A Question of Ambiguity, Risk, and Trust: Do Auditors React Differently to Potential Accrual Transaction Earnings Management than to Potential Real Transaction Earnings Management?

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ABSTRACT

This research study investigates the relationship between ambiguity, litigation risk, and auditor decision-making. In addition, this study investigates how auditor trust of his or her client may change these relationships. It is important to investigate the relationships of ambiguity, litigation risk, and client trust to auditor decision-making because auditors face these factors on a regular basis.

This research uses a 2x2 experiment to investigate auditor reaction to ambiguity and litigation risk. The first factor, ambiguity is operationalized as auditor reaction to potential real transaction earnings management (low ambiguity) and potential accrual transaction earnings management (high ambiguity). The second factor, litigation risk is operationalized through an income increasing (high) or income decreasing (low) earnings management attempt. Auditors were given company background information, selected account information, and comparative financial statements and then asked to state the likelihood of material misstatement in the financial statements as a whole and the sales, selling and marketing expenses, research and development expenses, and general and administrative expenses individual accounts. The ambiguity manipulation was imbedded in the description of the research and development account while the litigation risk factor was imbedded in the comparative financial statements.

The findings indicate that the subjects reported a relatively high likelihood of material misstatement of research and development expenses regardless of the earnings management method. The findings further indicate that when a real earnings management transaction was present, auditors rated the likelihood of material misstatement in sales and the financial statements as a whole higher than when an accrual earnings management transaction is present. Additionally, when the subject group is limited to individuals working for Big-4 and National non Big-4 firms the auditors assessed the likelihood of material misstatement in the financial statements as a whole, sales, selling and marketing expenses, and general and administrative expenses significantly higher when a real earnings management transaction is present than when an accrual earnings management transaction is present. The lawsuit risk factor was not found to be significant in any of the primary analyses.

The research also explores the relationship between an auditor's trust of the client and the likelihood of material misstatement assessment. Auditors completed the Kerler and Killough trust scale to measure trust of the experimental client. The findings report that as external auditor experience increases, auditor trust of the client decreases. However, this decrease in trust does not significantly affect the likelihood of material misstatement assessment.

This research study is the first step in developing an understanding of the relationship between ambiguity, risk, trust, and auditor decision-making. The findings indicate that auditors do use information about potential earnings management in one account when evaluating the likelihood

of material misstatements in other accounts. Future research should develop an understanding about whether auditors should take these factors into consideration in the planning stages of the audit.

Dedication

This dissertation is dedicated to my loving husband, Chuck Garner. He has encouraged me to follow my dreams from the day we met. His continued support, prayers, encouragement, and leadership have strengthened my resolve and dedication to my educational goals and for that I am grateful.

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Chapter One

Introduction

Throughout the fiscal year, management engages in a business plan that should allow the business to earn income. At some point in the year, management may determine that an earnings target will be met, exceeded, or not reached. If the earnings target is going to be short (exceeded) management may decide to engage in earnings management to increase (decrease) earnings to meet the earnings target.

Auditors gather evidence to provide reasonable assurance that the financial statements are free of material misstatements. In the planning stages of an audit engagement, auditors are required to consider the likelihood of material misstatements due to fraud (AICPA 2002). An over estimate of the likelihood of financial statement misstatements may lead to an inefficient audit while an under estimate may lead to an ineffective audit.

Management can choose to manage earnings by the structuring of real transactions such as the deferral of discretionary spending, by adjusting accrual transactions, or by a combination of both. Auditors can gather more objective evidence when investigating real transactions than when investigating accrual transactions. The difference in the objectivity of evidence is a result of the difference between the audit evidence support available for actual exchanges versus accrual estimations. Accrual estimates require assumptions and judgments that are, by their nature, subjective. This difference in objectivity, referred to in this study as ambiguity of information, may lead auditors to evaluate the likelihood of financial statement misstatements resulting from real transaction information differently than from accrual transaction information.

The audit environment provides a unique opportunity to investigate how the objectivity of corroborating evidence (ambiguity level of information) about a known manager decision

influences the auditor's evaluation of that known decision and other related decisions. For example, when auditors receive information about a change in current year sales, they may apply the sales information to other areas of the audit such as cost of sales or accounts receivable. This study investigates hypotheses developed to answer the question, "how does the ambiguity level of one piece of information provided by an original decision maker affect an evaluator decision maker's judgment about related decisions". I also experimentally altered a potential related factor, litigation risk, and test for interactions between ambiguity and litigation risk. Trust of management is not manipulated in this study; instead I ask exploratory research questions to determine if trust of management is correlated with auditor judgment.

This research increases knowledge in accounting literature by adding valuable insight into the emerging field of real versus accrual transaction earnings management. In addition, this research contributes to the psychology literature as it is one of the first research projects to investigate how the ambiguity level of one decision is incorporated into an evaluation of separate but related decisions. As suggested by Grenier et al. (2005), this study investigates the relationship between ambiguity and risk. Finally, this study tests the reliability of the Kerler and Killough (2009) auditor trust scale.

I employ a 2x2 factorial design experiment to answer the proposed hypotheses. The first factor, ambiguity, is operationalized through the information given to the subjects about a material difference in the research and development expense between the prior and current year balances. Subjects in the low ambiguity groups were informed that the difference in research and development is the result of a real business decision. Subjects in the high ambiguity groups were informed that the difference is due to a change in the timing of expenditure capitalization. The second factor, litigation risk, is operationalized in the experiment through the direction of the

change in research and development expense. The subjects read background information, examined comparative income statements, determined the overall and individual income statement accounts' likelihood of financial statement material misstatements, and responded to an auditor trust scale questionnaire.

The main effect, ambiguity, examined in this study is found to be a significant factor in determining the likelihood of material misstatement in sales and the financial statements as a whole. It was expected that auditors in the low ambiguity group (real transaction earnings management) would report a lower likelihood of material misstatement than auditors in the high ambiguity group (accrual transaction earnings management). However, subjects rated the likelihood of material misstatement in sales and the financial statements as a whole higher when faced with real transaction earnings management than when faced with accrual transaction earnings management. This result may be due to auditors assuming that company management will only resort to real transaction earnings management when all accrual transaction earnings management avenues have already been recorded. Regardless of the direction of the finding it is interesting that auditors used information about research and development earnings management when evaluating the likelihood of material misstatement in the sales account.

Additional supplemental tests show that auditors rated the likelihood of material misstatement in research and development high regardless of the condition. Supplemental tests also show the auditors in the real transaction earnings management condition report significantly higher likelihood assessments in the financial statements, sales, selling and marketing expenses, and general and administrative expenses than the auditors in the accrual transaction earnings management conditions when the sample is limited to Big-4 and national non Big-4 firms. An interesting unexpected finding is that the variances are not equal between experimental

conditions in the general and administrative expenses likelihood assessment. This finding can be interpreted to mean that auditors reach the same mean conclusion between the groups, but that their level of agreement differs between conditions.

The independent variable, litigation risk, is not found to be significant in any of the analyses that include only professional subjects. When students from the pilot test are examined with the professional subjects, litigation risk is significant in the sales assessment. This finding may mean that as auditors gain experience the direction of potential misstatements (income increasing or income decreasing) does not change an auditors assessment of the likelihood of material misstatement in the planning stages of an audit.

This study provides confirming scale reliability evidence of the Kerler and Killough (2009) five question auditor trust scale. However, in this study a shortened four question trust scale is more reliable. Further, the results indicate that auditors with more external audit experience are less trusting of the experimental client, but the lower trust does not translate into a significant change in the likelihood of material misstatement assessments.

The remainder of this paper is organized as follows. Chapter two introduces relevant background information and proposes the research hypotheses. Chapter three discusses the research method and provides more information about the experiment. Chapter four presents the experimental results. Chapter five concludes with a discussion of future research, current research limitations, and research implications.

Chapter Two

Literature Review and Hypothesis Development

Earnings Management

Earnings management has been the topic of over a hundred research papers and many literature reviews (Healy and Wahlen 1999; Kothari 2001). "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on accounting numbers" (Healy and Wahlen 1999) (page 368). This definition purposely excludes attempts by management to convey useful, non-misleading, information to financial statement users. The use of management judgment to mislead stakeholders apparent in this definition of earnings management implies management's intent to deceive others. The deception can be performed with methods that are consistent or inconsistent with Generally Accepted Accounting Principles (GAAP)[1]. Earnings management that is inconsistent with GAAP is also referred to as fraud. Statement on Auditing Standard No. 99 defines misstatements arising from fraudulent financial reporting as "intentional misstatements or omissions of amounts or disclosures in financial statements designed to deceive financial statement users where the effect causes the financial statements not to be presented, in all material respects, in conformity with generally accepted accounting principles (AU Section 316.06)". These definitions of fraud and earnings management are very similar in that both involve intent by management to deceive others through financial statements. However, to be

[1] Due to difficulty in economic performance measurement, accounting income is different than economic income and therefore financial statements in conformance with GAAP, do not report the true economic performance of the company. However, due to the subjective nature of GAAP, managers can make some accounting choices that are consistent or inconsistent with the economic performance of the company and still provide financial statements that are in conformance with GAAP.

classified as fraud the misstatement must be in violation of GAAP in addition to the required intent to deceive financial statement users.

Management may have recorded a specific transaction with the intent to convey appropriate information about the company or with the intent to deceive. Auditors are required to provide reasonable assurance that the financial statements are free of material misstatements. To provide this assurance, auditors must determine the adequacy of transactions and final balances recorded on the financial statements (AICPA 2006a). Auditors are unable to directly observe management's intent when recording certain transactions. However, auditors must use the information gathered in all stages of the audit to determine if management is using fraudulent financial statements to deceive financial statement users.

Through a survey of executives employed by Securities and Exchange registrant companies, Graham et al. (2005) find the survey respondents believe earnings are the most important metric considered by individuals outside of the company (Graham et al. 2005). Executives believe that the consensus analysts forecast and quarterly earnings from the same quarter last year are the most important earnings benchmarks for companies to reach (Graham et al. 2005). Executives also prefer smooth earnings to volatile earnings and are willing to sacrifice long-term value to maintain smooth earnings (Graham et al. 2005). This survey confirms research evidence (Burgstahler and Eames 2006) that concludes managers do manage earnings through real transactions as a result of market incentives.

Earnings Management Incentives

Earnings are managed for four distinct known reasons. First, as found in Graham et al. (2005), earnings are managed due to market incentives. These incentives include meeting or barely beating analyst earnings expectations, potential or current mergers and acquisitions, and

the smoothing of earnings. Second, earnings are managed due to outside regulatory and financing pressures such as taxes, anti-trust investigations, and loan covenants (Cahan 1992; Jones 1991; Sweeney 1994). Third, earnings are managed to increase manager or executive pay (Cheng 2004; Dechow and Sloan 1991; Healy and Kaplan 1985). Finally, when firms' earnings are down or when the firm experiences a change in management, the firm may write down many accruals at once, which is referred to as a "big bath" (DeAngelo 1988; Levitt 1998).

Managers participate in earnings management to increase and decrease current year earnings. Earnings are managed upward to meet analyst or management forecasts (Abarbanell and Lehavy 2003; Graham et al. 2005; Kasznik 1999), increase manager wealth (Cheng 2004; Dechow and Sloan 1991; Gaver et al. 1995; Guidry et al. 1999; Healy et al. 1987; Healy and Kaplan 1985; Holthausen et al. 1995), avoid corporate takeovers (DeAngelo 1988), receive financing or avoid missing debt covenants (Dechow et al. 1996; DeFond and Jiambalvo 1994), and increase earnings prior to a firm merger (Erickson and Wang 1999). Firms with consistent increases in earnings have higher returns, and as a result many managers wish to manage current year earnings up or down to maintain a steady stream of earnings increases (Barth et al. 1999; Bartov et al. 2002; Beatty et al. 2002; Graham et al. 2005; Kasznik and McNichols 2002). Firms may also manage earnings down due to potential regulatory intervention (Jones 1991; Key 1997; Petroni 1992), future buyouts (Perry and Williams 1994), to increase future manager wealth since the current year bonus is at its maximum (Healy and Kaplan 1985), or to take a current year "big bath" (DeAngelo 1988; Levitt 1998).

Earnings Management Methods

Regardless of the incentive to manage earnings, earnings can be increased or decreased through two main methods (Badertscher 2007; Zang 2007). The first method is to record accrual

transactions that increase or decrease earnings. The final accrual balance has been used in previous research to determine the likelihood of earnings management (Dechow et al. 2003; DeFond and Jiambalvo 1994; Pincus and Rajgopal 2002). The second method is real transaction earnings management. Management with the intent to deceive financial statement users through real transaction earnings management may decrease discretionary spending[2], reduce sales price to induce customers to buy earlier, or structure transactions to increase or decrease current year earnings (Bushee 1998; Dechow and Sloan 1991; Graham et al. 2005; Jackson and Wilcox 2000; Roychowdhury 2006; Song and Linsmeier 2007).

Auditor Detection of Earnings Management

Auditors have been referred to as the watchdog of public companies (Levitt 1998). Before an opinion is rendered, auditors gather information about all misstatements found during the course of the audit and determine, based on materiality, which misstatements require financial statement adjustments. Auditors are less likely to require adjustments for known earnings management attempts when the transactions and standards are precise (Nelson et al. 2002). Most previous research that examines the relationship between auditors and earnings management have considered factors related to auditor independence. Through the operational measures; discretionary accruals, real transactions, or audit adjustments, research has determined that the more independent an auditor is the less likely the auditee company is managing earnings (Bradshaw et al. 2001; Braun 2001; Francis et al. 1999; Francis and Krishnan 1999; Hackenbrack and Nelson 1996; Kadous et al. 2003; Kennedy et al. 1997; Kinney and Martin 1994; Libby and Kinney 2000; Nelson et al. 2002; Zhang 1999). These metrics are evaluated based on the final financial statement balance. Previous research has not examined the

[2] Discretionary accounts examined in previous research include general and administrative expense, advertising expense, and research and development expense (for example see Gunny 2005).

relationship of earnings management transactions to the auditor's evaluation of the likelihood of misstatements in the planning stages of an audit. This study investigates this relationship in the planning stages of an audit which allows the investigation of how one potential earnings management transaction affects auditors' assessed likelihood of misstatement in the audit.

This research explores if the ambiguity of information (operationalized as type of transaction [real or accrual]) used by management to increase or decrease net income (litigation risk) increases auditors' likelihood of misstatement assessment for other related accounts. The hypotheses questions as well as ambiguity, risk, and trust prior literature are discussed next.

Independent Variables

Ambiguity

Ambiguity has been defined many different ways in research. For the purposes of this research study, ambiguity is defined as the objectivity of information in the present time. This definition is similar to the intolerance of ambiguity definition used by Grenier et al. (2005): "Intolerance of ambiguity refers to a static component embedded in the present" (page 596). For the purposes of this study, ambiguity is manipulated through the type of information the auditor receives. Given a material change in research and development expense, auditors were given either an accrual transaction reason for the change (high ambiguity) or a real transaction reason for the change (low ambiguity). Auditors who receive a real transaction reason for the change can easily reduce the uncertainty surrounding the reason for the change by consideration of objective corroborating evidence of the existence or lack of existence of a given transaction. However, auditors who receive an accrual transaction reason for the change in research and development must rely on judgment to determine the appropriateness of the change in the

account. This judgment is inherently subjective as management and auditors may reach a different judgment regarding the correct recording of a given transaction.

Auditor ambiguity research has emphasized auditor reaction to structured versus unstructured accounting standards. Emmanuel and Garrod (2004) argue for ambiguity in the financial standards because the ambiguity allows managers to record transactions in a way that best reflects the underlying economics of those transactions. However, prior research and opinion pieces argue that auditors lower the amount of disagreements with their clients when ambiguity is high (Knapp 1987; Wahlen et al. 2000). Knapp (1987) finds that audit committees are more likely to agree with the auditors when there is low ambiguity and more likely to agree with management when high ambiguity is present. If management has an incentive to record transactions in a way that does not reflect the underlying economics of the transactions, it is the auditors' job to find and reduce this secondary incentive. However, if auditors are unable to challenge management's assertions, then management will be able to report deceiving information. Trompeter (1994) finds that as the range of acceptable GAAP alternatives decrease, partners are less influenced by client preferences. Wahlen et al. (2000) state "if auditors are forced to make judgments based on broad-based accounting principles, they face a potentially difficult and sensitive debate with management over the validity of their accounting judgment".

Once the financial statements are complete, Nelson and Kinney (1997) find auditors and financial statement users make more conservative decisions in low ambiguity situations and less conservative decisions in high ambiguity situations. When the ambiguity was at a moderate level, auditors displayed neither conservative nor aggressive decisions while financial statement users displayed conservative decisions (Nelson and Kinney 1997). The Nelson and Kinney

findings are specific to a loss situation and it is unclear if their findings would be the same in a gain situation.

The Zimbelman and Waller (1999) (ZW) study was conducted in an experimental laboratory with undergraduate students. ZW split the students into auditee and auditor groups and manipulated incentives to misstate for the auditee group and the ambiguity of the auditee's decision to misstate for the auditor group. ZW found that auditees (representative of company management) increased their misstatements more as the incentive to misstate increased. ZW further found that auditors increased their sample size as ambiguity increased regardless of the auditee's incentive to misstate. These results may indicate that as more ambiguity is introduced into the auditing environment, auditors will increase their substantive testing regardless of management's incentive to misstate.

These research findings lead me to make the following hypothesis (stated in alternative form):

> H1: Auditors will exhibit more conservatism in the high ambiguity situation than in the low ambiguity situation.

Risk

Risk may change the effect of ambiguity on auditors. For example, Guess et al. (2000) find that ambiguity increases the budgeted audit hours only when control and inherent risk are low. Hackenbrack and Nelson (1996) find that when engagement risk was set at the medium level, auditors allowed aggressive reporting that was justified through aggressive interpretation of the related accounting standard. However, auditors in the high engagement risk condition seemed to be more conservative and did not allow aggressive reporting justified through conservative interpretations of the standard. Individuals are risk-seeking in the loss position and risk-averse in the gain position (Smith et al. 2002). However, individuals are ambiguity averse in

both the gain and loss position (Molden and Higgins 2004; Smith et al. 2002). Psychology research has determined that ambiguity and risk are two distinct concepts, but stated future research needs to determine the relationship between ambiguity and risk (Grenier et al. 2005; Smith et al. 2002).

Auditors are exposed to many different types of risk. In this study, auditors were exposed to litigation risk. Auditors consider the risk of litigation when modifying or qualifying the audit opinion (Kida 1980; Krishnan and Krishnan 1996) and when requiring audit adjustments (Braun 2001). In total only about 50% of proposed audit adjustments are recorded in the final financial statements (Wright and Wright 1997). Prior research has reported fewer income increasing proposed auditor adjustments than income decreasing proposed auditor adjustments, but it is unclear if this finding is a result of a management bias to move earnings upwards or lack of auditor identification of potential income increasing adjustments (Braun 2001; Nelson et al. 2002; Wright and Wright 1997). Proposed audit adjustments that increase the reported net income are less likely to be recorded than proposed audit adjustments that decrease net income (Braun 2001; Wright and Wright 1997). Nelson et al. (2002) find in a survey that auditors were less likely to require adjustments for income decreasing earnings management attempts than income increasing earnings management attempts.

In this study, litigation risk was operationalized through the direction of the change in net income. Litigation risk has been operationalized through the direction of the net income change in at least two previous studies (Braun 2001; Nelson et al. 2002). Evaluations of auditor litigations find auditors are more likely to be named as a defendant in a litigation when income is overstated than when income is understated (Carcello and Palmrose 1994; Barron et al. 2001; Braun 2001; St. Pierre and Anderson 1984). Consistent with general risk and litigation risk

literature, I propose the following main effect hypothesis and the interaction effect exploratory research question (stated in alternative form):

> H2: Auditors will be more conservative (assess a higher likelihood of misstatement) when litigation risk is high (income increasing change) than when litigation risk is low (income decreasing change).
>
> E1: The level of litigation risk will change the relationship between ambiguity and auditor conservatism.

The hypothesized relationships are shown in table 2.1. In addition, this study investigates the role of trust as a mediator to the relationships defined in table 2.1. Trust is discussed next.

Table 2.1
Proposed Variable Relationships

Conceptual Variable	Operational Variable	Relationship	Dependent Variable	Hypothesis
Ambiguity	Type of Earnings Management [real (low) vs. accrual(high)]	Direct	Auditor Judgment (likelihood of material misstatement)	H1
Litigation Risk	Earnings Management Direction [income increasing (high) vs. income decreasing (low)]	Direct	Auditor Judgment (likelihood of material misstatement)	H2

Potential Mediator – Trust

Statement on Auditing Standard No. 99 (SAS 99) emphasizes the need for auditors to practice professional skepticism, defined as "an attitude that includes a questioning mind and a critical assessment of audit evidence (AU section 316.13)". The standard further states "professional skepticism requires an ongoing questioning of whether the information and evidence obtained suggests that a material misstatement due to fraud has occurred (AU section 316.13)". The fraudulent misrepresentation of financial information requires management's intent to deceive financial statement users through financial statements that are not in conformance with GAAP. Auditors must evaluate known information to determine the likelihood

of material misstatements in the audit. Based on the concept of professional skepticism, auditors should not trust management's assertions, and therefore should question information received from management and look for corroborating evidence.

Trust has been defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al. 1995). Although an auditor is required to obtain information that verifies management's assertions, the final audit opinion is in part based on trust. It is impractical to obtain one hundred percent audit assurance that the financial statements are free of material misstatements. Auditors determine the allowable audit risk prior to the beginning of an engagement and based on the risk of material misstatement, determine the amount of audit evidence needed to reduce the actual audit risk to be equal to or less than the allowable audit risk[3].

The final audit risk accepted by auditors represents the risk auditors are willing to accept that the audit, although executed appropriately, did not discover a material misstatement present in the financial statements. However, audit risk can also be viewed as the level of trust that an auditor places in management and the company[4] (Shaub 1996). The Mayer et al. (1995) definition of trust applies to audit risk because auditors gather evidence to provide reasonable assurance that the financial statements are free of material misstatement. However, at some point auditors must stop gathering evidence to verify management's assertions and determine that the evidence gathered is persuasive enough to justify trusting management's assertions.

[3] The audit risk model is defined by SAS 107, paragraph 25 as AR = RMM X DR where AR = Audit Risk, RMM = Risk of Material Misstatement and DR = Detection Risk. RMM can also be stated Inherent Risk X Control Risk.
[4] For example, if the final audit risk equals 5%, then the auditor is willing to accept a 5% risk that there is an undiscovered material misstatement in the financial statements and therefore based on the evidence gathered, has decided to trust management in the assertion that the financial statements are free of material misstatement.

In the planning stages of an audit, auditors are required by SAS 99 to consider the likelihood of material misstatement due to fraud. Specifically, SAS 99 requires auditors to question management, perform analytical procedures, consider fraud risk factors, and consider other information to determine the risks of material misstatement due to fraud in the planning stages of an audit. Kerler and Killough (2009) found that satisfaction with management in a previous audit engagement affects auditors' trust of management. Further, Kerler and Killough (2009) found that an overall unsatisfying (satisfying) experience did (did not) affect fraud risk assessments. Earnings management performed through non-GAAP transactions with the intent to deceive financial statement users is a form of fraud.

Kizirian et al. (2005) found an inverse relationship between the assessment of management integrity and financial statement errors. In addition, Kizirian et al. (2005) found auditors' assessment of management integrity is related to the audit's preliminary risk assessments. Due to these findings I ask the following exploratory questions:

> E2: Does trust mediate the relationship between ambiguity and auditors' likelihood of misstatement judgment?
>
> E3: Does trust mediate the relationship between risk and auditors' likelihood of misstatement judgment?
>
> E4: Does trust mediate the relationship between the interaction between ambiguity and risk and auditors' likelihood of misstatement judgment?

Chapter 3

Research Methodology

Participants

This study investigates auditors' likelihood of material misstatement decisions in the planning stages of an audit. To ensure that all subjects had participated in the planning stages of at least one audit, auditors with at least two years of audit experience were recruited to complete the study. Notwithstanding the attempt to recruit only auditors with at least two years of experience, some participants reported less than twenty-four months of external audit experience. The purpose of this study is not to evaluate the effect of experience on decision-making and it was not intended or designed to measure experience effects. Therefore, months of experience is controlled for when experience is found to be a significant factor.

The auditors were recruited from Big 4, national, regional, and local CPA firms located in the Southeastern Region of the United States. Auditors at different firm sizes may have different client and training experiences. This study was not developed to evaluate the different CPA firm types and therefore, this factor is controlled for when it is significant. The broad subject pool from multiple types of CPA firms enables this study to be more easily generalizable to all auditors. The subject response rate was approximately 24%[5]. This response rate is similar to previous accounting studies and is considered appropriate for the purposes of this study (for example see Graham et al., 2005 and Nelson et al., 2002).

A total of 85 responses were collected, however 14 subjects were removed from the sample because they either did not reply to the demographic questionnaire (9 subjects) or they

[5] The exact response rate can not be calculated because of the method of distribution. Many of the firm contacts were able to provide the exact number of individuals who received the study invitation email while other firm contacts were only able to give an estimate of the number of individuals who received the email.

had not participated in the planning stages of an audit (5 subjects). In total 71 subjects reported experience in the planning stages of an audit and were included in the final subject group. The subjects are employed at Big 4 (41%), international, national (non Big-4) (37%), regional (21%), and local (1%) CPA firms. They are staff (18%), senior (35%), manager (18%), senior manager (16%), and director / partner (11%) auditors at the firms. Total external audit experience is an average of 6.735 years. Subjects with less than 2 years of experience accounted for 21% of the subjects, while subjects with greater than or equal to 2 years of experience and less than 5 years of experience, greater than or equal to 5 years of experience and less than 10 years of experience, greater than or equal to 10 years of experience and less than 15 years of experience, and greater than or equal to 15 years of experiences accounted for 32%, 25%, 8%, and 13%, respectively of the responses. Only 27% of the subjects have participated in an audit in which a material fraud was discovered. The subject demographic information is summarized in Table 3.1.

Distribution of Experimental Materials

The experimental materials were distributed to auditors through firm contacts. Each firm contact sent an email to auditors in his or her firm with at least two years of experience. The email included a link to a website that contained a study cover letter. At the end of the cover letter, the subjects were prompted to take the survey. When the subjects continued past the cover letter website they were randomly sorted into one of four conditions. In all conditions, the subjects were given experimental company background information and statement of operations and then were prompted to answer likelihood of material misstatement, client trust, and demographic questions. Each part of the experiment is discussed in detail in the following paragraphs.

Table 3.1
Summary of Subject Demographic Information

Question	Category	Number	%
Firm	Big 4	29	41%
	National (non Big-4)	26	37%
	Regional	15	21%
	Local	1	1%
Rank*	Staff	13	18%
	Senior	25	35%
	Manager	14	18%
	Senior Manager	11	16%
	Director / Partner	8	11%
Years of Audit Experience	< 2 years	15	21%
	>= 2 years and < 5 years	23	32%
	>= 5 years and < 10 years	18	25%
	>= 10 years and < 15 years	6	8%
	>= 15 years	9	13%
Seen Fraud in an Audit	Yes	19	27%
	No	52	73%
*One subject did not answer the employee rank question			

Instrument Development

The instrument was developed in four distinct steps and is summarized in table 3.2. First, the experimental company was created and dependent variable questions were developed. Second, the initial instrument was distributed to PhD students to evaluate the readability of the instrument and the time required to complete the instrument. Third, students pilot tested the instrument. In the final development stage, a partner reviewed the instrument. The final instrument can be found in appendix A.

Table 3.2
Instrument Development Procedures

Step	Description	Summarized Results	Subjects
Initial Instrument Development	Created experimental company background information and financial statements as a composite of six companies in the software development industry. Wrote all experimental questions and directions.	First draft instrument	N/A
Pre-Test	Asked subjects to complete the instrument, to evaluate the instrument's readability and to document the time required to complete the instrument.	Modified all directions and questions that were documented as confusing. All subjects completed the instrument in less than thirty minutes.	8 accounting Ph.D. students with audit backgrounds
Pilot Test	Asked subjects to complete the instrument as if they were auditors.	Found the following results (changes made to the instrument are included in parentheses): - Litigation conceptual validity question answers indicated the question wording was confusing (reworded the questions) - Small effect size (increased salience of the research and development manipulation by stating this change increased (decreased) net income)	61 accounting masters students enrolled in a graduate level auditing course at a large state university
Partner Review	Asked subject to review the final instrument for realism, readability, and time requirements	The partner did not suggest any changes in a telephone interview. The final version was distributed to auditors.	1 partner with significant audit experience

Initial Instrument Development

The experimental company is in the software development industry. The software development industry provides a unique ambiguity manipulation through the appropriate capitalization of software research and development expenditures. According to The Statement of Financial Accounting Standard No. 86 (SFAS 86), companies are required to begin capitalizing software development expenses as soon as the project is deemed technologically feasible. Software is determined technologically feasible when either a detailed program design is created or when a working model is completed. Popular business press recognizes that the proper recording of software development expenditures is ambiguous due to the technologically feasible date evaluation (Koselka and Chakravarty 1986). Since the accounting standards for software research and development expenses are different than the standards for other types of

research and development expenses, a short summary of SFAS 86 is included in the company background information.

The company background information was developed as a composite of six Standard and Poors (S&P) mid-cap software development companies. To reduce any new client or new company effects on the likelihood assessments, the experimental company is an established company that has been an audit client for five years. The background information informs subjects that the company's current year earnings per share equals the consensus analysts forecast. The company background information also includes a description of selected accounting policies. The ambiguity experimental manipulation is embedded within the description of the research and development accounting policy and is discussed in the following independent variables section.

The comparative statements of operations were created using an average of six S&P 400 mid-cap software development companies. These companies were also selected to create the composite company background information. The 2005 statements of operations were averaged for the six companies to create the composite 2005 statements of operations. The percentage change in net income is held constant at 6% between the income increasing and income decreasing research and development adjustments to the statements of operations. However, the 2006 gross margin and expenses have been altered to be consistent with the appropriate directional change in net income. The statement of operations with an income decreasing adjustment to research and development expense (referred to later in the paper as income decreasing) contains a 12% increase to gross margin which is countered by a 14%, 15%, and 11% increase in selling and marketing expenses, research and development expenses, and general and administrative expenses, respectively. The statement of operations with an income

increasing adjustment to research and development expense (referred to later in the paper as income increasing) contains an 11% decrease to gross margin which is countered by a 14%, 15%, and 11% decrease in selling and marketing expenses, research and development expenses, and general and administrative expenses, respectively. The absolute value of the change in the expense accounts remains constant between the income increasing and income decreasing financial statements. The change in research and development expense is material as calculated by all income statement materiality measures presented by Pany and Wheeler (1989). These financial statements are consistent with income increasing and income decreasing earnings management. In the income increasing statement of operations the gross margin is less than the expected net income increase percentage and therefore expenses must be reduced to meet analyst expectations. Conversely, in the income decreasing statement of operations the gross margin is more than the expected net income increase percentage and therefore expenses are increased to meet analyst expectations.

Pre-Test

After the initial instrument was developed, eight accounting Ph.D. students completed the experimental materials. The Ph.D. students were either concentrating their studies in auditing or had previous audit work experience. Each Ph.D. student was asked to provide critical feedback on the readability of the case and the time required to complete the case. The Ph.D. students each took less than thirty minutes to complete the instrument and provided suggestions to make the directions and questions more readable. These suggestions were integrated into the instrument before the pilot test was conducted.

Pilot Test

The pilot test was distributed in class to students enrolled in a graduate level auditing course at a large Southeastern United States state university. The students were asked to complete the survey and also provide comments on any questions that were confusing. In total 61 students started and completed the study in the classroom environment. The students were able to complete the study in less than twenty minutes. All of the students had completed at least one audit class in addition to the graduate class and many of the students (43%) had participated in audit internships. Some questions were clarified and the ambiguity manipulation was made more salient as a result of the pilot test. The results of the student test suggest that the manipulation in the research and development account is salient to subjects and that there is an interaction between ambiguity and litigation risk.

Partner Review

A partner review was the final step in the instrument development process. An individual with previous experience as an audit partner at a Big 4 firm and current experience as an audit technical review director at a southeastern regional firm was sent all four versions of the research instrument. He was asked to review the instrument for realism, readability, and perceived time requirements to complete the instrument. After the partner reviewed the cases a telephone interview was conducted to discuss the instrument. He found that manipulating research and development was very realistic since he has found that this account is easy for the client to manipulate. He agreed with the likelihood assessment questions and felt that there would be some variance across conditions. He felt the trust questions may vary based on individual preferences and experience level rather than case information. Finally, he stated that overall the case was very realistic and was an appropriate length.

Dependent Variables

In this study auditors were asked to determine, on a nine-point scale, the likelihood of material financial statement misstatements. In addition, the auditors were asked to evaluate the likelihood of material misstatements of specific income statement accounts on the same scale. The nine-point scale was anchored on certain terms (certain of no misstatement and certain of misstatement). Next, the nine-point scale provided the terms low, medium, and high along with mid-points between each anchor and each term. Many auditors use a low, medium, and high scale to evaluate the likelihood of material misstatement. This nine-point scale gave them the low, medium, and high scale that is similar to their work papers, but allowed for more variance in their responses. The five likelihood assessments were presented to the subjects in random order. The likelihood of material financial statement misstatements is used in this study as the dependent variable because auditors must make this assessment in the planning stages of the audit (AICPA 2006d). Through the audit risk model, this assessment is used to determine the nature, timing, and extent of substantive testing to be performed during the financial statement audit (AICPA 2006b, AICPA 2006c, AICPA 2006e).

Independent Variables

The research project incorporates a 2 x 2 between subjects factorial design. The first factor, ambiguity, is manipulated through the descriptions provided in the company background information and is discussed further in the following paragraph. The second factor, litigation risk, is manipulated through the direction of the research and development expense account change (income increasing or decreasing) and was previously discussed in conjunction with the instrument development section.

The ambiguity experimental manipulation is embedded within the accounting policies that the subjects received. The high ambiguity group received an accrual accounting explanation for the change in research and development expense while the low ambiguity group received a real transaction explanation for the change. The exact explanations that auditors received can be found on table 3.3.

Table 3.3
Manipulation Sentence: Explanation for the change in the research and development account

		Litigation Risk	
		High (income increasing)	**Low (income decreasing)**
Ambiguity	**High (accrual)**	In the current year, XYZ began creating detailed program designs approximately six months earlier in the software design project life cycle than in previous years. This change increased current year net income.	In the current year, XYZ began creating detailed program designs approximately six months later in the software design project life cycle than in previous years. This change decreased current year net income
	Low (real)	In the current year, XYZ delayed program design spending scheduled for December 2006 to 2007. This change increased current year net income.	In the current year, XYZ expedited program design spending scheduled for 2007 to December 2006. This change decreased current year net income.

Content of Experimental Materials

Cover Letter

The cover letter informs the participants that the study will assist researchers in the development of a better understanding of auditor decision making. Additionally, the participants are informed that the responses are not traceable to the survey respondents. The participants are instructed to act as the senior or in-charge auditor in the planning stages of an audit. The subjects are informed that the instrument will take about thirty minutes to complete and are asked to continue only when they have time to devote to the task before beginning.

Financial Reporting Questionnaire

Conceptually, the dependent variable in this study is auditor judgment. Specifically, the research design evaluates how the ambiguity of information about one account affects auditors' evaluation of the likelihood of financial statement misstatements on the entire statement of operations. The research design also evaluates if the litigation risk changes this relationship and if trust mediates this relationship. The financial reporting questionnaire asks auditors to determine the likelihood of material misstatement in sales, sales and marketing expense, research and develop expense, general and administrative expense, and the financial statements as a whole. Finally, the auditors described the materiality measures used to evaluate the likelihood of material misstatements.

Auditors are required by Statement on Auditing Standards No. 99 to evaluate the likelihood of misstatements in the financial statements and to design the audit procedures accordingly. In response to a greater likelihood of misstatement, auditors may choose to perform more substantive testing, staff more experienced personnel, or change the timing of audit procedures (AICPA 2006d and AICPA 2006e). Therefore, the greater the percentage likelihood assessed by the subject, the larger the response to the independent variables.

Trust Scale

The trust scale used in this experiment was developed and validated in a forthcoming article in Journal of Business Ethics (Kerler and Killough 2009). The research surveyed trust measurement literature in psychology, management, and marketing and then modified the questions to fit the auditor – client relationship. Kerler and Killough's final auditor trust questionnaire reported a cronbach's alpha of 0.90. The auditor trust scale requests the auditor to rate his or her agreement with five questions on a 7-point scale ranging from strongly disagree to

strongly agree. Four of the five questions are positively worded while the fifth is negatively worded. To avoid potential problems with question ordering, the trust scale question order was randomized when presented to the auditors.

Demographic Questionnaire

The final portion of the research instrument requests the subjects complete a demographic questionnaire. This final series of questions ask the auditors to report information related to their work experience. The responses to these questions are used to control for potential variables that may alter the results of the study.

Chapter 4

Results

Preliminary Analysis

The preliminary analysis was separated into three distinct sections. First, the ambiguity manipulation check and litigation risk construct validity questions were evaluated. Next, the a priori intended statistical model's assumptions were verified. And finally, the completed studies were scanned to identify any subjects who may not have understood the study directions.

Manipulation Check – Ambiguity

Manipulation check questions can produce demand effects. Demand effects occur when subjects know, or presume to know, the research variables of interest and as a result respond or act differently than the subjects would under normal circumstances (Rosenthal, 1976). To reduce demand effects researchers may perform manipulation checks at the end of the study or choose to allow the results of the study to indicate that the manipulation was in fact salient to the subjects. In this research project, a specific manipulation check question was not asked. To allow the subjects to investigate the statement of operations and the background information thoroughly the subjects were able to go back to previous questions. If a manipulation check question had been included, subjects may have changed their responses to the instrument dependent variable questions.

To verify the subjects observed the ambiguity manipulation embedded in the study, the response to the research and development likelihood of material misstatement question is compared to the other four likelihood assessments. The subjects assessed the likelihood of material misstatement for research and development expenses to be statistically higher than that for the financial statements as a whole, selling and marketing expenses, and general and

administrative expenses. However, the subjects assess the likelihood of material misstatement for research and development expenses to be statistically equivalent to the assessment of sales. Statement on Auditing Standard No. 99 (SAS 99) requires auditors to assess the likelihood of fraud in the financial statements and specifies that sales revenue is a high risk area. Therefore it is reasonable that the likelihood of material misstatement in sales is assessed higher than the other areas of the audit. It is possible that the auditors also consider research and development to be a high risk area and rated the likelihood assessment accordingly. However, there is no audit standard that indicates research and development is a high risk area. Given these results I conclude that the research and development manipulation was observed either consciously or unconsciously by the subjects.

Construct Validity – Litigation Risk

Two litigation risk construct validity questions were included at the end of the financial reporting questionnaire. The auditors evaluated the likelihood of litigation risk when an income increasing or income decreasing material misstatement is reported in the financial statements. The results indicate that auditors believe that the audit firm is more likely to face litigation when the issued financial statement net income is materially overstated than when they are materially understated.

Tests of Statistical Assumptions

A priori I determined the best statistical tool to test the proposed hypotheses was an Analysis of Variance (ANOVA). There are three important assumptions that must be met to properly use an ANOVA. The first, second, and third assumptions are that the observations are independent, the distribution of the data is normal, and the variances of the groups are equal. The first ANOVA assumption, that the observations are independent, is met in this study. The data

were collected as a between-subjects study from several different firms and firm offices. In addition, the auditors were randomly assigned to one of the four experimental groups. Given the diversity of the subjects, the between-subjects design, and the random assignment, the observations between groups are independent. To test the normal distribution assumption, I evaluated the significance of the Shapiro – Wilk test. I reject the null hypothesis that the distributions are normal and therefore report additional supplemental non-parametric test results to verify the ANOVA results. The study measured five different likelihood of material misstatement assessments as the dependent variables. Each dependent variable is evaluated individually in addition to a combined evaluation in the results section. The equal variance assumption is evaluated separately for each dependent variable. According to the Levene Test of equal variances, the dependent variables of the likelihood assessments of material misstatement of the financial statements as a whole, sales, selling and marketing expenses, and research and development expenses have equal variances. However, as shown in table 4.1, I reject the null that the general and administrative expenses likelihood of material misstatement assessments variances are equal and perform additional supplemental non-parametric test results to verify the ANOVA results.

Table 4.1
Levene's Test of Equality of Error Variances

Dependent Variable Question: Likelihood of Material Misstatement Assessment	F	Significance
Financial Statements	0.916	0.438
Sales	1.352	0.265
Selling and Marketing Expenses	0.637	0.594
Research and Development Expenses	1.581	0.202
General and Administrative Expenses	2.423	0.073

I also use the Box's Test of the equality of variances to test the MANOVA equal variance assumption. As described in the results section, two MANOVA's were evaluated. The first MANOVA evaluates all likelihood of material misstatements together, while the second MANOVA excludes the research and development likelihood assessment. As shown in table 4.2, I am unable to reject the null hypothesis that the variances are equal and therefore do not perform any non-parametric MANOVA tests.

Table 4.2
Box's Test of Equality of Variances

MANOVA	Box's M	F	Significance
All Misstatement Assessments	47.411	0.907	0.649
All Misstatement Assessments except for Research and Development	33.493	0.993	0.477

Test of Main and Interaction Effects

I predicted that ambiguity (H1) and litigation risk (H2) will affect auditor judgment of the likelihood of material financial statement misstatement. In addition, I predicted that the interaction ambiguity X litigation risk (E1) will affect auditor judgment. To test the hypotheses, I compared means through five separate analysis of variance (ANOVA) models with ambiguity and litigation risk as independent variables and the likelihood of material misstatement assessments as the dependent variables. As shown in table 4.3, the power of the ANOVA tests increase when the alpha is raised from 0.05 to 0.10 and accordingly I choose to use 0.10 as my p-value significance test. Auditors were asked to rate the overall likelihood of material misstatement on the financial statements as well as the likelihood for four individual accounts. To reduce order effects, the instrument randomized the order of the dependent variable questions. Finally, to test all individual account likelihood assessments concurrently, I compared means through a multivariate analysis of variance (MANOVA) model with ambiguity and

litigation risk as independent variables and the individual account likelihood of misstatement assessments as the dependent variables. To understand the effects of a change in research and development on the other accounts in the financial statements, I also compare means through a MANOVA using all of the misstatement assessments except for the research and development assessment.

Table 4.3
Observed Power

Dependent Variable Question:	Litigation		Ambiguity	
Likelihood of Material Misstatement Assessment	Alpha = 0.05	Alpha = 0.10	Alpha = 0.05	Alpha = 0.10
Financial Statements	0.053	0.105	0.530	0.656
Sales	0.374	0.501	0.415	0.544
Selling and Marketing Expenses	0.123	0.204	0.338	0.462
Research and Development Expenses	0.053	0.105	0.067	0.126
General and Administrative Expenses	0.179	0.276	0.334	0.457

Tables 4.4 through 4.8, panel A present the results of the five ANOVAs. In addition, panel B of Tables 4.4 through 4.8, present the mean, estimated mean, and standard deviation of each group mean. The auditors were asked to assess the likelihood of misstatement in the financial statements as a whole, sales account, selling and marketing expenses, research and development expenses, and general and administrative expenses on a nine-point scale with higher numbers indicating a greater likelihood of misstatement. The responses indicate that auditors rated the sales and the financial statements as a whole likelihood of misstatement higher when ambiguity is low (real transaction) than when ambiguity is high (accrual transaction), but the auditors did not report significant differences in any other likelihood assessment. This finding is in the opposite direction than what was hypothesized and will be discussed in chapter five. I am unable to accept hypothesis one, which states that auditors will react more conservatively in high ambiguity situations than in low ambiguity situations.

The misstatement assessments do not indicate a significant difference between the levels of litigation risk (income increasing vs. income decreasing adjustments to research and development expense). Therefore, I am unable to reject the null hypothesis two which states that litigation risk likelihood of material misstatements will be equal. In addition, I am unable to reject the null that there is no interaction between ambiguity and litigation risk (E1).

Table 4.4
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Financial Statements Assessment

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Financial Statements*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	6.258	1.626	0.192
Litigation	1	0.039	0.031	0.862
Ambiguity	1	5.474	4.268	0.043
Litigation x Ambiguity	1	0.933	0.728	0.397
Error	67	85.939		

R Squared = 0.068 (Adjusted R Squared = 0.026)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.70	4.661	1.104	33
Low	4.61	4.614	1.198	38
Ambiguity:				
High (accrual)	4.37	4.358	1.114	35
Low (real)	4.92	4.917	1.131	36
Litigation x Ambiguity:				
High/High	4.27	4.267	1.163	15
High/Low	5.06	5.056	0.938	18
Low/High	4.45	4.450	1.099	20
Low/Low	4.78	4.778	1.309	18

Table 4.5
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Sales Assessment

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	10.320	2.074	0.112
Litigation	1	4.588	2.765	0.101
Ambiguity	1	5.205	3.138	0.081
Litigation x Ambiguity	1	0.783	0.495	0.495
Error	67	111.144		

R Squared = 0.085 (Adjusted R Squared = 0.044)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	5.18	5.167	1.424	33
Low	5.66	5.678	1.192	38
Ambiguity:				
High (accrual)	5.17	5.150	1.175	35
Low (real)	5.69	5.694	1.411	36
Litigation x Ambiguity:				
High/High	5.00	5.000	1.309	15
High/Low	5.33	5.333	1.534	18
Low/High	5.30	5.300	1.081	20
Low/Low	6.06	6.056	1.211	18

Table 4.6
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Selling and Marketing Expenses Assessment

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Selling and Marketing Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	6.441	1.194	0.319
Litigation	1	1.147	0.638	0.427
Ambiguity	1	4.390	2.441	0.123
Litigation x Ambiguity	1	0.366	0.204	0.653
Error	67	120.489		

R Squared = 0.051 (Adjusted R Squared = 0.008)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.39	4.378	1.478	33
Low	4.11	4.122	1.226	38
Ambiguity:				
High (accrual)	3.97	4.00	1.272	35
Low (real)	4.50	4.500	1.384	36
Litigation x Ambiguity:				
High/High	4.20	4.200	1.474	15
High/Low	4.56	4.556	1.504	18
Low/High	3.80	3.800	1.105	20
Low/Low	4.44	4.444	1.294	18

Table 4.7
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Research and Development Expenses Assessment

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Research and Development Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	0.837	0.171	0.915
Litigation	1	0.049	0.030	0.863
Ambiguity	1	0.251	0.154	0.696
Litigation x Ambiguity	1	0.472	0.290	0.592
Error	67	108.994		

R Squared = 0.008 (Adjusted R Squared = -0.037)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	5.24	5.244	1.200	33
Low	5.18	5.192	1.312	38
Ambiguity:				
High (accrual)	5.14	5.158	1.192	35
Low (real)	5.28	5.278	1.323	36
Litigation x Ambiguity:				
High/High	5.27	5.267	1.280	15
High/Low	5.22	5.222	1.166	18
Low/High	5.05	5.050	1.146	20
Low/Low	5.33	5.333	1.495	18

Table 4.8
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's General and Administrative Expenses Assessment

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's General and Administrative Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	8.080	1.598	0.198
Litigation	1	1.855	1.101	0.298
Ambiguity	1	4.055	2.407	0.126
Litigation x Ambiguity	1	2.050	1.217	0.274
Error	67	112.906		

R Squared = 0.067 (Adjusted R Squared = 0.025)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.18	4.144	1.550	33
Low	3.82	3.819	1.062	38
Ambiguity:				
High (accrual)	3.74	4.222	1.268	35
Low (real)	4.22	3.742	1.333	36
Litigation x Ambiguity:				
High/High	3.73	3.733	1.486	15
High/Low	4.56	4.556	1.542	18
Low/High	3.75	3.750	1.118	20
Low/Low	3.89	3.889	1.023	18

In addition to evaluating each likelihood assessment separately through five different ANOVAs, I also evaluated all of the likelihood assessments jointly through a MANOVA. The results of the MANOVA, summarized in table 4.9, panel A are consistent with the results of most of the ANOVAs. To understand the use of research and development information in other likelihood assessments, I also evaluated the remaining four likelihood assessments through a

MANOVA. The results of the second MANOVA are presented in table 4.9, panel B and are consistent with most of the previously reported ANOVA results.

The error variances reported in one of the five ANOVAs are not equal and therefore violate the ANOVA assumptions. To better understand the different distributions among experimental groups, I evaluated the error variances. I report the Levene's test F-statistic, the significance of the statistic and the standard deviation of each group for the likelihood of material misstatement in general and administrative expenses in table 4.10. The variance included in the ANOVA of the general and administrative expenses likelihood assessment is not equal. To determine the reason for the differences in variances between groups, I evaluated the Levene statistic separately for each main effect. A Levene statistic significance equal to or less than 0.05 indicates the variances are not equal. The litigation risk main effect in the general and administrative expenses assessment reports a significant Levene statistic and therefore the variances of the litigation groups are not equal. The general and administrative expense likelihood assessment ambiguity main effect reports an insignificant Levene statistic and is therefore considered statistically equal. These statistics lead me to conclude that the overall ANOVA's unequal variances in the general and administrative expenses assessment are at least partially due to variance differences in the litigation risk main effect. However, the ANOVA's unequal variances may be due to a combination of factors including the variance differences in the litigation risk main effect.

Table 4.9
MANOVA Results

Panel A – Dependent Variables are the Likelihood of Material Misstatement in the Financial Statements as a whole, Sales, Selling and Marketing Expenses, Research and Development Expenses, and General and Administrative Expenses

Effect	Test	Value	F-Stat	Sig.
Intercept	Pillai's Trace	0.966	3.565	0.000
	Wilks' Lambda	0.034	3.565	0.000
	Hotelling's Trace	28.298	3.565	0.000
	Roy's Largest Root	28.298	3.565	0.000
Litigation	Pillai's Trace	0.088	1.215	0.312
	Wilks' Lambda	0.912	1.215	0.312
	Hotelling's Trace	0.096	1.215	0.312
	Roy's Largest Root	0.096	1.215	0.312
Ambiguity	Pillai's Trace	0.089	1.236	0.303
	Wilks' Lambda	0.911	1.236	0.303
	Hotelling's Trace	0.098	1.236	0.303
	Roy's Largest Root	0.098	1.236	0.303
Litigation * Ambiguity	Pillai's Trace	0.060	0.802	0.553
	Wilks' Lambda	0.940	0.802	0.553
	Hotelling's Trace	0.064	0.802	0.553
	Roy's Largest Root	0.064	0.802	0.553

Panel B – Dependent Variables are the Likelihood of Material Misstatement in the Financial Statements as a whole, Sales, Selling and Marketing Expenses, and General and Administrative Expenses

Effect	Test	Value	F-Stat	Sig.
Intercept	Pillai's Trace	0.962	4.025	0.000
	Wilks' Lambda	0.038	4.025	0.000
	Hotelling's Trace	25.159	4.025	0.000
	Roy's Largest Root	25.159	4.025	0.000
Litigation	Pillai's Trace	0.088	1.542	0.201
	Wilks' Lambda	0.912	1.542	0.201
	Hotelling's Trace	0.096	1.542	0.201
	Roy's Largest Root	0.096	1.542	0.201
Ambiguity	Pillai's Trace	0.074	1.283	0.286
	Wilks' Lambda	0.926	1.283	0.286
	Hotelling's Trace	0.080	1.283	0.286
	Roy's Largest Root	0.080	1.283	0.286
Litigation * Ambiguity	Pillai's Trace	0.051	0.868	0.488
	Wilks' Lambda	0.949	0.868	0.488
	Hotelling's Trace	0.054	0.868	0.488
	Roy's Largest Root	0.054	0.868	0.488

Table 4.10
Investigation of Experimental Group
Unequal Error Variances

Likelihood of Material Misstatement in General and Administrative Expenses			
	Levene's Test F-Stat	**Sig. Of Levene's Test**	**Standard Deviation**
Overall	2.423	0.073	
Ambiguity	0.025	0.874	
Real			1.333
Accrual			1.268
Litigation Risk	6.674	0.012	
Income Inc.			1.550
Income Dec.			1.062

Tests of Exploratory Research Questions

I ask the exploratory research questions: will trust mediate the relationship between auditor misstatement likelihood assessment and ambiguity (E2), will trust mediate the relationship between auditor misstatement likelihood assessment and litigation risk (E3), and will trust mediate the relationship between auditor misstatement likelihood assessment and the interaction between ambiguity X litigation risk (E4). Since the hypothesized relationship were not significant tests for a trust mediator are not appropriate. However, several tests related to trust can be evaluated. Trust may be directly related to auditors' decision-making and therefore the following paragraph will discuss the relationship between auditor trust and decision-making that was highlighted during exploratory analysis. The trust scale that was used in this dissertation has only been used in one previous study. As a result, reliability tests of the trust scale are presented in the following paragraphs.

Table 4.11 reports the central tendency statistics of the five trust questions. The mean responses to the five statements ranged from 2.69 to 4.44 on a seven point scale where a

response of 1 (7) indicates the responder strongly disagreed (agreed) with the statement. The median responses of the five statements ranged from 2.00 to 4.00.

Table 4.11
Trust Scale Central Tendency Statistics

	Mean	Median	Std. Deviation	Range	Min.	Max.
I believe that XYZ Software, Inc.'s management are thoroughly dependable people.	3.97	4.00	1.00	5	1	6
XYZ Software, Inc.'s management will do everything possible to help me.	4.03	4.00	1.134	4	2	6
XYZ Software, Inc.'s management are like my friends.	2.69	2.00	1.305	4	1	5
XYZ Software, Inc.'s management plans to be helpful during future audits.	3.97	4.00	1.158	6	1	7
I do not think that XYZ Software, Inc.'s management is completely open in dealing with me.*	4.44	4.00	0.952	5	2	7

*Question was reverse coded for table presentation and for all analyses.

Kerler and Killough (2009) used confirmatory factor analysis to verify the five item scale and reported a Cronbach's Alpha of 0.90. This study found an overall Cronbach's Alpha of the trust scale statements of 0.708. In addition, as shown in table 4.12, if the scale statement, "XYZ Software, Inc.'s management are like my friends" is removed from the scale, the Cronbach's Alpha will increase to 0.73. Scales are considered reliable when the Cronbach's Alpha is equal to at least 0.7 (Carmines and Zeller, 1979). It is important to note that the original use of this scale in Kerler and Killough (2009) accompanied a manipulation of auditor trust. The current study did not directly manipulate trust and instead created a trust baseline through the continued client relationship reported in the experimental background information. The differences in the manipulation of trust may account for the study differences in the calculated Cronbach's Alpha.

Table 4.12
Trust Scale
Cronbach's Alpha if Item Deleted

	Cronbach's Alpha if Item Deleted
I believe that XYZ Software, Inc.'s management are thoroughly dependable people.	0.627
XYZ Software, Inc.'s management will do everything possible to help me.	0.572
XYZ Software, Inc.'s management are like my friends.	0.730
XYZ Software, Inc.'s management plans to be helpful during future audits.	0.713
I do not think that XYZ Software, Inc.'s management is completely open in dealing with me.	0.642

Trust's Relationship to the Manipulated Variables

To test the relationship between an auditor's trust and the auditor's likelihood of misstatement assessments, two average trust scores were calculated. The first average trust score (ATS_5) averages the responses to all five trust scale statements while the second average trust score (ATS_4) removes the responses given related to the "XYZ Software, Inc.'s management are like my friends" statement from the average since including this statement in the scale reduces the reliability in this setting.

Table 4.13 presents the correlations of both trust averages and each of the five likelihood assessments. Both trust averages are insignificantly negatively correlated in three of the five likelihood assessments.

Table 4.13
Trust and Likelihood Assessments
Correction Matrix

	Likelihood of material misstatements in XYZ's FS	Likelihood of material misstatements in XYZ's Sales	Likelihood of material misstatements in XYZ's Selling & Marketing	Likelihood of material misstatements in XYZ's R&D	Likelihood of material misstatements in XYZ's G&A	ATS_5	ATS_4
Likelihood of material misstatements in XYZ's Financial Statements	1	0.538**	0.379**	0.480**	0.678**	-0.166	-0.129
Likelihood of material misstatements in XYZ's Sales	0.538**	1	0.391**	0.385**	0.268*	0.008	0.025
Likelihood of material misstatements in XYZ's Selling & Marketing	0.379**	0.391**	1	0.427**	0.543**	0.152	0.158
Likelihood of material misstatements in XYZ's R&D	0.480**	0.385**	0.427**	1	0.392**	-0.110	-0.044
Likelihood of material misstatements in XYZ's G&A	0.678**	0.268*	0.543**	0.392**	1	-0.109	-0.084
ATS_5	-0.166	0.008	0.152	-0.110	-0.109	1	0.945**
ATS_4	-0.129	0.025	0.158	-0.044	-0.084	0.945**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

As shown in table 4.14 both versions of the trust scale are significantly negatively correlated with the number of months worked as an external auditor. This is an interesting finding because it suggests that as auditors gain more auditing knowledge, they become less trusting of their clients.

Table 4.14
Trust and External Audit Experience
Correlation Matrix

	ATS_5	ATS_4	How long have you worked as an external auditor?
ATS_5	1	0.945**	-0.338**
ATS_4	0.945**	1	-0.305**
How long have you worked as an external auditor?	-0.338**	-0.305**	1

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Supplemental non-parametric tests

Two violations of the ANOVA assumptions were reported in the previous section. First, the data of all five likelihood of material misstatement assessments are not normally distributed and second, the variances between groups are not equal in one out of the five likelihood of material misstatement assessments. To confirm the ANOVA main effect results reported, the Kruksal-Wallis non-parametric test was used to test for differences in the responses to the five likelihood assessments. The Kruskal-Wallis test is an extension of the Wilcoxon signed-rank statistic that can compare two independent samples (Gibbons and Chakraborti, 2003). According to the statistics presented in table 4.15, I am unable to reject the Kruskal-Wallis test null hypothesis that the litigation group means are equal and conclude that the non-parametric test produces similar results to the parametric ANOVA. I am able to conclude that the ambiguity main effect group means are not equal in the sales and financial statements assessments but am unable to reject the null hypothesis that the ambiguity main effects are equal in the selling and marketing, research and development, and general and administrative expenses. I conclude that the non-parametric tests report similar results as the ANOVA tests performed.

Table 4.15
Significance Results of Kruskal-Wallis Non-Parametric Test

	Significance	
Likelihood Assessment	**Litigation Risk**	**Ambiguity**
Financial Statements	0.731	0.078
Sales	0.159	0.056
Selling and Administrative Expenses	0.445	0.136
Research and Development Expenses	0.826	0.714
General and Administrative expenses	0.379	0.168

Supplemental Demographic Tests

Several supplemental tests were evaluated to determine if subject attributes changed the results of the study. Three areas were found that when taken into account change the results of the study. The first area is subject work experience, specifically total number of months external audit work experience and experience in the planning stages of an audit. The second area is the type of CPA firm in which the subject is employed. The third and final area is the trust score reported by the individuals.

This study strived to obtain subjects with at least two years of work experience. However, many individuals with less than two years of work experience completed the research. The results of the study including only individuals reporting 24 months or more of external audit work experience and experience in the planning phase of an audit are different than the results of the full study. As tables 4.16 and 4.17 show, limiting the sample to individuals with 24 months or more of external audit experience and experience in the planning phase of an audit makes the significance of the ambiguity variable change to 0.151 and 0.306 when the dependent variable is the likelihood of material misstatements in the financial statements and sales, respectively. This may indicate that the individuals with planning experience but less than 24 months of experience change the results of the study. Table 4.18 shows the results of the ANOVA with the likelihood of material misstatement in the selling and marketing expenses. The results of table 4.18 show a significant interaction between litigation risk and ambiguity. The results of the remaining two ANOVAs remain the same.

Table 4.16
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Financial Statement Assessment with out individuals with less than 24 months work experience

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Financial Statement*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	2.945	0.729	0.539
Litigation	1	0.020	0.015	0.904
Ambiguity	1	2.865	2.127	0.151
Litigation x Ambiguity	1	.257	0.191	0.664
Error	56	71.371		

R Squared = .040 (Adjusted R Squared = -.015)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.73	4.700	1.077	22
Low	4.66	4.662	1.211	35
Ambiguity:				
High (accrual)	4.46	4.450	1.105	28
Low (real)	4.90	4.912	1.175	29
Litigation x Ambiguity:				
High/High	4.40	4.400	1.174	10
High/Low	5.00	5.000	0.953	12
Low/High	4.50	4.500	1.098	18
Low/Low	4.82	4.824	1.334	17

Table 4.17
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Sales Assessment with out individuals with less than 24 months work experience

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	3	5.213	1.013	0.394
Litigation	1	0.714	0.416	0.522
Ambiguity	1	1.834	1.069	0.306
Litigation x Ambiguity	1	1.672	0.975	0.328
Error	56	90.928		

R Squared = .054 (Adjusted R Squared = .001)

Panel B: *Treatment Means*				
Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	5.41	5.408	1.469	22
Low	5.63	5.639	1.215	35
Ambiguity:				
High (accrual)	5.32	5.339	1.188	28
Low (real)	5.76	5.708	1.405	29
Litigation x Ambiguity:				
High/High	5.40	5.400	1.350	10
High/Low	5.42	5.417	1.621	12
Low/High	5.28	5.278	1.127	18
Low/Low	6.00	6.000	1.225	17

Table 4.18
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Selling and Marketing Expenses Assessment with out individuals with less than 24 months work experience

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Selling and Marketing Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	5.833	1.230	0.308
Litigation	1	0.029	0.180	0.893
Ambiguity	1	0.415	0.263	0.610
Litigation x Ambiguity	1	4.455	2.819	0.099
Error	53	83.746		

R Squared = .065 (Adjusted R Squared = .012)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.18	4.200	1.332	22
Low	4.14	4.154	1.240	35
Ambiguity:				
High (accrual)	4.00	4.089	1.186	28
Low (real)	4.31	4.265	1.339	29
Litigation x Ambiguity:				
High/High	4.40	4.400	1.265	10
High/Low	4.00	4.000	1.414	12
Low/High	3.78	3.778	1.114	18
Low/Low	4.53	4.529	1.281	17

The next experience related factor that changes the results of the study is the past participation in the planning stages of the audit. When evaluating the data obtained from all respondents including the 14 subjects dropped from the main analyses (5 for lack of experience in the planning stages of the audit and 9 for lack of information about experience) the results from the financial statements and sales ANOVAs are no longer significant. These results are

summarized in tables 4.19 and 4.20. The results of all other likelihood assessments remain the same.

Table 4.19
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Financial Statement Assessment, all respondents

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Financial Statements*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	2.500	0.557	0.645
Litigation	1	0.575	0.385	0.537
Ambiguity	1	1.558	1.042	0.310
Litigation x Ambiguity	1	0.396	0.265	0.608
Error	81	121.147		

R Squared = .027 (Adjusted R Squared = -.009)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.81	4.794	1.244	37
Low	4.63	4.628	1.196	48
Ambiguity:				
High (accrual)	4.57	4.574	1.233	42
Low (real)	4.84	4.848	1.194	43
Litigation x Ambiguity:				
High/High	4.59	4.588	1.460	17
High/Low	5.00	5.000	1.026	20
Low/High	4.56	4.560	1.083	25
Low/Low	4.70	4.696	1.329	23

Table 4.20
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Sales Assessment, all respondents

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	3	4.238	0.759	0.520
Litigation	1	1.179	0.633	0.428
Ambiguity	1	2.818	1.514	0.222
Litigation x Ambiguity	1	0.186	0.100	0.753
Error	81	150.774		

R Squared = .027 (Adjusted R Squared = -.009)

Panel B: *Treatment Means*				
Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	5.32	5.313	1.454	37
Low	5.54	5.551	1.288	48
Ambiguity:				
High (accrual)	5.26	5.248	1.251	42
Low (real)	5.63	5.616	1.448	43
Litigation x Ambiguity:				
High/High	5.18	5.176	1.425	17
High/Low	5.45	5.450	1.504	20
Low/High	5.32	5.320	1.145	25
Low/Low	5.78	5.783	1.413	23

The second demographic variable that could change the outcome of the reported ANOVAs is the CPA firm type. However, when CPA firm type is included as a covariate in the likelihood of material misstatement of the financial statements and sales analyses, ambiguity is significant at the 0.05 and 0.10 levels, respectively. The results of the ANCOVA are presented in table 4.21. The CPA firms were separated into three categories: Big 4, national, and all other CPA firms. Interestingly, as table 4.22 shows, the mean responses for individuals from each type

of CPA firm are not significantly different. The results of all other likelihood assessments remain the same when the covariate firm type is included in the analysis.

Table 4.21
Analysis of Covariance
Covariate: CPA Firm Type

Panel A: Likelihood of Material Misstatement in XYZ's Financial Statements Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	6.563	1.264	0.293
Firm Type	1	0.304	0.235	0.630
Litigation	1	0.031	0.024	0.878
Ambiguity	1	5.492	4.233	0.044
Litigation x Ambiguity	1	0.793	0.612	0.437
Error	66	85.635		

R Squared = .071 (Adjusted R Squared = .015)

Panel B: Likelihood of Material Misstatement in XYZ's Sales Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	12.240	1.849	0.130
Firm Type	1	1.919	1.160	0.285
Litigation	1	4.347	2.627	0.110
Ambiguity	1	5.161	3.118	0.082
Litigation x Ambiguity	1	0.500	0.302	0.584
Error	66	109.225		

R Squared = .101 (Adjusted R Squared = .046)

Table 4.22
Mean Descriptive Statistics
CPA Firm Type

Panel A: Likelihood of Material Misstatement in XYZ's Financial Statements Assessment

			95% Confidence Interval		
CPA Firm	**Mean**	**SD**	**Lower Bound**	**Upper Bound**	**N**
Big 4	4.66	1.111	4.227	5.083	29
National	4.50	1.304	4.048	4.952	26
Other	4.87	0.957	4.299	5.451	16

Panel B: Likelihood of Material Misstatement in XYZ's Sales Assessment

			95% Confidence Interval		
CPA Firm	**Mean**	**SD**	**Lower Bound**	**Upper Bound**	**N**
Big 4	5.62	1.147	5.130	6.112	29
National	5.38	1.472	4.866	5.903	26
Other	5.19	1.377	4.526	5.849	16

Finally, to evaluate the CPA firm type, I analyzed ANOVAs for only individuals who are currently employed at Big-4 or national non Big-4 CPA firms. The individuals at these firms are more likely to have observed potential earnings management associated with market pressures (analyst expectations) than auditors at regional and local CPA firms. As shown in tables 4.23 through 4.26, ambiguity is found to be significant in four of the ANOVAs (financial statements, sales, selling and marketing expenses, and general and administrative expenses). I used Levene's test of equality of error variances to evaluate the equal variance ANOVA assumption for each of the 4 ANOVAs reported in tables 4.23 through 4.26. I found that the variances are equal in all likelihood assessments except for the selling and marketing expenses assessment. I evaluated the responses to the selling and marketing expenses assessment through the non-parametric Kruskal-Wallis test and found similar results.

Table 4.23
Analysis of Variance for the Likelihood of Material Misstatement
in XYZ's Financial Statements Assessment
Including only Big-4 and National non Big-4 Auditors

Panel A: *Dependent Variable – Likelihood of Material Misstatements in Financial Statements*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	5.758	1.367	0.263
Litigation	1	0.150	0.107	0.745
Ambiguity	1	3.955	2.816	0.099
Litigation x Ambiguity	1	1.836	1.308	0.258
Error	51	71.624		

R Squared = .074 (Adjusted R Squared = .020)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.65	4.619	1.164	26
Low	4.52	4.514	1.243	29
Ambiguity:				
High (accrual)	4.31	4.298	1.192	26
Low (real)	4.83	4.836	1.167	29
Litigation x Ambiguity:				
High/High	4.17	4.167	1.193	12
High/Low	5.07	5.071	0.997	14
Low/High	4.43	4.429	1.222	14
Low/Low	4.60	4.600	1.298	15

Table 4.24
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Sales Assessment
Including only Big-4 and National non Big-4 Auditors

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	7.253	1.459	0.237
Litigation	1	2.198	1.327	0.255
Ambiguity	1	5.174	3.123	0.083
Litigation x Ambiguity	1	0.167	0.101	0.752
Error	51	84.493		

R Squared = .079 (Adjusted R Squared = .025)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	5.31	5.681	1.379	26
Low	5.69	5.280	1.228	29
Ambiguity:				
High (accrual)	5.19	5.173	1.234	26
Low (real)	5.79	5.788	1.320	29
Litigation x Ambiguity:				
High/High	4.92	4.917	1.311	12
High/Low	5.64	5.643	1.393	14
Low/High	5.43	5.429	1.158	14
Low/Low	5.93	5.933	1.280	15

Table 4.25
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's Selling and Marketing Expenses Assessment Including only Big-4 and National non Big-4 Auditors

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Selling and Marketing Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	8.848	2.222	0.097
Litigation	1	1.299	0.978	0.327
Ambiguity	1	6.534	4.923	0.031
Litigation x Ambiguity	1	1.015	0.765	0.386
Error	51	67.698		

R Squared = .116 (Adjusted R Squared = .064)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.27	4.232	1.373	26
Low	3.93	3.924	0.998	29
Ambiguity:				
High (accrual)	3.73	3.732	1.041	26
Low (real)	4.41	4.424	1.240	29
Litigation x Ambiguity:				
High/High	3.75	3.750	1.055	12
High/Low	4.71	4.714	1.490	14
Low/High	3.71	3.714	1.069	14
Low/Low	4.13	4.133	0.915	15

Table 4.26
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's General and Administrative Expenses Assessment Including only Big-4 and National non Big-4 Auditors

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's General and Administrative Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	10.000	2.080	0.114
Litigation	1	3.005	1.876	0.177
Ambiguity	1	4.956	3.093	0.085
Litigation x Ambiguity	1	1.909	1.191	0.280
Error	51	81.710		

R Squared = .109 (Adjusted R Squared = .057)

Panel B: *Treatment Means*

Source	Actual Mean	Estimated Mean	Standard Deviation	N
Litigation:				
High	4.19	3.686	1.550	26
Low	3.69	4.155	1.004	29
Ambiguity:				
High (accrual)	3.62	3.619	1.299	26
Low (real)	4.21	4.221	1.264	29
Litigation x Ambiguity:				
High/High	3.67	3.667	1.614	12
High/Low	4.64	4.643	1.393	14
Low/High	3.57	3.800	1.016	14
Low/Low	3.80	3.571	1.014	15

The third and final supplemental test that changed the results of the main ANOVA's was including the average trust score as a covariate. It is interesting to note, as previously reported, the auditor client trust score is not significantly correlated with the auditor's response to the likelihood assessments. However, as shown in tables 4.27 and 4.28 when the trust score is included as a covariate in the likelihood of material misstatement in the financial statements, sales, and selling and marketing expenses assessments the main effect of ambiguity becomes

significant at the 0.10 level. In addition, in the four question trust scale sales likelihood assessment, the litigation risk also is significant at the 0.10 level. The inclusion of trust as a covariate does not change the results of any other likelihood assessment ANOVAs.

Table 4.27
Analysis of Covariance
Covariate: Five Question Client Trust

Panel A: Likelihood of Material Misstatement in XYZ's Financial Statements Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	8.167	1.604	0.184
Auditor Trust Scale – 5	1	1.909	1.499	0.225
Litigation	1	0.042	0.033	0.856
Ambiguity	1	4.561	3.582	0.063
Litigation x Ambiguity	1	1.182	0.928	0.339
Error	66	84.030		

R Squared = .089 (Adjusted R Squared = .033)

Panel B: Likelihood of Material Misstatement in XYZ's Sales Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	10.573	1.573	0.192
Auditor Trust Scale - 5	1	0.252	0.150	0.700
Litigation	1	4.600	2.738	0.103
Ambiguity	1	5.420	3.226	0.077
Litigation x Ambiguity	1	0.858	0.511	0.477
Error	66	110.892		

R Squared = .087 (Adjusted R Squared = .032)

Panel C: Likelihood of Material Misstatement in XYZ's Selling and Marketing Expenses Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	10.834	1.540	0.201
Auditor Trust Scale - 5	1	4.394	2.498	0.119
Litigation	1	1.120	0.637	0.428
Ambiguity	1	5.546	3.153	0.080
Litigation x Ambiguity	1	0.628	0.357	0.552
Error	66	116.095		

R Squared = .085 (Adjusted R Squared = .030)

Table 4.28
Analysis of Covariance
Covariate: Four Question Client Trust

Panel A: Likelihood of Material Misstatement in XYZ's Financial Statements Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	7.428	1.446	0.229
Auditor Trust Scale - 4	1	1.169	0.910	0.344
Litigation	1	0.062	0.048	0.827
Ambiguity	1	4.815	3.749	0.057
Litigation x Ambiguity	1	1.151	0.896	0.347
Error	66	84.770		

R Squared = .081 (Adjusted R Squared = .025)

Panel B: Likelihood of Material Misstatement in XYZ's Sales Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	10.892	1.625	0.178
Auditor Trust Scale – 4	1	0.572	0.341	0.561
Litigation	1	4.733	2.825	0.098
Ambiguity	1	5.548	3.311	0.073
Litigation x Ambiguity	1	0.918	0.548	0.462
Error	66	110.572		

R Squared = .090 (Adjusted R Squared = .035)

Panel C: Likelihood of Material Misstatement in XYZ's Selling and Marketing Expenses Assessment

Source	Df	Sum of Squares	F	p-values
Corrected Model	4	10.808	1.536	0.202
Auditor Trust Scale – 4	1	4.367	2.482	0.120
Litigation	1	0.941	0.535	0.467
Ambiguity	1	5.425	3.084	0.084
Litigation x Ambiguity	1	0.669	0.380	0.540
Error	66	116.122		

R Squared = .085 (Adjusted R Squared = .030)

Supplemental Tests, Student Subjects versus Professional Subjects

To gain an understanding of the different decisions made by the student subjects in the pilot test and the professional subjects in the final experiment, ANCOVA's of each dependent variable were analyzed. The covariate is the subject group, either student or professional[6], while the remaining independent and dependent variables remained the same as in the primary analysis. As shown in table 4.29, the students rated the likelihood of material misstatement in sales statistically lower than the professionals (student mean equals 4.27; professional mean equals 5.45). This may be due to students' lack of knowledge of Statement on Auditing Standard Number 99, which states that sales should always be considered a high fraud risk account. In addition, as shown in table 4.30 when controlling for student versus professional group, the high litigation group (mean equals 4.40) rates the general and administrative expenses likelihood assessment statistically higher than the low litigation group (mean equals 3.84). There were no significant variables in the remaining three likelihood assessments (financial statements as a whole, selling and marketing expenses, and research and development expenses).

[6] All professional respondents were included in the professional group regardless of their planning experience. The professional subjects may have had additional training beyond the students and therefore may answer the questions differently.

Table 4.29
Analysis of Covariance for the Likelihood of Material Misstatement in XYZ's Sales Assessment
Combined Student and Professional Subject Analysis
Covariate: Group (student or professional)

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	4	54.434	7.101	0.000
Group	1	48.523	25.319	0.000
Litigation	1	0.078	0.041	0.841
Ambiguity	1	2.054	1.072	0.302
Litigation x Ambiguity	1	3.718	1.940	0.166
Error	139	266.393		

R Squared = .170 (Adjusted R Squared = .146)

Table 4.30
Analysis of Covariance for the Likelihood of Material Misstatement in XYZ's General and Administrative Expenses Assessment
Combined Student and Professional Subject Analysis
Covariate: Group (student or professional)

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's General and Administrative Expenses*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	4	13.008	1.736	0.146
Group	1	0.589	0.314	0.576
Litigation	1	11.081	5.914	0.016
Ambiguity	1	1.250	0.667	0.415
Litigation x Ambiguity	1	0.018	0.010	0.922
Error	139	260.430		

R Squared = .048 (Adjusted R Squared = .020)

The ANCOVA statistical tool was also used to control for subjects with less than two years of external audit experience in the combined pilot and final test data. Individuals with experience less than two years (means equals 4.48) reported a significantly lower sales likelihood assessment than individuals with two or more years external audit experience (mean equals 5.58)

(see table 4.31). While controlling for experience, high litigation risk groups (mean equals 4.38) report a significantly higher general and administrative assessment than the low litigation risk groups (mean equals 3.81) (see table 4.32). All other variables in the remaining three likelihood assessments were not significant.

Table 4.31
Analysis of Covariance for the Likelihood of Material Misstatement in XYZ's Sales Assessment
Combined Student and Professional Subject Analysis
Covariate: Experience (less than two years external audit experience or greater than or equal to two years external audit experience)

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's Sales*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	4	46.801	6.391	0.000
Experience	1	33.836	18.483	0.000
Litigation	1	0.295	0.161	0.689
Ambiguity	1	4.168	2.277	0.134
Litigation x Ambiguity	1	3.718	2.031	0.157
Error	123	225.168		

R Squared = .172 (Adjusted R Squared = .145)

Table 4.32
Analysis of Covariance for the Likelihood of Material Misstatement in XYZ's General and Administrative Expenses Assessment
Combined Student and Professional Subject Analysis
Covariate: Experience (less than two years external audit experience or greater than or equal to two years external audit experience)

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's General and Administrative Expenses*				
Source	Df	Sum of Squares	F	p-values
Corrected Model	4	11.144	1.502	0.206
Experience	1	0.518	0.279	0.598
Litigation	1	9.145	4.932	0.028
Ambiguity	1	0.028	0.015	0.903
Litigation x Ambiguity	1	0.143	0.077	0.781
Error	123	228.075		

R Squared = .047 (Adjusted R Squared = .016)

Finally, ANOVA's were analyzed using the combined student and professional subjects. As shown in table 4.33, the findings show that the high likelihood of litigation group (means equals 4.40) rated the general and administrative expenses likelihood assessment significantly greater than the low litigation group (mean equals 3.84). These findings are different from the findings with the professional group, which leads me to conclude that student subjects pay more attention to account overstatements than account understatements. There were no other significant variables in any of the remaining four likelihood assessment ANOVAs using the combined subject data.

Table 4.33
Analysis of Variance for the Likelihood of Material Misstatement in XYZ's General and Administrative Expenses Assessment
Combined Student and Professional Subject Analysis

Panel A: *Dependent Variable – Likelihood of Material Misstatements in XYZ's General and Administrative Expenses*

Source	Df	Sum of Squares	F	p-values
Corrected Model	3	12.419	2.220	0.088
Litigation	1	11.512	6.175	0.014
Ambiguity	1	1.226	0.657	0.419
Litigation x Ambiguity	1	0.023	0.012	0.912
Error	140	261.018		

R Squared = .045 (Adjusted R Squared = .025)

When analyzing the student versus professional subject results, it is important to note that the instruments received by the two groups have some differences and are not directly comparable. First, the students completed a paper version of the experiment while the professionals completed an electronic version. Second, the students completed the study in one sitting in a classroom whereas the professionals could complete the study at anytime in a 6 week period. Third, the professionals' version of the experiment included additional wording to make

the ambiguity manipulation more salient. Even given these differences, it is interesting for future research to determine if student and professional subjects responded differently.

Test of Non-Response Bias

There are multiple ways to reduce and statistically account for non-response bias (Korinek et al. 2007). However, non-response bias can not be completely removed from the results. To reduce non-response bias, auditors were encouraged to complete the study.This instrument was distributed through firm contacts to auditors. The firm contacts were asked to emphasize the importance of the completion of the instrument to potential subjects. Approximately 24% of auditors who received the instrument completed the task. A test for differences in responses from early and late responders revealed no differences.

Chapter 5

Discussion, Implications, and Limitations

Discussion and Summary

This study is the first research to attempt to determine the relationship between the method used to manipulate earnings and auditors' resulting decisions and also the relationship between the direction of the earnings manipulation and auditors' decisions. The results of this study provide limited evidence that the method of manipulation is inversely related to auditor's likelihood of material misstatements. Specifically, the results show that auditors rate the likelihood of material misstatements of sales and the financial statements as a whole higher when there is a real transaction earnings management in research and development present than when there is accrual transaction earnings management in research and development present. Additionally, supplemental tests show that when the sample is limited to auditors with at least two years of experience the likelihood of material misstatements in sales and the financial statements as a whole are no longer significant and the interaction between litigation risk and ambiguity in the general and administrative expenses assessment is significant. Finally, supplemental tests show that when the sample is limited to auditors currently employed at big-4 or national non big-4 firms that the level of ambiguity is significant in all likelihood assessments except for the research and development assessment. The level of litigation risk is not significant in the primary analysis or in any of the supplemental analyses. I will first discuss the type of earnings management results and then I will discuss the possible reasons for the direction of earnings management lack of results.

Auditors are required by the Statements of Auditing Standards to consider the likelihood of material misstatements in the financial statements in the planning stages of an audit. Auditors

did not rate the likelihood of material misstatement in the research and development account significantly different in the low and high ambiguity situations. Instead, auditors rated the likelihood of material misstatement of research and development relatively high (in comparison to the other assessments) in both conditions. It seems that auditors recognized earnings management may be present in the research and development account and rated the likelihood of material misstatement high in that account regardless of the earnings management method. What is interesting is that auditors used information about the research and development account when making likelihood assessments in the sales account (large firm auditors used the information in all likelihood assessments except for research and development).

Auditors rated the likelihood of material misstatement higher when real transaction earnings management was present (low ambiguity) than when accrual transaction earnings management is present (high ambiguity). This finding is in the opposite direction than what was hypothesized. There are two possible reasons for this finding. First, many opinion pieces have argued that when accounting standards are less precise auditors are less likely to disagree with clients (Wahlen et al. 2000; Knapp 1987). It is possible that auditors make this assessment as early as the planning stages of the audit by separating the types of transactions that can be easily disputed with the client from the types of transactions that cannot be easily disputed. Information that may ultimately lead to lower disagreements may be largely ignored or marginalized in the planning stages of an audit. A second possible reason for the unexpected relationship between the means may be due to the perception of the existence of accrual transaction earnings management when known real transaction earnings management is present. Real transaction earnings management causes a decrease in future cash flows of a firm (Gunny, 2005). As a result of this knowledge, auditors may assume that firms only perform real transaction earnings

management when all accrual transaction earnings management methods have been exhausted. If auditors make this assumption, then auditors may react differently to known real transaction earnings management than to known accrual transaction earnings management.

The group means for the litigation risk groups were not significantly different. The litigation risk was operationalized through the direction of the earnings management (income increasing or decreasing). The lack of differences could be due to one of two reasons. First, the lack of differences may be due to a low effect size coupled with low statistical power. Second, the lack of difference may be because the auditors did not consider litigation risk relevant in the likelihood of material misstatement assessments. According to SAS 109, auditors should consider inherent and control risk when determining the likelihood of material misstatement. Litigation risk, although important in the client acceptance and continuance decisions, may not be considered when evaluating inherent risk. Auditors are charged to give an opinion on the financial statements' conformance with GAAP. This charge does not include a directive to consider the direction of the nonconformance with GAAP. However, Nelson et al. (2002) found that auditors were more likely to require an income decreasing audit adjustment (income was overstated) than an income increasing audit adjustment (income was understated). The results of this study combined with the results of the Nelson et al. (2002) study may indicate that auditors react to increasing and decreasing earnings management attempts differently in the planning stages of an audit than in the final adjustment review of an audit.

This study is the first to use the trust scale developed by Kerler and Killough (2009). The use of the scale in the current study provides evidence that the trust scale is reliable. Despite the fact that auditor trust was not manipulated in this study, I reported a Cronbach's Alpha reliability statistic of 0.708. If the trust scale is modified by removing one question, the Cronbach's Alpha

reliability statistic increases to 0.73. Auditor client trust and the final likelihood of material misstatement assessments were not significantly correlated. However, both the five and four question version of the trust scale were negatively correlated in three out of the five likelihood assessments to months of external auditing experience. These results imply that more experienced auditors are less trusting of their clients, but the lack of trust does not affect the likelihood of material misstatement assessment in the planning stages of the audit.

Future research in this area should consider the low effect sizes reported in this study and take steps to make the research manipulations stronger or plan for a much larger sample size. In addition, the finding that the variances are not equal in the general and administrative likelihood assessment is interesting and should be further explored. In the trust area, future research should consider the use of both the four and five question trust scale to determine which scale is more robust to different situations and which scale is the most reliable. Finally, future research should concentrate on the different signals management gives auditors through the use of real and accrual transactions to determine if auditors should or should not react differently to these types of transactions.

One must use caution when applying these research results in future research or in practice. First, this experiment only manipulated two potential variables and does not fully represent the dynamic audit environment. Second, this research study only manipulated the reason for the change in research and development in the software development industry. The findings from this study may not apply to other financial statement accounts or business industries. Finally, the auditors were not obtained through a true random sample of the population and therefore the results may not be generalizable to all auditors.

The implications of the research findings are important in both research and audit practice. This is one of the first papers to behaviorally investigate how auditors react and incorporate real and accrual transactions into the auditors' assessment of the likelihood of material misstatements in the planning stages of an audit. A change in this assessment can alter the timing, nature, and extent of substantive testing of an audit and therefore should be of interest to researchers and auditors alike. Through an understanding of how auditors incorporate transactions into an audit plan, regulators and auditors may be able to better equip auditors with standards and practices that will prevent and detect earnings management before the financial statements are finalized. Researchers will be interested in the reliability of the Kerler and Killough trust scale and should concentrate future research on developing an understanding of how and why external auditor experience changes an auditor's trust.

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APPENDIX A – Experimental Instrument

Letter from the Researcher

Dear Participant,

I am a PhD student at Virginia Tech. This research experiment is part of my dissertation and I greatly appreciate your willingness to complete this study. The study will be used to develop a better understanding of auditor decision making. Virginia Tech's Institutional Review Board has approved the distribution of this study. Your name will not appear on the research and your responses will not be traceable to you. Your answers will only be used for research purposes. This study is voluntary and you may withdraw from the study at any time by clicking the exit survey link located at the top right of each webpage.

You should be able to complete the study in approximately thirty minutes. Please wait until you can devote your full undivided attention to the study before you begin. While completing the study, answer all questions as if you are the senior or in-charge auditor in the planning stages of an audit engagement.

Again, thank you for your participation. I know your time is valuable and I appreciate your willingness to help further research. If you have any questions regarding this research project or desire a copy of the final research report, please contact me at dpgarner@vt.edu.

When you are ready to proceed, please click the button below.

Company Background Information
XYZ software, Inc. creates, sells, and distributes software products designed to assist the electronics industry. XYZ has been listed on the NASDAQ stock exchange for four years and has been your firm's audit client for five years. XYZ can be found on the S&P 400 list of mid-cap firms. Approximately 5,000 individuals are employed by XYZ. XYZ's 2006 basic earnings per share of $0.53 is equal to the consensus analyst expectation.

XYZ's selected accounting policies
Revenue – XYZ receives revenue from the licensing of its internally generated software products and customer support agreements. Each software product is sold in conjunction with a one year service agreement. The service agreement can be renewed for a fee after the initial year of service. In accordance with SOP 97-2 as amended by SOP 98-9, XYZ records revenue for the software distribution in the year of the sale, but defers the service agreement portion of the purchase price until earned.

Sales and Marketing Expense – XYZ's primary customers are major electronics corporations as well as colleges and universities. XYZ's business plan is to retain current customers while maintaining a large diverse customer base in over 60 countries world-wide. No one customer accounts for over 3% of net sales.

Research and Development Expense – XYZ's management strives to continually improve current products and create new products for the dynamic electronics industry. In accordance with FASB No. 86, the company begins capitalizing development expenses when a new project is deemed technologically feasible through either a working model or a detailed program design. MANIPULATION SENTENCES [High Ambiguity & Net Income Increase (decrease) – "In the current year, XYZ began creating detailed program designs approximately six months earlier (later) in the software design project life cycle than in previous years. This change increased (decreased) current year net income."; Low Ambiguity & Net Income Increase – "In the current year, XYZ delayed program design spending scheduled for December 2006 to 2007. This change increased current year net income."; Low Ambiguity & Net Income Decrease – "In the current year, XYZ expedited program design spending scheduled for 2007 to December 2006. This change decreased current year net income."

General and Administrative Expense – XYZ's salary and depreciation expenses account for the majority of the general and administrative expense reported.

Comparative Income Statements – Income Increasing

Instructions: Before your audit engagement planning meeting, your staff prepared this preliminary comparative statement of operations. Please review so that you can make judgments regarding your perception of the likelihood of material misstatements.

XYZ Software, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Years Ended December 31					
	2006	**% of Sales**	**2005**	**% of Sales**	**2005 to 2006 Difference**	**% change**
Net Sales	$ 688,873	100%	$ 766,847	100%	$ (77,974)	-10%
Cost of Sales	158,441	23%	173,913	23%	(15,472)	-9%
Gross margin	530,432	77%	592,934	77%	(62,502)	-11%
Operating expenses:						
Selling and marketing	207,134	30%	240,853	31%	(33,719)	-14%
Research and development	154,937	22%	182,279	24%	(27,342)	-15%
General and administrative	78,471	11%	88,170	11%	(9,699)	-11%
Amortization	15,631	2%	15,325	2%	306	2%
Restructuring charges	7,127	1%	6,197	1%	930	15%
Other	1,598	0%	1,567	0%	31	2%
Total operating expenses	464,898	67%	534,391	70%	(69,493)	-13%
Income (loss) from operations	65,534	10%	58,543	8%	6,991	12%
Interest income and other expense, net	3,405	0%	4,102	1%	(697)	-17%
Other non-operating income (expense)	9,309	1%	11,353	1%	(2,044)	-18%
Income (loss) before income taxes	78,248	11%	73,998	10%	4,250	6%
Provision for (benefit from) income taxes	29,411	4%	27,814	4%	1,597	6%
Net income (loss)	$ 48,837	7%	$ 46,184	6%	$ 2,653	6%
Net income (loss) per share:						
Basic	$ 0.53		$ 0.50			
Diluted	$ 0.52		$ 0.49			
Weighted average shares used to compute basic and diluted net income (loss) per share						
Basic	92,510		92,368			
Diluted	94,398		94,253			

Comparative Income Statements – Income Decreasing

Instructions: Before your audit engagement planning meeting, your staff prepared this preliminary comparative statement of operations. Please review so that you can make judgments regarding your perception of the likelihood of material misstatements.

XYZ Software, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Years Ended December 31					
	2006	**% of Sales**	**2005**	**% of Sales**	**2005 to 2006 Difference**	**% change**
Net Sales	$ 851,200	100%	$ 766,847	100%	$ 84,353	11%
Cost of Sales	187,264	22%	173,913	23%	13,351	8%
Gross margin	663,936	78%	592,934	77%	71,002	12%
Operating expenses:						
Selling and marketing	274,572	32%	240,853	31%	33,719	14%
Research and development	209,621	25%	182,279	24%	27,342	15%
General and administrative	97,869	11%	88,170	11%	9,699	11%
Amortization	15,019	2%	15,325	2%	(306)	-2%
Restructuring charges	5,267	1%	6,197	1%	(930)	-15%
Other	1,536	0%	1,567	0%	(31)	-2%
Total operating expenses	603,884	71%	534,391	70%	69,493	13%
Income (loss) from operations	60,052	7%	58,543	8%	1,509	3%
Interest income and other expense, net	4,799	1%	4,102	1%	697	17%
Other non-operating income (expense)	13,397	2%	11,353	1%	2,044	18%
Income (loss) before income taxes	78,248	9%	73,998	10%	4,250	6%
Provision for (benefit from) income taxes	29,411	3%	27,814	4%	1,597	6%
Net income (loss)	$ 48,837	6%	$ 46,184	6%	$ 2,653	6%
Net income (loss) per share:						
Basic	$ 0.53		$ 0.50			
Diluted	$ 0.52		$ 0.49			
Weighted average shares used to compute basic and diluted net income (loss) per share						
Basic	92,510		92,368			
Diluted	94,398		94,253			

Aggressive financial reporting questionnaire
XYZ Software Questionnaire Part I
Instructions: After reviewing XYZ's background information and preliminary consolidated statements of operations, please determine the likelihood of material misstatements in the following financial statement accounts on a scale ranging from no likelihood of material misstatements to certain of material misstatements. While answering all questions, please assume you are the senior or in charge accountant assigned to this client working in the planning stages of the engagement. You may review the background information and statements of operations while completing this portion of the questionnaire.

1. **Likelihood of material misstatements in XYZ's 2006 financial statements.**

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7 --------- 8 --------- 9				
Certain of No Material Misstatement	Low Likelihood	Medium Likelihood	High Likelihood	Certain of Material Misstatement

2. **Likelihood of material misstatements in XYZ's 2006 sales.**

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7 --------- 8 --------- 9				
Certain of No Material Misstatement	Low Likelihood	Medium Likelihood	High Likelihood	Certain of Material Misstatement

3. **Likelihood of material misstatements in XYZ's 2006 selling and marketing expenses.**

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7 --------- 8 --------- 9				
Certain of No Material Misstatement	Low Likelihood	Medium Likelihood	High Likelihood	Certain of Material Misstatement

4. **Likelihood of material misstatements in XYZ's 2006 research and development expenses.**

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7 --------- 8 --------- 9				
Certain of No Material Misstatement	Low Likelihood	Medium Likelihood	High Likelihood	Certain of Material Misstatement

5. **Likelihood of material misstatements in XYZ's 2006 general and administrative expenses.**

1 --------- 2 --------- 3 --------- 4 --------- 5 --------- 6 --------- 7 --------- 8 --------- 9				
Certain of No Material Misstatement	Low Likelihood	Medium Likelihood	High Likelihood	Certain of Material Misstatement

Part II

Instructions: In the space provided below, please state the materiality threshold(s) you used in evaluation of the likelihoods of misstatement in part one:

_____

_____

_____

_____

_____

_____

_____

_____

Part III

Instructions: On a scale of strongly disagree to strongly agree, please indicate your agreement with the following statements:

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
I do not think that XYZ Software, Inc.'s management is completely open in dealing with me.	◯	◯	◯	◯	◯	◯	◯
XYZ Software, Inc.'s management plans to be helpful during future audits.	◯	◯	◯	◯	◯	◯	◯
I believe that XYZ Software, Inc.'s management are thoroughly dependable people.	◯	◯	◯	◯	◯	◯	◯
XYZ Software, Inc.'s management are like my friends.	◯	◯	◯	◯	◯	◯	◯
XYZ Software, Inc.'s management will do everything possible to help me.	◯	◯	◯	◯	◯	◯	◯

Instructions: Please select the likelihood of litigation filed against an audit firm on a scale of no litigation possible to certain of litigation in the following situations.

1. The likelihood of litigation against an audit firm when income is found to be materially overstated and the financial statements were issued with an unqualified audit opinion. (i.e. reported income was greater than actual income).

1	2	3	4	5	6	7	8	9
Certain of No Litigation		Low Likelihood		Medium Likelihood		High Likelihood		Certain of Litigation

2. The likelihood of litigation against an audit firm when income is found to be materially understated and the financial statements were issued with an unqualified audit opinion. (i.e. reported income was less than actual income).

1	2	3	4	5	6	7	8	9
Certain of No Litigation		Low Likelihood		Medium Likelihood		High Likelihood		Certain of Litigation

Background questionnaire
Instructions: Please answer each question to the best of your ability.

1. How many months have your worked in the following jobs:

Job Description	**Experience**
External Auditor	_____ years and _____ months
Internal Auditor	_____ years and _____ months
Full-time accounting-related or finance-related experience, other than auditing	_____ years and _____ months
Full-time general business experience (i.e., other business experience not listed in the prior responses)	_____ years and _____ months

2. Please circle the type of firm where you have been most recently employed.
   Big 4 **Regional**

   National **Local** **Non-public Accounting employment**

3. What is your current job title? (e.g. staff auditor, senior auditor, etc.)
   _____

4. How long have you held this title?
   _____years and _____months

5. You have participated in approximately _____ financial statement annual audits [public or private companies; please count each yearly financial statement audit separately].

6. You have participated in approximately _____ financial statement annual audits for SEC registrants.

7. You have participated in approximately _____ financial statement annual audits in which a material fraud was discovered.

8. Do you consider yourself an industry specialist? **Yes No**
   If yes, what industry?_____

9. Approximately what percentage of your chargeable hours in the past year were spent in the following industries?

Industry	**%**
Banking	
Government / Non-profit	
Manufacturing	
Software Development	
Other	

10. Are you a Certified Public Accountant (CPA)? **Yes** **No**