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EXPECTATION-PERFORMANCE GAP: PROFESSIONAL LIABILITY ASSOCIATED WITH CERTAIN AUDITOR BEHAVIORS

by

Sidney P. Glandon, BA, MBA

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Business Administration

COLLEGE OF ADMINISTRATION AND BUSINESS
LOUISIANA TECH UNIVERSITY

August, 1997

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We hereby recommend that the dissertation prepared under our supervision by Sidney P. Glandon entitled Expectation-Performance GAP: Professional Liability Associated with Certain Auditor Behaviors be accepted in partial fulfillment of the requirements for the Degree of

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ABSTRACT

The purpose of this dissertation is twofold: (i) to establish hypotheses relating financial liability to certain auditor behaviors discussed in the independence literature, (ii) to empirically validate that the presence of these behaviors will increase auditor financial liability over the normal audit situation, and (iii) to attempt to explain the differences in subjects' perceptions for each of the behavioral scenarios studied.

A survey instrument was developed and administered to three groups of subjects: an impaneled jury, bankers, and CPAs. The instrument contained a vignette describing an annual audit situation where the company filed for bankruptcy subsequent to the issuance of the audited financial statements. The subjects were asked to respond to seven independent situations. The first was a normal audit in which only annual audit services were provided. The other scenarios involved behaviors that are perceived to impair auditor independence.

Using a single-factor repeated measures design, the results indicated that for each subject group there were statistically significant differences in the expected direction between the normal audit and some of the behavioral scenarios. At least one group identified each behavioral scenario as increasing the auditor's financial liability as a result of that auditor-auditee relationship.

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A multiple regression analysis was performed for each of the audit situations to explain the differences in financial liability perceptions as a result of subject group membership and demographic and socioeconomic variables. It was found that in the normal audit and five of the six behavioral scenarios, bankers attributed greater auditor financial liability than did jurors and CPAs. The banker parameter estimate was positive and statistically significant. Only in the audit fees scenario did both bankers and jurors attribute greater auditor financial liability than did CPAs. Additional variables such as ethnic background, educational level, and the number of auditing and accounting courses completed were also found to be significant in some of the scenarios.

In contrast to prior research, the results of this study indicate that jurors and CPAs have similar perceptions with respect to the financial liability of auditors. The expectation-performance gap appears to be between bankers and others, including the general public and financial statement preparers.

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CHAPTER 1

INTRODUCTION

The accounting profession has been in the midst of a litigation crisis for almost thirty years. Settlements, judgements and legal costs have had a significant impact on the competitive environment, eliminating some firms and placing others at risk. Just in the past few years the big six accounting firms have spent over $1 billion to settle or defend against government and private claims associated with the failure of over 300 savings and loan institutions (Bacon & Berton, 1992.) Of particular concern to the profession is the unpredictable results of a trial by jury. In a case involving Standard Chartered and United Bank of Arizona, Price Waterhouse was directed to pay a record $338 million to the plaintiffs (Berton & Adler, 1992). Based on the facts of the case, business and legal experts expected the case to be dismissed. The jury perceived the auditors to have been negligent in spite of a preponderance of evidence to the contrary.

The professional image of certified public accountants (CPAs) has been tarnished, which may diminish the value of the attest function in the future. If public accounting is to survive as a profession, steps must be taken to reestablish the CPA as a credible, independent, objective evaluator of financial transactions and reports.

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Background of the Study

Research indicates that financial statement users and auditors have substantially different perceptions regarding the role of the auditor. This difference is referred to as the audit expectation gap. There are several factors that cause the public's expectation to differ from the actual performance of auditors. In her model of the audit expectation-performance gap, Porter (1993) separates these differences into two categories: those that are within the control of the profession to correct - the "performance gap" and those that are not - the "reasonableness gap."

The "reasonableness gap" reflects societal expectations that may not be reasonable in relation to the professional expertise of auditors and the current structure of the auditing process. The profession must communicate to financial statement users the purpose of auditing and its limitations. The "reasonableness gap" can only be addressed by public education.

In attempting to address this portion of the audit-expectation performance gap, the profession has modified the language in audit reports to reflect that management has primary responsibility for the preparation of financial statements. Various forms of communication have been developed by the American Institute of Certified Public Accountants (AICPA) in an attempt to influence and educate the public as to the purpose and limitations of auditing as performed by certified public accountants.

The "performance gap" reflects the gap between the duties that can be reasonably expected of auditors and the performance of auditors as perceived by the

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public. Two deficiencies contribute to the performance gap: deficient standards and deficient performance.

Deficient standards cause a performance gap when there is a difference between auditor responsibilities as promulgated by professional standards and the expectations of financial statement users. The profession has made several attempts over the years to align professional standards more closely with public expectations. One of the more comprehensive attempts was the AICPA's issuance of the so-called "expectations gap" statements on auditing standards (SAS). SAS Numbers 53 through 61 call for auditors to assume a more proactive role as a means of responding to criticism lodged against the profession. These SASs expanded the auditors' duties and responsibilities for the pursuit and detection of errors and irregularities, including management fraud and illegal acts. Improving the congruency between promulgated standards and public expectations is expected to reduce the "deficient standards" component of the audit expectation-performance gap.

Deficient performance is the difference between auditors' existing duties and the perceived performance of auditors. This is the only area of the expectation gap that is within the personal control of the auditor. Violations of any of the ten generally accepted auditing standards (GAAS) would constitute deficient performance. The second general standard regarding auditor independence appears to cause the greatest difficulty in determining whether the auditor's performance has been deficient. This study focuses on aspects of deficient performance that contribute to the audit expectation-performance gap.

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Purpose of and Need for the Study

The credibility of the financial reporting process is seriously impaired if auditors are perceived by financial statement users to lack independence with respect to their audit clients. The second general standard requires that the auditor be independent in fact and in appearance. The AICPA and the Securities and Exchange Commission (SEC) have issued standards that define the factual situations where independence might be compromised. Questions of fact cause fewer problems in interpretation than those regarding appearance. The question that must be asked, "Is the auditor free from any obligation to or interest in the client, its management, or its owners" such that judicial partiality might be compromised (AICPA, 1995, v.1)? In factual situations this question can be directly addressed.

The question of independence in appearance relates to how others perceive the auditor/client relationship. There are standards that are designed to clarify the distinction between acceptable and unacceptable behavior. These standards are flexible and allow auditors to participate in activities that may infringe on their ability to maintain professional objectivity and independence. This is evidenced by the many judgements that have been made against CPA firms.

There are six auditor behaviors that appear to make a significant contribution to the audit expectation-performance gap: client advocacy, the provision of management advisory services, the relative size of the audit fee, client cross-hiring auditor personnel, co-contracting between auditor and client, and the failure of auditors to discover and report management fraud.

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In a speech at the AICPA's Twenty-first Annual National Conference on Current SEC Developments, Walter P. Schuetze, Chief Accountant of the Securities and Exchange Commission, cited several examples of auditor advocacy for "incredible" client accounting proposals (1994). Each case represented a clear violation of generally accepted accounting principles (GAAP) and had no redeeming value in improving the usefulness of the information contained in the financial statements. This was not a question of interpretation but rather an attempt to artificially improve the company's reported financial performance by attempting to stretch the interpretation of GAAP. Auditors from highly respected firms were arguing for these incredible positions on their clients' behalf. Schuetze expressed concern over the volume of such proposals, stating that the attitude of professional auditors is cause for concern as it reflects a serious lack of independence. Client advocacy in these situations is in direct conflict with the professional skepticism that should be exercised by auditors. The appearance of independence is called into question when auditors become advocates for client accounting positions that are in conflict with GAAP.

There does not appear to be any research into the effects of client advocacy on perceived independence in the literature. Advocating client accounting positions, especially those that might be considered extreme departures from GAAP, would seem to conflict with the independent mental attitude that requires a prudent degree of professional skepticism. This auditor behavior may prove to be instrumental in allocating blame to the auditor for subsequent business failures.

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The provision of management advisory services (MAS) to audit clients has been a hotly debated issue for a number of years. MAS engagements span a wide range of service and consulting activities. Traditionally, audit firms have provided tax planning and compliance services to clients. As computer technology developed, accounting firms expanded consulting services to include systems design, installation and software support services. Many firms have developed consulting specialties involving management, engineering, and other related business services. Each one of these activities presents a potential conflict of interest between the MAS department and the audit department of public accounting firms.

Hillison and Kennelley (1988) provide a thorough review of the benefits and hazards associated with providing MAS services to audit clients. Congressional and regulatory criticisms are placing pressure on the profession to provide some form of self-regulation. Hillison and Kennelley identify six possible alternatives that range from complete prohibition to ignoring the problem. They suggest that at the very minimum, disclosure of the MAS fees, as was required by ARS 250 (SEC, 1978) for a brief period of time, would provide financial statement users with information on which to evaluate the independence of the auditor.

The relative importance of a particular client to an accounting firm can create the appearance of a lack of independence. Pany and Reckers (1980) studied this issue with respect to both the accounting firm and the audit engagement partner. The success of a partner's career advancement could easily hinge on one or two relatively

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substantial clients, even though the clients do not represent a significant portion of the billings to the firm as a whole.

Public accounting firms have provided a source of qualified, trained professional accountants to industry for many years. This practice has been called into question on the grounds that it has the potential of impairing independence (Imhoff, 1978). Auditors who anticipate leaving public accounting may have a less objective view of client decisions if that client is a potential future employer. The relationship between an auditor-turned-client accountant and the replacement auditor may also create an appearance of less than complete independence.

In recent years, accounting firms and their audit clients entered into joint ventures or co-contracting arrangements to provide computer hardware, software, and professional services (Lowe and Pany, 1994). The appearance of independence is clearly brought into question under this type of circumstance. Through regulation, the SEC severely restricted this type of accountant-client relationship in engagements involving publicly traded companies. Arthur Andersen was the first of the big six to circumvent this regulation by spinning off the consulting portion of the practice. It appears as though the other big six firms will pursue similar reorganization strategies if another alternative is not discovered. The problem of appearance of independence therefore still remains and may become a more serious problem in the future.

One of the major complaints lodged against auditors over the years has been their failure to discover fraud in the course of conducting an audit. The Senate Subcommittee on Reports, Accounting and Management of the Senate Committee on

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Governmental Affairs (Metcalf Subcommittee) published a report in November, 1977, claiming that the accounting profession exhibited an "alarming lack of independence and lack of dedication to public protection" (as cited in Goldstein and Dixon, 1992). In the same year the Foreign Corrupt Practices Act was passed by Congress, charging corporate management with responsibility for maintaining effective internal control systems. Management's enhanced sensitivity to the proper functioning of the internal control system eventually led to the adoption of three additional Statements on Auditing Standards. These standards directed auditors to actively investigate and report on material weaknesses in internal control, errors and irregularities and illegal acts.

In 1985, John D. Dingell chaired the House Subcommittee on Oversight and Investigations, which held a series of hearings on "the effectiveness of independent accountants who audit publicly-owned corporations and the effectiveness of the Securities and Exchange Commission which audits those accountants" (United States House of Representatives, 1986). Again, the role of public accounting in protecting the integrity of financial information in securities transactions was brought into question. "Where were the independent auditors?" was the battle cry from Congress as the public accountants lined up to explain or justify their performance (Goldstein & Dixon, 1992). The profession attempted to stress that primary responsibility for financial reporting rests with management. The auditing process does not guarantee that material misstatements will be eliminated, especially if management intends to deceive the auditors.

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As with many of the issues related to the perception of auditor independence, the degree of professional skepticism exercised by the auditor is difficult to observe. When fraud is committed by corporate management it is difficult for uninformed third parties to fathom how the auditors could have not known. Therefore, the only observable event that might provide some information would be the perception of auditor performance after management fraud has been discovered and disclosed.

Research suggests that the more knowledge financial statement users have about accounting and auditing issues, the smaller the expectation-performance gap (Lowe and Pany, 1993). Even though the gap is smaller, there is normally a statistically significant difference in perceptions between sophisticated financial statement users and CPAs, indicating that the problem is not resolved by knowledge alone.

Selection of Research Subjects

The majority of research that has been conducted involved financial statement users and CPAs as subjects. The level of sophistication of the financial statement users has covered a wide range. The CPAs have been separated into categories such as: public practice-large firm; public practice-smaller firm; and private industry. The insights derived from this level of analysis have provided meaningful information regarding the differences in perceptions. Although financial statement users and CPAs are the primary participants in equity and credit transactions, they are not the ultimate decision makers in a litigation situation.

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Recent research has encompassed a broader range of relevant subjects. Lowe and Pany (1993) and Lowe (1994) used a pool of potential jurors as subjects. The perceptions of this group was compared with that of CPAs. The degree of expectation-performance gap became much greater with subjects having little or no financial accounting background. In a comparable study, Anderson, Lowe, and Reckers (1993) used judges as subjects. This also provided a contrast much greater than when sophisticated financial statement users were involved. These differences suggest that a better model would include the ultimate decision makers--jurors.

In focusing on the expectation-performance gap construct developed by Porter (1993), this study utilizes hypothetical audit situations to examine the six auditor behaviors. The first five auditor behaviors can be observed directly. The last auditor behavior, failure to discover and disclose management fraud, is examined from the perspective of a subsequent discovery. Rather than ascertaining the subjects' perception of the degree of independence, this research focuses on whether the respondent would hold the auditor financially culpable for the subsequent business failure.

Client advocacy is an auditor behavior that has not been studied in the past. The auditor behaviors most often studied in research on auditor independence are: the provision of management advisory services to audit clients, the size of the audit fee relative to the total billings responsibility of the partner-in-charge, clients' cross-hiring of auditors, and co-contracting between auditor and audit client. The final attribute, the active search for and detection of management fraud, is difficult to assess directly.

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Therefore, this variable is examined through the observance of the final outcome, subsequent discovery of management fraud.

The survey instrument contains a brief vignette describing the client, industry, and management's responsibility for the financial accounting system and reporting to third parties. The responsibility of auditors to conduct the audit in accordance with generally accepted auditing standards and the significance of an unqualified audit opinion is explained. The final portion of the vignette contains a description of a financial reversal six months after the unqualified opinion was issued by the auditors.

The participants include bankers, CPAs and potential jurors. These three groups represent financial statement users, financial statement preparers and the decision makers in a litigation situation between these two parties. The participants are asked to determine the degree of financial culpability, if any, that would be attributed to the auditor, as a result of the client's financial reversal. This is expressed as a percentage of the total financial shortfall. The responses reflect the participants' perception of the auditor's financial responsibility under normal audit conditions.

Six sub-scenarios are introduced to the participants reflecting the six auditor behaviors being examined. In each sub-scenario the participants are asked to determine the degree of financial culpability, if any, that would be attributed to the auditor, as a result of the client's financial reversal.

Research conducted by Barlett (1993) indicates that auditor independence is a continuous variable. Making the transition from auditor independence to assessing auditor financial responsibility places the issue in a different perspective. The defendant

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auditor either wins or loses the case based on the merits of the arguments and the attitudes and perceptions of the jurists. If the auditor is to be held financially responsible, what percentage of the total financial shortfall shall be borne by the auditor?

Statement of the Problem

There are three constituent groups involved in the financial reporting process: financial statement preparers (and their auditors), financial statement users (investors and lenders), and the judicial system, where conflicts between users and preparers are resolved. In a transparent reporting system, the financial statement should contain all of the information necessary for investors and lenders to make informed decisions. Auditors express a professional opinion on the financial statements, providing financial statement users with independent assurance that the statements conform to GAAP and contain all of the required disclosures.

When financial statement users incur losses, they frequently turn to the financial statement preparers and/or their auditors for relief. If the financial statements are found to be misleading, a case can be made in support of the financial statement user's claim. On the surface this appears to be a relatively straight forward issue. Unfortunately, financial reporting is subject to professional judgement. Generally accepted accounting principles provide alternatives that can cause identical business transactions to be reported differently. The subjectivity of the preparation process can lead to conflicts between financial statement preparers and users.

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The auditor is in the unique position of working for the financial statement preparer, while the audit opinion is for the benefit of the financial statement user. The subjectivity of the financial preparation process, combined with potential extended business relationships between auditor and client, can place the auditor in a compromised position. Third parties may perceive the auditor as representing the interests of the client rather than those of the financial statement users.

This research addresses six behavioral situations that are identified as "independence" issues in the research literature. The study involves the comparison of responses to perceived increases in auditor financial liability as a result of each one of the six behavioral situations.

Prior research has demonstrated that those individuals who are least informed about auditing and accounting matters are most likely to perceive auditor independence as compromised when auditors participate in business relationships with clients beyond the traditional auditor-auditee relationship. This information provides the profession with guidance for the revision of professional standards; yet it fails to capture the financial liability currently associated with practicing public accounting.

Typical jurors who participate in a trial between the defendant-auditor and the plaintiff-third party have no prior knowledge of auditing. If these persons perceive the auditor as a "public watchdog," auditor-client management relationships that overreach the auditor-auditee relationship will place the defendant-auditor at a disadvantage.

The purpose of this paper is to determine whether uninformed jurors would hold the auditor financially responsible for a business reversal subsequent to the

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issuance of the audited financial statements. The subjects assess the amount of financial responsibility in a traditional auditor-auditee relationship. This provides a base line of exposure where there is no appearance of compromised independence. This situation is then compared with six auditor-auditee management situations that have been identified in prior research as having the potential of compromised independence. This issue under study is not independence but rather the financial responsibility of the auditor as perceived by potential jurors.

The integrity of the financial reporting process is dependent on the ability of auditors to maintain an independent, objective perspective regarding the client's financial statements. This means evaluating the appropriateness of alternatives in accounting principles selected by the client management. It is not the auditor's responsibility to select and defend the position but rather to evaluate management's decision, based on how well it represents the actual results of operations and financial position of the company. Arguing an accounting position as an agent or representative of the client before a regulatory authority would suggest a behavior that could be interpreted as not independent. The auditor would not be exercising professional skepticism on the client's accounting information and reporting. The first research hypothesis states:

> H1: Active advocacy for client accounting policies that diverge from GAAP result in the auditor incurring increased financial responsibility for the client's subsequent business reversal.

One of the most widely contested issues is the provision of nonaudit services to audit clients. The second research hypothesis addresses this issue. High levels of

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nonaudit services were expected to negatively affect the appearance of independence. It was expected that the participants would perceive this behavior as an impairment of the ability of the auditor to perform independently. The auditor under this circumstance was expected to be held financially responsible for the client's business failure. This research hypothesis states:

> H2: The behavior associated with the provision of significant nonaudit services to an audit client results in the auditor incurring increased financial responsibility for the client's business failure.

A situation in which a client represents a significant portion of the firm's annual billings was also thought to compromise the auditor's independence. Client or fee size may not appear to be a significant issue to large national CPA firms; however, it may have a significant impact on the career of the partner and staff responsible for the audit. In addressing the issue of fee size, the research hypothesis was framed within the context of the audit partner-in-charge. It was expected that increases in fee size related to the audit partner's total annual billing responsibility would negatively affect the appearance of independence, and result in the auditor being held financially responsible for the client's business failure. The third research hypothesis states:

> H3: When one client represents a significant portion of the audit partner's total annual billing responsibility, the auditor will incur increased financial responsibility for the client's business failure.

In hiring or replacing accounting personnel, clients traditionally have looked to the employees of their CPA firms. Because of prior contact, audit personnel receive offers of employment. The cordial working relationship is enhanced when the former audit employee becomes client accounting management. This might be considered a

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compromise of independence, depending on the degree of influence client management might have over the auditor. From a research perspective the prior employment of the client management personnel by the audit firm was expected to negatively affect the appearance of independence and result in the auditor being held financially responsible for the client's business failure. The fourth research hypothesis states:

> H4: The hiring of audit personnel subsequent to the audit engagement by client management results in the audit firm incurring increased financial responsibility for the client's business failure.

Other national firms may follow the lead of Arthur Andersen in establishing a separate consulting firm that meets the requirements established by the SEC. To determine whether this arrangement resulted in perceived independence, the fifth research question dealt with joint venture relations between client and CPA firm. Close joint venture relations were expected to negatively affect the appearance of independence and result in the auditor being held financially responsible for the client's business failure.

This research hypothesis states:

> H5: Co-contracting arrangements between client and CPA firm result in the auditor incurring increased financial responsibility for the client's business failure.

The so-called expectation gap standards, SASs No. 53 through No. 61, direct auditors to pursue more actively the detection and reporting of errors and irregularities in conducting the audit. These SASs identify a series of procedures that need to be conducted as part of the annual audit. The intent of the standards is to heighten the auditor's professional skepticism. It is possible to conduct the mechanical procedures

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and still experience an audit failure. This is especially true in the situation of management fraud. The public and regulators are not sympathetic to the auditing profession even though auditors have made it clear that under certain circumstances the detection of management fraud may be impossible. The reaction of the public when management fraud is discovered is to blame the auditors for failing to detect the fraud. There is no way to determine the mental attitude of the auditor during the audit engagement. Hindsight, the final outcome of the case, appears to be the only means of obtaining information about the auditor's performance during the engagement. The final research hypothesis states:

> H6: The discovery and disclosure of management fraud subsequent to the issuance of an unqualified opinion will result in the auditor incurring increased financial responsibility for the client's business failure.

Theoretical Base

Attribution theory has been applied to the performance-expectation gap issue (Arrington, Hillison, & Williams, 1983; Arrington, Bailey, & Hopwood, 1985). This theory posits that there are three kinds of information - (1) consensus, (2) consistency, and (3) distinctiveness - used in deriving causal attributions. Applying this to the audit expectation-performance gap issue results in a conclusion that financial statement users attribute most business failures to the performance of the CPA, whereas CPAs attribute such failures to situational characteristics. This area of research supports the notion that there is a continuing expectations-performance gap between CPAs and users of the financial statements.

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Definition of Some Terms

The audit expectations-performance gap as defined by Porter (1993) is the difference "between society's expectations of auditors and auditors' performance, as perceived by society." This definition differentiates between true audit failures (performance gap) and those circumstances that are perceived to be failures by society (reasonableness gap). A gap in performance may be caused by either deficient standards or deficient performance. This study focuses on deficiencies in performance, which are described as the "gap between the expected standard of performance of auditors' existing duties and auditors' perceived performance, as expected and perceived by society."

The second general standard of GAAS requires that an auditor maintain an independent mental attitude in all matters relating to the engagement (AICPA, 1995, v.2). This standard addresses the mental attitude of the auditor that describes independence "in fact." In reality it is impossible to determine the mental attitude of the auditor. Therefore, the Code of Professional Conduct, Rule 101-Independence, approaches independence from the perspective of appearance. How would knowledgeable and informed individuals evaluate the relationship between the auditor and the client management? It is this definition of independence that is the focus of the present study.

Delimitations of the Problem

This study focuses on auditor behaviors that are strictly performance deficiencies. It is assumed that the professional standards as promulgated are

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satisfactory in guiding the performance of auditors. Auditors' performance within these standards would be perceived to be adequate by the public.

As discussed above, the concept of independence refers to the perceptions of informed and knowledgeable individuals. This study does not attempt to address the mental attitude of the auditor. Further, the evaluation is made by persons who are eligible to serve on a jury. These individuals were not necessarily well informed with respect to accounting and auditing matters.

Limitations of the Study

The normal limitations of survey studies apply. Juror responses as to anticipated behavior may not reflect true behavior under more realistic conditions. The participants did not receive instructions from the judge or listen to arguments and testimony from the plaintiff and defense. The responses to the survey reflect jurist predisposition to certain decisions prior to the true trial experience.

A sample of jurors was obtained from a jury pool that was impaneled by the judge at a specific time. This was not a random sample but represented the potential jurors for a specific court calendar. Typically, the pool is called based on the first letter of the last name of the registered voters in the voting district.

For the sake of consistency, the samples of bankers and CPAs were drawn from the same geographic region. The bankers selected were loan officers. This group represents frequent users of audited financial statements. The CPAs were also drawn from approximately the same geographic region of the country.

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The generalizability of the results is restricted because the samples were drawn from such a limited geographical region. The participants are residents of Eastern New Mexico which is a rural region that is agriculturally-based. The moral, philosophical, and political characteristics may not represent the predisposition of jurors located in an urban region with an industrial and service economy.

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CHAPTER 2

REVIEW OF THE LITERATURE

Perception of Independence

Much of the early research in perceptions of auditor independence focused on the comparison of CPA perceptions with that of other sophisticated financial statement users. Lavin (1976) examined the perceptions of AICPA members, bank loan officers, and research financial analysts. In Lavin's study, twelve client-auditor situations were selected from Accounting Series Release No. 126 (ASR)(SEC, 1972). These were client-auditor situations that the SEC interpreted as compromising auditor independence. Two of those selected, electronic data processing and bookkeeping services, were considered by the AICPA (1995, v.2) as not having a compromising effect on auditor independence. This provides a contrast in expectations between the established professional and primary governmental regulatory bodies.

Two research questions were examined in the Lavin study. First, the consensus of opinion within and between three groups of subjects was studied. The second research question involved an analysis of the degree of alignment with the regulatory authorities from which the client-auditor situations were derived. Did the consensus

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opinions of any of the subject groups agree with the positions taken by one of the regulatory authorities?

The results indicated that for most of the client-auditor situations the within-group consensus was relatively high. Between-group differences existed in two client-auditor situations. In the situation where the accounting firm provides bookkeeping services to an audit client, the AICPA members perceived this to be an impairment of independence. In contrast, the other two groups of subjects demonstrated a lack of consensus on the issue. The second client-auditor situation that failed to achieve between-group consensus was the acceptance of five-year promissory notes in payment of the audit fee. There was a lack of consensus among the AICPA members, whereas the bankers and research analysts perceived this situation to be an impairment of auditor independence.

When comparing the respondents' perceptions with the regulations of the AICPA and SEC there was no consensus with either of the regulatory bodies. The largest divergence in perception was between the respondents and the positions taken by the SEC. The results suggest that client-auditor situations that the SEC judges to impair independence are perceived by the respondents as relatively benign. If the SEC, and to a lesser degree the AICPA, are basing their regulations on the perceptions of financial statement users, a reexamination of such perceptions appears to be appropriate.

Expanding on the number of auditor-client relationships to be examined, Firth (1980) developed a questionnaire that incorporated examples taken from the Institute

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of Chartered Accountants in England and Wales (ICAEW) and the Institute of Chartered Accountants of Scotland (ICAS). The instrument contained 29 questions that were grouped into the four categories identified by the British Institutes: fees, personal relationships, financial involvement with clients, and conflicts of interest. The sample consisted of five groups of subjects including chartered accountants working for the (then) big eight, chartered accountants in other public practices, chartered accountants working in industry and commerce, financial analysts, and bank loan officers.

The participants were asked to evaluate the impact of the auditor-client relationships in terms of both independence and the importance of such independence on investment and lending decisions. Firth found significant differences between the groups. Financial analysts and loan officers perceived the auditors to lack independence in the largest number of auditor-client situations. Chartered accountants working in industry and commerce were rated second in the number of cases identified as lacking independence. In contrast, chartered accountants in public practice perceived a much smaller number of the auditor-client situations as lacking independence. The results also indicated that the user groups (financial analysts and loan officers) consistently perceived non-independence as a potential impairment in investment and lending decisions. Practicing public accountants, the group most affected by this issue, attributed less importance to compromises in independence to investment and loan decisions.

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The independence of public accounting firms may be impaired if an auditor subsequently accepts a position with client management. This is a common practice in public accounting. The "up-or-out" personnel policies of most firms creates an attractive supply of very qualified accountants for business and industry. Cross-hiring may compromise the ability of auditors to remain objective and independent on subsequent audit engagements.

In 1978, Imhoff examined this aspect of the auditor-client management relationship. The first phase of the research focused on the rate at which auditors were hired by client management. The overall turnover rate in Imhoff's sample of audit staff was approximately 23%. Of this group approximately 20% were hired by client management. Almost 80% of these former auditors worked on the audit engagement prior to switching jobs.

The second phase involved a survey to determine the perceptions of financial statement users (bankers and financial analysts) and CPAs (members of the AICPA) regarding auditing firm independence when audit staff are hired by client management. Two variables were introduced in the scenario to differentiate between the perceptions of the two experimental groups. The variables were the audit firm capacity of the CPA and the time lag between the audit engagement and subsequent employment of the auditor.

The results indicate that job transfers to client firms exacerbate the audit expectation-performance gap. Both the auditor-rank variable and the time-lag variable affected the perceptions of independence of both financial statement users and CPAs.

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The greater the level of responsibility on the engagement and the shorter the time-lag, the more likely was auditor independence perceived to be impaired. At all levels, financial statement users perceived more problems with independence than did CPAs.

Corporate shareholders were used as subjects in a study of perceived auditor independence conducted by Pany and Reckers (1980). The effect of gifts and discounts, and the size of the audit engagement fee relative to total office revenues on perceived auditor independence were examined.

The subjects had purchased at least one 100 share block of common stock in companies listed on the American or New York Stock Exchanges. The results indicated that gifts and/or purchase discounts at even the most modest levels had a negative impact on the perception of auditor independence. The variable reflecting relative client size was manipulated at the 1% and 10% levels of total office revenues. Neither of these had any statistical significance in inferring an influence on perceived auditor independence. Shareholders did not perceive that the independence of the auditor was compromised because the audit engagement represented a significant portion (10%) of the office billings.

In contrast to prior research findings, McKinley, Pany, and Reckers (1985) discovered that the provision of management advisory services (MAS) to audit clients had no effect on loan decisions or perceptions of independence. The survey respondents were experienced loan officers, which may have influenced the results. This group of subjects would be familiar with the audit process and the use of audited financial statements in the financial industry.

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The provision of MAS variable was set at either zero or 30% of the average audit fee over the previous three years. This level of MAS service appears to be realistic under current market conditions. The respondents indicated that the financial statements were more reliable, i.e. free of the existence of fraud, when the auditing firm also provided MAS services.

Attribution Theory

Arrington, Hillison and Williams (1983) used attribution theory to explain the differences in perception of auditor responsibility between small business owners and auditors. Attribution theory posits that there are three types of information useful in evaluating the performance of auditors: procedural consensus, consistency of reputable performance over time, and audit task distinctiveness.

In assessing the cause of an outcome, auditors place the greatest emphasis on procedural consensus. The adherence to generally accepted auditing standards is considered by the auditing profession to be an adequate demonstration of the fulfillment of professional responsibility. In contrast, third parties, represented by small business owners in the study, found such information to be of little use in forming such judgements.

The small business owners attributed greater weight to the other two sources of information. The consistency of reputable performance over time provides an indication of the performance record of the individual auditor. If the auditor has had a

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series of audit failures, a current audit failure would more likely be attributed to the performance of the auditor rather than environmental circumstances.

High audit task distinctiveness implies that audit failure would be common under a set of unique business conditions but not under normal circumstances. An example may include the risks associated with an enterprise operating in the biotechnology industry where failure is relatively common. This information may cause the third party observer to attribute an audit failure to environmental circumstances.

A survey instrument was prepared that included seven audit failure situations. The participants consisted of small business owners and CPAs. The subjects were to assign a total of 100 points on the basis of importance to those attributes that appeared to have caused the audit failure. The three types of information were operationalized in an auditing context as follows:

> Consensus: the extent to which the auditor's actions conformed to generally accepted auditing standards.
>
> Consistency: the auditor's history of prior audit failures and/or litigation with clients.
>
> Distinctiveness: the degree that the audit situation is unusual, diminishing the advantage of prior experience.

The results indicated that the small business owners were more likely to attribute audit failures to the behavior of auditors and to other environmental factors. In contrast, auditors focused primary attention to the consensus factors causing them to attribute the audit failures to client and/or environmental factors. Small business owners consistently attributed more responsibility to auditors' performance than the

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auditors were willing to accept, thus confirming the existence of an audit expectation-performance gap.

In a follow-up study, Arrington, Bailey, and Hopwood (1985) observed that CPA subjects gave consideration to all three of the information factors: consensus, consistency, and distinctiveness; whereas the business owners focused on the most obvious information cue to the exclusion of other relevant information. Business owners attributed the business failure to auditor performance, based on this single information cue. As in the first study, consensus information was the most important information component, but CPAs combined this information with at least one of the other two sources of information.

Nonaudit Versus Audit Fees

There has been some concern that the importance of non-audit engagements to the audit firm might affect the quality of the annual audit engagement. Using objective information that is publicly disclosed in Australia, Wines (1994) conducted a study to determine the relationship between audit opinion qualification and the relative importance of non-audit service fees to the accounting firm. Unlike survey data, this provides an objective approach to the study of the appearance of independence. In comparing the ratio of non-audit to audit fees on the issuance of a qualified opinion, Wines acknowledges that this may be a relatively weak measure of overall audit quality. The results indicate that the appearance of independence may be impaired when high

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levels of non-audit services are provided to audit clients. The greater the ratio of non-audit to audit fees the less chance of a qualified or adverse audit opinion.

Degrees of Independence

Most of the research regarding the appearance of auditor independence treats independence as a dichotomous variable. Auditors are judged either to be independent or to lack independence. Carmichael and Swieringa (1968) argue that independence is a matter of degree and not an all-or-nothing phenomenon. Based on this argument, Bartlett (1993) designed a study to examine the nature of the independence construct. Using an expanded Likert scale with values ranging from 0 (not independent at all) to 100 (completely independent), Bartlett solicited responses that reflected the range of possible situations. Treating independence as a continuous variable provides additional information regarding the variation between respondents.

In addition to testing for the range of independence, Bartlett also examined the impact of audit fee size relative to total annual billings and the degree of accounting and auditing knowledge of the participants. His sample consisted of bankers and CPAs, presumably knowledgeable and sophisticated financial statement users.

The survey instrument contained ten audit case situations that reflected various auditor-client relationships. The perceptions of CPAs and bankers were compared. Both groups of subjects had no problem differentiating between the case situations and assigning relative values to the independence construct. There was clearly a continuum of perceived independence. In eight of the ten situations, CPAs perceived less threat to

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auditor independence than did the bankers. Determining the exact point at which the auditor loses the appearance of independence remains undetermined but is of considerable interest to researchers and professionals.

In situations where MAS services were provided to audit clients, bankers perceived significant reductions in auditor independence; CPAs perceived no compromise in independence. The relative size of the client was studied at two levels. At the first level the client represented 1% of total firm billings. The second level measured engagement billings from the perspective of the partner-in-charge. The audit engagement represented 40% of the total annual billings of the partner-in-charge. As compared with the CPA respondents, bankers perceived a significant decrease on the independence continuum on this second level.

Perceptions within the Justice System

As a departure from the typical audit expectation-performance gap research, Lowe (1994) examined and compared judicial and auditor attitudes toward the auditing profession. This is one of the first studies involving judges, who are an integral part of the decision-making process in resolving auditor liability cases. This is of particular significance because of the degree of influence these participants have in litigation against accountants (Jennings, Reckers, and Kneer, 1991).

The judges selected as subjects in this study were participating in a continuing educational program at the National Judicial College. They were general jurisdiction

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state and federal judges. A single office of one of the big six public accounting firms was used to obtain CPA subjects.

As might be expected, the variance in judges' responses was much higher than that of the CPAs. Even with the adoption of the "new" audit report as a result of SAS No. 58, judges appeared to be uncertain as to the financial statement responsibilities of auditors. The judges held auditors to a much higher standard for the detection of fraud than the profession acknowledges as the auditors' responsibility in SAS No. 53. Judges perceived the auditor as a "public watchdog," actively pursuing the search for fraud, irrespective of materiality.

The results indicate that judges have significantly higher expectations of auditors than the profession claims to be able to deliver. The significant difference in perceptions of auditor independence and responsibility for financial statements places auditors at a distinct disadvantage in a litigation setting.

One disturbing response from CPAs was to the auditor-client relationship described as "working together hand-in-glove," resulting in auditors not being independent. The CPA responses indicated a surprising degree of uncertainty regarding the true relationship between audit client and auditor. In light of the specificity in the auditing standards as to the responsibility of auditors to be independent in fact and appearance, this result was unexpected.

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Hindsight Bias

All research up to this point has focused on the predisposition of the subjects to interpret the auditor-client relationship. Subjects were given a fact pattern and asked to determine whether the auditor was independent iwth respect to the client. In a dissertation examining "hindsight bias," Lowe (1993) carried the inquiry one step further. Hindsight bias is the current knowledge of an event that frames the perception of the juror in evaluating prior performance of the auditor. Higher relevance is given to negative factors in the case when the outdome is negative. The reverse is also true, positive factors take on more salience when the outcome is positive.

The subjects were given information on the final outcome. Important to auditor liability, Lowe observed that knowledge of the negative outcome biased jurors, causing them to blame the auditors for failing to foresee and anticipate the subsequent financial problems of the audit client.

The subjects included prospective jurors and auditors from one of the big six public accounting firms. This appears to be the first attempt to evaluate the attitudes of potential jurors and compare the results with the attitudes of auditors.

A business failure and the precipitating events were described. The subjects were told that the independent auditors issued an unqualified audit opinion on the financial statements of the company just months before the ultimate financial collapse of the company. Based on this information the juror subjects attributed the lack of disclosure of the impending financial failure to auditor negligence. The auditor subjects

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were much less inclined to attribute the lack of disclosure on auditor failure. This outcome has serious implications for auditors in a dynamic business environment.

As a follow-up, Anderson, Lowe, and Reckers (1993) studied hindsight bias with state and federal judges as subjects. Consistent with the psychological theory regarding actor-observer bias, there was a significant difference in the evaluations of judges regarding auditor performance as compared with that of the auditors. The judges provided significantly lower evaluations of auditors' performance. The findings indicate outcome information had a significant effect on the perceptions developed from the case information.

The researchers suggested that the audit expectation-performance gap consists of two perceptual differences between CPAs and third party observers. The first of these is a function of group perception. Auditors are more familiar with the audit process and are the actors in that process. They tend to attribute less influence to auditors for both positive and negative outcomes. In contrast, non-auditors are observers who may not be as familiar with the audit process and perceive auditors as having significant influence (possibly unrealistic) over the outcome.

The second perceptual difference may be described as the time perspective of the situation. Third parties, including the judges in this study, evaluate auditor decisions ex-post, after decisions are made and the final results are known. By the nature of the profession, auditors must make decisions regarding the client's financial situation on an ex-ante basis, before all of the facts are known. Group differences and

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timing differences interact to confound attempts to mitigate the audit expectation-perception gap.

Co-contracting Relationships

The design and implementation of accounting information systems have traditionally been important components of consulting services provided by public accounting firms. The rapid development of computer technology has presented challenges and opportunities. To maintain this important market niche, public accounting firms have become involved in relationships with hardware and software organizations that can provide the computer technology while the accountants provide the accounting systems expertise. Lowe and Pany (1994) discuss the development of these relationships as they relate to auditor independence. The issue revolves around the auditing of an organization with which the CPA firm has entered into a co-contracting arrangement to provide services to third parties.

The AICPA allows CPA firms to participate in co-contracting arrangements with audit clients as long as the revenues derived are not material. Regardless of the materiality of the relationship, the SEC does not allow co-contracting relationships between auditors and clients. The co-contracting relationships prohibited by the SEC include: joint ventures, limited partnership agreements, investments in supplier or customer companies, leasing interests, and sales by the accountant of items other than professional services.

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The prohibition of co-contracting agreements by the SEC would appear to remove this auditor-client relationship from the study of auditor independence. The growth and strategic importance of this type of consulting service has encouraged the development of creative strategies by public accounting firms. One of the big six CPA firms, Arthur Andersen, appears to have discovered an acceptable solution. The firm underwent a major plan of restructuring that allowed its consulting division to operate as a separate partnership, Andersen Consulting, from the accounting and auditing firm of Arthur Andersen. The SEC has ruled that Andersen Consulting may enter into co-contracting agreements with audit clients of Arthur Andersen. This organizational restructuring was both costly and time consuming for Arthur Andersen and it is unclear whether the other big six firms will adopt similar organizational structures. However, the necessity of public accounting firms to compete for consulting business may force them to consider this option.

Lowe and Pany (1994) discuss the importance of co-contracting for public accounting firms that wish to remain competitive in the rapidly evolving environment of information technology. It is argued that such arrangements are necessary if they are to maintain their strategic position in this market. The authors suggest possible standards that would provide safeguards and still allow public accounting firms to participate in such co-contracting agreements.

At present, the unique configuration of Arthur Andersen provides a significant competitive advantage. Andersen Consulting, as a separate legal entity, is allowed to work with the audit clients including co-contracting, whereas the remaining big six and

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most other public accounting firms are not. By insisting on organizational form over the substance of the client-auditor relationship, the SEC has artificially manipulated market conditions.

Lowe and Pany suggest that U. S.-based accounting firms are being placed at a competitive disadvantage vis-a-vis non-public accounting consulting firms and international competitors. The SEC argues that co-contracting impairs the appearance of independence and it is therefore not in the public interest to allow co-contracting.

There are currently no studies on the influence of this type of auditor-client relationship on auditor independence. The expected growth in this part of the consulting industry would indicate that it may become a significant issue in the future. In evaluating auditor-client relationships, restructured public accounting firms with co-contracting agreements such as Andersen Consulting, may represent a significant portion of public accounting practice.

Summary

The literature indicates that the study of auditor independence has primarily focused on the contrast in perceptions of financial statement users with that of CPAs. It has only been recently that attention has been directed to judges and potential jurors as subjects, even though these are the ultimate decision makers when it comes to accountants' legal liability. Prior research has clearly demonstrated that non-accountants perceive auditors as having responsibility for protecting the public. The results are mixed as to whether knowledge of accounting and/or auditing reduces this

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expectation. Judges and potential jurors have a predisposition to expect that auditors will function as detectives to examine and investigate all errors, illegal acts and fraudulent behavior perpetrated by employees and management. This does not imply that the process of hearing the case would not in some way alter such perception. At present the only access that researchers have had has been to pretrial subjects. The process of plaintiff and defense arguments may help to inform the judge and jury as to what might be considered reasonable and attainable expectations of auditor performance. Until researchers are able to access post trial participants, our knowledge will be limited to the predisposition of the subjects.

Prior research has used auditor independence as a construct to represent the subjects' perceptions as to auditors' legal liability. On the surface this appears to be a safe assumption, although in McKinley, Pany and Reckers (1985) non-auditor subjects indicated that consulting services that provide the design and implementation of accounting information systems enhanced the perception that the audit client would be less likely to have errors or irregularities in the financial statements.

In the current study, the assertion of financial culpability is assessed directly. In each situation the research question states: Is the auditor being held financially responsible for the client's subsequent business reversal?

Six auditor behavioral situations that may imply an impairment of independence are examined. Such impairment is assumed to cause the subjects to perceive that the auditor was negligent in performing the audit processes and failed to disclose information that would lead to the ultimate financial reversal of the business. The six

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behavioral situations are: auditor advocacy of client accounting positions, the provision of management advisory services to audit clients, the size of the audit fee relative to the total billings responsibility of the partner-in-charge, clients' cross-hiring of auditors, co-contracting between auditor and audit client, and auditor failure to detect and report on management fraud.

Prior research has examined some of the auditor behaviors of interest in this study within the context of auditor independence. They are: the provision of management advisory services to audit clients, the relative size of the audit fee compared to total annual billings responsibility of the partner-in-charge, and clients hiring of auditors subsequent to the audit engagement. Active advocacy of client accounting policies, co-contracting agreements between accounting firm and audit client and the failure to detect and disclose management fraud have not been included in these studies. Utilizing these six auditor behaviors as examples of potential impaired independence, this study examines the subjects' perceptions of auditor financial responsibly to third parties when the client experiences a financial reversal.

As Chief Accountant Schuetze suggested, the advocacy of incredible client accounting policies needs to be examined within the context of the auditors' legal liability. The appearance of independence is clearly violated if auditors are advocates in recommending and supporting accounting policies that diverge from GAAP. It would seem that financial responsibility follows.

With the adoption of the so-called expectation gap SASs, the responsibility of auditors for the detection and disclosure of management fraud has evolved over the

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years. Auditors have long unsuccessfully attempted to avoid responsibility for fraud auditing. The changing legal climate and congressional and regulatory pressure have placed auditors in the position of assuming responsibility for designing the audit so as to detect within reason, errors and irregularities including management fraud. The final behavioral situation is the subsequent discovery of management fraud. Because it is not possible for third parties to observe the failure of auditors to discover and to disclose management fraud, subsequent discovery will serve as a surrogate for auditor failure.

This study measures the degree of perceived financial responsibility attributed to auditors under a variety of circumstances. Utilizing behavioral characteristics identified in the independence literature, comparisons are made between the traditional auditor-auditee relationship and those that might be compromised. The data provides a better understanding of the perceived responsibilities attributed to independent auditors.

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CHAPTER 3

PROCEDURES

To examine the six research hypothesis, a survey instrument was developed and administered. The results are analyzed through the use of a single-factor repeated measures design model. The purpose of this analysis was to determine whether there were statistically significant differences in auditors' financial liability between the normal audit situation and each of the six behavioral scenarios. Additional analyses are conducted using multiple regression models to explain, for each behavioral scenario, the differences in financial liability perceptions as a result of subject group membership, demographic or socioeconomic variables. Procedures for evaluating the aptness of the above two types of models are discussed in this chapter and the following chapter.

Sample Selection

This study examines and compares responses from three distinct groups of individuals. The first group consists of citizens of the United States who have been called for jury duty. These are the ultimate decision makers in the litigation struggle between auditors and users of audited financial statements who have suffered a financial loss that might be attributed to the lack of information in the audited financial statements.

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The optimum approach in collecting opinion from jurors would have been to conduct post trial interviews with jurors where the defendant was an auditor. The jurors would have been briefed by the judge regarding their responsibility in deciding a case in this setting. Plaintiff and defendant counsels would have presented arguments that clarified the professional responsibilities of auditors. Confidentiality within the court system as well as limited financial resources make such an approach impractical.

An alternative approach to data collection was used which consisted of surveying individuals who have been called for jury duty. Not all of these individuals actually served on a jury; however they were selected by the state for consideration. The selection process varies from state to state. In the State of New Mexico, jurors are selected based on driver's license registration and voter registration. Each term, the clerk of the court requests a list of names that will be used in the jury selection process for that term. Names are selected in alphabetical rotation.

It is unlikely that the prospective jurors had any knowledge of accounting or auditing. Participation in a trial could enhance their knowledge of accounting and their understanding of the role of the independent auditor. This additional knowledge may have altered their original perception. It is important to recognize that the prospective jurors in this study did not have the benefit of learning through the trial experience.

In this study, the sample was drawn from the jury pools of Curry and Roosevelt Counties, as selected by the State of New Mexico. The impaneled jury was given the survey instruments and asked to complete them during the lengthy waiting period during jury selection. The residents of this rural agricultural area traditionally have

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been conservative. It was anticipated that the prospective jurors reflect this conservative orientation both politically and economically.

The preparers and users of financial statements have been the primary groups of individuals involved in the standards-setting process. Prior research has indicated that increased knowledge about accounting and auditing has an effect on one's perception of the role of the auditor (Lowe, 1994.) Audit failure is not as likely to be attributed to auditor malpractice by those who are informed about the auditing process. Two additional groups of subjects were selected to represent preparers and users of financial statements. The subjects from these two groups were drawn from the same basic population as that of the juror group.

As representatives of financial statement users, bankers were selected from the membership roster of the New Mexico Banking Association. In order to obtain a sufficient sample, participation in the study was not restricted to residents of eastern New Mexico. The survey participants were limited to loan officers, the bankers who most frequently use financial statements that are prepared by business entities and audited by CPAs.

Based on the membership of the New Mexico Society of Certified Public Accountants, a regional data base has been prepared by the Eastern New Mexico University Student Accounting Society. This mailing list was used to survey CPAs. It represents a population of professional accountants who practice public accounting in the same geographic region as the juror population. As a surrogate for preparers of

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financial statements, they have a vested interest in maintaining the integrity of the financial reporting system.

The data derived from these three sources is analyzed and compared.

Variables

The assessment of financial liability of the auditor is regarded as a continuous dependent variable. The participant responses are ranked on a scale from 0 to 100. The auditor was judged by the participant to have no financial responsibility with a score of 0 or to have some financial responsibility with a score of more than 0, up to 100. This configuration results in the dependent variable, auditor financial liability, having a range of 0 percent to 100 percent.

Six auditor behaviors are believed to impair independence. Five of these behaviors may be observed directly: auditor advocacy of client accounting policies, the provision of management advisory services to audit clients, the relative importance of the audit fee to the total annual billing responsibility of the partner-in-charge, the cross-hiring of auditors by audit clients, and co-contracting agreements between auditor and audit client. The final auditor behavior examines the failure of the auditor to detect and report on management fraud. There is no practical way for non-auditors to observe this behavior directly. Subsequent discovery of management fraud serves as a proxy for this behavior.

In addition to these six behavioral situations, the normal audit is included to provide a point of reference. It is assumed that the independent auditor assumes some

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minimal level of risk for professional liability related to auditing financial statements. Assessing the degree of risk above this base level provided information about the effects of the behaviors. The respondents are assessing the degree of financial liability as a result of these seven treatments.

Prior independence research (for example, Imhoff, 1978, Firth, 1980, and Pany and Reckers, 1980) has assumed that independence is an important factor in determining auditor professional responsibility. Auditor independence may be one of many factors that lead to a judgement where the auditor is held financially liable. Linking these behaviors of impaired independence with auditor financial responsibility is an important component of the present study.

Survey Instrument

A survey instrument is used to obtain responses from the three participant groups. A copy of this instrument is included in Appendix A. The instrument contains a brief vignette describing the client, industry, and management's responsibility for the financial accounting system and reporting to third parties. The purpose and limitations of an independent audit and the importance of an unqualified audit opinion are explained. The auditor will have conducted the audit in accordance with generally accepted auditing standards (GAAS). A brief explanation of the significance of GAAS, which are standards established by the profession and recognized by regulatory agencies and sophisticated financial statement users, is provided. The final portion of

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the vignette describes the subsequent financial reversal of the company and ultimate business failure.

The instrument includes the basic text of the vignette, and seven questions. The participants are asked to indicate their perceptions of the auditor's financial responsibility in each audit situation. The first question reflected a normal audit situation where the auditor's activities were limited to performing the annual audit. The remaining six questions dealt with the six behaviors that were thought to compromise auditor independence. The question topics were as follows:

NA-Normal audit situation

B1-Auditor Advocacy

B2-Management Advisory Services

B3-Audit Fees

B4-Cross-Hiring of Auditing Personnel

B5-Co-Contracting Between Auditor and Client

B6-Management Fraud

After reading the question the participant is asked to refer back to the original vignette, disregarding any of the audit situations discussed in the other questions. Each question provided additional information about a particular auditor behavior under study that was to be added to the vignette to create a new situation. The participant was responding to this modified situation.

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In responding to each question, the participant places an X on a 100 point expanded Likert scale. This indicated the percentage of financial responsibility that the participant attributed to the auditor in each situation.

As will be discussed in the next section, the single-factor repeated measures model was selected to analyze the data. One of the weaknesses of this model is that the responses may be influenced by the order (order effects) in which the treatments are presented to the participants. Additionally, there may be a carry-over effect that influences the participants' responses to subsequent questions. To minimize the interference of these influences, counterbalancing is utilized (Girden 1992, p. 3). Six versions of the survey form were prepared. The Normal Audit question (NA) remains in the first position on each survey form. The other six behavioral questions (B1 through B6) are counterbalanced as follows:

Form Q1	NA	B1	B2	B6	B3	B5	B4
Form Q2	NA	B2	B3	B1	B4	B6	B5
Form Q3	NA	B3	B4	B2	B5	B1	B6
Form Q4	NA	B4	B5	B3	B6	B2	B1
Form Q5	NA	B5	B6	B4	B1	B3	B2
Form Q6	NA	B6	B1	B5	B2	B4	B3

The survey forms were assigned to the participants on a random basis. This insured that there would be a sufficient number of responses to each form to minimize any possible order effects and/or carry-over effects.

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The survey instrument was administered directly to the juror group. These participants were members of an impaneled jury. They were confined to a waiting area while the judge and attorneys were involved in the final jury selection process. They were willing participants, resulting in a relatively high response rate.

In contrast, the survey instrument was mailed to the bankers and CPAs. The samples for these two groups were drawn from the same geographic region as that of the jurors so that the samples represented the same population. This made it feasible to compare the three sample groups. In a mail survey it is much more difficult to get the subject to respond to the instrument. There were two incentives for these participants. First, the cover letter (see Appendix A) indicates that a $1 bill was enclosed as a symbolic gesture of compensation for the participant's time. In addition, because these participants have a vested interest in the financial reporting system, a self-addressed stamped postcard was enclosed, giving the participant an opportunity to receive a copy of the survey results after completion of the research. These measures were anticipated to improve the response rate.

The last page of the survey instrument contained questions for collecting data about the demographic and socioeconomic characteristics of the three respondent groups. An attempt is made, using multiple regression analysis, to explain the differences in perception of auditor financial liability among subjects for each of the seven scenarios under scrutiny. Demographic and socioeconomic variables are a subset of the explanatory variables used in the multiple regression analysis.

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The survey instrument was pilot tested using accounting students and faculty in the College of Business at Eastern New Mexico University. The ambiguities found were corrected before the final instrument was prepared for use in the study.

Analysis of Data

In research that utilizes mailed survey instruments there is always a concern that the respondents as a group differ from those who fail to respond. Responses to the survey instrument were anonymous, providing no means of following up on those members of the sample who failed to reply. Short of evaluating the characteristics of the nonrespondents, it was possible to test for differences between early and later respondents. If there were statistically significant differences in responses between these two groups of respondents, there might be some concern that the perceptions of auditor responsibility was not adequately reflected in the study. The analysis is accomplished by dividing the survey responses into two subgroups. The median date of receipt was used as the dividing line between early and late responses. For each audit situation the mean responses are compared by subgroup using a t-test. This provides information as to any differences that might exist between early and late respondents. In the current study, late respondents were used as a surrogate for nonrespondents.

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Single-Factor Repeated
Measures Design Model

The analysis begins by use of a single-factor repeated measures design model. The purpose of this analysis was to determine whether there are statistically significant differences between the mean responses of each of the six behavioral audit situations and the normal audit. The subjects were asked to respond to seven treatments (the normal audit plus six auditor behaviors.) A vignette describing the client company, the audit circumstances, and an epilogue detailing the ultimate failure of the client company was presented. The first treatment (the normal audit) asked the respondent to indicate the percentage, if any, of the financial shortfall that should be attributed to the auditor. The remaining six treatments were representations of the auditor behaviors discussed above. In each treatment the participant was asked to attribute the percentage, if any, of auditor financial liability for the failure of the business entity.

The formal model of the single-factor repeated measures design is basically the same as the randomized block model with random block effects. The subjects serve as the blocks in this case. This model is used to analyze the data collected from each of the three data sets. Each data set is analyzed separately. The model is formulated as follows:

$$Y_{ij} = \mu_{\cdot} + \rho_i + \tau_j + \epsilon_{(ij)} \qquad (3.1)$$

where:

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Y_{ij} is the perceived auditor financial liability for the ith scenario by the jth subject

$\mu_{.}$ is a constant

ρ_i are independent subject effects following the $N(0, \sigma^2_\rho)$

τ_j are constants representing scenario effects subject to $\Sigma\tau_j = 0$

$\epsilon_{(ij)}$ are independent $N(0, \sigma^2)$ and is written, using such notation, as no replications are present in the design

ρ_i and $\epsilon_{(ij)}$ are independent

i = 1,...,n; j = 1,...,r

n = sample size for each group (jurors, bankers, or CPAs)

r = 7 (the normal audit and the six behavioral situations)

As mentioned earlier, a primary purpose of this analysis is to determine whether there are statistically significant differences between the mean response of the normal audit and the mean responses of each of the six behavioral audit situations. The mean response of the normal audit situation was expected to be the minimum financial liability as perceived by the subjects. Audit situations that exceeded this level indicated that the behavior under study increases the perceptions of auditor's financial liability. The null hypothesis for this analysis is as follows:

H_o: $\tau_1 = \tau_2 = \tau_3 = \tau_4 = \tau_5 = \tau_6 = 0$

H_a: Not all τ_j equal zero

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The data was organized, as shown in Table 1, for processing using the SAS (Statistical Analysis System) software package. Procedure GLM was employed in this regard.

Table 1

Configuration of the Data in SAS

Participant	Auditor Behaviors						
	NA	B1	B2	B3	B4	B5	B6
1							
2							
3							
4							
5							
..							
n							

The test statistic utilized in evaluating the hypotheses (see Neter, Wasserman, and Kutner, 1990, p. 1040) is the F* statistic given

$$F^* = \frac{MSTR}{MSTR.S} \qquad (3.2)$$

where:

MSTR = mean treatment sum of squares

MSTR.S = mean interaction sum of squares between subjects and treatments

The decision rule is:

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If $F^* \leq$ Tabulated $F[1 - \alpha; r-1, (r-1)(n-1)]$, conclude H_0

If $F^* >$ Tabulated $F[1 - \alpha; r-1, (r-1)(n-1)]$, conclude H_a

If the above test resulted in rejection of the null hypothesis, at least one factor level effect was statistically different from zero. Follow-up analysis was conducted utilizing the Bonferroni method of multiple comparison to estimate the pairwise comparisons between the normal audit and each of the six behavioral situations. This contrast procedure indicates, at the family confidence level of 0.95, differences in mean responses. This analysis provides information about the differences in mean responses between the normal audit and each of the six behavioral audit situations.

The single-factor repeated measures design is subject to certain assumptions. One of the main assumptions is that there is no interaction between subjects and treatments, implying that the model is additive. To examine the appropriateness of this assumption, the Tukey Test for Additivity was conducted (Neter, Wasserman, and Kutner, 1990, p. 790). If there was interaction between subjects and treatments, a possible remedy would be to apply an appropriate transformation to the actual response data, Y_{ij}.

Another important assumption holds that "any two Y_{ij} treatment observations for a given subject are correlated in the same fashion for all subjects. This key assumption implies, . . . , that the variance-covariance matrix of the observations Y_{ij} for any given subject has compound symmetry" (Neter, Wasserman, and Kutner 1990, p. 1038). The assumption of compound symmetry in the additive model (3.1) is

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restricted. While this assumption is sufficient so that the F* statistic for testing treatment effects will follow the F distribution when H_0 holds (i.e., when no treatment effects are present), the assumption is not necessary. For this purpose it would suffice that the condition of *sphericity* be met (Neter Wasserman, and Kutner, 1990, p. 957). The condition of sphericity requires that the variance of the difference between any two estimated treatment means be constant, that is:

$$\sigma^2(\overline{Y}_{\cdot j} - \overline{Y}_{\cdot j'}) = \text{constant}, \; j \neq j'$$

The Hartley Test for equality of variances (Neter, Wasserman, and Kutner, 1990, p. 619) was used to determine whether the condition of sphericity is met.

Rank Order of Audit Situations

In addition to evaluating the contrasts between the normal audit and each of the six behavioral scenarios, each group's perception of the rank order of the audit situations is of interest. To assess the agreement among the three groups, the means of financial liability of the seven scenarios for each group were first ranked in an ascending order. Kendall's coefficient of concordance W was computed afterwards using the following formula (Conover, 1980, p. 305).

$$W = \frac{12}{n^2 r(r+1)(r-1)} \sum_{j=1}^{r} \left[R_{\cdot j} - \frac{n(r+1)}{2} \right]^2 \qquad (3.3)$$

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where:

R_j = the sum of the ranks for the jth scenario

n = 3 (three subject groups)

r = 7 (seven audit scenarios)

It is noted that the coefficient of concordance W equals 0 if there is no agreement, and equals 1 if there is perfect agreement, that is, if all scenarios receive the same mean ranking. Furthermore, it can be shown that W is related to the nonparametric Friedman's rank test statistic T for the audit situation effects through the following relationship (Gibbons, 1993, p.29)

$$W = \frac{T}{n(r-1)} \tag{3.4}$$

where T is given by:

$$T = \left[\frac{12}{nr(r+1)}\sum_j R_j^2\right] - 3n(r+1)$$

If there are no differences in audit situation effects, it can be shown that the T test statistic is distributed approximately as χ^2 with r-1 degrees of freedom (Neter, Wasserman, and Kutner, 1990, p. 948).

Accordingly, the null hypothesis of no agreement between group rankings is rejected if T exceeds tabulated $\chi^2(1-\alpha; r-1)$ and is accepted if otherwise.

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A second test of scenario ranking agreement between groups is conducted using the rank correlation test for agreement in multiple judgements reported in Kanji (1993, p.115). The purpose of this test is to examine the significance of the correlation between seven series of rankings assigned to the seven financial liability means of the three subject groups. This test is conducted through the use of an F statistic. Upon ranking the financial liability of the seven scenarios means, the application of this test entails computing the following quantities in sequence.

$$S = \frac{nr(r^2 - 1)}{12}$$

S_D = Sum of Squares of Differences between scenario totals and their overall mean

$$D_1 = \frac{S_D}{n}$$

$$D_2 = S - D_1$$

$$S_1^2 = \frac{D_1}{r-1}$$

$$S_2^2 = \frac{D_2}{r(n-1)}$$

n = 3 (three subject groups)

r = 7 (seven scenarios)

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Finally, the F statistic is computed as S^2_1/S^2_2 and compared against tabulated $F[1-\alpha; k-1, r(n-1)]$. If calculated F exceeds the related tabulated critical value, the null hypothesis of no agreement between group rankings is rejected.

Demographic and Socioeconomic Characteristics

Descriptive statistics obtained from the demographic and socioeconomic information contained on the last page of the survey instrument is used in the analysis. The format of the two tables of descriptive statistics are contained in Appendix A.

The format of the descriptive statistics involving the dummy variables included in the demographic and socioeconomic questions are presented in Table A1, Appendix A. These statistics are organized by sample group with a summary column reflecting the total responses.

The format of the descriptive statistics for the continuous variables included in the demographic and socioeconomic questions are formatted as in Table A2, Appendix A. These data are also organized by sample group with a summary column for total responses. This table also presents the ranges and averages for each of the demographic variables.

Multiple Regression using OLS Model

A second analysis is conducted to explain the variability in responses among subjects. For example: do group membership, gender, marital status, household income, ethnicity, education, years of employment, prior knowledge of accounting and

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auditing, or years since completion of highest level of education affect the respondent's perceived auditor financial liability? Multiple regression using ordinary least squares is used to provide answers to the above questions. A separate regression equation is estimated for each of the seven audit situations. The model is formulated as follows:

$$Y_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \epsilon_{ij} \quad (3.5)$$

Where:

Y_{ij} = perceived auditor financial liability for the ith scenario by the jth subject

X_1 = 1 if subject is juror, 0 otherwise

X_2 = 1 if subject is banker, 0 otherwise

X_3 = 1 if gender male, 0 if female

X_4 = 1 if subject is married, 0 if not married

X_5 = 1 if annual household income is less than $65,000, 0 otherwise

X_6 = 1 if subject is Caucasian-American, 0 otherwise

X_7 = 1 if subject has not completed a college education, 0 if otherwise

X_8 = the years of employment in current occupation

X_9 = the number of accounting or auditing courses completed

X_{10} = the years since the completion of the highest level of education

ϵ_{ij} are independent $N(0,\sigma^2)$

i = 1,..., 7 (the number of scenarios)

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The multiple regression model is rich in that it incorporates group membership along with numerous demographic and socioeconomic characteristics that may explain the differences in perception among subjects. In those models where the parameters related to the jury and banker dummy variables are of similar signs and significant, an additional test is conducted. A partial F test is used to determine whether the coefficients of the jury and banker variables are equal. A reduced model is derived from the original full model (3.5), and is used in calculating the partial F test. The reduced model in this situation takes the following form when $\beta_1 = \beta_2 = \beta$:

$$Y = \beta_0 + \beta (X_1 + X_2) + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \epsilon_{ij}$$

The null hypothesis in this case is:

$$H_0: \beta_1 = \beta_2 = \beta$$

and the alternative hypothesis is:

$$H_a: \beta_1 \neq \beta_2$$

The test statistic F* (see Neter, Wasserman, and Kutner, 1990, p.99) is formulated as follows:

$$F^* = \frac{SSE(R) - SSE(F)}{df_R - df_F} \div \frac{SSE(F)}{df_F} \qquad (3.6)$$

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where:

SSE(R) and SSE(F) are the error sum of squares for the reduced model and full models respectively.

df_R and df are the degrees of freedom associated with SSE(R) and SSE(F) respectively.

The decision rule is as follows:

If $F^* \leq$ Tabulated $F(1-\alpha; df_R-df_F, df_F)$, conclude H_0

If $F^* >$ Tabulated $F(1-\alpha; df_R-df_F, df_F)$, conclude H_a

In testing each of the seven multiple regression models (3.5) for heteroskedasticity, the variance of the error term ϵ_j, denoted by σ^2_j, is assumed to be related to the continuous variables X_8, X_9, and X_{10} according to the following variance specification (Hill, Griffiths, & Judge, 1997, p. 229).

$$\sigma_j^2 = \sigma^2 \exp(\alpha_1 X_8 + \alpha_2 X_9 + \alpha_3 X_{10}) \qquad (3.7)$$

To test a null hypothesis of homoskedasticity against the alternative in equation (3.7) the relevant hypotheses are:

H_0: $\alpha_1 = \alpha_2 = \alpha_3 = 0$, and

H_a: $\alpha_1 \neq 0$, $\alpha_2 \neq 0$, and/or $\alpha_3 \neq 0$

Note that when H_0 is true, equation (3.7) reduces to $\sigma^2_j = \sigma^2$

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To obtain an alternative test, one must begin by taking logarithms of equation (3.7) to yield the following:

$$\ln(\sigma_j^2) = \alpha_0 + \alpha_1 X_8 + \alpha_2 X_9 + \alpha_3 X_{10}$$

$$\textit{where } \alpha_0 = \ln(\sigma^2)$$

Next, σ^2_j is replaced by the squared least squared residuals, e^2_j, to get the equation:

$$\ln(e_j^2) = \alpha_0 + \alpha_1 X_8 + \alpha_2 X_9 + \alpha_3 X_{10} + v_j \qquad (3.8)$$

where v_j is a usual error term introduced to allow for the fact that e^2_j is being used as a proxy for σ^2_j.

Equation (3.8) is similar to a multiple regression equation. It has a dependent variable $\ln(e^2_j)$, explanatory variables X_8, X_9, and X_{10}, and unknown coefficients α_0, α_1, α_2, and α_3.

If a statistically significant regression relationship exists between the dependent and independent variables related to (3.8), this would be an indication of the presence of heteroskedasticity; otherwise one could infer that the error terms in the original multiple regression models (3.5) are homoskedastic.

Finally, to test each of the seven multiple regression models (3.5) for the normality of their error terms, the residuals e_j are first ordered in an ascending order based on their magnitudes. To find the expected values of the ordered residuals under normality, w_j, the following facts associated with ordinary least squares estimation are recognized: (1) the expected value of the error terms for the regression model is zero,

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and (2) the standard deviation of the error terms is estimated by the square root of the mean sum of squares ($\sqrt{MSE}$).

Statistical theory has shown that for a normal random variable with zero mean and estimated standard deviation of $\sqrt{MSE}$, a good approximation of the expected value of the jth ranked observation in a random sample of size n is given by:

$$w_j = \sqrt{MSE}\left[Z\left(\frac{j-0.375}{n+0.250}\right)\right]$$

where Z(A) denotes the (A) 100 percentile of the standard normal distribution (Neter, Wasserman, and Kutner, 1990, p. 125).

Afterwards, one may compute the simple coefficient of correlation ρ relating the residuals e_j to their expected values w_j under normality. In this specific case, the formula for ρ is a simple one and is given by:

$$\rho = \frac{\sum e_j w_j}{\sqrt{\sum e_j^2 \sum w_j^2}} \qquad (3.9)$$

A large value of ρ would indicate normality.

In summary, a single-factor repeated measures design is employed to analyze the mean responses to the seven audit situations within the subject groups. This examination provides information about the perceived auditor financial liability associated with each one of the behaviors of interest in this study necessary to validate the research hypotheses.

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Descriptive statistics are developed from the demographic and socioeconomic data collected in the instrument. This information is used to operationalize some of the explanatory variables used in the regression analysis. These variables together with group membership dummy variables are used to explain the differences in responses to each of the seven behavioral scenarios.

All of these analyses were aimed at contrasting and explaining the perceptions of the three groups of subjects regarding auditor financial liability for the seven audit situations under scrutiny.

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CHAPTER 4

FINDINGS

The main findings reported herein will be shown to support the research hypotheses that there are differences in auditors' financial liability between the normal audit situation and each of the six behavioral scenarios. The single-factor repeated measures design model reveals that the jurors perceived five of the six behavioral scenarios as statistically significant at the $\alpha = 0.01$ level. The bankers identified three and the CPAs four behavioral scenarios as statistically significant at the $\alpha = 0.10$ level or better.

The multiple regression models show among other things that the bankers held auditors to a higher standard. In all seven audit situations, the coefficients of the dummy variable representing bankers were statistically significant different from zero at the level of $\alpha = 0.05$. In addition, in the multiple regression model related to the audit fees (B3), the coefficient of the juror variable was also statistically significant at the $\alpha = 0.05$ level. The coefficients for these two variables were found to be equal. Other explanatory variables that were also significant in some scenarios include educational level, ethnic background, and number of accounting and/or auditing courses completed.

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Responses to Survey Instrument

The survey instrument was pilot tested by accounting students and faculty in the College of Business at Eastern New Mexico University. The participants identified language and format that was ambiguous. Based on the comments and suggestions from these preliminary subjects, several modifications were made to the instrument to improve the clarity of the questions. In particular, several students suggested that an example of a hand-prepared response be included in the survey. This turned out to be a very useful suggestion in that it eliminated one source of possible confusion as to the expected form of response.

The survey instruments were administered to 77 members of an impaneled jury. Of this total, ten of the forms were incomplete and therefore unusable in conducting the analysis. The remaining 67 survey instruments are used in conducting the within group analysis (single-factor repeated measures design) and between group analysis (multiple regression analysis).

At approximately the same time that the impaneled jury participated in the study, the survey instruments were mailed to the bankers and CPAs. In addition to the survey instrument, the mailed package included an instructional cover letter, a $1 bill as a symbolic compensation for the effort required to complete the form, and a self-addressed, stamped post card so that the respondents could request the results of the completed research. There were 126 bankers selected from the New Mexico Banking Association membership roster. These reflect all of the loan officer members in the State of New Mexico. Two of the packages were undeliverable. Of the 59 survey

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forms that were returned, two were incomplete. The remaining 57 survey forms were used in the analyses. This reflects a 47 percent response rate.

There were 125 CPAs in the data base, representing members of the New Mexico Society of CPAs practicing in the eastern portion of the state. One package was undeliverable, leaving a total sample of 124 members. There were 45 usable responses received from the CPA subjects. This reflects a 36 percent response rate. Table 2 contains a complete description of the administration of the survey forms to the three groups of subjects.

Table 2

Administration of Survey Instruments

Subjects	Delivered Forms	Total Responses	Usable Responses	Response Rate
Jurors	77	77	67	100%
Bankers	124	59	57	47%
CPAs	124	45	45	36%

The response rates for the bankers and CPAs were considerably better than expected. In attitude research in accounting, response rates of 10 to 20 percent are typical (Wilson, 1987). The survey instrument for this study was mailed to professionals who have a vested interest in the financial reporting system. The incorporation of incentives to encourage the bankers and CPAs to complete the survey instrument appears to have achieved the desired effect (Bouchard, 1976, p. 383). The

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survey instrument was administered during tax season, possibly explaining the relatively lower response rate among CPAs.

To evaluate the reliability of the measuring instrument used in this study, the items (behavioral scenarios) were checked by coefficient alpha and split-half analysis (Peter, 1979). Alpha coefficients were .8057, .7508, and .8824 for jurors, bankers, and CPAs respectively. Upon discarding the normal audit (NA) and dividing the six remaining scenarios into two equal groups, the total score on even items (scenarios B2, B4, and B6) and the total score on odd items (scenarios B1, B3, and B5) are correlated. The simple correlation coefficient ρ for the jurors, bankers, and CPAs were .6509, .5696, and .7316 respectively. These results reveal that the scales items exhibit a reasonable level of internal consistency reliability for an exploratory study such as this one. Reliabilities in excess of .60 generally are regarded as sufficient for research purposes. (Nullally, 1967).

In testing for nonresponse bias, late respondents were used as a proxy for nonrespondents. For each group, t-tests were conducted to determine whether there were statistically significant differences between early and late respondents. The presence of significant differences would indicate that the two subgroups of subjects are different. Such differences may suggest that nonrespondents are also different, thus limiting the generalizability of the results.

To test for the presence of the differences mentioned above, the respondents were divided into two subgroups. As mentioned in the previous chapter, the median date of receipt was used as the dividing line between early and late responses. For the

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bankers, 23 of the responses were assigned to group 1 and the remaining 34 were assigned to group 2. For the CPAs, 21 of the responses were assigned to group 1 and the remaining 24 were assigned to group 2. Tables C1 and C2 in Appendix C contain the detailed SAS printouts for each of the subject groups.

Table 3 contains a summary of the results for the bankers. There are no significant differences between the two subgroups for the normal audit or the six behavioral scenarios (minimum P-value > 0.1264). Therefore, the inference may be made that the nonrespondents do not differ significantly from the bankers who completed the survey instrument.

Table 3

Summary of Early vs. Late Responses for Bankers

Scenario	Means		Test Statistic	P-value
	Group 1	Group 2	T	Pr > |T|
NA	24.2609	30.7059	-0.8419	0.4035
B1	41.6522	40.7059	0.1280	0.8986
B2	44.0000	36.7353	0.9501	0.3462
B3	40.5217	40.8235	-0.0355	0.9718
B4	49.4783	45.1765	0.4984	0.6202
B5	30.8696	44.3235	-1.5519	0.1264
B6	34.1739	37.4706	-0.3858	0.7011

Table 4 contains a similar summary analysis for the CPAs. Again, the differences between early and late respondents are not statistically significant (minimum

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P-value > 0.1008). The inference may be made that there is no significant difference between nonrespondents and CPA subjects who completed the survey instrument.

Table 4

Summary of Early vs. Late Responses for CPAs

Scenario	Means		Test Statistic	P-value
	Group 1	Group 2	T	Pr > |T|
NA	25.2381	11.4167	1.6975	0.1008
B1	29.0952	22.9167	0.7054	0.4861
B2	40.7143	27.0000	1.6945	0.1726
B3	41.5714	26.8333	1.5328	0.1326
B4	33.9524	27.2917	0.7101	0.4815
B5	32.5238	27.8333	0.4502	0.6548
B6	37.8095	25.2083	1.3216	0.1935

Single-Factor Repeated Measures

Utilizing the data from each of the subject groups, the single-factor repeated measures models (3.1) were estimated. The purpose of this analysis is to determine for each subject group, whether there are statistically significant differences between the mean response of the normal audit and the six behavioral audit situations (the seven scenarios). Table 5 contains a summary of the F Values for the three subject groups. In each subject group analysis the model is significant at better than the $\alpha = 0.05$ level. Specifically, a significant portion of the variation is explained by the scenarios in each one of the models. The complete ANOVA tables for each of the three subject groups

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are included in Appendix C (jurors: Table C3, bankers: Table C4, and CPAs: Table C5).

Table 5

Summary of F Values for Scenarios

Subject Groups	F Value	Prob > F
Jurors	13.44	0.0001
Bankers	8.60	0.0001
CPAs	4.41	0.0003

As indicated in the previous chapter, before interpreting the results it is necessary to assess the appropriateness of the model for these data sets. There are two assumptions that need to be examined. The first assumption is that there is no interaction between the treatments (scenarios) and the subjects.

For each type of respondent, the Tukey Test for Additivity was used to determine whether there is interaction between the scenarios and the subjects. The formulation of the model being tested contains an interaction term, $D\alpha_i\beta_j$ as presented below:

$$Y_{ij} = \mu.. + \alpha_i + \beta_j + D\alpha_i\beta_j + \epsilon_{ij} \qquad (4.1)$$

where:

Y_{ij} is perceived auditor financial liability for the ith scenario by the jth subject.

$\mu_{..}$ is a constant

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α_i are constants subject to the restriction $\Sigma\ \alpha_i = 0$

β_j are constants subject to the restriction $\Sigma\ \beta_j = 0$

D is a constant

ϵ_{ij} are independent $N(0,\sigma^2)$

$i = 1,...,n;\ j = 1,...,r$

The test statistic for this model is an F* test where:

$$F* = \frac{SSAB*}{1} \div \frac{SSRem*}{rn-r-n}$$

where:

$$SSAB* = \sum\sum D^2\alpha_i^2\beta_j^2 =$$

$$\left[\sum_i\sum_j(\bar{y}_{i.}-\bar{y}_{..})(\bar{y}_{.j}-\bar{y}_{..})Y_{ij}\right]^2 / \sum_i(\bar{y}_{i.}-\bar{y}_{..})^2\sum_j(\bar{y}_{.j}-\bar{y}_{..})^2$$

$$SSTO = SSA + SSB + SSAB* + SSRem*$$

with:

SSTO given as the total sum of squares

SSA given as the sum of squares for scenarios

SSB given as the sum of squares for subjects

so that:

$$SSRem* = SSTO - SSA - SSB - SSAB*$$

r = 7 (the normal audit and six behavioral situations)

n = number of subjects (67 for jurors, 57 for bankers, and 45 for CPAs)

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The tabulated F is determined as

$$F(1-\alpha;\ 1,\ r\ n-r-n)$$

and in this case α is chosen to be equal to 0.05.

The null hypothesis for the above model is as follows:

H_0: $D = 0$ (no interactions present)

H_a: $D \neq 0$ (interactions $D\alpha_i\beta_j$ present)

The decision rule is as follows:

If $F^* \leq$ Tabulated $F(1-\alpha;\ 1,\ r\ n-r-n)$, Conclude H_0

If $F^* >$ Tabulated $F(1-\alpha;\ 1,\ r\ n-r-n)$, Conclude H_a

Details about the above test may be found in Neter, Wasserman and Kutner (1990, p.790).

Table 6 contains the results of the Tukey Test for Additivity for each one of the subject groups. The details are contained in Tables B1, B2, and B3 in Appendix B.

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Table 6

Summary of Tukey Tests for Additivity

Jurors:
$F^* = 22.81 > F[0.95; 1, 395] = 3.84$
$\therefore$ Conclude H_a, there is interaction between scenarios and jurors at the $\alpha = 0.05$ level.
Bankers:
$F^* = 0.3311 < F[0.95; 1, 335] = 3.84$
$\therefore$ Conclude H_o, there is no interaction between scenarios and bankers at the $\alpha = 0.05$ level.
CPAs:
$F^* = 0.6346 < F[0.95; 1, 263] = 3.84$
$\therefore$ Conclude H_o, there is no interaction between scenarios and CPAs at the $\alpha = 0.05$ level.

The null hypothesis is rejected for the juror group. This data set contains interaction between the treatments (scenarios) and the juror subjects. A possible remedy involves an appropriate transformation of the original data set of jurors. This was accomplished by transforming each observation Y_{ij} to $LN(1 + Y_{ij})$. After transforming the data in this fashion, Table 7 demonstrates that the data set of jurors meets the criteria of the Tukey Test for Additivity. The details are contained in Table B4 in Appendix B.

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Table 7

Tukey Test for Additivity: Transformation of Juror Data to $LN(1+Y_{ij})$

Jurors $[LN(1+Y_{ij})]$:
$F^* = 3.187 < F[0.95; 1, 395] = 3.84$
$\therefore$ Conclude H_0, there is no interaction between scenarios and jurors at the $\alpha = 0.05$ level.

Based on this result the juror data set will be in this configuration for the remainder of the analysis using the single-factor repeated measures model.

For the banker and CPAs subject groups the test results in a failure to reject the null hypothesis. There does not appear to be interaction present in these data sets (see Table 6).

The second assumption holds that "any two Y_{ij} treatment observations for a given subject are correlated in the same fashion for all subjects" (Neter, Wasserman, and Kutner, 1990, p. 1038). As discussed in the previous chapter, it is sufficient that the condition of *sphericity* be met. This condition requires that the variance of the difference between any two estimated treatment means be constant, that is:

$$\sigma^2(\overline{Y}_{\cdot j} - \overline{Y}_{\cdot j'}) = \text{constant}, j \neq j'$$

Note that for $r = 7$, there are 21 differences among the means that need to be considered.

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The Hartley Test for equality of variances (Neter, Wasserman, and Kutner, 1990, p. 619) was used to determine whether the condition of *sphericity* is met. The null hypothesis for this test is as follows:

H_0: $\sigma^2_1 = \sigma^2_2 = \sigma^2_3 = \ldots = \sigma^2_{21}$

H_a: Not all σ^2_i are equal

The test statistic used to test this hypothesis is the H* statistic given by:

$$H^* = \text{Max}(s^2_i) \div \text{Min}(s^2_i)$$

The decision rule is as follows:

If $H^* \leq$ Tabulated H, Conclude H_0

If $H^* >$ Tabulated H, Conclude H_a

Where:

Tabulated $H = H(1-\alpha; q, df)$, and

$df = n-1$

$q = 21$

$df = 66$ for jurors

$df = 56$ for bankers

$df = 44$ for CPAs

Note that α is chosen to be 0.01 because only large differences among variances need to be detected.

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Table 8 contains the results of this test for each of the data sets. The condition of *sphericity* is met in all three data sets. The details are contained in Tables B5, B6, and B7 in Appendix B.

Table 8

Summary of Hartley Test for Equal Variances

Jurors: LN(1+Y) $H^* = 3.278195 \approx H(0.99; 21, 66) = 3.2$ Conclude H_o, the data indicates that the treatment variances are equal at the $\alpha = 0.01$ level.
Bankers: $H^* = 2.3936 < H(0.99; 21, 56) = 3.5$ Conclude H_o, the data indicates that the treatment variances are equal at the $\alpha = 0.01$ level.
CPAs: $H^* = 3.4997 < H(0.99; 21, 44) = 4.2$ Conclude H_o, the data indicates that the treatment variances are equal at the $\alpha = 0.01$ level.

After the transformation of the juror data set, the appropriateness of the single-factor repeated measures model (3.1) has been demonstrated for all three data sets. Table 9 contains the F Values for the transformed juror data set and the original data sets for bankers and CPAs to be used in the analysis. The ANOVA table for transformed juror data is contained in Table C6 Appendix C.

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Table 9

Summary of F Values for Scenarios (Transformed Juror Data)

Subject Groups	F Value	Prob > F
Jurors	12.58	0.0001
Bankers	8.60	0.0001
CPAs	4.41	0.0003

As discussed in Chapter 3, the null hypothesis for the above model is that the treatment effects are all equal to zero. The F* statistic provides the test for this hypothesis. In each data set the F* statistic, which is displayed as the F Value for the scenarios, is statistically significant at better than the 0.05 level. Therefore, not all treatment effects are equal to zero. At least one treatment effect is statistically different from zero in each data set.

The Bonferroni method of multiple comparison is applied as a follow up procedure to estimate the pairwise comparisons between the normal audit and each of the six behavioral situations. The contrast procedure will indicate, at the family confidence level of 0.95, significant differences in mean responses. The results of this analysis is discussed separately for each subject group. Tables B8 through B10 in Appendix B contain the analyses of the contrasts between the normal audit and each of the six behavioral scenarios for each of the subject groups. Statistically significant contrasts indicate that the subjects attributed a greater degree of financial responsibility to the auditor than exists in the normal audit. The tables provide contrasts at $\alpha = 0.01$,

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0.05, and 0.10. The results are consistent among all three family confidence levels. The question numbers listed in the tables correspond to the normal audit and the behavioral scenarios as follows:

Question	Behavior
1	NA: Normal Audit
2	B1: Auditor Advocacy
3	B2: Management Advisory Services
4	B3: Audit Fees
5	B4: Cross-hiring of Audit Personnel
6	B5: Co-Contracting Between Auditor and Client
7	B6: Management Fraud

Table 10 contains a list of the means of the six contrasts together with their estimates in descending order. The contrasts are made against behavioral scenario NA (normal audit) which has a mean of 1.6749. In Table 10 μ_{NA} for example represents the mean response related to the normal audit scenario (NA), averaged over all juror subjects. The juror subjects perceived that behavioral scenarios B5, B1, B4, B2, and B3 (co-contracting between auditor and client, auditor advocacy, cross-hiring of audit personnel, management advisory services, and audit fees) involved an increase in auditor financial liability. The related contrasts for these scenarios were statistically significant at the $\alpha = 0.01$ family confidence level. The only behavioral scenario that was not perceived to increase financial liability was B6 (management fraud). The

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contrast for management fraud ($\mu_{B6} - \mu_{NA}$) failed to be statistically significant at $\alpha = 0.10$, the highest family confidence level analyzed. Table B8 in Appendix B contains a complete analysis of the contrasts related to jurors at all three family confidence levels.

Table 10

Summary of Bonferroni Test of Contrasts for Jurors

Contrast	Estimate	Significance Level
$\mu_{B5} - \mu_{NA}$	1.4461	$\alpha = 0.01$
$\mu_{B1} - \mu_{NA}$	1.1055	$\alpha = 0.01$
$\mu_{B4} - \mu_{NA}$	1.0705	$\alpha = 0.01$
$\mu_{B2} - \mu_{NA}$	1.0419	$\alpha = 0.01$
$\mu_{B3} - \mu_{NA}$	0.7910	$\alpha = 0.01$
$\mu_{B6} - \mu_{NA}$	0.2818	not significant

The bankers identified fewer contrasts as statistically significant. Table 11 contains a list of the six contrasts together with their estimates in descending order. Behavioral scenario NA, (normal audit) has a mean of 28.1053 which forms the basis of the contrasts. The behavioral scenarios B5, B1, and B6 (co-contracting between auditor and client, auditor advocacy, management fraud) were perceived by the bankers to involve increased financial liability for the auditor. Unlike the juror subjects, the bankers perceived the management fraud contrasts as statistically significant. As financial statement users, bankers attribute increased financial responsibility to auditors as a result of management fraud. The contrasts between the normal audit and

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behavioral scenarios B4, B2, and B3 (cross-hiring of audit personnel, management advisory services, and audit fees) are not statistically significant at $\alpha = 0.10$ family confidence level, the highest level analyzed. The banker subjects perceive no difference between these behavioral situations and the normal audit. Table B9 in Appendix B contains a complete analysis of the contrasts related to bankers at all three family confidence levels.

Table 11

Summary of Bonferroni Test of Contrasts for Bankers

Contrast	Estimate	Significance Level
$\mu_{B5} - \mu_{NA}$	24.6667	$\alpha = 0.01$
$\mu_{B1} - \mu_{NA}$	18.5088	$\alpha = 0.01$
$\mu_{B6} - \mu_{NA}$	16.0526	$\alpha = 0.01$
$\mu_{B4} - \mu_{NA}$	9.6842	not significant
$\mu_{B2} - \mu_{NA}$	4.3509	not significant
$\mu_{B3} - \mu_{NA}$	1.5088	not significant

The summary of the Bonferroni test of contrasts for the CPAs is contained in Table 12. The contrasts are listed based on the descending order of their estimates. Consistent with prior research, the CPAs fail to perceive the increased financial liability associated with most of the behavioral scenarios. The mean of normal audit for this subject group is 17.8667, which provides the basis for the contrasts. These subjects identified behavioral scenarios B5 and B1 (co-contracting between auditor and client,

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and auditor advocacy) as involving increased financial liability for the auditor. The related contrasts are statistically significant at the $\alpha = 0.01$ family confidence level. These two behavioral scenarios have been extensively discussed in the professional literature, which might increase the accounting professional's sensitivity to such situations. The contrasts of behavioral scenarios $\mu_{B3} - \mu_{NA}$ and $\mu_{B6} - \mu_{NA}$ (audit fees and management fraud) are statistically significant at the $\alpha = 0.10$ family confidence level, the highest level analyzed. Behavioral scenarios $\mu_{B4} - \mu_{NA}$ and $\mu_{B2} - \mu_{NA}$ related to cross-hiring of audit personnel and management advisory services are not statistically significant at $\alpha = 0.10$ family confidence level, the highest level of analysis. The CPAs perceived no increased financial liability associated with these behavioral scenarios. Table B10 in Appendix B contains a complete analysis of the contrasts related to CPAs at all three family confidence levels.

Table 12

Summary of Bonferroni Test of Contrasts for CPAs

Contrast	Estimate	Significance Level
$\mu_{B5} - \mu_{NA}$	20.1333	$\alpha = 0.01$
$\mu_{B1} - \mu_{NA}$	17.8000	$\alpha = 0.01$
$\mu_{B3} - \mu_{NA}$	11.6567	$\alpha = 0.10$
$\mu_{B6} - \mu_{NA}$	11.3778	$\alpha = 0.10$
$\mu_{B4} - \mu_{NA}$	8.5333	not significant
$\mu_{B2} - \mu_{NA}$	7.7111	not significant

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In summary, it appears that the jurors perceived that all contrasts except for management fraud $\mu_{B6} - \mu_{NA}$ were statistically significant at the $\alpha = 0.01$ level.

As financial statement users, bankers had a different perspective. This subject group attributed increased financial liability to the auditors for behavioral scenarios involving co-contracting between auditor and client, auditor advocacy, and management fraud at the $\alpha = 0.01$ level. The remainder of the behavioral scenarios were not perceived to involve any more audit financial liability than that related to the normal audit. The inclusion of management fraud ($\mu_{B6} - \mu_{NA}$) as a statistically significant contrast indicates that the bankers hold the auditor liable for failing to discover and report management misconduct. In the sequential order in which litigation progresses, bankers would hold the auditor more responsible than in the normal audit, but jurors would not likely find the auditor more responsible for detecting and reporting on management fraud.

As a surrogate for financial statement preparers, the CPAs identified only two behavioral scenarios as differing significantly from the normal audit at the $\alpha = 0.01$ level. Most of the behaviors associated with the scenarios were not considered a compromise of auditor independence. The two contrasts that were statistically significant were co-contracting between auditor and client ($\mu_{B5} - \mu_{NA}$) and auditor advocacy ($\mu_{B1} - \mu_{NA}$). It is interesting to note that all three subject groups identified these two behavioral scenarios as statistically significant contrasts.

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Rank Order of Audit Situations

Each subject group has ranked the scenarios in a slightly different order. Although the ranking appears to be relatively consistent, it is important to test the assumption that agreement exists among such rankings. The first test used to test this assumption is the Friedman Rank Test (Neter, Wasserman, and Kutner, 1990, p. 948). Based on the analysis provided in Table B11, Appendix B, the calculated T value from formula (3.4) is 15.1429. The tabulated value of $\chi^2[0.95,6]$ is 12.59. These results suggest an agreement between group rankings.

The Kendall's coefficient of concordance, W, which measures the agreement in rankings within the subject groups, is computed in Table B12 in Appendix B using formula (3.3). Its value is 0.8413, which is quite close to the ideal value of 1.

The results of the rank correlation test reported in Kanji (1993, p. 115) are shown in Table B13, Appendix B. The F* of 12.37 is greater than the tabulated F of 2.85. Therefore, the alternative hypothesis of agreement between group rankings is accepted.

In short, the above analyses reported so far confirm the research hypotheses that the behavioral scenarios increase the financial liability of auditors over the normal audit situation. Each one of the subject groups perceived some of the behavioral scenario contrasts as statistically significant. At least one of the groups identified each of the behaviors as increasing financial liability for the auditor. Furthermore, even for the few contrasts that were not statistically significant, the mean perceived financial

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liability was always greater than that for the normal audit, irrespective of the type of behavioral scenario or the subject group.

Demographic and Socioeconomic Characteristics

There were 169 respondents, of which 113 answered all of the demographic and socioeconomic questions. The descriptive statistics are presented in Tables B14 and B15 in Appendix B. Table B14 contains the descriptive statistics for the dummy variables included in the demographic and socioeconomic questions. These data are organized by subject group with a summary for the 113 observations. Table B15 reflects descriptive statistics for the continuous variables included in the demographic and socioeconomic questions. These data are also organized by sample group with a summary reflecting the total for the 113 observation. This table also presents the ranges and averages for each demographic or socioeconomic variable.

An analysis will be conducted below to shed more light on the demographic and socioeconomic characteristics related to the samples of the three subject groups. Table 13 is a summary of Chi-Square tests conducted on the contingency tables depicted in Table B14 in Appendix B.

Based on the findings in Table 13 it appears that the composition of the impaneled jury was different than that of the bankers and CPAs in terms of gender, annual household income, and education. A visual inspection of the descriptive statistics in Table B14 in Appendix B indicates that a larger portion of the juror subjects were female, whereas most of the banker and CPA subjects were male. The

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majority of the jurors had an annual household income of less than $65,000. A large portion of the banker and CPA subjects had annual household incomes greater than $65,000. As professionals, most of the bankers and CPAs had completed a college education, whereas a majority of the juror subjects had not completed college.

Table 13

Summary of Chi-Square Calculations for Contingency Tables

Variable	Chi-Square	P-value
Gender	25.159	0.001
Marital Status	0.627	0.731
Annual Household Income	24.889	0.001
Ethnicity	1.983	0.371
Education	39.769	0.001

Table 14

Summary of F Values for Three Single-Factor ANOVA

Variable	F Value	P-value
Years of employment	0.000	0.9966
Years since completion of education	4.782	0.0108
Number of accounting/auditing courses	42.44	0.0001

With respect to the continuous variables summarized in Table B15, the number of years since completion of the highest level of education (YRSED) and the number of accounting and auditing courses completed (COURSES) are statistically significant at

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the 0.05 level. Table 14 contains a summary of the F values related to the single-factor ANOVAs related to the different continuous variables. Details of the conducted analysis are found in Table C7 in Appendix C.

As would be expected, the CPA subjects had completed considerably more accounting and auditing courses than had the bankers or jurors. The years since completion of the highest level of education (YRSED) was greatest for the juror subject groups. Less than 25% of these subjects had completed a college education. So it appears, all things being equal, that jurors have entered the work force earlier in life.

The juror subjects represent a cross-section of the local population. As a group, there is cultural and economic diversity, which is what one would expect for a randomly selected impartial jury.

The apparent homogeneity of the banker subjects and CPA subjects is the result of two factors. First, they completed a college education as part of the entrance requirements to the profession. Second, their career paths provide annual income greater than might be expected from the general population. It is interesting to note that most of these professionals are males. From a national perspective, both banking and public accounting are more evenly represented by men and women. This aberration may reflect the rural setting from which the sample was drawn.

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Multiple Regression Model
Utilizing OLS

The demographic and socioeconomic information contained in the above tables are used to estimate a multiple regression equation for each of the audit scenarios. The purpose of this analysis is to determine which of the explanatory variables make a statistically significant contribution to the variability in responses. The ANOVA table for each of the audit scenarios is analyzed separately.

Each of the seven multiple regression models contain ten explanatory variables. As described in Chapter 3, there are seven dummy and three continuous variables. The combination of these variables contributes to the richness of the models. Table 15 contains summary statistics of the seven multiple regression models. The detailed ANOVA tables for each model is included in Table C8 Appendix C.

Table 15

Summary Statistics of Multiple Regression Models

Dependent Variable	Mean	Number of Significant Variables at .10 Level	R-Square
NA	17.9115	2	0.2039
B1	32.9204	2	0.1628
B2	31.0531	1	0.1001
B3	34.0974	3	0.1144
B4	32.6903	1	0.1308
B5	34.3717	1	0.0606
B6	36.0354	1	0.0658

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For all seven of the models the dummy variable, Banker, is statistically significant at the $\alpha = 0.10$ level or better. The sign of the parameter estimate is positive in all seven cases. The implication is that bankers as a subject group significantly contribute to increased auditor financial liability in each behavioral scenario.

In the multiple regression model that analyzes the normal audit (NA), two dummy variables are statistically significant. Membership in the subject group of bankers positively contributes 15.04 percentage points to the mean response above the base line (CPAs). This is different from zero at the statistically significant level of $\alpha = 0.0315$. In addition, in this model the dummy variable for ethnicity provides a negative contribution to the mean response in the model. The value of this parameter is -9.78 and is significant at the $\alpha = 0.0627$ level. It appears that the ethnicity variable, Caucasian, reduces the mean response of the model by 9.78 percentage points below the base line (non-Caucasian). Caucasian subjects hold the auditor to a lower level of financial culpability than other subjects of different ethnic background.

The multiple regression model for auditor advocacy (B1) also involves two statistically significant dummy explanatory variables. The banker variable positively contributes 24.26 percentage points to the mean response of the model at the $\alpha = 0.0054$ level of significance. "Less than a college education" is the second positive dummy variable that is significant. The lack of a college education contributes 13.27 percentage points to the mean response of the model at the $\alpha = 0.0620$ level of significance. Participants who have not completed a college education hold the auditor

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to a higher level of financial responsibility than do those who have completed a college degree.

In the model for management advisory services (B2), bankers is the only explanatory variable that is statistically significant. The parameter estimate in this model is positive, contributing 25.58 percentage points to the mean response of the model above the base line (CPAs). This parameter is statistically significant at the $\alpha = 0.0060$ level. Bankers appear to attribute significantly more liability to the auditor than the other two groups when management advisory services are also being provided by the public accounting firm.

The model that analyzes the perceived financial liability of audit fees (B3) contains three statistically significant variables. The continuous variable, Courses, reflects the number of accounting or auditing courses that have been completed by the subject. It is interesting to note that the sign of the related estimated parameter is positive and is significant at the $\alpha = 0.0636$ level. As with all of the models, the bankers variable is significant at the $\alpha = 0.0080$ level and the associated estimated parameter is positive and equal to 26.3878. The other dummy variable of jurors is also statistically significant at the $\alpha = 0.0281$ level and the associated estimated parameter is positive and equal to 25.2311. As discussed in Chapter 3, a partial F test is conducted to determine whether the parameters associated with the bankers and the jurors groups are equal in this model. The ANOVA table for the related reduced model is located in Table C9, in Appendix C.

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The partial F test is computed using formula (3.6) from the information depicted in Table C8, associated with dependent variable (B3), and Table C9 as follows:

$$F* = \frac{(99079.63728 - 99064.69610)}{(103 - 102)} \div \frac{99064.69610}{102}$$

$$F* = \frac{14.94}{971.2225}$$

$$F* = 0.0154$$

The Tabulated F[0.95; 1, 102] is 3.9173.

These findings imply that there is no difference between the regression coefficients for jurors and bankers at the $\alpha = 0.05$ level of significance. The subject group CPAs is not significant, given that both jurors and bankers are in the multiple regression model.

The multiple regression model for the cross-hiring of audit personnel (B4) contains the banker variable as the only statistically significant explanatory variable. In this model the banker parameter is significant at the $\alpha = 0.0095$ level and is positive. It contributes 24.9417 percentage points to the mean response of the model above the base line (CPAs). As in all of the other models, bankers attribute more financial liability to the behavioral situation where there is cross-hiring of auditing personnel by the audit client, than do the other two groups.

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In the behavioral scenario of co-contracting between auditor and client (B5), the banker variable is again the only statistically significant variable. In this model the parameter estimate is positive and significant at the $\alpha = 0.0547$ level. It contributes 20.1762 percentage points to the mean response of the model above the base line (CPAs).

In the final behavioral scenario management fraud (B6), the banker variable is the only statistically significant variable. In this model the parameter estimate is positive and significant at the $\alpha = 0.0503$ level. It contributes 19.2963 percentage points to the mean response of the model above the base line (CPAs).

Finally, in evaluation of the appropriateness of each of the seven multiple regression models (3.5) the simple correlation coefficient ρ between the actual residuals and their expected values under normality is computed using formula (3.9). Table 16 indicates that the values of ρ were quite high and ranging between 0.9609 for scenario NA (normal audit) and 0.9880 for scenario B1 (auditor advocacy). Therefore, it is concluded that the assumption of the normality of the error terms appears to be supported.

Table 16

Simple Correlation Coefficient Between Residuals and Their Expected Values Under Normality

Scenario	NA	B1	B2	B3	B4	B5	B6
ρ	0.9609	0.9880	0.9847	0.9778	0.9832	0.9721	0.9826

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In testing for the presence of heteroskedasticity, equation (3.8) has been estimated using ordinary least squares for each of the seven scenarios. Except for model (85), the relatively large P-values reported in table C10 in Appendix C for the calculated F statistics indicate that the null hypothesis $\alpha_1 = \alpha_2 = \alpha_3 = 0$ cannot be rejected for any of the remaining six models at the $\alpha = 0.05$ level of significance. These findings also show that the assumption of the constancy of the error variance is reasonable.

In summary, each of the seven multiple regression models indicates that the banker dummy variable is statistically significant and in general has a larger positive impact on the dependent variables, than the other two groups of subjects. In the normal audit scenario (NA), ethnicity is an additional significant factor. Caucasian subjects appear to negatively influence the mean response of the model. The auditor advocacy scenario (B1) is positively influenced by those subjects who have not completed a college education. The audit fees scenario (B3) is positively influenced by bankers, jurors, and the number of completed accounting or auditing courses. In addition, formal analyses pertaining to the residuals associated with each of the above seven multiple regression models reveal that the assumptions of normality of the error terms and the constancy of their variances are plausible.

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CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Summary

A survey instrument was developed to elicit the opinions of the subjects regarding auditor financial liability under a variety of behavioral scenarios. The behavioral scenarios were developed from the research literature on auditor independence. The focus of this study is on the connection between auditor culpability and auditor-auditee relationships that appear to compromise the appearance of independence of the auditor.

The subjects included an impaneled jury, bank loan officers and CPAs. Two statistical models were used to analyze the data providing both *within* and *between* group analyses. The first type of analysis aims at validating the research hypotheses H1 through H6 depicted in the first chapter. The second type of analysis aims at explaining the differences in perceived financial liability among all subjects for each of the behavioral scenarios considered. The *within group* analysis was conducted by use of a single-factor repeated measures design model for each group. All three of the models were statistically significant at the $\alpha = 0.05$ level or better. To analyze the differences between the normal audit and the behavioral scenarios, the Bonferroni method of

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multiple comparisons was used. The results of the jurors group indicated that five of the six behavioral scenario contrasts were statistically significant at the $\alpha = 0.01$ level. The exception was management fraud (B6); jurors did not perceive that the auditor should be held financially more responsible than the normal audit (NA)under this circumstance.

Fewer behavioral scenario contrasts are statistically different in the bankers model. This subject group perceived co-contracting between auditor and client (B5), auditor advocacy (B1) and management fraud (B6) to involve increased auditor financial culpability at the $\alpha = 0.01$ level of significance. The inclusion of management fraud as a significant contrast is an important finding. The management implications will be discussed in the final section of this paper.

At the same level of significance, the CPAs identified two behavioral scenario contrasts that were significantly different from the normal audit. Co-contracting between auditor and client (B5) and auditor advocacy (B1) were the two behavioral scenario contrasts that were statistically significant at the $\alpha = 0.01$ level. Audit fees (B3) and management fraud (B6) were found to be statistically significant at the $\alpha = 0.10$ level.

The scenarios were rank ordered by group according to the respective means of financial responsibility. Two nonparametric statistical tests indicated that there was no difference between the three subject groups' rankings; the subjects consistently ranked co-contracting between auditor and client (B5) and auditor advocacy (B1) in a similar

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fashion. All of the subjects identified the normal audit (NA) as involving the least financial liability.

The *between group* analysis involved the use of a series of seven multiple regression models, one for each behavioral scenario. The overall results indicated that in the normal audit and the six behavioral scenarios, bankers attribute more financial responsibility to the auditor than do jurors or CPAs. The audit fees (B3) was the only behavioral scenario where jurors attributed more financial responsibility than CPAs.

In the normal audit model, Caucasian-American subjects attributed less financial responsibility to the auditor. With respect to the behavioral scenario of auditor advocacy (B1), the lack of a college education appears to positively influence the degree of financial responsibility attributed to the auditor.

Both the jurors and bankers attributed increased financial responsibility to the auditor in the behavioral scenario that represents the financial liability related to the audit fee (B3). In addition, the more accounting and auditing courses completed by the subjects, the greater will be the perceived auditor financial responsibility for the behavioral scenarios of management advisory services (B2) and the audit fees (B3).

Limitations

The typical caveat for survey research applies. In any survey instrument there are inherent limitations where the subject is asked to self-report. Numerous situational and/or emotional factors that exist at the time that the instrument is completed may affect the respondent's perceptions. The brevity of the instrument leaves considerable

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opportunity for interpretation. The length of the instrument was designed to elicit meaningful responses with the minimum time commitment on the part of the subject. The instrument was pilot tested to remove as much ambiguity as possible.

The restricted geographic scope of the study limits generalizability. All of the subjects are residents of Eastern New Mexico. This is a rural agricultural region of the country that may not represent the cultural norms of a more urban setting. Care must be taken in attempting to generalize the results to the larger population.

The response rates for the bankers and CPAs were better than expected. Although this increases the confidence in the results it does not eliminate possible nonresponse bias. If those bankers and CPAs who failed to respond represent a different group of professionals, then the conclusions drawn from this paper may be misleading. An attempt has been made to assess the impact of nonresponse bias. The results of the performed analysis reveal that this issue is of minor concern as far as this study is concerned.

According to Palmrose (1991) disputes between auditors and their clients are disposed of in two ways. Most of these disputes are resolved in arbitration or settled prior to going to trial. For public image and cost containment reasons, CPA firms rarely choose to take a case to trial. Palmrose (1991) discovered that the characteristics of these cases are significantly different that those that actually go to trial. Studying this subject from the perspective of a jury trial may not capture the full nature of auditor's financial liability.

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Finally, an important limitation involves the participation of the jurors. The juror responses are being elicited from members of an impaneled jury. The subjects did not receive instructions from the judge or listen to arguments and testimony from the plaintiff and defense and/or deliberate among themselves. The responses obtained in this research reflects the jurists' predisposition to certain decisions prior to the trial experience. The responses to the behavioral scenarios may not reflect the true decisions that might be made under actual trial conditions.

Conclusions

It appears that this may be the first study to compare the perceptions of jurors, bankers and CPAs with respect to the financial culpability of auditors in certain audit situations. In prior research on independence, the perceptions of financial statement users were compared with that of accounting professionals. Current research on hindsight bias has compared the perceptions of judges and/or jurors to that of accountants. In these studies accounting professionals have consistently attributed less importance to auditor-auditee relationships that might appear to be conflicts of interest by third parties. The inclusion of all three subject groups has provided a more comprehensive contrast: the bankers clearly attribute a greater degree of financial liability to auditors in all behavioral situations than do jurors or CPAs.

The results of the analysis of using the single-factor repeated measures design model indicates that the research hypotheses are supported by the empirical evidence. At least one subject group identified each of the behavioral scenarios as increasing the

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financial liability of auditors over the normal audit situation. There were differences between the groups in both the degree of financial liability attributed and the rank order of the behavioral scenarios. The nonparametric tests used to examine the association among rankings confirm that there is agreement among the three groups.

The data indicate that bankers hold auditors to a much higher standard than do jurors or CPAs. To demonstrate this, Table 17 contains a comparative ranking of means of perceived financial liability in descending order of their magnitude for the normal audit and the six behavioral scenarios by each group.

Table 17

Comparative Ranking of Means

Jurors		Bankers		CPAs	
Scenario	Means	Scenario	Means	Scenario	Means
B5	41.58	B5	52.77	B5	38.00
B1	34.27	B1	46.61	B1	35.67
B4	32.37	B6	44.16	B3	29.53
B2	30.11	B4	37.79	B6	29.24
B3	24.84	B2	32.46	B4	26.40
B6	22.79	B3	29.61	B2	25.58
NA	12.60	NA	28.11	NA	17.87

Financial statement users rely on the financial statements to make investment and lending decisions. This group clearly assigns more responsibility to the auditor as part of the business relationship between auditor and client. This research indicates

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that if a case between a banker and an auditor is brought to trial in eastern New Mexico, the jury would most likely perceive the situation from the auditor's perspective. The inclusion of bankers in this study helps to put the juror-auditor expectation-performance gap into perspective.

All three of the subject groups identified co-contracting between auditor and client (B5) and auditor advocacy (B1) as statistically significant contrasts from the normal audit. In other words, the mean financial liability related to behavioral scenarios B1 and B5 were found to be significantly larger than that associated with the normal audit. Co-contracting is prohibited by the SEC for auditors of publicly traded companies. It appears that this also is considered a violation of prudent business behavior in the private company setting. Auditor advocacy is a more difficult behavioral concept to discern. There is a fine line between providing professional counsel and assisting the client in pushing the limits of GAAP. The appearance of independence is impaired by these two types of behaviors.

Litigation is normally initiated by financial statement users who perceive that the auditor failed to provide adequate financial information. From this perspective it is important to examine the remaining contrast that is statistically significant from the bankers' perspective. The bankers identified management fraud as the only other statistically significant contrast from the normal audit.

Auditor responsibility for the detection and reporting of fraud has been a contentious issue for over 30 years. Congress, regulators, the judiciary system and the general public attribute a "public watchdog" role to the independent auditor. The

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distinction between fraud auditing and the audit of financial statements seems to be lost on all but those directly involved in the profession. The profession has attempted to bridge this component of the expectation-performance gap with public education, a major rephrasing of the audit report emphasizing the limitations of a financial statement audit, and the promulgation of professional standards that attempt to elucidate professional responsibilities of the independent auditor. Historically these attempts have met with limited success. After years of deliberation, the AICPA (1997) recently issued SAS #82, Consideration of Fraud in a Financial Statement Audit. "This new standard clearly articulates the independent auditor's responsibility, that is, to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud" (AICPA, 1997).

The intrinsic weakness of independent auditing is the auditor's dependence on client management. Management normally is involved in the hiring, supervision, and payment of the auditor. All of the financial information examined by the auditor is under the direct control of management. The detection of management fraud can be a very difficult task. It is entirely possible for management to perpetrate a fraud for a considerable length of time without detection. This leaves the auditor in a tenuous legal position.

It appears that the bankers expect more from auditors in this regard than is possible to achieve. Resolution of this aspect of the expectation-performance gap has eluded professional standards setters and regulators. It is reassuring that the jurors

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failed to perceive management fraud as a statistically significant contrast with the normal audit.

The final three contrasts to the normal audit that were considered statistically different by the jurors are worth examining (cross-hiring of audit personnel (B4), management advisory services (B2), and audit fees (B3)). Although the bankers did not perceive any of them to be statistically significant, these behavioral scenarios are important if they become the subject of litigation. To the extent that financial statement users perceive that jurors attribute financial responsibly to auditors for these behaviors, participation in such auditor-auditee relationships pose a continuing financial liability to auditors.

It is interesting to note that auditor financial liability contrasts associated with audit fees (B3) and management fraud (B6) are statistically significant for the CPAs at the $\alpha = 0.10$ level. Although this is not a strong inference it does indicate a degree of sensitivity to these issues by the profession. Rather than assessing these behavioral scenarios as containing higher levels of financial culpability, this result may indicate that CPAs perceive that financial statement users hold them to this higher standard.

The results of the multiple regression analysis indicate that the jurors affect the mean response of the model in a similar fashion as the CPAs for all the behavioral scenarios except for the audit fees scenario (B3) in which the jurors attribute greater perceived auditor financial liability. This was not an expected result in light of the research of Lowe (1994), and Anderson, Lowe and Reckers (1993) where the perceptions of jurors or judges were significantly different from that of CPAs. This

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discrepancy in results may be attributed to the fact that the above authors considered only one behavioral scenario, rather than the six behavioral scenarios considered in this study.

Research in independence does not explain perceptual differences in the normal audit situation (NA). The results of this study indicate that Caucasian subjects attribute less financial liability to the auditor than other ethnic groups.

Although prior research has not addressed auditor advocacy (B1), it is interesting to note that subjects with less than a college education attribute more financial liability than those with a college degree. In other words, a completed degree (at least 4 years) in higher education plays a mitigating role in perceived financial liability in this particular behavioral scenario.

The perceived auditor financial liability associated with the audit fees (B3) appears to be influenced by a number of variables. Both jurors and bankers perceive this compromise of auditor independence to be a threat to the financial reporting system. They hold auditors to a greater degree of financial culpability than do CPAs when the auditor-auditee relationship reflects this behavioral characteristic. This is consistent with the results of Bartlett's (1993) study where the relative size of the audit fee was perceived by bankers to have greater influence on perceived auditor independence than the CPAs.

The subjects' prior knowledge of accounting and auditing as reflected in the number of courses completed provides an interesting result in conjunction with two scenarios. The influence is statistically significant at the $\alpha = 0.0636$ level for the audit

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fees (B3) behavioral scenario and at the $\alpha = 0.1042$ for the management advisory services (B2) behavioral scenario. The positive sign of the coefficient is cause of reflection. Research by Bartlett (1993), Pany and Reckers (1984) and Pany and Reckers (1983) indicated that the knowledge of accounting had little influence on the perception of auditor independence, whereas Burton (1980) and Mednick (1990) found that the more knowledgeable a respondent is about accounting and auditing the more likely they are to perceive the auditor to be independent. Therefore, it seems that the findings in the context of behavioral scenarios B2 and B3 are not in alignment with prior research. It appears that in this study, subjects with more knowledge in accounting and auditing tend to attribute more financial liability for these two scenarios.

Contribution to the Literature

There is much research in the literature on auditor independence where the perceptions of financial statement users are compared with that of financial statement preparers. Typically, certified public accountants have been used as surrogates for financial statement preparers and bankers or investment analysts have been used as proxies for financial statement users. In general, financial statement users perceive independence to be impaired when the auditor-client relationship involves the behaviors that were examined in this study.

Recent research on hindsight bias has utilized members of the judiciary system as subjects. These are the first studies to examine the opinions of individuals not

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directly involved in the financial reporting system. This hindsight bias research has compared the perceptions of judges or jurors with that of CPAs with respect to auditor responsibility. As expected, judiciary subjects tend to hold auditors to a higher standard than has the public accounting profession.

One of the unique characteristics of the current study is the inclusion of all three groups as subjects: jurors, bank loan officers, and CPAs. The jurors represent the ultimate decision makers in the litigation struggle between financial statement user-plaintiffs and financial statement preparer-defendants. Bank loan officers represent financial statement users. Although CPAs are not actually responsible for the preparation of the financial statements, but rather provide an independent auditor's opinion, prior research has used CPAs as a surrogate for financial statement preparers. This current study follows this precedent.

Another innovation of this study is the focus on auditor financial culpability. Previous studies assessed the perception of their subjects regarding auditor independence. The current study measured the subjects' perception of the financial responsibility of the auditor under six important auditor-auditee relationships. A survey instrument was used to obtain the subjects' perceptions of auditor culpability in behavioral scenarios identified in the independence literature. The linking of the level of auditor culpability to specific behavioral circumstances is expected to clarify the issues of the expectation-performance gap that can and should be addressed.

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Recommendations for Future Research

A major limitation of this study is that the samples were drawn from a limited geographic region. The participants are residents of eastern New Mexico, which is a rural region with an agriculturally based economy. The moral, philosophical, and political characteristics of these subjects may not represent the predisposition of jurors located in an urban region with a stronger industrial and service economy. Additional samples need to be drawn from diverse geographic regions to obtain a more representative sample of the entire population. The broader the sample coverage, the more generalizable would be the results.

Administering the survey instrument to an impaneled jury has its limitations as well. As indicated earlier, juror responses as to anticipated decisions may not reflect true decisions under more realistic conditions. If one were able to obtain permission to administer the survey instrument subsequent to a jury trial, where a financial statement user-plaintiff and an auditor-defendant were the litigants, the responses would have been more authentic.

Bankers are not necessarily representative of all financial statement users. Financial analysts and sophisticated investors (for example institutional investors) are important financial statement users who may perceive the role of the auditor in a different light. By extending the study to include these financial statement users, the generalizability of the results would be enhanced.

Although CPAs have been the target of malpractice law suits as a result of client financial statements, the actual preparers of financial statements are client

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management. The independent auditor's opinion contains a statement that "The financial statements are the responsibility of the Company's management" (AICPA, 1995, v.1). Appropriate subjects for this study would be chief financial officers or controllers of organizations who prepare financial statements that are audited by CPAs. These subjects could be obtained from the membership roster of the Institute of Management Accounts.

Managerial Implications

Auditors are an important component of the public accounting profession. They provide a service that contributes to the success of the financial reporting system in this country. Auditors are in a unique position of working for financial statement preparers while the professional product, the independent auditor's opinion, is issued for the benefit of financial statement users. The subjectivity of the financial preparation process, combined with potential extended business relationships between auditors and clients, can place auditors in a compromising position. Third parties may perceive the auditor as representing the interests of the client at the expense of the financial statement users.

Over the years, auditors have found it increasingly difficult to balance the interests of financial statement users with the expansion of business consulting services to audit clients. In performing the role of independent auditor, they are expected to exercise an appropriate degree of professional scepticism. This type of relationship implies that the auditor attempts to objectively evaluate management decisions with

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respect to the recording and reporting of financial information. As an independent, objective professional, the auditor's role is to report to third parties on the success or failure of client management.

The role of a successful business consultant is to provide management with tools and resources that enhance the performance of the enterprise. This is the role of an advocate. Public accounting firms have experienced substantial revenue growth as a result of expanding management advisory services. The problem is that even when these roles are performed by different professionals, the overall success of the public accounting firm is dependent on the success of these combined and possibly incompatible services.

From a practice management perspective, auditors must find an effective organizational structure for the delivery of audit services that sustains the integrity of the independent audit report. The results of this study indicate that co-contracting between auditor and client (B5) and auditor advocacy (B1) seriously jeopardize the appearance of auditor independence. Many of the other behavioral scenarios were also found by one or more of the subject groups to increase the auditor's financial liability. Partners and managers must consider these results and structure future client relationships in a fashion that limits the firm's financial liability. One approach for achieving this objective may entail the restructuring of the organization in such a way as to separate the audit function from other public accounting services that jeopardize the appearance of independence.

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As a matter of fact, Arthur Andersen is one of the first international firms to attempt this type of restructuring for the express purpose of separating the business consulting activities from the more traditional public accounting services. Arthur Andersen & Company continues to offer traditional public accounting services. Andersen Consulting is a management consulting firm that competes in international markets with the other prestigious management consulting firms (Lowe and Pany, 1994). This form of organizational separation may be the harbinger for international public accounting firms.

Public accounting historically has been a self-regulated profession. Professional standards setting associations set standards that guide professionals and ensure the integrity of the financial reporting system. A broad cross-section of representatives of financial statement preparers and financial statement users participate in the regulatory process. Over the years several suggestions have been advanced for restructuring the public accounting profession. The most radical of these proposals entails the total restriction on auditing firms from providing management advisory services to audit clients (Hillison and Kennelley, 1988). The commingling of audit services with MAS appears to diminish the value of the independent auditor's report and expose public accountants to unreasonable legal liability. The separation of these services with respect to an individual client may be the only alternative available to professional standards setters. The results of this study support the conclusion that the auditor-auditee relationships examined here compromise the appearance of auditor independence and expose the auditing firm to increased financial exposure.

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If the public accounting profession is unable or unwilling to address this issue, regulators may be forced to impose a solution. Traditionally, the Securities and Exchange Commission has delegated the regulation of public accounting to professional standards setting organizations. There is reason to believe that the profession has been less than effective in imposing regulations that preserve the integrity of the financial reporting system. The results of this study suggest that some regulatory intervention may be justifiable.

In addition to the impact on professional standards setting, this study provides information that might be useful in litigation. The multiple regression models produced some statistically significant variables that would be useful in the jury selection process. Table 18 contains a summary of those variables in which parameter estimates were statistically significant. The sign indicates which party to a law suit would benefit in selecting this attribute in a potential juror. Specifically, a variable associated with a positive parameter sign would be preferred by the plaintiff, whereas, a variable associated with a negative parameter sign would be preferred by the defendant. The attributes that provide advantage for the plaintiff and the defendant are listed in their respective columns.

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Table 18

Summary of Recommendations for Jury Selection

Scenario	Significant Variable	Parameter Estimate	Attribute Preferred By	
			Plaintiff	Defendant
NA	Bankers Caucasian	15.0402 -9.7804	Bankers Non-Caucasian	Non-bankers Caucasian
B1	Bankers No degree	24.2603 13.2740	Bankers No degree	Non-bankers College degree
B2	Bankers	25.5750	Bankers	Non-bankers
B3	Jurors Bankers A&A courses	25.2311 26.3868 0.8125	Jurors Bankers A&A courses	Non-jurors Non-bankers No A&A courses
B4	Bankers	24.9417	Bankers	Non-bankers
B5	Bankers	20.1762	Bankers	Non-bankers
B6	Bankers	19.2963	Bankers	Non-bankers

Note that in all of the behavioral scenarios the selection of a banker as a juror would be advantageous to the plaintiff. The defense attorney would work to eliminate this occupational group from the jury panel.

In a case where the circumstances are similar to the normal audit (NA) scenario, the plaintiff attorney would select jurors from minority ethnic groups. These jurors are more likely to favor the plaintiff's position. Likewise, the defendant would be better served by Caucasian jurors who appear to be more sympathetic to the auditor.

The selection of jurors with at least a college degree would work to the advantage of the auditor-defendant in a case that had a similar fact pattern to that of

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behavioral scenario B1 (auditor advocacy). Likewise, the plaintiff would prefer a juror with less than a college degree (No degree).

With respect to behavioral scenario B3 (audit fees), three juror characteristics are significant in the selection process. In this study, the occupations of the jurors included a cross-section of military personnel, professionals, clerical employees, farmers, self-employed retailers, home makers and retired persons. In examining the impact of the jurors variable, the only occupational category that would be advantageous to the auditor-defendant would be a CPA, if available.

Also, with respect to behavioral scenario B3 (audit fees), jurors who have completed more accounting and/or auditing courses (A&A courses) would render a decision that would favor the plaintiff. In this behavioral setting, the auditor-defendant would be best served by jurors with little or no knowledge of accounting and/or auditing (No A&A courses).

It appears from the above discussion that the bankers variable is a common denominator in all of the scenarios, and should always be preferred by the plaintiff and avoided by the defendant. It is possible that this variable might be extended to include other types of financial statement users, such as financial analysts or institutional shareholders. Further research would need to be conducted to support this assertion.

The final managerial implication involves insight derived from this study with respect to the expectation-performance gap. Historically the expectation-performance gap has been defined in terms of the differences in perception between accountants and

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the general public (Porter, 1993). There was no distinction between financial statement users and other parties.

The findings of this suggest that there continues to be an expectation-performance gap, but the perceptual differences are between bankers and all other subject groups. With the exception of behavioral scenario B3 (audit fees) in which the perceptions of bankers and jurors were similar and significantly different from CPAs, there were statistically significant differences between the responses of bankers and that of jurors and CPAs.

In allocating resources toward reducing the expectation-performance gap, the public accounting profession should target bankers and possibly other financial statement users, such as financial analysts and shareholders. This appears to be where the true perceptual differences exist.

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APPENDIX A

FORMS AND LETTERS

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Survey Instrument: Jurors, Pages 1 and 4

Eastern New Mexico University
College of Business, Station #49
Portales, NM 88130
(505)562-2366

Dear Juror: Thank you for taking the time to complete this survey form. This is part of a study of the professional responsibility of independent auditors for the accuracy of published financial statements. Your perceptions will be very helpful in our examination of this issue.

The survey consists of a brief hypothetical case where subsequent to the issuance of the annual audited financial statements the company becomes insolvent. You will be given seven separate audit environments that may affect your decision. In each situation you are asked to indicate the degree of financial responsibility that should be assessed against the independent auditors.

Hypothetical Case: Superior Cedar Products, Inc. sold cedar building products to wholesale markets in the United States, Japan, and the Pacific Rim countries. The company was considered an industry leader providing quality products for almost 50 years.

In early 1992, the independent auditors, Paulson and Associates began the audit of the 1991 annual financial statements. The objective of an audit is to provide an independent and objective assessment of the financial statements as prepared by management. Creditors and investors depend on the integrity of this process to make financial decisions.

The financial statements were published in March, 1992. The auditors' opinion indicated that the financial statements were fairly stated in all material respects. Six months later the company filed for protection under federal bankruptcy law. The following May the company was liquidated. Three major creditors representing unpaid claims in excess of $5 million filed suit against Superior Cedar Products, Inc. and Paulson and Associates.

For each of the separate audit circumstances please indicate the percentage (if any) of the financial loss that should be attributed to the independent auditors. Please be sure to complete the demographic questions on the back page.

Thank you for your assistance.

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Please complete the following demographic information:

Occupation:_____

Number of year experience in this occupation:_____

Gender:		**Marital Status:**	
Male	_____	Never married	_____
Female	_____	Currently married	_____
		Currently single	_____

Annual Household Income:		**Ethnicity:**	
Under $20,000	_____	African-American	_____
$20,000 - $34,999	_____	Asian-American	_____
$35,000 - $49,999	_____	Caucasian-American	_____
$50,000 - $64,999	_____	Hispanic-American	_____
$65,000 - $79,999	_____	Native American	_____
$80,000 and over	_____	Foreign born	_____

Education:

Not completed high school	_____
Completed high school	_____
Completed two years of college	_____
Completed college (4 years)	_____
Completed some graduate course work	_____
Number of years since completion of education	_____

Prior Knowledge of Accounting and Auditing:

Please indicate the number of accounting courses you have completed.	_____

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Survey Instrument: Bankers, Pages 1 and 4

Eastern New Mexico University
College of Business, Station #49
Portales, NM 88130
(505)562-2366

Dear Banker: Thank you for taking the time to complete this survey form. This is part of a study of the professional responsibility of independent auditors for the accuracy of published financial statements. Your perceptions will be very helpful in our examination of this issue.

The survey consists of a brief hypothetical case where subsequent to the issuance of the annual audited financial statements the company becomes insolvent. You will be given seven separate audit environments that may affect your decision. In each situation you are asked to indicate the degree of financial responsibility that should be assessed against the independent auditors.

Hypothetical Case: Superior Cedar Products, Inc. sold cedar building products to wholesale markets in the United States, Japan, and the Pacific Rim countries. The company was considered an industry leader providing quality products for almost 50 years.

In early 1992, the independent auditors, Paulson and Associates began the audit of the 1991 annual financial statements. The objective of an audit is to provide an independent and objective assessment of the financial statements as prepared by management. Creditors and investors depend on the integrity of this process to make financial decisions.

The financial statements were published in March, 1992. The auditors' opinion indicated that the financial statements were fairly stated in all material respects. Six months later the company filed for protection under federal bankruptcy law. The following May the company was liquidated. Three major creditors representing unpaid claims in excess of $5 million filed suit against Superior Cedar Products, Inc. and Paulson and Associates.

For each of the separate audit circumstances please indicate the percentage (if any) of the financial loss that should be attributed to the independent auditors. Please be sure to complete the demographic questions on page 4.

Thank you for your assistance.

Sid Glandon
Instructor of Accounting

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Please complete the following demographic information:

Occupation:_____

Years experience in this occupation:_____

Gender:		**Marital Status:**	
Male	____	Never married	____
Female	____	Currently married	____
		Currently single	____

Annual Household Income:		**Ethnicity:**	
Under $20,000	____	African-American	____
$20,000 - $34,999	____	Asian-American	____
$35,000 - $49,999	____	Caucasian-American	____
$50,000 - $64,999	____	Hispanic-American	____
$65,000 - $79,999	____	Native American	____
$80,000 and over	____	Foreign born	____

Education:

Did not complete high school	____
Completed high school	____
Completed two years of college	____
Completed college (4 years)	____
Completed some graduate course work	____
Number of years since completion of education	____

Prior Knowledge of Accounting and Auditing:

Please indicate the number of accounting courses you have completed.	____

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Survey Instrument: CPAs, Pages 1 and 4

Eastern New Mexico University
College of Business, Station #49
Portales, NM 88130
(505)562-2366

Dear {CPA}: Thank you for taking the time to complete this survey form. This is part of a study of the professional responsibility of independent auditors for the accuracy of published financial statements. Your perceptions will be very helpful in our examination of this issue.

The survey consists of a brief hypothetical case where subsequent to the issuance of the annual audited financial statements the company becomes insolvent. You will be given seven separate audit environments that may affect your decision. In each situation you are asked to indicate the degree of financial responsibility that should be assessed against the independent auditors.

Hypothetical Case: Superior Cedar Products, Inc. sold cedar building products to wholesale markets in the United States, Japan, and the Pacific Rim countries. The company was considered an industry leader providing quality products for almost 50 years.

In early 1992, the independent auditors, Paulson and Associates began the audit of the 1991 annual financial statements. The objective of an audit is to provide an independent and objective assessment of the financial statements as prepared by management. Creditors and investors depend on the integrity of this process to make financial decisions.

The financial statements were published in March, 1992. The auditors' opinion indicated that the financial statements were fairly stated in all material respects. Six months later the company filed for protection under federal bankruptcy law. The following May the company was liquidated. Three major creditors representing unpaid claims in excess of $5 million filed suit against Superior Cedar Products, Inc. and Paulson and Associates.

For each of the separate audit circumstances please indicate the percentage (if any) of the financial loss that should be attributed to the independent auditors. Please be sure to complete the demographic questions on page 4.

Thank you for your assistance.

Sid Glandon
Instructor of Accounting

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Please complete the following demographic information:

Occupation:_____

Years experience in this occupation:_____

Gender:		**Marital Status:**	
Male	____	Never married	____
Female	____	Currently married	____
		Currently single	____

Annual Household Income:		**Ethnicity:**	
Under $20,000	____	African-American	____
$20,000 - $34,999	____	Asian-American	____
$35,000 - $49,999	____	Caucasian-American	____
$50,000 - $64,999	____	Hispanic-American	____
$65,000 - $79,999	____	Native American	____
$80,000 and over	____	Foreign born	____

Education:

Did not complete high school	____
Completed high school	____
Completed two years of college	____
Completed college (4 years)	____
Completed some graduate course work	____
Number of years since completion of education	____

Prior Knowledge of Accounting and Auditing:

Please indicate the number of accounting courses you have completed.	____

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Survey Instrument, Pages 2 and 3

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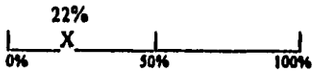
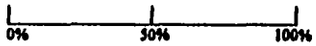
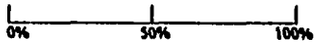
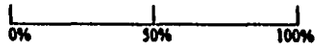
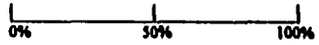
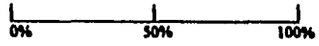
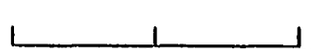
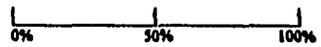
Instructions: The following is a list of seven typical audit circumstances that may jeopardize the degree of independence of auditors. **Each circumstance should be treated as a separate instance.** The scale to the right reflects the percentage of the $5 million financial loss that you would attribute to the independent auditors. Please place an "X" on the scale and write the percentage chosen above your selection. See the example to the right.	EXAMPLE: For a choice of 22% 
Normal Audit: The only work that the independent auditors did for the company was an audit at the end of each year. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Auditor Advocacy: In the early 1990s the company experienced a decline in earnings. After reviewing the situation Paulson and Associates recommended a change in accounting policy that would effectively delay the recognition of certain costs. The company adopted this alternative accounting policy, which increased net income by 20%. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Management Advisory Services: In 1991, Paulson and Associates, assisted the company with the redesign of the company's information system and supervised the selection and installation of a computer system. The fees associated with this additional engagement were twice the amount of the normal audit fee. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Audit Fees: The audit fees for this client represent 40% of the total fees billed by the local office of Paulson and Associates. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Cross-Hiring of Accounting Personnel: The controller of the company had been an audit manager of Paulson and Associates for approximately 10 years. Prior to taking the position with Superior Cedar Products, Inc., he had been responsible for the annual audit of the company. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Co-Contracting Between Auditor and Client: The company has expertise in manufacturing and marketing that has resulted in opportunities for turn-key operations in several Pacific Rim countries. The company co-contracted these ventures with Paulson and Associates; the CPA firm provides the administrative and information systems expertise. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	
Management Fraud: The officers of the company fraudulently misrepresented the amount of merchandise inventory during the audit of the 1991 and 1992 financial statements. This caused the financial statements to be overstated by $500,000 and $700,000 for the two years respectively. In this audit circumstance what percentage of the liability (if any) would you attribute to the independent auditors?	

Form Q0

Cover Letter to Bankers

February 28, 1997

{Banker Name}
{Address}
{Address}
{Address}

Dear {Banker Name}:

Enclosed is a survey form that is being used in a research project at Eastern New Mexico University. The purpose of the research is to measure the perception of prospective jurors, CPAs, and bankers as to the professional liability of Certified Public Accountants in the performance of a financial statement audit.

You have been selected to participate in this study as a representative of the banking profession. The participant in this study does not have to have actually served on a jury. Please take a few minutes to answer the questions in the survey. Once you have completed the survey, please place in the self-addressed, stamped envelope and mail to my office. Your confidential responses will provide valuable information that may prove useful for both standards setters and auditors.

As an expression of my appreciation for your time, enclosed is a dollar bill. This is to provide you with a cup of coffee once you have completed the survey form. If you are interested in receiving a copy of the results of this study, please complete the enclosed post card. Thank you for your cooperation.

Very truly yours,

Sid Glandon, MBA, CPA
Instructor of Accounting

Enc.

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Cover Letter to CPAs

March 3, 1997

{CPA Name}
{Address}
{Address}
{Address}

Dear {CPA Name}:

Enclosed is a survey form that is being used in a research project at Eastern New Mexico University. The purpose of the research is to measure the perception of prospective jurors, CPAs, and bankers as to the professional liability of Certified Public Accountants in the performance of a financial statement audit.

You have been selected to participate in this study as a representative of the professional public accounting profession. The participant in this study does not have to have actually served on a jury. Please take a few minutes to answer the questions in the survey. Once you have completed the survey, please place in the self-addressed, stamped envelope and mail to my office. Your confidential responses will provide valuable information that may prove useful for both standards setters and auditors.

As an expression of my appreciation for you time, enclosed is a dollar bill. This is to provide you with a cup of coffee once you have completed the survey form. If you are interested in receiving a copy of the results of this study, please complete the enclosed postcard. Thank you for your cooperation.

Very truly yours,

Sid Glandon, MBA, CPA
Instructor of Accounting

Enc.

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Table A1
Format of Descriptive Statistics for Dummy Variables

Information	Jurors	Bankers	CPAs	Total
Gender:				
male				
female				
Marital Status:				
married				
not married				
Annual Household Income:				
less than $65,000				
$65,000 or more				
Ethnicity:				
Caucasian-American				
other				
Education:				
did not complete college				
completed college				

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Table A2
Format of Descriptive Statistics for Continuous Variables

Information	Jurors	Bankers	CPAs	Total
Years worked:				
range				
average				
Years since completion of education:				
range				
average				
Number of accounting or auditing courses:				
range				
average				

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APPENDIX B

STATISTICAL CALCULATIONS

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Table B1
Tukey Test for Additivity: Jurors

Tukey Test for Additivity
Subjects: Jurors

Source	df	SS	MS
Question	6	34892.8614	5815.4769
Juror	66	157167.2239	2381.3216
Error	396	171302.5672	432.5822
Total	468	363362.6525	
SUM OF PRODUCTS			330700.5100
SSA/b			520.7890
SSB/a			22452.4606
SSAB*			9352.8508
SSRem*			161949.7164
F*			22.8119
F[0.95;1,395]			3.84

Note: $F^* = \frac{SSAB^*}{1} \div \frac{SSRem^*}{(7)(469)-7-469}$

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Table B2
Tukey Test for Additivity: Bankers

Tukey Test for Additivity
Subjects: Bankers

Source	df	SS	MS
Question	6	29925.2782	4987.5664
Juror	56	142803.1779	2550.0567
Error	336	194856.4361	579.9299
Total	398	367584.8922	
SSAB*			192.4121
SSRem*			194664.0240
F* =			0.3311
F[0.95;1,335]			3.84

Note: $F^* = \frac{SSAB^*}{1} \div \frac{SSRem^*}{(7)(399)-7-399}$

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Table B3
Tukey Test for Additivity: CPAs

Tukey Test for Additivity
Subjects: CPAs

Source	df	SS	MS
Question	6	12066.2603	2011.0434
Juror	44	175819.6064	3995.9001
Error	264	120276.8825	455.5943
Total	314	308162.7492	
SSAB*			289.5000
SSRem*			119987.3825
F*			0.6346
F[0.95;1,263]			3.84

Note: $F^* = \frac{SSAB^*}{1} \div \frac{SSRem^*}{(7)(315)-7-315}$

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Table B4
Tukey Test for Additivity: Jurors LN(1+Y_{ij})

Tukey Test for Additivity
Subjects: LN (1+Yij)

Source	df	SS	MS
Question (a=7)	6	103.7472	17.2912
Juror (b=67)	66	649.1569	9.8357
Error	396	544.4240	1.3748
Total	468	1297.3281	
SSAB*			4.3579
SSRem*			540.0661
F*			3.1873
F[0.95;1,395]			3.84

Note: $F^{*} = \frac{SSAB^{*}}{1} \div \frac{SSRem^{*}}{(7)(469)-7-469}$

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Table B5
Hartley Test for Equality of Variances: Jurors LN(1+Y_{ij})

Hartley Test for Equal Variance
Subjects: Jurors Ln(1+Y_{ij})

Test Statistic:

H = Max(S^2i)/Min(S^2i)	
H = 4.36/1.33	3.2782

Tabulated H:

H(0.99;21,66)	3.2

n = 67

Differences	Variance
NA - B1	2.72
NA - B2	2.71
NA - B3	2.08
NA - B4	2.70
NA - B5	2.19
NA - B6	4.21
B1 - B2	1.90
B1 - B3	2.60
B1 - B4	2.20
B1 - B5	2.08
B1 - B6	3.96
B2 - B3	2.75
B2 - B4	3.05
B2 - B5	2.57
B2 - B6	4.36
B3 - B4	2.49
B3 - B5	1.67
B3 - B6	3.42
B4 - B5	1.33
B4 - B6	3.18
B5 - B6	3.56

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Table B6
Hartley Test for Equality of Variances: Bankers

Hartley Test for Equal Variance
Subjects: Bankers

Test Statistic:

$H = Max(S^2_i)/Min(S^2_i)$
$H = 1581.79/660.85$ 2.3936

Tabulated H:

H(0.99;21,56) 3.5

n = 57

Differences	Variance
NA - B1	1336.33
NA - B2	1144.16
NA - B3	1197.15
NA - B4	1407.76
NA - B5	884.44
NA - B6	1279.05
B1 - B2	872.74
B1 - B3	873.64
B1 - B4	1316.36
B1 - B5	1115.28
B1 - B6	1581.79
B2 - B3	660.85
B2 - B4	1173.40
B2 - B5	1204.04
B2 - B6	1302.00
B3 - B4	991.08
B3 - B5	1052.96
B3 - B6	1557.00
B4 - B5	1121.73
B4 - B6	1386.92
B5 - B6	896.38

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Table B7
Hartley Test for Equality of Variances: CPAs

Hartley Test for Equal Variance
Subjects: CPAs

Test Statistic:

$H = Max(S^2_i)/Min(S^2_i)$
$H = 1599.03/456.91$ 3.4997

Tabulated H:

H(0.99;21,44) 4.2

n = 45

Differences	Variance
NA - B1	519.16
NA - B2	720.89
NA - B3	456.91
NA - B4	483.80
NA - B5	1251.39
NA - B6	647.69
B1 - B2	973.86
B1 - B3	580.71
B1 - B4	805.75
B1 - B5	881.73
B1 - B6	993.75
B2 - B3	996.91
B2 - B4	841.65
B2 - B5	1195.48
B2 - B6	987.95
B3 - B4	804.53
B3 - B5	1599.03
B3 - B6	863.21
B4 - B5	1318.11
B4 - B6	744.59
B5 - B6	1467.87

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Table B8
Bonferroni Test of Contrasts for Jurors

MSE = 1.3748			n = 67	r = 7	q = 6
Alpha = 0.01					
t-value = 3.2103					
Minimum Significant Difference(MSD): 0.6504					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	3.1211	1.6749	1.4461	0.6504	****
B1	2.7805	1.6749	1.1055	0.6504	****
B4	2.7455	1.6749	1.0705	0.6504	****
B2	2.7168	1.6749	1.0419	0.6504	****
B3	2.4659	1.6749	0.7910	0.6504	****
B6	1.9567	1.6749	0.2818	0.6504	
Alpha = 0.05					
t-value = 2.6530					
Minimum Significant Difference(MSD): 0.5374					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	3.1211	1.6749	1.4461	0.5374	****
B1	2.7805	1.6749	1.1055	0.5374	****
B4	2.7455	1.6749	1.0705	0.5374	****
B2	2.7168	1.6749	1.0419	0.5374	****
B3	2.4659	1.6749	0.7910	0.5374	****
B6	1.9567	1.6749	0.2818	0.5374	
Alpha = 0.10					
t-value = 2.3967					
Minimum Significant Difference: 0.4855					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	3.1211	1.6749	1.4461	0.4855	****
B1	2.7805	1.6749	1.1055	0.4855	****
B4	2.7455	1.6749	1.0705	0.4855	****
B2	2.7168	1.6749	1.0419	0.4855	****
B3	2.4659	1.6749	0.7910	0.4855	****
B6	1.9567	1.6749	0.2818	0.4855	

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Table B9
Bonferroni Test of Contrasts for Bankers

MSE = 579.9299			n = 57	r = 7	q = 7
Alpha = 0.01					
t-value = 3.2103					
Minimum Significant Difference(MSD): = 14.4816					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	52.7719	28.1053	24.6667	14.4816	****
B1	46.6140	28.1053	18.5088	14.4816	****
B6	44.1579	28.1053	16.0526	14.4816	****
B4	37.7895	28.1053	9.6842	14.4816	
B2	32.4561	28.1053	4.3509	14.4816	
B3	29.6140	28.1053	1.5088	14.4816	
Alpha = 0.05					
t-value =					
Minimum Significant Difference(MSD): 11.9675					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	52.7719	28.1053	24.6667	11.9675	****
B1	46.6140	28.1053	18.5088	11.9675	****
B6	44.1579	28.1053	16.0526	11.9675	****
B4	37.7895	28.1053	9.6842	11.9675	
B2	32.4561	28.1053	4.3509	11.9675	
B3	29.6140	28.1053	1.5088	11.9675	
Alpha = 0.10					
t-value =					
Minimum Significant Difference(MSD): 10.8112					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	52.7719	28.1053	24.6667	10.8112	****
B1	46.6140	28.1053	18.5088	10.8112	****
B6	44.1579	28.1053	16.0526	10.8112	****
B4	37.7895	28.1053	9.6842	10.8112	
B2	32.4561	28.1053	4.3509	10.8112	
B3	29.6140	28.1053	1.5088	10.8112	

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Table B10
Bonferroni Test of Contrasts for CPAs

MSE = 455.5943			n = 45	r = 7	q = 6
Alpha = 0.01					
t-value = 3.2103					
Minimum Significant Difference(MSD): 14.4460					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	38.0000	17.8667	20.1333	14.4460	****
B1	35.6667	17.8667	17.8000	14.4460	****
B3	29.5333	17.8667	11.6667	14.4460	
B6	29.2444	17.8667	11.3778	14.4460	
B4	26.4000	17.8667	8.5333	14.4460	
B2	25.5778	17.8667	7.7111	14.4460	
Alpha = 0.05					
t-value = 2.6530					
Minimum Significant Difference(MSD): 11.9381					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	38.0000	17.8667	20.1333	11.9381	****
B1	35.6667	17.8667	17.8000	11.9381	****
B3	29.5333	17.8667	11.6667	11.9381	
B6	29.2444	17.8667	11.3778	11.9381	
B4	26.4000	17.8667	8.5333	11.9381	
B2	25.5778	17.8667	7.7111	11.9381	
Alpha = 0.10					
t-value = 2.3967					
Minimum Significant Difference(MSD): 10.7846					
Scenario	Mean	NA Mean	Contrast	MSD	Sigf
B5	38.0000	17.8667	20.1333	10.7846	****
B1	35.6667	17.8667	17.8000	10.7846	****
B3	29.5333	17.8667	11.6667	10.7846	****
B6	29.2444	17.8667	11.3778	10.7846	****
B4	26.4000	17.8667	8.5333	10.7846	
B2	25.5778	17.8667	7.7111	10.7846	

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Table B11
Friedman Rank Test

	Mean Response to Questions						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1.67	2.78	2.72	2.47	2.75	3.12	1.96
Bankers	28.11	46.61	32.46	29.61	37.79	52.77	44.16
CPAs	17.87	35.67	25.58	29.53	26.40	38.00	29.24

	Rank of Means*						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1	6	4	3	5	7	2
Bankers	1	6	3	2	4	7	5
CPAs	1	6	2	5	3	7	4
R_j	3.00	18.00	9.00	10.00	12.00	21.00	11.00
$Rbar_j$	1.00	6.00	3.00	3.33	4.00	7.00	3.67
$\sum R^2_j$	9.00	324.00	81.00	100.00	144.00	441.00	121.00

$\sum R_j^2 = 1220$

$T = 15.1239$

Tabulated $\chi^2 = \chi^2[0.95, 6] = 12.59$

Since $T = 15.1239 > 12.59$, conclude that there is agreement between group rankings.

*Note that the ranking of jurors' means are based on the means of the transformed responses $LN(1+Y_{ij})$ values.

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Table B12
Kendall's Coefficient of Concordance W

	Mean Response to Questions						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1.67	2.78	2.72	2.47	2.75	3.12	1.96
Bankers	28.11	46.61	32.46	29.61	37.79	52.77	44.16
CPAs	17.87	35.67	25.58	29.53	26.40	38.00	29.24

	Rank of Means*						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1	6	4	3	5	7	2
Bankers	1	6	3	2	4	7	5
CPAs	1	6	2	5	3	7	4

$$W = \frac{12}{n^2 r(r+1)(r-1)} \sum_{j=1}^{7} [R_j - \frac{n(r+1)}{2}]^2$$

For r = 7 and n = 3, operationalization of the above formula produces

W = 0.84127

*Note that the rankings of jurors' means are based on the means of the transformed $LN(1+Y_{ij})$values.

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Table B13
Rank Correlation Test for Agreement of Multiple Judgements

	Mean Response to Questions						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1.67	2.78	2.72	2.47	2.75	3.12	1.96
Bankers	28.11	46.61	32.46	29.61	37.79	52.77	44.16
CPAs	17.87	35.67	25.58	29.53	26.40	38.00	29.24

	Ranks of Means*						
Group	NA	B1	B2	B3	B4	B5	B6
Jurors	1	6	4	3	5	7	2
Bankers	1	6	3	2	4	7	5
CPAs	1	6	2	5	3	7	4
R_j	3.00	18.00	9.00	10.00	12.00	21.00	11.00
Mean R_j	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Difference	-9.00	6.00	-3.00	-2.00	0.00	9.00	-1.00
SS(Differences)	81	36	9	4	0	81	1
r	7	7	7	7	7	7	7
n	3	3	3	3	3	3	3

For r = 7 and n = 3,

$$S = \frac{nr(r^2-1)}{12} = 84 \qquad S_D = \textit{Sum of Squares of Differences} = 212$$

$$D_1 = \frac{S_D}{n} = 70.67 \qquad D_2 = S - D_1 = 13.33$$

$$S_1^2 = \frac{D_1}{r-1} = 11.78 \qquad S_2^2 = \frac{D_2}{r(n-1)} = 0.9524$$

$$F^* = \frac{S_1^2}{S_2^2} = 12.37$$

Tabulated F[0.95;r-1,r(n-1)] = F[0.95;6,14] = 2.85

Since F* = 12.37 > 2.85, conclude that there is agreement between group rankings.

*Note that the rankings of jurors' means are based on the means of the transformed responses LN(1+Y_{ij}) values.

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Table B14
Descriptive Statistics for Dummy Variables

Information	Jurors	Bankers	CPAs	Total
Gender:				
male	17	32	21	70
female	30	4	9	43
Total	47	36	30	113
Marital Status:				
married	38	31	26	95
not married	9	5	4	18
Total	47	36	30	113
Annual Household Income:				
less than $65,000	38	12	10	60
$65,000 or more	9	24	20	53
Total	47	36	30	113
Ethnicity:				
Caucasian-American	34	30	25	89
other	13	6	5	24
Total	47	36	30	113
Education:				
did not complete college	37	8	2	47
completed college	10	28	28	66
Total	47	36	30	113

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Table B15
Descriptive Statistics for Continuous Variables

Information	Jurors	Bankers	CPAs	Total
Years worked:				
range	1 - 50	0 - 35	1 - 40	0 - 50
average	17.66	17.47	17.63	17.59
Years since completion of education:				
range	0 - 60	0 - 28	3 - 40	0 - 60
average	22.96	14.81	18.33	19.13
Number of accounting and auditing courses:				
range	0 - 30	2 - 12	4 - 51	0 - 51
average	2.23	4.83	16.97	6.97

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APPENDIX C

SAS COMPUTER PRINTOUTS

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Table C1
SAS T Test Procedure for Early vs. Late Banker Respondents

TTEST PROCEDURE

Variable: NA

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	24.26086957	25.33990276	5.28373498	0	100.00000000
2	34	30.70588235	30.20087237	5.17940688	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	-0.8711	52.4	0.3877
Equal	-0.8419	55.0	0.4035

For H0: Variances are equal, F' = 1.42 DF = (33,22) Prob>F' = 0.3926

****

Variable: B1

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	41.65217391	25.12805150	5.23956094	0	90.00000000
2	34	40.70588235	28.80291380	4.93965896	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	0.1314	51.4	0.8960
Equal	0.1280	55.0	0.8986

For H0: Variances are equal, F' = 1.31 DF = (33,22) Prob>F' = 0.5083

****

Variable: B2

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	44.00000000	28.56571371	5.95636306	0	99.00000000
2	34	36.73529412	28.15574523	4.82867047	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	0.9474	46.9	0.3483
Equal	0.9501	55.0	0.3462

For H0: Variances are equal, F' = 1.03 DF = (22,33) Prob>F' = 0.9205

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Table C1 (Continued)
SAS T Test Procedure for Early vs. Late Banker Respondents

TTEST PROCEDURE

Variable: B3

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	40.52173913	31.47707617	6.56342409	0	95.00000000
2	34	40.82352941	31.49840841	5.40193248	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	-0.0355	47.4	0.9718
Equal	-0.0355	55.0	0.9718

For H0: Variances are equal, F' = 1.00 DF = (33,22) Prob>F' = 1.0000

****

Variable: B4

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	49.47826087	31.03351497	6.47093519	0	100.00000000
2	34	45.17647059	32.57854898	5.58717506	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	0.5032	48.9	0.6171
Equal	0.4984	55.0	0.6202

For H0: Variances are equal, F' = 1.10 DF = (33,22) Prob>F' = 0.8256

****

Variable: B5

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	30.86956522	30.69839254	6.40105733	0	100.00000000
2	34	44.32352941	33.01948056	5.66279420	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	-1.5742	49.6	0.1218
Equal	-1.5519	55.0	0.1264

For H0: Variances are equal, F' = 1.16 DF = (33,22) Prob>F' = 0.7316

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Table C1 (Continued)
SAS T Test Procedure for Early vs. Late Banker Respondents

TTEST PROCEDURE

Variable: B6

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	23	34.17391304	30.18526458	6.29406276	0	95.00000000
2	34	37.47058824	32.59227952	5.58952982	0	100.00000000

Variances	T	DF	Prob>|T|
Unequal	-0.3916	49.8	0.6970
Equal	-0.3858	55.0	0.7011

For HO: Variances are equal, F' = 1.17 DF = (33,22) Prob>F' = 0.7171

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Table C2
SAS T Test Procedure for Early vs. Late CPAs Respondents

TTEST PROCEDURE

Variable: NA

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	25.23809524	34.09238150	7.43956756	0	100.00000000
2	24	11.41666667	16.20766503	3.30837577	0	58.00000000

Variances	T	DF	Prob>|T|
Unequal	1.6975	27.7	0.1008
Equal	1.7724	43.0	0.0834

For HO: Variances are equal, F' = 4.42 DF = (20,23) Prob>F' = 0.0009

****

Variable: B1

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	29.09523810	36.01930699	7.86005718	0	100.00000000
2	24	22.91666667	18.93447894	3.86498433	0	75.00000000

Variances	T	DF	Prob>|T|
Unequal	0.7054	29.3	0.4861
Equal	0.7333	43.0	0.4674

For HO: Variances are equal, F' = 3.62 DF = (20,23) Prob>F' = 0.0038

****

Variable: B2

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	40.71428571	39.00787466	8.51221611	0	100.00000000
2	24	27.00000000	24.13188401	4.92590020	0	95.00000000

Variances	T	DF	Prob>|T|
Unequal	1.3945	32.5	0.1726
Equal	1.4376	43.0	0.1578

For HO: Variances are equal, F' = 2.61 DF = (20,23) Prob>F' = 0.0286

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Table C2 (Continued)
SAS T Test Procedure for Early vs. Late CPAs Respondents

TTEST PROCEDURE

Variable: B3

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	41.57142857	37.44138276	8.17037955	0	100.00000000
2	24	26.83333333	26.77225473	5.46486361	0	75.00000000

Variances	T	DF	Prob>|T|
Unequal	1.4994	35.7	0.1426
Equal	1.5328	43.0	0.1326

For H0: Variances are equal, F' = 1.96 DF = (20,23) Prob>F' = 0.1232

****

Variable: B4

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	33.95238095	33.51936185	7.31452443	0	100.00000000
2	24	27.29166667	29.41380801	6.00406842	0	90.00000000

Variances	T	DF	Prob>|T|
Unequal	0.7039	40.2	0.4856
Equal	0.7101	43.0	0.4815

For H0: Variances are equal, F' = 1.30 DF = (20,23) Prob>F' = 0.5429

****

Variable: B5

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	32.52380952	40.28972456	8.79193869	0	100.00000000
2	24	27.83333333	29.34897475	5.99083438	0	99.00000000

Variances	T	DF	Prob>|T|
Unequal	0.4409	36.1	0.6619
Equal	0.4502	43.0	0.6548

For H0: Variances are equal, F' = 1.88 DF = (20,23) Prob>F' = 0.1450

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Table C2 (Continued)
SAS T Test Procedure for Early vs. Late CPAs Respondents

TTEST PROCEDURE

Variable: B6

TIME	N	Mean	Std Dev	Std Error	Minimum	Maximum
1	21	37.80952381	38.13871923	8.32255085	0	100.00000000
2	24	25.20833333	25.30677718	5.16572426	0	75.00000000

Variances	T	DF	Prob>|T|
Unequal	1.2864	34.0	0.2070
Equal	1.3210	43.0	0.1935

For HO: Variances are equal, F' = 2.27 DF = (20,23) Prob>F' = 0.0605

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Table C3
SAS ANOVA Table for Jurors

General Linear Models Procedure
Class Level Information

Class	Levels	Values
SUBJECT	67	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67
QUESTION	7	1 2 3 4 5 6 7

Number of observations in data set = 469

General Linear Models Procedure

Dependent Variable: PERCENT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	72	192060.08528785	2667.50118455	6.17	0.0001
Error	396	171302.56716418	432.58224031		
Corrected Total	468	363362.65245203			

R-Square	C.V.	Root MSE	PERCENT Mean
0.528563	73.32593	20.79861150	28.36460554

Source	DF	Type I SS	Mean Square	F Value	Pr > F
QUESTION	6	34892.86140725	5815.47690121	13.44	0.0001
SUBJECT	66	157167.22388060	2381.32157395	5.50	0.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
QUESTION	6	34892.86140725	5815.47690121	13.44	0.0001
SUBJECT	66	157167.22388060	2381.32157395	5.50	0.0001

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Table C4
SAS ANOVA Table for the Bankers

General Linear Models Procedure
Class Level Information

Class	Levels	Values
BANKER	57	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57
QUESTION	7	1 2 3 4 5 6 7

Number of observations in data set = 399

General Linear Models Procedure

Dependent Variable: PERCENT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	62	172728.4561404	2785.9428410	4.80	0.0001
Error	336	194856.4360902	579.9298693		
Corrected Total	398	367584.8922306			

R-Square	C.V.	Root MSE	PERCENT Mean
0.469901	62.08718	24.08173310	38.78696742

Source	DF	Type I SS	Mean Square	F Value	Pr > F
QUESTION	6	29925.2781955	4987.5463659	8.60	0.0001
BANKER	56	142803.1779449	2550.0567490	4.40	0.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
QUESTION	6	29925.2781955	4987.5463659	8.60	0.0001
BANKER	56	142803.1779449	2550.0567490	4.40	0.0001

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Table C5
SAS ANOVA Table for the CPAs

General Linear Models Procedure
Class Level Information

Class	Levels	Values
CPA	45	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
QUESTION	7	1 2 3 4 5 6 7

Number of observations in data set = 315

General Linear Models Procedure

Dependent Variable: PERCENT

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	50	187885.8666667	3757.7173333	8.25	0.0001
Error	264	120276.8825397	455.5942520		
Corrected Total	314	308162.7492063			

R-Square	C.V.	Root MSE	PERCENT Mean
0.609697	73.86099	21.34465395	28.89841270

Source	DF	Type I SS	Mean Square	F Value	Pr > F
QUESTION	6	12066.2603175	2011.0433862	4.41	0.0003
CPA	44	175819.6063492	3995.9001443	8.77	0.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
QUESTION	6	12066.2603175	2011.0433862	4.41	0.0003
CPA	44	175819.6063492	3995.9001443	8.77	0.0001

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Table C6
SAS ANOVA Table for the Jurors Transformed as LN(1+Y_{ij})

General Linear Models Procedure
Class Level Information

Class	Levels	Values
QUESTION	7	1 2 3 4 5 6 7
JUROR	67	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67

Number of observations in data set = 469

General Linear Models Procedure

Dependent Variable: LN

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	72	752.90412044	10.45700167	7.61	0.0001
Error	396	544.42399116	1.37480806		
Corrected Total	468	1297.32811160			

R-Square	C.V.	Root MSE	LN Mean
0.580350	47.00467	1.17252209	2.49447974

Source	DF	Type I SS	Mean Square	F Value	Pr > F
QUESTION	6	103.74720934	17.29120156	12.58	0.0001
JUROR	66	649.15691110	9.83571077	7.15	0.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
QUESTION	6	103.74720934	17.29120156	12.58	0.0001
JUROR	66	649.15691110	9.83571077	7.15	0.0001

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Table C7
SAS ANOVA Tables for Continuous Variables

Model: MODEL1
Dependent Variable: YRSEMPL

Analysis of Variance Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.78225590	0.39112795	0.00	0.9966
Error	110	12708.49208038	115.53174619		
Corrected Total	112	12709.27433628			

R-Square	C.V.	Root MSE	YRSEMPL Mean
0.000062	61.09599	10.74856949	17.59292035

Source	DF	Anova SS	Mean Square	F Value	Pr > F
GROUPS	2	0.78225590	0.39112795	0.00	0.9966

Dependent Variable: YRSED

Analysis of Variance Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1380.78840038	690.39420019	4.72	0.0108
Error	110	16086.22044917	146.23836772		
Corrected Total	112	17467.00884956			

R-Square	C.V.	Root MSE	YRSED Mean
0.079051	63.20529	12.09290568	19.13274336

Source	DF	Anova SS	Mean Square	F Value	Pr > F
GROUPS	2	1380.78840038	690.39420019	4.72	0.0108

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Table C7 (Continued)
SAS ANOVA Tables for Continuous Variables

Dependent Variable: COURSES

Analysis of Variance Procedure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	4216.52815540	2108.26407770	42.44	0.0001
Error	110	5464.39219858	49.67629271		
Corrected Total	112	9680.92035398			

R-Square	C.V.	Root MSE	COURSES Mean
0.435550	101.0711	7.04814108	6.97345133

Source	DF	Anova SS	Mean Square	F Value	Pr > F
GROUPS	2	4216.52815540	2108.26407770	42.44	0.0001

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Table C8
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Number of observations in data set = 113

Dependent Variable: NA

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	12671.16185030	1267.11618503	2.61	0.0072
Error	102	49465.95319394	484.96032543		
Corrected Total	112	62137.11504425			

R-Square	C.V.	Root MSE	NA Mean
0.203923	122.9479	22.02181476	17.91150442

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	30.41496881	3.10	0.0025	9.80894209
JURY	2.32069985	0.29	0.7725	8.00467014
BANKERS	15.04016299	2.18	0.0315	6.89710993
MALE	5.86711049	1.11	0.2686	5.27495514
MARRIED	-5.59214075	-0.93	0.3534	5.99819696
LT65	-7.62255283	-1.52	0.1326	5.02824966
CA	-9.78035863	-1.88	0.0627	5.19627923
LT4YR	-3.44179803	-0.61	0.5459	5.67940142
YRSEMPL	-0.35980591	-1.48	0.1423	0.24334875
COURSES	-0.16821543	-0.55	0.5839	0.30612950
YRSED	0.16623773	0.76	0.4506	0.21949721

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B1

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	14759.13570970	1475.91357097	1.98	0.0426
Error	102	75875.14747614	743.87399486		
Corrected Total	112	90634.28318584			

R-Square	C.V.	Root MSE	B1 Mean
0.162843	82.84860	27.27405351	32.92035398

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	26.07451113	2.15	0.0342	12.14839079
JURY	11.61474314	1.17	0.2441	9.91379702
BANKERS	24.26033179	2.84	0.0054	8.54208190
MALE	0.27839445	0.04	0.9661	6.53304055
MARRIED	-0.26273606	-0.04	0.9719	7.42877673
LT65	-7.75358126	-1.25	0.2160	6.22749541
CA	-4.99888613	-0.78	0.4391	6.43560031
LT4YR	13.27398654	1.89	0.0620	7.03394792
YRSEMPL	-0.11926094	-0.40	0.6931	0.30138782
COURSES	0.25617243	0.68	0.5008	0.37914189
YRSED	-0.10190044	-0.37	0.7086	0.27184765

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B2

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	9596.72940448	959.67294045	1.13	0.3441
Error	102	86256.95201145	845.65639227		
Corrected Total	112	95853.68141593			

R-Square	C.V.	Root MSE	B2 Mean
0.100119	93.64661	29.08017181	31.05309735

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	13.38776990	1.03	0.3038	12.95287080
JURY	13.09430999	1.24	0.2183	10.57029974
BANKERS	25.57500866	2.81	0.0060	9.10774810
MALE	-7.61371199	-1.09	0.2770	6.96566579
MARRIED	-0.73465255	-0.09	0.9263	7.92071862
LT65	-4.14122196	-0.62	0.5342	6.63988711
CA	5.69948652	0.83	0.4081	6.86177295
LT4YR	3.71147256	0.49	0.6217	7.49974381
YRSEMPL	0.13357670	0.42	0.6785	0.32134606
COURSES	0.66284250	1.64	0.1042	0.40424909
YRSED	-0.06139642	-0.21	0.8327	0.28984970

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B3

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	12793.23310331	1279.32331033	1.32	0.2313
Error	102	99064.69610023	971.22251079		
Corrected Total	112	111857.92920354			

R-Square	C.V.	Root MSE	B3 Mean
0.114370	91.39844	31.16444305	34.09734513

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	5.57824285	0.40	0.6886	13.88124551
JURY	25.23108529	2.23	0.0281	11.32790777
BANKERS	26.38681160	2.70	0.0080	9.76053027
MALE	3.52519787	0.47	0.6378	7.46491790
MARRIED	6.23642747	0.73	0.4642	8.48842249
LT65	-9.15617670	-1.29	0.2011	7.11578959
CA	3.99779269	0.54	0.5879	7.35357871
LT4YR	-1.93605563	-0.24	0.8101	8.03727504
YRSEMPL	-0.11712536	-0.34	0.7345	0.34437798
COURSES	0.81253262	1.88	0.0636	0.43322295
YRSED	0.04631564	0.15	0.8818	0.31062418

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B4

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	13916.62698133	1391.66269813	1.53	0.1379
Error	102	92517.53231070	907.03463050		
Corrected Total	112	106434.15929204			

R-Square	C.V.	Root MSE	B4 Mean
0.130753	92.12839	30.11701563	32.69026549

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	29.07293030	2.17	0.0325	13.41470108
JURY	5.64522541	0.52	0.6072	10.94718025
BANKERS	24.94171692	2.64	0.0095	9.43248182
MALE	-6.53740180	-0.91	0.3670	7.21402428
MARRIED	6.82693199	0.83	0.4072	8.20312920
LT65	-9.36659059	-1.36	0.1762	6.87663007
CA	-7.32937785	-1.03	0.3048	7.10642718
LT4YR	3.85016593	0.50	0.6212	7.76714468
YRSEMPL	-0.16467769	-0.49	0.6218	0.33280355
COURSES	0.29333123	0.70	0.4851	0.41866246
YRSED	0.09510283	0.32	0.7520	0.30018420

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B5

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	7227.10171322	722.71017132	0.66	0.7605
Error	102	112037.28766731	1098.40478105		
Corrected Total	112	119264.38938053			

R-Square	C.V.	Root MSE	B5 Mean
0.060597	96.42295	33.14219035	34.37168142

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	20.17083065	1.37	0.1748	14.76217240
JURY	14.27605436	1.19	0.2388	12.04679561
BANKERS	20.17620464	1.94	0.0547	10.37994972
MALE	-6.25865662	-0.79	0.4323	7.93865398
MARRIED	5.99015592	0.66	0.5085	9.02711188
LT65	-5.65490343	-0.75	0.4566	7.56736941
CA	-2.79854295	-0.36	0.7212	7.82024903
LT4YR	6.09509342	0.71	0.4774	8.54733386
YRSEMPL	0.07631754	0.21	0.8353	0.36623278
COURSES	0.44433206	0.96	0.3371	0.46071599
YRSED	-0.03720286	-0.11	0.9106	0.33033691

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Table C8 (Continued)
SAS ANOVA Tables for the Seven Multiple Regression Models

General Linear Models Procedure

Dependent Variable: B6

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	6951.88656312	695.18865631	0.72	0.7051
Error	102	98651.97184396	967.17619455		
Corrected Total	112	105603.85840708			

R-Square	C.V.	Root MSE	B6 Mean
0.065830	86.30252	31.09945650	36.03539823

Parameter	Estimate	T for H0: Parameter=0	Pr > |T|	Std Error of Estimate
INTERCEPT	18.47145725	1.33	0.1854	13.85229924
JURY	15.38070600	1.36	0.1766	11.30428593
BANKERS	19.29625033	1.98	0.0503	9.74017684
MALE	-4.13597301	-0.56	0.5800	7.44935146
MARRIED	7.06717505	0.83	0.4061	8.47072176
LT65	0.29299457	0.04	0.9672	7.10095119
CA	-0.42501520	-0.06	0.9539	7.33824445
LT4YR	2.99777584	0.37	0.7094	8.02051508
YRSEMPL	0.13435397	0.39	0.6966	0.34365986
COURSES	0.61228103	1.42	0.1597	0.43231956
YRSED	-0.30557035	-0.99	0.3266	0.30997644

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Table C9
SAS ANOVA Table Of The Reduced Version For Model B3

Model: MODEL2
Dependent Variable: B3

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	9	12778.29192	1419.81021	1.476	0.1667
Error	103	99079.63728	961.93823		
C Total	112	111857.92920			

Root MSE	31.01513	R-square	0.1142
Dep Mean	34.09735	Adj R-sq	0.0368
C.V.	90.96054		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|	Type II SS
INTERCEP	1	5.626562	13.80929671	0.407	0.6845	159.694614
JB	1	26.028937	9.27963335	2.805	0.0060	7568.301057
MALE	1	3.879626	6.86328885	0.565	0.5731	307.370577
MARRIED	1	6.088674	8.36415013	0.728	0.4683	509.740303
LT65	1	-9.439094	6.70799454	-1.407	0.1624	1904.681528
CA	1	4.033144	7.31284740	0.552	0.5825	292.591424
LT4YR	1	-2.194058	7.72623341	-0.284	0.7770	77.572518
YRSEMPL	1	-0.117803	0.34268488	-0.344	0.7317	113.676374
COURSES	1	0.816734	0.42982754	1.900	0.0602	3473.118994
YRSED	1	0.037433	0.30080766	0.124	0.9012	14.896327

Dependent Variable: B3
Test: TEST1

Numerator:	14.9412	DF:	1	F value:	0.0154
Denominator:	971.2225	DF:	102	Prob>F:	0.9015

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Table C10
Estimation of Model (3.8) for Behavioral Scenarios

Model: MODEL1
Dependent Variable: NA (LNe^2_t)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	784559.36686	261519.78895	0.419	0.7398
Error	109	68044466.129	624261.15714		
C Total	112	68829025.495			

Root MSE	790.10199	R-square	0.0114
Dep Mean	437.75180	Adj R-sq	-0.0158
C.V.	180.49086		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	582.210916	164.08898819	3.548	0.0006
YRSEMPL	1	-7.634134	8.34229670	-0.915	0.3622
COURSES	1	-2.411396	8.08694056	-0.298	0.7661
YRSED	1	0.348269	7.10897998	0.049	0.9610

Model: MODEL1
Dependent Variable: B1 (LNe^2_t)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	253940.77341	84646.92447	0.121	0.9479
Error	109	76557824.637	702365.36364		
C Total	112	76811765.41			

Root MSE	838.07241	R-square	0.0033
Dep Mean	671.46148	Adj R-sq	-0.0241
C.V.	124.81318		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	578.999097	174.05152141	3.327	0.0012
YRSEMPL	1	1.804513	8.84879265	0.204	0.8388
COURSES	1	2.217317	8.57793276	0.258	0.7965
YRSED	1	2.365232	7.54059608	0.314	0.7544

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Table C10 (Continued)
Estimation of Model (3.8) for Behavioral Scenarios

Model: MODEL1
Dependent Variable: B2 (LNe^2_i)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	5788764.8992	1929588.2997	2.181	0.0944
Error	109	96430540.202	884683.85507		
C Total	112	102219305.1			

Root MSE	940.57634	R-square	0.0566
Dep Mean	763.33586	Adj R-sq	0.0307
C.V.	123.21920		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	498.451724	195.33961679	2.552	0.0121
YRSEMPL	1	10.980422	9.93108105	1.106	0.2713
COURSES	1	20.919417	9.62709251	2.173	0.0319
YRSED	1	-3.876814	8.46288006	-0.458	0.6478

Model: MODEL1
Dependent Variable: B3 (LNe^2_i)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	1629341.9157	543113.9719	0.484	0.6944
Error	109	122413396.68	1123058.6852		
C Total	112	124042738.6			

Root MSE	1059.74463	R-square	0.0131
Dep Mean	876.67873	Adj R-sq	-0.0140
C.V.	120.88176		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	790.697443	220.08857876	3.593	0.0005
YRSEMPL	1	-2.859569	11.18932016	-0.256	0.7988
COURSES	1	12.964157	10.84681717	1.195	0.2346
YRSED	1	2.398221	9.53510237	0.252	0.8019

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Table C10 (Continued)
Estimation of Model (3.8) for Behavioral Scenarios

Model: MODEL1
Dependent Variable: B4 (LNe^2_t)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	4467317.5279	1489105.8426	1.399	0.2471
Error	109	116021542.16	1064417.818		
C Total	112	120488859.69			

Root MSE	1031.70627	R-square	0.0371
Dep Mean	818.73922	Adj R-sq	0.0106
C.V.	126.01158		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	835.522258	214.26554924	3.899	0.0002
YRSEMPL	1	-14.794762	10.89327690	-1.358	0.1772
COURSES	1	17.588641	10.55983573	1.666	0.0987
YRSED	1	6.316214	9.28282584	0.680	0.4977

Model: MODEL1
Dependent Variable: B5 (LNe^2_t)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	9623119.5897	3207706.5299	2.819	0.0424
Error	109	124010327.24	1137709.4242		
C Total	112	133633446.83			

Root MSE	1066.63463	R-square	0.0720
Dep Mean	991.48042	Adj R-sq	0.0465
C.V.	107.58000		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	693.720771	221.51949788	3.132	0.0022
YRSEMPL	1	1.581228	11.26206820	0.140	0.8886
COURSES	1	31.205303	10.91733840	2.858	0.0051
YRSED	1	2.735236	9.59709541	0.285	0.7762

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Table C10 (Continued)
Estimation of Model (3.8) for Behavioral Scenarios

Model: MODEL1
Dependent Variable: B6 (LNe^2_t)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	3	2213216.9088	737738.96962	0.774	0.5108
Error	109	103860899.07	952852.28507		
C Total	112	106074115.98			

Root MSE	976.14153	R-square	0.0209
Dep Mean	873.02630	Adj R-sq	-0.0061
C.V.	111.81124		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	695.364734	202.72582218	3.430	0.0009
YRSEMPL	1	-1.032805	10.30659629	-0.100	0.9204
COURSES	1	14.176862	9.99111331	1.419	0.1588
YRSED	1	5.068273	8.78287951	0.577	0.5651

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