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The effect of nondiagnostic evidence and accountability on auditor judgment

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THE EFFECT OF NONDIAGNOSTIC EVIDENCE AND ACCOUNTABILITY ON AUDITOR JUDGEMENT

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by
Sandra Waller Shelton

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To my mother, Nettie Waller, and my father, Cell W. Waller

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Chapter I

Introduction

1.1 Motivation and Contribution

This paper investigates the role that nondiagnostic evidence and accountability have on audit judgment. Nondiagnostic evidence is, by definition, a priori decision irrelevant. Previous studies of the auditor's judgment process have often ignored aspects of the auditor's naturally occurring environment. In order to understand auditor judgment it is necessary to include significant factors from the auditor's environment in the experimental setting. Identifying behavioral strategies that decision makers develop for coping with features of their natural decision environments is important in any study of judgment (Tetlock, 1985). In the auditing environment not all of the audit evidence is relevant to every decision the auditor makes in evaluating the client's financial statements. Much of the audit evidence is relevant to only a few of the individual decisions that auditors must make in the process of forming an opinion about the overall financial statements. However, studies have shown that the presence of irrelevant (nondiagnostic) information weakens the implication of relevant (diagnostic) information resulting in a "dilution effect" (Nisbett, Zukier, and Lemley, 1981). Similarly, studies have shown that accountability impacts this "dilution effect". This

study adds to the literature by examining the effects of two attributes of the accounting setting, accountability and nondiagnostic information, on the judgment process of auditing experts, partners and managers. The effect of accountability and nondiagnostic information is examined in a going concern context: the evaluation of a company's ability to continue in existence within one year of the financial statement date.

The auditor's opinion is valued by the public because of the auditor's ability to make expert judgments in the evaluation of financial statements. Expert judgment consists of the ability to evaluate and determine the relevance of audit evidence. The going concern context is important in assessing the impact of irrelevant information on audit judgment given the broad range of information the auditor is required to evaluate as a part of the going concern decision process. The auditing standards (SAS No. 59) do not require the auditor to design specific audit procedures to make a going concern evaluation, but rather to consider whether the information obtained while planning, gathering evidence relative to audit objectives and the completion of the audit identify conditions and events that, when considered in the aggregate, indicate there could be a substantial doubt about the entity's ability to continue as a going concern. The auditor is also instructed to obtain additional information from management concerning these conditions and events. The auditor's ability to distinguish the

degree of relevance of various items of information form various sources is crucial to the auditor's decision making process in determining if there is substantial doubt about an entity's ability to continue as a going concern within one year of the financial statement date.

1.2 Importance of the Going Concern Opinion

The importance of the auditor's going concern opinion is reflected in the issuance of Statement of Auditing Standards [SAS] #59, one of the nine "Expectation Gap" standards issued in 1988. SAS 59 increases the auditor's responsibility to evaluate the assumption of continued existence of the client as part of every audit. The users' expectations are highlighted in the financial press (Wall Street Journal, 1985) that refer to the going concern qualification as an accepted necessary warning of impending trouble to the public and financial statement users in many instances. The failure of auditors to give enough advance warning about deteriorating finances of banks and other companies, prompted Congress (series of hearing chaired by Rep. Dingell) to investigate how well the profession has performed as a "public watchdog" and "independent umpire" in the realm of banking and business.

Over eleven percent ($650 million) of the Big Six's auditing and accounting revenues in 1993 were spent on practice and protection costs, including insurance premiums, losses and

settlements, legal fees and expenses (less insurance recoveries). Often the lawsuits filed against the Big Six accounting firms are based on claims by investors and creditors that they were not adequately warned that a company was in financial trouble and therefore in danger of not continuing operations (Abbott, 1994). Accountants have been named in suits by private creditors, investors, government regulators and the Resolution Trust Corporation related to financial failures of the 1980s and 1990s. Numerous lawsuits were filed against the Big Six in the wake of the failure of savings and loan entities across the nation. The settlement of lawsuits brought by the FDIC and the RTC has resulted in millions of dollars in charges to the Big Six firms. Ernst & Young was the first to settle paying $400 million in November 1992 for charges stemming form thrift failures that cost taxpayers $6.6 billion. In 1993 Arthur Andersen & Co. paid $82 million related to charges by the FDIC and RTC. In March 1994 Deloitte & Touche settled litigation with a $312 million payment. In August 1994 KPMG Peat Marwick settled 34 malpractice cases related to its role in the savings and loan failures for $186.5 million (Accounting Today, 1994). Federal cases are pending against Coopers & Lybrand and Price Waterhouse. Congress (Wyden, 1986) while acknowledging that accountants did not cause the S&L crisis noted that had accountants sounded enough alarms for regulators, taxpayer losses could have been significantly less. In addition

to the savings and loan litigation, Coopers is involved in litigation related to the Phar-Mor drug store chain and Price is involved in the BCCI Arab banking collapse.

Auditors may rely on evidence and techniques used during the audit in making the going concern decision. Every audit provides information that is both relevant and irrelevant to the going concern question; auditors must determine those conditions and events that, when considered in the aggregate, indicate whether there is substantial doubt about the client's continuing viability. The issue of accountability is relevant as auditing work papers generally require auditors to document the rationale for their going concern judgment. The auditor must justify his/her decision to other members of the audit team. In many instances the going concern qualification is accepted as a necessary warning of impending trouble to the public and financial statement users. Therefore, the going-concern decision provides a useful framework to investigate the impact of accountability and diagnostic/nondiagnostic information on audit judgment.

Research studies have addressed the auditor's decision making process in the face of going concern uncertainties. Prior studies utilized statistical models to isolate variables used by auditors in the going concern decision process. Although prior studies provide some insight into the auditor's decision process, there may exist factors which are not easily

incorporated into statistical models that do influence the auditor's opinion formulation process. These factors incorporate aspects of the environment in which the auditor makes decisions. Similarly, studies of the auditor's decision making process in the face of going concern uncertainties have provided the subject with some information about the client that the researcher believes to be diagnostic, useful for predicting some outcome. However, in making real world assessments auditors normally possess not only information that they believe to be diagnostic (relevant), but also information that they do not believe to be diagnostic (irrelevant).

1.3 Accountability and the Going Concern Decision

The auditor is faced with a mixture of nondiagnostic (irrelevant) and diagnostic (relevant) information in the auditing setting. Similarly, accountability is an important factor in the auditor's decision environment. The issue of accountability is particularly relevant in the going concern decision process as auditing work papers generally require the auditor to document considerations and conclusions concerning the entity's ability to continue operations. Frequently, the auditor must justify his/her conclusions to other members of the audit team. Research indicates the need to justify decisions can reduce the influence of many information-processing biases on judgment. However, studies (Tetlock and Boettger, 1989)

indicate that accountability enhances the dilution effect of nondiagnostic information when both diagnostic and nondiagnostic information is available.

1.4 The Dilution Effect

Nisbett, Zukier, and Lemley (1981) found that the presence of nondiagnostic information weakens the implications of diagnostic information, resulting in a "dilution effect" in the judgment of students as subjects. The dilution effect is often explained as the result of the representativeness heuristic (Kahneman and Tversky 1973). In studies demonstrating the dilution effect, the decision maker judges whether an individual will perform an action by comparing key features of the individual with key features of possible outcomes. The decision maker predicts the outcome most similar to or representative of the individual. One would expect the decision maker's judgments to be influenced by diagnostic evidence, given that by definition, diagnostic evidence has predictive value. Prior research (Alba & Hutchinson 1987) on factors influencing judgment suggests that inferences based on similarities include whatever evidence is available when the decision is made, including nondiagnostic evidence.

1.5 Contributions of the Study

In this study the effects of accountability and nondiagnostic evidence will be tested using auditing experts (managers and partners) as subjects. The auditors will make an assessment of an entity's ability to continue as a going concern from either diagnostic information alone or diagnostic information presented with nondiagnostic information under conditions of accountability or unaccountability (confidentiality). It is hypothesized that the presence of nondiagnostic information will weaken the implications of diagnostic information. It is hypothesized that accountability will magnify this dilution effect.

This study has implications for the design of decision aids to direct the auditor's attention to diagnostic versus nondiagnostic information to improve auditor performance, as well as implications for internal review procedures of auditing firms (accountability).

The study also addresses the importance of considering the effects of accountability and the role of expertise in judgments when designing behavioral research in auditing settings. The role of expertise becomes important in examining the cognitive simplification mechanism that results in the dilution effect. The dilution effect is based on the representativeness heuristic (Kahneman and Tversky, 1973). Studies have shown that heuristic processing under expert information processing models is

something to be developed, not overcome, as it is in a limited capacity model used by less experienced decision makers (Lord & Maher, 1990). Therefore, the expert's recognition of relevant categories may differ from the novice. Researchers in accounting have demonstrated the dilution effect by analyzing judgments made by auditors with an average of 42 months or less of experience. Although the subjects in the prior studies were professional auditors, there remains a distinction between professional auditors and experienced auditors (Colbert, 1989). This study contributes to the literature by using experienced auditors, partners (averaging 22 years of experience) and managers (averaging 8 years of experience). This study also considers the influence of accountability on the evaluation of relevant and irrelevant information. Support for the extension of previous studies was found: the judgments of experienced auditors did not exhibit a dilution effect. A dilution effect was not found in the judgments of accountable nor not accountable subjects.

1.6 Organization of the Paper

The remainder of this paper is organized as follows. Chapter II presents the relevant literature, underlying theory, and development of hypotheses. Studies that consider going concern issues in auditing are addressed in the first section of Chapter II. Included in this section is a discussion of the

auditor's responsibility to evaluate the ability of an entity to continue operations as required in Statement of Auditing Standards (SAS) No. 59. Studies that examine the auditor's decision making process in going concern issues are summarized in this section. These studies are classified for review purposes into two categories: auditing studies that use statistical models to provide insight into the auditor's decision making process and auditing studies that use behavioral studies to identify factors that influence auditor judgment in going concern decisions. The second section of Chapter II is a review of studies which indicate that nondiagnostic (irrelevant) information weakens the implications of diagnostic (relevant) information. This section provides the theory for the development of the hypotheses in the study. The third section of Chapter II is a review of studies examining the impact of accountability on judgmental biases. Studies that examine the impact of accountability on auditor judgment are summarized. The accountability manipulation in this and other studies is discussed. The fourth section of Chapter II is a review of studies examining the effect of experience on judgment. A summary of the chapter is presented in the fifth section.

In Chapter III the method, design and analysis of the study is discussed. In the first section of Chapter III the ANOVA model is presented, as well as the statistical tests utilized to test each hypothesis. The pretest procedures used in the

development of the experimental materials are presented in the second section. Section three includes a description of the subjects followed by a discussion of the experimental task in section four. The results of the study are analyzed in section five of Chapter III.

In Chapter IV the results of the study are interpreted as pertains to both the dilution effect and accountability. The role of expertise in examining the dilution effect is discussed. A discussion of the meaning of accountability from an auditor's perspective is presented in interpreting the findings of the study.

Chapter V presents the summary and future research considerations. This chapter presents a general discussion of the results of the study and possible extensions for future study.

Chapter II

Theory, Relevant Literature, and Hypotheses

This chapter is divided into five sections. Studies that consider the going concern issues in auditing are addressed in the first section. Included in this section is a discussion of the auditor's responsibility to evaluate the ability of an entity to continue operations as required in Statement of Auditing Standards (SAS) No. 59. Studies that examine the auditor's decision making process in going concern issues are summarized in this section. These studies are classified for review purposes into two categories: auditing studies that use statistical models to provide insight into the auditor's decision making process and auditing studies that use behavioral studies to identify factors that influence auditor judgment in going concern decisions. The second section of this chapter is a review of studies which indicate that seemingly irrelevant information impacts judgment. This section provides the theory for the development of the hypotheses in the study. The third section of this chapter is a review of studies examining the impact of accountability on judgmental biases. The accountability manipulation in this and other studies is discussed. The fourth section of Chapter II is a review of studies examining the effect of experience on judgment. This

section presents areas that may impact the findings of this study. The fifth section presents a summary of the chapter.

2.1 Going Concern Issues in Auditing

In 1988 the Auditing Standards Board (ASB) extended the auditor's reporting responsibility by issuing Statement of Auditing Standards (SAS) No. 59, The Auditor's Consideration of an Entity's Ability to Continue as a Going-Concern. SAS No. 59 is one of nine standards issued by the ASB in 1988 to bridge the "expectation gap" -the difference between what the public and financial statement users believe auditors are responsible for and what auditors believe they are responsible for. This standard requires the auditor to take an active role in seeking and evaluating evidence pertinent to the going-concern question. The previous standard (SAS 34) required the auditor to evaluate a client's going concern status only when contrary information is discovered. The new standard imposes on the auditor a responsibility to evaluate the assumption of continued existence of the client as part of every audit.

SAS No.59 requires the auditor to evaluate whether there is substantial doubt about the entity's ability to continue as a going concern for a reasonable period of time, not to exceed one year beyond the date of the financial statements being audited. The new standard also requires the auditor to modify his/her report when there is substantial doubt about continued existence

regardless of asset recoverability or liability classification. This is in contrast to SAS No. 34 which required an assessment of asset recoverability and amount and classification of liabilities when the auditor had substantial doubt about the ability of a client to continue. SAS No.59 also eliminated the "subject to" opinion and replaced it with an unqualified report with an explanatory paragraph.

Several auditing studies have examined the auditor's decision making process in going concern issues. Altman and McGough (1974) were the first researchers to compare the auditor's decision to issue a going concern report with a bankruptcy prediction model. Their study compared the type of audit opinion issued in the year prior to bankruptcy for 34 bankrupt companies to the predictions of the Altman bankruptcy prediction model (1968). Their results indicated that the bankruptcy prediction model performed with 82 percent accuracy in identifying bankrupt companies based on data from the last financial statement prior to bankruptcy. The auditors performed with only 44 percent accuracy in identifying companies that went bankrupt.

Deakin (1977) compared the predictive accuracy of his prediction model to the auditor issuance of a going concern report for 47 bankrupt companies. The model correctly identified 83 percent of the companies as failures two years prior to failure. A going concern audit report was issued by

auditors in only 15 percent of the cases. In the studies comparing statistical models to auditor's judgment, the issuance of the auditor's going concern report is viewed as an indication of the auditor's accuracy rate in predicting failure.

Similarly, Levitan and Knoblett (1985) examined the question of whether auditors use the same variables and weighing schemes as that of a bankruptcy prediction model. Their findings indicate that there is an overlap in the ratios used by bankruptcy prediction models and auditors. Both the auditors and bankruptcy prediction models used current year's net worth/total debt and negative cash flows. However, the most important variable used in the prediction model was the ratio of the slope of the three years' operating income to the stockholders' equity, while auditors seem to emphasize the ratio of total debt to total assets. In this study the auditor's accuracy rate in predicting failure was higher than in prior studies.

Kida (1980) argued that an auditor's decision to qualify a report may be influenced by the perceived outcomes of qualifying or not qualifying. Accordingly, studies which compare the accuracy of the issuance of a qualified opinion by the auditor to a bankruptcy prediction model may understate the auditor's ability to recognize problems. To test this hypothesis, Kida conducted a study in which the auditor's ability to pinpoint problems was compared to the accuracy of a mathematical model.

The results support the hypothesis that identification of a problem company does not necessarily lead to a qualification decision. Problems were mentioned for 18 firms, but only 13 qualified opinions were rendered. In a second phase of this study, the results indicated a significant correlation between the number of qualified opinions and qualifying attitudes, supporting the notion that the decision to qualify is influenced by the perceived consequences of qualification.

Although auditing studies using statistical models provide some insights into the auditor's decision-making process, only limited inferences can be made regarding the audit opinion formulation process. Menon and Schwartz (1987) noted that variables isolated in studies using statistical models may explicitly influence the auditor's decision making process or these variables may be associated with other unidentified factors that exert influence.

Mutchler (1993) examined the issue that auditors' opinions are inferior indicators of bankruptcy relative to the predictions of statistical models by incorporating factors that are more reflective of the auditors' real-world decision environment. These factors included (1) partitioning the sample into stressed and nonstressed observations (2) adjusting statistical models and forecast errors so that they reflect the proportion of bankrupt firms actually faced by auditors and (3) extending the statistical model to incorporate trends and

nonfinancial information that according to professional standards should reflect considerations in auditors' decision processes. The results indicate that the established notion that auditors' opinions are inferior indicators of bankruptcy is unfounded.

On the basis on an interview and questionnaire process, Mutchler (1984) identified 14 variables perceived by 16 partners of the Big Eight firms as useful in identifying a company with a potential going concern problem and ten variables that were useful in determining whether a going concern report would be issued. The partners indicated that they seldom used ratio analysis in deciding the going concern status of a firm. However, where ratios are used, auditors emphasized debt-related ratios such as cash flow/total debt, current ratio, net worth to total debt, and total debt to total assets. Once a problem company is identified, the auditors indicated that they consider cash flow projections and management plans to determine if a going concern report is appropriate.

Kida (1984) provides evidence on how hypothesis framing affects an auditor's search for evidence in a going-concern decision. In Kida's study partners and managers were randomly assigned to either a failure or a viability hypothesis condition. The subjects were presented with 20 cues, half of which pointed to failure and half to viability. If auditors adopt a confirmatory strategy (a tendency to preferentially

solicit evidence that supports one's hypothesis), those operating under the viability hypothesis will list more data supporting continued existence. His results indicate that whereas auditors in the viability group listed more data supporting continued existence than auditors listed in the failure group (confirmatory strategy), both groups of auditors listed the same number of informational items that pointed to failure. Subjects listed failure items more often than they listed viable items in both experimental groups. Kida noted that a limitation of his study was that the task did not recognize the sequential nature of the judgment process which may affect the search strategy.

In a subsequent study, Trotman and Sng (1989) examined auditors' information choice in a context in which judgments were made sequentially. Their results were consistent with the results of Kida. Auditors' cue selection was dominated by the selection of more failure cues (regardless of their initial hypothesis).

Asare (1992) examined the impact of hypothesis framing on auditors' evaluation of evidence and the order in which evidence is evaluated in auditor going concern decisions. Asare hypothesized that the auditor's belief revision after processing contrary information (mitigating factors) would be larger for auditors who frame their hypothesis in terms of viability (failure). Drawing upon the sequential belief updating model of

Einhorn & Hogarth (1987), Asare further hypothesized that sequential processing of evidence leads to a recency effect in auditors' going-concern judgments. This effect would lead auditors who evaluate contrary information followed by mitigating factors to issue relatively more unqualified opinions than those who evaluate the same evidence in reverse order. Auditors were presented with a case followed by four pieces of evidence presented in two different orders. After evaluating each piece of evidence, subjects were asked to indicate the type of opinion they would issue. The results supported the existence of a recency effect in both belief revisions and audit report choices. Hypothesis frame did not affect the existence of recency effects.

Messier (1990) also examined the issue of whether the order in which evidence is processed affects auditors' going-concern judgments. He developed a case based on a NASDAQ company that had just received a qualification. The basic company information was followed by two pieces of mitigating and two pieces of contrary information. Unlike Asare's study, all subjects were given a viability frame. Messier's results support a recency effect in auditors' judgment.

Kennedy (1993) examined whether accountability mitigates recency in a going concern decision context. Kennedy notes that recency is an effort-related bias, and can be reduced by accountability, defined as the requirement to justify one's

judgments to others. The subjects made only one judgment after all evidence was presented rather than making a judgment after each piece of evidence was presented. Two subject groups were used in the study: executive MBA students and auditing managers. The task required the subjects to judge the likelihood that a firm would fail within one year based on eight pieces of evidence- four supporting failure and four supporting viability. Two orders of evidence were used. Consistent with the framework proposed by Kennedy, the experiment shows that recency can be mitigated by accountability. It is of interest that the auditors in the study did not exhibit a recency effect in either the accountable or not accountable conditions. In contrast, executive MBA students exhibited significant recency effects. However, when accountability was imposed on the MBA subjects, no recency effects were noted. Given that most going concern decisions are made by partners and managers, the use of MBA students in this task is of concern in interpreting the findings.

Trotman and Choo (1991) examined the recall and clustering of typical and atypical information by expert and novice auditors within the context of a going-concern situation. Auditors with three years of experience were included in the expert group. New recruits were included in the novice group. The subjects were asked to recall all the information they could about a client after reading a script relating to a hypothetical

company. The results indicate that (1) experts recalled significantly more atypical than typical items, whereas novices did not; (2) experts recalled a significantly greater number of atypical items than did novices; (3) there was no difference in the number of typical items recalled by novices and experts; (4) clustering of recall on the basis of typicality was significantly higher for experts than novices. Since the going concern decision is made by partners and managers, the designation of auditors with only three years of experience as experts is unclear. The authors appear to focus on general knowledge as opposed to task specific knowledge in this study.

Ricchiute (1992) examined working paper order effects and auditors' going-concern decisions. In an experiment the presentation order of 60 sentences was manipulated to compare the going-concern decisions of partners who read the audit evidence in variations of 2 distinctly different orders: causal order versus the participating firm's working-paper order. The results indicated that the order manipulation affected the subjects' going-concern decisions but not their confidence in their decisions. The subjects decided that there was substantial doubt about the client more often when the strongest evidence supporting this decision was read in causal order versus working-paper order.

The behavioral accounting studies noted above provide mixed evidence as to whether auditors are prone to some biases in

judgment (heuristics) and not others in the going-concern decision process.

2.11 Use of Expert Systems in the Going Concern Decision

The integration of computers in the auditing process has led to the development of expert systems for various auditing applications, including the going-concern decision. Expert systems are based on the representation of the expert's decision processes in a computer program that is then used as a decision aid by other auditors.

GC-X (Biggs and Selfridge, 1988) is an expert system that makes going concern judgments. The system was developed through a review of professional literature and interviews with experts. The system incorporates various types of knowledge, including (1) measures of financial performance for making going concern judgments and how to explain those judgments (2) the target firm's business and its environment and (3) the evaluation of management's plans (Messier and Hansen, 1987).

Audit Opinion Decision (AOD) (Dillard and Mutchler, 1989) is an expert system designed to assist auditors in making judgments relating to the going-concern decision. The task was developed through an analysis of authoritative pronouncements and verbal protocols collected from audit experts. The user is guided through the decision process with suggestions, rules, and methods for making the going-concern decision.

2.2 Implications of Irrelevant Evidence on Decisions

In the auditing environment not all of the evidence is relevant to every decision the auditor makes in evaluating the client's financial statements. Expert judgment consists of the ability to evaluate and determine the relevance of audit evidence. However, studies have shown that the presence of irrelevant information weakens the implication of relevant information.

2.21 Research on the Influence of Irrelevant Information

Gaeth and Shanteau (1984) found that irrelevant information influenced expert judgment of soil samples. In this study two training sessions designed to reduce the influence of irrelevant information were tested. One training session consisted of a lecture while the other training session involved interaction and practice. In a pretest, irrelevant information was shown to influence the judgment of experienced student soil judges. The authors used a within subject design. First the subjects were given lecture training. This training did not reduce the influence of irrelevant information in the judgment process. In the second phase of the study the subjects were given interactive training. The interactive training reduced the influence of irrelevant information in the experts' judgments.

Rice (1975) found that irrelevant biographical information (i.e. number of children, father's occupation) influenced the

evaluation of prospective teachers by school administrators. In the study, sixty administrators were presented with one of two variations of a teacher's application form. One form contained negative responses for six categories which had previously been rated by a panel of five administrators as only minimally or not at all related to effective teaching performance. The other form contained positive responses for the same six categories. A multivariate analysis of variance revealed that altering responses (positive versus negative) for irrelevant biographical information resulted in significantly lower trait ratings and less likelihood of an interview for the teacher with negative irrelevant biographical information than for the teacher with positive irrelevant biographical information. This study indicates that irrelevant biographical information influenced the evaluation of prospective teachers by school administrators.

Castellan (1973) examined the effect of irrelevant cues on performance in a multiple-cue probability learning task. The subjects were five hundred ninety-five college students. The task was a typical probability learning problem, but prior to each prediction the subjects were presented with a set of cues. However, each of the cues was only partly related to the events which were to be predicted. The subjects were assigned to 24 groups in a 4 (validity of relevant cue dimension) x 3 (number of irrelevant cue dimensions) x 2 (replications) factorial design run for 400 noncontingent trials. For each group there

was either zero, one, or two irrelevant cue dimensions. The validities of the relevant cue dimensions were approximately .8, .6, .4, or .2. The three cue dimensions were Shape (X or Y), Color (red or green), and "Dot" (left or right).

The results indicate that subjects in a multiple-cue probability learning situation are not able to ignore irrelevant cue dimensions even after a large number of trials. There was significant improvement in performance across trials. The subject's ability to ignore irrelevant cue dimensions was a function of the validity of the relevant cue dimension. When the relevant cue dimension was of very high validity the subject was almost completely able to ignore irrelevant cues. In contrast, when the relevant cue dimension was of very low validity, subjects had a great deal of difficulty discerning between the relevant and irrelevant cues. The failure to ignore the irrelevant cue dimension was most serious when the relevant cue dimension was of moderate validity.

Griffitt and Jackson (1970) found that information about a job applicant's intellectual ability as well as information non-related to the applicant's ability to perform the job influenced those evaluating the applicant for the job. In the study seventy-eight undergraduate psychology students were asked to make recommendations and judgments concerning another anonymous, same-sex student who had applied for a position as an undergraduate research assistant in the Psychology Department.

The findings indicate that judgments were influenced by the degree to which the applicant's opinions agreed with those of the evaluator.

2.22 The Impact of Irrelevant Evidence - "The Dilution Effect"

Research by Kahneman and Tversky (1973) suggests that predictive judgments are suboptimal in part because people rely on the representative heuristic. Decision makers compare features of the target to features of possible outcomes and choose the outcome that is most representative of the target.

The dilution effect (Nisbett, Zukier, and Lemley, 1981) is one of the inconsistencies in judgment that may arise from the representative heuristic. Nisbett, Zukier, and Lemley conducted a series of studies in which subjects (undergraduate students) were asked to make predictions about target individuals. Some subjects received information judged by pretest subjects to be diagnostic - useful in the prediction of the outcome. Other subjects received a mix of information, part diagnostic and part nondiagnostic. The authors found that subjects given mixed information made much less extreme predictions than did subjects given only diagnostic information. This dilution effect is attributed to the use of similarity judgments in the subject's prediction process. For example, the image of a student who studies only 3 hours per week is strongly associated with the outcome of a low G.P.A. The perceived predictive link between

the student and poor grades is reduced by including irrelevant details in the description of the student (e.g. tennis player).

Judgments of similarity are a positive function of the number of features common to both the target and the outcome and a negative function of the number of noncommon features (Tversky 1977). The addition of common features increases the perceived similarity and the addition of noncommon features decreases the perceived similarity.

In auditing diagnostic information about the client is information that is common to both the client and to the auditor's conception of the outcome. The outcome in this study is the company's ability to continue operations. In contrast, nondiagnostic information is information that characterizes the client but which neither characterizes or contradicts the auditor's conception of the ability of the client to continue operations. The presence of nondiagnostic information pertaining to the client reduces the similarity between the client and the outcome that is suggested by the diagnostic information (Tetlock and Boettger 1989). The nondiagnostic information contains noncommon features, attributes of the client that the auditor rarely associates with the outcome. Based on this view, auditors judge the likelihood of an event by comparing their knowledge of conditions associated with that event to their knowledge of the client. The greater the perceived similarity of the client knowledge and the event

knowledge the greater the assessed likelihood of the event (Tversky and Kahneman 1983 and Frederick and Libby 1986).

Hackenbrack (1992) examined the impact of nondiagnostic evidence on the auditor's judgment of fraudulent reporting in the client's financial statements. Auditors were asked to assess how much a company's exposure to fraudulent reporting changed during a year given a mixture of diagnostic and nondiagnostic evidence. The auditors' average auditing experience was 42 months or less, depending on the treatment group. As hypothesized, the auditor's fraud-risk assessments became less extreme in the presence of nondiagnostic evidence.

People often use different information-processing strategies in different situations. Much depends on the perceiver's goals and the normative context (Tetlock 1985). The question becomes what kinds of information processors do people become when confronted with particular tasks in particular environments (Jenkins 1981). This research builds upon prior studies by examining how the attributes of the going concern accounting setting and accountability affect the use of nondiagnostic information by experts, partners and managers, in making judgments.

In this study, the auditor's perceived similarity of the event and the client is described as a feature matching process with common and distinctive features (Tversky 1977, Hackenbrack 1992). A common feature is an aspect of the event that is

evident in the client. Based on this view, auditors judge the likelihood of a company continuing operations by comparing their knowledge of conditions associated with a viable company to their knowledge of the client.

Distinctive features are aspects of the auditor's client specific knowledge that are not part of the auditor's event specific knowledge (Hackenbrack 1992). A distinctive feature can be diagnostic, assumed to have predictive value, or nondiagnostic, assumed to have no predictive value. Nondiagnostic distinctive features neither support nor contradict the auditor's knowledge of the entity continuing as a going concern. Even though the nondiagnostic information is assumed a priori to have no predictive value, since it distinguishes the client from the event of interest (going concern issue), it reduces the perceived similarity between the client and the event of interest (Figure 1).

Based on the literature pertaining to the dilution effect, it is hypothesized that an auditor will make a higher probability assessment that the firm will fail within a year of the financial statement date when presented with information that has value in predicting a company's ability to continue operations than will an auditor who is provided with relevant information and additional facts that have no value in predicting the company's ability to continue operations.

H1: The auditor's assessment of the probability that the company will fail within a year of the financial statement date will be less when nondiagnostic evidence is available than when it is not available.

2.3 Accountability

Research indicates that under certain conditions accountability (pressure to justify one's view to others) can lead people to a more complex information processing procedure. Studies by Tetlock (1983) found that accountability results in a resistance to many judgmental biases. When people are aware that they must justify their opinions to others, they often engage in "preemptive self-criticism" (Tetlock 1983). They analyze the evidence more carefully in an effort to prepare themselves for potential objections that a well-informed audience might raise to the stands they have taken.

Ashton (1990) found that in the absence of a decision aid, auditors achieved greater classification accuracy when they were required to justify their choices or when feedback about past performance was provided, or when a monetary incentive was provided. As auditors in the Ashton study were required to give a written justification for decisions they do not normally make, the definition of justification in Ashton's task differs from justification in terms of accountability as noted in Tetlock's study. Tetlock defines accountability as pressure to justify

one's decisions to others. Tetlock's subjects knew they would be subsequently videotaped or interviewed.

Lord (1992) examined the influence that pressure (in the form of personal accountability) has on auditor decision behavior. The accountability treatment was accomplished by temporarily deceiving the subjects. The auditors were divided into two groups (accountability or anonymity) with the presence of accountability in the form of a statement indicating the subject's responses would be evaluated by members of the subject's CPA firm. The introduction to the exercise was delivered by a well known senior partner of the CPA firm which provided the subjects. The results of the study indicate that auditors who were accountable for their decisions were less likely to issue an unqualified opinion than the auditors who were guaranteed anonymity.

Johnson and Kaplan (1991) found that accountability improves auditor judgment consensus and self-insight. A total of 101 auditors with average audit experience of 38 months participated in the study. The auditors were randomly assigned to one of two groups: accountable or non-accountable. Auditors in the accountable group were told that their judgments would be reviewed and that they would be asked to explain their judgments. Auditors in the non-accountable group were told that their judgments would be anonymous. The auditors completed an experimental task in which they assessed the risk of

obsolescence for twenty inventory items. Consensus and self-insight were higher for auditors in the accountable group than for auditors in the not accountable group.

Kennedy (1992) examined the debiasing effects of accountability on audit judgment. Two subject groups were used in the experiment: executive MBA students and auditors attending a managers' training session. The task required the subjects to judge the likelihood that a firm would fail within a year based on eight pieces of evidence--four supporting failure and four supporting viability. The results indicate that accountability mitigates the recency effect in MBA students. In contrast, the auditors' judgment exhibited no recency in the accountable or unaccountable treatment groups.

Glover (1993) examined the impact of accountability and time pressure on auditor judgment. The experimental task used auditors with an average of 24 months of accounting experience. The subjects were instructed to assess the likelihood of material misstatement in accounts receivable after reviewing a brief description of the company and evidence gathered during the audit. Each auditor made judgments for two types of case study tasks. The short case contained only diagnostic information. The long case contained both diagnostic and nondiagnostic information. Auditors in the time pressure condition received three minutes to complete the task. The results indicate that the auditors' judgments exhibited a

dilution effect for nondiagnostic information. Accountability did not enhance the dilution effect. Time pressure eliminated the influence of nondiagnostic information on auditor judgment.

The cognitive-motivation framework of accountability views accountability as reducing many information processing biases by motivating subjects to process carefully all information at their disposal and to integrate that information into a defensible judgment. The same underlying process that improved judgment in debiasing studies may exacerbate bias in other settings, as in the case of both diagnostic and nondiagnostic information (Tetlock and Boettger, 1989). The same mechanism, complexity of thought, that explains the debiasing effectiveness of accountability in other contexts is responsible for the magnification of the dilution effect.

The dilution effect is consistent with Kennedy's (1992) categorization of judgment bias into two categories, perceptual and strategic biases. Perceptual biases are based on one's interpretation of the data. The increased cognitive activity induced by accountability will not mitigate perceptual biases. In contrast, strategic biases involve the effort-accuracy tradeoff. Accountability will mitigate strategic biases by resulting in more cognitive effort on the part of the decision maker as he/she knows his/her decision will be reviewed by another party.

The accountability manipulation is important. Accountability in the present study is defined as social pressure to justify one's decision to others. Therefore, it must be clear to the subject that he/she is held accountable to some valuative audience. Auditors are generally accountable to superiors, clients, and third parties. For example, Quilliam (1991) manipulated the intended audience for auditors. The subjects were told that they were accountable to either a superior, client, third party or all three audiences. In the debriefing questionnaire the auditors were asked to rank the audience in the order of influence on their decisions. In spite of being cued to an intended audience, some of the subjects ranked their superior as the one that most influenced their decision. This indicates that at least some of the subjects felt implicitly accountable to their superior.

Partners in an auditing firm make the final decision in a going concern assessment. Audit managers have input into the decision process. Discussions with partners and managers in the pretest of the present study revealed that a second partner review would be viewed by a partner as a possible intended audience for justification of a going concern judgment. Accordingly, in this study subjects in the accountability group are informed that they may be selected to justify their responses to the researcher and a partner from their firm. A similar accountability manipulation was found to have a

significant impact on results in a study by Kennedy (1992). This manipulation also alleviates the possible effect of experimental demand that may result if the subject feels he/she is only accountable to the researcher.

One practical problem in examining accountability in an auditing context is whether or not an accountability manipulation will have an impact on a subject who already feels accountable in his/her everyday work (Hirst, 1992). Finding no differences in treatment groups could be the result of a poor manipulation or of a ceiling effect. Presumably, subjects who feel more accountable should take longer to make their judgments. Furthermore, studies have shown that accountable subjects are less confident in their decisions than unaccountable subjects (Tetlock and Boettger, 1989).

The instructions to the subjects in the present experiment made it clear that they would be held accountable to some valuative audience. One partner at each firm was asked to participate in a follow-up interview immediately after the study. This allowed the researcher to obtain additional information about the reasons for the responses made as well as follow through on the statement in the study concerning partner review.

Tetlock and Boettger (1989) in a study with undergraduate subjects found that accountability exacerbates the dilution effect. The subjects in the accountability treatment group

diluted their predictions in response to nondiagnostic information and were more responsive to additional diagnostic information. Accountability motivated subjects to use all the information at their disposal (diagnostic and nondiagnostic) and to integrate that information into a defensible judgment.

This study examines the impact of accountability on the auditor's use of nondiagnostic information in a going concern auditing setting. It is hypothesized that the accountability manipulation will result in the auditor using a wide range of information in making judgments regardless of the usefulness of that information.

> H2: The auditor's assessment of the probability that a company will fail within a year of the financial statement date will be less when nondiagnostic information is presented under conditions of accountability relative to conditions of unaccountability.

The response-bias interpretation of accountability indicates that decision makers who expect to justify their views will stick to the safe midpoints of the judgment scale. Accountability, in this view, induces an unwillingness to make extreme judgments that may be difficult to justify. If accountability simply induces a generalized reluctance to make extreme judgments, decision makers would make less extreme

judgments under conditions of accountability given only diagnostic information or given diluted (diagnostic and nondiagnostic) information. However, the cognitive-motivational interpretation of accountability implies greater selectivity in the effects of accountability. It is hypothesized that in the accountability manipulation the auditor will process all information at his/her disposal into a defensible judgment resulting in less extreme judgments when both diagnostic and nondiagnostic information is presented than when only diagnostic information is presented.

> H3: The auditor's assessment of the probability that a company will fail within a year of the financial statement date will not be different under conditions of accountability relative to unaccountability when only diagnostic information is presented.

2.4 The Effect of Experience on Auditors' Judgments

Several auditing studies have examined the effect of expertise on auditor judgment. The role of professional experience is important in evaluating auditing decisions. Many auditing judgments are subjective. Given that accuracy can not be determined for many auditing judgments (i.e. internal control evaluations, materiality levels), the standard criteria to measure the quality of professional judgments are consensus, cue weighing, self-insight, and reliability (Messier, 1983). The

extent to which differences in auditing expertise impact the quality of auditing judgments is important in the development of efficient and effective auditing procedures.

Studies in psychology indicate that the quality of decisions improves with experience. Alba and Hutchinson (1987) found that in general increased familiarity with a task leads to a greater degree of expertise. Familiarity aids the subject in the ability to analyze information and isolate relevant data. Nonexperienced subjects are more likely to oversimplify decisions, to ignore the complexities of the decision-making process, and to be inefficient.

Bedard (1990) notes that expertise in auditing is defined in terms of knowledge acquired through direct experiences (past judgments and feedback) and indirect experiences. There is a distinction between professional auditors and experienced auditors (Colbert, 1989). Experience and expertise are two different items (Davis and Soloman, 1989). Experience is a suspect surrogate for expert performance in many accounting studies. Expertise incorporates a large body of knowledge and procedural skills. The task specific experience is viewed as a crucial determinant of expertise in auditing.

Abdolmohammadi and Wright (1987) examined the effects of experience and task complexity on audit judgment. Three cases taken from actual audit engagements were used in a series of laboratory experiments to study the effects of experience and

task complexity on audit decisions. These tasks were classified as structured, semi-structured, and unstructured, based on a survey of a group of highly experienced auditors from six national CPA firms. In the unstructured task category, 96 students and 63 practicing auditors (mean audit experience of 10.5 years) were asked to determine the appropriate disclosure for a proposed audit adjustment. Fifty undergraduate auditing students and 65 practicing auditors (mean audit experience of 3.57 years) participated in the structured and semi-structured audit experiments. The results indicate a significant experience effect for unstructured and semi-structured judgment tasks. However, the significant experience effects for the structured task may be due to the experimental design. Given the significant differences in the expected population error rate and the maximum tolerable error judgments between experienced and inexperienced subjects, one would expect significant differences in their sample sizes.

Bonner (1990) explored a view of expertise in which specific experiences and training create knowledge, and knowledge is combined with innate ability to perform specific audit tasks. Bonner concluded that more experienced auditors on average did better in tasks and had more knowledge and ability than less experienced auditors. Task specific knowledge was found to aid the performance of experienced auditors in both cue selection and cue weighing (Bonner, 1990).

Several auditing studies have explored the effect of professional experience with internal control topics. (See Colbert (1989) for a summary of the results of a literature review.) Ashton (1973) examined the internal control judgments made by 63 subjects after considering six internal control factors, each manipulated at two levels. The auditors were comprised of four experience levels (one, two, three, and greater than three years of experience). The results of the study indicated that the length of experience did not significantly affect the percent of variance accounted for by the cues, consensus, reliability, or self-insight.

Ashton and Brown (1990) extended Ashton's original task by creating a more complex task, employing two additional cues and having the respondents assess a larger number of cases. The auditors (subjects) in Ashton and Brown's study were less experienced than the subjects in the original study. The findings show that self-insight, consensus, and the amount of variance explained by the internal control cues studied increased with experience.

Messier (1983) examined the effect of experience on auditors' materiality judgments. The subjects in the study, auditing partners, were asked to make judgments involving the materiality of an inventory write down and the probability that the write down should be disclosed separately. Length of experience significantly affected both the materiality and

disclosure judgments. Partners with less experience had lower materiality and disclosure thresholds than those with more experience. The amount of variation in the auditors' judgments increased with experience. Experience did not significantly affect either the reliability or self-insight measures of the partners.

Kaplan and Reckers (1984) found that experience level for managers and seniors was not a significant factor in the assessment of the likelihood of a material error. The auditors were asked to assess the likelihood of a material error in accounts receivable at two points in time: (1) after reviewing only a hypothetical client scenario, and (2) after reviewing additional client information including a completed internal control questionnaire.

Wright and Asare (1994) identify two criteria for evaluating the judgments of trained professionals: normative expertise and substantive expertise. Normative expertise refers to the ability to assess risk in conformity with a normative model (i.e. Bayes theorem). Substantive expertise refers to domain specific knowledge. Their study examined substantive and normative expertise in considering multiple hypotheses. The results of the study indicate that while substantive expertise eliminates substantive errors, expertise is not sufficient to mitigate normative errors.

In the present study judgments are made by experienced auditors with task specific knowledge. In every audit the manager and partner are either responsible for or provide the greatest input for the going concern decision. The audit partners in this study have an average of 22 years of experience. The average number of audits participated in by each partner is 94. The managers and senior managers in this study have an average of 8 years of experience. On average the managers have been involved in 45 audits. The senior managers have been directly involved in an average of 55 audits.

The dilution effect has been documented in auditing studies using fraud risk assessments and assessments of material misstatements in accounts. Both studies evaluated the judgments of auditors with 42 months or less of experience. There is a distinction between professional auditors and experienced auditors.

Expertise may play a significant role in the interpretation of the results of the present study. Expertise in this study is based upon years of audit experience and task specific knowledge. The experimental task is an unstructured task where knowledge would most aid performance.

2.5 Chapter Summary

In this study the effect of accountability and nondiagnostic information is examined in a going concern context: the evaluation of a company's ability to continue in existence within one year of the financial statement date. The importance of the auditor's going concern opinion is reflected in the issuance of Statement of Auditing Standards (SAS) No. 59, one of the nine "Expectations Gap" standards issued in 1988 to address the differences between the financial statement user's view of the auditor's responsibility and the auditor's view of his/her responsibility in every audit.

Research studies have addressed the auditor's decision making process in the face of going concern uncertainties. These studies include statistical models which are not able to incorporate certain factors that exhibit influence on the auditor's opinion formulation process. These factors include aspects of the environment in which the auditor makes decisions. Similarly, behavioral studies of the auditor's decision making process in the face of uncertainties have provided the subject with some information about the client the researcher believes to be diagnostic, useful in predicting some outcome. However, in making real world assessments auditors normally possess not only information that they believe to be diagnostic (relevant), but also information that they do not believe to be diagnostic (irrelevant).

In the auditing environment not all of the evidence is relevant to every decision the auditor makes in evaluating the client's financial statements. Expert judgment consists of the ability to evaluate and determine the relevance of audit evidence. However, studies have shown that the presence of irrelevant information impacts judgment by weakening the implication of relevant information. Research indicates that accountability, the need to justify one's decisions to others, can reduce the influence of many information-processing biases on judgment. However, studies indicate that accountability enhances the dilution effect of nondiagnostic (irrelevant) information when both diagnostic (relevant) and nondiagnostic information is available.

Prior studies in accounting have examined the issue of the dilution effect and the issue of accountability using auditors with less than 42 months of experience. In this study the effects of accountability and nondiagnostic evidence will be tested using auditing experts (managers and partners) as subjects. The auditors will make an assessment of an entity's ability to continue as a going concern from either diagnostic information alone or diagnostic information presented with nondiagnostic information under conditions of accountability or unaccountability (confidentiality). It is hypothesized that the presence of nondiagnostic information will weaken the

implications of diagnostic information. It is hypothesized that accountability will magnify this dilution effect.

In Chapter III the method, design, and analysis of the study are discussed. In the first section of Chapter III, the ANOVA model is presented, as well as the statistical tests utilized to test each hypothesis. The pretest procedures used in the development of the experimental materials are presented in the second section. Section three includes a description of the subjects followed by a discussion of the experimental task in section four. The results of the study are analyzed in section five of Chapter III.

Chapter III

Method, Design and Analysis

This chapter is divided into six sections. In the first section the ANOVA model is presented. A discussion of the statistical test utilized to test each hypotheses is presented in section two. The pretest procedures used in the development of the experimental materials are presented in the third section. Section four includes a description of the subjects followed by a discussion of the experimental task in section five. The results of the study are analyzed in section six.

3.1 Design

A between subjects analysis of variance (ANOVA) statistical model was used to analyze the data. Subjects were randomly assigned to conditions in a 2 (accountable or not accountable) x 2 (types of evidence - diagnostic or diagnostic and nondiagnostic) between subjects design.

The dependent variable is the subject's assessment of the probability that the firm will fail within a year.

The type of evidence (diagnostic, diagnostic and nondiagnostic) is the independent variable in the study. A second independent variable is accountability (no accountability).

3.2 Tests of Hypotheses

An analysis of variance statistical technique was performed to test each hypothesis as ncted below.

3.21 The Dilution Effect

The dilution effect was measured by comparing auditors' judgments with diagnostic only information to auditors' judgments with both diagnostic and nondiagnostic information. To test this hypothesis an analysis of means for subjects' judgments in all four treatment groups was performed. The hypothesized dilution effect would result in the auditor's assessment of the probability that the company will fail within a year of the financial statement date being less when nondiagnostic evidence is available than when only diagnostic information is available.

The direction of the hypotheses testing was as follows: (1) Analysis of variance was completed to determine if the probability assessments of subjects who were accountable and received diagnostic only information were significantly greater than the probability assessments of subjects who were accountable and received both diagnostic and nondiagnostic information. (2) Analysis of variance was completed to determine if the probability assessments of subjects who were not accountable and received diagnostic only information were significantly greater than the probability assessments of

subjects who were not accountable and received both diagnostic and nondiagnostic information.

3.22 Accountability

The impact of accountability on the auditor's use of nondiagnostic information was measured by comparing the judgments of auditors who were accountable (accountability treatment group) and received both diagnostic and nondiagnostic information to the judgments of auditors who were not accountable (not accountable treatment group) and received both diagnostic and nondiagnostic information. The hypothesized enhancement effect of accountability would result in the auditor's assessment of the probability that a company will fail within a year of the financial statement date being less when nondiagnostic information is presented given accountable conditions than when not accountable conditions existed.

The direction of the hypothesis testing was as follows: Analysis of variance was completed to determine if the probability assessments of subjects who were accountable and received both diagnostic and nondiagnostic information were significantly less than the probability assessments of subjects who were not accountable and received both diagnostic and nondiagnostic information.

3.23 Cognitive-motivational Interpretation of Accountability

The cognitive-motivational interpretation of accountability implies greater selectivity in the effects of accountability. It is hypothesized that in the accountability manipulation the auditor will process all information at his/her disposal into a defensible judgment resulting in less extreme judgments when both diagnostic and nondiagnostic information is presented than when only diagnostic information is presented. Therefore, when only diagnostic information is presented there should be no significant difference in the probability assessments of subjects whether in the accountable or not accountable group.

The direction of the hypothesis testing was as follows: Analysis of variance was completed to determine if there was no significant difference in the probability assessments of subjects who were accountable and received diagnostic only information and the probability assessments of subjects who were not accountable and received diagnostic only information.

3.3 Pretest Procedures

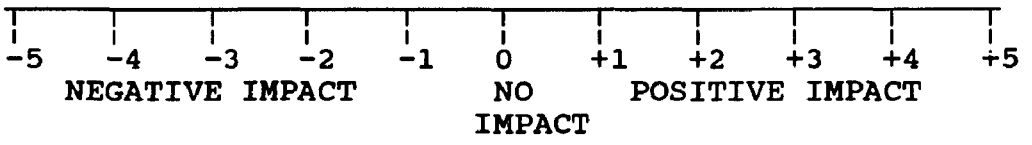
The information used in the experimental materials in this study was pretested by 5 members of the audit staff of the Chicago office of a Big 6 accounting firm to ensure that the nondiagnostic information was considered irrelevant in the format used in this task. Three of the participants were partners and two were managers. Thirty-four items of

information for going concern assessments were screened (The Appendix contains a copy of the pretest document).

The author used the following sources to create the list of items of evidence to be screened by the partners and managers: Statement of Auditing Standards (SAS) No. 59, a Big Six public accounting firm's audit guide for going concern evaluations, a regional accounting firm's audit guide for going concern considerations, a potential list of irrelevant items for fraudulent reporting (Hackenbrach, 1992), industry ratios (Robert Morris Associates, 1992), and annual reports of Black & Decker (1992 & 1991), Acme United (1992 & 1991).

First, partners and managers were asked to read a one page narrative describing the history and background of a hypothetical client, ABC Company. This narrative was to provided to allow the participants to form a general impression of the company. After reading the history and background of the company, the partners and managers were asked to rate items as diagnostic (the information taken by itself impacts his/her assessment of the company's ability to continue operations) or nondiagnostic (the information taken by itself is of no value in deciding if a company will continue operations within a year of the financial statement date). The items were assigned values

as indicated on the following scale:



For each participant, items rated from -5 to -1 were considered as relevant (negative impact) for the going concern decision. Items rated from 1 to 5 were considered as relevant (positive impact) for the going concern decision. Items rated as having 0 (zero) impact on judgment were considered as irrelevant for the going concern decision process.

3.31 Diagnostic and Nondiagnostic Items

From the pretest, only those items rated by all five of the participants as diagnostic (relevant) or nondiagnostic (irrelevant) were chosen for use in the experimental materials (Figure 2).

Additional pretest measures were taken to ensure that individual items rated as nondiagnostic would still be perceived as nondiagnostic when presented together (Zukier 1982). One hour meetings were scheduled with two participants in the pretest to discuss the items in the study and the reasons for the participants' selections of the items as relevant or irrelevant. Additionally, the participants were asked to assess whether a company described by the combined nondiagnostic

information was likely to continue operations within a year of the financial statement date. The combined nondiagnostic information had no impact on the auditors' ability to assess whether the company would continue operations.

3.4 Subjects

The experiment was conducted with 60 managers and partners from four of the Big 6 accounting firms. Participants in the study included 27 partners, 14 senior managers, and 19 managers. The partners had an average of 21 years of experience. The managers and senior managers had an average of 8 years of experience. On average the managers had been directly involved in 41 audits. The senior managers had been directly involved in an average of 55 audits. The partners had participated in an average of 94 audits. Audit managers and partners were chosen as subjects because they are either responsible for or provide the greatest input for going concern decisions.

Initial contact was made by the researcher with a partner at each firm. Selection of audit subjects was made either by direct contact by the researcher or by a contact person at each firm. The experiment was administered by the researcher directly to the subjects (partners and managers) in either a small group setting or on an individual basis (depending on availability of subjects) at firm locations in Chicago, Atlanta, and Minneapolis.

3.5 Task

Each participant received a booklet containing a consent form, instructions, and the experimental materials. In the group settings, subjects were informed of the importance of working independently. The instructions indicated that the study is concerned with auditor judgment. Subjects were asked to assume they are the partner/manager for the current year's audit engagement and to consider the going concern question.

Subjects were provided background information on a hypothetical client. There were four versions of the case study task. Each version contained information supporting conditions that indicate doubt that the company can continue operations. Each version contained either diagnostic information only or diagnostic and nondiagnostic information (A version of the experimental materials is in the Appendix).

Subjects in the control condition received only diagnostic information. They received audited financial statements of the last three years and the current year and other information identified as relevant by auditors participating in the pretest.

Subjects in the dilution condition received the control diagnostic information plus information identified as nondiagnostic by participants in the pretest.

After reading the case, subjects were asked to estimate the probability that the client will continue operations within a

year of the financial statement date. The subjects were asked to give their degree of confidence in this assessment.

Subjects received one of two sets of accountability instructions. Subjects in the not accountable control condition were told that their responses were confidential. Subjects in the accountability condition were asked to give written justification for their decisions and informed that they may be selected for a follow-up interview with the researcher and a partner at their firm. They were informed that if they were selected they would be asked to explain and justify their responses.

3.6 Analysis of Results

The auditors' probability estimates of the company's ability to continue operations were entered into a 2x2 between subjects analysis of variance (ANOVA) to examine the role of nondiagnostic evidence and accountability on audit judgment. The auditors were asked to make likelihood judgments on the ability of a company to continue in existence through the end of the fiscal year on a 0-100 point scale. Subjects' responses were transferred from P(C/:) to P(NC/:) by subtracting the indicated response from 100 to evaluate the dependent variable, the assessment of the probability that a company will fail.

The dilution effect was measured by comparing auditors' judgments with diagnostic only information to auditors'

judgments with both diagnostic and nondiagnostic information. Table 1 contains the descriptive statistics relating to the dilution effect. In Panel A an analysis of means for each treatment cell is presented. Contrary to the hypothesized effect (H1), the mean belief assessment for subjects presented with diagnostic only information was not significantly different from the mean belief assessment for subjects presented with diagnostic and nondiagnostic information (means of 38.67 versus 39.8 and 25.67 versus 31.33, Table 1, panel A; p-values of .8690 and .4109, respectively, Table 1, panel B).

Accountability did not enhance a dilution effect (H2) in the auditors' judgment (means of 39.8 versus 31.33, Table 1, panel A; p-value of .2209, table 1, panel B). However, there was a significant main effect for the accountable/not accountable manipulation (F=4.93, p-value of .0305, Table 2, panel A). Auditors in the accountable condition made judgments that were more regressive (closer to the midpoint of the scale) than did auditors in the not accountable condition (means of 39.23 versus 28.5, Table 2, panel B).

Hypothesis 3 was weakly supported; the auditor's assessment of the probability that a company will fail within a year of the financial statement date was not significantly different under conditions of accountability relative to unaccountability when only diagnostic information was presented (means of 38.67 versus 25.67, Table 1, panel A; p-value of

.0625, Table 2, panel B). The ANOVA reveals no significant accountability x type of evidence interaction (F = .22, p-value of .6411, Table 2, panel A).

To examine the possible role of CPA firm differences, structured versus nonstructured firms, in the evaluation of nondiagnostic evidence, an analysis of variance using firm as a main effect was performed. The ANOVA revealed no significance for firm differences in auditor belief assessments (F = 1.23, p-value of .277).

The analysis indicated no differences in the judgments of managers, senior managers, or partners (F= .04, p-value of .844). This finding is consistent with the high level of task specific experience of the auditors participating in the task. Debriefing data revealed that the managers in the study had participated in an average of 41 audits. Senior managers had participated in an average of 55 audits. Partners had participated in an average of 94 audits. Accordingly, the managers, senior managers, and partners had task specific and general domain knowledge: knowledge of the important issues in a going concern consideration , how changes in specific ratios and performance can impact a company's ability to continue. The auditors in the study also possessed general problem-solving ability as analyzing a company involves computations and backward/forward reasoning. Increased familiarity with a task leads to expertise (Alba and Hutchinson, 1987). Expertise is

improved because familiarity or experience with a topic reduces the cognitive effort required of the decision maker.

The results indicate no evidence of a dilution effect in the decision making process of auditing experts, partners and managers. There is an overall tendency for accountable subjects to be more conservative in their judgments, resulting in a higher assessment of failure than the non-accountable subjects.

The statistical analyses reveal that partners and managers are able to distinguish the degree of relevance of various items of information from various sources in determining if there is substantial doubt about an entity's ability to continue as a going concern within one year of the financial statement date. The ability of expert auditors, partners and managers, to evaluate and determine the relevance of audit evidence is important as the public (shareholders, creditors, etc.) values the auditor's ability to make expert judgments in the evaluation of financial statements. Expert judgment consists of the ability to evaluate and determine the relevance of audit evidence.

3.61 Power Analysis

Pearson and Hartley charts were used to determine the degree of power associated with the sample size and significance level of this study. The power function was calculated for each

main effect based upon the following formula:

$$\gamma^2_A = n' \frac{\Sigma\alpha^{2i}/a}{\delta^2_{S/A}}$$

The power associated with the accountability main effect is approximately .60, indicating that there is a high probability that this study will detect the expected treatment differences. The power associated with the information type main effect is .4966. The power associated with the type main effect could be increased by significantly increasing the sample size.

The power function derived from the Pearson and Hartley charts reflects the degree to which anticipated treatment differences can be detected. Power also reflects the degree to which others will be able to duplicate research findings in repeated experiments. The present study utilizes an α level of .05 to control for the magnitude of a type I error. Unlike acceptable alpha levels, there are no explicit guides among researchers as to the appropriate power level for studies. The average power for detecting medium effects in experiments in behavioral sciences is .50 (Sedlmeier and Gigerenzer, 1989).

The author was unable to determine the power effects of other studies in auditing which examined the dilution effect (Hackenbrach, 1988; Glover, 1994) due the lack of available data disclosed in these studies. Both prior studies utilized within

subject research designs to examine the dilution effect unlike the between subjects research design utilized in this study.

One of the main advantages of a within-subject design is the control over subject variability. The error component associated with a factor in a repeated measures design should be smaller than the expected error component in a design with independent groups of subjects. Therefore, within-subject designs generally have greater statistical power than between-subject designs due to the reduction in error variance. It is because of the practice effects and carryover effects associated with within-subject designs that the author utilized a between-subjects design in the present study. Given the amount of information that is necessary for a realistic case to evaluate the going concern decision, it is difficult to minimize practice and carryover effects. Of particular concern is the possibility of negative practice effects due to fatigue that may build up in successive tests. Similarly, given the length of the case required to evaluate the financial information to make a going concern assessment, it is possible that factors identified in earlier treatments may continue to have an influence after that treatment is completed. The subject may continue to utilize the base line developed in the first treatment in the belief assessment of successive treatments. One of the most common ways of reducing differential carryover effects is to provide sufficient time between sessions to allow the subject to

completely eliminate any effects from the previous treatment. Given the time constraints partners face in the normal course of business, it would have been very difficult for the author to require more than a thirty to 45 minute time allotment for this research study. In fact, partners expressed to the author their time constraints due to business obligations.

In Chapter IV the results of the study are interpreted as pertains to both the dilution effect and accountability. The role of expertise in examining the dilution effect is discussed. A discussion of the meaning of accountability from an auditor's perspective is presented in interpreting the findings of the present study.

Chapter IV

Interpretation of Results

This chapter is divided into four sections. The first section presents a discussion of the results of the study and the dilution effect. Studies in psychology that examined the dilution effect are addressed in the first section. These studies found the dilution effect with undergraduate students as subjects making judgments about target individuals. Extending the examination of the dilution effect to the auditing setting allows for the evaluation of judgments by professionals in a task that is a part of their naturally occurring environment. Studies that examine the dilution effect with auditors as subjects are summarized in this section. A discussion of the distinction between professional auditors and expert auditors is also presented. The impact of expertise on the dilution effect is discussed in the second section of the chapter. Characteristics of expert judgment are presented. Studies that examine the decision making process of experts are addressed in this section. A discussion of the results of the study and the accountability main effect is presented in the third section of the chapter. This section includes a comparison of the cognitive-motivational framework of accountability and the response-bias interpretation of accountability. The fourth section is a summary of the chapter.

4.1 Interpretation of Results - Dilution Effect

Studies in psychology (Nesbitt, Zukier, and Lemley, 1981, Tetlock and Boettger, 1989) examined the dilution effect using novices, undergraduate students, as subjects in making predictions about target individuals. Hackenbrack found support for the dilution effect in an auditing setting with auditors with an average of 42 months of experience. The task in Hackenbrack's study was the assessment of a company's exposure to fraudulent reporting. Glover (1993) found support for the dilution effect in an auditing setting with auditors with an average of 24 months of public accounting experience. However, Glover found that time pressure significantly decreased the dilution effect exhibited by auditors. The task in Glover's study was the assessment of the material misstatement of year-end accounts receivable. Both accounting research studies examined the dilution effect by analyzing judgments made by auditors with an average of 42 months or less of experience. Although the subjects in the prior accounting studies were professional auditors, there remains a distinction between professional auditors and experienced auditors (Colbert, 1989).

Several auditing studies have examined the effect of expertise on auditor judgment. Bedard (1989) notes that expertise is defined in terms of knowledge acquired through direct experiences (past judgments and feedback) and indirect education experiences. Studies on materiality show that

consensus, reliability, the number of significant cues, and the percent of variation accounted for by the cues increases with experience. Bonner (1990) explored a view of expertise in which specific experiences and training create knowledge, and knowledge is combined with innate ability to perform specific audit tasks. Bonner concluded that more experienced auditors on average did better in tasks and had more knowledge and ability than less experienced auditors. Task specific knowledge was found to aid the performance of experienced auditors in both cue selection and cue weighing (Bonner, 1990).

Alba and Hutchinson (1987) found that in general increased familiarity with a task leads to a greater degree of expertise. Familiarity aids the subject in the ability to analyze information and isolate relevant data. Nonexperienced subjects are more likely to oversimplify decisions, to ignore the complexities of the decision-making process, and to be inefficient.

Gaeth and Shanteau (1984) found that irrelevant information influenced expert judgment of soil samples. However, interactive training sessions reduced the influence of irrelevant information in expert judgments.

In the present study judgments are made by experienced auditors, partners (averaging 22 years of experience) and managers (averaging 8 years of experience). The results indicate that the judgments of experienced auditors do not

exhibit a dilution effect. The lack of a dilution effect in the judgment of experienced auditors can be attributed to the ability of experts to recognize relevant categories more quickly than novices (Lord & Maher, 1990).

One potential explanation for not observing the dilution effect is that auditors did not view the nondiagnostic information presented in the case as truly irrelevant. The nondiagnostic information presented in the experimental materials was pretested with partners at a Big Six audit firm. Only those items of information consistently rated as irrelevant to the going concern decision by all pretest subjects were used in the experimental materials. Measures were taken to ensure that the nondiagnostic information was viewed as irrelevant by partners and managers in firms other than those of the pretest subjects. After administering the experimental materials a sample of the participants from each firm were selected to rate items as diagnostic (the information taken by itself impacts his/her assessment of the company's ability to continue operations) or nondiagnostic (the information taken by itself is of no value in deciding if a company will continue operations within a year of the financial statement date) after completing the case. The questionnaire included five nondiagnostic items that were utilized in the case. Two of the five nondiagnostic items were rated as having no impact on the assessment of a company's ability to continue in existence within a year of the

financial statement date by over 92% of the participants chosen for this rating task. The third, fourth, and fifth nondiagnostic items were rated irrelevant by 83%, 67%, and 66%, respectively, of the participants who completed the questionnaire. These results support the pretest determination of both relevant and irrelevant information for the going concern decision. An examination of the dilution effect requires that both relevant and irrelevant information to a particular decision be presented to the decision maker. The findings of this study indicate that the presence of nondiagnostic (irrelevant) information does not dilute the impact of diagnostic (relevant) information in judgments by auditing experts.

4.2 Expertise and the Dilution Effect

The role of expertise becomes important in examining the cognitive simplification mechanism that contributes to the dilution effect. The cognitive simplification mechanism relies on the limited capacity model of information processing and behavior (Lord & Maher, 1990). The limited capacity model focuses on how people simplify information processing while still generating adequate but not optimal behavior. The limited capacity model emphasizes the role of heuristics in the decision makers need to simplify knowledge to reduce information processing demands. The use of the representativeness heuristic

by decision makers contributes to the dilution effect (Kahneman and Tversky, 1973). The decision maker judges whether an individual will perform an action by comparing key features of the individual with key features of possible actions. The decision maker predicts the outcome most similar to or representative of the individual.

The use of the cognitive simplification mechanism leads to biases in responses (i.e. the dilution effect) when diagnostic (relevant) evidence is presented in conjunction with nondiagnostic (irrelevant) evidence. The cognitive simplification mechanism that results in the dilution effect is feasible in many situations because people can rely on large stores of well organized information drawn from long term memory. From this perspective, the role of expertise becomes important. Experts are also limited capacity heuristic-driven information processors, but the heuristic principles involved are likely to be from short term memory (Sherman & Corty, 1984). In this case, extensive knowledge substitutes for limited processing capacity in short-term memory. This allows experts to recognize immediately what novices require great effort to discover. Experts are not superior information processors in a general sense, they perform better only within their specific domain of expertise.

Experts recognize relevant categories more quickly than novices and these categories are linked more strongly to

appropriate actions. Experts possess schema (hierarchically organized sets of information in long term memory) from knowledge of the subject matter. When experts identify a principle, it is committed in memory to application of the principle. The organization of expert's knowledge structures efficiently translates problem information into problem solutions (Glass, 1988). Therefore, heuristic processing under expert information-processing models is something to be developed, not overcome, as it is in a limited capacity model used by less experiences decision makers , novices (Lord & Maher, 1990).

The results of this study indicate that experts, partners and managers, recognize relevant categories. The experts' ability to recognize relevant categories inhibits the dilution effect in the evaluation of relevant (diagnostic) and irrelevant (nondiagnostic) evidence.

4.3 Interpretation of Results- Accountability

Research indicates that under certain conditions accountability-pressure to justify one's view to others-can lead people to a more complex information processing procedure. Studies by Tetlock (1983) found that accountability results in a resistance to many judgmental biases. When people are aware that they must justify their opinions to others, they often engage in "preemptive self-criticism" (Tetlock, 1983). They analyze the evidence more carefully in an effort to prepare themselves for potential objections that a well-informed audience might raise to the stands they have taken.

The need for individuals to justify their judgments to themselves and others is a feature of most decision environments. Accountability is a particularly important factor in the judgment process of auditors because of the impact of their final product, the audit opinion, on the decision making process of users of the financial statements. Auditors are faced with the prospect of being held accountable for their judgments and actions. Similarly, within the audit team, the methods used and the conclusions drawn by a subordinate auditor are subject to review by a superior auditor (i.e. manager or partner). Conversations with partners at four of the Big Six auditing firms revealed that with the increase in litigation against the auditing firms, accountability is being stressed with partners in their judgment process. Studies by Gibbins and

Emby (1984; Emby and Gibbins 1988) indicate that auditors view the ability to justify a decision as one of the most important qualities of professional judgment.

The cognitive-motivation framework of accountability views accountability as reducing many information processing biases by motivating subjects to process carefully all information at their disposal and to integrate that information into a defensible judgment. Several studies have shown that this increased complexity of thought results in a resistance to many judgmental biases. Tetlock (1983b) found that accountability both improved recall of evidence and eliminated primacy effects in a legal decision-making task. Tetlock (1985b) found that accountability reduced the overattribution effect in an essay-attribution paradigm. Tetlock and Kim (1987) found that accountability led to more realistic levels of confidence in subjects' predictions of how people had responded to a personality test.

Ashton (1990) extended this line of research by examining the effects of accountability on auditor judgment. Ashton found that in the absence of a decision aid, auditors achieved greater classification accuracy when they were required to justify their choices or when feedback about past performance was provided, or when a monetary incentive was provided.

Lord (1992) found that auditors who are more accountable for their decisions were less likely to issue an unqualified

opinion than the auditors who were guaranteed anonymity. Johnson and Kaplan (1991) found that accountability improves auditor judgment consensus and self-insight.

Kennedy (1992) examined the debiasing effects of accountability on audit judgment. The results indicate that accountability mitigates the recency effect in MBA students. In contrast, the auditors' judgments exhibited no recency in the accountable or unaccountable treatment groups.

The same underlying process that improved judgment in debiasing studies may exacerbate bias in other settings, as in the case of both diagnostic and nondiagnostic information (Tetlock and Boettger, 1989). The same mechanism, complexity of thought, that explains the debiasing effectiveness of accountability in other contexts is responsible for the magnification of the dilution effect. Tetlock and Boettger (1989), in a study with undergraduate subjects, found that accountability exacerbates the dilution effect. The subjects in the accountability treatment group diluted their predictions in response to nondiagnostic information and were more responsive to additional diagnostic information than the subjects in the unaccountable group. Accountability motivated subjects to use all the information at their disposal (diagnostic and nondiagnostic) and to integrate that information into a defensible judgment.

Glover (1993) extended this line of research by examining the impact of accountability and time pressure on auditor judgment. The experimental task used auditors with an average of 24 months of accounting experience. The subjects were instructed to assess the likelihood of material misstatement in accounts receivable after reviewing a brief description of the company and evidence gathered during the audit. Each auditor made judgments for two types of case study tasks. The short case contained only diagnostic information. The long case contained both diagnostic and nondiagnostic information. Auditors in the time pressure condition received three minutes to complete the task. The results indicate that auditors' judgments exhibited a dilution effect for nondiagnostic information in approximately 66% of the cases examined. Accountability did not enhance the dilution effect. Auditors in the accountability condition exhibited the dilution effect. However, the effect was not greater than for the nonaccountable subjects.

In the present study, audit partners and managers did not exhibit a dilution effect in their judgments. Similarly, accountability did not enhance the dilution effect. However, there was a significant main effect for the accountable/not accountable manipulation. Auditors in the accountable condition made judgments that were more regressive (closer to the midpoint of the scale) than did auditors in the not accountable

condition. This result is consistent with the response-bias interpretation of accountability. The response-bias interpretation predicts a main-effect tendency for accountability to produce less extreme predictions. Accountability induces an unwillingness on the part of the decision maker to make extreme predictions that may be difficult to justify.

Differences in the impact of accountability on the interpretation of irrelevant information in Tetlock's study and the present study may be attributed to differences in the subjects in each study. Tetlock's study used undergraduate students to make judgments of the GPA of an individual after evaluating diagnostic and nondiagnostic evidence. The current study utilizes auditing experts to make judgments in a task that is a part of their naturally occurring work environment. Studies have shown that auditors are generally conservative in their judgments.

4.4 Chapter Summary

Studies in psychology documented the dilution effect using undergraduate students as subjects making predictions about target individuals (Nesbitt, Zukier, and Lemley (1981), Tetlock and Boettger, 1989). The dilution effect is documented in two studies in audit judgment literature (Hackenbrack, 1992; Glover, 1993). A dilution effect was found in the judgment of auditors

with an average of 42 months or less of experience in both of these studies. Although the subjects in the prior accounting studies were professional auditors, there is a distinction between professional auditors and experienced auditors (Colbert, 1989). Expertise is defined in terms of knowledge acquired through direct experiences (past judgments and feedback) and indirect education experiences. The present study examines the dilution effect by evaluating the judgments of experienced auditors, partners (averaging 22 years of experience) and managers (averaging 8 years of experience).

Auditing research studies have shown that experienced auditors perform differently than less experienced auditors on a given task. Similarly, studies in psychology have shown that experts recognize relevant categories more quickly than novices and these categories are linked more strongly to appropriate actions. The results of this study indicate that experts, partners and managers, recognize relevant categories. The expert's ability to recognize relevant categories inhibits the dilution effect in the evaluation of relevant (diagnostic) and irrelevant (nondiagnostic) evidence.

Auditors in the accountable condition in the present study made judgments that were more regressive (closer to the midpoint of the scale) than did auditors in the not accountable condition. This result is consistent with the response-bias interpretation of accountability. The response-bias

interpretation predicts a main-effect tendency for accountability to produce less extreme predictions. Accountability induces an unwillingness on the part of the decision maker to make extreme predictions that may be difficult to justify.

A summary of the present study and future research considerations are presented in Chapter V. The chapter presents a general discussion of the results of this study and possible extensions for future study.

Chapter V

Conclusion

5.1 Summary

The dilution effect is documented in two studies in audit judgment literature (Hackenbrack, 1992; Glover, 1993). A review of the research indicates that the dilution effect was found in the judgment of auditors with an average of 42 months or less of experience. These studies involved either a fraud risk assessment or a materiality misstatement task.

The present study finds that experienced auditors, partners (averaging 22 years of experience) and managers (averaging 8 years of experience) do not dilute their judgments when exposed to nondiagnostic (irrelevant) information. Accountability, thought to enhance the dilution effect, results in more regressive judgments (closer to the midpoint of the scale). These results indicate that experience tends to reduce the influence of irrelevant information on experienced decision makers. The practical implications of the results of this study are that experienced auditors may not be affected by irrelevant evidence in making complex auditing decisions.

Prior studies in auditing have shown that auditors' judgments are prone to information processing biases and inconsistencies relative to normative models. These biases in judgment are attributed to the use of heuristics by decisions

makers in an effort to simplify information processing abilities. The results of the present study contribute to an understanding of how judgments are affected by experience. These findings, in combination with other related research, suggest the importance of considering the role expertise plays in judgments in auditing research studies.

Experience in the auditing setting is a function of task specific experience. In analyzing the judgments of expert auditors, the effect of auditor training must be addressed. Expert auditors generally have completed several within the firm training sessions which complement the task specific knowledge acquired while performing routine audit responsibilities. Studies in psychology have shown that the influence of irrelevant information in the judgments of experts can be reduced through training sessions involving interaction and practice (Gaeth and Shanteau, 1984). Unlike other settings for studies examining the judgments of experts, interaction and practice is a naturally occurring element of the auditing environment that cultivates managers and partners. The process of becoming auditing experts, managers and partners, involves direct participation in numerous audits and feedback on the continued financial condition of those firms audited. Therefore, the auditing setting in this study provides a rich context to evaluate the effect of nondiagnostic information on the judgment of professional experts.

This study contributes to the literature by examining the decision process and heuristics of auditing experts which can be valuable in designing decision aids and in developing training programs.

5.2 Limitations

There are limitations of this study. Auditors review more information in making a going concern decision than depicted in this experiment. It is not clear what impact additional information would have on judgment bias. Studies in psychology (Nisbett, Zukier, and Lemley, 1981) indicate that as few as two items of nondiagnostic information were sufficient to dilute the extremity of ratings based on one item of diagnostic information. Nisbett, Zukier, and Lemley also indicate that increasing amounts of nondiagnostic information do not by themselves produce more or less regressive judgments. Their findings were based on subjects making judgments about target individuals. It is unclear what impact additional information would have on the judgment of professionals in a naturally occurring environment. Additionally, accountability was examined without addressing other issues the auditor would face including time pressure (Glover, 1993), incentives and feedback (Ashton (1990).

5.21 Judgment Accuracy

The current study indicates that auditing experts are not prone to biases in judgment arising from the dilution effect---nondiagnostic evidence reducing the influence of evidence auditors consider useful. There is the possibility that subjects simply average the scale value of each item of information, assigning the appropriate weight of "zero" to the irrelevant items. The cognitive algebra (Anderson, 1968) method of decision making versus similarity judgments is descriptive of the results of this study. However, the present study does not attempt to define the weights decision makers assign to each item of information or how these weights are integrated into a proper judgment. Determining whether the behavior evidenced in this study results in accurate real-world decisions will require future research.

5.3 Future Research

This study examines the effects of two characteristics of the auditing setting, accountability and nondiagnostic information, on the judgment of audit experts. The results indicate that the judgment of partners and managers is not influenced by irrelevant (nondiagnostic) information. Accountability resulted in the auditors making more conservative judgments. This experimental task involved a complex decision making task: the going concern decision. A complex decision

task requires the decision maker to review and evaluate a large base of interdependent items of evidence before selecting the appropriate action. Prior research has shown that experience effects in auditing are positively related to the level of task complexity (Abdolmohammadi and Wright, 1987). This study can be extended to address the impact of irrelevant information in the judgment process of experts given more structured tasks.

The purpose of this study is to increase our understanding of auditor judgment. This study may suggest areas in which decision aids can be modified to reduce some judgment biases. Future research can address the type and extent of training procedures required to mitigate the impact of seemingly irrelevant information in non-expert audit judgment.

TABLE 1

Descriptive Statistics

Panel A: Comparisons of Cell Means

Treatment Condition[a]	n[b]	Mean[e]	Standard Deviation
Group 1	15	38.67	18.37
Group 2	15	39.80	23.62
Group 3	15	25.67	12.80
Group 4	15	31.33	18.56
Observations	60		

[a] Group 1 - accountable, diagnostic only information
Group 2 - accountable, diagnostic and nondiagnostic information
Group 3 - not accountable, diagnostic only information
Group 4 - not accountable, diagnostic and nondiagnostic information

[b] Number of observations

PANEL B: Hypotheses and Corresponding Comparison of Cell Means[c]

Hypotheses		t-Value	P Value
H1	Dilution Effect[d]		
	Group 1 > Group 2	-.16	.8690
	Group 3 > Group 4	-.83	.4109
H2	Accountability - Enhances Dilution Effect		
	Group 2 < Group 4	1.24	.2209
H3	Consistent Judgments with Diagnostic only information		
	Group 1 = Group 3	1.90	.0625

[c] A pair-wise comparison is computed to test hypotheses (Keppel,1991). The pair-wise t test is computed using the pooled mean square error (MSE) from the overall ANOVA. The t value is tested using the degrees of freedom associated with the MSE.

[d] The dilution effect was measured by comparing the judgments of auditors receiving diagnostic only information to the judgments of auditors receiving both diagnostic and nondiagnostic information.

[e] The prediction means are consistent with the Altman Z score (1.34) classification of a potentially bankrupt firm given the data presented in the study.

Table 2

Panel A: ANOVA Results

Source	SS	DF	MS	F	P-Value
Account	1728.07	1	1728.07	4.93	.0305
Type	173.40	1	173.40	.49	.4850
Account *Type	77.07	1	77.07	.22	.6411
Error		56			
Total		59			

Panel B: Duncan Test[a]

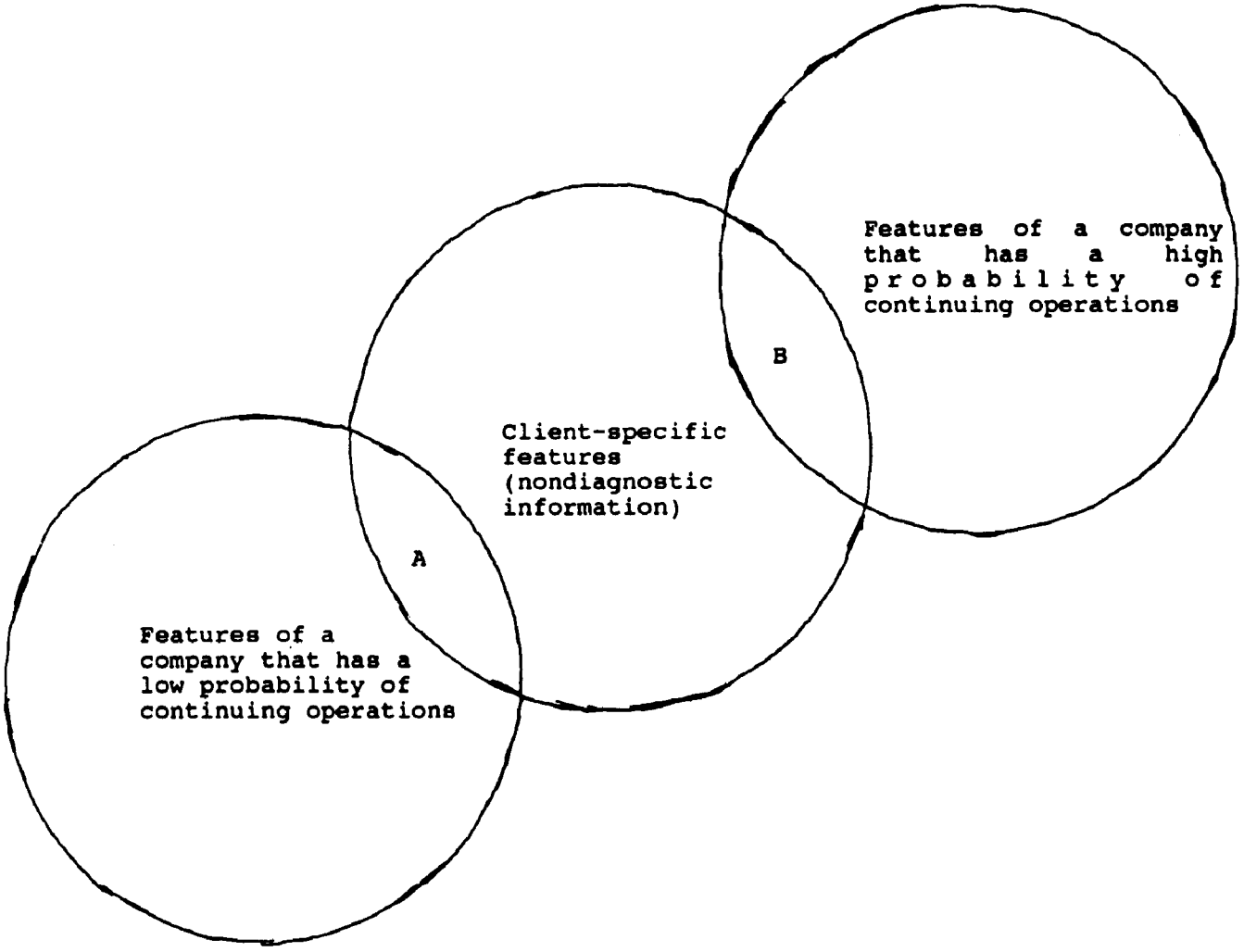
Grouping 1*	N	Mean
Accountable	30	39.23
Not Accountable	30	28.50
Grouping 2		
Diagnostic	30	32.17
Diagnostic and Nondiagnostic	30	35.57

* Significantly different at alpha = .05

[a] The Duncan test controls the type I comparison wise error rate, not the experimental error rate.

Figure 1

Relationship Among Sets of Features



A --- Diagnostic Audit Evidence

B --- Diagnostic Audit Evidence

(Figure adapted from Hackenbrack, 1988)

Figure 2

PRETEST RESULTS

RELEVANT	IRRELEVANT	MIXED
Net Loss (2 years)	Replacement of Chief Internal Auditor	Code of Corporate Conduct
Customer Base	Management Compensation Plan	Delays in Accounting Department Activities
New Product Line	Supporting Schedules Prepared by Client in a Timely Manner	Pledged Inventory
Dept to Equity Ratio	Client Performs Periodic Counts of Inventory to Correct Errors in Perpetual Records	Audit Committee
Gross Margin	Management Rotation Program	Collection Department Prepared Documents for Auditor
Profitability Trends		Change in Management Philosophy
Management Forecast		
No Dividends in Arrears		Hands-off Management Style
Expiration of Patent		
Renegotiation of Credit Line		
Cash Flows from Operations		Innovative Sales Force

RELEVANT	IRRELEVANT	MIXED
Working Capital Deficiencies		
Loss of Principal Customer		
Turnover of Key Employees		
Liquidity Ratios		

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_____ and D. Kahneman. "Extential versus Intuitive Reasoning: The Conjunctive Fallacy in Probability Judgment," Psychological Review, 90 (1983), 292-315.

Wall Street Journal, 1985. 19 February, p.4.

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Appendix I

This appendix contains one of the four case scenarios for this study: no accountability/diagnostic information treatment group. The treatment groups not included in this appendix include the following:

1. accountability/diagnostic information;
2. no accountability/nondiagnostic and diagnostic information;
3. accountability/nondiagnostic and diagnostic information.

The appendix contains a list of modifications to the no accountability/diagnostic information treatment group that were necessary for the presentation of the other case scenarios.

AUDIT JUDGEMENT
RESEARCH STUDY

General Information

This study asks you to make judgments based on your experience as an auditor. Your appreciation is greatly appreciated. There are three sections in this exercise. It is very important (for the interpretation of the results) that you record your starting and finishing times in the spaces provided in the materials.

In the first section, you will be provided with background information of a hypothetical client. Following this information, the next few pages present audited financial statements of the last three years and the current year.

In the second section you will be presented with excerpts from the current year audit work papers of the hypothetical client. At the end of the section you will be asked to make a judgment given the audit evidence-to-date.

The final section of the experimental materials consists of general questions.

You may work at your own pace, write on the materials, and refer to the instructions at any time. Once you have completed the experimental materials, seal them in the envelope the materials were distributed in. If you have a question at any time during this exercise, please raise your hand.

Your responses will be totally confidential and not traceable to you personally. Your responses to the materials will be aggregated and averaged with the responses of others to determine general characteristics of judgment. Please complete the consent form and seal it in the envelope marked consent form. This will ensure your anonymity.

Thank you for your cooperation

AUDITOR JUDGMENT STUDY

Record your start time here: Date _____ Time_____

Thank you for your help.

HISTORY AND BACKGROUND
of ABC CORPORATION

The ABC Corporation, founded in 1946, was incorporated in Delaware in 1971. The company is a manufacturer of consumer appliances and home improvement products. ABC is headquartered in Atlanta, Georgia and employs about 700 people.

ABC Corporation manufactures portable electric and cordless rechargeable power tools, including drills, screwdrivers, saws and grinders. These home improvement products account for approximately 67% of total revenue. ABC also manufactures hand-held vacuums, irons, mixers, and food processors.

ABC Corporation distributes its products through its own sales organization to wholesale and retail merchandising chains. The company operates four manufacturing facilities with locations primarily in the Southeast.

The company was founded in 1946 as a sole proprietorship by J. Horn. Members of the Horn family own approximately 40% of the voting shares. The corporation is authorized to issue 100,000,000 shares of $1.00 par value common stock. ABC stock has been publicly traded since 1981.

This is the third year the ABC Corporation has engaged your office to perform a fiscal year end audit. The company's overall internal control environment has been evaluated as effective. Management has instituted several general control mechanisms. Only minor audit adjustments have been made to book balances in the past. Your audit is for the fiscal year end December 31, 1992.

ABC Corporation
Income Statement Year Ended December 31

	1992	(Audited) 1991	(Audited) 1990	(Audited) 1989
Net Sales	4,779,600	4,637,000	4,250,000	3,172,500
Cost of Goods Sold	3,202,300	3,003,900	2,762,500	2,060,000
Gross Margin	1,577,300	1,633,100	1,487,500	1,112,500
Selling, General & Administrative	1,529,500	1,483,800	1,221,300	823,400
Interest Expense	154,242	190,884	215,180	92,610
Other, Net	104,000	90,000	38,800	28,000
	1,787,742	1,764,684	1,475,280	944,010
Net Income (Loss)	(210,442)	(131,584)	12,220	168,490

ABC Corporation
Balance Sheet as of December 31

	1992	(Audited) 1991	(Audited) 1990	(Audited) 1989
Cash	66,300	75,500	83,900	107,500
Accounts Receivable	815,000	762,800	650,000	553,400
Inventories	894,500	818,400	760,300	591,100
Other Current Assets	140,000	131,300	196,300	50,200
Total Current Assets	1,915,800	1,788,000	1,690,500	1,302,200
Fixed Assets (net)	755,700	731,200	827,200	403,400
Intangibles	482,100	503,000	511,000	70,100
Other Assets	399,800	420,000	339,000	49,400
Total Assets	3,553,400	3,442,200	3,367,700	1,825,100
Notes Payable	404,700	300,700	287,000	214,500
Accounts Payable	320,900	305,800	300,000	160,600
Current Portion of Long Term Debt	104,600	57,500	50,000	12,000
Accrued Expenses	713,900	660,000	600,000	489,300
Total Current Liabilities	1,544,100	1,324,000	1,237,000	876,400
Long Term Debt	1,309,100	1,290,000	1,250,000	300,000
Other Long Term Liabilities	379,206	346,864	267,780	48,000
Total Liabilities	3,232,406	2,960,864	2,754,780	1,224,400
Common Stock	191,000	180,900	180,900	180,900
Capital in Excess of Par	320,000	280,000	280,000	280,000
Retained Earnings (Accumulated Deficit)	(190,006)	20,436	152,020	139,800
Total Equity	320,994	481,336	612,920	600,700
Total Liabilities & Equity	3,553,400	3,442,200	3,367,700	1,825,100

Excerpts from the 1992
ABC Company Audit Work Papers

Specific Instructions
(Diagnostic Evidence Group)

In this section you will find a memo taken from the 1992 audit work paper files of ABC Company. The memo was either written by or updated by Bob James, the in-charge senior, during the pre-field work phase of the audit. The work papers are simply a convenient format to present information about ABC Company.

ABC Company
Analysis of 1992 Financial Performance
and Financial Position

prepared by Bob James (in-charge senior)

Market Perspective

The home improvement industry has grown during the past five years. Industry profitability, liquidity and long-term solvency continue to rise. The industry is competitive. There is considerable diversity of performance among individual companies. ABC Company's liquidity ratios are slightly lower than the industry average. The company's debt to equity ratio is higher than the industry average.

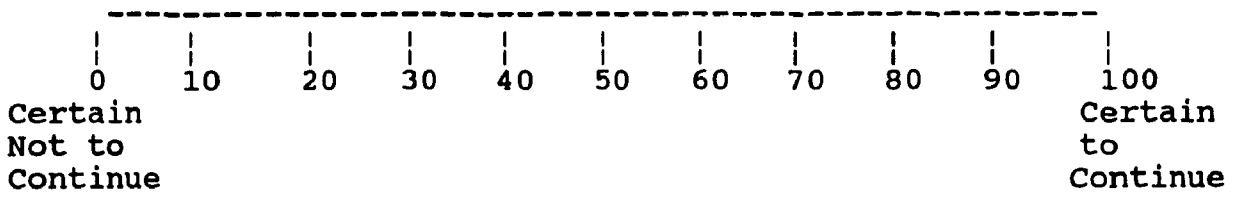
Results of Operations

Net sales increased 3 percent in 1992. ABC Company incurred a net loss in 1992 and 1991. Losses in both years are primarily attributable to operating losses arising from the introduction of a new product line mid-year in 1990. The company has experienced problems with the quality of the product line. Inventory turnover for this product has been extremely slow, approximately once per year. The product faces potential obsolescence due to the slow inventory turnover. Several production problems have been encountered in attempts to improve the quality of the product. The problems encountered with this product has led to the loss of a principal customer. Negotiations are underway with a prospective customer for the sale of this product in the coming year. The company also experienced increases in marketing costs arising from strong competition in its other product lines.

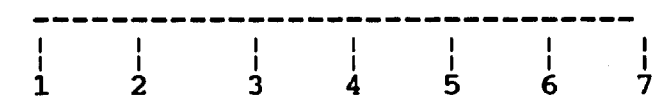
Financial Position

The company was successful in restructuring its term loan commitment at a lower borrowing rate. Working capital decreased during 1992. Management is seeking to establish a credit line to meet working capital needs in the coming year.

You are the audit partner for this year's engagement. Based on your analysis of the preceding financial statements, background information, and working paper excerpts how likely is it that ABC Corporation will continue in existence through the end of 1993? Indicate your assessment by marking down an "X" at the appropriate point along the 100-point scale below.



How confident are you in your response?



Record your finish time here: Date_____ Time_____

Please fill in the following information. The information is required for data analysis. Thanks again for your participation.

1. Name _____

2. Experience in public accounting:

   Years _____ Months_____

3. Number of audits your have participated in during the past four years _____

   How many of these audits have resulted in
   qualified audit opinions? _____
   unqualified opinions? _____
   adverse opinions? _____

4. Primary area of responsibility in the firm _____

5. Business Phone Number _____

Once this part is completed, please place these materials in the envelope provided. Open only the envelope labeled "General Questions" and follow the specific instructions.

Modifications to the Accountable/Diagnostic Only Case Scenario To Achieve the Accountability Manipulation

1. General instructions were modified to indicate the subject may be selected for a follow-up interview with the researcher and a partner at his/her firm to explain and justify his/her responses.

2. Subjects were asked to provide written justification for their responses (See following pages).

Accountability Manipulation

General Information

This study asks you to make judgments based on your experience as an auditor. Your appreciation is greatly appreciated. There are three sections in this exercise. It is very important (for the interpretation of the results) that you record your starting and finishing times in the spaces provided in the materials.

In the first section, you will be provided with background information of a hypothetical client. Following this information, the next few pages present audited financial statements of the last three years and the current year.

In the second section you will be presented with excerpts from the current year audit work papers of the hypothetical client. At the end of this section you will be asked to make a judgment given the audit evidence-to-date.

The final section of the experimental materials consists of general questions.

You may work at your own pace, write on the materials, and refer to the instructions at any time. Once you have completed the experimental materials, seal them in the envelope the materials were distributed in. If you have a questions at any time during this exercise, please raise your hand.

Your responses to the following materials will be analyzed and you may be selected for a follow-up interview with a partner at your firm and the researcher. If you are selected for the follow-up interview you will be asked to explain and justify your responses.

Thank you for your cooperation

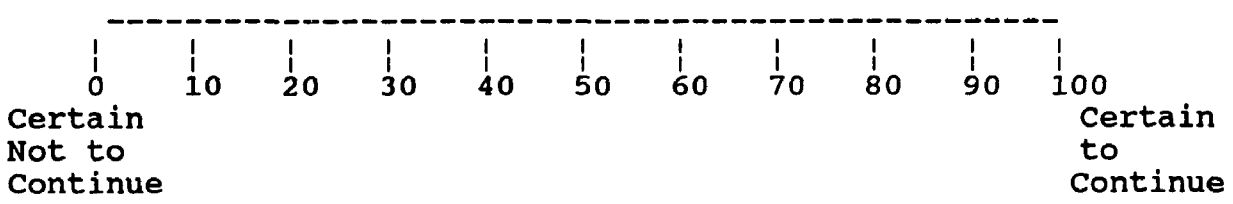
Please print your name and phone number in the space provided.

Name_____

Phone_____

Position: Partner Senior Manager Manager

You are the audit partner for this year's engagement. Based on your analysis of the preceding financial statements, background information, and working paper excerpts how likely is it that ABC Corporation will continue in existence through the end of 1993? Indicate your assessment by marking down an "X" at the appropriate point along the 100-point scale below.



Please explain in the space below why you chose the response you did for the going concern assessment.

Modifications to the Accountable/Diagnostic Only Case Scenario to Examine the Impact of Irrelevant (Nondiagnostic) Information

The experimental materials were modified to include several memos taken from the audit work paper files of the client. These memos contained the analysis of financial performance and financial position notes that were presented to the subjects in the diagnostic treatment group. In contrast to the diagnostic treatment group, the subjects in the nondiagnostic/diagnostic treatment group also received memos containing information that had been identified by partners in the pretest as irrelevant to the going-concern decision (see following pages).

Excerpts from the 1992
ABC Company Audit Work Papers

Specific Instructions
(Diagnostic and Nondiagnostic Evidence Group)

In this section you will find several memos taken from the 1992 audit work paper files of ABC Company. Each memo was either written by or updated by Bob James, the in-charge senior, during the pre-field work phase of the audit. The work papers are simply a convenient format to present information about ABC Company.

ABC Company
Analysis of 1992 Financial Performance
and Financial Position

prepared by Bob James (in-charge senior)

Market Perspective

The home improvement industry has grown during the past five years. Industry profitability, liquidity and long-term solvency continue to rise. The industry is competitive. There is considerable diversity of performance among individual companies. ABC Company's liquidity ratios are slightly lower than the industry average. The company's debt to equity ratio is higher than the industry average.

Results of Operations

Net sales increased 3 percent in 1992. ABC Company incurred a net loss in 1992 and 1991. Losses in both years are primarily attributable to operating losses arising from the introduction of a new product line mid-year in 1990. The company has experienced problems with the quality of the product line. Inventory turnover for this product has been extremely slow, approximately once per year. The product faces potential obsolescence due to the slow inventory turnover. Several production problems have been encountered in attempts to improve the quality of the product. The problems encountered with this product has led to the loss of a principal customer. Negotiations are underway with a prospective customer for the sale of this product in the coming year. The company also experienced increases in marketing costs arising from strong competition in its other product lines.

Financial Position

The company was successful in restructuring its term loan commitment at a lower borrowing rate. Working capital decreased during 1992. Management is seeking to establish a credit line to meet working capital needs in the coming year.

ABC Company
Memo on Change in Management Compensation Package

prepared by Bob James (in-charge senior)

Effective the first day of the current audit period, the management compensation package was change to reflect the company's increased emphasis on achieving budgeted targets. Basically, the mix of salary and bonus has been changed to place a greater emphasis on bonuses tied to responsibility-center financial performance.

By instituting this new compensation program, management may be motivating personnel to meet legitimate economic goals.

ABC Company
Memo on review of Board of Directors Minutes

prepared by Bob James (in-charge senior)

A review of the minutes of the Board of Directors meetings for the fiscal year ended 1992 indicated the following items:

Early in the current audit period, the company replaced its chief internal auditor with a better trained, more aggressive individual. The new internal auditor had five years of experience on the audit staff of a Big 6 accounting firm and six years' experience in the internal audit department of a fortune 500 company.

The company has begun a job rotation program at the middle and lower management levels. Upper level management are involved whenever possible. The assignments outside the employee;s traditional area can last up to four months.

ABC Company
Memo on Preliminary Review of
Inventory and Warehousing Cycle

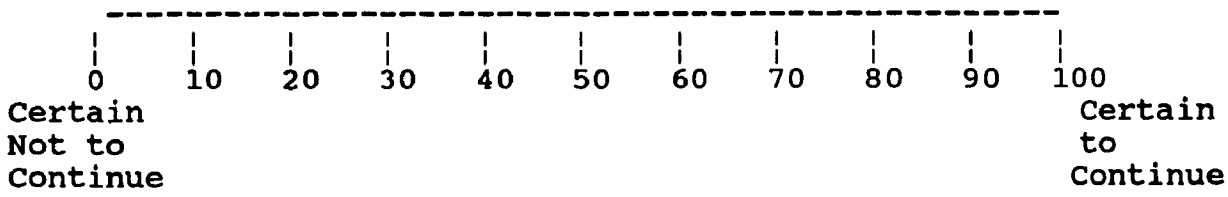
prepared by Bob James (in-charge senior)

As part of the preliminary study and evaluation of the internal accounting controls in the inventory and warehousing cycle, I (a) made inquiries of client personnel, (b) observed the processing methods and procedures used, (c) reviewed client manuals and other written instructions, and (d) performed walk throughs of selected transactions. The purpose of these steps was to update/confirm (1) our understanding of the physical flow of goods and (2) the basic structure of the accounting controls in the inventory and warehousing cycle. No updates of our permanent file documentation of this cycle was necessary; the relevant systems are unchanged from the prior audit period. The following items were noted:

The company makes periodic counts of physical inventory to correct errors in the individual perpetual inventory records.

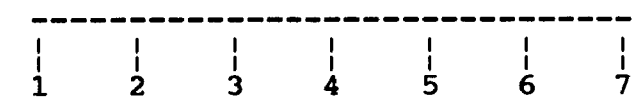
The accounting department promptly responded to our request to provide approved prenumbered documents for authorizing movement of inventory during the year.

You are the audit partner for this year's engagement. Based on your analysis of the preceding financial statements, background information, and working paper excerpts how likely is it that ABC Corporation will continue in existence through the end of 1993? Indicate your assessment by marking down an "X" at the appropriate point along the 100-point scale below.



Please explain in the space below why you chose the response you did for the going concern assessment.

How confident are you in your response?



Not at all confident

Completely Confident

Record your finish time here: Date_____
Time_____

Please fill in the following information. The information is required for data analysis. Thanks again for your participation.

1. Name _____

2. Experience in public accounting:

   Years _____ Months_____

3. Number of audits your have participated in during the past four years _____

   How many of these audits have resulted in
   qualified audit opinions? _____
   unqualified opinions? _____
   adverse opinions? _____

4. Primary area of responsibility in the firm _____

5. Business Phone Number _____

Once this part is completed, please place these materials in the envelope provided. Open only the envelope labeled "General Questions" and follow the specific instructions.

Appendix II

This appendix contains pretest materials that were administered to members of the audit staff (3 partners and 2 managers) of a Big Six accounting firm.

To: Participant

From: Sandra Waller Shelton

I am a doctoral student in Accounting at the University of Wisconsin-Madison and a former Big Six auditor. I am conducting this study to examine auditor judgment. Your participation is greatly appreciated. This exercise should take approximately 30 minutes of your time. It is important that you work independently. Please do not discuss your responses with anyone during or after your completion of the materials. _____has agreed to assist me in distributing the materials for this study.

In the first section you will be provided background information of a hypothetical client. In the second section you will be asked to make judgments based on additional pieces of information.

Please place your completed study in the stamped self-addressed envelope provided and mail it to my attention by June 30th.

I will contact you later to discuss the information used in forming your decisions.

Thank you again for your participation.

HISTORY AND BACKGROUND
of ABC CORPORATION

The ABC Corporation, founded in 1946, was incorporated in Delaware in 1971. The company is a manufacturer of consumer appliances and home improvement products. ABC is headquartered in Atlanta, Georgia and employs about 700 people.

ABC Corporation manufactures portable electric and cordless rechargeable power tools, including drills, screwdrivers, saws and grinders. These home improvement products account for approximately 67% of total revenue. ABC also manufactures hand-held vacuums, irons, mixers, and food processors.

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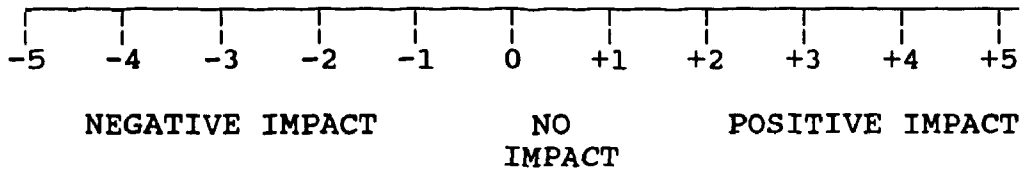
The company was founded in 1946 as a sole proprietorship by J. Horn. Members of the Horn family own approximately 40% of the voting shares. The corporation is authorized to issue 100,000,000 shares of $1.00 par value common stock. ABC stock has been publicly traded since 1981.

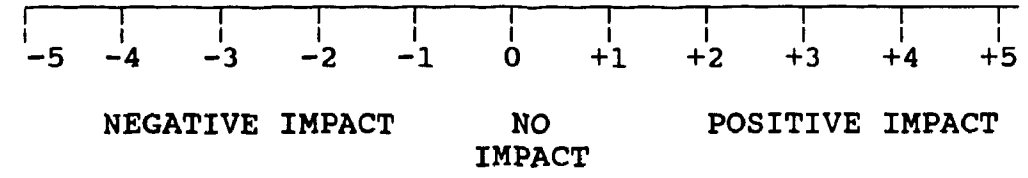
This is the third year the ABC Corporation has engaged your office to perform a fiscal year end audit. The company's overall internal control environment has been evaluated as effective. Management has instituted several general control mechanisms. Only minor audit adjustments have been made to book balances in the past. Your audit is for the fiscal year end December 31, 1992.

For each of the items below, circle the number which most closely reflects the amount of impact that particular item would have on your assessment of ABC Company's **ABILITY TO CONTINUE IN EXISTENCE** within one year of the financial statement date. **BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY.**

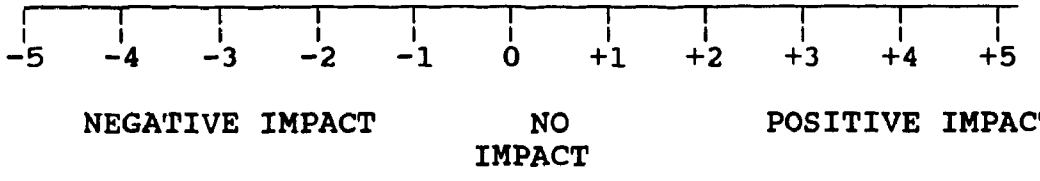
1. The company incurred a net loss in the current and the immediately preceding year.



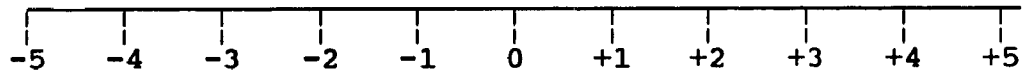
2. The company has adopted a written code of corporate conduct.



3. Delays in several accounting department activities were caused both by cutbacks in resources allocated to the department and increases in the volume of activity.

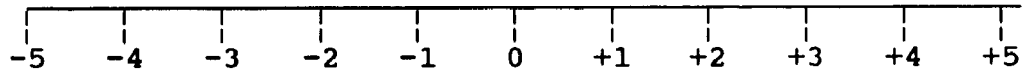


4. As of the balance sheet date, a portion of inventory (approximately three-tenths of total assets) was either not paid for or pledged as collateral for outstanding debt.



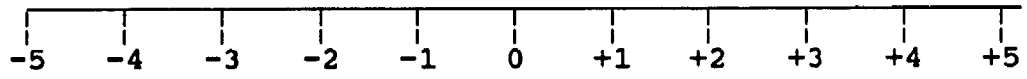
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

5. The company has a large customer base.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

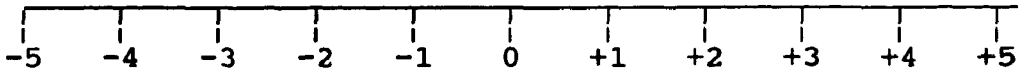
6. Early in the current audit period, the company's chief internal auditor retired and was replaced with a better-trained individual.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

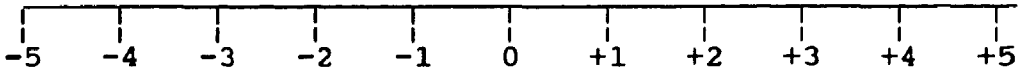
BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

7. The successful introduction of a new product line has resulted in an increase in sales orders for the coming year.



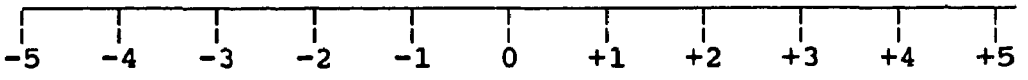
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

8. The company's debt to equity ratio is lower than the industry average.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

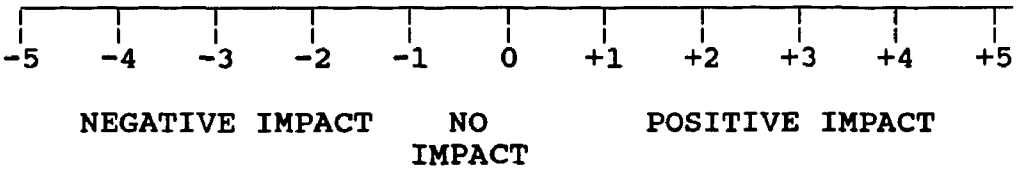
9. The company's organization chart indicates that the Audit Committee reports to the Board of Directors and interacts with the Internal Auditing Department.



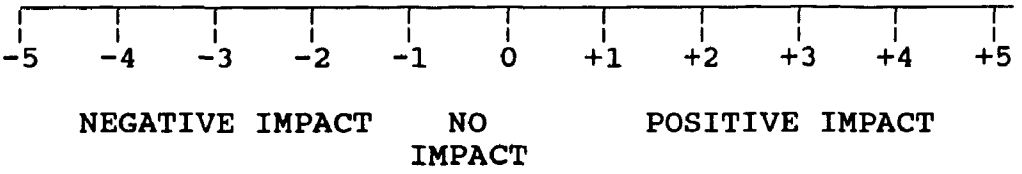
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

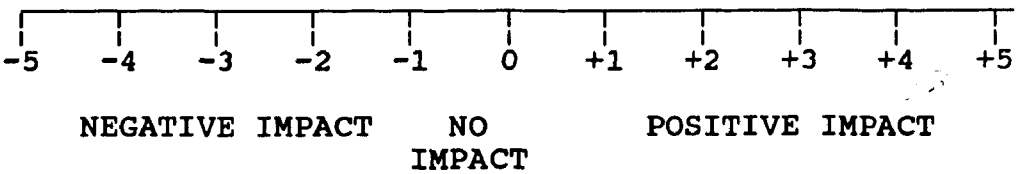
10. A reduction in the cost of the company's basic raw materials has resulted in improved gross margins.



11. The company's liquidity ratios are higher than the industry average.

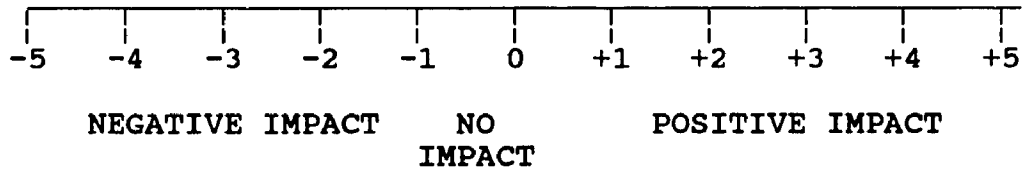


12. A review of the company's financial statements indicates that the company has been profitable for the past five years.

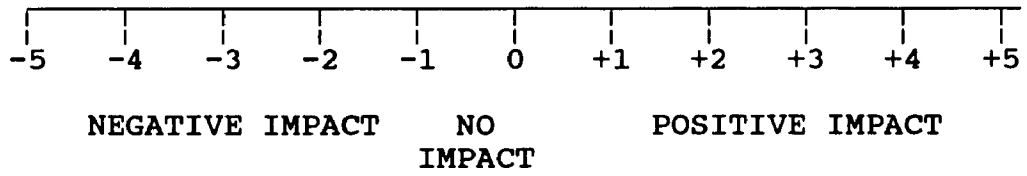


BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

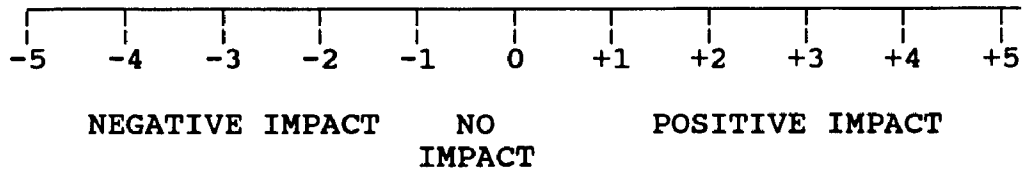
13. The Credits and Collection Department performed a reconciliation of accounts receivable confirmations returned with exception to the auditor.



14. The company has experienced problems with the quality of its new product line. Inventory turnover of this product has been extremely slow, approximately once per year. The product faces potential obsolescence due to slow inventory turnover.

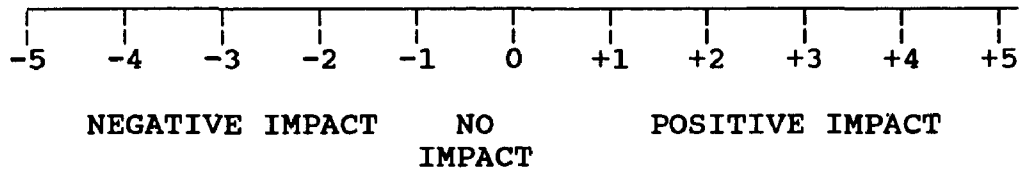


15. Management's forecasts indicate a net loss from operations for the first quarter of next year.

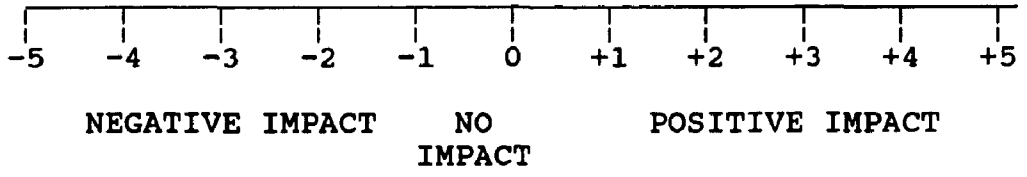


BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

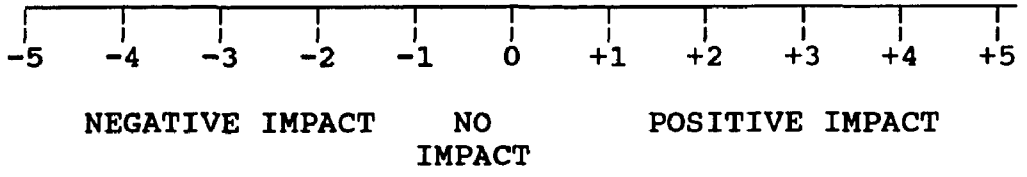
16. During the current year the company experienced negative cash flows from operating activities.



17. The management compensation package was revised in the current fiscal year to reflect the company's increased emphasis on achieving budgeted targets.

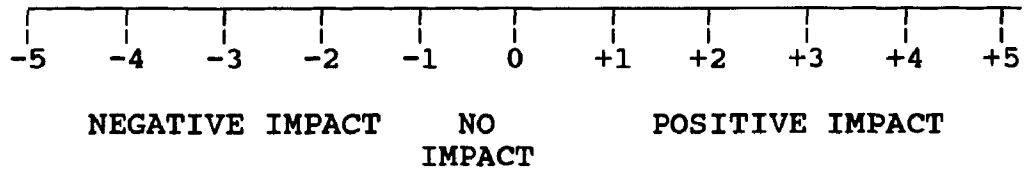


18. Top management no longer has the philosophy that manufacturing/sales should be emphasized at all costs, even if some service department staffing needs are put on hold. Over the last year, the accounting department has received substantial increases in funding.

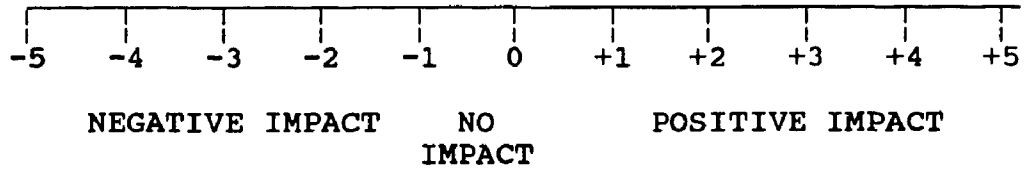


BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

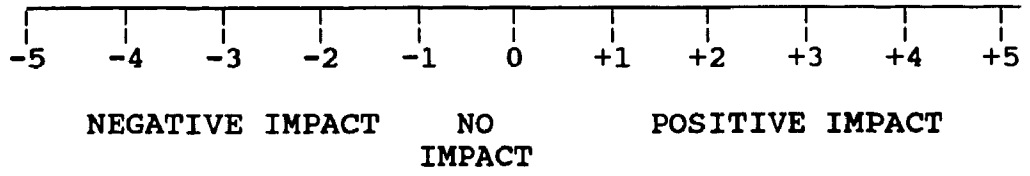
19. All supporting schedules requested by the auditing team were prepared and submitted by the client in a timely manner.



20. The company has paid all of its dividend obligations.

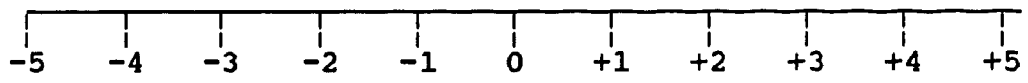


21. Top management basically has a hands-off management style.



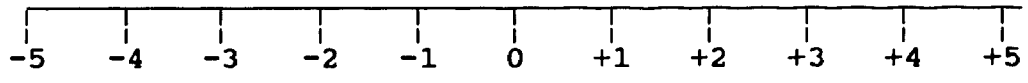
BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

22. The company's debt to equity ratio is higher than the industry average.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

23. The company's patent for a scanning device used as a component of a principal product expires within the coming year.



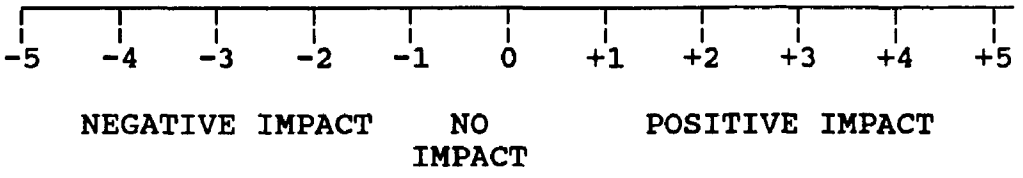
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

24. The company was informed that the bank will not renew its line of credit and negotiations for alternatives have been unsuccessful.

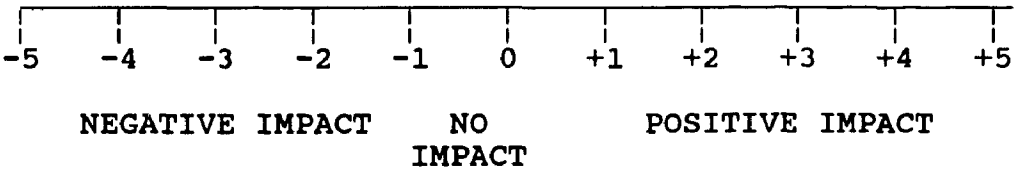
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

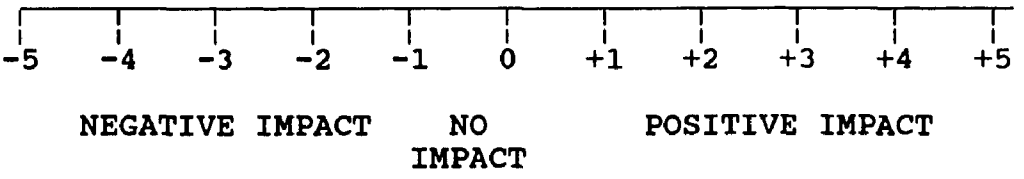
25. Management is forecasting an increase in cash flow from operations for the coming year.



26. The company has an innovative sales force tuned to the market.

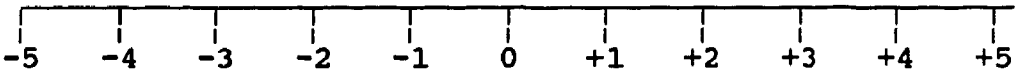


27. Strong competition has led to increasing marketing costs and lower margins.



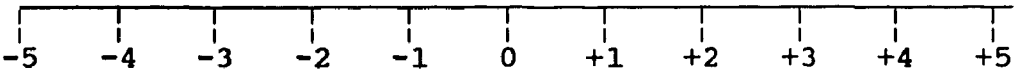
BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

28. The company experienced working capital deficiencies in the current year.



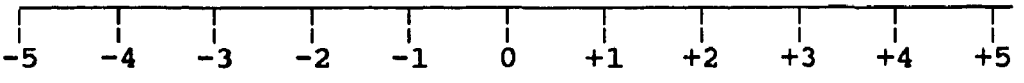
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

29. Production problems have led to the loss of a principal customer.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

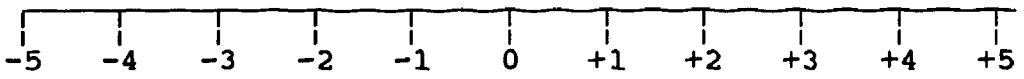
30. Confrontations between management and employees resulted in employee morale problems and turnover of key employees during the current fiscal year.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

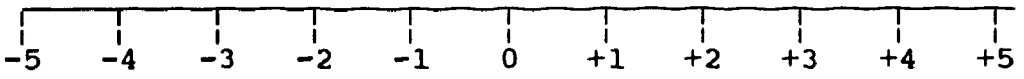
BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

31. The company was successful in restructuring its loan commitment at a lower borrowing rate.



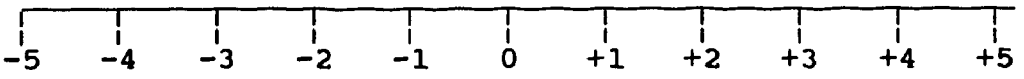
NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

32. The company's current and quick ratios are below the industry average.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

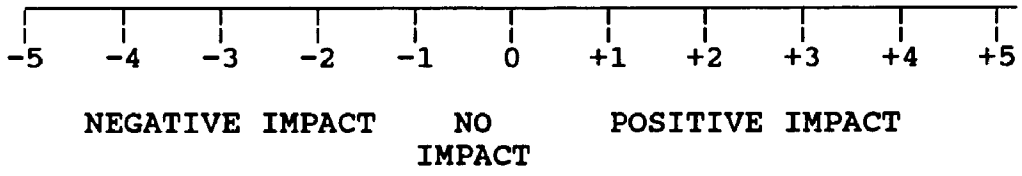
33. The client makes periodic counts of physical inventory to correct errors in the individual perpetual inventory records.



NEGATIVE IMPACT NO IMPACT POSITIVE IMPACT

BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

34. The company has begun a job rotation program for the middle and lower management levels.



BE SURE TO CONSIDER EACH ITEM INDEPENDENTLY

Please fill in the following information. The information is required for data analysis. Thanks again for your participation.

1. Name _____

2. Experience in public accounting:

   Years _____ Months_____

3. Number of audits your have participated in during the past four years _____

   How many of these audits have resulted in
   qualified audit opinions? _____
   unqualified opinions? _____
   adverse opinions? _____

4. Primary area of responsibility in the firm
   _____

5. Business Phone Number _____