To the Graduate Council:

I am submitting herewith a dissertation written by Susan Darlene Coomer entitled "The Effect of Prior Year's Errors and Irregularities and Management's Characteristics on Audit Planning: An Empirical Investigation." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

James H. Scheiner, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor
and Dean of the Graduate School

THE EFFECT OF PRIOR YEAR'S ERRORS AND IRREGULARITIES AND MANAGEMENT'S CHARACTERISTICS ON AUDIT PLANNING: AN EMPIRICAL INVESTIGATION

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Susan Darlene Coomer

May, 1993

ACKNOWLEDGEMENTS

I would like to thank my chairman, Dr. Jim Scheiner, for his guidance and unending patience from the beginning stages of the proposal through the completion of the dissertation. I would also like to thank the other committe members, Dr. Jack Kiger, Dr. Douglass Izard, and Dr. Tom Ladd. I would like to thank Dr. Kiger not only for his comments and suggestions concerning this project but also especially for his support and encouragement during the beginning stages of my academic career. I would like to thank Dr. Izard for his conntinual effort and encouragement over the past three and one half years that helped to keep me motivated, on track, and to see that there was always a light at the end. I would like to thank Dr. Ladd for his time, effort, and assistance in the proposal stage and the dissertation stage of this project. To each of you, Thank You!

I owe my parents, Lewis and Pat Coomer, a debt of gratitude for instilling in me at an early age the value of an education and then providing me with the financial assistance and emotional support so very much needed to complete a doctoral program. I would also like to thank my sister and brother-in-law, Teresa and Larry Sparks. They have no idea how their visits to Knoxville and encouraging words helped me successfully complete this project. I also want to thank my grandparents, Floyd and Inez Coomer. They provided a great support throughout my childhood and continue their support into my adulthood.

Finally, I would like to thank my husband, Dodd, for his patience and understanding during the "up" times when I was excited because everything seemed to be going right and during the "down" times when I was complaining because everything seemed to be going wrong. He helped me find the motivation to work late, get up early, and stick with it until the end. Thank you.

I appreciate the special contribution that each of you made.

ABSTRACT

The purpose of this study was to investigate how auditors make audit planning decisions given the general guidance provided by auditing standards. First, the study investigated factors that impact auditors' inherent risk assessments for assertions for the revenue class of transactions. Attribution theory provided the theoretical basis for selecting three factors identified in SAS No. 53 that should impact auditors' inherent risk assessments for assertions at the class of transactions level. The three factors selected were (1) the existence of a material error or material irregularity in the class of transactions in the prior year's audit, (2) the turnover recency in the CFO's position, and (3) the auditor's perception of the ability of the current CFO based on the CFO's previous work experience. In addition to these three factors, the study also investigated the impact of years of auditing experience on auditors' inherent risk assessments. Second, the study examined the relationship between auditors' inherent risk assessments and subsequent audit planning decisions, particularly decisions relating to the extent of planned audit procedures and staff scheduling. The impact of years of auditing experience on the extent of planned audit procedures and staff scheduling was also investigated.

Hypothetical client scenarios and questionnaires developed by the researcher were mailed to seventy-two auditors located in nine offices of a large public accounting firm. Fifty-seven (79%) auditors participated in the study by returning a completed questionnaire.

Kendall's coefficient of concordance was used to identify the treatment groups that tended to contain predominantly high or low inherent risk assessments. The treatment groups identified by Kendall's coefficient of concordance were not consistent with the treatment groups hypothesized by attribution theory to contain predominantly high or low inherent risk

assessments. A discussion of the reasons for this conflict is presented in the results section of the study.

Multivariate analysis of variance (MANOVA) procedures found statistically significant (.0335) results for the interaction effect between the recency of turnover in the CFO's position and the type of misstatement that occurred in the prior year.

MANOVA procedures were also used to examine the impact of auditors' inherent risk assessments on the extent of planned audit procedures and staff scheduling. Contrary to the guidance provided in auditing standards, the MANOVA procedures did not find a strong, positive relationship linking inherent risk assessments to the extent of planned audit procedures and staff scheduling.

Pearson correlation coefficients were not significant for the relationship between auditors' years of auditing experience and their inherent risk assessments. Pearson correlation coefficients found moderate support for the significance between auditors' years of auditing experience and the extent of planned audit procedures and staff scheduling. The majority (79%) of the significant correlations were negative which indicates that as the auditors' years of auditing experience increased they tended to reduce the extent of planned audit procedures and decrease the experience level of the staff scheduled to perform the audit procedures.

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CHAPTER 1

INTRODUCTION

Auditors make many decisions when planning an audit that effect the audit's efficiency and effectiveness [Felix and Kinney, 1982; Joyce, 1976]. When planning an audit, Statement on Auditing Standards (SAS) No. 47, "Audit Risk and Materiality in Conducting an Audit," [AICPA, 1984, AU 312.08] requires auditors to consider audit risk and materiality. Audit risk is "the risk that the auditor may unknowingly fail to appropriately modify his opinion on financial statements that are materially misstated" [AICPA, 1984, AU 312.02]. During audit planning, an auditor must assess audit risk at the financial statement level and at the account balance or class of transaction level. At the account balance or class of transaction level, audit risk is a function of inherent risk, control risk, and detection risk [AICPA, 1984, AU 312.20]. After assessing risk and materiality, auditors must decide among other things the nature, extent, and timing of audit procedures, which staff will perform the audit procedures, and the appropriate level of supervision.

Several research studies focused on control risk during audit planning by investigating internal control evaluations [Ferris and Tennant, 1984, Hamilton and Wright, 1982, Ashton and Kramer, 1980, Ashton and Brown, 1980, and Ashton, 1974] and the effect of internal control evaluations on the extent of planned audit procedures [Kaplan, 1985, Tabor, 1983, Gaumnitz et al., 1982, and Joyce and Biddle, 1981]. However, inherent risk and its impact on subsequent audit planning decisions has received little attention in the literature. Dirsmith and Haskins [1991, p. 73] state that "[d]espite a long-term recognition as to its importance to auditing ... the concept of inherent risk has largely escaped systematic investigation." The purpose of this research is to investigate factors that impact auditors' inherent risk assessment and the risk's

relationship to subsequent audit planning decisions, particularly determining the extent of planned audit procedures and scheduling staff.

A. Objectives of and Motivation for the Research

This research provides empirical evidence relating to three areas of audit planning decisions: assessing inherent risk for assertions, determining the extent of planned audit procedures, and scheduling staff. Due to constraints related to developing and administering the research instrument, these planning decisions were examined for only the revenue transaction class. The revenue transaction class was chosen because of its significance in most audits.

Auditing standards present characteristics and examples of factors that auditors should consider when they assess inherent risk, determine the extent of planned audit procedures, and schedule staff. However, auditing standards only provide auditors with general guidelines to follow in these areas. Joyce [1976] and Mautz and Sharaf [1961] recognized that lack of precise guidelines in auditing standards increases the importance of auditor judgment. Therefore, the general research question this research explores is: How do auditors implement the general guidance provided by auditing standards when they make audit planning decisions?

This research used hypothetical client scenarios and a questionnaire[1] to investigate how auditors implement the general guidance provided by auditing standards when they assess inherent risk and make subsequent audit planning decisions for the revenue transaction class. Each auditor received information pertaining to one hypothetical client scenario and a

[1] Appendix B presents the hypothetical client scenario (i.e., the case materials) and the questionnaire. Appendix C presents all the treatments included in the study.

questionnaire. The first part of the questionnaire elicited information on the auditors' inherent risk assessments for the client's revenue assertions. The second part of the questionnaire required that the auditors plan the audit procedures, budget hours and schedule staff for the revenue component. The third part of the questionnaire elicited background information from the auditors.

The next section briefly reviews the audit risk model at the account balance or class of transactions level as described in auditing standards.

I. The Audit Risk Model at the Account Balance or Class of Transactions Level

SAS No. 47 [AICPA, 1984, AU 312] requires that during the planning process auditors consider audit risk at the financial statement level and for assertions[2] at the account balance or class of transactions level. Audit risk at the account balance or class of transactions level is a function of inherent risk, control risk, and detection risk. The relationship among these risk factors can be characterized as follows [AICPA, 1983, AU 350.48; Waller, 1992]:

$$AR = IR \times CR \times DR^{3}$$

where,

AR = the allowable audit risk that monetary misstatements equal to tolerable misstatement might remain undetected for the account balance or class of transactions and related assertions after the auditor has completed all audit procedures deemed necessary [AICPA, 1983, AU 350.48, paragraph 4].

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[2] "Assertions are representations by management that are embodied in financial statement components. They can be either explicit or implicit and can be classified according to the following broad categories: existence or occurrence, completeness, rights and obligations, valuation or allocation, [and] presentation and disclosure" [AICPA, 1980, AU 326.03].

[3] SAS No. 39, "Audit Sampling," [AICPA, 1983, AU 350.48] and Waller [1992] break DR into "the risk that analytical procedures and other relevant substantive tests fail to detect a realized misstatement (AP) and the risk that substantive test of details also fail (TD)" [Waller, 1992, p. 6].

IR = the susceptibility of an assertion to a material misstatement assuming there are no related internal control structure policies or procedures [AICPA, 1983, AU 350.48, paragraph 4].

CR = the risk that a material misstatement that could occur in an assertion will not be prevented or detected on a timely basis by the entity's internal control structure policies or procedures [AICPA, 1983, AU 350.48, paragraph 4].

DR = the risk that audit procedures will fail to detect a material misstatement that exists in an assertion [AICPA, 1984, AU 312.20].

SAS No. 39, "Audit Sampling," [AICPA, 1983, AU 350] explains the relationship among the components of audit risk at the account balance or class of transactions level. First, the auditor uses professional judgment to determine the acceptable level of audit risk. Then, the "auditor assesses inherent and control risk, and plans and performs substantive tests (analytical procedures and substantive tests of details) in whatever combination to reduce audit risk to an appropriate level" [AICPA, 1983, AU 350.48, paragraph 2]. The auditor may assess inherent risk and control risk individually or together.[4] The auditor bases these risk assessments on his or her professional judgment. The auditor then plans and performs audit procedures in order to restrict detection risk such that audit risk is equal to or less than the predetermined appropriate level.

The next two sections discuss the main objectives of the research and the motivation for each.

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[4] Auditing standards state that auditors can assess inherent and control risks separately or together [AU 312.24]. Historically, auditors have made separate assessments of these risks. In fact, many firms' audit guidance literature require separate assessments of inherent risk and control risk (e.g., KPMG Peat Marwick and Price Waterhouse). Recently, however, there has been some concern over the distinction between these risks and some researchers have recommended collapsing inherent risk and control risk into "auditee risk" [Waller, 1992].

2. *Objective 1: Inherent Risk Assessments*

This research focuses on auditors' inherent risk assessments for assertions for the revenue transaction class. The objective of this research is to investigate the impact of factors included in SAS No. 53,"The Auditor's Responsibility to Detect and Report Errors and Irregularities," [AICPA, 1988, AU 316] on auditors' inherent risk assessments for revenue assertions. Figure 1[5] lists characteristics and examples of factors presented in SAS No. 53 [AICPA, 1988, AU 316] that auditors should consider when they assess audit risk at the financial statement level and at the account balance or class of transactions level. SAS No. 53 [AICPA, 1988, AU 316.15] and SAS No. 47 [AICPA, 1984, AU 312.22] state that factors influencing the auditor's risk assessment at the financial statement level should also be considered when the auditor assesses inherent risk for assertions at the account balance or class of transactions level. The existence of risk factors at the financial statement level should lead to higher risk assessments for related assertions at the account balance or class of transactions level.

Attribution theory[6] provides a theoretical basis for selecting three factors identified in SAS No. 53 [AICPA, 1988, AU 316] that should impact auditors' assessments of inherent risk for assertions at the class of transactions level. Attribution theory asserts that individuals seek explanations for events that happen to them or those around them. An individual's response or reaction to an event is based on the individual's perception of the causes of the event.[7] Based

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[5] All figures and tables may be found in Appendix A.

[6] Bierhoff [1989], Harvey and Weary [1984], Kelley and Michela [1980], and Harvey, Ickes, and Kidd (eds.) [1976, 1978, 1981] provide reviews of research in the attribution field.

[7] Attribution theory asserts that an individual responding to an event or seeking an explanation for an event could be a direct participant in the event (i.e., an actor) or a non-participant in the event (i.e., an observer). This study focuses on auditors' (observers) reactions to certain events involving their clients. Jones and Nisbett [1972] and Bierhoff [1989] provide discussions of actor-observer differences

on attribution theory, the three factors selected from SAS No. 53 [AICPA, 1988, AU 316] are: (1) the existence of a material error or irregularity in the class of transactions in the prior year's audit, (2) the turnover recency of the client's senior accounting personnel, and (3) the auditor's perception of the ability of the client's senior accounting personnel.[8] These factors are indicated by bold type in Figure 1. A more detailed discussion of attribution theory is presented in Chapter 2.

Another objective of this research is to investigate the relationship between auditors' years of auditing experience and inherent risk assessments for assertions for the revenue transaction class. Previous research examined the role of professional experience in making auditing judgments relating to internal control evaluations, materiality levels, disclosure thresholds, and inherent risk assessments. In addition, several research studies examined the extent of consensus among these decisions for more experienced and less experienced subjects. (See Choo [1989] and Colbert [1989] for a review of this literature.) Some studies found positive associations between audit experience and expert judgments, some found negative associations, and some found no association. For example, Messier [1983] surveyed thirty-two partners and found that length of experience was positively associated with materiality levels and disclosure thresholds for inventory writedowns. Kaplan and Reckers [1989] found a negative association such that auditors with more years of auditing experience tended to assess

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in the perception of the causes of behavior. However, this discussion is beyond the scope of this research.

[8] This study uses the chief financial officer's (CFO) position to represent the reference in the professional standards to the client's senior accounting personnel. The CFO was selected because this person is usually responsible for the client's day-to-day financial operations. The CFO generally oversees the preparation of the financial statements and develops and monitors the reporting practices and internal control structure. Also, previous research presented in the next chapter found that auditors consider the CFO's characteristics during audit planning. For these reasons, the CFO appears to be a central figure among the client's senior accounting personnel that the auditor should consider during audit planning.

inherent and control risk at lower levels than auditors with less years of auditing experience. Kaplan and Reckers [1984] found that experience level (senior and manager) was not significant in auditors' assessments of the likelihood of a material error. Krogstad, Ettenson, and Shanteau [1984, pp. 55-56] offered the following explanation for experience differences found in the research:

> it is conceivable that an auditing senior, preoccupied with planning and conducting the audit, may be influenced by different factors and in different ways than an audit partner who performs primarily an overall review of the audit and may be closer to client pressures and business risks.

a. Motivation

The motivation for this part of the research is twofold. First, it provides empirical research related to the actual impact of three characteristics on auditors' inherent risk assessments for assertions for the revenue transaction class. SAS No. 53 [AICPA, 1988, AU 316] provides only general guidance by identifying factors and issues that "may be considered" [AICPA, 1988, AU 316.10 and .12] or "may influence" [AICPA, 1988, AU 316.15] auditors' inherent risk assessments. This research provides empirical evidence concerning how auditors interpret this general guidance when assessing inherent risk for revenue assertions. Second, this research provides additional empirical evidence of the relationship between auditing experience and audit planning decisions related to inherent risk assessments. As discussed earlier, previous research has found conflicting results concerning the significance of experience on auditors' risk assessments.

3. Objective 2: Extent of Planned Audit Procedures and Staff Scheduling Decisions

Audit planning involves not only assessing risks but also other decisions, such as determining the extent of planned audit procedures and supervision, and the required

qualifications of persons performing the audit procedures. This section discusses the relationship between auditors' inherent risk assessments and two subsequent audit planning decisions: the extent of planned audit procedures and staff scheduling.

a. Extent of Planned Audit Procedures

SAS No. 47 [AICPA, 1984, AU 312.19] states that "[t]he auditor needs to consider audit risk at the individual account balance or class of transactions level because such consideration directly assists him in determining the scope of auditing procedures for the balance or class and related assertions." Thus, risk assessments at the account balance or class of transactions level should guide auditors' decisions concerning the scope of audit procedures for the balance or class and related assertions. The scope of auditing procedures is a broad term and includes determining which audit procedures will be performed as well as determining the sample size, range of testing,[9] and budgeted hours for the staff person and senior for each planned audit procedure. The focus of this study is on the extent of the planned audit procedures which includes determining the sample size, scopes, and budgeted hours for the staff person and senior. As defined earlier, audit risk at the account balance or class of transactions level is a function of inherent risk, control risk, and detection risk. The auditor assesses inherent risk and control risk based on the client's specific circumstances. After assessing inherent risk and control risk, the auditor controls detection risk through the design of audit procedures.

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[9] The range of testing includes decisions such as determining the number of days to include in a cutoff test or the dollar amount and percentage for an analytical procedure (i.e., a fluctuation analysis). Many auditors refer to these types of decisions as "scopes." Throughout the remainder of this paper, unless otherwise specified, the term scope will be used to refer to the types of decisions just mentioned and should not be confused with the usage of the term scope in the auditing standards.

The objective of this research is to examine the impact of auditors' inherent risk assessments for revenue assertions on the extent of the sample size, scope, and budgeted hours for the staff person and senior for each planned audit procedure for the revenue component. Auditing standards provide some guidance concerning the auditor's response to risk at the assertion level. SAS No. 39 [AICPA, 1983, AU 350.48, paragraph 3] states that inherent risk, the effectiveness of the internal control structure policies or procedures (i.e., control risk), and the effectiveness of analytical procedures and other substantive tests related to an audit objective should be considered together in order to determine the sample sizes for substantive tests of details. (In this research, control risk for revenue assertions is held constant across all groups.) However, much of the decision is left to individual auditor judgment. For example, at what risk level should auditors expand audit procedures or how much should the audit procedures be expanded? The objective of this research is to investigate the extent of auditors' planned procedures in response to inherent risk assessments for revenue assertions.

b. Staff Scheduling Decisions

In addition to determining the extent of audit procedures, auditors must also determine the required qualifications of persons performing the audit procedures and the extent of supervision appropriate. Auditing standards do not provide specific guidance concerning the appropriate response to risk at the assertion level related to staff scheduling decisions. However, SAS No. 53 [AICPA, 1988, AU 316.14] does provide responses to risk at the financial statement level. SAS No. 53 [AICPA, 1988, AU 316.14] states that "[o]rdinarily, higher risk [at the financial statement level] requires more experienced personnel or more extensive supervision by the auditor with final responsibility for the engagement during both the planning and the conduct of the engagement." Although this statement refers to the

response to risk at the financial statement level, it is logical to extend this response to risk at the account balance or class of transaction level. For example, higher risk for an assertion within a class of transactions could lead auditors to schedule more experienced persons and/or more supervision for audit procedures related to the assertion.

SAS No. 22, "Planning and Supervision," [AICPA, 1978, AU 311.11] points out that

> [t]he extent of supervision appropriate in a given instance depends on many factors, including the complexity of the subject matter and the qualifications of persons performing the work.

This statement suggests that some trade-off exists between the qualifications of persons performing the work and the level of supervision appropriate.

This part of the research has several objectives. First, this research investigates how auditors actually respond to risk at the assertion level when scheduling staff. Second, this research seeks to determine if the response to risk at the assertion level is similar to the response suggested in auditing standards for risk at the financial statement level.

This research also investigates the relationship between auditors' years of auditing experience and the extent of planned audit procedures and staff scheduling decisions. As discussed earlier, prior research found that more experienced auditors make different decisions than less experienced auditors.

B. Contributions of the Research

This research makes several contributions to the professional and academic literatures. First, this research provides insight into the previously unexamined relationship between auditors' inherent risk assessments and the following factors: (1) the recency of turnover in the CFO's position, (2) the previous work experience of the current CFO, and (3) the prior

year's audit results. Second, this research is part of a new stream of research that relies on attribution theory for theoretical support in empirical investigations of inherent risk assessments.

Third, this research goes beyond previous research and investigates the relationship between auditors' inherent risk assessments and subsequent audit planning decisions, particularly the extent of audit procedures and staff scheduling decisions. While previous research has investigated other factors that impact the extent of audit procedures, none has investigated the impact of inherent risk assessments on these decisions. Likewise, previous research has not examined the relationship between inherent risk assessments and staff scheduling decisions.

Finally, this research provides insight for accounting practitioners and academicians concerning how auditors implement the general guidance provided by auditing standards. Most auditing standards are general in nature. This leaves considerable room for exercising professional judgment. This research identifies how auditors exercise professional judgment when they implement the general guidance provided in auditing standards. These results should be of interest to standard setting bodies such as the American Institute of Certified Public Accountants, to accounting practitioners, and to academics. If auditors interpret and implement the standards as the profession intended, support exists for auditing standards to continue to provide only general guidance. However, if auditors do not interpret and implement the standards as the profession intended, support exists for more refined auditing standards and/or education for auditors concerning the standards' intent.

C. Limitations of the Research

The results of this research are subject to certain limitations. First, the auditors were not selected randomly. They were selected by personnel from the offices of a large public accounting firm[10] that agreed to participate in the research. This limitation restricts the generalizability of the results to the offices of the Big 6 firm that participated in the research. However, the auditors were randomly assigned to treatment groups which increases the internal validity of the research. Additionally, the small sample size available for use in this research reduces the power of the statistical procedures to detect differences if differences exist.

Second, when a hypothetical case is used, questions arise concerning the realism of the task and the seriousness of the subjects. Realism of the task was increased by the auditors making decisions similar to ones they actually make in practice. Also, realism was increased by tailoring the wording in the questionnaires, especially the wording of the definitions of the assertions and audit procedures in the audit program, to the wording in the participating firm's audit guidance literature.

However, in this research the auditors made planning decisions for only the revenue audit component. Because decisions for other audit components were not included in the research, the realism of the task may have been reduced. Also, some realism may have been lost if the auditors did not take the task seriously or respond honestly. However, on a scale of 1 (very representative) to 5 (very unrepresentative), the subjects rated the realism of the case materials as 2.61. Therefore, it appears that an appropriate level of realism was achieved in the case materials. Realism of the case materials is discussed in detail in Chapter 4.

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[10] Large public accounting firms are referred to as the "Big 6" and include Arthur Andersen, Coopers & Lybrand, Deloitte & Touche, Ernst & Young, KPMG Peat Marwick, and Price Waterhouse.

Third, mailing the instruments directly to the auditors offered certain advantages and disadvantages. The participants were able to complete the questionnaire at their own pace and convenience. The researcher benefited by covering a larger geographical area at a minimum cost of dollars and time. Disadvantages include the loss of control the researcher has over the administration and collection of the instruments. There is no guarantee that the person selected for the research is the one who completed the instrument. However, this would only be of concern if the person completing the questionnaire did not have the necessary experience. The researcher also loses control over collection of the instruments. Because of this the existence of nonresponse bias must be considered. However, the overall response rate for this research was 79%, which is well above commonly reported response rates of 25% to 30% for this type of research. Additionally, tests for nonresponse bias did not identify any problems. These tests are discussed in detail in Chapter 4.

D. Organization of the Study

Chapter 1 contains the introduction to the research. Chapter 2 reviews the relevant literature and theoretical support for the research. The research design and methodology are presented in Chapter 3. Chapter 4 discusses the results of the research. Chapter 5 presents conclusions and recommendations resulting from the research.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL SUPPORT

This section reviews the relevant literature and theoretical support for the research. The first section presents the literature concerning auditors' inherent risk assessments. The second section discusses the theoretical support for the research.

A. Literature Review

Auditors' inherent risk assessments have received little attention in the academic literature. Most studies that have investigated inherent risk "attempt to link factors in the client environment to the presence of errors" [Colbert, 1988, p. 112]. This section is divided into two parts. First, this section presents a discussion of the descriptive research that attempts to identify environmental factors that are linked to the existence of misstatements (i.e., errors and irregularities). Second, this section reviews the research studies that have investigated auditors' inherent risk assessments.

1. Descriptive Research on Errors and Irregularities

Several researchers have examined characteristics and environmental factors associated with errors, or unintentional misstatements, and the link to inherent risk. Hylas and Ashton [1982] reported characteristics of 281 errors requiring financial statement adjustments on 152 audits conducted by one large public accounting firm. Auditors reported three types of information about errors they encountered: (1) the financial statement account adjusted and the dollar amount of the error, (2) the initial event or audit procedure that led the auditor to

suspect that an error had occurred, and (3) the auditor's perception of what caused the error to occur. Hylas and Ashton found that the largest number of errors detected by auditors was in the sales and collections cycle (15.7%), and slightly more than 50% of the errors overstated income. Approximately 44% of the reported errors were initially detected by analytical review procedures and tests of details concerned with obtaining evidence and supporting documentation. These authors also found that client personnel problems and characteristics were associated with the occurrence of errors. For example, auditors identified client turnover, inexperience, carelessness, and incompetence as the most frequent cause of errors and insufficient accounting knowledge of client personnel as the second most frequent cause of errors.

In a more recent study, Houghton and Fogarty [1991] reported the characteristics of 2,272 auditor detected errors in 480 audits conducted in the United States, the United Kingdom, and South Africa by one large public accounting firm. They found that approximately 62% of the errors overstated income. The auditors blamed routine clerical errors for approximately 44% of the errors. These authors also found that over 70% of the errors occurred in an area affected by similar misstatements in the prior year. From this, Houghton and Fogarty [1991, pp. 6, 7] concluded that "[a]uditors, armed with prior knowledge about their client, can identify during the planning process those audit areas having the greatest risk of error ... The largest factor contributing to this knowledge was a history of similar errors in prior years." Concerning specific accounts affected by the errors, Houghton and Fogarty found that while the majority of errors occurred in expense accounts, over 26% occurred in revenue accounts.

Kreutzfeldt and Wallace [1986] report the results of 1,506 errors detected in 280 audits of one large public accounting firm. These authors focused on error characteristics and

environmental factors associated with the occurrence of errors. Kreutzfeldt and Wallace report only balance sheet accounts that were affected by the errors. They found that the majority of errors occurred in accounts payable and accrued liabilities (25%) followed by fixed assets and accumulated depreciation (17%), receivables and related reserves (15%), and inventory and related reserves (11%). Consistent with Hylas and Ashton [1982] and Houghton and Fogarty [1991], Kreutzfeldt and Wallace found that auditors reported personnel problems (32%) as the most frequent cause of errors. These authors also found that approximately 33% of the errors had occurred in the prior year. This result is consistent with Houghton and Fogarty [1991] and Kinney [1979].

Kinney [1979] examined three years of audit workpapers for 44 small manufacturing companies from seven large accounting firms. He found that errors occurring in prior periods are likely to recur in subsequent periods.

Johnson [1987] reported the characteristics and client traits associated with 647 errors detected in 110 audits of six accounting firms in the United Kingdom. Johnson found that errors overstated earnings in approximately 59% of the audits examined. He also found a negative relationship between auditors' ratings of the chief accounting officer's "accounting knowledge, competence, conscientiousness, and due care" and the occurrence of classification errors and accounting principle errors [Johnson, 1987, p. 53].

Johnson [1983] presented general observations of a study that examined recurring errors in 127 stock audits of U.S. companies. Johnson [1983, p. 93] concluded that "recurring errors were prominent in situations where there was high turnover of [the] chief accounting officer (i.e., in post for less than two years)." He also found that personnel problems were consistently related to the recurrence of errors. Johnson [1983, p. 93] stated that "it does seem that in some circumstances the auditor can use prior experience to predict current errors. But

he should focus his attention not on the presence of errors in prior periods, but on client characteristics in the current year which would cause errors to recur."

Although several researchers have examined characteristics surrounding the existence and detection of *errors*, few researchers have conducted similar studies concerning *irregularities*, or intentional misstatements. The lack of research relating to irregularities may be due to the rare occurrence of material irregularities and the difficulty of detecting material irregularities that do occur [Loebbecke, Eining, and Willingham, 1989]. Bologna [1984, p. 12] suggested that a "major problem with crime statistics of all kinds -- white and blue collar, violent and nonviolent, personal and property -- is that all incidents of such crimes do not get reported, nor do those which are reported get collected and tabulated by one originating source." Therefore, the following situations contribute to the lack of research in this area: (1) the difficulty of detecting irregularities that do occur, (2) the incidence of under reported irregularities that are detected, and (3) the lack of an organized collecting process for detected and reported irregularities. It appears that very few irregularities make it through this process to reach the public. This may be the reason that the few irregularities that do make it through this process tend to attract media attention.

Loebbecke, Eining, and Willingham [1989] surveyed 121 audit partners who had encountered at least one material irregularity[11] in an audit. The audit partners collectively encountered 196 irregularities which can be characterized as follows: (1) irregularities typically involved collusion of more than one member of top management (38%), (2) chief executive officers (CEO) and chief financial officers (CFO) were involved in 65% and 55%,

[11] Loebbecke, Eining, and Willingham [1989] report the results for two types of irregularities: defalcations and management fraud. Defalcation refers to embezzlement, and management fraud refers to intentional misstatements of information in the financial statements. Since this study's focus is on intentional misstatements in the financial statements, this section only reports the results for the management fraud irregularities.

respectively, of the irregularities, (3) irregularities most commonly occurred in the inventory audit area (22%) and the sales and collections audit area (20%), and (4) the most common reasons for the occurrence of irregularities were for the purpose of overstating income.[12]

Loebbecke, Eining, and Willingham also presented the partners with a comprehensive listing of red flag indicators of the existence of irregularities. The listing consisted of characteristics identified in SAS No. 53 [AICPA, 1988, AU 316], prior research, and additional indicators suggested by participants in the study.[13] In this part of the study, each partner reported detailed information on *one* irregularity he or she encountered. Twenty-eight percent of the 121 irregularities occurred in situations where the auditor's past experiences with management indicated that management was dishonest. Inexperienced management was present as a red flag in 10% of the irregularities.

In an earlier study, Albrecht and Romney [1980] examined 72 cases of fraud in order to identify the societal, organizational, and individual characteristics that "appeared to influence or be associated with the perpetration of fraud" [Albrecht and Romney, 1980, p. 3]. Albrecht and Romney examined publicly available literature (e.g., newspapers, books, journals, unpublished working papers, etc.) to obtain data on the red flags that existed in each of the 72 fraud cases. In this study fraud was defined to include intentional material misstatements in the financial statements as well as embezzlement by company executives and employees. These authors identified seventy-eight red flags that were present in at least one of the fraud

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[12] The three most common reasons for the occurrence of an irregularity were: (1) the client's profitability was low relative to the industry, (2) management placed undue emphasis on meeting earnings projections, and (3) adverse conditions existed in the client's industry.

[13] The following are examples of indicators of management fraud that the partners volunteered (the number of partners who identified the red flag appears in parentheses): management personnel perceive their job is threatened by poor performance (10); client personnel exhibit strong personality anomalies (9); client management displays significant disrespect for regulatory bodies (8); and company holdings represent a significant portion of management's personal wealth (8).

cases examined. Albrecht and Romney found that dishonest or unethical management was present as a red flag signal in 46% of the cases. Frequent turnover of the client's key personnel was present as a red flag signal in 22% of the cases.

To summarize, previous research identified the following characteristics associated with the existence of errors: (1) presence of errors in prior years, (2) recent turnover of the client's key personnel, particularly the chief accounting officer, and (3) inexperience, carelessness, and incompetence of the client's key personnel. Previous research also identified the following characteristics associated with the existence of irregularities: (1) collusion of top management, particularly the CEO and CFO, (2) dishonest management, (3) inexperienced management, and (4) frequent turnover of the client's key personnel. Previous research indicates that errors and irregularities commonly occur in the sales and collections audit area and are likely to overstate income. These characteristics should impact an auditor's belief concerning the existence of errors and irregularities and, therefore, impact the auditor's inherent risk assessment. Several of the factors identified in previous research are incorporated in this study.

2. Research on Inherent Risk Assessments

SAS No. 47 [AICPA, 1983, AU 312] highlighted the importance of inherent risk as a component of the audit risk model. Several researchers emphasized the importance of assessing inherent risk during audit planning in order to increase the efficiency of an audit [Leichti, 1986; Dominiak, 1986; Colbert, 1987; Dirsmith, McAllister, and Twargoski, 1987; Konrath, 1989]. Colbert, Leichti, and Konrath identified factors auditors should consider when they assess inherent risk. Colbert and Leichti classified the factors as either pervasive or account-specific. The pervasive factors that influence inherent risk assessments include the

client's business climate, organization structure, top management characteristics, and financial situation and accounting practices. Account specific factors include the competence of employees, accounting transactions, accounting systems, and opportunity for fraud in the specific account. SAS No. 53 [AICPA, 1988, AU 316] also discusses factors auditors should consider when assessing risk at the financial statement level and for assertions at the account balance or class of transaction level.

Although the importance of inherent risk assessments during audit planning has gained increased attention in recent years, very few research studies have focused on inherent risk assessments. Dirsmith and Haskins [1991] interviewed Big 8[14] partners at the office and national level and reviewed each firm's audit guidance literature to identify relevant factors that auditors use to evaluate inherent risk. Based on the interviews and the audit guidance literature, the authors identified 48 factors that auditors use to assess inherent risk. Then, 146 practicing auditors representing all of the Big 8 firms rated each factor's relevance in evaluating inherent risk for a specific client they were then auditing. Of the 48 factors, the factors the auditors ranked 1, 2, 4, 5, and 6 were concepts traditionally associated with control risk. Factors ranked 3 and 7 portrayed management as aggressive toward financial reporting. However, factors ranked 8, 9, 10, and 11, which these auditors considered somewhat relevant in their inherent risk assessments, were: the extent of turnover of top, executive management and the reasons for it; the competence of the controller; the potential for errors in internal financial reports; and prior audit adjustments as indicators of employee competence. The current study examines the impact of these four factors on auditors' inherent risk assessments

[14] Dirsmith and Haskins conducted their study prior to the mergers which reduced the Big 8 to the Big 6.

while controlling for the levels of control risk and management's aggressiveness toward financial reporting.

Wong-on-Wing and Reckers [1992] examined the relationship between (1) the extent of auditors' perceived deviation between management's rate for estimating bad debts and the auditors' expectations for this rate and (2) the inherent risk assessments for (a) the allowance for uncollectible accounts and (b) the allowance for obsolete inventory.[15] The results of this study are summarized in Table 1. Wong-on-Wing and Reckers found a significant and positive correlation between the extent of deviation for the rate for bad debt expense and the inherent risk assessment for the allowance for uncollectible accounts. However, they also found a significant and positive correlation between the extent of deviation for the rate for bad debt expense and the inherent risk assessment for the allowance for obsolete inventory. These results indicate that perceptions of management's deviation from expectations in one area (e.g., estimating bad debts) impact auditors' decisions not only in that area (e.g., allowance for uncollectible accounts) but also in unrelated areas (e.g., allowance for obsolete inventory).

In a similar study, Reckers, Wong-on-Wing, and Krull [1992] investigated the relationship between auditors' perceptions of management's motive to falsify reported earnings and the inherent risk of fraudulent financial reporting by management.[16] Table 1 presents the results of the study. These authors found that as auditors became more suspect of

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[15] Wong-on-Wing and Reckers [1992] examined these relationships in the second part of their study. In the first part, auditors determined the extent of deviation between management's rate for estimating bad debts and the auditors' expectations. They found that the extent of deviation from expectation was higher when the deviation resulted from management's actions (or behavior) rather than management's non-action (or non-behavior). The results from both parts of the study are summarized in Table 1; however, since the second part relates specifically to this study, it is discussed more fully in the text.

[16] Before examining the relationship between auditors' perceptions of management's motivation to falsify reported earnings and inherent risk of fraudulent financial reporting, Reckers, Wong-on-Wing, and Krull [1992] investigated the impact of two variables on auditor's perceptions of management's motivation to falsify reported earnings. Since this part of the study does not directly relate to inherent risk assessments, it is summarized and the results are presented in Table 1.

management's motivation to overstate reported earnings, the auditors increased their inherent risk assessment of fraudulent financial reporting for the company.

The present study is different from Wong-on-Wing and Reckers (WR) and Reckers, Wong-on-Wing, and Krull (RWK) in three respects. First, this study investigates inherent risk assessments for revenue assertions. WR investigated inherent risk assessments for two allowance accounts: uncollectible accounts and obsolete inventory. RWK investigated the inherent risk of fraudulent financial reporting by management. Second, the present study investigates the impact of different independent variables than either WR or RWK. Third, this study goes beyond WR's and RWK's studies to examine the impact of inherent risk assessments on subsequent audit planning decisions.

Colbert [1988] investigated the impact of four factors on auditors' inherent risk assessments for inventory[17]: (1) the recency of turnover of the controller, (2) the financing pressure present in the company, (3) the amount and calculation complexity of the inventory overhead, and (4) the quality of the personnel responsible for calculating the inventory value. The auditors assessed inherent risk for inventory on a nine point scale. Table 1 presents a summary of the study's results. The results indicate that all four factors significantly influenced the auditors' inherent risk assessments. However, analysis of the relative importance of the factors indicated that the quality of the personnel responsible for calculating the inventory value was the most influential factor affecting the inherent risk assessments. No first order interactions were significant.

The present study is different from Colbert's study in four ways. First, Colbert investigated factors that impact auditors' inherent risk assessments for inventory while this

[17] Colbert [1988] also examined the consensus and reliability of the auditors' inherent risk assessments and the auditors' self-insight regarding their inherent risk assessments.

study examines factors that impact auditors' inherent risk assessments for ***each*** assertion for the ***revenue*** component. (See Table 2 for a list of revenue assertions used in this study.) Thus, the current study provides more detailed information by examining how factors impact the inherent risk assessments for individual assertions rather than for the component as a whole.

Second, the current study requires auditors to assess inherent risk by marking an "X" on scales anchored as low risk, moderate risk, and high risk while Colbert [1988] recorded risk assessments on a nine point scale. Colbert [1988] acknowledges limitations associated with using the nine point scale to record the auditors' inherent risk assessments. For example, Colbert [1988, p. 119] states that "the auditors may not have interpreted the points on the scale identically...[and] the equal interval assumption may not have been met." The method of obtaining risk assessments in the current study has advantages because it closely resembles the way risk assessments are made by the participating firm's auditors in practice.

Third, this study goes beyond Colbert's [1988] study to examine the impact of inherent risk assessments on subsequent audit planning decisions. Fourth, the current study requires each auditor to complete only ***one*** case. Colbert [1988] asked 65 auditors to read 20 cases and assess the inherent risk for inventory for each of the 20 cases. Repeated tasks such as this can result in learning effects, reveal the study's purpose, or loose the auditors' interest. To limit these possibilities, this study is designed to require only one case per auditor.

Kaplan and Reckers [1984, 1986, 1989] conducted a series of experiments that examined both inherent and control risk. In these experiments, they obtained evidence that environmental and management factors impact auditors' initial and revised risk assessments of the existence of a material misstatement. Table 1 presents a summary of the experiments' results.

Kaplan and Reckers' results concerning the significance of management integrity on auditors' risk assessments are inconsistent. As Table 1 indicates, management integrity was not significant in Kaplan and Reckers' earliest study [1984], but it was significant in their later studies [Kaplan and Reckers, 1986, 1989]. The mixed results concerning the significance of management integrity may result from the way the variable was defined and presented in the studies. Management integrity was presented at one of two levels: high or low. "Under the low condition, the integrity of the CEO was represented as one of low reputation, who was a fashionable but questionable Las Vegas figure who had frequent run-ins with legal authorities" [Kaplan and Reckers, 1989, p. 544]. Under the high condition, the chief executive officer was presented as having a good reputation and maintaining very good relations with stockholders and employees.

Kaplan and Reckers' results concerning the significance of auditing experience on auditors' risk assessments are also inconsistent. When auditing experience was operationalized as the auditor's rank [Kaplan and Reckers, 1984, 1986], experience was not significant. However, when auditing experience was operationalized as the years of auditing experience [Kaplan and Reckers, 1989], it was significant. More experienced auditors tended to assess risk at lower levels than less experienced auditors.

This study is different from the Kaplan and Reckers's studies [1984, 1986, 1989] because it focuses entirely on auditors' inherent risk assessments. Also, this study presents management integrity at three levels that are based on the results of the prior year's audit. The prior year's audit results included in this study are: (1) the occurrence of a material error, (2) the occurrence of a material irregularity, and (3) no material misstatement. The occurrence of a material irregularity in the prior year indicates that management and/or company personnel lack integrity or at least should be viewed in a more skeptical manner. The

occurrence of a material error in the prior year suggests that management and/or company personnel may not have the necessary experience or knowledge; however, this situation does not present specific information about management's and company personnel's integrity. The scenario presenting no material misstatement in the prior year indicates that management and company personnel have the appropriate experience and knowledge. As with the material error situation, this situation does not present negative information about management's and company personnel's integrity.

B. Theoretical Support

This section summarizes the theoretical support for the research and reviews the applications of attribution theory in accounting and auditing.

1. Attribution Theory - The Theoretical Support

Attribution theory maintains that individuals seek explanations of events that happen to them or those around them. This is especially true for unexpected or negative events.[18] An individual's perception of the cause of an event is an important dimension that affects the individual's behavior [Kelley and Michela, 1980]. Weiner [1985, p. 548] proposed that individuals seek explanations of events for the following reasons:

(1) Individuals are curious and just want to know the causes of an event,
(2) Individuals can use the knowledge of causes of events for effective self management, and

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[18] Negative events are those events where the outcome is unfavorable, unpleasant, socially undesirable, or not the desired outcome. Attribution theory also refers to successful events which are those events where the outcome is favorable, pleasant, socially desirable, or the desired outcome. Although individuals may seek an explanation of a successful event (especially if the event is unexpected), they are more likely to seek an explanation of a negative event.

(3) Individuals can use the knowledge of causes of events for effective management of their environment.

Heider [1958] proposed four factors that individuals use to categorize the cause of an event: ability, effort, task difficulty, and luck. More recent research has provided support for these causal attributions using a variety of subjects and events [Weiner, 1985]. Although attribution researchers do not agree on a single set of underlying properties, i.e., dimensions, for classification of these causal attributions [Wimer and Kelley, 1982], research strongly supports the existence of the following dimensions across a variety of events: internality, stability, controllability, and intentionality[19] [Bierhoff, 1989; Weiner et al., 1987; and Weiner, 1985].[20] Weiner [1986] classified the four causal attributions along the internality, stability, and controllability dimensions. This resulted in Weiner's classification scheme as illustrated in Table 3.

The intentionality and controllability dimensions and the ability causal attribution correspond to three characteristics identified in the auditing standards that auditors should consider when they assess inherent risk for specific assertions. These items are bolded in Figure 1. The intentionality dimension corresponds to the intentionality of a misstatement in the prior year, i.e., was the prior year's misstatement an error (unintentional) or an irregularity (intentional). The controllability dimension corresponds to the turnover recency in CFO's position. If the current CFO was not (was) with the client in the prior year when the misstatement occurred, he or she did not (did) have control over the occurrence of the

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[19] Internality refers to the locus of the cause in relation to the individual. Stability refers to the consistency over time of a causal attribution. Controllability refers to the degree that an individual can willfully influence the cause of an event. Intentionality refers to the motivation of the individual who caused the event of interest.

[20] For a more extensive review of causal attributions and their underlying properties, the reader is referred to Bierhoff [1989], Weiner et al. [1987], Weiner [1985], Wimer and Kelley [1982], and Heider [1958].

misstatement. The ability causal attribution corresponds to the auditor's perception of the current CFO's ability. Therefore, this study focuses on the intentionality and controllability dimensions and the ability causal attribution. Each of these characteristics are discussed below.

a. Intentionality

Intentionality refers to the motivation underlying an individual's actions. Intent implies that an individual's actions were premeditated and carried out with purpose, foresight, and knowledge of possible outcomes [Weiner et al., 1987]. Since intentionality refers to an individual's motivation for an action, it is not a dimension for classification of causal attributions. However, intentionality is a dimension that affects the way individuals respond to an event. As Weiner [1985, p. 554] pointed out "a cause is not intentional--intent describes an action, or a motivational state of an organism." For example, an individual's ability cannot be classified as intentional or as unintentional. Similarly, the amount of effort an individual exerts, while it is controllable, cannot be classified as intentional or as unintentional.[21] As one might expect, attribution researchers have found that individuals react more (less) harshly to negative events perceived to be caused by intentional (unintentional) actions [Weiner, 1985; Kelley and Michela, 1980].

[21] "The control-intent distinction is well represented in the law, which recognizes the separation of manslaughter from murder" [Weiner et al., 1987, p. 317]. Although both murder and manslaughter can be controlled by an individual, a person who kills intentionally (unintentionally) is guilty of murder (manslaughter); and, legal penalties vary accordingly.

b. Controllability

An observer's perception of the controllability of an event impacts the observer's behavior. As illustrated in Table 3, effort is the only causal attribution classified as controllable. Therefore, for an individual to have control over the occurrence of an event, the individual's actions or effort must be able to influence the outcome of the event. When an observer perceives that an event was controllable by an individual, this perception affects such things as the observer's trust in the individual, liking for the individual, and the persuasiveness of the individual [Kelley and Michela, 1980]. For a negative (successful) event, there is a decrease (an increase) in the observer's trust in the individual, liking for the individual, and the persuasiveness of the individual.

c. Ability

Ability attributions are among the first judgments an individual makes about others [Reeder, 1985]. Heider [1958] proposed that a main reason for this is that ability is classified as a stable and unchanging aspect of an individual's personality. An observer's assessment of an individual's ability level is primarily based on past history information such as repeated successes or failures and comparison with others in similar circumstances [Weiner, 1974]. Reeder [1985] developed a framework that illustrated ability assumptions as having "a directional tendency toward low-ability behavior" [Reeder, 1985, p. 104]. This framework implied that

> [p]ersons with a disposition of high ability are assumed capable of behaviors spanning the entire behavioral continuum (from high ability to low ability). In contrast, persons with moderate and low levels of ability are assumed capable only of behaviors corresponding to their level of ability or behaviors below their level of ability [Reeder, 1985, p. 104].

Although an intelligent individual is capable of both intelligent and unintelligent behavior, the central tendency assumption posits that intelligent individuals behave at a moderately intelligent level most of the time. Furthermore, certain social circumstances (e.g., work) place pressures on individuals to perform at a high level. Therefore, observers of events characterized by these circumstances will assume that individuals are striving to perform at the high ability level [Reeder, 1985].

2. Applications of Attribution Theory in Accounting and Auditing

Application of attribution theory in an accounting and auditing setting is not new. Previous research in this area has generally focused on the actor-observer bias and the internal-external dimension. Several of these research projects also examined the relationship between subjects' causal attributions for an event and the subjects' subsequent reaction(s) to the event. Table 4 summarizes the research discussed in this section.

a. The Actor-Observer Bias

Several studies have examined the actor-observer bias. This bias is supported when persons participating in an event (i.e., actors in the event) and persons not participating in the event (i.e., observers of the event) make different causal attributions for the event.

Hite [1987, p. 105] examined "attribution judgments and action responses made by taxpayers about themselves and about others following an incidence of tax evasion." She randomly assigned 124 prospective jurors to one treatment group where the juror was to evaluate why he/she evaded taxes or why someone else evaded taxes. Hite found that subjects assuming the role of a tax evader (i.e., an actor) tended to attribute the cause of their tax evasion to external factors such as a complex tax system or high tax rates. However, subjects

assuming the role of evaluating a tax evader (i.e., an observer) tended to attribute the cause of the tax evasion to internal factors such as the tax evader's lack of ethics and guilt. Hite also examined the relationship between subjects' causal attributions for the tax evasion and the subjects' suggested solutions. Consistent with the theory, subjects' suggested solutions for tax evasion correlated with the subjects' attributed causes, e.g., external (internal) attributions were positively correlated with solutions related to the tax system (the tax evader).

Thurman [1988] also examined taxpayer noncompliance. He surveyed 19 practitioners in one public accounting firm and 330 adults randomly selected from households in Oklahoma City. Each of the 19 practitioners completed fifty cases and each of the 330 adults completed 20 cases. Thurman found that taxpayers (i.e., the 330 adults) reported the chances of cheating on *their* taxes to be zero or near zero under a wide variety of taxpaying conditions. However, CPAs (assuming the role of an observer) reported that taxpayers are more likely to cheat on their taxes as tax rates increase and certainty and severity of punishment decrease. Both Hite's and Thurman's studies support the actor-observer bias suggested in attribution theory.

Arrington, Bailey, and Hopwood [1985] used the actor-observer bias in attribution theory to investigate the assessment of responsibility for audit performance. They found that CPAs (i.e., actors) were less likely to attribute audit failures to CPAs than were business owners (i.e., observers). This finding was particularly significant in treatments where there was an audit failure and a statement was made that the CPA followed generally accepted auditing standards.

Shields, Birnberg, and Frieze [1981] examined superiors' and subordinates' causal attributions for a subordinate's job performance. This research project consisted of two similar experiments. In these two studies subjects (MBA students) were presented cases that described the quantity of production (varied from high to low) and the quality of production (high or

low). The subjects were assigned the role of superior (i.e., observer) or subordinate (i.e., actor) for each case. Consistent with prior research, these authors found some support for the actor-observer bias. That is, superiors (i.e., observers) tended to use different causal attributions than subordinates (i.e., actors).

b. The Internal-External Causal Dimension

Several studies have used the internal-external causal dimension in attribution theory to investigate the evaluation of a senior auditor's job performance [Kaplan and Reckers, 1985, 1991] and a subordinate's job performance in a managerial setting [Harrison, West, and Reneau, 1988]. In general, this research found that internal (external) attributions are greater for a subordinate's current substandard performance when the subordinate has a poor (good) work history. This research also found positive correlations between the subject's causal attribution and subsequent action-responses.

Kaplan and Reckers [1985] surveyed 60 CPAs from offices of national public accounting firms. Each subject received two case scenarios describing a senior who had exceeded an audit time budget by 60% and failed to meet a client imposed deadline. Each case described the audit senior's past work history as either good or poor and the client history as either stable or unstable. For each scenario the subjects made causal attributions for the audit senior's current performance and suggested an action-response.

Kaplan and Reckers found that subjects attributed the audit senior's current poor performance to internal (external) attributions when the audit senior had a poor (good) work history and when the client had a stable (unstable) history. These authors also found that "stronger internal attributions were highly associated with responses directed towards the senior" [Kaplan and Reckers, 1985, p. 485].

In a more recent study, Kaplan and Reckers [1991] used a scenario similar to the one used in their 1985 study to further examine the relationship between attribution theory and audit senior performance evaluations. These authors gave 107 practicing auditors a scenario that described an audit senior's poor job performance (e.g., 60% over budget and failed to meet a client imposed deadline). The cases described the client's history as stable or unstable and presented the senior's work history for the past year as either highly consistent (composed of 8 above average and 2 average ratings) or inconsistent (composed of 3 excellent, 3 above average, 3 average, and 1 poor rating). The subjects made causal attributions for the senior's current work performance, suggested action responses, and indicated their preference for this senior on future engagements.

Kaplan and Reckers found that the consistency of work experience did not significantly effect the causal attributions. However, consistent with their 1985 results, internal attributions for the senior's poor performance were greater under conditions of a stable client history than an unstable client history. Therefore, this study provides mixed support for the internal-external causal dimension.

Causal attributions in this study were not significantly associated with action responses toward the senior. This was due to the fact that almost all respondents chose one action response: to discuss the client assignment with the senior and to note on the written evaluation both the client's characteristics (external factors) and the senior's characteristics (internal factors) that could have contributed to the current situation. This action response appears to be the accepted response in most public accounting firms in the study. However, Kaplan and Reckers found that causal attributions were significantly associated with the subjects' intent to work with the senior in the future. For example, subjects were more likely to schedule the senior on their future engagements when the senior's current performance was

attributed to external factors such as task difficulty than to internal attributions such as lack of effort or ability.

Harrison, West, and Reneau [1988] examined attribution theory in a managerial performance evaluation setting. They surveyed a diverse population of business persons in Phoenix, Arizona and southeastern California who had specific experience with production variances and evaluation of subordinates. All subjects received a case that described a subordinate who failed to meet a production quota. The cases described the subordinate's past work history in such a way as to suggest either an internal, an external, or no specific causal attribution for the current unfavorable production variance. The cases also described either a rush order situation or a more general situation of a new product order. Each subject was assigned the role of either the subordinate (i.e., actor) or the supervisor (i.e., observer). The subjects were to determine the cause of the subordinate's current poor performance and to indicate questions that they would like answered during the investigation of the situation.

Subjects given a work history that suggested the unfavorable production variance was due to factors internal to the subordinate (i.e., lack of effort or ability) made more internal attributions for the current unfavorable performance than subjects given a work history that suggested the variance was due to external factors. Thus, this study supports the internal-external causal dimension in attribution theory.

This study also found support for the actor-observer bias. Subjects assigned the role of supervisor (i.e., observer) made more internal attributions for the unfavorable production variance than subjects assigned the role of subordinate (i.e., actor).

Subjects' information seeking actions were positively associated with their causal attributions. For example, superiors who tended to make internal attributions selected questions that obtained information about the subordinate.

Because previous research in accounting and auditing focused on the actor-observer bias and the internal-external causal dimension of attribution theory, many of the specific results are not directly applicable to the current study. However, these studies do provide general support for the current study. Previous research found that attribution theory can be used to explain subjects' reactions to events in a business setting such as accounting and auditing. Previous research also indicated that subjects in a business setting use the four causal attributions proposed by Heider [1958], i.e., ability, effort, task difficulty, and luck, to determine the cause of an event. As discussed earlier, previous psychology research confirmed the dimensions of the causal attributions, i.e, internality, stability, controllability, and intentionality. Therefore, the current study's application of the ability causal attribution and the controllability and intentionality dimensions is appropriate in a business setting such as auditing.

D. Summary

This chapter reviewed research concerning errors, irregularities, inherent risk assessments, and attribution theory. The descriptive research and the empirical studies discussed in this chapter and the auditing standards discussed in Chapter 1 (see Figure 1) identified several characteristics and environmental factors that could or should impact auditors' inherent risk assessments. Attribution theory was used as the basis to select three factors identified in the auditing standards that should impact auditors' inherent risk assessments. A fourth factor, years of auditing experience, was selected for examination based on the results of previous research. Thus, auditing standards and previous descriptive and empirical research support the selection of the factors included in this study in order to

determine the factors' impact on auditors' inherent risk assessments. This study also provides empirical evidence on the impact of inherent risk assessments on the extent of planned audit procedures and staff scheduling decisions.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This section discusses the content, development, and administration of the case and questionnaire, research design, hypotheses, and descriptive statistics of the subjects.

A. Content, Development, and Administration of the Case and Questionnaires

1. Case Content and Development

A critical part of this study was developing the case materials. (See Appendix B for a complete copy of the case materials and Appendix C for a listing of all treatments.) The case materials were included in two packets: (1) general instructions and case materials packet and (2) consolidated financial statements packet. The development and contents of each packet is discussed below.

a. General Instructions and Case Materials Packet

The first section of the general instructions and case materials packet briefly described the study and the audit planning decisions the auditors would eventually make. It also provided directions for beginning the study and included the informed consent information required by The University of Tennessee (e.g., the name and address of the project director and a statement of voluntary participation of the auditors).

The second section of the general instructions and case materials packet provided more detailed information concerning the audit planning decisions that the auditors would make. It also provided a fairly extensive review of the client history, industry information, pertinent

information relating to the internal control structure and revenue component, comparative ratio analyses, and the treatments. The treatments (i.e., the independent variables) are discussed in the research design section.

The client history section described the client, Autoparts, Inc., as a manufacturer of auto parts.[22] It included descriptions of the company's products, manufacturing facilities, marketing efforts, and ownership and management. The industry section described industry trends and recent economic events that had an impact on the industry. In order to maintain a high degree of realism, the client history and industry sections were based on annual reports of two similar size companies within the same industry. Modifications and additions to the information in the annual reports were made as necessary to tailor the information to fit the needs of the study.

The internal control structure and revenue component section presented a brief discussion of the company's revenue cycle and the degree of management's control consciousness. This section also contained selected 1991 revenue information for each of the company's two manufacturing facilities such as net sales, average invoice amount, range of invoice amounts, and the number of invoices.

The comparative ratio analyses section presented six common ratios[23] for the company and for the industry. All the company's ratios were based on the 1991 financial information included in the consolidated financial statements packet which is discussed below. The 1991 industry average ratios were obtained from the *Robert Morris Annual Statement Studies 1991.*

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[22] The client is a manufacturer of motor vehicle parts and accessories as characterized by manufacturers included in the Standard Industrial Classification (SIC) code #3714.

[23] The six ratios presented were the current ratio, quick ratio, accounts receivable turnover, inventory turnover, fixed assets to net worth, and debt to net worth.

The last section of this packet presented the treatments included in the study, identified management as aggressive toward financial reporting, and indicated that the control risk for each revenue assertion had been assessed as moderate. The firm participating in the study uses qualitative assessments such as low, moderate, and high when assessing risk.

b. Consolidated Financial Statements Packet

The consolidated financial statements packet contained the client's consolidated balance sheets for 1991 and 1990, and the consolidated statements of operations, stockholders' equity, and cash flows for 1991, 1990, and 1989. All the financial information was based on the financial statements of a similar size company within the industry. Modifications to the financial statements were made as necessary to tailor the financial information to fit the needs of the study. The balance sheets and statements of operations contained dollar amounts and percentages for each line item for each year presented. For comparison purposes, these statements also included the 1991 industry average percentages from the *Robert Morris Annual Statement Studies 1991*. (Industry average percentages were not available for every line item on the financial statements.) This packet included a statement that the notes to the consolidated financial statements complied with GAAP and contained no unusual or unexpected items. The notes to the consolidated financial statements were not included in the case materials.

2. Questionnaire Content and Development

The questionnaire packet contained three questionnaires. The first questionnaire briefly defined the seven revenue assertions in accordance with the participating firm's audit

guidance literature. This questionnaire elicited the inherent risk assessments for the revenue assertions.

The second questionnaire presented detailed information concerning the prior year's audit procedures for the revenue component. For example, the questionnaire provided the prior year's actual and budgeted hours for each audit procedure for the staff person and the senior, the total actual and budgeted hours for the manager for the revenue component, the actual sample sizes and scopes for applicable audit procedures, and the staff level scheduled in the prior year to perform each audit procedure. After reviewing the prior year's information, the subjects planned the current year's audit for the revenue component. Responses to this questionnaire included determining the audit procedures to perform in the current year, budgeting hours for the staff person and the senior, determining the staff level to perform the audit procedures, and determining the total budgeted hours for the manager.

The third questionnaire obtained background and demographic information from the subjects. This questionnaire included questions concerning the subject's age, years of auditing experience, type of degree, major clients, and certification as a CPA. The third questionnaire also contained the manipulation check questions.

Dillman's [1978] recommendations for mail surveys were considered in developing the questionnaire packet. Some of his recommendations could not be incorporated due to time constraints and cost. The main focus throughout the development of the study was to minimize the participants' costs of responding and maximize the response rate.

Dillman stressed that the respondents must trust the researcher to maintain confidentiality of their responses in order for them to freely answer the questions. Therefore, confidentiality of individual responses was stressed in two separate places in the case materials: (1) in the introductory cover letter from the participating firm's partner who

organized the firm's participation in the study (See Appendix D) and (2) in the general instructions section of the case materials. As the questions were developed, Dillman's suggestions concerning wording, ordering, answering, and flow of questions were considered and incorporated as appropriate. For example, question wording was examined for bias, vague terms, precision, and balanced answer categories. Also, questions were designed to be easily answered by either marking an "X" on a scale or circling a number representing a category. In addition, objectionable questions such as the manipulation check questions were placed at the end of the questionnaire and were carefully worded to avoid alienating subjects.

3. Pretest of the Case and Questionnaire

a. Subject Selection

Fifteen subjects participated in the pretest. Three were practitioners and twelve were academicians. Of the academicians, six had relatively recent public accounting experience. Including both practitioners and academicians in the pretest has advantages. The academicians are trained professionals who understood the study's purpose and goals and, therefore, could evaluate the case materials and the questionnaire in terms of whether they would accomplish the study's objectives. The practitioners and the academicians with public accounting experience provided valuable responses concerning the realistic appeal of the case materials and the questionnaires.

b. Critique of the Case and Questionnaire

The purpose of the pretest was to provide an opportunity to critique the case materials and the questionnaire. Participants in the pretest received a cover letter from the researcher

that asked them to read and critique the case materials. Nine pretest subjects were asked to complete the questionnaire. (Of these nine subjects, three were practitioners and six were academicians with public accounting experience.) The cover letter identified the following areas for critique: (1) organization of the packets, (2) presentation and appearance of the information, (3) information omitted that would have been useful, (4) information included that was not necessary, (5) awkward wording or sentences, (6) unclear directions, (7) realistic appeal of the information, and (8) anything else (positive or negative).

Based on the responses from the pretest, the wording for some of the questions was clarified. Also, several subjects commented that the case materials were too long. As a result, the case materials were shortened.

In addition to the case materials and the questionnaire, the pretest also included a sample cover letter from the participating firm's partner who assisted the researcher in administering the study within the firm. (See Appendix D for a copy of the letter.) The letter was slightly modified based on suggestions of the pretest respondents.

The nine pretest respondents who completed the questionnaire provided information concerning the time it took to complete the instrument.[24] The mean time to complete the pretest was 58 minutes. The completion times ranged from 30 minutes to 90 minutes. Discussions with the three pretest respondents that had completion times longer than one hour indicated that they critiqued the instrument as they completed it (e.g., rewriting sentences or making suggestions for information to include or omit). As a result, they took slightly longer to finish the pretest than those who completed the instrument and then went back and critiqued

[24] One practitioner did not return the pretest case materials and questionnaire. Rather, she called the researcher and discussed in detail her suggestions concerning the format, wording, and length of the case materials and questionnaire. Her suggestions were included in the final version of the case materials and the questionnaire.

it. Therefore, the completion time of 90 minutes and the pretest mean of 58 minutes are higher than necessary to complete the study because they include some time for critiquing the materials. Discussions with pretest participants who were informed that the case materials had been shortened after the pretest indicated that a reasonable time range to complete the study was between 30 minutes and 1 hour. This was the time range provided to the subjects who participated in the study.

4. Administration of the Case and Questionnaires

This section discusses subject selection, assigning subjects to treatment groups, and the distribution of the case and questionnaire to the subjects.

a. Subject Selection

One national public accounting firm participated in the study. The researcher worked mainly with one partner (the contact partner) within the firm who organized the firm's participation in the study.

The contact partner selected eleven offices to target to participate in the study. Each office received a letter or phone call from the firm's contact partner and a letter from the researcher. The contact partner's letter or phone call encouraged the offices to participate in the study. The researcher's letter described the study, the qualifications necessary for the participants, and the expected time frame for conducting the study. The researcher stated that participants should have experience assessing inherent risk, planning audit procedures, scheduling persons for engagements, and preparing time budgets. Initial experience with these decisions generally occurs when an auditor is placed in charge of an engagement (i.e., a senior auditor). However, managers and partners must review and approve the senior's decisions,

and, thereby, also have current experience making these decisions. Therefore, the researcher indicated that participants should probably range in experience from seniors to mangers to partners. The researcher also encouraged the offices to select participants that represented this entire range of experience. This was done to prevent offices from selecting only seniors for the study.

Two of the eleven offices declined to participate due to an unusually busy summer. The remaining nine offices agreed to participate. A contact person (e.g., a partner or director of human resources) in each office selected the subjects to participate in the study.

Two mailings were conducted.[25] In the first mailing, sixty-three subjects were asked to participate in the study. Fifty (79%) returned a completed questionnaire. In the second mailing, nine subjects were asked to participate in the study and seven (78%) returned a completed questionnaire. Therefore, fifty-seven subjects participated in the study.

b. Assigning Subjects to Treatment Groups

The researcher randomly assigned subjects to the treatment groups. This assignment procedure determined which treatments were included in the subject's case materials. The treatments are discussed in the research design section.

c. Distribution of the Case and Questionnaire

Each subject in the first mailing received an introductory cover letter from the participating firm's contact partner (See Appendix D). Due to time constraints, the nine

[25] Two sample *t*-tests were conducted to see if the respondents from the two mailings were different in their years of auditing experience and time spent to complete the study. The *t*-statistic for years of auditing experience was .2412 with an associated p-value of .81. The *t*-statistic for time spent to complete the study was .09 with an associated p-value of .93. Both of these tests indicate that there is no difference in the two groups.

subjects in the second mailing received a direct phone call from their office contact person who explained the study and asked them to participate. These nine subjects also received an introductory cover letter from the researcher that was similar to the contact partner's cover letter (See Appendix D). In addition to a cover letter, all subjects received the three packets containing the case materials and the questionnaire, and a return stamped envelope.

Dillman [1978] recommended using mailing envelopes from the participating firm and return envelopes from the researcher. Using the participating firm's mailing envelopes indicates to the subjects that the firm supports the study and authorizes the subject to participate in the study. Return envelopes addressed to the researcher identifies the separation of the researcher from the participating firm and strengthens the confidentiality promise. Based on Dillman's suggestion, the researcher used the participating firm's envelopes and mailing labels to mail the study to the subjects and plain brown return envelopes. The return envelopes were addressed to the researcher.

For eight of the participating offices, the researcher mailed the entire package directly to the participants. The researcher mailed reminder postcards (See Appendix D) directly to the participants in these eight offices. Postcards for the participants in the first (second) mailing were mailed eleven (seven) days after mailing the entire package. For one office in the first mailing, the researcher prepared each participant's package and reminder postcards and mailed all packages and postcards for the office to a contact person. The packages containing the case materials and the questionnaire were distributed to the participants through the office's mail system as soon as they arrived. The reminder postcards were distributed in the same manner eleven days later. All participants returned their completed questionnaire packet directly to the researcher.

The next section discusses the research design of the study.

B. Research Design

This research has two objectives: (1) to examine factors that impact auditors' inherent risk assessments for assertions for the revenue component and (2) to examine how inherent risk assessments impact subsequent audit planning decisions. Specifically, the audit planning decisions of interest in this study are the extent of planned audit procedures and staff scheduling decisions for the revenue component.

1. Inherent Risk Assessments

One objective of this research was to examine the impact on auditors' inherent risk assessments of factors suggested in auditing standards and previous research. Auditing standards provide a normative approach by identifying factors that auditors ***should*** consider when they assess inherent risk. Most of the previous research related to inherent risk provided descriptive information of factors associated with the presence of errors or irregularities. Very few empirical research studies have examined what or how factors impact inherent risk assessments. The current study empirically examines how three factors identified in auditing standards and previous research actually impact auditors' inherent risk assessments for revenue assertions. This section presents a discussion of the independent and dependent variables and the variables used in correlation analysis for this segment of the study.

a. Independent Variables

This segment of the study includes three independent variables: (1) the prior year's audit results for the revenue component, (2) the turnover recency in the CFO's position, and

(3) the CFO's previous work experience.[26] Each variable is discussed below. (Appendix C presents all treatments included in the case materials and the composition of the treatment groups.)

1. Prior Year's Audit Results

The first manipulated independent variable is the prior year's audit results for the revenue component. This variable was presented at one of three levels: (1) the occurrence of an unintentional material misstatement (an error), (2) the occurrence of an intentional material misstatement (an irregularity), or (3) no material misstatement.

2. Turnover Recency in the CFO's Position

The second manipulated independent variable is the turnover recency in the CFO's position. This variable was presented at one of two levels: (1) recent turnover in the CFO's position or (2) non-recent turnover in the CFO's position. Recent turnover in the CFO's position was defined as turnover that occurred since the last audit. Non-recent turnover in the CFO's position was defined as turnover that had not occurred in the last five years. A five-year time frame was selected to indicate that the current CFO had been with the client long enough to identify and correct any weaknesses in the internal control structure.

3. CFO's Previous Work Experience

The third manipulated independent variable is the previous work experience of the client's CFO. This variable relates to the ability aspect of attribution theory. Reeder [1985]

[26] The three manipulated independent variables were presented in three different orders within the cases to prevent an ordering effect.

suggested that ability attributions are among the first judgments an individual makes about others. Weiner [1974] indicated that an observer's assessment of an individual's ability level is primarily based on past history information such as repeated successes or failures and comparisons with others in similar circumstances. One of the quickest ways to make an ability attribution is based on previous work experience. If a person is familiar with the career opportunities in a certain area, the person can make an ability assessment of an individual based on the individual's prior work experience in the area.

The previous work experience of the client's CFO was presented at one of two levels: (1) a senior manager with nine years of experience mainly with manufacturing clients from the *office* of the public accounting firm performing the audit or (2) a controller with nine years of experience with a manufacturing company similar to the client's. In order to determine if auditors perceive a difference in the ability levels of individuals with these previous work experiences, the auditors ranked the perceived ability of a current CFO on a scale of 1 (unacceptable ability) to 5 (exceptional ability). All results are discussed in the next chapter.

The impact of this variable could provide interesting results in light of the recent downsizing of public accounting firms[27] that has resulted in many managers and partners leaving public accounting. With the increasing number of managers and partners leaving public accounting, placement with clients and other companies may become more prevalent than in past years. If auditors perceive a difference in the ability of individuals with previous work experience from public accounting firms or industry, this perception may impact the auditors' risk assessments.

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[27] Early in 1991, Peat Marwick announced that some 14% of its partners would be laid off [Kirkpatrick, 1991]. During this same year, Deloitte & Touche planned a reduction in its partnership ranks of 5% while Ernst & Young announced that about 150 of its partners would either retire or be asked to leave by September 30, 1991 [Collins, 1991].

The manipulated independent variables discussed above result in a 3 × 2 × 2 full factorial design. (See Appendix C for a summary of the treatments and the composition of the treatment groups.)

b. Dependent Variables

After reading the case materials, subjects assessed the inherent risk that a ***material misstatement*** had occurred in the current year related to each assertion for the client's revenue component. Table 2 summarizes the participating firm's revenue assertions. The participating firm breaks the five broad assertions identified in SAS No. 48, "Evidential Matter," [AICPA, 1980, AU 326.03] into seven categories. In addition to the five assertions included in the auditing standards, the participating firm also includes separate assertions concerning proper period and accumulation.

For each of the seven assertions, the subjects marked an "X" on a scale that indicated their inherent risk assessment for the current year. Each scale was anchored as low risk, moderate risk, and high risk. In order to measure the subjects' responses, the researcher divided the scales into nine equal intervals. Each response was assigned the value of the interval it fell within. Thus, the first segment of this study was designed to examine the impact of the four independent variables on the inherent risk assessments that a ***material misstatement*** would occur in the current year for the revenue assertions.

After the subjects assessed the inherent risk of a ***material misstatement*** for each assertion, they followed the same procedure outlined above and assessed the following for each assertion: (1) the inherent risk of a ***material error*** occurring in the current year and (2)

the inherent risk of a ***material irregularity*** occurring in the current year.[28] These risk assessments were used to investigate whether there was a difference among the treatment groups in the inherent risk assessments for the occurrence of a ***material error*** and a ***material irregularity*** in the current year.

Some assertions may by their nature have a higher likelihood of a material error or irregularity than other assertions. For example, the proper period and the performance occurred assertions may have a higher likelihood of a material error or irregularity than the authorized assertion. However, since the subjects were randomly assigned to treatment groups, this tendency should be constant across all treatment groups.

c. Correlation Variables

The relationship between the subject's years of auditing experience and the inherent risk assessments was investigated using correlation analysis. This analysis provides additional evidence concerning the impact of experience on auditors' risk assessments, specifically, inherent risk assessments.

2. Extent of Planned Audit Procedures and Staff Scheduling Decisions

The second objective of this study was to examine the relationship between inherent risk assessments for revenue assertions and two subsequent audit planning decisions: the extent of planned audit procedures and staff scheduling. The relationship between inherent risk assessments for assertions and subsequent audit planning decisions has not been examined in the academic literature. This section presents a discussion of the independent and

[28] Loebbecke, Eining, and Willingham [1989] concluded that auditors should make separate assessments of material errors and material irregularities during audit planning.

dependent variables included in this segment of the study and a discussion of the relationship of audit procedures to assertions. Lastly, this section briefly describes the variables used in correlation analysis for this segment of the study.

a. Independent Variables

The independent variables used in this segment of the study are the auditors' inherent risk assessments that a ***material misstatement*** would occur in the current year. These are the same inherent risk assessments that were used as dependent variables in the first segment of the study. (See the discussion of the dependent variables in the previous section.)

b. Dependent Variables

The dependent variables in this segment of the study relate to the extent of planned audit procedures and staff scheduling decisions. This section presents a discussion of the specific variables related to each decision.

1. Extent of Planned Audit Procedures

The dependent variables designed to assess the extent of planned audit procedures for the revenue component include the following:

(1) Level of experience for the staff person selected to perform *each audit procedure*,
(2) Budgeted hours for *each audit procedure* for the staff person selected to perform the work,
(3) Budgeted hours for *each audit procedure* for the senior auditor supervising the audit,
(4) Sample size for applicable audit procedures, and
(5) Scopes for applicable audit procedures.[29]

[29] Scopes are ranges that auditors use to determine the extent of audit procedures. For example, an auditor may determine that further investigation is needed for sales for all product lines where the change in the sales since the prior year is greater than $100,000 and/or 10%. In this example, the $100,000 and the 10% are scopes.

The auditors budgeted whole or partial hours for the staff person and the senior auditor for each audit procedure they planned to perform in the current year. The auditors also determined the planned sample sizes and scopes for the audit procedures that required these decisions.

The information in the questionnaire provided the auditors with the prior year's actual and budgeted hours for each audit procedure for the staff person and the senior. In addition, the auditors were also given the prior year's actual sample sizes and scopes for applicable audit procedures.

2. Staff Scheduling Decisions

The auditors determined the experience level of the staff person who would perform each audit procedure planned in the current year. The auditors assigned staff using the following scale: 1=first year person, 2=second year person, 3=third year person, etc. The auditors were told to assume that all staff levels were available for scheduling. The auditors were also given the staff level scheduled in the prior year for each audit step.

c. Relationship of Audit Procedures to Assertions

Audit procedures and assertions do not necessarily have a one-to-one relationship. In some situations, one audit procedure can be designed to gather evidence to support more than one assertion, while in other situations, more than one audit procedure may be required to gather adequate evidence for a single assertion. Table 5 presents the relationship of audit procedures for the revenue component to the revenue assertions. These relationships are based on the participating firm's audit guidance literature.

As Table 5 indicates, each audit procedure is related to specific assertions. Therefore, when analyzing the impact of inherent risk assessments for revenue assertions on the extent of planned audit procedures and staff scheduling, one should only consider the risk assessments for assertions that are related to the audit procedure. As a result, when examining the impact of inherent risk assessments on the extent of planned audit procedures and staff scheduling decisions, the independent variables (i.e., the inherent risk assessments) of interest will change for each audit procedure. In other words, for each audit procedure, the independent variables of interest will be the inherent risk assessments for the assertions as indicated in Table 5.

d. Correlation Variables

The relationship between the auditor's years of auditing experience and the extent of audit procedures and staff scheduling decision was explored using correlation analysis. This analysis provides evidence concerning the impact of experience on auditors' planning decisions.

C. Hypotheses

This section is divided into two parts. First, the hypotheses concerning the investigation of factors that impact auditors' inherent risk assessments for revenue assertions are presented. Second, the hypotheses concerning the investigation of the relationship between inherent risk assessments for assertions and subsequent audit planning decisions are presented.

1. Inherent Risk Assessments

This section presents a discussion of the relationship between attribution theory and auditing standards. After this discussion, the hypotheses related to the first objective of the study will be presented.

a. Relationship Between Attribution Theory and Auditing Standards

Auditors should view a material misstatement in the prior year as a negative event. Misstatements include errors and irregularities. SAS No. 53 [AICPA, 1988, AU 316] defines errors as *unintentional* and irregularities as *intentional* misstatements or omissions of amounts or disclosures in financial statements. The occurrence of either a material error or a material irregularity would be expected to increase an auditor's inherent risk assessment. However, when the auditor seeks an explanation for the misstatement, the auditor should perceive a misstatement resulting from an error as unintentional and a misstatement resulting from an irregularity as intentional. Attribution theory posits that the intentionality of the event should impact the auditor's actions, which in this case is the auditor's inherent risk assessments in the year the misstatement was detected and in future years. As discussed earlier, attribution theory predicts that an individual will react more harshly (e.g., increase inherent risk assessments more) when a negative event (e.g., a material misstatement) is perceived to be intentional rather than unintentional. As a result, *ceteris paribus*, one would expect an auditor's inherent risk assessment relating to an irregularity (an intentional misstatement) to be higher than the risk assessment relating to an error (an unintentional misstatement).

In addition to the prior year's results, the auditor should also consider the client's conditions in the current year. In particular, the auditor should be interested in the current CFO's ability and relationship to the prior year's misstatement. Attribution theory asserts that

auditors will use the current CFO's past work history as an indicator of the CFO's ability. Auditors should perceive a CFO with high ability to have the necessary experience and knowledge to adequately perform the job's requirements. In contrast, auditors should perceive a CFO with low ability to lack the necessary experience and knowledge to adequately perform the job's requirements. Therefore, a CFO with low ability would result in higher inherent risk assessments than a CFO with high ability.[30]

Auditors should also be concerned with the current CFO's relationship to the prior year's audit results. If there has not been any turnover in the CFO's position since the prior year, auditors should associate the current CFO with the occurrence of a material misstatement in the prior year. Therefore, recent (non-recent) turnover in the CFO's position indicates that the current CFO did not (did) have control over the prior year's results.

Attribution theory can be used to obtain an *a priori* ranking of the impact of the intentionality, controllability, and ability factors on auditors' inherent risk assessments. Table 6[31] illustrates two rankings for the auditors' inherent risk assessments: (1) the ranking of the auditors' inherent risk assessments *within* each of the three treatment possibilities of a material misstatement and (2) the ranking of the auditors' inherent risk assessments across *all* of the treatment groups.

Within the error and irregularity treatments, lack of turnover in the CFO's position and low ability of the current CFO would pose a higher risk to the auditor than recent turnover in the CFO's position and high ability of the current CFO. This can be explained as follows.

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[30] The CFO's ability is a factor auditors should consider when assessing inherent risk for assertions. The impact that this factor will have on individual inherent risk assessments depends on the extent of the CFO's relationship with the assertion. Because the CFO supervises most accounting functions and is critical to the development of the internal control structure, the ability of the CFO should have a pervasive effect on inherent risk assessments.

[31] Table 6 only includes the six treatment groups for which rankings can be hypothesized.

Within each treatment a negative event occurred (i.e., a material misstatement). In the higher risk assessment, the current CFO was in a position in the prior year to control or prevent the negative event from occurring (i.e, no turnover occurred), and the auditor perceives the current CFO to have low ability. This information would decrease the auditor's trust in the current CFO. In the lower risk assessment, the current CFO was not with the client in the prior year (i.e., turnover occurred). Therefore the auditor does not associate the current CFO with the prior year's misstatement. Furthermore, in this treatment group the auditor perceives the current CFO to have high ability.

A slightly different result is expected within the no material misstatement treatment because of the absence of a material misstatement in the prior year. Within this treatment group, recent turnover in the CFO's position and low ability of the current CFO would pose a higher risk to the auditor than non-recent turnover in the CFO's position and high ability of the current CFO. In the lower risk assessment, non-recent turnover in the CFO's position indicates that the current CFO had control in the prior year and was responsible for the fact that there were no material misstatements. Also, the auditor perceives the current CFO to have high ability. In the higher risk assessment, recent turnover in the CFO's position indicates that the current CFO was not with the client in the prior year. Therefore the auditor does not associate the current CFO with the prior year's circumstances of no material misstatements. Furthermore, in this treatment, the auditor perceives the current CFO to have low ability.

Table 6 also illustrates an *a priori* expectation of the two treatment groups that were expected to have the highest and the lowest inherent risk assessments across *all* of the treatment groups. The highest risk assessment is expected to be associated with an intentional material misstatement in the prior year, no turnover in the CFO's position, and low ability of the current CFO. The lowest risk assessment is expected to be associated with no material

misstatement occurring in the prior year, no turnover in the CFO's position, and a high ability of the current CFO. The inherent risk assessments for other treatment groups would fall somewhere between these two extremes.

b. Hypotheses

Attribution theory provides the basis for the first two hypotheses. Attribution theory was used in the previous section to determine an *a priori* ranking of the interaction effects of the selected characteristics on auditors' inherent risk assessments. The first hypothesis tests the *a priori* rankings of inherent risk assessments for each of the seven assertions *within* each of the three misstatement treatment groups.

H_{1a}: Within the no material misstatement treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6.

H_{1b}: Within the material error treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6.

H_{1c}: Within the material irregularity treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6.

T-tests were used to compare the inherent risk assessment rankings for each of the seven assertions for each set of treatment groups indicated in Table 6. *T*-tests were appropriate for hypothesis 1 because each test was comparing one variable for two groups.

The second hypothesis tests the *a priori* expectation of the two treatment groups that were expected to have the highest and the lowest inherent risk assessments across *all* of the treatment groups for each of the seven assertions.

H_2: Overall, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6.

For each of the seven assertions, the inherent risk assessments for each treatment group were ranked. Kendall's coefficient of concordance (Kendall's *W*) was used to determine if certain treatment groups tend to have predominantly large or small ranks associated with them.

The third hypothesis tests a specific *a priori* interaction between the type of misstatement in the prior year and recency of turnover in the CFO's position.

> H_3: There will be a significant interaction between the type of material misstatement in the prior year and the recency of turnover in the CFO's position.

This hypothesis is based on the expected *a priori* relationship that inherent risk assessments will increase when a material misstatement (i.e., an error or an irregularity) occurred in the prior year and there has not been recent turnover in the CFO's position.

Multivariate analysis of variance (MANOVA) was used to test hypothesis 3 and to provide additional statistical results concerning the impact of the three manipulated independent variables on the auditors' inherent risk assessments. MANOVA was the appropriate statistic to test hypothesis 3 because the study included more than one dependent variable. These results are discussed in Chapter 4.

The fourth hypothesis tests the effects of the auditor's years of auditing experience on his or her inherent risk assessments. The direction of this hypothesis is based on the results of Kaplan and Reckers' [1989] study. These authors found an inverse relationship between auditors' years of auditing experience and auditors' risk assessments. The fourth hypothesis is

> H_4: An inverse relationship exists between years of auditing experience and inherent risk assessments such that more experienced auditors will tend to assess inherent risk lower than less experienced auditors.

Pearson correlation coefficients were used to examine the relationship between years of auditing experience and the auditors' inherent risk assessments.

2. Extent of Planned Audit Procedures and Staff Scheduling Decisions

After auditors assess risk, they make other audit planning decisions including determining the sample sizes and scopes for audit procedures, scheduling persons to perform audit procedures, and budgeting hours for persons performing and supervising audit procedures. This section presents the hypotheses for testing the relationship between inherent risk assessments for revenue assertions and subsequent audit planning decisions. Of particular interest are subsequent audit planning decisions concerning sample sizes and scopes, budgeted hours, and the required level of experience for staff persons performing the audit procedures.

a. Hypotheses

Previous discussions relating to auditing standards and descriptive research results provide the basis for the following hypotheses.

H_5: A significant positive relationship exists between inherent risk assessments for assertions and the sample sizes and scopes for audit procedures related to the assertions.

H_6: A significant positive relationship exists between inherent risk assessments for assertions and the experience level of persons scheduled to perform audit procedures related to the assertions.

H_7: A significant positive relationship exists between inherent risk assessments for assertions and the budgeted hours for persons performing audit procedures related to the assertions.

H_8: A significant positive relationship exists between inherent risk assessments for assertions and the budgeted hours for supervision of audit procedures related to the assertions.

In order to test hypotheses 5-8, audit procedures must be matched with their related assertions. Table 5 presents the relationship of audit procedures to assertions for the revenue component. Since there was more than one dependent variable, MANOVA was used to examine the significance of the relationship between the appropriate inherent risk assessments and the

sample size, scope, budgeted hours (for the senior and the staff person), and the experience level of the staff person for each audit procedure. Pearson correlation coefficients were examined to determine the direction of the relationships.

The final hypothesis tests the effects of the subject's years of auditing experience on the subject's determination of sample sizes, scopes, budgeted hours, and level of staff. Previous research has examined the role of professional experience in making auditing decisions.

This leads to the final hypothesis.

> H_9: More experienced auditors will make different audit planning decisions concerning the sample sizes, scopes, experience level of the person performing the audit procedure, budgeted hours for the staff person performing the audit procedure and senior than less experienced auditors.

Pearson correlation coefficients were used to examine the relationship between years of audit experience and these audit planning decisions.

D. Descriptive Statistics of the Subjects

Various descriptive statistics are helpful in understanding the subjects who participated in the study. Table 7 presents the number of subjects from each office who participated in the study and their experience levels. Of the fifty-seven subjects who participated in the study, 5 (9%) were staff persons[32], 21 (37%) were seniors, 17 (30%) were managers, 10 (17%) were

[32] Although staff accountants were not requested for the study, five responded. Evidently, the office contact persons (who were aware of the necessary qualifications of the participants) considered these staff persons qualified to participate in the study. Except for the results for hypothesis 1_c, the results of the study were not significantly different when the staff accountants were not included in the analyses; therefore, all results reported in the study include the staff accounts as subjects. The differences in the results for hypothesis 1_c that occurred when the staff accountants were not included as subjects are discussed in Chapter 4.

senior managers, and 4 (7%) were partners.

Table 8 presents the mean age, gender, and highest degree earned for each experience level and for the entire sample. As expected, the mean age increases for each level of experience. Eighteen (32%) of the subjects were female, most of which were at the senior and manager levels. Ten (17%) of the subjects had advanced degrees.

Table 9 presents descriptive statistics concerning the auditing experience and the professional certification for the subjects in this study. The mean years of auditing experience for each experience level indicates that the study included subjects from all experience levels.

Table 9 also presents the CPA certification of the subjects for each experience level. As expected, all subjects at the manager level or higher are CPAs. Only six subjects (2 seniors and 4 staff persons) were not CPAs at the time of the study.

Table 10 presents the mean time to complete the study for each experience level and for the entire sample. This table also indicates the high time and low time for completion of the study for each experience level. The mean time for the entire sample to complete the study (45 minutes) is within the projected time frame of 30 minutes to 1 hour based on the pretest. The most time spent to complete the study was 120 minutes while the least time spent was 15 minutes.

E. Summary

This chapter described the content, development, and administration of the case and questionnaire, research design, hypotheses, and summary statistics of the subjects. Chapter 4 presents and discusses the results of the data analysis.

CHAPTER 4

RESULTS

This chapter presents the results of the data analysis. The first section presents introductory issues and analyses that needed to be addressed prior to analyzing the hypotheses. Included in the first section are issues that arose while coding the data and analyses concerning (1) realism of the case materials, (2) manipulation checks, (3) tests for nonresponse bias, (4) perceived ability level of the CFO based on previous work experience, and (5) comparison of the extent of the current year's planned audit procedures with the actual audit procedures performed in the prior year. The second section presents the data analysis regarding inherent risk assessments. The third section discusses the data analysis concerning the extent of planned audit procedures and staff scheduling decisions. Finally, the last section presents analysis of related issues for which *a priori* hypotheses were not made. This last section addresses issues such as modifications in the audit procedures (e.g., procedures added and omitted), comparison of inherent risk assessments for material errors and material irregularities, and ranking of inherent risk assessments for each assertion in order to determine if certain assertions tend to have predominantly larger or smaller ranks associated with them.

A. Introductory Issues and Analyses

The first section addresses issues that arose while coding the data and presents analyses concerning (1) realism of the case materials, (2) manipulation checks, (3) tests for nonresponse bias, (4) perceived ability level of the CFO based on previous work experience,

and (5) comparison of the extent of the current year's planned audit procedures with the actual audit procedures performed in the prior year.

1. Coding the Data

In the audit program section, each of the fifty-seven subjects was asked to make sixty-eight audit planning decisions. These decisions included scheduling a staff person to perform the audit work, budgeting hours for the senior and staff person, and determining sample sizes and scopes. Since each of the fifty-seven subjects provided sixty-eight responses concerning the audit program, a total of 3,876 responses were made. Most of the subjects' responses conformed to the requested method of response in the questionnaire. However, as might be expected, some responses diverged from the requested method of response. For example, several audit procedures required that the subjects determine a sample size and either a scope in dollars or a scope in days. However, for sixteen individual responses the word "all" was inserted for the sample size instead of a specific number. Additionally, for seven individual responses the word "judgmentally" or "randomly" was inserted for the scope in dollars instead of a specific dollar amount. Also, for six individual responses the words "thru the opinion date" or "to the end of fieldwork" were inserted for the scope in days instead of a specific number of days.

In order to properly reflect these and other unexpected responses, the researcher determined a reasonable method of coding these responses. Table 11 illustrates examples of requested responses, subjects' responses that diverged from the requested responses, and the way the researcher coded the responses. In all cases, the researcher coded the data provided by the subjects in the best way possible to reflect the what was believed to be the subjects' intended responses. However, if a subject's response was unclear or could not be reasonably

determined, the researcher coded the response as if the subject had decided not to perform the audit procedure and the audit procedure was omitted. Since the subjects made a total of 3,876 responses in the audit program questionnaire, these modifications represent only a small percentage (1.3%) of the total responses made.

2. Introductory Analyses

This section presents the results of analyses concerning (1) realism of the case materials, (2) manipulation checks, (3) tests for nonresponse bias, (4) perceived ability level of the CFO based on previous work experience, and (5) comparison of the extent of the current year's planned audit procedures with the actual audit procedures performed in the prior year.

a. Realism of the Case Materials

One concern when conducting an experiment such as this is the degree of realism achieved in the hypothetical case materials developed by the researcher. To examine this issue, question 14 in the background information section of the questionnaire (See Appendix B) asked the subjects to compare the representativeness of the case materials with an actual audit engagement. The subjects rated the representativeness of the case materials on a scale of 1 (very representative) to 5 (very unrepresentative). Table 12 presents the results of the realism ratings. While all the subjects found the case materials to have realistic appeal, managers rated the case materials as more realistic than other experience levels. Overall, the realism of the case materials were rated as 2.61, which indicates an appropriate level of realism was achieved in the case materials.

b. Manipulation Checks

Three questions were included in the background information section of the questionnaire to determine if the subjects accurately recalled the case materials as they completed the questionnaire. (See Appendix B, questions 16A, 16B, and 16C.) Two of the manipulation checks related to the following treatments: (1) the turnover recency in the CFO's position and (2) the prior work experience of the current CFO. A third manipulation check related to the percentage of the cash discount offered by the client. The experimental treatments were listed on the last page and the cash discount percentage was mentioned on page 3 of the general instructions and case materials packet. Thus, the manipulation checks included material from the middle and end of the case materials.

A vast majority (96%) of the manipulation check questions were answered correctly. Correct answers indicate that the subjects read, understood, and accurately recalled the information included in the case materials as they completed the questionnaire. Seven incorrect responses were identified. Three incorrect responses related to the recency of turnover in the CFO's position, three to the previous work experience of the current CFO, and one to the client's cash discount percentage. (Two subjects incorrectly answered the manipulation check questions concerning the recency of turnover in the CFO's position and the previous work experience of the current CFO.) No subject missed all three manipulation check questions.

c. Tests for Nonresponse Bias

Because this study was conducted using a mailed questionnaire, the issue of nonresponse bias must be examined. As reported earlier the overall response rate was 79%. However, there exists the possibility that nonresponders are different from responders. In

order to examine this issue, Spearman correlations [Kendall and Gibbons, 1990] were conducted to determine if certain characteristics were different for early and late responders for each of the two mailouts. Table 13 presents the Spearman correlations between the return date of the questionnaire and (1) the time to complete the study, (2) the subject's age, and (3) the subject's years of audit experience for each of the mailouts. The tests for nonresponse bias illustrated in Table 13 do not indicate any significant differences.

Table 13 panel A presents the tests for nonresponse bias for the first mailing. There was an inverse relationship between the return date of the questionnaire and (1) the time to complete the study, (2) the subject's age, and (3) the subject's years of audit experience. This indicates that subjects in the first mailing who returned their questionnaires later tended to spend less time, were less experienced, and were younger than the subjects who returned their questionnaires earlier. Only the correlation between the return date of the questionnaire and the time to complete the study is marginally significant at traditional levels of significance.

For the second mailing, illustrated in Table 13 panel B, there was an inverse relationship between the return date of the questionnaire and the time to complete the study, but there was a positive relationship between the return date of the questionnaire and the subject's age and the return date of the questionnaire and the subject's years of auditing experience. This indicates that the subjects in the second mailing who returned their questionnaires later tended to spend less time, were more experienced, and were older than the subjects who returned their questionnaire earlier. However, none of the correlations for the second mailing were significant. This is not surprising since there were only seven subjects in the second mailing.

d. CFO's Ability and Previous Work Experience

As discussed in Chapter 3, this study examines the impact of the ability level of the current CFO on the subjects' inherent risk assessments for the revenue assertions. In accordance with attribution theory, a person can make an ability assessment of an individual based on the individual's previous work experience. Therefore, the ability variable was operationalized as the previous work experience of the current CFO. The previous work experience was either (1) a senior manager from the *office* of the accounting firm performing the audit or (2) a controller with a manufacturing firm similar to the client's.

Since this is the initial investigation of this area, there was no indication of the perceived ability levels of CFO's with these previous work experiences. Therefore, in the background information section of the questionnaire, two questions specifically asked the subjects to rate the ability level of a CFO with these previous work experiences (See Appendix B, questions 15A and 15C). The subjects' rated the CFO's ability on a scale of 1 (unacceptable) to 5 (exceptional).[33]

The difference in the ability levels was obtained by subtracting the ability level ratings for CFO's with previous work experience as a controller (CFOC) from the ability level ratings for CFO's with previous work experience as a senior manager from the *office* of the

[33] Before comparing the difference between the ability level ratings for the two previous work experiences, the assumptions for the paired difference *t*-test, a parametric test, were examined and tested. There are two assumptions for this test: (1) each pair of measurements is independent of other pairs, and (2) differences are from a normal distribution [Schlotzhauer and Littell, 1987]. The first assumption is met since each pair of measurements represents answers for only one subject. However, the second assumption, that the differences are from a normal distribution, is not met. Normality was tested using the PROC UNIVARIATE NORMAL procedure in the SAS statistical package. The normality test on the differences resulted in a W:Normal statistic of .87 with an associated p-value of .0001. As a result, the paired difference *t*-test was not appropriate and the nonparametric Wilcoxon Signed Rank test was used. This test's only assumption is that each pair of observations is independent of other pairs.

accounting firm performing the audit (CFOO). The sum of the differences for CFOO-CFOC is 27 which indicates that CFOO ability levels are higher than CFOC ability levels.

The results of the Wilcoxon Signed Rank test was 183 with an associated p-value of .0001. Hence, the average difference in the two ability levels is significantly different from zero. Furthermore, the ability level ratings for CFOO's are higher than the ability level ratings for CFOC's. This is evidenced by the positive sum of the differences for CFOO-CFOC.

As stated earlier, this is the initial investigation of auditors' perceptions of the ability levels of persons with these two previous work experiences. Therefore, the results must be interpreted carefully. Additional research is needed in this area before definite conclusions can be made. However, based on these initial results, it does appear that there is a relationship between previous work experience and perceived ability levels. In this investigation, auditors perceived a CFO with previous work experience with their Big 6 firm as having a higher ability level than a CFO with previous work experience in industry.

e. Comparing Extent of Current Year's Planned Audit Procedures with Prior Year's Actual

This section presents the results of comparing the extent of the current year's planned audit procedures with the extent of the same audit procedure in the prior year. The purpose of this comparison is to determine if the extent of the current year's audit procedures was significantly different from the extent of last year's audit procedures. These results can help identify whether or not the subjects tended to deviate from last year's decisions.

In order to make these comparisons, the difference between the extent of the prior year's actual testing and each subject's planned testing in the current year was determined for each of the 68 audit planning decisions in the study. This procedure resulted in a difference

for each of the 57 subjects for each of the 68 audit planning decisions. The paired difference *t*-test was used to determine if the differences were different from zero.

Of the 68 audit planning decisions, 11 (16%) of the average differences between the prior year's testing and the current year's planned testing were not significantly different from zero. These 11 decisions are listed in Table 14. Table 14 also identifies the direction of the difference. Eight of the audit planning decisions have a plus (+) sign which indicates that the extent of the current year's planned audit procedure was greater than the prior year's actual. Three of the audit planning decisions have a minus (-) sign which indicates that the extent of the current year's planned audit procedure was less than the prior year's actual.

Further analysis is presented in Table 15 which identifies the 57 (84%) significant differences between the extent of the current year's planned testing and the prior year's actual. Table 15 also identifies the direction of the difference. It is interesting to note that the majority (47) of the significant differences were the result of reductions in the extent of audit procedures. This could be caused by subjects omitting audit procedures from their current year's plan or just reducing the extent of the audit procedures that they plan to perform. Either reason results in a reduction in the extent of audit procedures in the revenue component.

The p-values provided in Tables 14 and 15 were made without considering an experiment wise error rate. However, to control the experiment wise error rate at .10 for all 68 comparisons, the significance level for each comparison becomes .10/68 or 0.0015. When an experiment wise error rate of .10 is used, ten of the 57 significant differences identified in Table 15 become insignificant. However, 47 (or approximately 70% of the 68 comparisons) are still significant.

These results indicate that the subjects did not anchor on the extent of the prior year's testing when making their decisions for the current year's planned audit procedures.

B. Inherent Risk Assessments

The first objective of this study was to investigate factors that impact auditors' inherent risk assessments for revenue assertions. First, this section presents the results concerning the rankings of each treatment group's inherent risk assessments. Second, this section presents the results of the MANOVA analysis for the inherent risk assessments for a material misstatement and the treatment effects. Third, this section presents the results of the tests for the hypothesized *a priori* interaction between the type of misstatement in the prior year and recency of turnover in the CFO's position. The last section presents the results of correlations between inherent risk assessments and auditors' years of auditing experience.

1. Ranking Inherent Risk Assessments by Treatment Groups

First, this section discusses the rankings of inherent risk assessments *within* each of the three misstatement treatment groups. Second, this section presents the rankings of the inherent risk assessments across *all* of the treatment groups.

a. A Priori Rankings of Inherent Risk Assessments Within Misstatement Treatment Groups

Rankings of inherent risk assessments within misstatement treatment groups relate to hypotheses $1_{a,b,c}$. The hypotheses are as follows:

H_{1a}: Within the no material misstatement treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6. (In other words, the no CFO turnover, Big 6 experience (i.e., higher ability), no material misstatement treatment group will have lower inherent risk assessments than the recent CFO turnover, controller experience (i.e., lower ability), no material misstatement treatment group.)

H_{1b}: Within the material error treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6. (In other words, the recent CFO turnover, Big 6 experience (i.e., higher ability), material error treatment group will have lower inherent risk assessments than the no CFO turnover, controller experience (i.e., lower ability), material error treatment group.)

H_{1c}: Within the material irregularity treatment group, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6. (In other words, the recent CFO turnover, Big 6 experience (i.e., higher ability), material irregularity treatment group will have lower inherent risk assessments than the no CFO turnover, controller experience (i.e., lower ability), material irregularity treatment group.)

These hypotheses are one-tailed. A two sample *t*-test, a parametric procedure, was used to compare the inherent risk assessments for each set of treatment groups identified in each part of hypothesis 1. For example, in each of the above hypotheses, the variables of interest were the inherent risk assessments that a material (1) misstatement, (2) error, or (3) irregularity had occurred in the current year for each of the seven assertions. (Table 2 defines the assertions.) In hypothesis 1_a, these variables were compared for the two treatment groups identified in the hypothesis in order to see if there were any differences in the inherent risk assessments for a material misstatement, error, or irregularity between the two treatment groups. The same procedure was followed for hypothesis 1_b and hypothesis 1_c.[34] [35]

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[34] As discussed in an earlier footnote, there are three assumptions for the *t*-test: (1) the observations are independent, (2) the observations for each group are a sample from a population with a normal distribution, and (3) the variances for the two independent groups are equal [Schlotzhauer and Littell, 1987]. The first assumption is met since each observation represents only one subject's response. The second assumption, normality, is met for 60% of the inherent risk assessments for material misstatements, material errors, and material irregularities for the treatment groups included in hypothesis 1. Generally, tests for normality are difficult to interpret with small sample sizes as is the case in this study. This occurs because while the small samples may not appear normally distributed, the underlying population may be normally distributed. In this study, in spite of the small sample sizes of six or five observations within the treatment groups, 60% of the inherent risk assessments were normally distributed which lends support for the assumption of normally distributed underlying populations. However, because the *t*-test is sensitive to violations of normality, results based on the preceding assumption should be interpreted carefully. The third assumption of equal variances is not met for each set of groups. However, this violation is remedied by using the results of the exact two sample *t*-test for groups that have equal variances and the results of the

1. Results for Inherent Risk Assessments for Material Misstatements

Table 16 presents the results for the two sample *t*-tests for hypotheses $1_{a,b,c}$ for inherent risk assessments that a material misstatement had occurred. As indicated in Table 16, only two differences (9.5%) in the hypothesized direction are significant, which would be expected by chance. One difference is significant but is *not* in the hypothesized direction. It is interesting to notice that all but three of the differences are in the hypothesized direction. However, the majority of the differences are not significant. Therefore, hypotheses $1_{a,b,c}$ were not supported for inherent risk assessments for a material misstatement.

2. Results for Inherent Risk Assessments for Material Errors and Irregularities

Table 17 panels A and B present the results of two sample *t*-tests conducted for the inherent risk assessments for a material error and a material irregularity, respectively, for the treatment groups identified in hypotheses $1_{a,b,c}$. Again, the appropriate *t*-statistic was determined based on the test for equal variances for the two groups being examined. The results are similar to the previous analysis as only seven (17%) of the differences are significant. Three (7%) of the differences are significant but are *not* in the hypothesized direction.

As indicated in panel B, *none* of the differences in the inherent risk assessments for a material *irregularity* for the treatment groups in hypothesis 1_a are in the hypothesized direction, and two of the differences are significant. In these two particular treatment groups, there had been no material misstatements in the prior year. The differences in these treatment

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approximate two sample *t*-test for groups that do not have equal variances.

[35] In light of possible departures from normality, the Mann-Whitney *U* test which is the nonparametric analogue to the *t*-test was also performed. The results of this test were similar and are reported in detail in a footnote after the discussion of the analysis.

groups were in the recency of the CFO's turnover and the CFO's previous work experience. These results indicate that subjects in the no material misstatement, Big 6 experience, no CFO turnover treatment group tended to assess the inherent risk of a material irregularity higher for all assertions than subjects in the no material misstatement, controller experience, CFO turnover treatment group.

Based on the results presented in Table 17, hypotheses $1_{a,b,c}$ were not supported for inherent risk assessments for material errors or material irregularities.[36] [37]

b. A Priori Rankings of Inherent Risk Assessments Across All Treatment Groups

The second hypothesis tests the hypothesized rankings of inherent risk assessments for each of the seven assertions across *all* treatment groups.

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[36] Because of concerns of possible departures from normality, the Mann-Whitney *U* test, the nonparametric analogue to the two sample *t*-test, was performed. The only differences in the results of the Mann-Whitney *U* test and the two sample *t*-test were for comparisons between the treatment groups in hypothesis 1_b. The Mann-Whitney *U* test identified two new comparisons that were significant at $\alpha = .10$: (1) the performance occurred assertion for a material misstatement and (2) the authorized assertion for a material irregularity. Two comparisons that were significant using the *t*-test were not significant using the Mann-Whitney *U* test: (1) the proper amount assertion for a material error and (2) the performance occurred assertion for a material irregularity. Results from the Mann-Whitney *U* test do not change the overall conclusions made based on the two sample *t*-test.

[37] When the staff accountants that participated in the study were excluded from the analysis for hypothesis 1_c, nine additional *t*-tests were significant bringing the total number of significant differences for this hypothesis to twelve (57%). The nine new significant differences are as follows: (1) the performance occurred assertion for a material misstatement, (2) the recorded assertion for a material misstatement, (3) the accumulated assertion for a material misstatement, (4) the proper period assertion for a material misstatement, (5) the presentation and disclosure assertion for a material misstatement, (6) the performance occurred assertion for a material error, (7) the proper amount assertion for a material error, (8) the performance occurred assertion for a material irregularity, and (9) the accumulated assertion for a material irregularity. These results indicate that the staff accountants' inherent risk assessments were higher than the other participants' inherent risk assessments. This result is consistent with the experience literature that found that less experienced auditors make different decisions than experienced auditors. The results do not indicate that the staff accountants did not have the necessary experience to participate in the study; therefore, their responses were retained.

H_2: Overall, the auditors' inherent risk assessments will agree with the rankings based on attribution theory as indicated in Table 6. (In other words, the no CFO turnover, Big 6 experience (i.e., higher ability), no material misstatement treatment group will have the lowest inherent risk assessments and the no CFO turnover, controller experience (i.e., lower ability), material irregularity treatment group will have the highest inherent risk assessments.)

In order to examine the rankings, the treatment groups were ranked based on their mean inherent risk assessments for each assertion. Separate rankings were made for inherent risk assessments for material misstatements, material errors, and material irregularities.

1. Rankings for Inherent Risk Assessments for Material Misstatements

Table 18 presents the rankings for the inherent risk assessments for material misstatements. The treatment groups were ranked based on the average inherent risk assessment for each assertion. (In Table 18, one represents the treatment groups with the lowest inherent risk assessment and twelve represents the treatment groups with the highest inherent risk assessments.) Table 6 hypothesized that the no CFO turnover, Big 6 experience (i.e., high ability), no material misstatement treatment group would have the lowest inherent risk assessments. However, as indicated in Table 18, this is only the case for the performance occurred assertion. Table 6 also hypothesized that the no CFO turnover, controller experience (i.e., low ability), material irregularity treatment group would have the highest inherent risk assessments. As indicated in Table 18, although this treatment group's inherent risk assessments are ranked high, none of them are ranked the highest. As a result, hypothesis 2 is not supported for the inherent risk assessments for a material misstatement.

Additional analyses were conducted to determine if certain treatment groups tended to have predominantly larger or smaller ranks associated with them. Kendall's coefficient of concordance [Daniel, 1990] was used to examine the degree of consensus among the rankings

of the inherent risk assessments for the treatment groups. This is a nonparametric procedure based on the *sum of the ranks* for the inherent risk assessments for the treatment groups.[38]

For this test, the null hypothesis is that there is no consensus among the rankings of the inherent risk assessments for the treatment groups. The alternate hypothesis is that there is consensus among the rankings of the inherent risk assessments for the treatment groups, i.e., certain treatment groups contain predominantly large or small ranks.

For the inherent risk assessments for material misstatements the *W* statistic is .40529 and the observed χ^2 is 31.21. The critical χ^2 value for 12-1 degrees of freedom for α equal to .01 is 24.73. Hence, the null hypothesis of no consensus is rejected. Therefore, certain treatment groups tend to contain predominantly large ranks and others tend to contain predominantly small ranks.

As indicated in Table 18 by the double asterisks, the following treatment groups had the three highest rank sums: (1) the recent CFO turnover, Big 6 experience, no material misstatement treatment group, (2) the no CFO turnover, Big 6 experience, material error treatment group, and (3) the no CFO turnover, Big 6 experience, material irregularity treatment group. The single asterisk indicates that the following treatment groups had the three lowest rank sums: (1) the no CFO turnover, controller experience, no material misstatement treatment group, (2) CFO turnover, Big 6 experience, material irregularity treatment group, and (3) CFO turnover, controller experience, material irregularity treatment group.

Some insight can be gained by comparing the treatment group hypothesized in Table 6 to have the highest inherent risk assessments with the treatment groups in Table 18 that were ranked as having the highest inherent risk assessments. Table 6 hypothesized that the material

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[38] The test statistic, *W*, for Kendall's coefficient of concordance follows a χ^2 distribution with k-1 degrees of freedom, where k is the number of objects (i.e., treatment groups) ranked.

irregularity, no CFO turnover, controller experience (i.e., low ability) treatment group would have the highest inherent risk assessments. In Table 18, three treatment groups tended to have higher inherent risk assessments than the hypothesized treatment group. Surprisingly, the treatment group with the highest inherent risk assessments in Table 18 was the no material misstatement, CFO turnover, Big 6 experience treatment group. This indicates that the subjects perceived that the highest inherent risk tended to exist when a client changed CFO's and hired someone from the office of the Big 6 firm performing the audit. The other two treatment groups identified in Table 18 as having high inherent risk assessments consisted of either a material error or irregularity, no CFO turnover, and Big 6 experience. It appears that contrary to the hypothesized rankings in Table 6, subjects assessed inherent risk higher when the CFO had previous Big 6 experience than when the CFO had previous experience as a controller.

Some interesting insight can also be gained by comparing the treatment group in Table 6 that was hypothesized to have the lowest inherent risk assessment with the treatment group in Table 18 ranked as having the lowest inherent risk assessment. Table 6 hypothesized that the no CFO turnover, Big 6 experience, no material misstatement treatment group would have the lowest inherent risk assessment. In Table 18 the no CFO turnover, controller experience, no material misstatement treatment group was ranked as having the lowest inherent risk assessment. Each of these treatment groups had non-recent turnover in the CFO's position and no misstatements in the prior year. However, in the treatment group hypothesized to have the lowest rank, the current CFO was previously with the office of the accounting firm performing the audit whereas in the actual treatment group with the lowest rank, the current CFO was previously a controller with a similar company. Based on the results of the ability level ratings discussed earlier, the CFO in the treatment group hypothesized to have the lowest rank

(i.e., the previous Big 6 auditor) would have a higher ability level rating than the CFO in the treatment group that received the lowest rank (i.e., the previous controller). However, in spite of the perceived difference in the ability levels, the treatment group with the controller had lower risk assessments than the treatment group with the auditor. It appears that, contrary to the hypothesis, when subjects perceived the CFO to have a high ability level, they assessed inherent risk higher.

Several explanations for these surprising results are possible. First, subjects may believe that a CFO with high ability has the talent and ability to cover up any irregularities that may be occurring. Thus, creating a situation where it is harder to detect fraudulent activities and resulting in an increase in inherent risk assessments. Second, the higher risk assessments may be because the subjects realize that CFO's with a public accounting background have a more in depth understanding of performing an audit. More importantly in this study, since the current CFO is from the *office* of the accounting firm performing the audit, the CFO may have had access to information concerning the audit strategy (e.g., sample sizes, scopes, rotation schedules, etc.) for this client prior to leaving the accounting firm. Both an in depth understanding of the audit process and access to information pertinent to the client's audit could result in increased inherent risk assessments.

2. Rankings for Inherent Risk Assessments for Material Errors and Irregularities

Tables 19 and 20 present similar rankings for the inherent risk assessments for material errors and material irregularities, respectively. Again, hypothesis 2 is not supported.

Once again, Kendall's coefficient of concordance was used to examine the consensus among the rankings of the inherent risk assessments for material errors and material irregularities for the treatment groups. For the inherent risk assessments for material errors the

W statistic is .53796 and the observed χ^2 is 41.42. The critical χ^2 value for 12-1 degrees of freedom for α equal to .01 is 24.73. Hence, the null hypothesis of no consensus is rejected. Therefore, certain treatment groups tend to contain predominantly large ranks and others tend to contain predominantly small ranks. The double asterisks in Table 19 identify the following three treatment groups that had the highest rank sums: (1) the no CFO turnover, Big 6 experience, material error treatment group, (2) CFO turnover, Big 6 experience, no material misstatement treatment group, and (3) no CFO turnover, Big 6 experience, material irregularity treatment group. A single asterisk identifies the following three treatment groups that had the lowest rank sums: (1) the no CFO turnover, controller experience, no material misstatement treatment group, (2) CFO turnover, Big 6 experience, material irregularity treatment group, and (3) CFO turnover, Big 6 experience, material error treatment group.

For the inherent risk assessments for material irregularities the *W* statistic is .61698 and the observed χ^2 is 47.51. The critical χ^2 value for 12-1 degrees of freedom for α equal to .01 is 24.73. Hence, the null hypothesis of no consensus is rejected. Therefore, certain treatment groups tend to contain predominantly large ranks and others tend to contain predominantly small ranks. The double asterisks in Table 20 identify the following three treatment groups as having the highest rank sums: (1) CFO turnover, Big 6 experience, no material misstatement treatment group, (2) no CFO turnover, Big 6 experience, material irregularity treatment group, and (3) no CFO turnover, controller experience, material irregularity treatment group. The following three treatment groups had the three lowest rank sums and are identified by a single asterisk: (1) CFO turnover, controller experience, material error treatment group, (2) CFO turnover Big 6 experience, material error treatment group, and (3) CFO turnover, controller experience, no material misstatement treatment group.

The results of Kendall's coefficient of concordance tests presented in Tables 18, 19,

and 20 indicate that certain treatment groups tend to contain predominantly large ranks while other treatment groups tend to contain predominantly small ranks. Therefore, further examination of the treatment groups ranked at the extremes is appropriate.

3. Discussion of Results for Hypothesis 2

Comparing Tables 18, 19, and 20 indicates that the CFO turnover, Big 6 experience, no material misstatement treatment group and the no CFO turnover, Big 6 experience, material irregularity treatment group consistently ranked in the top three rank sums in each table. The no CFO turnover, Big 6 experience, material error treatment group ranked in the top three rank sums for inherent risk assessments for material misstatements (i.e., Table 18) and material errors (i.e., Table 19). Comparing the lower ranks, the no CFO turnover, controller experience, no material misstatement treatment group, the CFO turnover, Big 6 experience, material error treatment group, and the CFO turnover, Big 6 experience, material irregularity treatment group ranked in the lowest three rank sums in at least two of the three tables.

Subjects assessed inherent risk higher for treatment groups where there had been non-recent turnover in the CFO's position, the CFO previously worked with the office of the accounting firm performing the audit, and either an error or an irregularity occurred in the prior year. High risk assessments were also associated with the CFO turnover, Big 6 experience, no material misstatement treatment group.

Lower inherent risk assessments were associated with treatment groups where there had been recent turnover in the CFO's position, the CFO previously worked with the office of the accounting firm performing the audit, and either an error or an irregularity occurred in the prior year. Lower risk assessments were also associated with the no CFO turnover, controller experience, no material misstatement treatment group.

Comparing two of the high risk treatment groups with two of the low risk treatment groups reveals some insight. The only difference between the no CFO turnover, Big 6 experience, material error treatment group (a high risk group) and the CFO turnover, Big 6 experience, material error treatment group (a low risk group) is the recency of CFO turnover. Similarly, the only difference between the no CFO turnover, Big 6 experience, material irregularity treatment group (a high risk group) and the CFO turnover, Big 6 experience, material irregularity treatment group (a low risk group) is the recency of CFO turnover.

When a material misstatement occurred in the prior year and the CFO previously work in the office of the accounting firm performing the audit, subjects' inherent risk assessments were higher when there had been non-recent turnover than when there had been recent turnover in the CFO's position. This may be explained as follows. If a material misstatement occurred in the prior year and the CFO has not been replaced, inherent risk is higher than if a material misstatement occurred in the prior year and the CFO has been replaced. In this instance, turnover in the CFO's position appears to reduce inherent risk rather than increase it as is indicated in SAS No. 53 [AICPA, 1988, AU 316].

2. MANOVA Analysis

This section presents the dependent and independent variables, MANOVA assumptions, and the overall model results.

a. Dependent Variables

The dependent variables used in this analysis are the inherent risk assessments for ***material misstatements*** for each of the assertions: performance occurred, authorized, proper amount, recorded, accumulated proper period, and presentation and disclosure. The assertions

are defined in Table 2. A more detailed discussion of the dependent variables was presented in Chapter 3.

Before proceeding with the analysis, the correlations between the dependent variables were examined.

1. Correlations Between the Dependent Variables

Pearson correlation coefficients were used to explore the dependency that may exist between the dependent variables. Table 21 presents the correlation matrix for the dependent variables. Fourteen (67%) of the dependent variable correlations were significant. For example, the correlation between the recorded and accumulated inherent risk assessments is .677 (significance level of .0001). The correlation between the performance occurred and proper period inherent risk assessments is .681 (significance level of .0001).

Review of the correlations indicates that the dependent variables are highly correlated; therefore, MANOVA was used for the overall statistical analysis. However, once the MANOVA results were examined, the individual analysis of variance (ANOVA) models for each dependent variable were examined to provide additional information.

b. Independent Variables

The independent variables are the type of material misstatement in the prior year (Misstatement), the turnover recency in the CFO's position (Turnover), and the CFO's previous work experience (Experience). Each independent variable was defined as a classification variable. A more extensive discussion of the independent variables was presented in Chapter 3.

The multivariate model for this part of the study follows.

PO A PA R AC PP PD = Turnover + Experience + Misstatement + all two-way interactions

where,

PO = Inherent risk assessments for the performance occurred assertion
A = Inherent risk assessments for the authorized occurred assertion
PA = Inherent risk assessments for the proper amount assertion
R = Inherent risk assessments for the recorded assertion
AC = Inherent risk assessments for the accumulated assertion
PP = Inherent risk assessments for the proper period assertion
PD = Inherent risk assessments for the presentation and disclosure assertion
Turnover = 1 if recent, 0 if non-recent turnover in CFO's position
Experience = 1 if CFO's previous experience was with Big 6, 0 if as a controller
Misstatement = 0 if no misstatement occurred in the prior year,
1 if an error occurred in the prior year, and
2 if an irregularity occurred in prior year

c. The MANOVA Assumptions

The underlying assumptions for MANOVA are: (1) observations are from populations that are multivariate normal, and (2) observations are from populations that have common covariance matrix Σ [Johnson and Wichern, 1988]. Formal tests for the multivariate normality assumption are difficult to construct and interpret [Johnson and Wichern, 1988]. As a result, normality must be examined at the univariate level. Normality tests for the inherent risk assessments for material misstatements indicated that for 64% of the treatment groups the responses were normally distributed. As discussed earlier, these results were achieved in spite of the small sample sizes within the treatment groups. Based on these results of normality, one could proceed on the assumption that the underlying populations were normally distributed. However, proceeding to use MANOVA based on the assumption that the observations are from populations with normal distributions requires that the MANOVA results be interpreted carefully.

Tests for the assumption of equal covariance matrix Σ are also difficult due to the small sample sizes. Fortunately, the MANOVA results are not sensitive to departures of equal

covariances when the sample sizes are equal or do not differ greatly. Since the sample sizes in this study do not differ greatly (ranging from 3 to 6 observations within each treatment group), departures from the second assumption are not serious.

d. Overall Model Results

This section presents the overall results for the MANOVA model and the ANOVA models for the dependent variables.

1. MANOVA Results

Table 22 presents the MANOVA[1] results.[2] The only significant independent variables are misstatement and the interaction between turnover and misstatement. The significant main effect for misstatement is not easily interpreted since there is a significant interaction involving the misstatement variable [Johnson and Wichern, 1988, p. 254]. The significant interaction between turnover and misstatement will be discussed in detail in a later section.

Since the majority of the independent variables in the MANOVA model were not significant, investigation of the individual ANOVA models for each assertion is appropriate.

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[1] Multivariate analysis of variance procedures were performed using the SAS statistical package. Specifically, the MANOVA statement in the PROC GLM procedure was used.

[2] The MANOVA test statistic presented in Table 22 is Roy's greatest (maximum) root. Roy's greatest root "is an upper bound on F that yields a lower bound on the significance level" [SAS/STAT User's Guide, 1990, p. 19]. For Turnover, Experience, and Turnover × Experience, the F-values for Roy's greatest root were identical to the F-values for Wilks' lambda, Pillai's trace, and Hotelling-Lawley trace. However, because the degrees of freedom were greater than 1 for the Misstatement, Turnover × Misstatement, and Experience × Misstatement independent variables, all four test statistics provided different significance values [Cattell, 1966, p. 248], with Roy's greatest root being the lowest since it provides a lower bound on the significance level.

2. Results of Individual ANOVA Models for Dependent Variables

Table 23 presents the ANOVA[41] results for each dependent variable. The overall model is significant at traditional alpha levels for the recorded assertion and the accumulated assertion. Table 24 presents the detail ANOVA results for these two assertions. For the recorded assertion, the significant independent variables are the previous work experience of the current CFO and the interaction between turnover and misstatement. In the ANOVA model for the recorded assertion, inherent risk assessments were significantly *lower* when the CFO was previously a controller (i.e., the CFO had low ability) than when the CFO was previously a senior manager with the Big 6 firm performing the audit (i.e., the CFO had high ability). One explanation for this result may be that the subjects believe that a CFO with high ability would have the talent and knowledge to adequately cover up any irregularities or fraudulent actions that may be occurring. Similarly, the subjects may believe that a CFO with low ability would not have the talent and knowledge to adequately cover up irregularities or fraudulent actions and, therefore, the auditor would detect any irregularities or fraudulent actions. Another explanation may be that the subjects have seen persons in upper management of accounting firms make questionable decisions while on engagements and, therefore, the subjects do not trust persons they have worked with. (A detailed analysis of the *a priori* interaction between turnover and misstatement is presented in the next section.)

For the accumulated assertion, the significant independent variables are the misstatement main effect and the interaction between turnover and misstatement. However, "main effects often do not have useful meanings if strong interactions exist" [Neter, Wasserman, and Kutner, 1985, p. 697]. As a result, only the interaction is of interest. (A

[41] Analysis of variance procedures were performed using the SAS statistical package. Specifically, the PROC GLM procedure was used because of the unbalanced design.

detailed analysis of the *a priori* interaction between turnover and misstatement is presented in the next section.)

3. Results for Hypothesized A Priori Interaction

Hypothesis 3 hypothesized an *a priori* significant interaction between the type of material misstatement in the prior year (i.e., no material misstatement, a material error, or a material irregularity) and the turnover recency in the CFO's position. Specifically, hypothesis 3 states:

> H_3: There will be a significant interaction between the type of material misstatement in the prior year and the recency of turnover in the CFO's position.

This section presents the results for the *a priori* interaction for the MANOVA model and the individual ANOVA models.

a. Results of the A Priori Interaction in the MANOVA Model

Table 22 presents the results of the interaction between turnover recency in the CFO's position and type of misstatement in the prior year for the MANOVA model (Turnover × Misstatement). The interaction is significant (p-value of 0.0335) for the MANOVA model. These results support hypothesis 3. In order to provide a clearer understanding of the interaction effect, analysis of the turnover and misstatement interaction for the individual ANOVA models for each assertion follows.

b. Results of the A Priori Interaction in the ANOVA Models

Table 25 presents the results of the interaction between turnover recency in the CFO's position and type of misstatement in the prior year for the ANOVA models for each dependent

variable. The interaction is significant for five of the seven dependent variables: performance occurred (p-value 0.0818), proper amount (p-value 0.0325), recorded (p-value 0.0035), accumulated (p-value 0.0165), and proper period (p-value 0.0867). Table 26 presents the interaction combinations of turnover and misstatement that were significant for these five dependent variables.[42]

The footnote in Table 26 defines the interaction combinations identified in the table. For example, interaction combination 1 represents non-recent turnover in the CFO's position and no material misstatement in the prior year. Interaction combination 2 represents non-recent turnover in the CFO's position and a material error in the prior year, and so on. In Table 26 the direction of the significant differences between the interaction combinations is indicated by either a less than (<) or greater than (>) sign. Following is a discussion of significant patterns occurring in the results presented in Table 26.

The inherent risk assessments for a material misstatement for interaction combination 1 (non-recent turnover and no material misstatement in the prior year) are consistently less than the inherent risk assessments for other interaction combinations for each dependent variable. This pattern is logical since interaction combination 1 contains the low condition for the turnover and misstatement treatments. One, therefore, would expect this interaction combination to be associated with lower inherent risk assessments.

For the proper amount and recorded assertions, the inherent risk assessment for interaction combination 2 (non-recent turnover and a material error in the prior year) is greater than the inherent risk assessment for interaction combination 5 (recent turnover and a material

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[42] The LSMEANS (least-squares means) statement in PROC GLM was used to examine the interaction between turnover and misstatement for each dependent variable. LSMEANS "are to unbalanced designs as class and subclass arithmetic means are to balanced designs. [LSMEANS] are simply estimators of the class or subclass marginal means that would be expected had the design been balanced" [SAS/STAT User's Guide, 1990, p. 908].

error in the prior year). Similarly, for the performance occurred assertion, the inherent risk assessment for interaction combination 2 (non-recent turnover and a material error in the prior year) is greater than the inherent risk assessment for interaction combination 6 (recent turnover and a material irregularity in the prior year).

For the proper amount and recorded assertions, the inherent risk assessment for interaction combination 3 (non-recent turnover and a material irregularity in the prior year) is greater than the inherent risk assessment for interaction combination 5 (recent turnover and a material error in the prior year). Similarly, for the recorded and accumulated assertions, the inherent risk assessment for interaction combination 3 (non-recent turnover and a material irregularity in the prior year) is greater than the inherent risk assessment for interaction combination 6 (recent turnover and a material irregularity in the prior year).

This pattern for inherent risk assessments for interaction combinations 2 and 3 to be greater than inherent risk assessments for interaction combinations 5 and 6 is logical. One would expect *higher* inherent risk assessments when there has been no turnover in the CFO's position since the prior year and either a material error or irregularity occurred in the prior year than when there has been turnover in the CFO's position since the prior year and either a material error or irregularity occurred in the prior year. In the first case, the CFO associated with the prior year's error or irregularity is still CFO of the client in the current year. However, in the latter case, the CFO associated with the prior year's error or irregularity is no longer with the client (i.e., there has been turnover in the CFO's position since the prior year).

For the proper amount, recorded, and accumulated assertions, the inherent risk assessment for interaction combination 4 (recent turnover and no material misstatement in the prior year) is greater than the inherent risk assessment for interaction combination 5 (recent turnover and a material error in the prior year). Similarly, for the recorded and accumulated

assertions, the inherent risk assessment for interaction combination 4 (recent turnover and no material misstatement in the prior year) is greater than the inherent risk assessment for interaction combination 6 (recent turnover and a material irregularity in the prior year).

This pattern indicates that turnover in the CFO's position alone creates more inherent risk for these assertions than turnover in the CFO's position that is associated with a material error or irregularity in the prior year. Perhaps turnover in the first case is perceived as risky since there was apparently no reason to change CFO's while in the latter case turnover in the CFO's position appears not only to have justification (i.e., the occurrence of the material error or irregularity in the prior year) but also to be necessary.

Based on the results presented in Tables 25 and 26 and the previous discussion, hypothesis 3 is supported.

4. Years of Auditing Experience and Inherent Risk Assessments

The fourth hypothesis tests the effects of auditors' years of auditing experience on their inherent risk assessments. Hypothesis 4 states:

> H_4: An inverse relationship exists between years of auditing experience and inherent risk assessments such that more experienced auditors will tend to assess inherent risk lower than less experienced auditors.

Panels A, B, and C of Table 27 present the Pearson correlation coefficients[43] between the subjects' years of auditing experience and the inherent risk assessments for material misstatements, material errors, and material irregularities, respectively. In panel A all but one of the correlations are negative indicating that as the subject's years of audit experience increased, the inherent risk assessments for material misstatements decreased. Thus, the

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[43] The plots of the auditors' years of auditing experience and the inherent risk assessments for material misstatements, errors, and irregularities did not reveal a non-linear relationship. Therefore, Pearson correlation coefficients were used to examine these relationships.

direction of the relationship is consistent with hypothesis 4. However, only the correlation for the proper period inherent risk assessment is significant.[44]

In panels B and C half of the correlations are in the hypothesized direction (i.e., negative). However, only the correlation for the proper period inherent risk assessment for a material error (in panel B) is marginally significant at the .10 level. Since the misstatements included in the treatments in the case materials was concerned with recording revenue in the proper period, it would be expected that the inherent risk assessments for the proper period assertion be significantly correlated with the auditors' years of experience, as existed in panels A and B. However, based on the overall results of this analysis, hypothesis 4 is not supported.

C. Extent of Planned Audit Procedures and Staff Scheduling Decisions

The second objective of this study was to investigate audit planning decisions that follow risk assessment. First, this section presents the results of the MANOVA analysis for the relationship between auditors' inherent risk assessments and subsequent audit planning decisions such as the extent of planned audit procedures and staff scheduling decisions. Second, this section presents the correlation results for the investigation of the relationship between years of auditing experience and the extent of planned audit procedures and staff scheduling decisions.

1. MANOVA Analysis

This section presents the hypotheses and the MANOVA and correlation results.

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[44] Assuming that a correlation of -.40 is the important effect size expected, using approximately 51 subjects would result in power of 90% for a one-tailed 5% test [Kraemer and Thiemann, 1987, p. 56]. Since the number of subjects in this correlation is 56 to 57, the power is approximately 90%.

a. Hypotheses

The hypotheses are:

H_5: A significant positive relationship exists between inherent risk assessments for assertions and the sample sizes and scopes for audit procedures related to the assertions.

H_6: A significant positive relationship exists between inherent risk assessments for assertions and the experience level of persons scheduled to perform audit procedures related to the assertions.

H_7: A significant positive relationship exists between inherent risk assessments for assertions and the budgeted hours for persons performing audit procedures related to the assertions.

H_8: A significant positive relationship exists between inherent risk assessments for assertions and the budgeted hours for supervision of audit procedures related to the assertions.

In order to test hypotheses 5-8, audit procedures were matched with their related assertions. Table 5 presents the relationship between the audit procedures for the revenue component and the revenue assertions. The significance of the relationships was examined using MANOVA. The direction of the relationships was examined using Pearson correlation coefficients.

The next section presents the MANOVA models and results.

b. MANOVA Models and Results

This section presents the dependent and independent variables, the MANOVA assumptions, and the MANOVA results.

1. Dependent Variables

The dependent variables used in this analysis include:

(1) Level of experience for the staff person selected to perform *each audit procedure*,
(2) Budgeted hours for *each audit procedure* for the staff person selected to perform the work,

(3) Budgeted hours for *each audit procedure* for the senior auditor supervising the audit,
(4) Sample size for applicable audit procedures, and
(5) Scope size for applicable audit procedures.

The auditors determined the experience level of the staff person who would perform each audit procedure planned in the current year using the following scale: 1=first year person, 2=second year person, and 3=third year person. The auditors were told to assume that all staff levels were available for scheduling. However, none of the auditors assigned a staff person with more than three years of experience to perform the audit procedures. The auditors also budgeted whole or partial hours for the staff person and the senior auditor for each audit procedure they planned to perform in the current year. The auditors also determined the planned sample sizes and scopes for the audit procedures that required these decisions. The auditors made these decisions for *each* of the 19 audit procedures. (See Appendix B.)

The auditors were given the following prior year information for *each* audit procedure: (1) the staff level performing the audit procedure, (2) the actual and budgeted hours for the staff person and the senior, and (3) the actual sample size and/or scope for applicable audit procedures.

Before proceeding with the analysis, the correlations between the dependent variables were examined.

a. Correlations Between the Dependent Variables

Pearson correlation coefficients were used to explore the interrelationships that may exist between the dependent variables. Table 28 highlights the number of significant correlations for each audit procedure. As Table 28 indicates, at least two of the dependent variables were significantly correlated for each audit procedure, and seventeen (89%) of the audit procedures had more than one significant correlation. For twelve (63%) of the audit

procedures all the dependent variables were significantly correlated. Review of the correlations identified in Table 28 indicates that MANOVA is the appropriate statistical procedure.

2. Independent Variables

The independent variables are the inherent risk assessments for the assertions that are associated with the audit step. Table 5 presents the relationships between each audit procedure and the inherent risk assessments. Therefore, the independent variables change for each audit procedure. Figure 2 illustrates the MANOVA model for each audit procedure. For example, the multivariate model for audit procedure 6 follows.

Dollars, Percentage, Staff Level, Staff Hours, Senior Hours = PO + PA + R + AC + PP + all two-way interactions

where, Dollars = Scope in dollars for the audit procedure
Percentage = Scope in percentage for the audit procedure
Staff Level = Staff level performing the audit procedure
Staff Hours = Budgeted hours for the staff person performing the audit procedure
Senior Hours = Budgeted hours for the senior supervising the engagement
PO = Inherent risk assessments for the performance occurred assertion
PA = Inherent risk assessments for the proper amount assertion
R = Inherent risk assessments for the recorded assertion
AC = Inherent risk assessments for the accumulated assertion
PP = Inherent risk assessments for the proper period assertion

3. The MANOVA Assumptions

The underlying assumptions for MANOVA were reviewed earlier. They are (1) observations are from populations that are multivariate normal, and (2) observations are from populations that have common covariance matrix Σ [Johnson and Wichern, 1988]. Since the sample size for each model in this section is 56 or 57 observations, the central limit theorem applies which states that the sample mean is approximately normally distributed when the

sample size is reasonably large (i.e., sample sizes around 30). As a result, the first assumption is not violated.

As stated earlier, MANOVA results are not sensitive to departures of equal covariances when the sample sizes are equal or do not differ greatly. Since the sample sizes for the dependent variables within a model for each audit procedure do not differ, the second assumption is not violated.

4. MANOVA Results

Table 29 presents the MANOVA results for each independent variable for each audit procedure.[45] The independent variables are the inherent risk assessments for a material misstatement for each assertion that is related to the audit procedure. Table 5 presents the relationship between the assertions and the audit procedures. Table 29 provides the significance level for each main effect in the MANOVA model for each audit procedure. Significant interactions are also listed.

As is indicated in Table 29, only five of the seventy-two main effects are significant. (The significant main effects are bolded.) Three of the significant main effects are the inherent risk assessments for the performance occurred assertion for the following audit procedures: documentation of processing controls (#5), fluctuation analysis of revenue and related accounts (#6), and analytical review of revenues (#8). The other two significant main effects are the inherent risk assessment for the authorization assertion for the cutoff tests for credit notes (#15) and the inherent risk assessment for the proper amount assertion for the cutoff tests for shipment documents and invoices (#12).

[45] The statistical significance for all independent variables and all interactions was identical for each of the following four multivariate test statistics provided by the MANOVA statement in PROC GLM: Wilks' lambda, Pillai's trace, Hotelling-Lawley trace, and Roy's greatest (maximum) root.

Several audit procedures (37%) have significant interactions. They are as follows: use of prenumbered documents (#4), documentation of processing controls (#5), fluctuation analysis of revenue and related accounts (#6), analytical review of revenues (#8), cutoff tests for shipment documents and invoices (#12), cutoff tests for credit notes (#15), and reasonableness tests for allowance for anticipated credits (#16). Most audit procedures (63%) did not have any significant variables.

These results are unexpected considering the strong link between risk assessments and the extent of audit procedures identified in SAS No. 39 [AICPA, 1983, AU 350.48] and SAS No. 47 [AICPA, 1984, AU 312.19]. For example, SAS No. 47 [AICPA, 1984, AU 312.19] states that "[t]he auditor needs to consider audit risk at the individual account balance or class of transaction level because such consideration ***directly*** assists him in determining the scope of auditing procedures for the balance or class and related assertions" (emphasis added).

In light of the authoritative standards, one would expect a strong relationship between the inherent risk assessments identified for each audit procedure in Table 5 and the extent of planned audit procedures and staff scheduling decisions for each audit procedure.

Based on the results presented in Table 29 and the previous discussion, the significant relationships hypothesized in hypotheses 5, 6, 7, and 8 were not supported. The next section examines the direction of the relationships.

c. Correlation Results

Pearson correlation coefficients were used to examine the direction of the relationships between the extent of audit procedures and the inherent risk assessment of a material misstatement for the assertions related to the audit procedures. Table 5 presents the relationship between the audit procedures for the revenue component and the revenue

assertions. Figure 2 lists the dependent variables and the applicable assertions associated with each of the nineteen audit procedures. For each of the nineteen audit procedures, the correlation between each dependent variable and the inherent risk of a material misstatement for the assertions related to the audit procedure was examined.

Of the 269 correlations examined, 100 (37%) were negative and 169 (63%) were positive. Only 38 (14%) of the correlations were significant at traditional levels of significance. Of the significant correlations, 26 (68%) were positive and 12 (32%) were negative.

Based on the results of the correlations, the positive relationships in hypotheses 5, 6, 7, and 8 were not supported. However, it may be of interest to examine the extent of audit procedures and staff scheduling decisions by experience level to see if experienced auditors made different decisions than less experienced auditors. This is the topic of the next section.

2. Years of Auditing Experience and Extent of Audit Procedures and Staff Scheduling Decisions

The last hypothesis investigates the relationship between auditors' years of auditing experience and the auditors' audit planning decisions concerning sample sizes, scopes, budgeted hours, and staff level. This leads to the last hypothesis.

> H_9: More experienced auditors will make different audit planning decisions concerning the sample sizes, scopes, experience level of the person performing the audit procedure, budgeted hours for the staff person performing the audit procedure and senior than less experienced auditors.

The auditors' years of auditing experience was correlated with each of the sixty-eight audit planning decisions concerning the sample sizes, scope, experience level of the person performing the audit procedure, budgeted hours for the staff person performing the audit procedure and senior. Table 30 presents the twenty-four (35%) significant Pearson correlation

coefficients. Audit decisions for the staff level of the person performing the audit procedures was positively correlated with the auditors' years of auditing experience for the following audit procedures: agreeing balances to prior year's working papers (#1), test of control for management's review of interim financial statements (#2), and conclusion (#19). Audit decisions for staff hours were positively correlated with the auditors' years of auditing experience for audit procedures relating to analytical review of revenues (#8) and conclusion (#19). For these decisions, experienced auditors tended to assign more experienced staff persons and/or budget more staff hours than less experienced auditors.

Table 30 indicates a negative relationship between auditors' years of auditing experience and audit planning decisions for the following audit procedures: review revenue and related accounts for unusual items (#7), tracing shipment documents (#11), cutoff tests for shipment documents and invoices (#12), investigate large or unusual credit notes (#13), tracing credit notes (#14), and cutoff tests for credit notes (#15).

The results in Table 30 are consistent with hypothesis 9 which stated that more experienced auditors would make different decisions than less experienced auditors. Also, the results in Table 30 indicate that the differences are not always in the same direction.

Of particular interest in Table 30 are the number of significant negative correlations. Four substantive tests of transactions audit procedures (#11, #12, #14, and #15) had negative correlations indicating that more experienced auditors planned smaller sample sizes and scopes, scheduled less experienced staff persons, and budgeted fewer hours for the staff persons and the senior than less experienced auditors.

A possible explanation for this difference could stem from the fact that more experienced auditors are placing more reliance on the internal control structure[46] than less

[46] The case materials included a statement that control risk had been assessed as moderate for this client.

experienced auditors. Increased reliance on the internal control structure would result in less extensive substantive tests. Also, experienced auditors could be more focused on the cost of the audit than less experienced auditors. This cost focus would result in the experienced auditors more readily reducing the extent of substantive audit procedures when relying on the internal control structure than inexperienced auditors. The less experienced auditors may like the comfort of "double checking" the audit results without giving thought to the increased cost of the substantive audit procedures.

D. Other Analyses

This section presents interesting results that are related to the study but that were not hypothesized. First, the audit procedures added and omitted by the subjects are presented and discussed. Second, this section presents the ANOVA results that examine the relationship between inherent risk assessments for material misstatements and inherent risk assessments for material errors and irregularities. Finally, the last section presents the ranking of inherent risk assessments for each assertion in order to determine if certain assertions tend to have predominantly larger or smaller ranks associated with them.

1. Discussion of Audit Procedures Added and Omitted

Table 31 lists additional revenue audit procedures that the subjects indicated they planned to perform as part of the current year's revenue testing. This table only includes additional audit procedures related to revenue testing that at least three subjects planned to

perform in the current year.[47] The most common additional revenue audit procedure was listed by thirteen subjects (23%) who planned to perform substantive tests of the deferred revenue account by agreeing transactions to supporting documents. Five subjects (9%) indicated that they would perform additional analytical review procedures of the deferred revenue account. Three subjects (5%) planned to perform additional analytical review procedures of the revenue account. Three subjects (5%) indicated that they would increase testing to include documentation of the client's policies and procedures for recording cash advance contracts.

Table 32 lists the revenue audit procedures omitted by at least three subjects.[48] Matching revenue entries in the general ledger with cost of good sold entries (#3) was omitted most frequently. This procedure was omitted by sixteen subjects (28%). Tracing shipment documents (#11) was omitted by fourteen subjects (25%), invesitgating large or unusual credit notes (#13) by thirteen subjects (23%), tracing credit notes (#14) by twelve subjects (21%), and use of prenumbered documents (#4) by eleven subjects (19%).

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[47] Fewer than three subjects included the following additional revenue audit procedures (number of subjects): perform a walkthrough of one sales transaction (2), test processing control that invoice and credit note data are completely and accurately processed in the proper period (1), review contract pricing (1), review sales totals for each week in December (1), compare credit notes issued in the current year with the prior year (1), and inquire as to any adverse sales committments or decline in customer relations (1). Some subjects included additional audit procedures that did not relate to revenue testing. Examples of these audit procedures related to accounts receivable ageings and circularization, adequacy of the warranty liability, search for unrecorded liabilities, identify personnel on the plant's payroll, and testing fixed asset additions. Since these audit procedures do not relate to the focus of this study, they were not included in the analysis.

[48] Less than three subjects omitted some audit procedures. Two subjects omitted tests of processing controls and computerized processing functions (#5). The following audit procedures were omitted by only one subject: analytical review of revenues and related accounts (#6), cutoff tests for shipment documents and invoices (#12), reasonableness tests of allowance for anticipated credits (#16), and conclusion (#19).

2. ANOVA Results for Inherent Risk Assessments for Material Misstatements and Inherent Risk Assessments for Material Errors and Irregularities

Table 33 presents the ANOVA results for each assertion that examined the relationship between inherent risk assessments for material misstatements and inherent risk assessments for material errors and irregularities. Since a material misstatement includes both material errors and material irregularities, the dependent variable in each ANOVA model is the inherent risk assessment of a material misstatement for the appropriate assertion. The independent variables are the inherent risk assessment for a material error, the inherent risk assessment for a material irregularity, and their interaction for each assertion.

As the results in Table 33 indicate, the overall ANOVA model is significant for each assertion. The interaction between the inherent risk assessment for a material error and the inherent risk assessment for a material irregularity was significant for three assertions: recorded, accumulated, and presentation and disclosure. A significant interaction indicates that the combination of the two independent variables significantly impacts the inherent risk assessment for a material misstatement for these three assertions.

For the performance occurred assertion, the proper amount assertion, and the proper period assertion, only the main effect for the inherent risk assessment for a material error was significant. For the authorized assertion, both main effects were significant.

The results in Table 33 indicate that the variables that drive the inherent risk assessment for a material misstatement are different for different assertions. For some assertions, inherent risk assessments for a material error drive the inherent risk assessment for a material misstatement. For other assertions, the inherent risk assessments for both a material error and a material irregularity or the interaction between these two inherent risk assessments drive the inherent risk assessment for a material misstatement for the assertion.

3. Ranking Inherent Risk Assessments by Assertion

This section investigates whether certain assertions tend to have predominantly higher or lower inherent risk assessments associated with them. Table 34 presents the results for this analysis. In order to perform this analysis, within each treatment group the average inherent risk assessment for each assertion was ranked 1 to 7, where 1 was the assertion with the lowest risk assessment and 7 was the assertion with the highest risk assessment. This procedure was performed separately for inherent risk assessments for material misstatements, errors, and irregularities. After each of the twelve treatment group's assertions were ranked, the 12 ranks for each of the 7 assertions were added together to get the sum of the ranks identified in Table 34.

Kendall's coefficient of concordance was used to examine the degree of consensus among the rankings of the inherent risk assessments for the assertions. (Kendall's coefficient of concordance was discussed in detail earlier in this chapter.) For the inherent risk assessments for material misstatements the *W* statistic is .46097 and the observed χ^2 is 33.19. The critical χ^2 value for 7-1 degrees of freedom for α equal to .01 is 16.81. Comparing the observed χ^2 of 33.19 with the critical χ^2 value of 16.81 indicates rejection of the null hypothesis of no consensus. Therefore, certain assertions tend to contain predominantly large ranks and others tend to contain predominantly small ranks for inherent risk assessments for material misstatements. As indicated in Table 34 by the double asterisks, the proper period assertion and the performance occurred assertion have the highest rank sums. The single asterisk indicates that the authorized assertion and the presentation and disclosure assertion have the lowest rank sums.

For the inherent risk assessments for material errors the *W* statistic is .33900 and the observed χ^2 is 24.41. The critical χ^2 value for 7-1 degrees of freedom for α equal to .01 is

16.81. Comparing the observed χ^2 of 24.41 with the critical χ^2 value of 16.81 indicates rejection of the null hypothesis of no consensus. Therefore, certain assertions tend to contain predominantly large ranks and others tend to contain predominantly small ranks for inherent risk assessments for material errors. As indicated in Table 34 by the double asterisks, the proper period assertion and the performance occurred assertion have the highest rank sums. The single asterisk indicates that the authorized assertion and the presentation and disclosure assertion have the lowest rank sums.

For the inherent risk assessments for material irregularities the *W* statistic is .34977 and the observed χ^2 is 25.18. The critical χ^2 value for 7-1 degrees of freedom for α equal to .01 is 16.81. Comparing the observed χ^2 of 25.18 with the critical χ^2 value of 16.81 indicates rejection of the null hypothesis of no consensus. Therefore, certain assertions tend to contain predominantly large ranks and others tend to contain predominantly small ranks for inherent risk assessments for material irregularities. As indicated in Table 34 by the double asterisks, the proper period assertion and the performance occurred assertion have the highest rank sums. The single asterisk indicates that the authorized assertion and the accumulated assertion have the lowest rank sums.

As these results indicate, the proper period assertion and the performance occurred assertion had the highest ranks for inherent risk assessments for material misstatements, errors, and irregularities. This result could be related to the fact that one of the treatments in the case materials presented a situation where revenues were not recorded in the proper period. The authorization assertion had the lowest rank for inherent risk assessments for material misstatements, errors, and irregularities.

E. Summary

This chapter presented the results of the study. First, several introductory issues and analyses were examined before the main analyses of the study were investigated. The introductory issues and analyses related to coding the data, realism of the case materials, manipulation checks, tests for nonresponse bias, perceived ability of the current CFO based on the CFO's previous work experience, and comparison of the extent of the current year's planned audit procedures with the actual audit procedures performed in the prior year.

Table 11 presents issues that were resolved concerning coding the data. These coding issues were resolved in a logical manner in order to reflect the information provided by the subjects. Table 12 presents the degree of realism of the case materials as perceived by the subjects. These results indicate that an appropriate level of realism was achieved in the case materials. Analysis of the manipulation check questions indicated that the majority (96%) of the questions were answered correctly. Because this study was conducted using a mailed questionnaire, the issue of nonresponse bias was also examined. The overall response rate was 79%, which is well above the commonly reported response rates of 25%-30%. Initial analyses were conducted concerning the relationship between the perceived ability levels of CFO's with previous work experience as a senior manager with a Big 6 firm and the perceived ability levels of CFO's with previous work experience as a controller with a company similar to the client's. These results indicated that the subjects perceived CFO's with previous work experience with a Big 6 firm as having a higher ability level than CFO's with previous work experience as a controller. Lastly, the introductory analyses included a comparison of the extent of the current year's planned audit procedures with the extent of the prior year's audit procedures. This analysis found that 84% of the responses concerning the extent of the current

year's planned audit procedures were significantly different from the extent of the prior year's audit procedures. These results indicate that the subjects did not anchor on the extent of the prior year's audit procedures when making their decisions for the extent of the current year's planned audit procedures.

Second, this chapter presented the results of rankings for selected treatment group's inherent risk assessments and analyzed factors that impact auditors' inherent risk assessments. The hypothesized rankings of the inherent risk assessments included in hypotheses 1 and 2 based on attribution theory were not supported. The results for hypothesis 1 are presented in Tables 16 and 17. Tables 18, 19, and 20 present the results for hypothesis 2. Additional analyses using Kendall's coefficient of concordance found that subjects tended to assess inherent risk higher for treatment groups where there had been no CFO turnover, the CFO had Big 6 experience, and either a material error or material irregularity occurred in the prior year. Lower inherent risk assessments were associated with treatment groups where there had been recent CFO turnover, the CFO had Big 6 experience, and either a material error or material irregularity occurred in the prior year.

The impact of the treatments on inherent risk assessments for a material misstatement was examined using MANOVA and ANOVA. The MANOVA results are presented in Table 22, and the ANOVA results are presented in Tables 23, 24, and 25. The interaction between the recency of turnover in the CFO's position and the type of misstatement in the prior year was significant in the MANOVA model. Table 26 presents detailed analysis of this interaction variable for the ANOVA models in which it was significant. Based on the results of the MANOVA and ANOVA analyses, the significant interaction between recency of turnover in the CFO's position and the type of misstatement in the prior year hypothesized in hypothesis 3

is supported. This interaction variable had the most impact on the subjects' inherent risk assessments for a material misstatement.

Third, this chapter analyzed the impact of inherent risk assessments of a material misstatement on the extent of planned audit procedures and staff scheduling decisions. Surprisingly, hypotheses 5, 6, 7, and 8 that related to this testing were not supported. Table 29 presents the MANOVA results that indicated that most (63%) of the audit procedures did not have any significant inherent risk assessments associated with them. These results were unexpected considering the strong link in the auditing standards between risk assessments and the extent of planned audit procedures.

Additional investigations were conducted to examine the relationship between auditors' years of auditing experience and inherent risk assessments (hypothesis 4) and auditors' years of auditing experience and the extent of audit procedures and staff scheduling decisions (hypothesis 9). Table 27 indicates that the inverse relationship between auditors' years of auditing experience and inherent risk assessments hypothesized in hypothesis 4 was not significant. However, Table 30 supports hypothesis 9 which stated that more experienced auditors would make different decisions than less experienced auditors concerning the extent of the audit procedures and staff scheduling decisions.

Finally, this chapter presented the results of analyses that were not hypothesized in the study. The audit procedures added and omitted by the subjects were examined. The most common audit procedure added by the subjects was to perform substantive tests of the deferred revenue account by agreeing transactions to supporting documentation (See Table 31). The most frequently omitted audit procedure was the matching of revenue entries to cost of goods sold entries (See Table 32). This last section also included an investigation of the relationship between inherent risk assessments of a material misstatement and inherent risk assessments of

material errors and irregularities for each assertion using ANOVA. The results presented in Table 33 indicate that for each assertion the overall ANOVA model is significant. This indicates that the inherent risk assessments for a material error, a material irregularity, and/or their interaction significantly impact the inherent risk assessment for a material misstatement. Lastly, the rankings of the inherent risk assessments for a material misstatement, a material error, and a material irregularity were examined separately for each assertion to see if certain assertions tend to have predominantly higher or lower risk assessments associated with them. Table 34 presents these results. The proper period assertion and the performance occurred assertion had the highest inherent risk assessments for material misstatements, material errors, and material irregularities. The authorization assertion had the lowest inherent risk assessments for material misstatements, material errors, and material irregularities.

The next chapter, Chapter 5, presents conclusions and recommendations of the study.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter is divided into two sections. The first section presents conclusions of the research. The second section presents recommendations for future research.

A. Conclusions of the Research

This section presents conclusions of the research related to the following areas: (1) inherent risk assessments and (2) extent of planned audit procedures and staff scheduling decisions.

1. Objective 1: Inherent Risk Assessments

The significant interaction between the recency of turnover in the CFO's position and type of misstatement in the prior year indicated that the subjects did consider the degree of control the current CFO had over the prior year's misstatements when the subjects assessed inherent risk. Practitioners may find these results not only interesting but also helpful since they frequently assess inherent risk. Also, regulatory bodies in the accounting profession such as the AICPA may also be interested in these results in order to incorporate them in a more specific manner in the professional guidelines.

A surprising result in this study was that the subjects tended to assess inherent risk higher when the CFO had previous work experience with a Big 6 accounting firm than as a controller. This result was unexpected because in a general question included in the questionnaire packet the subjects evaluated CFO's with previous work experience with a Big 6

accounting firm as having higher ability levels than CFO's with previous work experience as a controller. Additionally, in accordance with attribution theory and auditing standards, auditors would be expected to assess inherent risk lower when the CFO is perceived to have high ability and higher when the CFO is perceived to have low ability. These results may stem from (1) inadequate operationalization of the theoretical concept of the ability construct or (2) the existence of omitted variables. For example, the subjects might have associated more aggressive accounting and reporting techniques with previous Big 6 auditors than previous controllers. This could explain why the subjects tended to assess inherent risk higher when the CFO had previous work experience with a Big 6 accounting firm. However, none of the subjects participating in the pre-test or the study indicated that additional information concerning the aggressiveness of the CFO would have been helpful. These results indicate that practitioners should be aware of the factors they are considering when they make audit planning decisions and ensure that they are following the guidance provided in the auditing standards.

The lack of significant relationships between auditors' years of auditing experience and their inherent risk assessments indicates that less experienced auditors and more experienced auditors tended to assess inherent risk similarly.

2. Objective 2: Extent of Planned Audit Procedures and Staff Scheduling Decisions

The lack of strong, positive relationships between the auditors' inherent risk assessments and the extent of planned audit procedures and staff scheduling decisions led to the conclusion that the auditors were not considering the risk assessments as indicated in auditing standards. This unexpected finding may indicate areas where regulatory bodies such as the AICPA need to clarify the general guidance provided in the auditing standards. It may

also indicate areas where practitioners need further education on the application of the general guidance provided in the auditing standards. If the results of this research indicate that auditors are interpreting and implementing the general guidance in the auditing standards as the profession intended, support exists for auditing standards to continue to provide only general guidance in these areas. However, if auditors are not interpreting and implementing the standards as the profession intended, support exists for more refined auditing standards and/or education for auditors concerning the standards' intent.

The presence of significant correlations between the auditors' years of auditing experience and the extent of audit procedures and staff scheduling decisions is consistent with prior research that indicated that more experienced auditors make different decisions than less experienced auditors. These results may indicate areas where training for the less experienced auditors can be effective. According to auditing standards, the two factors auditors should consider when determining the extent of audit procedures and staff scheduling decisions are inherent risk and control risk. As discussed in the previous paragraph, the inherent risk assessments were not significant when the auditors determined the extent of the planned audit procedures and scheduled staff. Although control risk was controlled in the study, perhaps the auditors were placing varying degrees of reliance on the internal control structure. If the less experienced auditors relied too much on the internal control structure when planning the extent of the planned audit procedures and scheduling staff, this would result in an ineffective audit due to underauditing. However, if the less experienced auditors did not rely enough on the internal control structure when planning the extent of the planned audit procedures and scheduling staff, this would result in an inefficient audit due to overauditing. As a part of the training process, managers and partners who review the audit plan should discuss with the less experienced auditors the reasons for the changes that they make in the extent of testing.

B. Recommendations for Future Research

This research identified how auditors exercise professional judgment when they implement the general guidance provided in auditing standards. As just discussed, the conclusions of this research can prove useful for practitioners, academicians, and regulatory bodies in the accounting profession. However, there are areas that should be considered in future research projects.

Future research should be designed to include more subjects than the current research. This would increase the power of the statistical analyses to be able to detect significant relationships that may not have been identified in the current research. Future research projects in this area should investigate different ways to operationalize the theoretical concepts in attribution theory. Additionally, the impact on auditors' inherent risk assessments of other factors identified in SAS #53 [AICPA, 1988, AU 316] should be included in future research projects. Investigation of factors that impact inherent risk assessments for different audit components should also be considered in the future.

More research is needed to complement this initial investigation of the application of the general guidance provided in the auditing standards concerning the relationship between inherent risk assessments and the extent of planned audit procedures and staff scheduling decisions. Triangulation, where several research projects investigate the a research question from different methodological viewpoints, is needed in this area. The cumulative results of these research projects would provide more evidence concerning how auditors apply the general guidance provided in the auditing standards in practice. This could prompt regulatory bodies such as the AICPA and accounting firms to educate auditors further concerning these guidelines.

Future research should continue to examine the relationship between the inherent risk assessment for a material misstatement and the inherent risk assessments for a material error and material irregularity. These investigations should be considered under various combinations of client situations and for various audit components. Future research should also investigate the order of inherent risk assessments for assertions in order to determine if certain assertions tend to be associated with predominantly higher or lower risk assessments across various circumstances and audit components.

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APPENDICES

APPENDIX A

FIGURE 1[1]

Factors to consider when assessing audit risk at the financial statement level [AICPA, 1988, AU 316.10]:
Management operating and financing decisions are dominated by a single person
Management's attitude toward financial reporting is unduly aggressive
Management (particularly senior accounting personnel) turnover is high[2]
Management places undue emphasis on meeting earnings projections
Management's reputation in the business community is poor
Profitability of entity relative to its industry is inadequate or inconsistent
Sensitivity of operating results to economic factors is high
Rate of change in entity's industry is rapid
Direction of change in entity's industry is declining with many business failures
Organization is decentralized without adequate monitoring
Internal or external matters that raise substantial doubt about the entity's ability to continue as a going concern
Many contentious or difficult accounting issues are present
Significant difficult-to-audit transactions or balances are present
Significant and unusual related party transactions not in the ordinary course of business are present
Nature, cause (if known), or the amount of known and likely misstatements detected in the audit of prior period's financial statements is significant
New client with no prior audit history or sufficient information is not available from the predecessor auditor

Issues that can affect auditors' assessments of the risk factors identified in AU 316.10 [AICPA, 1988, AU 316.12]:
Frequent disputes about aggressive application of accounting principles that increase earnings
Evasive responses to audit inquiries
Excessive emphasis on meeting targets related to management compensation
Management has failed to establish policies/procedures that provide reasonable assurance of reliable estimates
Personnel developing estimates and/or their supervisors appear to lack necessary knowledge and experience[3]
Conditions indicate lack of control of activities
Indications of a lack of control over computer processing and security of data and assets

Factors to consider when assessing inherent risk at the balance or class level [AICPA, 1988, AU 316.15]:
Effect of factors identified at the financial statement or engagement level on the particular account balance or transaction class[4]
Complexity and contentiousness of accounting issues affecting balance or class
Frequency or significance of difficult-to-audit transactions affecting balance or class
Nature, cause, and amount of known and likely misstatements detected in the balance/class in the prior audit[5]
Susceptibility of related assets to misappropriation
Competence and experience of personnel assigned to processing data that effect the balance or class
Extent of judgment involved in determining the total balance or class
Size and volume of individual items constituting the balance or class
Complexity of calculations affecting the balance or class

SAS No. 53 FACTORS AUDITORS SHOULD CONSIDER WHEN ASSESSING RISK

[1] Factors included in this study are bolded.

[2] This study investigates the effect of turnover recency of senior accounting personnel on auditors' inherent risk assessments. Since a high turnover rate indicates recent turnover, it is reasonable to expect auditors to consider the recency as well as the frequency of turnover of senior accounting personnel.

[3] This study investigates the effect of auditors' perceptions of the knowledge and experience of senior accounting personnel on the auditors' inherent risk assessments. Senior accounting personnel supervise and are responsible for generation of accounting information and estimates.

[4] This factor indicates that when auditors assess the risk of material misstatements related to particular assertions at the balance or class level, they should consider risk factors identified at the financial statement level.

[5] This factor corresponds to the existence of a material error, a material irregularity, or no material misstatement in the prior period's financial statements.

FIGURE 2[1]

Audit Procedure	MANOVA Model
1	Staff Level, Staff Hours, Senior Hours = PD
2	Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + AC + PP
3	Staff Level, Staff Hours, Senior Hours = R + PP
4	Staff Level, Staff Hours, Senior Hours = R + PP
5	Staff Level, Staff Hours, Senior Hours = PO + A + PA + R
6	Dollars, Percentage, Staff Level, Staff Hours, Senior Hours = PO + PA + R + AC + PP
7	Staff Level, Staff Hours, Senior Hours = PO + R + AC + PP
8	Staff Level, Staff Hours, Senior Hours = PO + PA + R + AC + PP
9	Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + AC + PP
10	Sample Size, Dollars, Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + PP
11	Sample Size, Staff Level, Staff Hours, Senior Hours = PO + PA + R + PP
12	Sample Size, Days, Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + PP
13	Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + AC + PP
14	Sample Size, Dollars, Staff Level, Staff Hours, Senior Hours = PO + PA + R + PP
15	Sample Size, Days, Staff Level, Staff Hours, Senior Hours = PO + A + PA + R + PP
16	Staff Level, Staff Hours, Senior Hours = PO + PA + R + PP
17	Staff Level, Staff Hours, Senior Hours = R + PP
18	Staff Level, Staff Hours, Senior Hours = PD
19	Staff Level, Staff Hours, Senior Hours = PD

MANOVA MODEL FOR EACH AUDIT PROCEDURE

[1] The independent variables for each audit procedure are the inherent risk assessments for a material misstatement for the assertions related to the audit procedure. The following abbreviations are used for the assertions: PO - Performance Occurred Assertion, A - Authorized Assertion, PA -Proper Amount Assertion, R - Recorded Assertion, AC - Accumulated Assertion, PP - Proper Period Assertion, and PD - Presentation and Disclosure Assertion. The assertions are defined in Table 2. Two-way interactions were also included in the MANOVA models.

TABLE 1
STUDIES INVESTIGATING INHERENT RISK ASSESSMENTS

Study	N[1]	Dependent Variables (DVs)	Independent Variables (IVs)	s/ns[2]	Other Findings
Wong-on-Wing and Reckers [1992]	76 CPAs	Extent of mgmt's deviation from auditor's expectation in determining rate for estimated uncollectible accounts Previous DV was correlated with: Inherent risk assessments for: (1) allowance for uncollectible accounts and (2) allowance for obsolete inventory	(1) Mgmt's actions or non-actions caused deviation from auditor's expectation concerning the rate for estimated bad debts (2) Timing of auditor's assessments of extent of mgmt's deviation from expectation (before or after assessing inherent risk)	s ns	Auditors assessed the extent of mgmt's deviation from expectation higher when the deviation resulted from mgmt's actions than mgmt's non-actions. Significant positive correlations existed between the extent of the auditors' assessed deviation in determining the rate for bad debts and auditors' inherent risk assessments for (1) allowance for uncollectible accounts and (2) allowance for obsolete inventory.
Reckers, Wong-on-Wing, and Krull [1992]	75 CPAs	Net motive defined as motivation of the company's president to accurately report profits minus motivation of the president to overstate profits Previous DV correlated with: Inherent risk assessment of fraudulent financial reporting in the company	(1) Deviation of mgmt's and company's characteristics from auditor's expectation (2) Presence/Absence of motive for president to overstate reported earnings	s s	Main effects must be interpreted carefully due to a significant interaction. Significant correlation existed between net motive and inherent risk assessment of fraudulent financial reporting. The more suspect the motive, the higher the risk assessment.

--Table 1 continued on next page

TABLE 1
(CONTINUED)

Study	N[1]	Dependent Variables (DVs)	Independent Variables (IVs)	s/ns[2]	Other Findings
Colbert [1988]	65 CPAs	Inherent risk assessment for inventory on a nine point scale	(1) Recency of controller turnover	s	No first order interactions were significant.
			(2) Financing pressure	s	
			(3) Amt. & complexity of inventory overhead calculation	s	
		Allocation of 100 points among the 4 IVs based on their relative importance	(4) Quality of personnel responsible for inventory valuation	s	Of the 4 IVs, IV 4 was the most influential in the auditors' inherent risk assessments.
Kaplan and Reckers [1984]	60 CPAs	Preliminary likelihood estimate that a material error has occurred in the accts. receivable subsystem	(1) Mgmt. integrity	ns	IV 2 was only significant for senior auditors.
			(2) Inventory internal controls	s	
			(3) Subject's rank	ns	
			(4) General practice priors (covariate)[3]	s	
			ALL subjects were given typical internal control and supplemental information		
		Revised likelihood estimate that a material error has occurred in the accts. receivable subsystem	(1) Mgmt. integrity	ns	GPP influenced both the preliminary and the revised likelihood estimates.
			(2) Inventory internal controls	ns	
			(3) Subject's rank	ns	
			(4) GPP (covariate)	s	
Kaplan and Reckers [1986]	103 CPAs	Preliminary likelihood estimate that a material error has occurred in the accts. receivable subsystem	(1) Orientation information[4]	s	Mean risk assessments for orientation treatments A, B, and C were significantly higher than for treatment D.
			(2) GPP (covariate)	s	
			ALL subjects were given neutral internal control information		
		Revised likelihood estimate that a material error has occurred in the accts. receivable subsystem	(1) Orientation information (same as above)	s	Mean risk assessments for orientation treatments A, B, and C (D) decreased (increased).
			(2) GPP (covariate)	ns	

--Table 1 continued on next page

TABLE 1
(CONTINUED)

Study	N[1]	Dependent Variables (DVs)	Independent Variables (IVs)	s/ns[2]	Other Findings
Kaplan and Reckers [1989]	71 CPAs	Initial likelihood estimates that a material error and/or irregularity caused the variation in financial statement ratios	(1) Similarity of ratios with industry average (2) Mgmt. integrity (3) Subject's years of auditing experience (covariate)	s s s	Significantly higher risk assessments when company's ratios were not in line with the industry average and when mgmt. integrity was low. Auditors with less work experience tended to make higher risk assessments.
		Auditor information seeking judgments	(1) Auditor's initial likelihood estimate (DV in first part of study) (2) Subject's years of auditing experience (3) Interaction of IVs 1 and 2	s/s ns/s ns/s	Two separate analyses were conducted: In one analysis all three IVs were significant which suggests that information search patterns differ based on experience. In the other analysis only IV 1 was significant.

[1] Number of subjects.

[2] Significance (s) or non-significance (ns) of the independent variables.

[3] General practice priors (GPP) refers to an auditor's initial beliefs pertaining to a class of accounts or a type of client that reflect the auditor's prior knowledge. This variable was used as a covariate.

[4] Orientation information is a between subjects variable. There are four levels:

(A) Low management integrity,
(B) Weak inventory internal controls,
(C) Rapid client growth, and
(D) Strong internal audit department.

Each subject received only *one* of the four orientation treatments. Treatments A, B, and C were unfavorable orientation information. Treatment D was favorable orientation information.

TABLE 2
PARTICIPATING FIRM'S REVENUE ASSERTIONS

Participating Firm's Assertions	Summary Definition
Performance Occurred	Revenues represent amounts derived from the sale of goods (shipment of goods and/or passage of title) and are reduced by actual and anticipated returns and allowances. Returns and allowances are bona fide.
Authorized	Terms of the sale of goods and returns and allowances are appropriately authorized.
Proper Amount	Revenues, discounts and returns and allowances are correctly calculated at their appropriate transaction amount in accordance with the nature and terms of the transaction and applicable accounting principles.
Recorded	All revenue transactions are appropriately and completely recorded in the underlying financial records.
Accumulated	Revenue transactions are properly accumulated in the underlying financial records.
Proper Period	Revenue transactions are recorded in (or allocated to) the proper period. A proper cut-off has been established.
Presentation and Disclosure	Revenues have been correctly summarized, classified and described. All matters necessary to a proper understanding of revenues have been disclosed.

TABLE 3
WEINER'S CLASSIFICATION SCHEME

CAUSAL ATTRIBUTIONS	CLASSIFICATION DIMENSIONS[1]		
	INTERNALITY	STABILITY	CONTROLLABILITY
Ability (Aptitude)	Internal	Stable	Uncontrollable
Effort	Internal	Unstable	Controllable
Task Difficulty	External	Stable	Uncontrollable
Luck	External	Unstable	Uncontrollable

[1] The intentionality dimension is not included in this classification scheme because it refers to an individual's underlying motivation for an action and not to the cause of an event.

TABLE 4
STUDIES USING ATTRIBUTION THEORY IN AN ACCOUNTING SETTING

Study	Attribution Area	Accounting Area	Subjects' Reactions Examined?	Findings
Hite [1987]	Actor-Observer	Tax	Yes	Supports actor-observer bias; Supports association between causal attributions and subsequent actions
Thurman [1988]	Actor-Observer	Tax	No	Supports actor-observer bias
Arrington, Bailey, and Hopwood [1985]	Actor-Observer	Audit	No	Supports actor-observer bias
Shields, Birnberg, and Frieze [1987]	Actor-Observer	Managerial Performance Evaluation	No	Supports actor-observer bias
Kaplan and Reckers [1985]	Internal-External	Audit	Yes	Supports internal-external causal dimension; Supports association between causal attributions and subsequent actions
Kaplan and Reckers [1991]	Internal-External	Audit	Yes	Mixed support for internal-external causal dimension; Mixed support for association between causal attributions and subsequent actions
Harrison, West, and Reneau [1988]	Internal-External; Actor-Observer	Managerial Performance Evaluation	Yes	Supports internal-external causal dimension; Supports actor-observer bias; Supports association between causal attributions and subsequent actions

TABLE 5
RELATIONSHIP OF AUDIT PROCEDURES TO ASSERTIONS

	Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Assertions[1]						
		PO	A	PA	R	AC	PP	PD
	General							
1.	Agree balances per lead schedules to g/l and to prior year's working papers.							*
	Management and Independent Controls							
	Obtain evidence to confirm that the management and independent controls outlined in steps 2-4 are operating effectively:							
2.	Management's review of interim financial statements, with comparisons to budgeted amounts or other financial data, for reasonableness of:							
	-revenues	*		*	*	*	*	
	-gross margins	*		*	*	*	*	
	-returns, discounts or allowances	*	*	*	*	*	*	
	-revenues and credit trends by product or location	*	*	*	*	*	*	
	-sales related expenses	*		*	*	*	*	
3.	Revenue entries in g/l are matched with cost of goods sold entries in g/l. Differences are investigated in a timely manner.				*		*	
4.	Prenumbered shipment documents, sales invoices and credit note documents are used and missing documents are investigated on a timely basis.				*		*	
	Processing Controls and Computerized Processing Functions							
5.	Update and document your understanding of the control and accounting systems relating to revenues through review of client documentation, discussions with client personnel, and other procedures such as:							
	Access to order entry and pricing processing functions and related data records is restricted by using:							
	-user ID and password codes or		*	*	*			
	-terminal access controls		*	*	*			
	Orders are approved as to terms, prices and credit by an appropriate official.		*	*				
	--Step 5 continued on next page							

[1] The following abbreviations are used for assertions: PO - Performance Occurred, A - Authorized, PA - Proper Amount, R - Recorded, AC - Accumulated, PP - Proper Period, and PD - Presentation and Disclosure. The assertions are defined in Table 2.
An "*" in the assertion column signifies that the audit procedure supports the assertion.

TABLE 5
(CONTINUED)

	Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Assertions						
		PO	A	PA	R	AC	PP	PD
	--Step 5 continued from previous page							
	All approved order entry and pricing data is entered for processing accurately, completely and only once by using edit and validation controls.				*			
	Data on all, and only, shipments of goods which have occurred is entered for processing accurately, completely and only once by using edit and validation controls.	*			*			
	Goods shipped are invoiced at authorized terms and prices.		*	*				
	All invoice and credit note data is entered for processing accurately, completely and only once by using edit and validation controls.				*			
	Invoices are prepared accurately as to customer, quantities, prices and extensions.			*				
	Invoice and credit note data is matched with orders and shipped data, and with receiving data for goods returned. Differences are investigated in a timely manner.	*		*				
	Invoice adjustments and credit notes are approved by an appropriate official.	*	*					
	Analytical Procedures							
6.	Explain movements and investigate any unexpected or unusual relationships for fluctuations of $_____ or _____% (prior year: $40,000 or 10%) between current year, prior year and budgeted amounts for the following:							
	-revenues by product or location	*		*	*	*	*	
	-gross margins by product or location	*		*	*	*	*	
	-revenues for the month prior to and subsequent to period end	*		*	*	*	*	
	-returns, discounts or allowances (in total and as a percentage of revenues)	*		*	*	*	*	
	-returns, discounts or allowances for the month prior to and subsequent to period end (in total and as a percentage of revenues)	*		*	*	*	*	
7.	Review entries in revenues, returns, discounts and allowances g/l accounts for large or unusual items.	*			*	*	*	
8.	Consider overall reasonableness of revenues by multiplying units sold by an average selling price, by product.	*		*	*	*	*	

TABLE 5
(CONTINUED)

	Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Assertions						
		PO	A	PA	R	AC	PP	PD
	Detailed Tests of Transactions and Balances							
9.	Obtain invoice transaction listing and -trace monthly totals to g/l (revenues and receivables control accounts) -test mathematical accuracy -investigate large or unusual items	*	*	*	* *	*	*	
10.	For ____ (prior year: 25) invoices in excess of $_____ (prior year: $50,000): -trace to invoice transaction listing -agree details to shipment documents and performance data -agree sales prices to authorized price list -test mathematical accuracy -trace to customer receivable account -trace to ageing of receivables balances	*	*	* * * *	* *		* *	
11.	For ____ (prior year: 25) shipment documents and performance data: -agree details to related invoices -trace invoices to transaction listing	*		*	*		*	
12.	Select ____ (prior year: 20) shipment documents, performance data and invoices issued ____ (prior year: 10) days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period. (Coordinate with inventories and production cost testing; budget in revenue testing.)	*	*	*	*		*	
13.	Obtain credit note transaction listing and: -trace selected totals (e.g., weekly, monthly) to g/l -test mathematical accuracy -investigate large or unusual items	*	*	*	* *	*	*	
14.	Select ____ (prior year: 25) credit notes in excess of $_____ (prior year: $25,000) issued during the period and: -trace to credit note transaction listing -agree details to supporting documentation (including receiving reports for returned goods) -test mathematical accuracy -trace to customer receivable account	*		* *	* *		* *	
15.	Select ____ (prior year: 20) credit notes issued within ____ (prior year: 10) days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period.	*	*	*	*		*	

TABLE 5
(CONTINUED)

Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures		Assertions						
		PO	A	PA	R	AC	PP	PD
16.	Determine reasonableness of allowance for anticipated credits.	*		*	*		*	
17.	Review and investigate significant suspense accounts.				*		*	
	Finalize Revenue Testing							
18.	Review for proper financial statement disclosure and presentation.							*
19.	Conclude.							*

TABLE 6
HYPOTHESIZED RANKING OF INHERENT RISK ASSESSMENTS BASED ON ATTRIBUTION THEORY

	TYPE OF MISSTATEMENT	RECENCY OF CFO TURNOVER	ABILITY OF CURRENT CFO[1]	EXPECTED RANKINGS WITHIN TREATMENTS[2]	EXPECTED RANKINGS OVERALL[3]
1.	None	Non-recent	High	Lower Risk	Lowest Risk
2.	None	Recent	Low	Higher Risk	
3.	Error	Recent	High	Lower Risk	
4.	Error	Non-recent	Low	Higher Risk	
5.	Irregularity	Recent	High	Lower Risk	
6.	Irregularity	Non-recent	Low	Higher Risk	Highest Risk

[1] As discussed in Chapter 2, the ability of the CFO was operationalized as the CFO's previous work experience. High ability was operationalized as CFO's with previous work experience with the Big 6 firm performing the audit. Low ability was operationalized as CFO's with previous work experience as a controller with a company similar to the client's.

[2] This column corresponds to $H_{1a,b,c}$ discussed in Chapter 3.

[3] This column corresponds to H_2 discussed in Chapter 3.

TABLE 7
EXPERIENCE LEVEL OF SUBJECTS BY OFFICE

Office	N[1]	Experience Level of Subjects			
		Staff[2]	Senior[3]	Manager	Sr. Mgr. & Partners[4]
Atlanta	5		4	1	
Dallas	5		1	1	3
Houston	5		3	1	1
Richmond	5			3	2
St. Louis	10	1	2	6	1
San Antonio	2			1	1
Winston-Salem	4		1	2	1
Nashville	13		7	1	5
Memphis	8	4	3	1	
Total	57	5	21	17	14

[1] Number of subjects from each office.

[2] Staff accountants were not requested for this study because most do not have experience assessing risk, scheduling staff, and preparing time budgets. Five staff accountants returned completed questionnaires. Their responses were retained because it was assumed that the office contact persons in charge of selecting the participants considered these staff accountants to have the experience necessary for this study. For example, one staff accountant had a graduate degree and two years of experience and another staff accountant was a CPA.

[3] This includes one subject who indicated a job title of "Incharge Auditor." Classification of this subject as a senior is reasonable since this subject had 3.5 years of experience, a graduate degree, and was a CPA.

[4] The senior manager and partner experience levels were combined in order to protect the identity of individuals participating in the study. Ten senior managers and four partners participated in the study.

TABLE 8
MEAN AGE, GENDER, AND DEGREE OF SUBJECTS BY EXPERIENCE LEVEL

Experience Level	Mean Age[1]	Gender		Degree	
		Male	Female	Bachelors	Masters
Partner	39.0 (6.16)	4	0	3	1
Sr. Manager	31.8 (1.14)	7	3	7	3
Manager	28.2 (1.42)	12	5	16	1
Senior	26.0 (1.40)	12	9	17	4
Staff	23.2 (1.10)	4	1	4	1
Entire Sample	28.4 (4.27)	39	18	47	10

[1] Standard deviation in parenthesis.

TABLE 9
MEAN YEARS OF AUDIT EXPERIENCE AND CPA CERTIFICATION OF SUBJECTS BY EXPERIENCE LEVEL

Experience Level	Mean Yrs. of Audit Exp.[1]	CPA Certification	
		Yes	No
Partner	15.8 (7.14)	4	0
Sr. Manager	9.9 (1.29)	10	0
Manager	6.4 (1.17)	17	0
Senior	4.0 (0.81)	19	2
Staff	1.2 (0.45)	1	4
Entire Sample	6.4 (4.07)	51	6

[1] Standard deviation in parenthesis.

TABLE 10
TIME TO COMPLETE THE STUDY BY EXPERIENCE LEVEL
(in minutes)

Experience Level	Mean Time[1]	High Time	Low Time
Partner	42.5 (27.84)	80	15
Sr. Manager	45.0 (15.99)	60	15
Manager	49.4 (27.09)	120	20
Senior	44.5 (12.97)	75	30
Staff	40.0 (7.07)	45	30
Entire Sample	45.6 (19.32)	120	15

[1] Standard deviation in parenthesis.

TABLE 11
CODING SUBJECTS' RESPONSES

Audit Procedures[1]	Requested Response	Subjects' Responses	Coded By Researcher As	# of Responses[2]
10, 11, 12, 14, 15	Sample size (a specific number)	All	Maximum sample size for the audit procedure in question	16
6, 10, 14	Scope (in dollars)	Judgmentally; Randomly	$0 (subjects did not specify a dollar amount)	7
12, 15	Scope (in days)	Thru opinion date; To the end of fieldwork	75 days (this is approximately $2^1/_2$ months from year end to opinion date or end of fieldwork)	6
18, 19	Staff level of person performing the audit procedure	Two staff levels assigned (usually levels 1 & 2)	Higher staff level assigned	2
6, 10, 11, 12, 14, 15	Sample size and/or scope in dollars or days	No response indicated for current year sample size or scope, but subject selected staff levels to perform the work and budgeted hours for the staff person and the senior to within + or - 2 hours of the prior year's hours	Prior year sample size and scopes (assumed subject did not want to change the extent of prior year's testing since current year's budget was close to the prior year's hours)	20
Any audit procedure	Any requested response	Unclear; Could not be reasonably determined (e.g., subject provided only staff level to perform the audit procedure)	Omitted audit procedure	4

[1] The audit procedures in this column are listed in Table 5 or the questionnaire packet in Appendix B.

[2] This column identifies the number of individual responses that were coded by the researcher using the format listed above. Since the subjects made a total of 3,876 responses in the audit program questionnaire, these modifications represent only a small percentage (1.3%) of the total responses made.

TABLE 12
REALISM OF THE CASE MATERIALS

Experience Level	Realism Rating[1]
Partner	2.75 (1.26)
Sr. Manager	2.60 (.97)
Manager	2.47 (.72)
Senior	2.67 (.97)
Staff	2.80 (.84)
Entire Sample	2.61 (.88)

[1] Standard deviation in parenthesis. The realism of the case materials was rated on a scale of 1 (very representative of an actual audit engagement) to 5 (very unrepresentative of an actual audit engagement). Therefore, small values indicate ratings that the case materials were realistic.

TABLE 13
CORRELATION COEFFICIENTS (SIGNIFICANCE LEVEL) FOR TESTS FOR NONRESPONSE BIAS

	Time	Age	Years of Audit Experience
A. First Mailing			
Return Date[1]	-0.2568 (0.08)	-0.0986 (0.50)	-0.0770 (0.59)
B. Second Mailing			
Return Date	-0.3603 (0.42)	0.3211 (0.48)	0.3546 (0.43)

[1] Return Date - Return date of questionnaire
Time - Time to complete the study
Age - Subject's age
Years of Audit Experience - Subject's years of audit experience

Number of subjects included in panel A ranged from 48 to 50.
Number of subjects included in panel B was 7.

TABLE 14
AUDIT DECISIONS WITH NO SIGNIFICANT DIFFERENCES BETWEEN THE EXTENT OF CURRENT YEAR'S PLANNED AUDIT PROCEDURES AND PRIOR YEAR'S AUDIT PROCEDURES

Audit Procedure[1]	Audit Decision	Pr > |T|	Sign[2]
1. Agree balances to prior year	Staff Level	0.3216	+
3. Match revenue & COGS	Staff Level	0.3738	-
4. Use prenumbered documents	Staff Level	0.6868	-
6. Analytical review of revenue accts.	Percentage	0.7988	+
9. Investigate large invoices	Staff Level	0.8108	+
10. Trace invoices	Dollars	0.9081	-
10. Trace invoices	Staff Level	0.4717	+
13. Investigate large credits	Staff Level	0.7270	+
14. Test credit notes	Dollars	0.4700	+
15. Cutoff tests for credits	Days	0.1211	+
18. Review disclosure	Staff Level	0.5175	+

[1] The numbers refer to the number of the audit procedure. After each number is a brief description of the audit procedure. Refer to Table 5 or the questionnaire packet in Appendix B for a listing of the numbered audit procedures.

[2] The sign column indicates the sign of the difference between the extent of the current year's planned audit procedures and the prior year's. A plus (+) sign indicates that the extent of the current year's planned audit procedure was greater than the prior year's actual. A minus (-) sign indicates that the extent of the current year's planned audit procedure was less than the prior year's actual.

TABLE 15
AUDIT DECISIONS WITH SIGNIFICANT DIFFERENCES BETWEEN THE EXTENT OF CURRENT YEAR'S PLANNED AUDIT PROCEDURES AND PRIOR YEAR'S AUDIT PROCEDURES

Audit Procedure[1]	Audit Decision	Pr > |T|	Sign[2]	Audit Procedure[1]	Audit Decision	Pr > |T|	Sign[2]
1. Agree balances	Staff Hours	0.0008	-	11. Trace shipments	Staff Hours	0.0001	-
1. Agree balances	Sr. Hours	0.0001	-	11. Trace shipments	Sr. Hours	0.0001	-
2. Interim F/S	Staff Level	0.0008	+	12. Shipment cutoff	Sample Size	0.0001	-
2. Interim F/S	Staff Hours	0.0001	-	12. Shipment cutoff	Days	0.0001	-
2. Interim F/S	Sr. Hours	0.0155	-	12. Shipment cutoff	Staff Level	0.0002	-
3. Revenue & COGS	Staff Hours	0.0033	-	12. Shipment cutoff	Staff Hours	0.0001	-
3. Revenue & COGS	Sr. Hours	0.0567	-	12. Shipment cutoff	Sr. Hours	0.0001	-
4. Pre# documents	Staff Hours	0.0001	-	13. Large credits	Staff Hours	0.0001	-
4. Pre# documents	Sr. Hours	0.0001	-	13. Large credits	Sr. Hours	0.0001	-
5. System controls	Staff Level	0.0001	+	14. Test credit notes	Sample Size	0.0001	-
5. System controls	Staff Hours	0.0001	-	14. Test credit notes	Staff Level	0.0001	-
5. System controls	Sr. Hours	0.0001	-	14. Test credit notes	Staff Hours	0.0001	-
6. Analy. review	Dollars	0.0037	+	14. Test credit notes	Sr. Hours	0.0001	-
6. Analy. review	Staff Level	0.0832	+	15. Credit cutoff	Sample Size	0.0001	-
6. Analy. review	Staff Hours	0.0001	-	15. Credit cutoff	Staff Level	0.0001	-
6. Analy. review	Sr. Hours	0.0001	-	15. Credit cutoff	Staff Hours	0.0001	-
7. Revenue entries	Staff Level	0.0001	+	15. Credit cutoff	Sr. Hours	0.0001	-
7. Revenue entries	Staff Hours	0.0001	-	16. Anticip. credits	Staff Level	0.0897	+
7. Revenue entries	Sr. Hours	0.0001	-	16. Anticip. credits	Staff Hours	0.0011	+
8. Test revenue	Staff Level	0.0223	+	16. Anticip. credits	Sr. Hours	0.0001	-
8. Test revenue	Staff Hours	0.0043	-	17. Suspense accts.	Staff Level	0.0001	+
8. Test revenue	Sr. Hours	0.0001	-	17. Suspense accts.	Staff Hours	0.0001	-
9. Large invoices	Staff Hours	0.0001	-	17. Suspense accts.	Sr. Hours	0.0779	-
9. Large invoices	Sr. Hours	0.0001	-	18. Disclosure	Staff Hours	0.0001	-
10. Trace invoices	Sample Size	0.0001	-	18. Disclosure	Sr. Hours	0.0001	-
10. Trace invoices	Staff Hours	0.0001	-	19. Conclusion	Staff Level	0.0001	+
10. Trace invoices	Sr. Hours	0.0001	-	19. Conclusion	Staff Hours	0.0272	-
11. Trace shipments	Sample Size	0.0001	-	19. Conclusion	Sr. Hours	0.0001	-
11. Trace shipments	Staff Level	0.0486	-				

[1] See footnote 1 on Table 14.

[2] See footnote 2 on Table 14.

TABLE 16
MEAN INHERENT RISK ASSESSMENTS FOR MATERIAL MISSTATEMENTS FOR TREATMENT GROUPS IDENTIFIED IN HYPOTHESES $1_{a,b,c}$

	Treatment Groups[2]					
	Hypothesis 1_a		Hypothesis 1_b		Hypothesis 1_c	
Assertion[1]	1	2	3	4	5	6
Performance Occurred	3.6	4.0	5.0	5.6	4.4	6.2
Authorization	2.2	3.2	1.6	2.2	1.8	2.8
Proper Amount	4.0	5.0	2.6	5.4 **	3.6	4.0
Recorded	3.8	4.6	3.0	3.4	3.2	4.7
Accumulated	2.6	4.8 *	3.6	2.2	2.8	4.0
Proper Period	4.4	5.2	6.2	6.0	4.4	6.0
Presentation & Disclosure	4.2	2.6 ^	2.6	3.0	2.2	3.7

[1] Assertions are defined in Table 2.

[2] The treatment groups are defined as follows:

Hypothesis 1_a: Column 1 is the no CFO turnover, Big 6 experience, no material misstatement treatment group
Column 2 is the recent CFO turnover, controller experience, no material misstatement treatment group

Hypothesis 1_b: Column 3 is the recent CFO turnover, Big 6 experience, material error treatment group
Column 4 is the no CFO turnover, controller experience, material error treatment group

Hypothesis 1_c: Column 5 is the recent CFO turnover, Big 6 experience, material irregularity treatment group
Column 6 is the no CFO turnover, controller experience, material irregularity treatment group

* Significant at $\alpha = .10$ for a one-tailed *t*-test.

** Significant at $\alpha = .05$ for a one-tailed *t*-test.

^ Significant at $\alpha = .05$ for a one-tailed *t*-test, but the difference is not in the hypothesized direction.

TABLE 17
MEAN INHERENT RISK ASSESSMENTS FOR MATERIAL ERRORS AND IRREGULARITIES FOR TREATMENT GROUPS IDENTIFIED IN HYPOTHESES $1_{a,b,c}$

A. Error

Assertion[1]	Treatment Groups[2]					
	Hypothesis 1_a		Hypothesis 1_b		Hypothesis 1_c	
	1	2	3	4	5	6
Performance Occurred	3.6	3.4	5.0	5.0	3.0	4.0
Authorization	2.8	3.0	1.2	2.4 *	2.4	2.5
Proper Amount	3.0	4.4	1.8	4.0 *	2.8	4.0
Recorded	2.4	4.0	2.4	3.8	2.2	4.5 **
Accumulated	2.6	4.2	3.2	2.4	2.6	4.7 *
Proper Period	4.0	4.8	6.2	6.4	3.0	3.8
Presentation & Disclosure	2.8	2.2	2.2	3.0	2.4	2.5

B. Irregularity

Assertion[1]	1	2	3	4	5	6
Performance Occurred	2.8	2.4	3.0	2.8 ^^	4.4	6.0
Authorization	2.6	1.4	1.0	1.8	2.2	3.0
Proper Amount	2.8	2.2	1.0	2.8 **	2.2	2.7
Recorded	3.0	2.8	1.0	1.4 *	2.8	4.3
Accumulated	3.0	2.4	1.2	1.2	2.2	3.3
Proper Period	5.0	2.4 ^	3.6	3.8	3.0	4.7
Presentation & Disclosure	3.4	1.6 ^^	2.2	1.2	1.6	3.5 **

[1] Assertions are defined in Table 2.

[2] Treatment groups are defined in footnote 2 in Table 16.

* Significant at $\alpha = .10$ for a one-tailed *t*-test.

** Significant at $\alpha = .05$ for a one-tailed *t*-test.

^ Significant at $\alpha = .05$ for a one-tailed *t*-test, but the difference is not in the hypothesized direction.

^^ Significant at $\alpha = .10$ for a one-tailed *t*-test, but the difference is not in the hypothesized direction.

TABLE 18
RANK OF EACH TREATMENT GROUPS' INHERENT RISK ASSESSMENTS FOR MATERIAL MISSTATEMENTS WITHIN EACH ASSERTION

Treatment Groups			Assertions[1]							
CFO Turn-over	Work Experience	Type of Misstatement	PO	A	PA	R	AC	PP	PD	Sum of Ranks[2]
No	Big 6	None	1	5.5	6	7	5	2.5	11	38.0
No	Big 6	Error	12	10.5	9	8	3.5	10.5	10	63.5 **
No	Big 6	Irregularity	6	7	10.5	11	10	5	12	61.5 **
No	Controller	None	2.5	9	1	2	7	1	1	23.5 *
No	Controller	Error	8	5.5	12	6	3.5	7.5	7.5	50.0
No	Controller	Irregularity	10	8	6	10	9	7.5	9	59.5
Yes	Big 6	None	11	12	8	12	12	12	3	70.0 **
Yes	Big 6	Error	5	1	2	4	8	10.5	5	35.5
Yes	Big 6	Irregularity	4	2	3	5	6	2.5	2	24.5 *
Yes	Controller	None	2.5	10.5	10.5	9	11	4	5	52.5
Yes	Controller	Error	9	4	4	1	1	7.5	7.5	34.0
Yes	Controller	Irregularity	7	3	6	3	2	7.5	5	33.5 *
Total			78	78	78	78	78	78	78	546
Kendall's Coefficient of Concordance (*W* statistic)										.40529
									χ^2	31.21

[1] The following abbreviations are used for assertions: PO - Performance Occurred, A - Authorized, PA - Proper Amount, R - Recorded, AC -Accumulated, PP - Proper Period, and PD - Presentation and Disclosure. The assertions are defined in Table 2.

[2] ** Treatment groups with the three highest rank sums.
* Treatment groups with the three lowest rank sums.
The treatment groups were ranked on their inherent risk assessments where a 1 indicates the treatment group with the lowest inherent risk assessment and 12 indicates the treatment group with the highest inherent risk assessment for a particular assertion.

TABLE 19
RANK OF EACH TREATMENT GROUPS' INHERENT RISK ASSESSMENTS FOR MATERIAL ERRORS WITHIN EACH ASSERTION

Treatment Groups			Assertions[1]							
CFO Turn-over	Work Experience	Type of Misstatement	PO	A	PA	R	AC	PP	PD	Sum of Ranks[2]
No	Big 6	None	4	10	4	4.5	4.5	5	7.5	39.5
No	Big 6	Error	10	11.5	7	10	8	12	12	70.5 **
No	Big 6	Irregularity	12	8.5	9.5	6	7	3	10	56.0 **
No	Controller	None	1	5	2	2	9	2	1	22.0 *
No	Controller	Error	6.5	6.5	7	8	3	11	9	51.0
No	Controller	Irregularity	5	8.5	7	11	11	4	5	51.5
Yes	Big 6	None	9	4	9.5	12	12	9	11	66.5 **
Yes	Big 6	Error	6.5	1	1	4.5	6	10	2.5	31.5 *
Yes	Big 6	Irregularity	2	6.5	3	3	4.5	1	4	24.0 *
Yes	Controller	None	3	11.5	11	9	10	7	2.5	54.0
Yes	Controller	Error	11	3	12	1	2	6	7.5	42.5
Yes	Controller	Irregularity	8	2	5	7	1	8	6	37.0
Total			78	78	78	78	78	78	78	546
Kendall's Coefficient of Concordance (*W* statistic)										.53796
									χ^2	41.42

[1] The following abbreviations are used for assertions: PO - Performance Occurred, A - Authorized, PA - Proper Amount, R - Recorded, AC -Accumulated, PP - Proper Period, and PD - Presentation and Disclosure. The assertions are defined in Table 2.

[2] ** Treatment groups with the three highest rank sums.
* Treatment groups with the three lowest rank sums.
The treatment groups were ranked on their inherent risk assessments where a 1 indicates the treatment group with the lowest inherent risk assessment and 12 indicates the treatment group with the highest inherent risk assessment for a particular assertion.

TABLE 20
RANK OF EACH TREATMENT GROUPS' INHERENT RISK ASSESSMENTS FOR MATERIAL IRREGULARITIES WITHIN EACH ASSERTION

Treatment Groups			Assertions[1]							
CFO Turn-over	Work Experience	Type of Misstatement	PO	A	PA	R	AC	PP	PD	Sum of Ranks[2]
No	Big 6	None	2.5	8	7.5	9	9	10	9	55.0
No	Big 6	Error	8	11	11	5.5	5.5	5	5.5	51.5
No	Big 6	Irregularity	9	7	12	12	12	8	11	71.0 **
No	Controller	None	6	9	5	4	7	4	5.5	40.5
No	Controller	Error	2.5	5	7.5	2.5	2	7	1	27.5
No	Controller	Irregularity	12	10	6	11	11	9	10	69.0 **
Yes	Big 6	None	10	12	9	10	10	11	12	74.0 **
Yes	Big 6	Error	4	1	1	1	2	6	7	22.0 *
Yes	Big 6	Irregularity	7	6	3.5	7.5	5.5	3	3	35.5
Yes	Controller	None	1	2.5	3.5	7.5	8	1	3	26.5 *
Yes	Controller	Error	5	2.5	2	2.5	2	2	3	19.0 *
Yes	Controller	Irregularity	11	4	10	5.5	4	12	8	54.5
Total			78	78	78	78	78	78	78	546
Kendall's Coefficient of Concordance (*W* statistic)										.61698
									χ^2	47.51

[1] The following abbreviations are used for assertions: PO - Performance Occurred, A - Authorized, PA - Proper Amount, R - Recorded, AC -Accumulated, PP - Proper Period, and PD - Presentation and Disclosure. The assertions are defined in Table 2.

[2] ** Treatment groups with the three highest rank sums.
* Treatment groups with the three lowest rank sums.
The treatment groups were ranked on their inherent risk assessments where a 1 indicates the treatment group with the lowest inherent risk assessment and 12 indicates the treatment group with the highest inherent risk assessment for a particular assertion.

TABLE 21
CORRELATIONS (SIGNIFICANCE LEVELS) OF INHERENT RISK ASSESSMENTS FOR MATERIAL MISSTATEMENTS

	PO	A	PA	R	AC	PP	PD
PO	1.0000 (0.0000)						
A	0.2396 (0.0753)	1.0000 (0.0000)					
PA	0.3725 (0.0043)	0.2779 (0.0381)	1.0000 (0.0000)				
R	0.3006 (0.0231)	0.4371 (0.0008)	0.3983 (0.0021)	1.0000 (0.0000)			
AC	0.1677 (0.2123)	0.4108 (0.0017)	0.2438 (0.0676)	0.6767 (0.0001)	1.0000 (0.0000)		
PP	0.6815 (0.0001)	0.0978 (0.4774)	0.1482 (0.2752)	0.1348 (0.3219)	0.0887 (0.5155)	1.0000 (0.0000)	
PD	0.2879 (0.0299)	0.2985 (0.0254)	0.1202 (0.3728)	0.1778 (0.1857)	0.2628 (0.0482)	0.2606 (0.0524)	1.0000 (0.0000)

PO- Performance Occurred Assertion
A - Authorized Assertion
PA - Proper Amount Assertion
R- Recorded Assertion
AC - Accumulated Assertion
PP- Proper Period Assertion
PD- Presentation and Disclosure Assertion

The assertions are defined in Table 2.

Number of subjects ranged from 56 to 57.

TABLE 22
RESULTS FOR MANOVA MODEL[1]

Independent Variable	F-Value[2]	Pr > F
Turnover in CFO's Position	1.3338	0.2608
CFO's Work Experience	0.6322	0.7264
Type of Misstatement	2.3344	0.0427 **
Turnover × Experience	1.3718	0.2445
Turnover × Misstatement	2.4650	0.0335 **
Experience × Misstatement	1.3162	0.2679

[1] The dependent variables were the inherent risk assessments of a material misstatement for each of the following assertions: performance occurred, authorized, proper amount, recorded, accumulated, proper period, and presentation and disclosure.

[2] The F-Values given are for the multivariate test statistic Roy's greatest (maximum) root.

** Significant at $\alpha = .05$.

TABLE 23
SUMMARY RESULTS OF ANOVA PROCEDURES

Dependent Variable	R^2	F-Value	Pr > F
Performance Occurred	.24	1.55	.1593
Authorized	.17	1.04	.4241
Proper Amount	.22	1.40	.2184
Recorded	.32	2.30	.0320 **
Accumulated	.29	2.05	.0557 *
Proper Period	.24	1.61	.1415
Presentation and Disclosure	.19	1.19	.3238

* Significant at $\alpha = .10$

** Significant at $\alpha = .05$

TABLE 24
ANOVA MODELS FOR RECORDED AND ACCUMULATED ASSERTIONS

		Recorded	Accumulated
Source	**DF**	**Pr > F**	**Pr > F**
Model	9	0.0320 **	0.0557 *
Error	45		
Source for Type III SS			
Turnover in CFO's Position	1	0.5854	0.7130
CFO's Work Experience	1	0.0762 *	0.4078
Type of Misstatement	2	0.2697	0.0698 *
Turnover × Experience	1	0.8420	0.3373
Turnover × Misstatement	2	0.0035 ***	0.0165 **
Experience × Misstatement	2	0.4654	0.6886

* Significant at $\alpha = .10$

** Significant at $\alpha = .05$

*** Significant at $\alpha = .01$

TABLE 25
SIGNIFICANT A PRIORI INTERACTION
FOR TURNOVER × MISSTATEMENT
FOR EACH ASSERTION

Assertion	Pr > F
Performance Occurred	0.0818 *
Authorized	0.1166
Proper Amount	0.0325 **
Recorded	0.0035 ***
Accumulated	0.0165 **
Proper Period	0.0867 *
Presentation and Disclosure	0.5848

* Significant at $\alpha = .10$

** Significant at $\alpha = .05$

*** Significant at $\alpha = .01$

TABLE 26
SIGNIFICANT LEAST SQUARE MEANS FOR TURNOVER × MISSTATEMENT INTERACTION

Significant Interaction Combinations[1]	P-value
Dependent Variable: Performance Occurred	
1 < 2	0.0069
1 < 3	0.0265
1 < 5	0.0559
2 > 6	0.0431
Dependent Variable: Proper Amount	
1 < 2	0.0579
1 < 3	0.0962
2 > 5	0.0398
3 > 5	0.0705
4 > 5	0.0871
Dependent Variable: Recorded	
1 < 4	0.0135
2 < 4	0.0911
2 > 5	0.0922
3 > 5	0.0197
4 > 5	0.0014
3 > 6	0.0525
4 > 6	0.0054
Dependent Variable: Accumulated	
1 < 4	0.0297
2 < 3	0.0523
2 < 4	0.0035
4 > 5	0.0085
3 > 6	0.0515
4 > 6	0.0039
Dependent Variable: Proper Period	
1 < 2	0.0150
1 < 3	0.0762
1 < 4	0.0359
1 < 5	0.0150

[1] **Interaction Combinations (Turnover, Misstatement)**

1 = 0,0	4 = 1,0
2 = 0,1	5 = 1,1
3 = 0,2	6 = 1,2

Turnover
0 = Non-recent CFO turnover
1 = Recent CFO turnover

Prior Year Misstatement
0 = None
1 = Material error
2 = Material irregularity

TABLE 27
CORRELATIONS (SIGNIFICANCE LEVELS) BETWEEN YEARS OF AUDIT EXPERIENCE AND INHERENT RISK ASSESSMENTS FOR ASSERTIONS

	PO[2]	A	PA	R	AC	PP	PD
A. Material Misstatements							
AYR[1]	-0.1384 (0.30)	0.2150 (0.11)	-0.0919 (0.50)	-0.0592 (0.66)	-0.0868 (0.52)	-0.3528 (0.01)	-0.0543 (0.69)
B. Material Errors							
AYR	-0.1395 (0.30)	0.1467 (0.28)	-0.0327 (0.81)	0.0722 (0.59)	0.0434 (0.75)	-0.2177 (0.10)	-0.0270 (0.84)
C. Material Irregularities							
AYR	-0.0156 (0.91)	0.1559 (0.25)	-0.0780 (0.56)	0.0911 (0.50)	0.0519 (0.70)	-0.0127 (0.92)	0.0661 (0.62)

[1] AYR - Subject's Years of Audit Experience

[2] The following abbreviations are used for the assertions:
PO - Performance Occurred Assertion
A - Authorized Assertion
PA - Proper Amount Assertion
R - Recorded Assertion
AC - Accumulated Assertion
PP - Proper Period Assertion
PD - Presentation and Disclosure Assertion

The assertions are defined in Table 2.

Number of subjects included ranged from 56 to 57.

TABLE 28
SUMMARY OF SIGNIFICANT CORRELATIONS FOR DEPENDENT VARIABLES FOR EACH AUDIT PROCEDURE

Audit Procedure[1]	DVs For Each Audit Step[2]	Significant Correlations[3]
1. Agree balances to prior year	STL, STH, SRH	STH & SRH
2. Review of interim statements	STL, STH, SRH	All
3. Match revenue & COGS	STL, STH, SRH	All
4. Use prenumbered documents	STL, STH, SRH	All
5. Document systems & controls	STL, STH, SRH	STL & SRH
6. Analytical review of revenues and related accounts	DLS, PCT, STL, STH, SRH	DLS & PCT, DLS & STH, PCT & STL, STL & STH, STH & SRH
7. Review revenue entries	STL, STH, SRH	All
8. Test revenue reasonableness	STL, STH, SRH	All
9. Investigate large invoices	STL, STH, SRH	All
10. Trace invoices	SPS, DLS, STL, STH, SRH	All
11. Trace shipment documents	SPS, STL, STH, SRH	All
12. Cutoff tests for shipment documents and invoices	SPS, DYS, STL, STH, SRH	SPS & DYS, SPS & STL, SPS & STH, SPS & SRH, DYS & STH, DYS & SRH, STL & STH, STL & SRH, STH & SRH
13. Investigate large credits	STL, STH, SRH	All
14. Test credit notes	SPS, DLS, STL, STH, SRH	All
15. Cutoff tests for credits	SPS, DYS, STL, STH, SRH	All
16. Determine reasonableness of allowance for anticipated credits	STL, STH, SRH	STL & STH, STH & SRH
17. Review suspense accounts	STL, STH, SRH	STL & STH, STH & SRH
18. Review disclosure	STL, STH, SRH	All
19. Conclusion	STL, STH, SRH	STL & STH, STH & SRH

[1] The numbers refer to the number of the audit procedure. After each number is a brief description of the audit procedure. Refer to Table 5 or the questionnaire packet in Appendix B for a listing of the numbered audit procedures.

[2] The dependent variables (DVs) are abbreviated as follows: STL = Staff level performing the audit procedure, STH = Hours for the staff person performing the audit step, SRH = Hours for the senior supervising the audit engagement, DLS = Scope in dollars for the audit step, PCT = Scope in percentage for the audit step, DYS = Scope in days for the audit step, and SPS = Sample size for the audit step. See Figure 2 for the complete MANOVA model for each audit procedure.

[3] Although all correlations significant at .10 are listed in this column, the majority of the correlations were significant at .01. "All" indicates that all the correlations for the DVs for that particular audit procedure were significant.

TABLE 29
SIGNIFICANCE OF EACH INDEPENDENT VARIABLE IN MANOVA MODEL FOR EACH AUDIT PROCEDURE

	IVs - Inherent Risk Assessments for Material Misstatements for Assertions[2]							
Audit Procedure[1]	PO	A	PA	R	AC	PP	PD	Significant Interactions
1. Agree balances							0.5787	None
2. Interim statement	0.9136	0.1819	0.2374	0.4265	0.7642	0.9433		None
3. Rev. & COGS				0.9481		0.8244		None
4. Pre# documents				0.3716		0.2341		R×PP
5. System controls	**0.0022**	0.2441	0.2992	0.2638				PO×A
6. Analy. review	**0.0166**		0.2949	0.1129	0.5200	0.3594		PO×PA, R×AC
7. Revenue entries	0.9609			0.9318	0.6362	0.6938		None
8. Test revenue reasonableness	**0.0786**		0.3727	0.2712	0.1058	0.8219		PA×AC, R×AC
9. Large invoices	0.3353	0.4286	0.3987	0.3878	0.4740	0.5805		None
10. Trace invoices	0.9477	0.6265	0.2043	0.5153		0.5911		None
11. Trace shipments	0.5486		0.8511	0.8730		0.8196		None
12. Shipment cutoff	0.7874	0.4253	**0.0464**	0.7624		0.2332		PO×R, PA×PP
13. Large credits	0.1924	0.6217	0.7464	0.3823	0.6669	0.8649		None
14. Test credit notes	0.2573		0.8730	0.3506		0.6747		None
15. Credit notes cutoff tests	0.3162	**0.0695**	0.1972	0.1539		0.9142		PO×PA, PO×PP, A×PA, PA×R
16. Anticip. credits	0.5869		0.8073	0.7411		0.3037		PO×PP
17. Suspense accts				0.5062		0.4001		None
18. Disclosure							0.2284	None
19. Conclusion							0.3183	None

[1] The numbers refer to the number of the audit procedure. After each number is a brief description of the audit procedure. Refer to Table 5 or the questionnaire packet in Appendix B for a list containing the numbered audit procedures.

[2] The independent variables (IVs) for each audit procedure are the inherent risk assessments for a material misstatement for the assertions related to the audit procedure. See Figure 2 for the complete MANOVA model for each audit procedure. Main effects significant at .10 or lower are bolded. Table 5 illustrates the relationship between the assertions and each audit procedure. The following abbreviations are used for the assertions: PO - Performance Occurred Assertion, A - Authorized Assertion, PA -Proper Amount Assertion, R - Recorded Assertion, AC - Accumulated Assertion, PP - Proper Period Assertion, and PD - Presentation and Disclosure Assertion. The assertions are defined in Table 2. Only the interactions significant at .10 or lower are listed in the last column. "None" indicates that none of the interactions were significant.

TABLE 30
SIGNIFICANT CORRELATIONS BETWEEN YEARS OF AUDIT EXPERIENCE AND DECISIONS FOR AUDIT PROCEDURES

Audit Procedures with Significant Correlations with Years of Audit Experience	Decisions	*r*	p-value
1. Agree balances per lead schedules to g/l and to prior year's working papers.	Staff level	0.65023	0.0001
2. Confirm management's review of interim financial statements, with comparisons to budgeted amounts or other financial data, for reasonableness of: -revenues -gross margins -returns, discounts or allowances -revenues and credit trends by product or location -sales related expenses	Staff level	0.25329	0.0573
7. Review entries in revenues, returns, discounts and allowances g/l accounts for large or unusual items.	Senior hours	-0.29100	0.0281
8. Consider overall reasonableness of revenues by multiplying units sold by an average selling price, by product.	Staff hours	0.29806	0.0243
11. For ____ shipment documents and performance data: -agree details to related invoices -trace invoices to transaction listing	Sample size Staff level Staff hours Senior hours	-0.44611 -0.24345 -0.30931 -0.38766	0.0005 0.0680 0.0192 0.0029
12. Select ____ shipment documents, performance data and invoices issued ____ days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period.	Sample size Days Staff level Staff hours Senior hours	-0.35326 -0.31206 -0.42632 -0.43089 -0.37597	0.0070 0.0181 0.0009 0.0008 0.0039
13. Obtain credit note transaction listing and: -trace selected totals (e.g., weekly, monthly) to g/l -test mathematical accuracy -investigate large or unusual items	Senior hours	-0.25434	0.0562
14. Select ____ credit notes in excess of $_____ issued during the period and: -trace to credit note transaction listing -agree details to supporting documentation -test mathematical accuracy -trace to customer receivable account	Sample size Staff level Staff hours Senior hours	-0.35486 -0.22423 -0.35277 -0.29054	0.0068 0.0936 0.0071 0.0283
15. Select ____ credit notes issued within ____ days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period.	Sample size Staff level Staff hours Senior hours	-0.30651 -0.37798 -0.25116 -0.23303	0.0204 0.0037 0.0595 0.0811
19. Conclude.	Staff level Staff hours	0.25179 0.25200	0.0588 0.0586

TABLE 31
AUDIT PROCEDURES ADDED

Audit Procedure Added	Experience Level					Total
	Staff	Senior	Manager	Sr. Mgr.	Partner	
1. Obtain listing of advance cash payments/deferred revenue and agree to supporting documentation and test for recording revenue in proper period.	1	4	3	3	2	13
2. For the deferred revenue account, perform analytical review by comparison to the prior year.	1	0	1	2	1	5
3. For revenue accounts, perform analytical review by: - comparison by product line - reconciling quantity billed to quantity shipped - compare maximum possible revenue with recorded revenue.	0	2	0	0	1	3
4. Through discussions with management and review of customer contracts, document and summarize management's policies and procedures for recording cash advance contracts.	0	2	0	1	0	3

TABLE 32
AUDIT PROCEDURES OMITTED

Audit Procedure Omitted	Experience Level					Total
	Staff	Senior	Mgr.	Sr. Mgr.	Partner	
2. Confirm management's review of interim financial statements, with comparisons to budgeted amounts or other financial data, for reasonableness of: -revenues -gross margins -returns, discounts or allowances -revenues and credit trends by product or location -sales related expenses	0	1	2	1	0	4
3. Revenue entries in g/l are matched with cost of goods sold entries in g/l. Differences are investigated in a timely manner.	0	7	5	3	1	16
4. Prenumbered shipment documents, sales invoices and credit note documents are used and missing documents are investigated on a timely basis.	0	5	2	2	2	11
7. Review entries in revenues, returns, discounts and allowances g/l accounts for large or unusual items.	0	3	3	1	0	7
8. Consider overall reasonableness of revenues by multiplying units sold by an average selling price, by product.	0	4	3	1	0	8
9. Obtain invoice transaction listing and -trace monthly totals to g/l (revenues and receivables control accounts) -test mathematical accuracy -investigate large or unusual items	0	4	2	1	0	7
10. For ____ invoices in excess of $_____: -trace to invoice transaction listing -agree details to shipment documents and performance data -agree sales prices to authorized price list -test mathematical accuracy -trace to customer receivable account -trace to ageing of receivables balances	0	3	2	1	0	6

--Table 32 continued on next page

TABLE 32
(CONTINUED)

Audit Procedure Omitted	Experience Level					Total
	Staff	Senior	Mgr.	Sr. Mgr.	Partner	
11. For ____ shipment documents and performance data: -agree details to related invoices -trace invoices to transaction listing	0	5	4	3	2	14
13. Obtain credit note transaction listing and: -trace selected totals (e.g., weekly, monthly) to g/l -test mathematical accuracy -investigate large or unusual items	0	4	5	3	1	13
14. Select ____ credit notes in excess of $_____ issued during the period and: -trace to credit note transaction listing -agree details to supporting documentation (including receiving reports for returned goods) -test mathematical accuracy -trace to customer receivable account	0	5	3	2	2	12
15. Select ____ credit notes issued within ____ days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period.	0	3	1	2	2	8
17. Review and investigate significant suspense accounts.	0	3	0	0	0	3
18. Review for proper financial statement disclosure and presentation.	1	1	0	1	0	3

TABLE 33
ANOVA RESULTS FOR RELATIONSHIP BETWEEN INHERENT RISK ASSESSMENTS FOR A MATERIAL MISSTATEMENT AND INHERENT RISK ASSESSMENTS FOR A MATERIAL ERROR AND IRREGULARITY

Assertion[1]	Overall Model Pr > F	Pr > F for Type III SS		
		Error (E)	Irreg (I)	E × I
Performance Occurred	0.0001	0.0056 ***	0.1056	0.3428
Authorized	0.0001	0.0066 ***	0.0373 **	0.2415
Proper Amount	0.0001	0.0001 ***	0.7833	0.2946
Recorded	0.0001	0.0001 ***	0.0001 ***	0.0001 ***
Accumulated	0.0001	0.0001 ***	0.0054 ***	0.0479 **
Proper Period	0.0263	0.0141 **	0.4809	0.3772
Presentation and Disclosure	0.0001	0.0003 ***	0.0152 **	0.0206 **

[1] The assertions are defined in Table 2.

** Significant at $\alpha = .05$

*** Significant at $\alpha = .01$

TABLE 34
SUM OF RANKS OF AVERAGE RISK FOR EACH ASSERTION

Assertions[1]	Sum of Ranks of Risks[2]		
	Misstatement	Error	Irregularity
Performance Occurred	68.0 **	66.5 **	73.5 **
Authorization	22.0 *	24.5 *	31.0 *
Proper Amount	51.0	53.5	44.5
Recorded	49.5	41.5	46.5
Accumulated	36.0	46.0	34.5 *
Proper Period	78.0 **	71.5 **	70.5 **
Presentation & Disclosure	31.5 *	32.5 *	35.5

[1] Assertions are defined in Table 2.

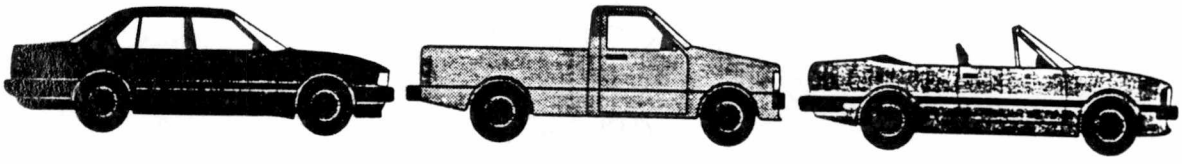
[2] ** Assertions with the two highest rank sums.

* Assertions with the two lowest rank sums.

APPENDIX B

Participant No.

AUTOPARTS, INC.
GENERAL INSTRUCTIONS AND CASE MATERIALS PACKET



Directions: Please begin by reading the General Instructions provided in this packet.

Autoparts, Inc. - General Instructions

This exercise investigates audit planning decisions for ***only*** the revenue component of a client. The questions in the "Questionnaire Packet" deal with your inherent risk assessment for individual revenue assertions and the subsequent planned audit procedures, budgeted hours, and staff scheduling decisions you would make for the revenue component; therefore, read the case accordingly. There are no right or wrong answers to the questions being asked, and there is no time limit so work at your own pace.

Please work independently answering all the questions to the best of your ability given the information provided in this exercise. The exercise may not include all the information you would like to have, but this is sometimes the case in the field when performing audits.

Confidentiality of your responses is ensured by returning the "Questionnaire Packet" directly to the project director in the enclosed postage paid envelope or to the address given below. Only summary results will be released. Strict confidentiality will be maintained. The "Questionnaire Packet" provides an opportunity for you to request a copy of a paper that summarizes the findings of this exercise.

During this exercise, you may write or underline on any of the pages. Space is provided on page 6 of this packet for making notes as you read the case materials. If you have any questions concerning this exercise either now or later, please feel free to contact the project director, ***Susan D. Coomer, 637 Stokely Management Center, Department of Accounting, The University of Tennessee, Knoxville, TN 37996-0560*** or call ***(615) 531-6159***.

Please begin by reading the case materials presented in this packet and in the "Consolidated Financial Statements Packet." After you have read and reviewed these two packets, please proceed to answer the questions in the "Questionnaire Packet."

Your return of the completed "Questionnaire Packet" will constitute your informed consent to voluntarily participate in this exercise.

--Please proceed to the next page--

Autoparts, Inc. - Case Materials

General Information

Your firm has been the auditor of Autoparts, Inc. (the Company) for twelve (12) years. Assume that this is your first year on this engagement. Autoparts, a manufacturer of parts for motor vehicles, is a privately held company that has debt covenants requiring audited financial statements prepared in accordance with GAAP.

You have been asked to prepare the client's 1992 detailed audit plan for **the revenue component of the Company's Paducah, Kentucky manufacturing plant**. This will include assessing inherent risk, determining the extent of audit procedures, scheduling staff, and budgeting hours. While reviewing the prior years' audit workpapers, you find the following: client history; industry information; pertinent information relating to the internal control structure and revenue component; and comparative ratio analyses. The Company's consolidated financial statements for prior years are presented in the "Consolidated Financial Statements Packet."

Client History

Mr. John Parker, Sr. started Autoparts, Inc. in 1968. The Company is a world class manufacturer of cam follower rollers, used to reduce friction in valve lifter assemblies which increases automobile engine durability and efficiency. The major automotive manufacturers have concluded that using cam follower rollers also enhances engine performance. Because of this, the Company is quite optimistic in its outlook both for the growing demand for this product and for gaining further significant market share over the next several years. Other products include additional precision hardened and ground components for engines, such as fuel injector and connector parts, push rods, water pump shafts, bushings and pinion pins.

In 1986 the Company began providing certain engineering services for its customers. The engineering services offered to customers include new product design, experimental dynamics, simulation analysis, product durability testing, experimental stress analysis, and environmental testing. The Company's testing facility consists of state-of-the-art technologies and manufacturing processes in order to provide customers with the finest capabilities in this highly specialized field.

The Company has two modern manufacturing facilities: a 170,000 square foot facility located in Mansfield, Ohio and a 100,000 square foot facility located in Paducah, Kentucky. The Mansfield, Ohio facility also serves as the Company's corporate headquarters and houses the testing area for the Company's engineering services.

As of December 31, 1991, the Company employed approximately 475 production personnel and approximately 100 uniquely qualified and skilled engineers and tradesmen. All the Company's production personnel are represented by the United Auto Workers (UAW). The current contract between the Company and the UAW expires November, 1992. The Company considers relations with its employees and the union to be good.

Marketing

The Company's sells its products principally to General Motors, Cummings Engine, Nissan, Toyota, and Ford and their respective suppliers. The Company must manufacture its products to extremely precise specifications, and its customers can reject its products if these

--Please proceed to the next page--

precise specifications are not met. Sales are generally made under one year contracts that can be canceled by the customer without penalty. As an incentive, the Company offers a 2% discount off the contract price if the customer pays cash at the time of the contract agreement. Several customers take advantage of this incentive offer. During the contract period, customers receive specified quantities of products at agreed upon intervals. Customers generally renew these one year contracts just before their expiration. The Company manufactures and delivers its products on a just-in-time (JIT) basis.

The Company's principal customers for engineering services are General Motors, Ford, Chrysler, and Modern Tool and Die. These services are provided under various types of contractual relationships, including fixed price contracts and time and material contracts. Customers can generally terminate these contracts on short notice.

Ownership and Management

Mr. John Parker, Sr. is the founder, principal stockholder (51%), and president of the Company. Mr. Parker's immediate family members own the remainder of the Company's stock.

Mr. Parker is involved on a daily basis with the management and decision making of the Company. He personally hires the Company's top management personnel, which includes the chief financial officer (CFO)/controller and the vice-presidents of operations and marketing. Mr. Parker reviews and approves all middle and lower level management hires. During your firm's tenure as auditor, management turnover has been low (especially at the upper levels). Major personnel are:

Mr. John Parker, Sr.	President
Mr. Don Davis	Chief Financial Officer and Controller
Mr. Randy Dale	Vice President of Operations
Ms. Darlene May	Vice President of Marketing
Ms. Alice Wade	Accounting Manager - Autoparts, Inc. (Mansfield, OH)
Mr. Gary Rhodes	Accounting Manager - Autoparts, Inc. (Paducah, KY)

The Industry

The principal market for the Company's products and services is highly competitive. Competition is based on quality, price, and service. The Company competes with many suppliers to the automobile and truck manufacturers, including several larger U.S. and Japanese suppliers.

Recently, the transportation industry, like most industries, felt the impact of a slowing economy around the world and the war in the Middle East. The industry experienced a drastic decrease in automotive production during the last quarter of 1990 which continued into 1991. The decrease in industry sales experienced in late 1990 and 1991 is not expected to continue in 1992.

The war in the Middle East decreased the supply of oil. The current decline in the oil supply is expected to place renewed emphasis by the U.S. government on its CAFE (Corporate Average Fuel Economy) standards, which should cause the major automotive manufacturers to re-emphasize increased fuel efficiency in gasoline engines. The Company believes this emphasis will increase the market for its cam follower rollers, which when used in gasoline

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engines, increase engine efficiency. The Company believes it is currently well positioned to take advantage of this increase in demand. The Company also believes that this can result in new attention to the integration of cam follower rollers into a variety of products.

There is a trend in the automotive supply market towards full service suppliers, that is, companies that can provide the engineering, design, testing, prototype and manufacture of products for the major automotive manufacturers as a single source. The Company believes it is well positioned in this market due to the engineering services it offers in addition to manufacturing capabilities.

The Internal Control Structure and The Revenue Component

The Company's revenue cycle is partly computerized. Your firm has performed yearly walkthroughs for the entire system. Recent discussions were held with Don Davis, CFO/controller, to verify that all procedures management intended in the internal control structure were indeed present in the revenue component and were currently in effect. Mr. Davis is responsible for the day-to-day financial operations of the Company. He also oversees the preparation of financial statements and develops and monitors the Company's reporting practices and internal control structure. Since the Company does not have any internal audit personnel, Mr. Davis follows up on any major discrepancies which are brought to his attention.

All locations use microcomputers to generate accounting records and reports. While user departments enter data interactively on terminals, each location has an information systems department that controls the processing of data. The corporate information system is located at the Mansfield, Ohio facility. Month-end and period-end financial information used in consolidation for the Mansfield, Ohio plant is entered directly into the corporate system. In the past, no data processing problems have been encountered in the corporate system.

The computerized information systems at the Paducah, Kentucky plant are not directly linked to the corporate system. The plant uses separate modules to account for fixed assets, payables, payroll, and sales. At month-end and period-end, accounting personnel at the plant prepare various general journal entries from summary reports. Accounting personnel at the plant then prepare and mail a standard reporting package to corporate headquarters for use in consolidations. In the past, no data processing problems have been encountered in the Paducah, Kentucky plant's system.

During your firm's tenure as auditor for the Company, management has been very control conscious and the information, accounting and control systems have been reliable. For the Company's size, management has committed substantial financial and human resources to develop and maintain sound systems. There have been no major changes in the control environment since the prior year.

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Selected 1991 revenue information for each plant is as follows (rounded):

Autoparts, Inc. Selected Revenue Information 1991	Engineering Services	Manufacturing Plants	
	Mansfield, Ohio	Mansfield, Ohio	Paducah, Kentucky
Net sales	$10,150,000.00	$24,522,000.00	$25,454,000.00
Average invoice ($)	2,900.00	3,269.60	3,916.00
High invoice ($)	95,750.00	235,630.00	250,045.00
Low invoice ($)	850.00	875.00	960.00
Approximate number of invoices	3,500	7,500	6,500

Comparative Ratio Analyses

This section presents six common ratios for the Company and the industry. Historically, the Company's ratios as well as the individual manufacturing plants have been in line with industry ratios. The Company's ratios were calculated using the December 31, 1991 consolidated financial statements. The Industry Average ratios were calculated using the industry average financial data from Robert Morris Annual Statement Studies 1991. (The Company's December 31, 1991 consolidated financial statements and industry average information is presented in the "Consolidated Financial Statements Packet.") Because the Company has implemented a JIT inventory system, the Company's inventory turnover ratio is higher than the industry average.

Liquidity Ratios	Autoparts, Inc.	Industry Average
Current ratio	.86:1.00	1.00:1.00
Quick ratio	.64:1.00	.47:1.00
Accounts receivable turnover	5.27 times or every 69 days	5.70 times or every 64 days
Inventory turnover	13.83 times or every 26 days	5.30 times or every 69 days
Leverage Ratios		
Fixed assets to net worth	123.34%	135.00%
Debt to net worth	151.19%	180.00%

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Other Information

Management places emphasis on meeting earnings projections and can be characterized as aggressive toward financial reporting.

During the engagement's strategic planning, the risk that a material misstatement could occur in a revenue assertion and ***not*** be prevented or detected by the client's internal control structure was assessed to be moderate.

The only turnover in the CFO's position in the last twelve years occurred since the last audit when Mr. Parker hired Don Davis as CFO/Controller. Prior to becoming CFO of the Company, Mr. Davis was a senior manager with nine (9) years of experience mainly with manufacturing clients in the office of your firm.

During your firm's tenure as the Company's auditor, no significant auditing problems or issues were encountered until last year (year-end 12/31/91). In the prior year's audit, your firm's staff detected a material overstatement in income for the year. Upon investigation, it was determined that throughout the year an accounting supervisor, Mr. Kenneth Rainey, intentionally recorded several contracts where the customer paid cash at the time the contract agreement was signed as sales instead of as unearned revenue. The Company partially fulfilled these contracts in 1991 with the remainder to be fulfilled in 1992. These irregularities combined to materially overstate 1991 revenues. The client corrected the irregularities before issuing the prior year's financial statements. Mr. Rainey has since left the Company.

Please proceed to Questionnaire I in the "Questionnaire Packet."

YOU MAY USE THE SPACE BELOW FOR MAKING NOTES

Participant No.

AUTOPARTS, INC.
CONSOLIDATED FINANCIAL STATEMENTS PACKET

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Autoparts, Inc.
Consolidated Balance Sheet
December 31

	1991	1991	1990	1990	Industry Average 1991[1]
	All dollar amounts are in thousands				
ASSETS	*All percentages are rounded*				
Current Assets					
Cash and short-term investments	$ 500	1.0%	$ 459	0.9%	1.4%
Accounts receivable less allowance for doubtful accounts of $608-1991 and $199-1990	11,414	22.8%	12,573	24.0%	17.2%
Inventories	3,452	6.9%	3,569	6.8%	20.0%
Prepaid expenses & other current assets	804	1.6%	687	1.3%	1.5%
Total current assets	16,170	32.3%	17,288	33.0%	40.1%
Property, Plant and Equipment (At Cost)					
Land	426	0.8%	426	0.8%	na
Buildings	9,513	19.0%	9,446	18.0%	na
Machinery and equipment	25,934	51.7%	23,486	44.8%	na
Office equipment	1,536	3.1%	1,271	2.4%	na
Subtotal	37,409	74.6%	34,629	66.0%	na
Accumulated depreciation	(12,797)	-25.5%	(9,494)	-18.1%	na
Total property, plant and equipment	24,612	49.1%	25,135	47.9%	48.3%
Other Assets					
Intangibles less accumulated amortization of $955-1991 and $733-1990	8,201	16.3%	8,423	16.0%	na
Note receivable	139	0.3%	474	0.9%	na
Deferred financing costs less accumulated amortization of $243-1991 and $198-1990	202	0.4%	247	0.5%	na
Other assets (net)	801	1.6%	886	1.7%	na
Total other assets	9,343	18.6%	10,030	19.1%	11.6%
Total Assets	$50,125	100.0%	$52,453	100.0%	100.0%
LIABILITIES AND STOCKHOLDERS' EQUITY					
Current Liabilities					
Notes payable	$ 6,360	12.7%	$ 6,132	11.7%	12.1%
Current maturities of long-term debt	1,805	3.6%	1,994	3.8%	3.6%
Accounts payable	3,079	6.2%	3,545	6.8%	8.7%
Accrued salaries and employee benefits	3,101	6.2%	3,776	7.1%	9.4%
Accrued expenses	2,079	4.1%	2,032	3.9%	5.8%
Unearned revenue	2,262	4.5%	2,537	4.8%	na
Income taxes payable	20	0.0%	57	0.1%	0.4%
Total current liabilities	18,706	37.3%	20,073	38.2%	40.0%
Long-term Liabilities					
Long-term debt less current maturities	10,890	21.7%	13,010	24.8%	23.6%
Deferred income taxes	574	1.2%	93	0.2%	0.7%
Total liabilities	30,170	60.2%	33,176	63.2%	64.3%
Stockholders' Equity					
Common stock	2,150	4.3%	2,150	4.1%	na
Paid-in capital	1,255	2.5%	1,255	2.4%	na
Retained earnings	16,550	33.0%	15,872	30.3%	na
Total stockholders' equity	19,955	39.8%	19,277	36.8%	35.7%
Total Liabilities and Stockholders' Equity	$50,125	100.0%	$52,453	100.0%	100.0%

[1]Industry Average percentages are from Robert Morris Annual Statement Studies 1991. Percentages not available are identified by "na".

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Autoparts, Inc.
Consolidated Statement of Operations
For The Year Ended December 31

	1991	1991	1990	1990	1989	1989	Industry Average 1991[1]
	All dollar amounts are in thousands						
	All percentages are rounded						
Net sales	$60,126	100.0%	$64,043	100.0%	$60,529	100.0%	100.0%
Cost of goods sold	47,724	79.4%	50,545	78.9%	48,045	79.4%	77.6%
Gross profit	12,402	20.6%	13,498	21.1%	12,484	20.6%	22.4%
Selling and admin. expenses	9,056	15.1%	8,962	14.0%	8,381	13.8%	16.1%
Operating earnings	3,346	5.5%	4,536	7.1%	4,103	6.8%	6.3%
Other income (expense):							
Interest expense	(2,079)	-3.5%	(3,036)	-4.7%	(2,500)	-4.1%	na
Interest income	99	0.2%	59	0.1%	50	0.1%	na
Gain on sale of assets	154	0.3%	18	0.0%	20	0.0%	na
Other	80	0.1%	55	0.1%	60	0.1%	na
Earnings before income taxes	1,600	2.6%	1,632	2.6%	1,733	2.9%	3.5%
Income tax provision	501	0.8%	150	0.2%	110	0.2%	na
Net Earnings	$ 1,099	1.8%	$ 1,482	2.4%	$ 1,623	2.7%	na

Autoparts, Inc.
Consolidated Statement of Stockholders' Equity
For The Year Ended December 31

	Common Stock	Paid-in Capital	Retained Earnings	Total
	All dollar amounts are in thousands			
Beginning balance, January 1, 1989	$2,150	$1,255	$15,742	$19,147
Net earnings	0	0	1,623	1,623
Cash dividends paid	0	0	(1,808)	(1,808)
Ending balance, December 31, 1989	$2,150	$1,255	$15,557	$18,962
Beginning balance, January 1, 1990	$2,150	$1,255	$15,557	$18,962
Net earnings	0	0	1,482	1,482
Cash dividends paid	0	0	(1,167)	(1,167)
Ending balance, December 31, 1990	$2,150	$1,255	$15,872	$19,277
Beginning balance, January 1, 1991	$2,150	$1,255	$15,872	$19,277
Net earnings	0	0	1,099	1,099
Cash dividends paid	0	0	(421)	(421)
Ending balance, December 31, 1991	$2,150	$1,255	$16,550	$19,955

[1]Industry Average percentages are from Robert Morris Annual Statement Studies 1991. Percentages not available are identified by "na".

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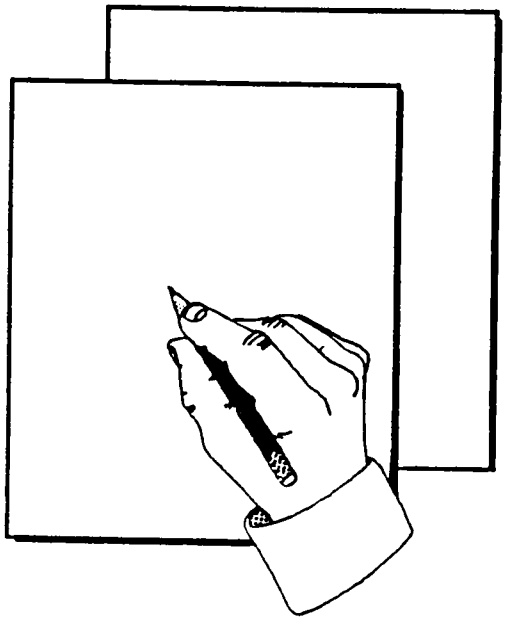
Autoparts, Inc.
Consolidated Statement of Cash Flows
For The Year Ended December 31

	1991	1990	1989
	All dollar amounts are in thousands		
Cash Flows From Operating Activities:			
Net earnings	$1,099	$1,482	$1,623
Adjustments to convert net earnings to cash basis:			
Depreciation and amortization	3,655	3,938	3,716
(Gain) on sale of assets	(154)	(18)	(20)
Deferred income taxes	481	93	0
Other	154	0	0
Change in assets and liabilities:			
Accounts receivable	1,159	(2,697)	(1,270)
Inventories	117	240	181
Prepaid expenses and other current assets	(117)	(152)	(202)
Accounts payable	(466)	754	(337)
Accrued expenses	(628)	(55)	(330)
Unearned revenue	(275)	155	(75)
Income taxes	(37)	207	10
Cash Provided By Operating Activities	4,988	3,947	3,296
Cash Flows From Investing Activities:			
Sale of marketable securities	0	0	184
Purchase of property, plant and equipment	(3,928)	(1,779)	(1,200)
Proceeds from sale of property, plant and equipment	1,148	2,227	3,361
Note receivable	335	400	(874)
Cash Provided (Used) By Investing Activities	(2,445)	848	1,471
Cash Flows From Financing Activities:			
Short-term debt	228	21	54
Retirement and payments of long-term debt	(4,227)	(4,045)	(4,125)
Additions to long-term debt	1,918	450	1,150
Dividends paid	(421)	(1,167)	(1,808)
Cash (Used) By Financing Activities	(2,502)	(4,741)	(4,729)
Net Increase In Cash	41	54	38
Beginning Cash Balance, January 1	459	405	367
Ending Cash Balance, December 31	$ 500	$ 459	$ 405

The notes to the consolidated financial statements comply with GAAP. They contain no unusal or unexpected information, and, therefore, are not included in the case materials.

Participant No.

AUTOPARTS, INC.
QUESTIONNAIRE PACKET



Please return this packet
by August 21, 1992 to:
Susan D. Coomer
637 Stokely Management Center
Department of Accounting
The University of Tennessee
Knoxville, TN 37996-0560

PLEASE READ THE CASE MATERIALS BEFORE YOU ANSWER THE FOLLOWING QUESTIONS.

Questionnaire I
Inherent Risk Assessments for Revenue Assertions

Please review the following summary descriptions of the revenue assertions. You may refer to this summary as often as you like.

Performance Occurred
Revenues represent amounts derived from the sale of goods; revenues are reduced for actual and anticipated returns and allowances; returns and allowances are bona fide.

Authorized
Terms of the sale of goods and returns and allowances are appropriately authorized.

Proper Amount
Revenues, discounts and returns and allowances are correctly calculated at their appropriate transaction amount in accordance with the nature and terms of the transaction and applicable accounting principles.

Recorded
All revenue transactions are appropriately and completely recorded in the underlying financial records.

Accumulated
Revenue transactions are properly accumulated in the underlying financial records.

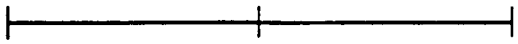
Proper Period
Revenue transactions are recorded in (or allocated to) the proper period; a proper cut-off has been established.

Presentation and Disclosure
Revenues are correctly summarized, classified, and described; all matters necessary to a proper understanding of revenues have been disclosed.

The next three (3) questions concern your judgment of the current year's inherent risk for revenue assertions for ***only the Paducah, Kentucky plant.*** Please complete these questions based on your analysis of the case materials. There are no right or wrong answers. Your answers are to be based upon your professional judgment.

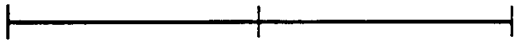
1) For each of the seven (7) assertions listed below, please mark an X on the scale provided that indicates your professional judgment concerning the inherent risk assessment that a ***material misstatement*** has occurred in the current year for the assertion for the Paducah, Kentucky plant. A misstatement includes both errors (which are unintentional) and irregularities (which are intentional).

Performance Occurred Assertion



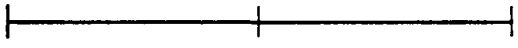
LOW RISK — MODERATE RISK — HIGH RISK

Authorized Assertion



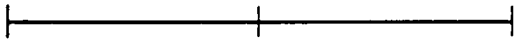
LOW RISK — MODERATE RISK — HIGH RISK

Proper Amount Assertion



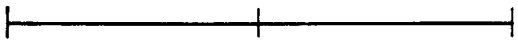
LOW RISK — MODERATE RISK — HIGH RISK

Recorded Assertion



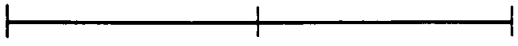
LOW RISK — MODERATE RISK — HIGH RISK

Accumulated Assertion



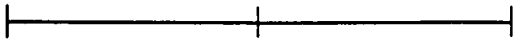
LOW RISK — MODERATE RISK — HIGH RISK

Proper Period Assertion



LOW RISK — MODERATE RISK — HIGH RISK

Presentation and Disclosure Assertion



LOW RISK — MODERATE RISK — HIGH RISK

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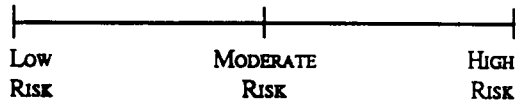
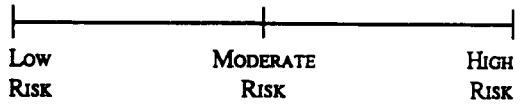
2) For each of the seven (7) assertions listed below, please mark an X on the scale provided that indicates your professional judgment concerning the inherent risk assessment that a ***material error*** has occurred in the current year for the assertion for the Paducah, Kentucky plant. An error is an unintentional misstatement.

Performance Occurred Assertion

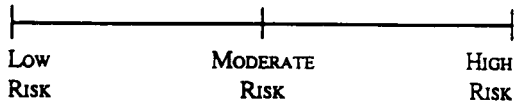
Authorized Assertion



Proper Amount Assertion



Recorded Assertion



Accumulated Assertion

Proper Period Assertion

Presentation and Disclosure Assertion

3) For each of the seven (7) assertions listed below, please mark an X on the scale provided that indicates your professional judgment concerning the inherent risk assessment that a ***material irregularity*** has occurred in the current year for the assertion for the Paducah, Kentucky plant. An irregularity is an intentional misstatement.

Performance Occurred Assertion

Authorized Assertion

Proper Amount Assertion

Recorded Assertion

Accumulated Assertion

Proper Period Assertion

Presentation and Disclosure Assertion

--Please proceed to the next page--

Questionnaire II
Planned Audit Procedures, Budgeted Hours, and Staff Scheduling

On the following pages you will find a table containing an audit program for the revenue component of the ***Paducah, Kentucky manufacturing plant.*** Columns 1, 2, and 3 of the table provide information from the prior year's audit. Column 1 indicates the experience level of the staff person performing each audit procedure in the prior year (1=first year person, 2=second year person, etc). Column 2 indicates the actual and budgeted hours for the staff person performing each audit procedure in the prior year. **NOTE: The top number is the actual hours and the bottom number in parentheses is the budgeted hours for the prior year.** Similarly, column 3 indicates the actual and budgeted hours in the prior year for the senior supervising the audit.

Based on your analysis of the case materials, you are to determine the extent of the audit procedures (i.e., scopes and sample sizes), budget hours, and schedule staff for the revenue component of the Paducah, Kentucky plant for the current year. There are no right or wrong answers. Your answers are to be based upon your professional judgment. Please follow the procedures outlined below as you complete this section of the exercise.

1) Read the entire revenue audit program for the Paducah, Kentucky manufacturing plant.

2) Determine if there are any ***additional*** audit procedures you would plan for the current year's audit of the revenue component. Please write these additional procedures in at the end of the audit program. Use the back cover of this packet if you need more room.

3) Determine if you would ***not*** plan to perform any of the provided audit procedures for the current year's audit of the revenue component. Please identify these audit procedures by placing zeros (0) in columns A, B, and C.

4) Audit procedures number 6, 10, 11, 12, 14, and 15 (identified with an asterisk [*] in the first column) require an audit scope and/or sample size. The amounts in parentheses are the scope and/or sample size for the prior year's testing. You are to determine the audit scope and/or sample size you would require for the current year's testing (include interim and year-end testing). Please write the scope and/or sample size for each of these audit procedures in the space provided on the audit program.

5) For ***all*** audit procedures that you plan to perform:

A) Determine the experience level you would require for the staff person performing the audit procedure in the current year. You may assume that all staff levels are available for scheduling. Use the following scale: 1=first year person, 2=second year person, 3=third year person, etc. Please write the staff person's experience level you would require for each audit procedure in column A.

B) Determine the hours you would budget in the current year for the staff person you selected to perform the audit procedure (include interim and year-end testing). You may budget partial hours. ***Hours or partial hours must be assigned for every audit procedure performed.*** Please write the staff person's budgeted hours for each audit procedure in column B.

C) Determine the hours you would budget in the current year for the senior supervising the audit step (include interim and year-end testing). You may budget partial hours. ***Hours or partial hours must be assigned for every audit procedure performed.*** Please write the senior's budgeted hours for each audit procedure in column C.

6) Foot the hours you budgeted for the staff persons (column B) and the senior (column C). Please write these amounts in the appropriate spaces provided at the end of the audit program.

7) Determine the hours you would budget in the current year for the manager. _____ hours (Prior year: budget = 4 hours; actual = 6.50 hours)

--Please proceed to the next page--

	Questionnaire II Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Prior Year 1. Staff Level	Actual (Budgeted) Hours 2. Staff	 3. Senior	Current Year A. Staff Level	Budgeted Hours B. Staff	 C. Senior
	General						
1.	Agree balances per lead schedules to g/l and to prior year's working papers.	1	1 (1)	.25 (.25)			
	Management and Independent Controls						
	Obtain evidence to confirm that the management and independent controls outlined in steps 2-4 are operating effectively:						
2.	Management's review of interim financial statements, with comparisons to budgeted amounts or other financial data, for reasonableness of: -revenues -gross margins -returns, discounts or allowances -revenues and credit trends by product or location -sales related expenses	1	2 (2)	.5 (.5)			
3.	Revenue entries in g/l are matched with cost of goods sold entries in g/l. Differences are investigated in a timely manner.	1	1 (1)	.25 (.25)			
4.	Prenumbered shipment documents, sales invoices and credit note documents are used and missing documents are investigated on a timely basis.	1	1 (1)	.25 (.25)			
	Processing Controls and Computerized Processing Functions						
5.	Update and document your understanding of the control and accounting systems relating to revenues through review of client documentation, discussions with client personnel, and other procedures such as:	1	14 (15)	4 (3)			
	Access to order entry and pricing processing functions and related data records is restricted by using: -user ID and password codes or -terminal access controls						
	Orders are approved as to terms, prices and credit by an appropriate official.						
	All approved order entry and pricing data is entered for processing accurately, completely and only once by using edit and validation controls.						
	Data on all, and only, shipments of goods which have occurred is entered for processing accurately, completely and only once by using edit and validation controls.						
	Goods shipped are invoiced at authorized terms and prices.						
	-continued on next page						

--Please proceed to the next page--

	Questionnaire II Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Prior Year 1. Staff Level	Prior Year Actual (Budgeted) Hours 2. Staff	Prior Year Actual (Budgeted) Hours 3. Senior	Current Year A. Staff Level	Current Year Budgeted Hours B. Staff	Current Year Budgeted Hours C. Senior
	-continued from previous page All invoice and credit note data is entered for processing accurately, completely and only once by using edit and validation controls. Invoices are prepared accurately as to customer, quantities, prices and extensions. Invoice and credit note data is matched with orders and shipped data, and with receiving data for goods returned. Differences are investigated in a timely manner. Invoice adjustments and credit notes are approved by an appropriate official.						
	Analytical Procedures						
*6.	Explain movements and investigate any unexpected or unusual relationships for fluctuations of $_____ or _____% (prior year: $40,000 or 10%) between current year, prior year and budgeted amounts for the following: -revenues by product or location -gross margins by product or location -revenues for the month prior to and subsequent to period end -returns, discounts or allowances (in total and as a percentage of revenues) -returns, discounts or allowances for the month prior to and subsequent to period end (in total and as a percentage of revenues)	2	12 (10)	3 (2)			
7.	Review entries in revenues, returns, discounts and allowances g/l accounts for large or unusual items.	1	2 (2)	.5 (.5)			
8.	Consider overall reasonableness of revenues by multiplying units sold by an average selling price, by product.	1	1 (1)	.5 (.5)			
	Detailed Tests of Transactions and Balances						
9.	Obtain invoice transaction listing and -trace monthly totals to g/l (revenues and receivables control accounts) -test mathematical accuracy -investigate large or unusual items	1	5 (4)	1 (1)			
*10.	For ____ (prior year: 25) invoices in excess of $_____ (prior year: $50,000): -trace to invoice transaction listing -agree details to shipment documents and performance data -agree sales prices to authorized price list -test mathematical accuracy -trace to customer receivable account -trace to ageing of receivables balances	1	5 (4)	2 (1)			

--Please proceed to the next page--

	Questionnaire II Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures	Prior Year			Current Year		
			Actual (Budgeted) Hours		Budgeted Hours		
		1. Staff Level	2. Staff	3. Senior	A. Staff Level	B. Staff	C. Senior
*11.	For ____ (prior year: 25) shipment documents and performance data: -agree details to related invoices -trace invoices to transaction listing	1	4 (3)	1 (1)			
*12.	Select ____ (prior year: 20) shipment documents, performance data and invoices issued ____ (prior year: 10) days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period. (Coordinate with inventories and production cost testing; budget in revenue testing.)	2	10 (8)	3 (2)			
13.	Obtain credit note transaction listing and: -trace selected totals (e.g., weekly, monthly) to g/l -test mathematical accuracy -investigate large or unusual items	1	4 (3)	1 (1)			
*14.	Select ____ (prior year: 25) credit notes in excess of $_____ (prior year: $25,000) issued during the period and: -trace to credit note transaction listing -agree details to supporting documentation (including receiving reports for returned goods) -test mathematical accuracy -trace to customer receivable account	2	4 (4)	1 (1)			
*15.	Select ____ (prior year: 20) credit notes issued within ____ (prior year: 10) days prior to or subsequent to period end and perform cut-off tests to ensure that transactions are recorded properly, including amounts, accounts, and period.	2	5 (4)	1 (1)			
16.	Determine reasonableness of allowance for anticipated credits.	2	1 (1)	1 (1)			
17.	Review and investigate significant suspense accounts.	1	2 (2)	.5 (.5)			
	Finalize Revenue Testing						
18.	Review for proper financial statement disclosure and presentation.	2	2 (1)	2 (1)			
19.	Conclude.	1	.5 (.5)	.25 (.25)			
	Additional Audit Procedure						

--Please proceed to the next page--

Questionnaire II Paducah, Kentucky Manufacturing Plant Revenue Audit Procedures		Prior Year			Current Year		
			Actual (Budgeted) Hours			Budgeted Hours	
		1. Staff Level	2. Staff	3. Senior	A. Staff Level	B. Staff	C. Senior
	Additional Audit Procedure						
	Additional Audit Procedure						
	Total Hours for Revenue Component	N/A	76.5 (67.5)	23 (18)	N/A		

Questionnaire III
Background Information

Please provide the following background information.

1) How long did it take you to complete this exercise? (Don't include the time it takes to complete this background questionnaire.)

_____ minutes

2) What is your age?

_____ years

3) How many years have you been employed as an auditor?

_____ years

4) How many years have you been employed with this accounting firm?

_____ years

5) What is your job title?

_____

6) How many years of education beyond high school have you completed?

_____ years

7) What was your undergraduate major?

_____

8) Do you have a graduate degree? (Circle one)

YES NO

If you answered YES, please specify the degree.

_____

9) In how many industries do you have audit experience? _____ industries

Please list three of these industries.

_____

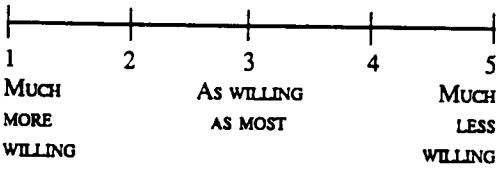
_____

--Please proceed to the next page--

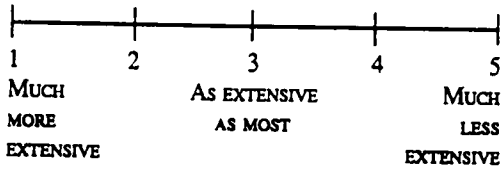
10) Are you a CPA? (Circle one)

YES NO

11) Compared with other auditors, how do you view your willingness to accept audit risk? (Circle only one number)



12) Compared to most auditors in similar engagements, do you feel you tend to perform more or less extensive audit tests? (Circle only one number)



13) Would you have found additional information helpful in completing this exercise? (Circle one)

YES NO

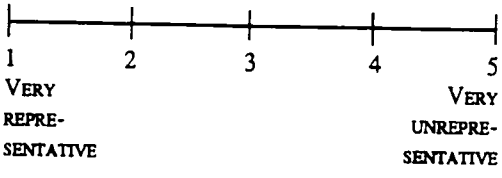
If you answered YES, what additional information do you feel would have been helpful?

_____

_____

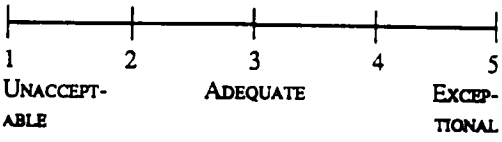
_____

14) How representative of actual audit engagements did you find this exercise? (Circle only one number)

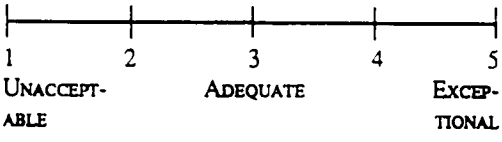


15) The following questions present three (3) previous work experiences that are possible for a CFO. For each question, please circle the number that you believe best represents the CFO's ability level based upon the CFO's previous work experience. ***Assume that the CFO is currently with one of your firm's manufacturing clients.*** There are no right or wrong answers. Your answers are to be based upon your professional judgment.

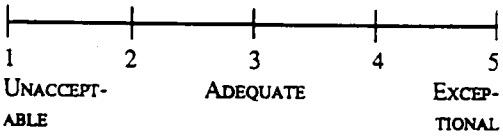
(A) The CFO's previous position was as a senior manager in the ***office of your firm***. He had been with your firm for nine (9) years and worked mainly with manufacturing clients. Circle the number that you believe best represents the CFO's ability level based upon the CFO's previous work experience. (Circle only one number)



(B) The CFO's previous position was as a senior manager with a Big 6 accounting firm ***other than your*** firm. He had been with this Big 6 firm for nine (9) years and worked mainly with manufacturing clients. Circle the number that you believe best represents the CFO's ability level based upon the CFO's previous work experience. (Circle only one number)



(C) The CFO's previous position was as a controller with a manufacturing company similar to your client. He had been with this company for nine (9) years. Circle the number that you believe best represents the CFO's ability level based upon the CFO's previous work experience. (Circle only one number)



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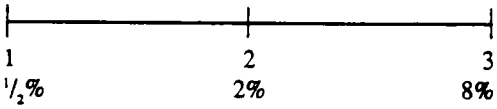
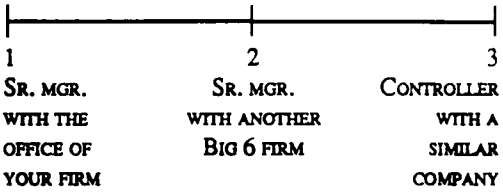
16) The following questions deal with how well you ***currently*** recall specific details included in the case materials. ***Please do not consult the case materials while answering these questions.***

A) When was the last turnover in the CFO's position? (Circle only one number)

B) How much is the Company's incentive discount percentage? (Circle only one number)



C) Where was the CFO employed prior to becoming CFO of this client? (Circle only one number)



Please check one of the following:

_____ Yes, I would like a copy of a paper that summarizes the results of this exercise.

_____ No, I would not like a copy of a paper that summarizes the results of this exercise.

If you have additional comments or suggestions about the experiment and/or exercise materials, please use the space below and the back of this page.

YOU MAY USE THIS PAGE FOR COMMENTS OR SUGGESTIONS

Please fold this packet in half and return it directly to the project director in the enclosed postage paid envelope or to the address on the front of this packet.

THANK YOU FOR YOUR PARTICIPATION IN THIS EXERCISE

APPENDIX C

CASE TREATMENTS

The treatments were included on the last of the Case Materials Packet in the Other Information section. Each subject received one version of each of the three treatments. The treatments were presented in three different orders within the case materials to prevent an ordering effect. Each treatment is described below.

1. Recency of CFO Turnover Treatment

Nonrecent CFO Turnover Treatment
Over the last twelve (12) years, the only turnover in the CFO's position occurred five (5) years ago when Mr. Parker hired Don Davis as CFO/Controller.

Recent CFO Turnover Treatment
Over the last twelve (12) years, the only turnover in the CFO's position occurred approximately four (4) months ago, after completion of the 1991 audit, when Mr. Parker hired Don Davis as CFO/Controller.

2. CFO Previous Work Experience Treatment

Big 6 Treatment
Prior to becoming CFO of the Company, Mr. Davis was a senior manager in the office of your firm. He had been with your firm for nine (9) years and worked mainly with manufacturing clients.

Controller Treatment
Prior to becoming CFO of the Company, Mr. Davis was a controller with a similar manufacturing company. He had been with this company for nine (9) years.

3. Prior Year's Audit Results Treatment

No Error or Irregularity in Prior Year Treatment
During your firm's tenure as the Company's auditor, no significant auditing problems or issues have been encountered.

--and one of the following depending on the recency of the CFO turnover treatment--

1. The only turnover in the accounting department that has occurred since the prior year was that Mr. Kenneth Rainey, an accounting supervisor at the Paducah, Kentucky plant, left the Company.

2. Other than the new CFO, the only turnover in the accounting department that has occurred since the prior year was that Mr. Kenneth Rainey, an accounting supervisor at the Paducah, Kentucky plant, left the Company.

Error Occurred in Prior Year Treatment

During your firm's tenure as the Company's auditor, no significant auditing problems or issues were encountered until last year (year-end 12/31/91). In the prior year's audit, your firm's staff detected a material overstatement in revenue for the year. Upon investigation, it was determined that throughout the year Mr. Kenneth Rainey, an accounting supervisor at the Paducah, Kentucky plant, unintentionally recorded several contracts where customers paid cash at the time the contract agreements were signed as sales instead of as unearned revenue. The Company partially fulfilled these contracts in 1991 with the remainder to be fulfilled in 1992. These errors combined to materially overstate 1991 revenues. The client corrected the errors before issuing the prior year's financial statements. Mr. Rainey has since left the Company.

Mr. Parker, President, appeared very concerned and upset that such circumstances existed within the Company. In response, Mr. Davis, CFO/Controller, issued a memo to all accounting personnel that explained the correct journal entry to record contract agreements where customers pay cash in advance.

Irregularity Occurred in Prior Year Treatment

During your firm's tenure as the Company's auditor, no significant auditing problems or issues were encountered until last year (year-end 12/31/91). In the prior year's audit, your firm's staff detected a material overstatement in revenue for the year. Upon investigation, it was determined that throughout the year Mr. Kenneth Rainey, an accounting supervisor at the Paducah, Kentucky plant, intentionally recorded several contracts where customers paid cash at the time the contract agreements were signed as sales instead of as unearned revenue. The Company partially fulfilled these contracts in 1991 with the remainder to be fulfilled in 1992. These irregularities combined to materially overstate 1991 revenues. The client corrected the irregularities before issuing the prior year's financial statements. Mr. Rainey has since left the Company.

Mr. Parker, President, appeared very concerned and upset that such circumstances existed within the Company. In response, Mr. Davis, CFO/Controller, issued a memo to all accounting personnel that explained the correct journal entry to record contract agreements where customers pay cash in advance.

COMPOSITION OF TREATMENT GROUPS

Treatment Groups	Recency of CFO Turnover	CFO's Previous Work Experience[1]	Prior Year's Misstatement
1	Non-recent	Office	None
2	Non-recent	Office	Error
3	Non-recent	Office	Irregularity
4	Non-recent	Controller	None
5	Non-recent	Controller	Error
6	Non-recent	Controller	Irregularity
7	Recent	Office	None
8	Recent	Office	Error
9	Recent	Office	Irregularity
10	Recent	Controller	None
11	Recent	Controller	Error
12	Recent	Controller	Irregularity

[1] "Office" indicates that the current CFO's previous work experience was as a senior manager in the *office* of the subject's firm. "Controller" indicates that the current CFO's previous work experience was as a controller with a similar company.

APPENDIX D

WORDING OF INTRODUCTION LETTER FROM PW CONTACT PARTNER

July 21, 1992

Dear Price Waterhouse Employee:

Your office, along with several other Price Waterhouse offices, has agreed to participate in a study on audit planning. (PW Office Contact Person's Name) selected you and other auditors in your office to participate. Your response is important because of the small number of auditors who have been asked to participate. I believe you will find the study interesting.

Please complete the enclosed exercise and use the envelope provided to return the "Questionnaire Packet" directly to Susan Coomer, the project director, by August 21, 1992. Susan is a PW alumnus who is currently completing her requirements for a doctoral degree in Business Administration. The study should take between 30 minutes to 1 hour to complete.

Susan will maintain strict confidentiality concerning individual results. Only summary results will be released. If you have any questions about the study, please contact Susan directly at (615) 531-6159.

We appreciate your participation in this project.

Sincerely,

Signed by Contact Partner

Enclosure - As stated

WORDING OF INTRODUCTION LETTER FROM RESEARCHER

September 10, 1992

Dear Price Waterhouse Employee:

Your office, along with several other Price Waterhouse offices, has agreed to participate in a study on audit planning. (PW Office Contact Person) selected you and other auditors in your office to participate. Your response is important because of the small number of auditors who have been asked to participate.

Please complete the enclosed exercise and use the envelope provided to return the "Questionnaire Packet" directly to me, the project director, by September 21, 1992. I am a PW alumnus and am currently completing the requirements for a doctoral degree in Business Administration. The study should take approximately 30 minutes to 1 hour to complete.

I will maintain strict confidentiality concerning individual results. Only summary results will be released. If you have any questions about the study, please contact me directly at (615) 531-6159.

I appreciate your participation in this project.

Sincerely,

Susan D. Coomer
Ph.D. Candidate

Enclosure- as stated

WORDING OF REMINDER POSTCARDS FROM RESEARCHER

AUTOPARTS, INC. EXERCISE - A REMINDER

Recently you received an exercise designed to gather information on audit planning decisions.

If you have already completed the exercise and returned the "Questionnaire Packet," thank you for your participation.

If you have not yet completed the exercise and returned the "Questionnaire Packet," please consider this as a reminder and a second request for your cooperation.

This exercise was distributed to a relatively small number of individuals. *Thus, your response is important.* If you have any questions or comments regarding the project, please call (615) 531-6159.

Thank you,

Susan D. Coomer
Ph.D. Candidate
The University of Tennessee

VITA

Susan Darlene Coomer was born in Cookeville, Tennessee on June 4, 1964. She attended Capshaw Elementary School and Cookeville Junior High School. She graduated from Cookeville High School in May, 1982. She entered Tennessee Technological University located in Cookeville the following September. In March, 1986 Susan graduated *summa cum laude* with the degree of Bachelor of Science in Business Administration with a major in Accounting. In the fall of 1986, Susan entered the University of Tennessee in Knoxville, Tennessee and in August, 1987 received a Masters of Accountancy degree. Susan received her CPA certificate in July, 1987.

In September, 1987 Susan began her public accounting career with Price Waterhouse in Nashville, Tennessee. She worked with Price Waterhouse until July, 1989. In August, 1989 she reentered the University of Tennessee in Knoxville, Tennessee and in May, 1993 received a Doctor of Philosophy Degree in Business Administration.

On March 21, 1992, Susan married George Dodd Galbreath.

Susan began her academic career as an assistant professor of accounting at East Carolina University in Greenville, North Carolina in January, 1993 where she is currently employed.