was computed by summing all of the perceived frequencies (except in those cases were the respondent indicated the explanation was not plausible) and then dividing by the number of respondents choosing a frequency.

4.4 Selection of Explanations for Audit Scenario

4.41 Plausibility Survey Results: Error Explanations

Five error explanations were listed in the plausibility survey. One error explanation was judged to be not plausible by 80 percent of the experienced respondents and was dropped from further consideration. No single error explanation was evaluated as plausible by all respondents. Two error explanations were judged
to be plausible by nine of the ten respondents (90 percent). Two error explanations were judged to be plausible by eight of the ten respondents (80 percent).

4.42 Plausibility Survey Results: Non-Error Explanations

Ten non-error explanations were listed in the plausibility survey. One non-error explanation was judged to be not plausible by all respondents and was dropped from further consideration. Two explanations were evaluated as plausible by all respondents (100 percent). One explanation was judged to be plausible by one of the ten respondents (90 percent). Four explanations were judged as plausible by eight of the ten respondents (80 percent). Two explanations were judged plausible by six of the ten respondents (60 percent).

4.43 Matching of Non-error and Error Explanations

The purpose of the plausibility survey was to identify one non-error and one error explanation that are equivalent in plausibility. Error explanation plausibility scores ranged from 80 percent to 90 percent. Non-error explanations in the same range included one non-error explanation with a 90 percent plausibility rating and four non-error explanations with an 80 percent plausibility rating. The frequency scores for these error and non-error explanations were compared. The best matched explanation pair consisted of an error explanation that earned an 80 percent plausibility rating with a mean frequency score of 2.30 and a non-error explanation
that earned an 80 percent plausibility rating with a mean frequency score of 2.38. The results of the Plausibility Survey are summarized in Table 1.

4.5 Audit Scenario and Background

The audit scenario was set in a sales and/or receivables context for two reasons. First, sales and/or receivables are common to many industries. This allowed the inclusion of internal auditors from many different industries and resulted in a broader sample of participants than many prior studies that were limited to a manufacturing context. Second, the sales and/or receivables context allowed the use of an analytical procedure that was complex enough to allow a variety of potential error and non-error explanations. Although the context used in the audit scenario is common to many industries, not all internal auditors have had recent experience in sales and/or receivables.5

5 The instruments were distributed to audit managers who were instructed to distribute them to auditors who were experienced in sales and/or receivables cycle audits. However, according to self-reports by the 228 respondents in this experiment, 55 (24 percent) did not have experience in the sales and/or receivables cycle within the past three years. These respondents were not included in the final analysis. Although a two-way ANOVA of all respondents who provided likelihood assessments showed the same results as the final sample. This was a significant main effect for Type (F = 27.89, p = .0001), no main effect for Source (F = 0.00, p = .97), and no interaction (F = 0.04, p = .84).
4.51 Preliminary Versions of Experimental Materials

Experimental materials were first reviewed by a group of nine practicing internal auditors who performed the experimental task and provided feedback on the reality of the task and on individual motivation. Changes were made in response to suggestions by these individuals.

4.52 Practitioner Involvement

Practicing internal auditors were involved throughout the development and validation of the experimental materials. Consultations with practicing internal auditors occurred on four separate occasions: (1) during a visit to the work place of one group of internal auditors, (2) during a local Institute of Internal Auditors chapter meeting; (3) via surveys mailed to the work places of and distributed by internal audit directors to three groups of practicing internal auditors; and (4) via a review by interested parties at the international headquarters of the Institute of Internal Auditors. The inputs from each of these groups were beneficial and resulted in a set of experimental materials that incorporates suggestions gleaned from each group.
CHAPTER V

DATA GATHERING AND ANALYSIS

The objective of the experiment was to study the effect of explanation source (auditee versus fellow auditor) and explanation type (error cause versus non-error cause) on auditors' judgment performance.

5.1 Method

5.11 Participants and Setting

More than two hundred practicing internal auditors participated in the experiment. Experimental stimuli were mailed to audit managers, who were instructed to distribute the individual packets to members of their internal audit staffs experienced in sales and/or receivables audits. A total of 328 packets were sent to audit managers representing 66 different companies. Each packet contained a letter from the researcher requesting that the participant complete the experiment independently; 228 of the 328 (69.5%) packets were returned by 52 of the 66 companies (78.8%). In most cases the audit manager collected the completed materials in a central location and returned them in a pre-addressed, pre-stamped envelope provided by the researcher. A total of 116 responses were eliminated from final analysis. Eighty-five respondents did not have recent experience in audits of the sales and/or receivables cycle or in applying analytical procedures; 31 respondents did
not follow other instructions. Thus, usable responses totaled 112 of the 228 (49%) returned to the researcher or 112 of the 328 (34%) originally distributed.

5.12 Materials

Each participant received a letter of instruction and an envelope containing a four-page booklet consisting of a Background and Audit Scenario (page 1), a Response Form (pages 2 and 3), and Questions about Auditing Experience and Training (page 4). The booklet was reproduced on both sides of one sheet of 11 1/2 x 17 paper, such that each of the four pages was printed in an 8 1/2 x 11 format. (A version of the experimental materials is reproduced in the Appendix C.) The item used to measure the effect of explanation source and explanation type on participant's judgment performance was the auditor's likelihood assessment of the explanation appearing in the audit scenario.

5.13 Procedure

Each participant received one of the four different versions of the experimental materials, randomly assigned. The only difference among the four versions appeared in the last paragraph of the audit scenario. This difference was reiterated on the response form.
5.2 Dependent Variable

The participant's likelihood assessment of the explanation appearing in the audit scenario is a measure of the effect of explanation type and explanation source on the participant's judgment performance. The likelihood assessment is a measure of the participant's judgment as to how likely the provided explanation was the actual cause of the unexpected difference encountered during analytical procedures.

5.3 Analysis

A two-way ANOVA was conducted to identify significant main effects and interactions. This analysis also provided evidence to evaluate RQ1 and RQ2. The results of the ANOVA are shown in Table 3, Panel A. Cell means appear in Table 3, Panel B.

Source did not have an effect on the likelihood assessments ($F = 0.06, p < .80$). The mean likelihood assessments attributed to explanations provided by a fellow auditor were equivalent (differences were not statistically significant) to those attributed to explanations provided by an auditee. The results with respect to the main effect of source are discussed further in section 5.31.

Type did have a significant effect on the likelihood assessments ($F = 14.82, p < 0.002$). The mean likelihood assessments attributed to the non-error explanation were greater than those attributed to the error explanation. The results with respect to the main effect of type are discussed further in section 5.32.
The interaction between source and type was not significant \((F = 0.00, p > .99)\).

5.31 Main Effect - Source

As reported in section 5.3, the two-way ANOVA showed that source did not have a statistically significant effect on the likelihood assessment. The mean likelihood assessment for explanations provided by a fellow auditor \((41.2)\) was statistically equivalent to the mean likelihood assessment for explanations provided by an auditee \((42.2)\).

With respect to RQ1, the null hypothesis that the mean of likelihood assessments assigned to a fellow auditor's explanations will be equal to that assigned to an auditee's explanations could not be rejected. An insignificant main effect for source is evidence that the source of an explanation does not have a significant effect on the participants' judgments.

5.31.1 Simple Effects of Source

Because the main effect for source was found to be not significant, the ANOVA results were sufficient to conclude on H3 and H4.

The results of the ANOVA do not support H3 developed in Chapter III, which posits that: The mean of likelihood assessments assigned to a non-error explanation provided by a fellow auditor will be greater than that assigned to the same explanation...
provided by an auditee.

The results of the ANOVA do support H4, which was stated in the null form and developed in Chapter III, which posits that: The mean of likelihood assessments assigned to an error explanation provided by a fellow auditor will be equivalent to that assigned to the same error explanations provided by an auditee.

5.32 Main Effect - Type

As reported in section 5.3, the two-way ANOVA showed that type did have a statistically significant effect on the likelihood assessment. The mean likelihood assessment for the non-error explanation was 49.2, while the mean likelihood assessment for the error explanation was 33.9. The mean likelihood assessment of the non-error explanation was greater than that of the error explanation (F = 14.82, p < 0.002).

With respect to RQ2, the null hypothesis that the mean of likelihood assessments assigned to non-error explanation will be equal to that assigned to error explanation was rejected. Fifty-seven respondents who met selection criteria inherited the non-error explanation. Fifty-five respondents who met selection criteria inherited the non-error explanation. Table 2 reconciles the number of participants who returned non-error and error versions of the experimental materials with the number of observations included in the statistical analyses. Cell means are presented in Table 3, Panel B. A significant main effect for type is evidence that the explanation type does
have a significant effect on the participants' judgments

5.32.1 Simple Effects of Type

Because the main effect for type was found to be significant, t-tests were performed to examine the relationship between the type of explanation and likelihood assessments for each explanation source in order to conclude on H1 and H2. Cell means appear in Table 3, Panel B. Results of the t-tests appear in Table 4.

A follow-up t-test of H1 was performed to determine whether the type of explanation attributed to a fellow auditor affects participants' likelihood assessment of that explanation. The analyses was a one-tailed t-test under the null hypothesis that the mean of likelihood assessments assigned to a fellow auditor's non-error explanation will be less than or equal to that assigned to a fellow auditor's error explanation. Sixty-one respondents who met selection criteria, inherited explanations attributed to a fellow auditor. Thirty inherited the non-error explanation and 31 inherited the error explanation. The statistical analysis of H1 reveals that participants' judgment performance is affected by the type of explanation provided by a fellow auditor. The mean likelihood assessment for the non-error explanation provided by a fellow auditor was 49.0, while the mean likelihood assessment for the error explanation provided by a fellow auditor was 33.7 (t = 3.04, p < .01). The results support H1, which posits that: the mean of likelihood assessments assigned to a fellow auditor's explanations will be greater for the non-error explanation than for the error explanation.
A follow-up t-test of H2 was performed to determine whether the type of explanation attributed to an auditee affects participants' likelihood assessment of that explanation. The analyses was a two-tailed t-test under the null hypothesis that the mean of likelihood assessments assigned to an auditee's non-error explanation will be equal to that assigned to an auditee's error explanation. Fifty-one respondents who met selection criteria inherited explanations attributed to an auditee. Twenty-seven inherited the non-error explanation and 24 inherited the error explanation.

The statistical analysis of H2 reveals that participants' judgment performance is affected by the type of explanation provided by an auditee. The mean likelihood assessment for the non-error explanation provided by an auditee was 49.4, while the mean likelihood assessment for the error explanation provided by an auditee was 34.1 (t = 2.38, p < .05). Thus, the null was rejected. H2, which was stated in the null form and developed in Chapter III, posits that: The mean of likelihood assessments assigned to an auditee's non-error explanation will be equivalent to that assigned to the an auditee's error explanation.

The results with respect to explanation type are consistent with the findings of Asare and Wright (1992) and Kaplan, Moeckel, and Williams (1992). Participants judged a non-error explanation provided by an auditee to more likely than an error explanation provided by an auditee, the difference was statistically significant and the null hypothesis of no difference between the likelihood assessment of an auditee's non-error and error explanations was rejected.
5.33 Interpretation

The purpose of this study was to examine the effect of explanation source and explanation type on auditors' judgment performance. The ANOVA result is strong evidence that the type of explanation did affect the participants' judgment performance in the form of their assessment of the likelihood of the explanations. Follow-up t-tests provide evidence that the type of explanation provided by a fellow auditor or by an auditee affected the participants' judgment performance in the form of their assessment of the likelihood of explanations.

The ANOVA result of no main effect for source is evidence that the source of an explanation did not affect the participants' judgment performance in the form of their assessment of the likelihood of the explanations. Participants' judgment performance is not affected by the source of an error explanation or by the source of a non-error explanation.

The absence of a main effect for source is inconsistent with the notion of professional skepticism. Professional skepticism would suggest that, at least in the presence of an explanation congruous with an auditee's self interest, an auditee should be judged as a less reliable source than a fellow auditor. If participants were sensitive to differences in source reliability, then lower likelihood assessments would be expected for an non-error explanation provided by an auditee than for the same explanation provided by a fellow auditor.

The mean of likelihood assessments of a non-error explanation provided by an
auditee was not statistically different from that of the same explanation provided by a fellow auditor. These results could be interpreted as an insensitivity to source reliability. Insensitivity to source reliability is cause for concern because it suggests that the level of professional skepticism is inadequate. As discussed in a recent Audit Risk Alert (AICPA 1993):

Auditors should be skeptical about the answers they receive from management. Explanations received from an entity's management are merely the first step in an audit process, not the last.

While participants assessed an error explanation provided by an auditee as less likely than the same explanation provided by a fellow auditor, the difference was not statistically significant and the null hypothesis of no difference between the likelihood assessments of an error explanation provided by an auditee and the likelihood assessments of the same explanation provided by a fellow auditor cannot be rejected. This is evidence that the source of an error explanation did not affect the participants' judgment performance in the form of their assessment of the likelihood of the explanations.

One alternate explanation for the absence of a source effect would be that subjects did not attend to source. To test whether the source manipulation was successful, a two-way ANOVA of Source x Type with Hours as the dependent variable was run. (Subjects had reported the number of hours they would budget to answer questions concerning the audit scenario.) The ANOVA results appear in Table
Panel A. Cell means appear in Table 5 Panel B. Because eight subjects did not respond with the number of hours, 104 rather than 112 subjects are included in this analysis.

The results demonstrate that subjects tend to budget more hours (14.0) to investigate an inherited non-error than an inherited error (10.0). The effect for type is marginally significant ($F = 3.47, p = 0.07$). The number of hours that subjects budget to investigate explanations inherited from a fellow auditor (11.8) is statistically equivalent to those budgeted to investigate explanations inherited from an auditee (12.4). The mean hours budgeted to investigate an error was 10.0 regardless of source, however, the mean hours to investigate a non-error explanation inherited from a fellow auditor and an auditee were 13.6 and 14.5, respectively. Still, the effect for source is not significant ($F = 0.08, p = 0.78$). These results suggest that while subjects judged the non-error to be more likely than the error, they planned to spend more time investigating the non-error than the error in order to search for errors.

5.4 Chapter Summary

Of the 328 experimental materials sent, 228 internal auditors returned the experimental materials. Of the 228 participants, 112 (49%) provided responses that were used in the statistical analyses. The responses of 116 participants were not used. Six respondents did not provide a likelihood assessment: 55 of the remaining respondents did not indicate that they had recent sales and/or receivables cycle
experience; 30 of the remaining respondents did not indicate that they had experience with analytical procedures, and 25 of the remaining respondents did not follow other instructions. A reconciliation of the number of participants with the number of observations appears in Table 2. The mean likelihood assessment for each condition appears in Table 3, Panel B. Research hypotheses and research questions along with results are summarized in Table 6.
6.1 Conclusion

This study found that the type of explanation affected auditor's judgment performance. Overall, participants judged a non-error explanation as more likely than an error explanation ($p = 0.0002$). A non-error explanation provided by a fellow auditor was assessed as more likely than an error explanation provided by a fellow auditor ($p = 0.002$) and a non-error explanation provided by an auditee was assessed as more likely than an error explanation provided by an auditee ($p = 0.021$). These results suggest that participants were influenced only by the type of explanation and not by the source.

When source effects were tested directly, the null hypothesis of no difference could not be rejected for non-errors ($p = 0.470$), or for errors ($p = 0.9409$). These results suggest that participants were not sensitive to inherent dissimilarities in source reliability.

6.2 Alternative Interpretations

The results suggest at least six alternative interpretations, which will be discussed in the following subsections. First, the experimental instrument may not have made the source salient to the subjects. Second, the non-error explanation might
have been perceived as more plausible or as occurring more frequently than the error explanation. Third, subjects may have been unfamiliar with the particular analytical procedure used in the experiment. Fourth, the timing of evaluating source reliability may occur subsequent to likelihood assessment. Fifth, perhaps there is something fundamentally different about internal auditors and external auditors. Sixth, the assumption of ceteris paribus may not be accurate.

6.21 Salience of Source

The alternative interpretation that participants did not attend to the source of the explanation cannot be ignored. However, the experimental materials were designed to be completed in less than 15 minutes; the reference to the source of the explanation appeared at the end of the audit scenario in the last paragraph, immediately preceding the response form. As such, the participants were not required to process massive amounts of data prior to providing their likelihood assessment. Additionally, the response form reiterated the source (and the specific explanation) two times in the directions preceding the dependent variable response space. It would seem unlikely that three references to the source of an explanation would be ignored. Thus, the alternative interpretation that the experimental instrument did not make the source salient seems highly unlikely.
6.22 Inordinate Plausibility and/or Frequency of Non-error Explanation

The alternative interpretation that non-error explanation might have been perceived as more plausible or as occurring more frequently than the error explanation was anticipated and controlled for. The two explanations used in the final experimental documents were selected based on the results of a plausibility survey completed by a sample of ten practicing internal auditors who rated the plausibility (and the frequency of occurrence) of 15 potential explanations for the unexpected test results. The two explanations were judged to be equally plausible. Thus, the alternative interpretation that the non-error explanation was more plausible appears weak.

6.23 Unfamiliarity with Specific Analytical Procedure

The alternative interpretation that subjects may have been unfamiliar with the particular analytical procedure used in the experiment is valid. However, the experimental materials provided subjects with the formula for computing the ratio used in the analytical procedure (receivables turnover ratio), specified the range and five year average for the company, reported the industry average, and noted that the result of the analytical procedure was "significant and outside the expected range." Additionally, subjects who did not utilize analytical procedures on a regular basis

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6 The Plausibility Survey is discussed in depth in Chapter IV, sections 4.4 through 4.43. A copy of one version of the Plausibility Survey appears as Appendix B.
within the past three years and those who did not have experience in the sales and/or receivables cycle within the same period were excluded from further analysis. It seems unlikely that the alternative interpretation of unfamiliarity with analytical procedures would be the correct interpretation of the results.

6.24 Timing of Source Reliability Evaluation

Auditors may assess likelihoods of explanations without regard to source reliability. Likelihood assessments occur during the cognitive processing stage of hypothesis generation. An evaluation of source reliability may occur during a subsequent cognitive process. In a study examining the cognitive processing stage of hypothesis testing, Hirst (1994) found that auditors are sensitive to both competence and objectivity of the source of reported evidence. The hypothesis testing stage occurs after the hypothesis generation stage. Thus, auditors might consider source reliability, but if such consideration occurs during the hypothesis testing stage, it would not affect auditors' likelihood assessments, that occur during the earlier hypothesis generation stage.

6.25 Differences between Internal Auditors and External Auditors

The fourth alternative interpretation, which states that there may be a fundamental difference between internal auditors and external auditors, is worthy of consideration. Variations in the degree of professional skepticism exercised by the
two types of auditors might exist. Although internal auditors are subject to the
*Standards for the Professional Practice of Internal Auditing* (Institute of Internal
Auditors 1993) that include standards of independence and objectivity, prior research
has investigated whether internal auditors' objectivity can be impaired (Plumlee 1985).
An argument could be made that internal auditors' relationship with their auditees
might lead to a lower level of professional skepticism than external auditors.

A reduced level of professional skepticism might occur if internal auditors have
developed trusting relationships with their auditees. Results for this study suggest that
internal auditors believe the auditee to be as credible as other auditors, and presumably
as credible as they themselves. While no professional is immune from litigation, the
litigation crisis that plagues external auditors has not impacted internal auditors.
Without the ever present threat of litigation, internal auditors may not have strong
incentives to exercise the same degree of professional skepticism as external auditors.

The suggestion that there are fundamental differences in external auditors and
internal auditors could be tested by administering the experiment to external auditors.
If results show that external auditors are sensitive to source, additional studies could
be designed to determine the extent and impact of the differences between internal and
external auditors.

6.26 Inaccurate Assumption

Perhaps the amount of information provided in the audit scenario was
insufficient for respondents to attribute equal amounts of knowledge to both sources. Both sources were described as "highly competent." However, respondents may have assumed that the auditee was more knowledgeable about day to day operations of the entity.

6.3 Limitations and Topics for Future Research

There are two primary limitations to this study. First, as with any experiment where subjects are not randomly selected, the results may not be generalizable. Second, only one explanation of each type was used in the experiment. As a result, an uncontrolled factor may be confounded with the stimuli.

Two approaches could be followed to investigate the question of whether internal auditors are insensitive to source. The first would be to conduct the same study using external auditors as subjects. The second would be to investigate whether auditors appraise source reliability subsequent to assessing likelihoods of inherited explanations.

6.4 Recommendations

Results with respect to participant's apparent insensitivity to source is cause for concern. As discussed earlier, professional skepticism was a topic in a recent Audit Alert (AICPA 1993). In addition, the SEC has been reported as initiating administrative proceedings against auditors. In a recent case the Public Accounting
Report (Carr 1994) reported that "the SEC noted that the auditors lacked sufficient skepticism."

If future studies indicate that internal auditors are not exercising the proper degree of professional skepticism, training materials should be developed to assist internal auditors in developing the appropriate level of professional skepticism.
### TABLE 1
**PERCEIVED PLAUSIBILITY OF EXPLANATIONS**

**Panel A: Error Explanations**

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Percentage of Respondents Judging Explanation to be Plausible</th>
<th>Mean Frequency Judgment of Respondents who Judged Explanation as Plausible</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>1.80</td>
</tr>
<tr>
<td>B</td>
<td>90</td>
<td>2.00</td>
</tr>
<tr>
<td>C</td>
<td>80</td>
<td>2.10</td>
</tr>
<tr>
<td>D*</td>
<td>80</td>
<td>2.30</td>
</tr>
<tr>
<td>E</td>
<td>20</td>
<td>2.00</td>
</tr>
</tbody>
</table>

**Panel B: Non-Error Explanations**

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Percentage of Respondents Judging Explanation to be Plausible</th>
<th>Mean Frequency Judgment of Respondents who Judged Explanation as Plausible</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>100</td>
<td>2.70</td>
</tr>
<tr>
<td>G</td>
<td>100</td>
<td>2.80</td>
</tr>
<tr>
<td>H</td>
<td>90</td>
<td>2.44</td>
</tr>
<tr>
<td>I*</td>
<td>80</td>
<td>2.38</td>
</tr>
<tr>
<td>J</td>
<td>80</td>
<td>2.50</td>
</tr>
<tr>
<td>K</td>
<td>80</td>
<td>2.63</td>
</tr>
<tr>
<td>L</td>
<td>80</td>
<td>2.63</td>
</tr>
<tr>
<td>M</td>
<td>60</td>
<td>2.17</td>
</tr>
<tr>
<td>N</td>
<td>60</td>
<td>2.83</td>
</tr>
<tr>
<td>O</td>
<td>00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* Error Explanation D and Non-error Explanations I, with plausibility percentages of 80% and frequency ratings of 2.30 and 2.38 respectively, were the best match.*
TABLE 2
RECONCILIATION OF NUMBER OF PARTICIPANTS
WITH NUMBER OF OBSERVATIONS

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>TYPE</th>
<th>ALL</th>
<th>S_{OR}</th>
<th>S_{EE}</th>
<th>T_{ne}</th>
<th>T_{err}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td></td>
<td>228</td>
<td>114</td>
<td>114</td>
<td>107</td>
<td>121</td>
</tr>
<tr>
<td>Less respondents who provided no likelihood assessment</td>
<td></td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Less respondents with no sales and/or receivables experience (who did make a likelihood assessment)</td>
<td></td>
<td>55</td>
<td>27</td>
<td>28</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Less respondents with no analytical procedures experience (who did make a likelihood assessment)</td>
<td></td>
<td>30</td>
<td>13</td>
<td>17</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Less respondents who did not follow direction (who did make a likelihood assessment)</td>
<td></td>
<td>25</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Number of Observations</td>
<td></td>
<td>112</td>
<td>61</td>
<td>51</td>
<td>57</td>
<td>55</td>
</tr>
</tbody>
</table>

S_{OR} = Fellow Auditor  
S_{EE} = Auditee  
T_{ne} = Non-Error  
T_{err} = Error
### Panel A: ANOVA Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOURCE</td>
<td>1</td>
<td>28.010</td>
<td>0.06</td>
<td>0.8018</td>
</tr>
<tr>
<td>TYPE</td>
<td>1</td>
<td>6576.920</td>
<td>14.82</td>
<td>0.0002</td>
</tr>
<tr>
<td>SOURCE*TYPE</td>
<td>1</td>
<td>0.009</td>
<td>0.00</td>
<td>0.9964</td>
</tr>
<tr>
<td>Error</td>
<td>108</td>
<td>443.810</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Panel B: MEAN LIKELIHOOD ASSESSMENTS  Cell Means (Standard Deviation)

range = 0 - 10; N = 112

<table>
<thead>
<tr>
<th>TYPE OF EXPLANATION</th>
<th>Non-Error</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow Auditor</td>
<td>49.03 (20.75)(n=30)</td>
<td>33.68 (18.49)(n=31)</td>
</tr>
<tr>
<td>Auditee</td>
<td>49.44 (20.96)(n=27)</td>
<td>34.13 (24.46)(n=24)</td>
</tr>
<tr>
<td></td>
<td>49.23 (20.96)(n=57)</td>
<td>33.87 (21.09)(n=55)</td>
</tr>
</tbody>
</table>
TABLE 4
T-TESTS of H1 and H2
EXPLANATIONS BY SOURCE

Panel A - Comparison of Non-error and Error Explanations provided by Fellow Auditor

H1: Non-error > Error

<table>
<thead>
<tr>
<th>Condition</th>
<th># of Obs</th>
<th>Mean</th>
<th>Std Dev</th>
<th>t</th>
<th>p-value (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow Auditor, Non-error</td>
<td>30</td>
<td>49.03</td>
<td>20.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellow Auditor, Error</td>
<td>31</td>
<td>33.68</td>
<td>18.48</td>
<td>3.04</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Panel B - Comparison of Non-error and Error Explanations provided by Auditee

H2: Non-error = Error (stated in the null)

<table>
<thead>
<tr>
<th>Condition</th>
<th># of Obs</th>
<th>Mean</th>
<th>Std Dev</th>
<th>t</th>
<th>p-value (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditee, Non-error</td>
<td>27</td>
<td>49.44</td>
<td>20.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditee, Error</td>
<td>24</td>
<td>34.13</td>
<td>24.46</td>
<td>2.38</td>
<td>0.021</td>
</tr>
</tbody>
</table>
TABLE 5
ANOVA: SOURCE x TYPE
WITH HOURS AS THE DEPENDENT VARIABLE
N = 104

Panel A: ANOVA Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOURCE</td>
<td>1</td>
<td>8.94</td>
<td>0.08</td>
<td>0.78</td>
</tr>
<tr>
<td>TYPE</td>
<td>1</td>
<td>400.70</td>
<td>3.47</td>
<td>0.07</td>
</tr>
<tr>
<td>SOURCE*TYPE</td>
<td>1</td>
<td>5.38</td>
<td>0.05</td>
<td>0.83</td>
</tr>
<tr>
<td>Error</td>
<td>99</td>
<td>115.52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel B: MEAN HOURS Cell Means (Standard Deviation)
N = 104

TYPE OF EXPLANATION

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>Non-Error</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow Auditor</td>
<td>13.56 (11.88) n=27</td>
<td>10.04 (10.37) n=28</td>
</tr>
<tr>
<td>Auditee</td>
<td>14.48 (11.40) n=25</td>
<td>10.04 (8.91) n=23</td>
</tr>
<tr>
<td></td>
<td>14.00 (11.55) n=52</td>
<td>10.04 (9.64) n=51</td>
</tr>
<tr>
<td></td>
<td>11.76 (11.17) n=55</td>
<td>12.35 (10.42) n=48</td>
</tr>
</tbody>
</table>

N=104
TABLE 6
SUMMARY OF RESEARCH HYPOTHESES, RESEARCH QUESTIONS AND RESULTS

H1: The mean of likelihood assessments assigned to a fellow auditor's explanations will be greater for the non-error explanation than for the error explanation.
Results: 49.0 > 33.7 Supported (reject the null) \( p = 0.002 \)

H2: The mean of likelihood assessments assigned to an auditee's non-error explanation will be equivalent (no statistical difference) to the mean of likelihood assessments assigned to the auditee's error explanation.
Results: 49.4 > 34.1 Not Supported (reject the null) \( p = 0.021 \)

H3: The mean of likelihood assessments assigned to the non-error explanation provided by a fellow auditor will be greater than the mean of likelihood assessments assigned to the same explanation provided by an auditee.
Results 49.0 > 49.4 Not supported (accept the null) \( p = 0.471 \)

H4: The mean of likelihood assessments assigned to the error explanation provided by a fellow auditor will be equivalent (no statistical difference) to the mean of likelihood assessments assigned to the same explanation provided by an auditee.
Results 33.7 = 34.1 Supported (accept the null) \( p = 0.941 \)

RQ1: Will the mean of likelihood assessments assigned to a fellow auditor's explanations be greater than the mean of likelihood assessments assigned to an auditee's explanations?
Results: 41.2 = 42.2 Not supported (accept the null) \( p = 0.814 \)

RQ2: Will the mean of likelihood assessments assigned to a non-error explanation be greater than the mean of likelihood assessments assigned to an error explanation?
Results: 49.2 > 33.9 Supported (reject the null) \( p = 0.0002 \)
APPENDIX A
Examples of scenarios where an auditee might offer an error explanation

1. A high level auditee may have become aware of an error and directed subordinates to make a correction at an earlier date. If the subordinate did not make the correct adjustment in a timely fashion and the high level auditee did not verify that the error had been corrected, then when the auditor asks an auditee to explain the unexpected analytical procedures results, it would become immediately apparent to an auditee that the cause was an error that had not been corrected.

2. The error may have been intentional on the part of an auditee, when the auditor asks an auditee to explain the unexpected analytical procedures, an auditee knows "the jig is up" and offers the error explanation (knowing or expecting that the auditor will find out eventually).

3. A low level auditee, who was aware of an error but did not have the authority to make a correction, would offer the error explanation to the auditor if asked.

4. An auditee may offer an error explanation to mask management fraud.

5. An auditee may tell auditors "anything" to get rid of them.
APPENDIX B

Plausibility Survey

General Introduction

The attached exercise is a part of a research study conducted at the University of Arizona and funded in part by the Institute of Internal Auditors Research Foundation. The study is designed to investigate auditors' judgments. This entire exercise should take approximately 15 minutes. Your individual judgments are the focus of this study, so it is imperative that you work independently.

The attached sheets list a number of conditions that might be judged to cause a significant increase in receivables turnover ratio. Recall that Receivables Turnover Ratio (RTR) is generally computed according to the following formula:

\[
\text{Receivables Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Net Average Receivables}}
\]

Recall further that the elements of Receivables Turnover Ratio are generally computed as follows (assuming gross sales method):

\[
\begin{align*}
\text{Net Credit Sales} &= \text{Gross Sales} - \text{Sales Discounts Taken} - \text{Sales Returns and Allowances} \\
\text{Net Receivables} &= \text{Receivables} - \text{Allowance for Doubtful Accounts} \\
\text{Average Net Receivables} &= \frac{(\text{Beginning Balance} + \text{Ending Balance})}{2}
\end{align*}
\]

Directions: Next to each condition on the following pages, please indicate your opinion concerning the plausibility of each explanation. Below each condition also please indicate the relative frequency with which the condition might occur over many audits. There are no right or wrong answers. Your responses are anonymous. The final page contains a brief questionnaire regarding your experience and training. Your responses will remain anonymous. All data will be presented in summary form only. A summary of the study, with group response information, will be furnished to participants upon request.

First For each item listed below, please check the box below Yes if you believe the explanation is plausible or the box below No if you believe the explanation is not plausible. An item should be judged plausible if it is logically possible that the condition could cause (explain) an increase in receivables turnover ratio. An item should be judged implausible if it is not logically possible that the condition could cause (explain) an increase in receivables turnover ratio.

Next For the explanations you judged to be plausible, please check the appropriate box below the explanation that best matches your judgment of the degree of frequency with which the explanation would tend to occur over many audits where an increase in receivables turnover ratio is observed.

Thank you — your participation is much appreciated.
### APPENDIX B
#### Plausibility Survey

**POSSIBLE EXPLANATIONS FOR AN INCREASE IN RECEIVABLES TURNOVER RATIO**

<table>
<thead>
<tr>
<th>Explanation</th>
<th>Plausible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The allowance for doubtful accounts was increased due to economic hard times, thereby decreasing net average receivables.</td>
<td>Yes</td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Net average receivables were understated due to an error where year-end customer payments that should not have been recorded until the subsequent period were erroneously included in audit period collections.</td>
<td></td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Although gross receivables declined, the allowance for doubtful accounts was erroneously maintained at historical levels, thereby understating net average receivables</td>
<td></td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Net average receivables decreased due to improved collections brought on by the implementation of more stringent credit policies.</td>
<td></td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Net average receivables decreased due to speedier payments by customers attributable to revised credit terms that encouraged swifter payments.</td>
<td></td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Bad debt expense increased, resulting in a decrease in net average receivables.</td>
<td></td>
</tr>
<tr>
<td>If plausible, how frequently would this explanation tend to occur over many audits?</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
APPENDIX B
Plausibility Survey

POSSIBLE EXPLANATIONS FOR AN INCREASE IN RECEIVABLES TURNOVER RATIO

7. Uncollectible receivables increased, thereby decreasing net average receivables.  
   Plausible?  
   Yes ☐ No ☐

   Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐

8. Collection efforts were "beefed up" which resulted in improved collections, thereby resulting in a decrease in net average receivables.  
   If plausible, how frequently would this explanation tend to occur over many audits?  
   Plausible?  
   Yes ☐ No ☐

   Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐

9. Goods returned by customers during the audit period were erroneously not recorded until the subsequent period, thus net credit sales were overstated in the audit period.  
   If plausible, how frequently would this explanation tend to occur over many audits?  
   Plausible?  
   Yes ☐ No ☐

   Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐

10. Contrary to the industry trend, gross sales exhibited a slight decrease, attributable to a change in credit terms which effectively decreased discounts taken, resulting in an increase in net credit sales.  
    If plausible, how frequently would this explanation tend to occur over many audits?  
    Plausible?  
    Yes ☐ No ☐

     Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐

11. Due to an increased emphasis on quality control, sales allowances decreased dramatically, thereby resulting in an increase in net credit sales.  
    If plausible, how frequently would this explanation tend to occur over many audits?  
    Plausible?  
    Yes ☐ No ☐

     Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐

12. Net credit sales increased due to a change in customer mix such that the proportion of customers taking discounts decreased.  
    If plausible, how frequently would this explanation tend to occur over many audits?  
    Plausible?  
    Yes ☐ No ☐

     Very Frequently ☐ Frequently ☐ Occasionally ☐ Infrequently ☐ Very Infrequently ☐
### APPENDIX B

**Plausibility Survey**

**Possible explanations for an increase in receivables turnover ratio**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Plausible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Due to increased emphasis on quality control, both sales returns and allowances decreased dramatically, thereby resulting in an increase in net credit sales.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No □ Yes □</td>
</tr>
</tbody>
</table>

If plausible, how frequently would this explanation tend to occur over many audits?

<table>
<thead>
<tr>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Infrequently</th>
<th>Very Infrequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

14. Sales were recognized improperly (over-recorded), which led to an excess of unpaid balances and an understatement in net average receivables.

If plausible, how frequently would this explanation tend to occur over many audits?

<table>
<thead>
<tr>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Infrequently</th>
<th>Very Infrequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

15. Some payments from legitimate customers were erroneously recorded twice, thereby understating net average receivables.

If plausible, how frequently would this explanation tend to occur over many audits?

<table>
<thead>
<tr>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Infrequently</th>
<th>Very Infrequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

If you have thought of any other conditions that could plausibly cause a significant increase in the receivables turnover ratio, you may use the space below to list such conditions and the boxes below to indicate the frequency with which they would tend to occur over many audits:

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
<td>Occasionally</td>
<td>Infrequently</td>
<td>Very Infrequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Frequently</td>
<td>Frequently</td>
<td>Occasionally</td>
<td>Infrequently</td>
<td>Very Infrequently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B
Plausibility Survey

QUESTIONS ABOUT YOUR AUDITING EXPERIENCE AND TRAINING

1. Audit Experience:
   Internal Audit experience: ______ years ______ months
   External Audit experience: ______ years ______ months

2. Educational Background: Please indicate all that apply:
   □ Undergraduate Degree:
     MAJOR: Accounting Other (please specify) ______________
   □ Graduate Degree:
     MBA Masters of Accounting Other ____________

3. Certification: (please check all that apply)
   CPA CIA CISA CMA CFE Other ________________

4. Your Position (or Job Title) ________________________________

5. Are analytical auditing procedures used in audits in which you participate?
   □ Yes, but they are usually performed by others on the audit team.
   □ Yes, I personally utilize analytical auditing procedures on a regular basis.
   □ Yes, I personally utilize analytical auditing procedures (but infrequently).
   □ No, analytical auditing procedures are not utilized
   □ Don't know

6. In the past 3 years, on how many audit projects have you worked? ______________

7. In the past 3 years, on how many audit projects have you examined sales and/or receivables? ______________

8. Your industry ________________________________
Dear Internal Auditor:

Thank you for participating in this research study, which is funded in part by a grant from the Institute of Internal Auditors Research Foundation. The research is designed to examine auditors' judgments by obtaining your individual judgments concerning a short audit scenario. The entire exercise should take approximately 15 minutes. Please follow these instructions:

Assume you are an internal auditor performing a routine audit. After reading the brief description of facts related to a hypothetical audit, please use the response form on pages 2 and 3 to provide your judgments about the audit scenario. There are no right or wrong answers. It is your individual judgments that are of interest, which makes it imperative that you work independently. It is also important that you not change your answers. You will have an opportunity to make comments if you wish.

Please remove the sheet from the enclosed envelop. You will find a description of an audit scenario, which includes a brief summary of the auditee's activity and a short sketch of your relationship with the auditee. After you read the short audit scenario, please complete the response form and answer a few questions about your auditing experience and training. When you have completed the exercise, please put the sheet back into the envelop, seal the envelop, and return the completed form to your supervisor. Your responses will remain anonymous. All data will be presented in summary form only. A summary of the study, with group response information, will be made available to all participants and firms who request such a document.

Thank you for your participation.

Sincerely,

Patricia M. Myers, CPA
APPENDIX C
Experimental Materials

Background
Assume you are an Internal auditor for JMB Corporation, a Fortune 500 company. JMB manufactures and distributes food products nationwide. Corporate headquarters is located in the New York area. Internal Audit conducts a comprehensive audit program at branch and district offices throughout the country.

The following information applies to the internal audit you are currently performing. This is the first time you have been assigned the audit of this particular district office. This district office is responsible for distributing ice cream and frozen novelties. The number of accounts generated in this office is equally distributed between major clients and smaller customers. The last time this audit was performed at this location was three years ago. There has been no personnel turnover in key positions since the last audit. On a nationwide basis, internal audits of district offices of this type are performed annually on approximately a three-year rotation by district. The permanent files indicate that, in the past, auditee management in this district has been cooperative in implementing audit recommendations. There are no outstanding audit recommendations in this district.

Audit Scenario
Your audit program calls for a review of accounts receivable at the northwest district office. Your audit objective is to evaluate the reliability and integrity of accounts receivable information generated in this district. As such, you are focusing on one product line (ice cream and related novelties), in one location (the northwest district).

The initial stages of the audit have progressed without incident. As part of your substantive tests you have applied an analytical accounting procedure in the form of a ratio analysis utilizing receivables turnover (credit sales divided by average net receivables). Assume that you calculated the ratio correctly. Your audit program calls for a comparison of the current year receivables turnover ratio with that of the prior five years. However, the test results are not as expected. The receivables turnover ratio for the past five years averaged 11.69 with a low of 11.52 two years ago and a high of 11.86 five years ago; the receivables turnover ratio for the current year is 13.47. The food products’ industry average is 11.711. This increase is significant and outside the expected range.

A highly competent member of your audit team suggests that the increase in the receivables turnover ratio occurred because collections improved due to the implementation of more stringent credit policies, which caused a decrease in net average receivables. On the response page please provide your judgments about this audit scenario.
APPENDIX C
Experimental Materials

RESPONSE FORM

Recall: A highly competent member of your audit team has suggested that the increase in the receivables turnover ratio occurred because collections improved due to the implementation of more stringent credit policies, which caused a decrease in net average receivables. Please provide your judgments about this audit scenario in the spaces provided below. For the first question, please mark your answer below with an "X". The left end of the line labeled 0 represents extremely unlikely and the right end of the line labeled 100 represents extremely likely.

1. Given the fact that a significant increase in the receivables turnover ratio occurred, how likely do you think it is that the cause was collections improved due to the implementation of more stringent credit policies, which caused a decrease in net average receivables, as suggested by the audit team member?

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>extremely unlikely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extremely likely</td>
</tr>
</tbody>
</table>

2. List alternative specific causes that could explain the unexpected increase in the receivables turnover ratio. (Please list as many as you can in the order they come to mind.)

a.) ________________________________

b.) ________________________________

c.) ________________________________

d.) ________________________________

e.) ________________________________

3. Please rank all explanations (the alternative specific causes you listed in question 2 above and the explanation provided by audit team member) in the shaded area below. Please mark the most likely explanation as 1st, the next most likely as 2nd, and so forth.

<table>
<thead>
<tr>
<th>1. audit team member's explanation</th>
<th>2. your alternative specific causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>(collections improved due to the implementation of more stringent credit policies, which caused a decrease in net average receivables)</td>
<td>2a 2b 2c 2d 2e</td>
</tr>
</tbody>
</table>

Rank: ________________________________
APPENDIX C
Experimental Materials

YOUR QUESTIONS and COMMENTS

4. In the context of the audit scenario, what questions do you want answered at this point?

5. How many hours would you budget to obtain and verify the answers to these questions? __________

6. Other comments:
APPENDIX C
Experimental Materials

QUESTIONS ABOUT YOUR AUDITING EXPERIENCE AND TRAINING

1. Audit Experience:
   Internal Audit experience: ___ years ___ months
   External Audit experience: ___ years ___ months

2. Educational Background: Please indicate all that apply:
   □ Undergraduate Degree:
     MAJOR: Accounting Other (please specify) ___________
     □ (0) □ (0)
   □ Graduate Degree:
     MBA Masters of Accounting Other _________
     □ (1) □ (2) □ (0)

3. Certification: (please check all that apply)
   CPA CIA CISA CMA CFE Other ____________
   □ □ □ □ □ □

4. Your Position (or Job Title) __________________________________________

5. Are analytical auditing procedures used in audits in which you participate?
   □ (1) Yes, but they are usually performed by others on the audit team.
   □ (2) Yes, I personally utilize analytical auditing procedures on a regular basis.
   □ (3) Yes, I personally utilize analytical auditing procedures (but infrequently).
   □ (4) No, analytical auditing procedures are not utilized
   □ (5) Don't know

6. In the past 3 years, on how many audit projects have you worked? _________

7. In the past 3 years, on how many audit projects have you examined sales and/or receivables? _________

8. Your industry __________________________________________________________

9. I would like to receive a summary of this study; please send it to me at the following address:

   Again, thank you for your participation
REFERENCES


