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The Effects of Directional Audit Guidance and Estimation Uncertainty on Auditor Confirmation Bias and Professional Skepticism When Evaluating Fair Value Estimates

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by

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DEDICATION

This work is dedicated to my husband and my two sons. To Archer, thank you for your unwavering support and encouragement throughout this process. I could not have accomplished this without you. To Cameron, you have consistently motivated and inspired me to reach deeper and, yes, ‘go for the gold’ in my endeavors. Thank you sweetpea! To Finn, you were but a glimmer in our eyes when this journey began yet you have played such a tremendous role in helping me to succeed. Thank you little one!

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ABSTRACT

In this study, I examine the effects of audit guidance and estimation uncertainty on auditors' confirmation bias and professional skepticism when evaluating fair value estimates. Fair value estimation is becoming more prevalent in financial reporting frameworks, and regulators warn that fair value estimation presents higher risk of material misstatement when greater judgment in estimation is involved. In addition recent evidence from the Public Company Accounting Oversight Board (PCAOB) indicates that some auditors may not be exercising sufficient professional skepticism when performing audit procedures in higher risk areas of the audit. Martin et al. (2006) suggest that it may be the audit standards themselves that orient auditors toward biased evaluation of management's estimates, suggesting that such directional audit guidance leads to confirmation bias. Further, it is possible that because of auditors' intolerance for ambiguity, that a greater degree of estimation uncertainty exacerbates the bias. Thus, I examine whether directional audit guidance (e.g., support management's estimate, and oppose management's estimate) versus non-directional audit guidance (e.g., develop own estimate) affects auditors' confirmation bias differentially under varying degrees of

uncertainty (e.g., low vs. high), and the extent to which this bias increases or decreases professional skepticism. The results show that auditors exhibit the greatest confirmation bias when they are directed to oppose versus support management's estimate or generate their own estimate, and that this bias increases the degree of professional skepticism exercised by auditors. Further, the greatest extent of confirmation bias resulted when auditors were directed to oppose management's estimate and estimation uncertainty was high. This study sheds light on the effects of directional versus non-directional audit guidance in the presence of uncertainty and should be informative to standard setters and practitioners as they press forward in issuing new audit guidance related to the evaluation of fair value estimates.

CHAPTER 1: INTRODUCTION

1.1 Background

Recent movements towards increased fair value reporting have brought into question the reliability[1] of fair value estimates, and consequently, the adequacy of audit guidance supporting the review of these estimates (e.g., International Standard on Auditing (ISA) 540). "In general, the U. S.-based research evidence suggests that disclosed fair value estimates for financial instruments include differing levels of reliability and that the variation in reliability is related to the extent to which fair value estimates include publicly observed markets-based information versus management-produced fair value estimates" (AAA FASC 2005, 190). These findings validate a concern regarding potential for biased (i.e., unreliable) values, particularly as management applies a high degree of discretion in determining the fair value estimate. Potential costs, such as investor losses, associated with biased reporting (whether intentional or unintentional) underscore the need for independent auditors to objectively assess management's estimates. Given that objective evaluation of evidence requires the auditor to exercise professional skepticism (AICPA 1997), it is imperative to examine whether auditors exercise professional skepticism in their evaluation of fair value estimates. It is also important to examine the guidance provided to auditors for examining fair values and to investigate unintentional consequences of such guidance.

[1] Schipper (2005) defines reliability in terms of the FASB's conceptual framework, as a combination of both verifiability and representational faithfulness. I use the terms "bias" and "reliability" interchangeably in regards to the representational faithfulness of the fair value estimate.

Historically, we have relied on the audit function to enhance the reliability of management judgment as used in financial reporting; however, prior research shows that auditors are subject to their own biases when reviewing information received from management (Kennedy 1993, 1995; McDaniel and Kinney 1995; Earley et al. 2008). In practice, auditors typically receive summary information from management about account balances and financial disclosures. The auditors then must gather evidence regarding management's reported values and disclosures to attest to the fairness of the information presented. In this process, management can be considered the "first mover" and the auditor the "second mover" (Earley et al. 2008), signifying that the auditor is predisposed to management's values, thus making it more difficult for the auditor to make objective evaluations. This sequence of events can be particularly problematic when management's reported values are optimistically biased, as can be the case with fair value estimates (Ramanna 2008; Mazza et al. 2008). Therefore it becomes imperative to evaluate the competence and objectivity of auditors who are charged with evaluating management's fair value estimates (Martin et al. 2006; Penman 2007), as well as the extent to which auditors exercise professional skepticism when evaluating these estimates.

Prior research shows that auditors suffer from various biases when making judgments about events with uncertain outcomes. For example, auditors have been shown to exhibit recency bias (e.g., Kennedy 1993), curse of knowledge bias (e.g., Kennedy 1995), and confirmation bias (e.g., Kida 1984) in making going concern judgments. Research, however, has not investigated whether these biases manifest in evaluating *fair value* estimates. Fair value estimates present a challenge for auditors because of the

uncertainty involved in their estimation, and are unique from other estimates primarily because of their measurement objective. The measurement objective of many accounting estimates is to forecast the outcome of one or more transactions, events or conditions giving rise to the need for the accounting estimate (e.g., bad debts expense and contingent liabilities) (IAASB 2009). By comparison, the measurement objective of many fair value estimates is expressed in terms of the value of a current transaction or financial statement item based on market prices at the measurement date (IAASB 2009, 4).[2] Earley et al. (2008, 1463) classify fair value estimation as a "more unstructured" task because, unlike other tasks where the auditor can ultimately receive feedback about actual outcomes, the actual outcome of fair value estimation might not be available at the time of the audit report. Feedback regarding actual outcomes is difficult to discern as "any observed outcome is invariably affected by events or conditions subsequent to the date at which the measurement is estimated for purposes of the financial statements" (IAASB 2009, 5). Thus, errors in fair value estimations may go undetected until some time after the issuance of the audit report, if at all.

Fair value estimates are also unique from other accounting estimates due to the potential complexity involved in their estimation and the numerous assumptions that management makes in deriving these estimates. Additionally, due to the first mover/second mover effect, auditors do not evaluate the fair value estimates independently of management's assumptions, allowing bias seeded in management's assumptions to persist should the auditor fail to exercise sufficient professional skepticism. Currently, over 40 accounting standards within GAAP require or permit

[2] The applicable reporting framework may require fair value measurement based on an assumed hypothetical current transaction between knowledgeable, willing parties in an arm's length transaction, rather than the settlement of a transaction at some past or future date (IAASB 2009, 4).

entities to use fair value measures (FASB 2006b), and as fair value becomes more prevalent in financial reporting biased estimations will have an increasingly pervasive effect on the overall fairness of the financial statements.

In addressing the complexity involved in fair value estimation, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 157 (FAS 157), *Fair Value Measurements*, which provides guidance for measuring and reporting fair value estimates (FVEs) in the financial statements and accompanying footnotes. While other standards have addressed fair value measurement, none has done so with as much specificity as FAS 157. FAS 157 is unique in the accounting literature in introducing and formalizing this estimate relative to other types of estimates (e.g., bad debts) (Trott 2009). Specifically, as part of its measurement framework, FAS 157 provides a fair value hierarchy that distinguishes between observable and unobservable inputs and recommends that valuation techniques should maximize the use of observable inputs and minimize the use of unobservable inputs (FASB 2006a, 10). Observable inputs are those that are based on market inputs obtained from sources independent of the entity, whereas unobservable inputs involve the entity's own assessment of the market participants' assumptions. The emphasis of FAS 157 on observable inputs is designed to curb both management's incentive and opportunity to bias FVEs. However, as transactions requiring FVEs increase in uniqueness and complexity, management relies solely on its own assumptions in arriving at a FVE, increasing the opportunity for management bias. Management bias is defined in ISA 540 as "a lack of neutrality by management in the preparation of information" (IAASB 2009,

5). Thus, management may intentionally or unintentionally bias the fair value estimate either upwards or downwards.

The nature and reliability of information available to management when making fair value estimates varies widely, which consequently affects the degree of estimation uncertainty associated with such estimates (IAASB 2009). ISA 540 defines estimation uncertainty as "the susceptibility of an accounting estimate and related disclosures to an inherent lack of precision in its measurement" (IAASB 2009, 5). The degree of estimation uncertainty (hereafter, uncertainty), provides for a greater range of judgments allowing for increased susceptibility to management bias; this, in turn, enhances the risk of material misstatement of accounting estimates (AICPA 2001; IAASB 2009; PCAOB 2009).

Recently, the Public Company Accounting Oversight Board (PCAOB) Standing Advisory Group (SAG) disclosed that "information obtained from the PCAOB's inspection and enforcement programs indicates that some auditors might not be exercising sufficient professional skepticism when performing audit procedures and evaluating results in higher risk areas of the audit" (PCAOB 2009, 2). Professional skepticism, which requires the auditor to adopt an attitude that includes a questioning mind and a critical assessment of audit evidence, is indicated by auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect (AICPA 1997; Nelson 2009). One way professional skepticism is reflected in a fair value setting is by the auditor's judgment that management's FVE is materially misstated, and the auditor's decision to adjust the dollar amount of the reported value in a downward (conservative) direction.

Martin et al. (2006) suggest that it could be audit standards themselves which orient auditors toward biased evaluation of management estimates, resulting in insufficient professional skepticism. For example, AU Sec. 332.35, *Auditing Derivative Instruments, Hedging Activities, and Investment in Securities*, states that "the auditor should obtain evidence *supporting* management's assertions about the fair value of derivatives and securities measured or disclosed at fair value" (AICPA 2000, emphasis added). Martin et al. (2006) suggest that directional guidance such as this could lead to a "confirmation bias" wherein the auditor searches for and gives greater weight to information that supports management's estimates at the expense of relevant information that disconfirms management's estimates. Kadous et al. (2008) note that "despite the prevalence of confirmation bias across decision settings and its potentially hazardous consequences, few studies have sought to identify situations in which confirmation bias is mitigated" (139). Following Kadous et al. (2008), Nelson (2009) suggests that future research should explore the underlying reasons for the prevalence of confirmation bias in auditing and calls for research investigating whether confirmation bias can be exploited in such a way as to promote professional skepticism via relatively simple means; i.e., reframing of the standards and professional guidance.

1.2 Purpose and Research Questions

The purposes of this paper are to examine whether current (as well as alternate) audit guidance and uncertainty magnify confirmation bias in auditors and the extent to which this bias increases or decreases professional skepticism. Specifically, I examine whether directional audit guidance (i.e., support/oppose management's estimate) versus non-directional audit guidance (i.e., develop own estimate) affects auditors' confirmation

bias differentially under varying levels of uncertainty (i.e., low vs. high), and how this bias consequently affects professional skepticism.

The research questions are:

(1) To what extent do auditors exhibit confirmation bias in evaluating management's fair value estimates under directional and non-directional audit standards?

(2) To what extent does estimation uncertainty affect the extent of confirmation bias exhibited by auditors when evaluating management's fair value estimates?

(3) Do the effects of audit guidance on confirmation bias depend on the extent of estimation uncertainty inherent in management's fair value estimate?

(4) Does confirmation bias affect the extent of professional skepticism exercised by auditors when evaluating management's fair value estimates?

1.3 Motivation

The role of auditors requires judgment during all phases of the audit, including planning, information gathering, and evaluation. Low-quality judgments can have serious consequences not only for auditors, but also for their firms, individuals relying on the work of the auditors, society and the economy as a whole (Bonner 2008). For example, Nelson (2009) notes that lack of professional skepticism has been identified as a primary cause of audit failure (Carmichael and Craig 1996), a contributor to the majority of SEC enforcement actions (Beasley et al. 2001), and a primary contributor to malpractice claims against auditors (Anderson and Wolfe 2002). Thus, it is important to investigate factors, such as audit guidance and uncertainty, which could potentially impair the quality

of judgments. This research is timely and relevant as indicated by the Public Company Accounting Oversight Board's (PCAOB) Standing Advisory Group (SAG) recent meeting to discuss the potential of a standards-setting project on auditing fair value measurements (PCAOB 2009).

Auditors' ability to objectively evaluate management's FVEs is important for several reasons. First, inability to objectively evaluate management's FVEs limits the extent to which users can rely on the corresponding financial statements. In the case of management-biased estimates, an orientation towards confirming evidence by the auditor increases the likelihood of undesirable outcomes because "potential risks and warning signals may be overlooked" (Jonas et al. 2001, 557). Second, lack of objectivity can expose the auditor to legal penalties as well as reputational losses. Third, if current audit guidance encourages auditors to engage in confirmation bias, it then becomes instructive for standard setters to know whether alternate wording can potentially mitigate this bias or alternatively exploit the bias in such a way as to increase professional skepticism (Nelson 2009). Lastly, given that FVEs vary in the degree of estimation uncertainty, and thereby risk of material misstatement, it is important to know how this uncertainty influences auditors' propensities toward exhibiting confirmation bias under current and alternate audit guidance, in addition to its underlying effects on professional skepticism.

Research investigating likely sources of auditor biases and errors when auditing fair value estimates is critical to maintaining the value and integrity of the audit. Of equal import is critical evaluation of the standards put forth by regulatory bodies to guide the auditor in evaluating the reasonableness of management's FVEs. As noted previously, AU Sec. 332.35 states that the auditor should obtain evidence supporting management's

assertions about the fair value of derivatives (AICPA 2000). Martin et al. (2006) warn that "auditors must be careful not to simply search for evidence that corroborates management's estimates, even though current audit guidance specifies that very approach" (289). They suggest that corroborative evidence can be readily and rather easily attained if that is the only evidence pursued. Instead, Martin et al. (2006) suggest that auditors should also consider information that could potentially *disconfirm* management's assertions. Performing a more balanced search for information requires individuals to exert more effort, making them more attentive to relevant cues and allowing them to process information more deeply (Kunda 1990). Thus, simple strategies such as reframing of the standards could be effective in reducing confirmation bias in auditors. Furthermore, focusing on disconfirming evidence could potentially serve to increase professional skepticism exercised in the evaluation of FVEs.

While the study of confirmation bias has a sound foundation in psychology literature, it remains important to examine and understand the phenomenon in accounting settings. Kida (1984) notes that most of the work on confirmatory strategies in psychology focuses on the areas of person perception, social interaction, and stereotyping, with students used as the primary subjects. It is questionable as to whether findings in psychology generalize to audit settings as the tasks required of audit professionals entail fundamentally different cognitive strategies in working problems related to their expertise (Joyce and Biddle 1981). The accounting setting differs from general settings not only with regard to levels of education and experience but also because accounting professionals are subject to regulatory constraints and are held accountable to multiple constituents. These circumstances would seemingly work to

discourage confirmation bias as accounting professionals would be motivated to be accurate in order to avoid professional and legal scrutiny from regulators and other stakeholders. Prior research, however, has demonstrated that confirmation bias does exist in a variety of accounting settings, particularly the tax setting (e.g., Cloyd & Spilker 1999, 2000; Kadous et al. 2008). However, Kadous et al. (2008) note that prior findings related to confirmation bias in a tax setting do not generalize to all accounting situations. Specifically, the authors assert that the finding that confirmation bias in tax preparers is significantly reduced for high-risk clients demonstrates that confirmation bias previously observed in low-risk settings does not generalize to high-risk settings, where it would be of most concern. Fair value auditing could potentially be an area of high risk for auditors because of the uncertainty involved in both deriving and auditing fair value estimates. The mixed evidence noted in the tax literature, as well as fundamental differences between the tax and audit settings (discussed below), precludes drawing any conclusions relative to the audit environment. These factors provide motivation for investigating whether confirmation bias in auditors is affected by the extent of uncertainty (thereby, risk) inherent in management's FVE.

While the tax setting provides a rich environment for confirmation bias to arise, because of the client advocacy role that tax professionals assume when they are retained by the client it is not known whether findings from the tax literature will generalize to the audit setting. Like tax professionals, auditors must often search through a great deal of authoritative literature and evidence to determine an appropriate accounting treatment or reporting method. Like tax professionals, auditors also have a desire to please and retain clients, suggesting that they may likewise be susceptible to a confirmation bias during

their search for evidence. Unlike tax professionals, however, auditors do not act as client advocates. Rather, auditors are public stewards and must evaluate evidence objectively and with professional skepticism. Professional skepticism in an audit setting requires that the auditor not be satisfied with evidence which is less than persuasive simply by virtue of a belief that management is honest (AICPA 1997). This ascribes to the auditor a role much closer to that of a watchdog than to a client advocate. This watchdog role, combined with reputation and litigation risk concerns, should mitigate the potential for a confirmation bias. Given these competing incentives, it is important to investigate whether auditors succumb to a confirmation bias in their search for information and whether this bias influences their judgments (Kadous et al. 2008; Trotman 2005) and professional skepticism (Nelson 2009).

The remainder of this dissertation is organized as follows: Chapter 2 reviews prior literature and develops the research hypotheses. Chapter 3 discusses the research design and method, as well as results from the pilot study. Chapter 4 presents the results of the study, and Chapter 5 concludes the dissertation with a discussion of the results, contributions, limitations, and potential implications for practice and future research.

CHAPTER 2: THEORY AND HYPOTHESES

2.1 Introduction

Before discussing the theory and hypotheses, I provide background information on several important concepts used in my research study. The literature review for this dissertation begins with a background of fair value reporting and describes the elements of fair value reporting that make it a topic of interest for academic research. This section focuses primarily on an important characteristic of fair value reporting, "uncertainty," and describes how this notion of uncertainty relates to auditor judgment in the presence of current and alternate guidance. Psychology and accounting literature are reviewed to provide a background for the research questions. Specifically, the psychology literature describes a potential judgment bias which may arise during the audit of fair value measurements (i.e., confirmation bias), while the accounting literature describes various accounting settings in which confirmation bias has been investigated. A synthesis of these streams of literature provides the basis for the hypotheses proposed in this study.

2.2 Background

2.2.1 Fair Value Reporting

There has been ongoing debate regarding whether financial reporting should move toward fair value reporting and away from historical cost reporting. While each of the methods has its merits and drawbacks, the past few decades have witnessed the development and implementation of standards which allow for increased reporting of assets and liabilities at their fair values (e.g. FAS 87 *Employer's Accounting for Pensions*

(FASB 1985), FAS 133 *Accounting for Derivative Instruments and Hedging Activities* (FASB 1998) and FAS 143, *Accounting for Asset Retirement Obligations* (FASB 2001)). More recently, the Financial Accounting Standards Board (FASB) issued Financial Accounting Standard (FAS) 157, *Fair Value Measurements*, which provides overall guidance on fair value reporting.

The need for FAS 157 arose from the various definitions of fair value as provided in other accounting pronouncements (e.g., FAS 13, *Accounting for Leases* and FAS 107 *Disclosure about Fair Value Instruments*) as well as the limited measurement guidance provided in these pronouncements. The purpose of FAS 157, therefore, is to enhance consistency and comparability in fair value measurements across companies. FAS 157 applies broadly to financial and nonfinancial assets and liabilities (e.g. derivative instruments), which are already covered by other authoritative accounting pronouncements. FAS 157 defines fair value and establishes a framework for measuring fair value, including a hierarchy of inputs and different valuation methods.

Fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (FAS 157, 6). Given that this definition assumes that the asset or liability is exchanged, the objective of a fair value measurement is to determine an exit price. The fair value measurement also assumes that the transaction to sell the asset or transfer the liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability (FAS 157, 7).

The fair value hierarchy distinguishes between observable and unobservable inputs. Inputs are market assumptions about fair value rather than entity (i.e., management) assumptions. These assumptions include judgments related to risk that are used by market participants in pricing assets and liabilities. FAS 157 recommends that the valuation techniques used to measure fair value should maximize the use of observable inputs and minimize the use of unobservable inputs (FAS 157, 10). Thus, the fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets and liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3) (FAS 157, 10).

As a result, FAS 157 and the increasing use of fair value reporting is controversial. Proponents of fair value reporting argue that (1) investors are concerned with value, not costs, (2) historical prices become irrelevant over time, (3) fair value reflects true economic substance, and (4) fair value represents an unbiased measurement that is consistent from period to period and across entities (Penman 2007; Barlev and Haddad 2003). Opponents, on the other hand, argue that fair values may be biased when (1) the firm arbitrages market prices, (2) fair values bring price bubbles into financial statements, (3) assets and liabilities are not matched, and (4) managers possess subjective biases (Penman 2007). Of particular interest to my study are the arguments made relative to bias in measurements. I do not distinguish between honest biases (i.e., natural optimism) and dishonest biases (i.e., artificial inflation of asset values) of managers, since the role of the auditor is to attest to the fairness of the estimates regardless of the source of the bias. To date the academic research supports opponents' arguments that fair value estimates are biased (e.g., Ramanna 2008; Mazza et al. 2008). In summary, the degree of

subjectivity involved in fair value estimation is greater for a Level 3 input versus a Level 1 input, and the broad range of judgments involved in fair value estimation (e.g., identifying primary markets, input levels, valuation techniques, etc.) calls into question the reliability of management's estimates and the importance of increased auditor scrutiny.

2.2.2 Auditing fair values

The prospect for managers to act opportunistically emphasizes the need for auditors to evaluate the reasonableness of management's estimates and assumptions. Of equal importance is critical evaluation of the standards put forth by regulatory bodies to guide the auditor in evaluating the reasonableness of management's FVEs. Auditors have the role of collecting sufficient competent audit evidence to provide reasonable assurance that fair value measurements reported in the financial statements are in conformity with GAAP (AICPA 2002). Paralleling U.S. standards, ISA 540 states that the objective of auditing fair value estimates is to "obtain sufficient appropriate audit evidence about whether: (a) accounting estimates, including fair value accounting estimates, in the financial statements, whether recognized or disclosed, are reasonable; and (b) related disclosures in the financial statements are adequate, in the context of the applicable financial reporting framework" (IAASB 2009, 5). Fair values present challenges for auditors because of the uncertainty involved in their estimations. Given the added risk associated with uncertainty, it is important for the auditor to understand the potential sources of uncertainty and management's role in deriving the fair values.

2.2.2.1 Estimation Uncertainty

As noted above, fair value measurements involve varying degrees of subjectivity and some are inherently more complex than others. This complexity can arise for various reasons, including the nature of the item being measured and the valuation method used to determine the fair value. AU Section 328, *Auditing Fair Value Measurements and Disclosures*, characterizes complex fair value measurements as those that involve greater uncertainty regarding the reliability of the measurement process, and also lists factors which may result in greater uncertainty. These factors include the length of the forecast period, the number of significant and complex assumptions associated with the process, a higher degree of subjectivity associated with the assumptions and factors used in the process, a higher degree of uncertainty associated with the future occurrence or outcome of events underlying the assumptions used, and lack of objective data when highly subjective factors are used (AICPA 2002). Similarly, International Standard on Auditing (ISA) 540 acknowledges that the degree of estimation uncertainty varies based on the nature of the accounting estimate, the extent to which a generally accepted method is used to make the estimate, and the subjectivity of the assumptions used in making the estimate (IAASB 2009).

The degree of estimation uncertainty associated with an accounting estimate may influence the estimate's susceptibility to bias, thus affecting the risk of material misstatement. Similar to AU Section 328, ISA 540 indicates that the degree of estimation uncertainty may be influenced by factors including the extent to which the estimate depends on judgment, the sensitivity of the accounting estimate to changes in assumptions, the existence of recognized measurement techniques that may mitigate the

estimation uncertainty, the length of the forecast period and the relevance of the data drawn from past events to forecast future events, the availability of data from an external source, and the extent to which the estimate is based on observable versus unobservable data (IAASB 2009). ISA 540 provides examples of accounting estimates involving relatively low estimation uncertainty and presumably lower risk of material misstatement. These include estimates that (1) arise from non-complex business transactions, (2) are frequently made because they relate to routine transactions, (3) are derived from readily available (i.e., observable) market data, and (4) require a simple, well-known, or generally accepted method of measurement. Alternatively, accounting estimates involving relatively high estimation uncertainty may be characterized by more complex assumptions, are highly dependent upon judgment, are not calculated using recognized measurement techniques, and use highly specialized entity-developed models for which there are no observable inputs (IAASB 2009).

As noted above, the subjectivity of management provided estimates increases with the extent of complexity (i.e., degree of estimation uncertainty). Similarly, the susceptibility of a fair value estimate to management bias increases with the degree of subjectivity involved in making it because of the unobservable (thus less verifiable) nature of the assumptions driving the estimation process (IAASB 2009).

In general, research finds that reliability of estimates increases when they are derived from actively traded market information (i.e., Level 1 input) versus internally (management) generated information (i.e., Level 3 input) (Barth 1994; Petroni and Wahlen 1995). Mazza et al. (2006 working paper) investigates the potential for earnings management in a Level 3 input (an asset retirement obligation), and they find that when

faced with a dilemma of choosing between self-interest and company-interest, financial executives with a performance-based bonus plan choose an amount that serves their self-interest. McEwen et al. (2008) find that financial analysts are aware of this potential for earnings management in Level 3 inputs. Specifically, they find that financial analysts expect firm managers to take advantage of the discretion allowed in determining the fair value of nonfinancial assets and liabilities (i.e., in Level 3 inputs). Interestingly, they find that analysts ignore management's biases in measuring fair values when it furthers the analysts' own self-interest related to stock price valuation assessments about the company. This suggests that even outside stakeholders take advantage of the innate subjectivity involved in the Level 3 inputs.

It has also been proposed that analysts will have problems in carrying out a quality analysis of fair value estimates because of the difficulty in discovering estimation errors, regardless of whether they are random or biased (Penman 2007). Given the incentive for management to bias estimates and the difficulty (or disincentives) users may have in unraveling errors, the competence and independence of monitors (i.e., auditors) must be evaluated (Penman 2007).

2.2.2.2 Audit guidance

AU Section 328 *Auditing Fair Value Measurements and Disclosures* (AICPA 2002) provides broad guidance on auditing fair value estimates and their related disclosures in the financial statements. For example, AU Section 328 prescribes that the auditor should obtain an understanding of the entity's process for determining fair value measurements (FVMs) and the relevant controls, assess the risk of material misstatement, evaluate whether the entity's method for determining FVMs is consistent, and whether to

use the work of a specialist. This section, however, does not provide specific guidance for how to audit selected assets and liabilities. Instead, AU 328 directs auditors to other standards for more specific guidance. AU 332, for instance, provides guidance for auditing derivative instruments, hedging activities, and investments in securities. Specifically, this standard says that "the auditor should obtain evidence supporting management's assertions about the fair value of derivatives and securities measured or disclosed at fair value" (AU Sec. 332.35, AICPA 2000). This standard provides auditors with a directional goal versus a non-directional goal. That is, the standard directs auditors to find evidence to *support* management's goals rather than to obtain objective evidence in order to assess the reasonableness of management's FVM. Martin et al. (2006) suggest that the wording of this standard can actually lead to a confirmation bias, wherein the auditor searches for information that supports management's estimates and either disregards or diminishes the weight given to disconfirming information.

AU Section 328 also suggests that the auditor may make an independent estimate of fair value to corroborate management's fair value estimate. When doing so, the auditor may use a self-developed model and may evaluate management's assumptions or develop his or her own assumptions. In either case, the auditor should understand management's assumptions and use that understanding to ensure that their own independent estimate takes into account all significant variables related to the estimate. This understanding will also assist in evaluating any significant differences from management's estimate.

ISA 540 advises the auditor to consider developing a point estimate or a range to evaluate management's estimate. This approach may be most appropriate when (1) an estimate is not derived from the routine processing of data by the accounting system, (2)

the auditor's review of similar estimates made in the prior period financial statements suggests that management's current period process is unlikely to be effective, (3) the entity's controls within and over management's processes for determining estimates are not well designed or properly implemented, (4) events or transactions between the period end and the date of the auditor's report contradict management's point estimate, and (5) there are alternative sources of relevant data available (IAASB 2009).

Alternatively, the auditor can search for information which disconfirms management's estimates. Currently, there are no audit standards which specifically direct the auditor to "disconfirm" management's assertions, however, fraud standards (e.g., SAS 99) are nuanced such that the auditor should not be satisfied with client-provided evidence on the belief that management is honest. SAS 99, *Consideration of Fraud in a Financial Statement Audit* (AICPA 2002), requires the auditor to exercise professional skepticism regardless of the auditor's belief about management's honesty and integrity, and "requires an ongoing questioning of whether the information and evidence obtained suggests that a material misstatement due to fraud has occurred" (AU 316.13). This wording implies that standard setters may consider a "questioning" or "disconfirming" approach to be a reasonable approach in areas that involve greater judgment and incentive for management bias, as is the case with fair value estimation because of the uncertainty involved and the higher risk of material misstatement. A disconfirming approach would serve to heighten the auditor's professional skepticism, thereby enhancing the likelihood that biased estimates are detected. Some may argue that a disconfirming approach would lead to an inefficient audit in cases where management's estimate is unbiased; however, the objective of this dissertation is not to determine the

appropriate balance between audit efficiency and effectiveness. Rather, the goal, as it relates to professional skepticism, is to determine whether audit guidance can be used to heighten auditors' professional skepticism.

2.2.2.3 Professional Skepticism

Nelson (2009) defines professional skepticism as "indicated by auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor" (1). Relative to other definitions provided in prior research and audit standards (e.g., SAS No. 1),[3] this definition takes more of a "presumptive doubt" than a "neutral" view of professional skepticism, suggesting that auditors who exhibit high professional skepticism need relatively more persuasive evidence (in terms of quality and/or quantity) to be convinced that an assertion is correct (Nelson 2009, 1). This definition is consistent with the wording found in fraud standards, as well as other areas where management has greater discretion (e.g., accounting estimates) (Nelson 2009). For example, SAS No. 57 states that accounting estimates are based on subjective, as well as objective factors, and given the potential for bias in the subjective factors auditors should consider both subjective and objective factors with an attitude of professional skepticism. Consistent with Nelson (2009), I adopt the "presumptive doubt" definition of professional skepticism to evaluate the extent to which auditors exercise professional skepticism in evaluating FVEs.

Nelson (2009) provides a model that describes how audit evidence combines with auditor knowledge, traits, and incentives to produce judgments and actions that reflect professional skepticism. (See Figure 1.) Of primary interest to my study is whether audit

[3] SAS No. 1 indicates that professional skepticism is "an attitude that includes a questioning mind and a critical assessment of audit evidence." AU 230.07-09 states that the auditor "neither assumes that management is dishonest nor assumes unquestioned honesty." (AICPA 1997)

guidance and uncertainty affect professional skepticism through their effect on auditors' confirmation bias during the evidential input phase.[4] (See Figure 2). Using Nelson's (2009) professional skepticism model as a foundation, I seek to explain how and why the predicted effects occur.

[4] Nelson (2009) defines evidential input as "any information collected and considered in the course of the audit" (6).

Figure 1: Professional Skepticism Model (Nelson 2009)

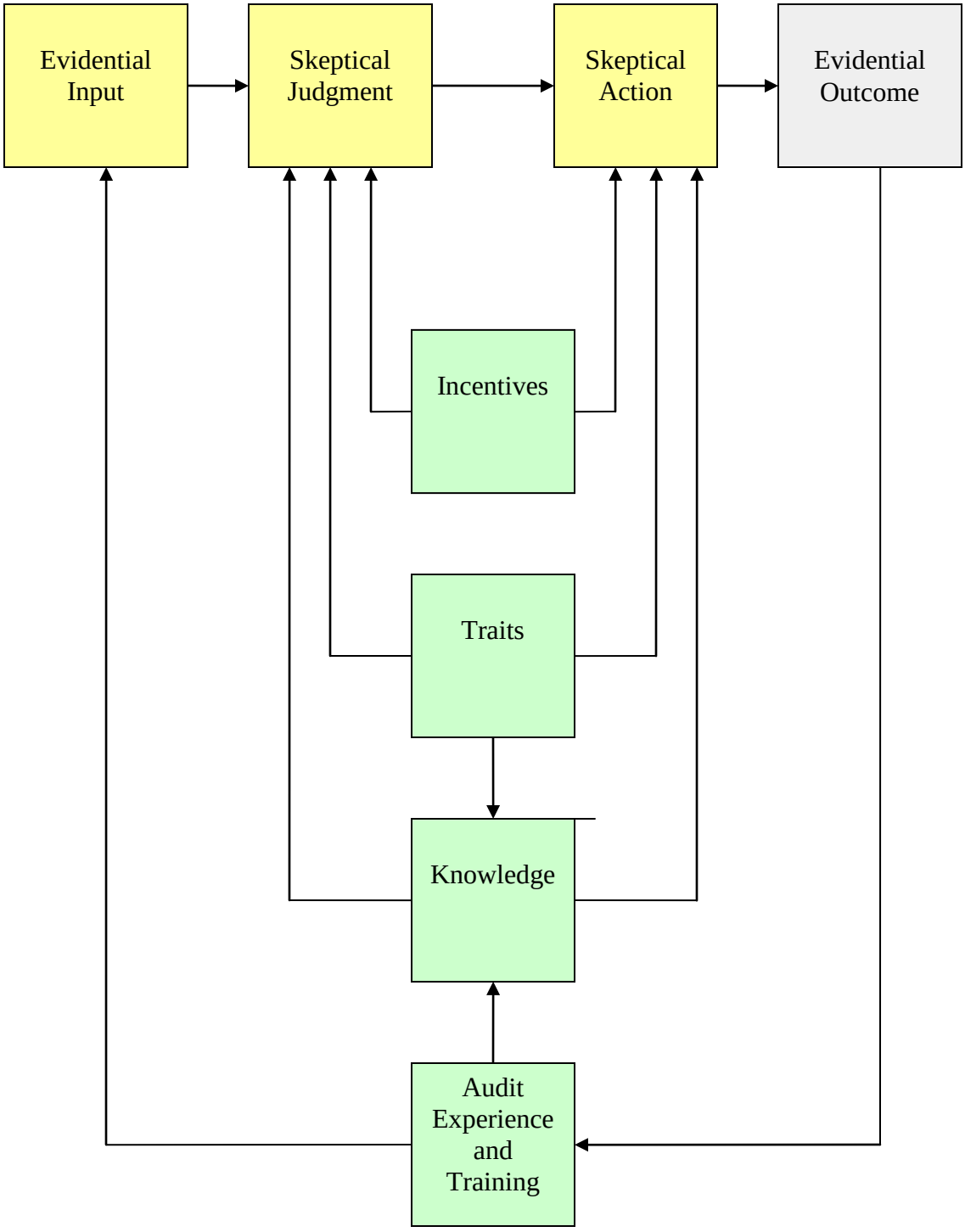
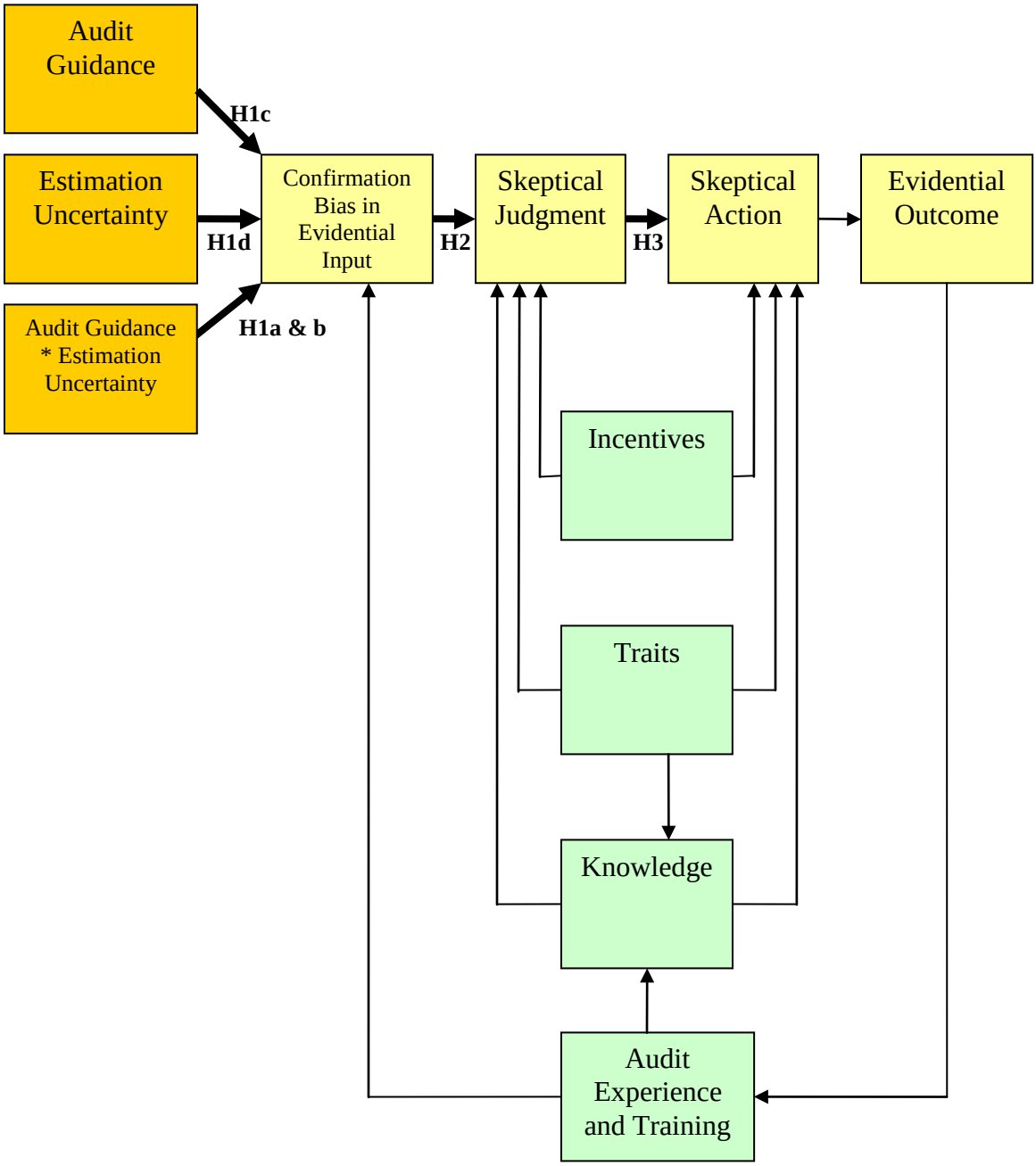


Figure 2: Extended Model for Study



2.3 Theory and Hypotheses

This dissertation draws from psychology theory and prior accounting research to help form expectations of auditor behavior when faced with directional audit guidance in

situations involving uncertainty. The theory of motivated reasoning (Kunda 1990) provides insight into individuals' search strategies and their propensity to exhibit confirmation bias. Framing induced biases, such as negativity bias, help to explain differences in behaviors when individuals review positive and negative information. In this section, these theories are reviewed and examined in accounting settings to form the basis for the study's hypotheses.

2.3.1 Motivated Reasoning

Kunda (1990) proposed the theory of motivated reasoning, wherein motivation affects reasoning through reliance on a biased set of cognitive processes: strategies for accessing, constructing, and evaluating beliefs. Kunda defines motivation as "any wish, desire, or preference that concerns the outcome of a given reasoning task" (p. 480). The basic premise of the theory is that when people are motivated to either be accurate or consistent with a desired conclusion, they tend to use more cognitive effort and attend to more relevant information that supports their goal.

Kunda's review of motivated reasoning is divided into two categories: (1) *accuracy goals* that lead to the use of beliefs and strategies that are considered most appropriate, and (2) *directional goals* that lead to the use of beliefs and strategies that are considered most likely to yield the desired conclusion.[5] Kunda notes that while the two types of goals are both indicative of motivated reasoning, they should be considered separately as they may involve different mechanisms.

According to Kunda, the work on accuracy-driven reasoning suggests that when people are motivated to be accurate, they will exert more effort, pay attention to relevant

[5] In this study, I use the term "non-directional" goal instead of "accuracy" goal to avoid the implication that auditors are not concerned with accuracy when engaging in directional goals.

cues, and process information more deeply. In fact, several different kinds of biases have been shown in psychology research to be lessened in the presence of accuracy goals. Kunda surmises that people that are motivated to be accurate will likely seek and use rules and beliefs for processing information that is deemed more appropriate.

In the second area, relating to directional goals, Kunda proposes that people motivated to arrive at a particular conclusion attempt to be rational and to construct a justification of their desired conclusion that would persuade an unbiased observer. In order to achieve this, people maintain an "illusion of objectivity," searching memory for specific beliefs and rules that support their desired position. They may also use their knowledge to construct theories that could logically support their desired conclusion.

Boiney et al. (1997) propose and demonstrate two extensions to the motivation literature. First, they find that motivated reasoning is instrumental, meaning that motivated individuals bias their judgments more or less as needed to support the desired conclusion, subject to reasonable constraints.[6] In other words, despite the motivation to reach a desired conclusion, individuals make decisions they are able to justify. Thus, auditors may not engage in motivated reasoning to the extent that they would like because they may be constrained by litigation concerns. Second, Boiney et al. (1997) find that motivated individuals exhibit confidence bolstering, meaning that they will adjust their confidence in their motivated judgments.

Kunda and Sinclair (1999) also extend the motivated reasoning research by arguing that, in addition to the activation of helpful knowledge, individuals also inhibit thoughts that would disconfirm their desired conclusion. In other words, motivation may

[6] Reasonable constraints for auditors may include standards, regulations, and generally accepted accounting principles.

activate (suppress) the knowledge structures that would support (interfere with) reaching the desired outcome. Kunda and Sinclair suggest that it is difficult for individuals to maintain a belief when there is information that contradicts it, thus they believe that individuals suppress such contradictory information when accessing and weighing cues. Thus, a confirmation bias can be introduced as early as in the information search stage.

2.3.2 Confirmation Bias

Confirmation bias, a specific form of motivated reasoning, has been defined in a variety of ways in the psychology literature. Klayman and Ha (1987) suggest that people who are prone to a confirmation bias tend to test those cases that have the best chance of verifying current beliefs (positive testing) rather than those that have the best chance of falsifying them (negative testing). They suggest people use the positive test strategy as a general default heuristic and that positive testing often serves the hypothesis tester well. Klayman and Ha concede, however, that positive testing can lead to problems when applied inappropriately. For example, it can produce misleading feedback by failing to reveal falsifications or it can lead to inefficiency or inaccuracy by overweighting and underweighting data. They conclude that the consequences of using a positive test strategy vary with the characteristics of the task, thus making generalizations from prior research difficult.

Jonas et al. (2001) use the term “confirmation bias” to mean something slightly different from Klayman and Ha (1987). Jonas et al. (2001) suggest that the positive test strategy to which Klayman and Ha refer means asking questions that are consistent with the hypothesis being tested. Jonas et al. (2001) argue that gathering evidence to support the hypothesis should be labeled ‘positive hypothesis testing’ rather than ‘confirmation

bias' because this way of asking questions does not imply that the person will be confirmed in his or her hypothesis. Thus, Jonas et al. (2001) define confirmation bias to mean "requesting information that supports a pre-selected alternative, thus the decision maker using this strategy knows that he or she will get the confirmation sought" (557). Consistent with prior literature (e.g. Kadous et al. 2008), this paper adopts the definition provided by Jonas et al. (2001); that is, a confirmation bias will be said to exist when auditors search for and consider information that supports a pre-selected alternative. In this study, because of the first-mover effect, wherein management provides the auditor with its FVE, the pre-selected alternative (by default) is the client's reported FVE; thus a confirmation bias will be documented when the auditor searches for and emphasizes evidence which favors management's FVE over evidence which disfavors management's FVE. I argue, however, that the pre-selected alternative can be changed by simply reframing the audit guidance. Specifically, when the audit guidance tells the auditor to find evidence opposing management's fair value estimates, then the pre-selected alternative shifts from evidence that corroborates management's FVE to evidence that questions management's FVE. In this case, a confirmation bias is said to exist when the auditor searches for and emphasizes evidence which disfavors management's FVE over evidence which favors management's FVE. For expositional purposes, and consistent with McMillan and White (1993), this confirmatory strategy that is biased in the direction of disfavoring evidence will be referred to as a "conservative bias." In either case (confirmation bias vs. conservative bias), bias is defined as a deviation from a balanced search.

2.3.2.1 Confirmation Bias in Auditing

Prior literature demonstrates that accounting professionals exhibit confirmation bias when reviewing client-provided information. The tax literature, for example, finds strong evidence that tax professionals engage in motivated reasoning and exhibit confirmation bias when the client's preferred position is known. These results may differ for auditors because, unlike the client advocacy role assumed by tax professionals, auditors are called to be objective and exercise professional skepticism throughout the audit (AICPA 1997). Like tax professionals, however, auditors often face incentives (e.g., competitive market pressures) to acquiesce to client preferred positions, and may engage in motivated reasoning at the expense of professional skepticism. For example, Salterio and Koonce (1997) find that when client preference is known and the available evidence regarding appropriate treatment is mixed, auditors tend to follow the client's position. Other studies, however, show that auditors are sensitive to disconfirming evidence (e.g., Ashton and Ashton 1988, 1990; Tubbs et al. 1990), and that this could be due to professional skepticism or natural constraints at work in the profession (Ashton and Ashton 1990; Asare and Wright 2003).

A substantial body of research in auditing examines whether auditors exhibit confirmation bias when gathering information that serves as evidence to support or refute initially-generated hypotheses. While many audit tasks, such as fair value evaluation, do not require initial generation of hypotheses, they require processing that is akin to hypothesis evaluation (Bonner 2008). For example, auditors assessing the reasonableness of a fair value estimate may not make a priori judgments about the fairness of the estimate before collecting evidence. According to Bonner (2008), their evaluation of

evidence, however, is similar to the process of evaluating an explicit hypothesis, and the choice available for assessments of fair value such as "reasonable" or "not reasonable" may be considered implicit hypotheses. Studies examining whether auditors exhibit confirmation bias when evaluating an initially-generated hypothesis find that confirmation bias is influenced by the source of the hypothesis. Specifically, when auditors develop their own hypothesis, they are more likely to search for confirming evidence which supports that hypothesis (Kaplan and Reckers 1989; Church 1990; Heiman-Hoffman et al. 1995; Bonner 2008). Further, McMillan and White (1993) investigate whether auditors' evidence search is influenced by the frame of the initial hypothesis being tested. They find that when auditors favor an error frame (i.e., intentional or unintentional misstatements of financial statements), they react more strongly to both confirming and disconfirming evidence than those who favor a non-error frame (i.e., environmental or industry changes). They also find greater professional skepticism for auditors who favor the error frame, and conclude that confirmation bias may partially account for this effect by enhancing the emphasis on error.

Decision strategies may differ, however, when auditors inherit a hypothesis from an external source. In auditing, it is often the case that auditors inherit hypotheses from their clients because of the "first mover/second mover" effect discussed previously. Earley et al. (2008) suggest that auditors' judgments are influenced by information provided by the client, which may impede an auditor's ability to make objective judgments. This information may be provided in the form of a client explanation or simply client-reported values. For example, Kinney and Uecker (1982) and McDaniel and Kinney (1995) find that auditors are influenced by client-provided book values to an

extent that the values bias the auditors' expectations of the audited values, often leading to the incorrect acceptance of misstated accounts. My study extends these findings by examining whether directional audit guidance affects this previously documented confirmation bias.

The extent to which auditors' judgments are influenced by external sources (such as audit standards) depends both upon the credibility of the source and the extent to which the auditor is held accountable to the source (Bonner 2008). Given that auditors are held accountable to professional regulators, Kadous et al. (2003) investigate the extent to which audit regulation can help to reduce auditor biases. Their study finds that regulation requiring auditors to perform a quality assessment actually amplifies the effects of motivated reasoning on acceptance of clients' aggressive reporting methods. Thus, it is conceivable that audit regulation contributes to auditors' confirmatory tendencies when the guidance increases the salience of a desired conclusion. My study analyzes the effects of both directional and non-directional audit guidance on auditors' search strategies to determine whether directional audit guidance results in a greater extent of confirmation (conservative) bias exhibited by auditors in the evaluation of FVEs.

Koehler (1991) argues that decision makers who are asked to explain or imagine that a hypothesis is true will temporarily accept the hypothesis as true, consequently affecting their information search and interpretation of relevant data. In other words, Koehler suggests that a task requiring that a hypothesis be treated as if it were true is sufficient to increase confidence in the truth of that hypothesis, at the expense of viable alternatives. Thus, I propose that directional audit guidance can affect auditor

confirmation bias by providing the auditor with an implicit hypothesis that implies either veracity (e.g., confirm) or doubt (e.g., disconfirm).

Non-directional audit guidance (e.g., generate own estimate) may serve to curb confirmation bias by emphasizing accuracy over efficiency. For example, Brown et al. (1999) find that auditors exhibit less confirmation bias when interpreting audit evidence when they are told to emphasize truth discovery over efficiency. Truth discovery is aimed at discovering the true cause of observed phenomena, while efficiency is aimed at lowering costs. Brown et al. (1999) employed a rule discovery game to test their hypotheses. The goal of the game was to identify the rule that generated a set of three integers between 1 and 100. They find that auditors become more confirmation prone with efficiency-oriented incentives than with truth-oriented incentives. They also find that when incentives reward effectiveness, auditors are disconfirmation prone. Following Kunda (1990), I expect a non-directional goal (e.g., generate own) to elicit truth/accuracy discovery strategies, and directional goals (e.g., confirm/disconfirm) to lead to biased search strategies, biased in the direction of the goal. In addition, the magnitude of bias may be influenced by the extent to which the auditor searches for negative (disfavoring) evidence relative to positive (favoring) evidence. For example, Levin et al. (1998) review different types of framing effects and make note of negativity bias, wherein people pay greater attention to and are influenced more by negative information relative to positive information.

2.3.3 Negativity bias

Rozin and Royzman (2001) indicate that, "…in most situations, negative events are more salient, potent, dominant in combination, and generally efficacious than positive

events" (297). Rozin and Royzman suggest that there is no single theory to explain this negativity bias and instead propose four contributors to negativity bias: negative potency, greater steepness of negative gradients, negativity dominance, and negative differentiation. Each of these is briefly defined below.

The first contributor, negative potency refers to the greater strength and higher salience of negative information versus positive information, given positive and negative information of equal objective magnitude. The second contributor is greater steepness of negative gradients, wherein negative events "grow more rapidly in negativity as they are approached in space or time than do positive events" (Rozin and Royzman 2001, 298). Rozin and Royzman note, however, that this greater steepness of negative gradients could simply be a manifestation of negative potency as additional negative units will produce larger psychological effects than additional positive units.

The third contributor of negativity bias is negativity dominance in which, "the holistic perception and appraisal of integrated negative and positive events (or objects, individuals, hedonic episodes, personality traits, etc.) is more negative than the algebraic sum of the subjective values of those individual entities" (Rozin and Royzman 2001, 299). Rozin and Royzman suggest that negativity dominance occurs after the possibility of negative potency and is therefore independent of it.

Finally, the fourth contributor to negativity bias is referred to as greater negative differentiation. Rozin and Royzman state that "negativity bias manifests itself in the fact that negative stimuli are generally construed as more elaborate and differentiated than the corresponding positive stimuli" (299). For example, Rozin and Royzman note that the vocabulary to describe negative events is far richer and more varied than the vocabulary

used to describe positive events, and that there are a greater number of negative emotions than positive emotions.

My study does not attempt to differentiate between the four types of negativity bias as each points to the same implication, namely that auditors will demonstrate a stronger reaction to negative (i.e., disfavoring) evidence than positive (i.e., favoring) evidence. In summary, I propose that audit guidance for evaluating FVEs provides an implicit hypothesis to the auditor and that the hypothesis frame (i.e., support or disconfirm) affects the auditor's propensity to exhibit confirmation bias or conservative bias depending upon the direction of the guidance. Specifically, I predict that when audit guidance directs the auditor to support management's FVE, the guidance provides an implicit hypothesis that the estimate is accurate and, consistent with motivated reasoning, auditors will exhibit a confirmation bias, wherein they favor supporting evidence over disconfirming evidence. Alternatively, when audit guidance directs the auditor to disconfirm management's FVE, the guidance provides an implicit hypothesis that the estimate may be doubtful and auditors will exhibit a conservative bias, wherein they favor disconfirming evidence over confirming evidence. Further, due to the influence of negativity bias, I expect that the magnitude of bias in the disconfirm condition will be greater than the magnitude of bias in the confirm condition. In the absence of directional guidance (e.g., the auditor is directed to generate his or her own estimate), the auditor does not inherit an implicit hypothesis and it is not clear whether the auditor will adopt a confirmatory approach biased towards supporting evidence or a conservative approach biased towards disconfirming evidence. In either case, I expect any confirmation bias or conservative bias exhibited under non-directional guidance to be less pronounced than

bias exhibited when auditors are provided with directional audit guidance. I also expect that the extent of confirmation bias or conservative bias will depend upon the degree of uncertainty inherent in the FVE as discussed in the next section.

2.3.4 Estimation Uncertainty

Fair value estimation is an ambiguous task given that fair value estimation requires a great number of cues to be taken into account and these cues can be complex, contradictory, and uncertain (Budner 1962, 30). Norton (1975) provides eight conditions that would classify information as ambiguous, and one of those conditions is uncertainty (608). Thus, as the degree of uncertainty (i.e., lack of precision in measurement) increases, the fair value estimation becomes more ambiguous, and the evaluation becomes more complex for auditors. Prior literature has suggested that intolerance for ambiguity affects auditors' judgments and decisions (e.g., Faircloth and Ricchiute 1981; Nelson and Kinney 1997). Budner (1962) defines intolerance for ambiguity as "the tendency to perceive (i.e., interpret) ambiguous situations as a source of threat" (29). Dermer (1973) suggests that individuals deal with this threat by searching for more information in an effort to become more confident in decisions. Thus, it is reasonable to expect that auditors will exhibit a greater magnitude of confirmation bias under conditions of high uncertainty relative to low uncertainty as auditors will seek more information that supports their desired conclusion. It is also possible that auditors will deal with ambiguity by escaping into whatever seems concrete (Frenkel-Brunswik 1948, 115, c.f., Norton 1975), or qualitative (Dermer 1973). In my study, the audit guidance is concrete and qualitative; thus, auditors may rely only on audit guidance to drive their search, regardless of the uncertainty surrounding the FVE. It is possible, therefore, that

uncertainty will have no effect on the extent of auditors' confirmation bias. Bonner (2008) also suggests that as task complexity increases, auditors may experience cognitive overload and may switch from compensatory to noncompensatory processing. In compensatory processing, cues can compensate for each other (Bonner 2008). In other words, individuals make trade-offs between conflicting information. In noncompensatory processing, individuals do not allow cues to compensate for each other, thereby avoiding conflict (Bonner 2008). Thus, it is possible that auditors, in an effort to avoid conflict, will not seek additional information when faced with a FVE involving high uncertainty and will resort to the same degree of confirmation bias exhibited by auditors evaluating a FVE involving low uncertainty.

Of interest to this study is whether high uncertainty leads to greater bias. Further, I investigate whether there is an interactive effect between audit guidance and uncertainty such that the magnitude of conservative bias exhibited by auditors instructed to oppose management's FVE is greater than the magnitude of confirmation bias exhibited by auditors instructed to support management's FVE when the FVE involves high uncertainty. In the next section, prior literature related to uncertainty in the audit setting is reviewed to provide further insight into auditors' judgments and decisions in situations of uncertainty.

2.3.4.1 Uncertainty in Auditing

Auditors are often faced with countervailing incentives that can affect the extent of confirmation bias and professional skepticism exercised in situations involving uncertainty. For example, auditors may be influenced by the long-term goal of attracting and retaining clients, leading to auditor support of management's aggressive reporting

choices (Kadous et al. 2008). Alternatively, auditors may react conservatively to uncertainty to avoid legal and reputational losses.

Prior research has demonstrated that accounting professionals use ambiguity (including the uncertainty in both financial reporting guidance and in reporting outcomes) to support desired goals and conclusions. For example, archival analysis of auditor judgments finds that auditors are less likely to require adjustments when the reporting in question involves subjective accounting rules and judgments (Nelson et al. 2002, 2003). Nelson (2002) finds that auditors are less likely to question earnings management under vague standards compared to more precise standards. Behavioral studies find similar results (e.g., Hackenbrack and Nelson 1996; Mayhew et al. 2001; Kadous et al. 2003). Mayhew et al. (2001), for example, find that uncertainty about the appropriate accounting treatment influences auditor objectivity such that auditors misreport in favor of their client. Hackenbrack and Nelson (1996) also find that, given sufficient ambiguity, auditors justify aggressive reporting through their own aggressive interpretations of accounting standards.[7] Nelson (2003) adds that, even with precise standards, incentive-consistent reporting choices are often justified through aggressive interpretation of evidence.

Wright and Wright (1997) examine various factors affecting the decision to waive audit adjustments and find that auditors are more likely to waive subjective adjustments (e.g., accounting estimates) than objective adjustments. They suggest that the decision to waive a subjective adjustment can be more easily justified, such as in the event of litigation.

[7] In their experiment, the appropriate reporting method involved uncertainty in that it depended on whether the amount could be "reasonably estimated."

Alternatively, uncertainty in accounting practices or accounting outcomes may lead auditors to make more conservative decisions to avoid legal and reputational losses. Nelson and Kinney (1997) find that auditors exhibit a conservative bias towards uncertainty about the probability that a future loss will occur (i.e., loss contingency reporting judgments). Interestingly, despite the finding that auditors are more conservative when evaluating probability of future loss, Nelson and Kinney find that auditors are less conservative than financial statement users. The authors conjecture that the finding may be related to auditor concern about jeopardizing client relations by unnecessarily reporting on contingent losses. Despite this evidence of a conservative reaction to ambiguity, prior research supports the notion that auditors will use latitude in standards and estimates to justify their desired goals.

Overall, the studies reviewed are consistent with motivated reasoning in that auditors use latitude in standards and estimates to justify their desired goals. In this study, the desired goal is determined by the audit guidance. While prior research shows that other factors, such as client retention, accountability, and litigation risk, influence confirmation bias in auditors, I hold these factors constant so that any differences detected between conditions can be attributed to the variables of interest (i.e., audit guidance and uncertainty).

2.4 Hypotheses

The main purposes of this paper are to examine whether directional audit standards and uncertainty affect confirmation bias in auditors and the extent to which this bias increases or decreases professional skepticism when evaluating fair value estimates. The next sections present the study's formal hypotheses.

2.4.1 Auditor Bias and Uncertainty Hypotheses

Motivated reasoning theory proposes that when individuals have directional goals, they engage in biased reasoning to achieve those goals (Kunda 1990). Consistent with this theory, audit research reports that auditors exhibit bias when they have preferred goals and that they exploit uncertainty in the decision context to achieve those goals. Further, ambiguity intolerance theory suggests that individuals who are intolerant of uncertainty can deal with the threat of uncertainty by searching for more information and this extended search can increase bias. Collectively, these theories and prior audit literature suggest that directional audit guidance and estimation uncertainty individually and jointly affect auditor bias in the evaluation of fair value estimates. While audit literature also identifies factors that can work to mitigate auditor bias (e.g., conservatism, litigation concerns), it is not known how these factors will influence auditor behaviors in a fair value setting. Thus, my predictions are grounded in psychology theories. Specifically, I propose that when auditors are given directional guidance they will exhibit bias when auditing client-reported values and that this bias will be magnified when uncertainty surrounding management fair value estimates is increased. (See Figure 3 for a graphical depiction of the predicted interaction effect.) Formally stated:

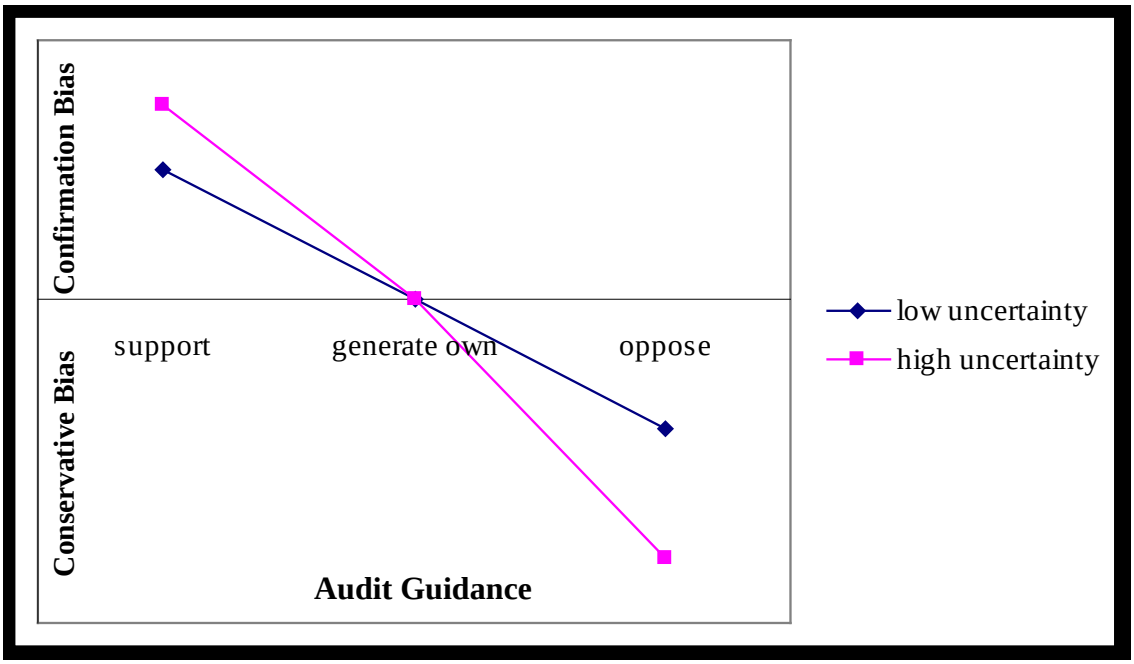
> **H1a: When uncertainty associated with a fair value estimate goes from a low level to a high level the provision of directional guidance relative to non-directional guidance will increase the bias in the auditor evaluation of management's estimate.**

Evidence from psychology literature also demonstrates that negative information influences individuals' evaluations more strongly than positive information. Thus, I predict that when auditors are specifically directed to disconfirm, they will exhibit greater

bias due to the influence of negativity bias and that this bias[8] will become greatest when estimation uncertainty is high. Formally stated:

> **H1b: The combination of disconfirm directional audit guidance and high uncertainty in management's fair value estimate will result in the greatest bias in auditor evaluation of fair value estimates.**

Figure 3: Interaction Effect Predicted in Hypothesis 1a



Given the potential implications of directional audit guidance and uncertainty for practice and standard-setting, it is important to examine the individual main effects of each on confirmation bias. For example, it could be informative to standard-setters to understand the effects of directional audit guidance on confirmation bias, irrespective of the level of uncertainty, as they consider issuing audit guidance in other areas such as the evaluation of Management's Discussion and Analysis. It could also be informative to

[8] Recall that bias represents a deviation from a balanced search. In the discussion of the results, an auditor who seeks more confirming evidence than disconfirming evidence will be said to exhibit a confirmation bias, while an auditor who seeks more disconfirming evidence than confirming evidence will be said to exhibit a conservative bias.

firms who issue additional guidance to auditors via practice guides and other materials such as decision aids. Therefore, I propose the following hypothesis in an effort to assess the effect of audit guidance on bias.

> **H1c: Auditors presented with directional audit guidance will exhibit a greater magnitude of bias during the evidential input phase relative to auditors presented with non-directional audit guidance.**

The simple main effects of uncertainty can also be of interest to practitioners as uncertainty will most certainly have implications for audit efficiency and effectiveness, irrespective of the audit guidance issued. Auditors' inexperience with, and intolerance for, uncertainty could lead to biased evaluations of fair value estimates. As noted previously it is expected that auditors examining fair value estimates under high uncertainty will seek more information to deal with the threat of uncertainty, and the nature of the information (i.e., positive versus negative) will affect the extent of confirmation bias. Thus, I hypothesize that high uncertainty in fair value estimates will lead auditors to exhibit a greater magnitude of bias than low uncertainty. Formally stated:

> **H1d: Auditors evaluating a fair value estimate involving high estimation uncertainty will exhibit a greater magnitude of bias during the evidential input phase relative to auditors evaluating a fair value estimate involving low estimation uncertainty.**

2.4.2 Professional Skepticism Hypotheses

To evaluate the effect of confirmatory strategies in evidential input on professional skepticism, I examine whether auditors who exhibit confirmation (conservative) bias during the evidential input phase also exhibit less (more) professional skepticism in their subsequent judgments and decisions. Consistent with Nelson's (2009) professional skepticism model, I separate professional skepticism into two components: skeptical judgment and skeptical action. Judgment is a critical part of the audit and is

required in the evaluation of audit evidence (AICPA 1997). In general, one would expect judgments to influence decisions. However, it is possible that skeptical judgments formed during evidence evaluation do not translate into skeptical actions. Nelson (2009) argues that auditors must exceed a certain threshold of skeptical judgment to create skeptical action. In addition, Nelson proposes that the extent to which skeptical judgment affects skeptical action may depend on auditors' incentives and traits. Thus, it is important to examine whether skeptical judgments formed in the evaluation of fair value estimates lead to skeptical actions.

Nelson's model shows that evidence evaluation is an important input of skeptical judgment and that skeptical judgment is a primary driver of skeptical action. Consistent with Nelson's model, I expect that when an auditor exhibits bias in evidence evaluation, this bias will affect the auditor's skeptical judgment, and this judgment will subsequently affect the auditor's skeptical action. Specifically, I predict that when auditors exhibit confirmation (conservative) bias during the evidential input phase, this bias affects their subsequent skeptical judgment. This hypothesis is nondirectional since confirmation bias and conservative bias go in opposite directions. Further, I predict that as skeptical judgment increases so will skeptical action. Formally stated:

H2: Auditors' bias significantly affects auditors' skeptical judgment.

H3: Increasing skeptical judgment will result in increasing skeptical action.

CHAPTER 3: METHOD

3.1 Introduction

I employ an experiment to investigate whether audit guidance and estimation uncertainty independently and jointly affect auditors' confirmation bias and professional skepticism in the evaluation of FVEs. The experimental design allows for the investigation of auditors' search processes, as well as resulting judgments and decisions. An important aspect of this study is that it uses a custom web-based instrument, which allows me to track auditors' search patterns and time spent viewing evidence. This aspect will provide insight into how auditors make decisions and whether processes employed and effort exercised during the evidential input phase affect auditors' resulting judgments and decisions.

3.2 Research Design

To address the research questions, I use a 3 x 2 between-participants experimental design in which professional auditors and undergraduate auditing students were recruited to participate. The first independent variable is audit guidance and the second independent variable is uncertainty. The experimental design and manipulations are depicted in Table 1. Participants were randomly assigned to one of the six conditions shown in Table 1.

Table 1: 3 x 2 Factorial Research Design

		Factor 1: Audit Guidance		
		Support Estimate	Generate Own Estimate	Disconfirm Estimate
Factor 2: Estimation Uncertainty	Low			
	High			

Factor 1: Audit guidance

Level 1: Support Management's Estimate – auditors are provided with audit guidance telling them to support management's fair value estimate.

Level 2: Generate Own Estimate – auditors are provided with audit guidance telling them to generate their own fair value estimate.

Level 3: Disconfirm Management's Estimate – auditors are provided with audit guidance telling them to oppose management's fair value estimate.

Factor 2: Estimation uncertainty

Level 1: Low Estimation Uncertainty – the fair value estimate provided by management has little sensitivity to changes in assumptions made in deriving the estimate.

Level 2: High Estimation Uncertainty – the fair value estimate provided by management is highly sensitive to changes in assumptions made in deriving the estimate.

3.3 Treatments/Independent Variables

3.3.1 Audit Guidance

The first independent variable is "Audit Guidance" and it is manipulated at three levels: (1) support management's estimate, (2) disconfirm management's estimate, and (3) generate own estimate. Wording for the support management's estimate manipulation is as follows:

Support management's estimate:

When reviewing management's key assumptions, and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.

Auditing standards and your firm's policies require, among other things, that the auditor:

> **obtain evidence *supporting* management's assertions about the fair value of the reacquired franchise rights,**

and that the auditor shall:

> **evaluate available evidential matter so as to *corroborate* the fair value amount of the reacquired franchise rights.**

The wording for the support condition is taken directly from AU Sec. 332.35 (AICPA 2000). The rationale for confirmatory guidance relates to audit efficiency. That is, if management's estimates are reasonable, then confirming these estimates rather than investigating possible alternatives leads to a more efficient audit. Bonner (2008) notes that confirmation bias may be an adaptive mechanism that works well in many cases. Hence, it may be the case that confirmation bias would work well if management's estimates were unbiased; however, the motivation for this study is predicated on research that shows that management's estimates may be biased.[9]

Wording for the disconfirm management's estimate manipulation is as follows:

Disconfirm management's estimate:

When reviewing management's key assumptions, and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.

Auditing standards and your firm's policies require, among other things, that the auditor:

> **obtain evidence *opposing* management's assertions about the fair value of the reacquired franchise rights,**

[9] This research does not discriminate between honest bias (i.e., natural optimism) and dishonest bias (i.e., opportunistic reporting).

and that the auditor shall:

> **evaluate available evidential matter so as to *question* the fair value amount of the reacquired franchise rights.**

The wording of this condition is intended to represent the opposite frame of the wording presented in AU Sec. 332.35 (AICPA 2000). The word "opposing" is used instead of "disconfirm" because feedback from academics revealed that the word "disconfirm" carried too strong of an implication that the auditor should not be satisfied with management's fair value estimate unless it could be proven to be incorrect. The intention of the disconfirm condition is to induce the auditor to view information which disfavors management's estimate, however, the intention is not to rule out the possibility that management's estimate is reasonable. In other words, the intention is to reduce auditor overreliance on (or overconfidence in) client representations. The term "opposing" presumes doubt in the representational faithfulness of the estimate and should lead the auditor to question management's estimate. One could argue that this approach may lead to an inefficient audit in cases where management's estimate is not biased; however, the research objective of this project is not to find the optimal level of efficiency in auditing FVEs. Rather, the objective is to determine whether the framing of the guidance will increase or decrease confirmation bias in auditors when evaluating fair value estimates.

Finally, the wording for the generate own estimate manipulation is as follows:

Generate own estimate:

> When reviewing management's key assumptions, and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.

Auditing standards and your firm's policies require, among other things, that the auditor:

> **obtain evidence to *develop an independent estimate* using management's assumptions about the fair value of the reacquired franchise rights,**

and that the auditor shall:

> **evaluate available evidential matter so as to *separately derive* the fair value amount of the reacquired franchise rights.**

The wording for this condition is derived from AU 342 *Auditing Accounting Estimates* (AICPA 1988) and ISA 540, *Auditing Accounting Estimates, Including Fair Value Estimates, and Related Disclosures* (IAASB 2009), which both encourage (but do not require) the auditor to develop an independent expectation of the estimate to corroborate the reasonableness of management's estimate. According to Martin et al. (2006), "auditors are likely to benefit from producing independent estimates …rather than merely assessing the reasonableness of management's estimates" (298). This is likely because simply requiring auditors to either confirm or contradict management's FVEs may lead the auditor to disregard evidence that provides additional information about the estimate, simply because it neither confirms nor contradicts management's FVEs. In other words, providing specific instructions for confirming or disconfirming management's FVEs can encourage a myopic view of relevant information. Motivated reasoning theory (Kunda 1990) supports the notion that developing an independent estimate (i.e., a non-directional goal) encourages a more balanced search for information (thus, less bias), relative to a directional goal requiring the auditor to either support or oppose management's FVE.

3.3.2 Estimation Uncertainty

The second independent variable is "estimation uncertainty," manipulated at two levels: low and high, whereby estimation uncertainty is defined as the susceptibility of an accounting estimate and related disclosures to an inherent lack of precision in its measurement (IAASB 2009, 5). As indicated in Section 2.2.2.1, degree of estimation uncertainty may be influenced by factors including the extent to which the estimate depends on judgment, the sensitivity of the accounting estimate to changes in assumptions, the existence of recognized measurement techniques that may mitigate the estimation uncertainty, the length of the forecast period and the relevance of the data drawn from past events to forecast future events, the availability of data from an external source, and the extent to which the estimate is based on observable versus unobservable data (IAASB 2009). In my study, I manipulate uncertainty by varying both the extent to which the estimate depends on judgment, as well as the sensitivity of the accounting estimate to changes in assumptions. I chose to manipulate uncertainty using two aspects of uncertainty to increase the salience of the manipulation. With respect to the first aspect (the extent to which the estimate depends on judgment), I simply tell the participant that "…management's estimate involves low (high) uncertainty as the estimate has little (high) sensitivity to changes in management's assumptions." I also italicized and changed the font color of the key words to blue in order to direct the participants' attention to the features of low and high uncertainty. With regard to the second aspect (sensitivity of estimate to changes in management's assumptions), I tell participants that a member of the audit team prepared a sensitivity analysis which further develops management's consideration of alternative assumptions or outcomes, and develops a range for

evaluating management's point estimate. The range provided for the low uncertainty condition was adapted from the Kohlbeck et al. (2009) task and was set as $18,229,000 to $23,353,500, indicating a spread of $5,124,500. This spread was doubled in the high uncertainty condition, leading to a range of $15,666,750 to $25,915,750. These ranges were pilot-tested using 41 Audit I students to ensure that the manipulation of the range for low versus high uncertainty was effective. Students were presented with a book value, a fair value, and the range developed in the sensitivity analysis, and were asked to rate the extent of uncertainty associated with the range using a scale of zero to nine, where zero = no uncertainty and nine = maximum uncertainty. The mean rating of uncertainty in the low condition was 2.71 (21 participants), and the mean rating of uncertainty in the high condition was 5.05 (20 participants). A t-test revealed that this difference was statistically significant (F = 19.953, p=.000), thus the manipulation of the range was deemed to be effective. The specific wording for both aspects of the low and high uncertainty manipulations are as follows:

> *Low uncertainty:*
>
> Your task is to evaluate management's fair value estimate by reviewing management's assumptions and evidence available to management when determining the fair value estimate.
>
> A sensitivity analysis prepared by a member of the audit team shows that management's estimate involves ***low uncertainty*** as the estimate has ***little sensitivity to changes in management's assumptions***. The sensitivity analysis further develops management's consideration of alternative assumptions or outcomes, and develops a range to evaluate management's point estimate.
>
> The range developed in sensitivity analysis is **$18,229,000 to $23,353,500**. This range can be accessed throughout your review of management's assumptions and evidence by returning to the tab marked "Review Audit Task."

High uncertainty:

Your task is to evaluate management's fair value estimate by reviewing management's assumptions and evidence available to management when determining the fair value estimate.

A sensitivity analysis prepared by a member of the audit team shows that management's estimate involves ***high uncertainty*** as the estimate has ***high sensitivity to changes in management's assumptions***. The sensitivity analysis further develops management's consideration of alternative assumptions or outcomes, and develops a range to evaluate management's point estimate.

The range developed in sensitivity analysis is **$15,666,750 to $25,915,750**. This range can be accessed throughout your review of management's assumptions and evidence by returning to the tab marked "Review Audit Task."

3.4 Dependent Variables

3.4.1 Dependent Variables for Confirmation Bias

Three dependent variables are used to measure confirmation bias and to test hypotheses 1a, 1b, 1c, and 1d, which predict the interaction and main effects of Audit Guidance and Estimation Uncertainty.

The first dependent variable (TIMESTD) is based on the amount of time spent viewing evidence during the evidential input phase. Following Kadous et al. (2008) this variable represents the amount of time spent viewing confirming evidence minus the amount of time spent viewing disconfirming evidence, divided by the total time spent viewing all evidence. A positive number suggests a relative emphasis on confirming evidence (i.e., confirmation bias); whereas, a negative number suggests a relative emphasis on disconfirming evidence (i.e., conservative bias).

A second dependent variable (VIEWSTD) is computed by taking the number of views of confirming evidence less the number of views of disconfirming evidence,

divided by the total number of views. A positive number indicates a confirmation bias and a negative number indicates a conservative bias.

A third dependent variable (SAVED) is computed by using the types of evidence saved to the work paper file. This is a count variable where number of confirming pieces of evidence and number of disconfirming pieces are counted and compared between groups.

3.4.2 Dependent Variables for Professional Skepticism

Two dependent variables are used to measure professional skepticism: skeptical judgment and skeptical action.

Skeptical judgment is measured as the risk that management's fair value estimate is materially misstated, where 1 is minimum risk and 9 is maximum risk. This dependent variable is used to test hypothesis 2, which predicts that auditor bias affects skeptical judgment.

Skeptical action is measured using the auditor's recommended dollar amount adjustment to the client's reported book value of the intangible asset. A downward adjustment will be representative of skeptical action. This dependent variable is used to test hypothesis 3, which predicts that greater skeptical judgment leads to greater skeptical action.

3.5 Covariates

Various questions were included in the instrument to control for factors that may influence confirmation bias, such as knowledge and experience. I also included factors identified in Nelson's (2009) professional skepticism model as determinants of skeptical judgment and skeptical action. Specifically, I collected information regarding

participants' general propensity to be skeptical using the Hurtt (2007) scale, and information regarding their ambiguity intolerance using Budner's (1962) scale. I also asked participants to self-report their knowledge of fair value and auditing work experience (related to both general audit work and auditing fair values).

3.5.1 Knowledge of Fair Value

Auditors may have difficulty assessing the reasonableness of management's estimates if they lack the knowledge to do so. The absence of requisite knowledge for assessing the reasonableness of fair value estimates may contribute to a confirmation bias as the auditor would simply rely on management's estimate rather than conducting an appropriate evaluation of the evidence. Bedard and Mock (1992) compare search strategies of computer audit specialists and non-specialists in a control evaluation task. They find that specialists searched faster, for less information, and in a more directed manner. Participants were asked to report on a nine-point scale how knowledgeable they are of fair value accounting, where 1 = not at all knowledgeable, and 9 = extremely knowledgeable.

3.5.2 Experience

Jones and Sugden (2001) suggest that confirmation bias may be robust to experience. Auditing studies examining the role of experience in confirmation bias find mixed results. Church (1990) suggests that inexperienced auditors are more likely to exhibit confirmation bias than experienced auditors. Kaplan and Reckers (1989) find that experienced auditors do not succumb to a confirmation bias while performing an analytical review task, while inexperienced auditors do. However, Bamber et al. (1997) report that both experienced and inexperienced auditors show evidence of confirmation

bias in fraud likelihood tasks. Participants were asked to self report the number of times that they have reviewed fair value estimates in practice, as well as how long they have been employed as an auditor. Participants were also asked to report their rank at the audit firm (e.g., staff, senior, manager, partner, or other).

Nelson's (2009) professional skepticism model also shows that experience and knowledge may positively or negatively affect the level of professional skepticism exercised by auditors. Shaub and Lawrence (2002), for example, show that less experienced auditors are more aggressive skeptics than experienced auditors. Nelson (2009) suggests that auditor knowledge of errors and error patterns can serve to enhance professional skepticism; however, if auditors learn to assume non-error explanations over time, then greater frequency knowledge can actually undermine professional skepticism. Thus, knowledge and experience are controlled when examining both confirmation bias and professional skepticism.

3.5.3 Auditor Traits

Nelson's (2009) model also shows that auditor traits can affect the amount of professional skepticism in audit decisions and judgments. Two traits of interest to this study are professional skepticism and ambiguity intolerance. While professional skepticism is identified as a dependent variable in this study, it is important to note that the dependent variables for professional skepticism (e.g., skeptical judgment and skeptical action) are measuring cognitive responses to the manipulated variables. The covariate measure of professional skepticism will assess auditors' innate professional skepticism (i.e., professional skepticism trait). Hurtt (2007) provides a 30-item scale to measure professional skepticism. This scale is based on six characteristics of skeptics that

are distinct from knowledge and ethics: (1) suspension of judgment, (2) questioning mind, (3) search for knowledge, (4) interpersonal understanding, (5) self-confidence, and (6) self-determination. A copy of the scale, along with instructions, is presented in Appendix A.

Intolerance of ambiguity has been identified as a personality trait which deserves more attention in the accounting literature (Faircloth and Ricchiute 1981; Gul 1986). Gul (1986) suggests that there is a relationship between individuals' intolerance of ambiguity and confidence in their decisions. Dermer (1973) argues that people who are intolerant of ambiguity are less confident in their judgments and decisions than people who are tolerant of ambiguity. Dermer further suggests that persons who are ambiguity intolerant will seek to reduce the threat of ambiguity by searching for more information. Thus, auditors' intolerance for ambiguity trait is measured and controlled using Budner's (1962) scale. This scale is a validated scale which has been used in prior accounting research (e.g., Dermer 1973). A reliability analysis performed by Furnham (1994) shows that the scale has a reliability score of 0.59. While Furnham reports that other scales have higher reliability scores, Budner's scale was selected because of brevity and general acceptance. Budner's scale is "one of the best known, and well used scales in this area…" (Furnham 1994, 404). A copy of Budner's scale, along with scoring guidelines, is presented in Appendix B.

3.5.4 Confidence

As discussed previously, Koehler (1991) suggests that when people need to explain a hypothesis, they temporarily assume that the hypothesis is true. Additionally, Koehler asserts that any task requiring that a hypothesis be treated as if it were true is

sufficient to increase confidence in that very hypothesis. Koehler explains that the increased confidence comes at the expense of other plausible alternatives because of changes in problem representation, evidence evaluation, and information search that take place when the hypothesis is temporarily treated as if it were true. Boiney et al. (1997) also suggest that it is possible that motivated individuals make themselves confident through an internal rationalization process employed in order to reach the desired conclusion despite the weak evidence to support it. Thus when the standard wording suggests that the auditor should confirm that management's estimate is true, it will change the problem representation to one where the auditor experiences an increase in confidence in that estimate and the auditor may fail to conduct a balanced review of the evidence. Participants were asked to report on a nine-point scale how confident they feel about their assessment of management's fair value estimate, where 1 = not at all confident and 9 = extremely confident.

3.5.5 Risk Perceptions

Bamber et al. (1997) propose that auditors' sensitivity to risk may affect their attitude to evidence. They find that auditors' attitudes toward evidence are sensitive to audit risk, specifically, the risk of material misstatement. I use two questions to capture auditors' risk perceptions. First, participants are asked to report on a nine-point scale their assessment regarding the likelihood that the PCAOB would scrutinize the client's fair value estimate, where 1 = PCAOB would not scrutinize and 9 = PCAOB would definitely scrutinize. Second, participants are asked to report on a nine-point scale how risky their client is (compared to the population of all possible clients), where, 1 = minimum risk and 9 = maximum risk.

3.5.6 Accountability

Prior research demonstrates that accountability may influence the judgments of auditors (e.g., Kennedy 1993). Hoffman and Patton (1997) find that auditors tend to shift their judgments towards what they foresee will be defensible to their superiors, resulting in more conservative fraud risk judgments. This suggests that auditors respond to anticipated scrutiny with conservatism. Thus, as estimation uncertainty increases, auditors may generate conservative estimates as a means of protecting themselves from scrutiny. To control for accountability effects, I include two questions aimed at capturing participants' perceptions of accountability. The first question asks auditors to report how motivated they were to give answers which they could justify. This question is measured using a nine-point scale where 1 = not at all motivated and 9 = extremely motivated. The second question asks auditor to report the likelihood that someone (e.g., a supervisor) would contact them regarding their recommendations related to the client's fair value estimate. This question is measured using a nine-point scale where 1 = someone would definitely not contact me and 9 = someone would definitely contact me.

3.5.7 Goal Commitment

Prior literature has found that goal commitment can influence the effect of directional goals on auditors' reporting decisions. For example, Church (1991) finds that level of commitment to their hypotheses affected auditors' overall evaluations of mixed evidence. Specifically, Church finds that auditors with high commitment to their hypotheses attached more importance to confirming evidence than those who where not strongly committed. Interestingly, Church does not find differences of importance among auditors in regard to disconfirming evidence. Kadous et al. (2003) also find that auditors

are more likely to identify the client's method as the most appropriate method when they are more committed to their directional goals. Thus, it is possible that goal commitment will differentially affect the importance that auditors give to confirming and disconfirming evidence. Consistent with Kadous et al. (2003), I use a 5-question measure of goal commitment. This 5-question scale was originally developed by Klein et al. (2001). The goal commitment measures are shown below in Table 2.

Table 2: Goal Commitment Measures

	completely disagree	disagree somewhat	neutral	agree somewhat	completely agree
1) I thought this was a good goal to shoot for.					
2) I was strongly committed to pursuing this goal.					
3) It was hard to take this goal seriously.*					
4) Quite frankly, I didn't care if I achieved this goal or not.*					
5) It wouldn't have taken much to make me abandon this goal.*					

The five items above were applied to one of the following three goals which matched the experimental condition to which participants were assigned.
Goal: Find support for management's assertions about the fair value estimate. (Support condition)
Goal: Find reasons for why management's assertions about the fair value estimate might not be reasonable. (Disconfirm condition)
Goal: Identify the estimate that would be most appropriate in the eyes of external users. (Generate own condition)

* Items 3, 4, and 5 were reverse-scored.

3.6 Task

The case, adapted from Kohlbeck et al. (2009), involves a fair value estimation task where participants were required to review a potential impairment of an intangible asset (reacquired franchise rights). This case was selected for several reasons. First, the fair value estimation in the case relies heavily on management's assumptions, thus allowing for the manipulation of estimation uncertainty by varying the extent of sensitivity of the FVE to changes in management's assumptions. Second, the case was originally derived and adapted from an actual transaction recorded by Krispy Kreme Doughnuts, Inc., adding realism to the case. Third, interviews with partners/shareholders from a Big Four firm and a large regional firm revealed that evaluations of fair value estimates for intangible assets is common for auditors, thus enhancing the generalizability of the results.

The case involved reviewing assumptions made by management in deriving its fair value estimate for reacquired franchise rights. The case materials consisted of the following items: (1) company background and financial information, (2) the audit task, and (3) the evidence available to management for making its assumptions and deriving the FVE. The company background and financial information described the client's business (including franchising activities), and presented selected account balances and disclosures before audit adjustments. The audit task described the audit firm's relationship with the client and informed participants of the audit guidance relevant to the audit of the FVE. This section also detailed the participant's assignment which included instructions to: (1) evaluate management's key assumptions by searching for and reviewing evidence which favors and disfavors management's estimate, and (2) save the

evidence items which they would cite in a memo to be retained in the working papers as evidence that they have complied with the audit standard.

The case materials included management's reported book value, the estimated fair value, a summary of the four assumptions made by management in estimating the FVE, and evidence either favoring or disfavoring management's FVE. The evidence was organized by assumption with six pieces of evidence for each assumption. Three pieces of evidence favored management's estimate while the other three pieces disfavored management's estimate. The organization of the evidence was randomized to control for order effects.

Participants were given ten minutes to search through the evidence and to save the pieces they wished to include in the work paper file. The purpose of the time limit was to simulate time pressures faced by auditors on audit engagements. Pilot testing with Ph.D. students revealed that 10 minutes allowed sufficient time for participants to review evidence, but not so much time that they could view all of the available evidence. Upon completion of search, participants reported (1) the perceived risk of material misstatement related to management's FVE, and (2) a recommended adjustment (if any) to management's FVE. Participants then completed a post-experimental questionnaire that included manipulation checks and demographic questions.

3.7 Participants

Professional auditors were recruited to participate in the study. Interviews with partners from a Big 4 firm and a large regional firm indicated that all levels of auditors (including staff auditors) should have sufficient fair value auditing knowledge to perform

the task. In addition, undergraduate auditing students participated in both the pilot study and the main study.

3.8 Pilot Study

A pilot study was conducted using undergraduate accounting students enrolled in an Audit I course. The primary purpose of the pilot study was to ensure that the manipulations had their intended effects. Despite evidence that the manipulation check questions may not have been clear to participants, data from the pilot study revealed support for the hypothesized effects of audit guidance and estimation uncertainty on extent of agreement with management's estimate. A secondary purpose of the pilot study was to be sure that the experimental materials were complete and understandable prior to computerization. The pilot study also provided information for setting time limits for the evidence evaluation phase. Due to the purposes of the pilot study and the limited participant pool, only two forms of guidance were tested in the pilot study: support management's estimate and generate own estimate. Several modifications to the experimental case were made and incorporated into the final computerized version. These modifications are discussed in Section 3.8.7.

3.8.1 Research Design (Pilot Study)

The pilot study employed a 2 x 2 factorial design with two forms of audit guidance (support management's estimate and generate own estimate) and two levels of estimation uncertainty (low and high). Participants were randomly assigned to one of four treatment conditions and completed a paper-based version of the task described in Section 3.6.

3.8.2 Treatments/Independent Variables (Pilot Study)

The first independent variable, audit guidance, was varied as either directional or non-directional as follows:

> *Directional guidance* – "The audit standard related to the audit of intangible assets directs you to obtain evidence supporting management's assertions about the fair value of the reacquired franchise rights."
>
> *Non-directional guidance* – "The audit standard related to the audit of intangible assets directs you to obtain your own reasonable range of outcomes with which to evaluate management's assertions about the fair value of the reacquired franchise rights."

The second independent variable, estimation uncertainty, is varied at two levels, low and high. For the pilot study, uncertainty was manipulated by explicitly telling participants that the fair value estimate involves low (high) uncertainty because management's assumptions are based on data from external (internal) sources, depend on little (much) judgment, and has little (high) sensitivity to changes in assumptions. Further, the evidence items provided in the case materials were manipulated to reflect the respective level of uncertainty.

3.8.3 Dependent Variables (Pilot Study)

Two measures of confirmation bias were developed for the pilot study. The first measure of confirmation bias was the extent to which participants agree with management's fair value estimate (AGREE). This measure ranges from 1 = "strongly disagree" to 8 = "strongly agree." A higher number represents a greater extent of confirmation bias. A second measure of confirmation bias was constructed to assess confirmation bias during information search (SEARCH). This dependent variable is measured as the total amount of confirming evidence viewed minus the total amount of

disconfirming evidence viewed, divided by total evidence viewed. A larger and more positive percentage represents a greater extent of confirmation bias.

3.8.4 Manipulation Checks (Pilot Study)

To assess whether participants understood the audit guidance, participants were asked whether the audit guidance they received told them to support management's estimate, disconfirm management's estimate, or neither support nor disconfirm management's estimate. Only 38 percent of participants responded correctly to this manipulation check question. While this may suggest that participants did not attend to or understand the audit guidance manipulation, results show that there were differences between these groups and the differences were in the predicted direction. Results from debriefing with participants suggest that the manipulation check question was unclear. This question was revised in the instrument to say, "The relevant audit guidance (i.e., audit standards and your firm's policies) for the evaluation of fair value estimates requires you to obtain evidence: (1) supporting management's assertion, (2) opposing management's assertions, or (3) developing your own independent estimate."

To assess whether participants attended to the uncertainty manipulation, participants were asked whether management's FVE for reacquired franchise rights involved low or high uncertainty. Only 75 percent of participants passed this manipulation check. As a result, this manipulation was made more salient in the web-based instrument developed for the experiment by (1) explicitly telling participants that the FVE involves low or high estimation uncertainty, and (2) providing sensitivity analysis which develops a range to be used in evaluating management's point estimate. The purpose of the range is to highlight the sensitivity of the estimate to changes in

management's assumptions. The broader the range, the more sensitive the estimate is to changes in management's assumptions.

3.8.5 Participants (Pilot Study)

Participants for the pilot study were 45 undergraduate accounting students enrolled in an Audit I course at a large university.[10] These students were selected for the pilot study because of their knowledge of fair value estimation (covered in an Intermediate I course), and their knowledge of audit requirements (covered in the first half of the Audit I course). Self-reports indicate that, on average, the students had eight years of general work experience, however, only one participant had worked in auditing. Further, only one participant had experience auditing fair value estimates. Eighty-nine percent of students had taken a course that covered fair value accounting.

3.8.6 Results (Pilot Study)

3.8.6.1 Descriptive Statistics (Pilot Study)

Table 3 provides descriptive statistics, by treatment condition, of the types of evidence participants viewed and saved during the evidence evaluation phase. Participants in the Support/Low Uncertainty condition viewed an average of 8.4 favoring items and 7.3 disfavoring items, while participants in the Support/High Uncertainty condition viewed an average of 9.6 favoring items and 6.5 disfavoring items. Participants in the Generate Own/Low Uncertainty condition viewed an average of 9.8 favoring items and 7.8 disfavoring items, and participants in the Generate Own/High Uncertainty condition viewed an average of 8.8 favoring items and 7.6 disfavoring items. In total, participants could view up to 24 evidence items; thus, results suggest that participants did

[10] Eighty-four students participated over a total of three sessions; however, 39 students (Session 1) were dropped from the analysis because of the time-limit issue discussed in the previous section.

not view all available items. Given the limitations of a paper-based instrument, it is not clear whether participants ended the search voluntarily or at expiration of the time-limit. Based on the researcher's observation, it is most likely that participants ended their search when they were instructed to do so at the end of seven minutes.

Table 3: Mean Values (Standard Deviations) of Information Searched and Saved in the Work paper File

	Support/ Low Uncertainty		Support/ High Uncertainty		Generate Own/ Low Uncertainty		Generate Own/ High Uncertainty	
	C[a]	D[b]	C	D	C	D	C	D
Average Number of Evidence Items Viewed (SEARCH)	8.37 n=11 (1.81)	7.27 n=11 (1.00)	9.64 n=11 (2.01)	6.45 n=11 (3.11)	9.82 n=11 (2.09)	7.82 n=11 (4.29)	8.83 n=12 (1.59)	7.58 n=12 (2.19)
Average Number of Evidence Items Saved to Work Paper File (SAVE)	4.18 n=11 (2.18)	3.45 n=11 (1.97)	3.82 n=11 (2.40)	3.36 n=11 (2.62)	5.27 n=11 (2.94)	5.09 n=11 (3.53)	4.67 n=12 (2.19)	4.67 n=12 (2.02)

[a]C=Confirming Evidence
[b]D=Disconfirming Evidence

Table 4 provides descriptive statistics for the two dependent variables, AGREE and SEARCH. Recall that AGREE measures confirmation bias by the extent to which participants agree with management's estimate and a higher value indicates greater confirmation bias. SEARCH is a standardized measure of search emphasis on favoring versus disfavoring evidence.

Table 4: Descriptive Statistics for Dependent Variables (AGREE) and (SEARCH)

	Support/ Low Uncertainty	Support/ High Uncertainty	Generate Own/ Low Uncertainty	Generate Own/ High Uncertainty
AGREE[a]				
Mean	4.091	5.182	3.818	3.833
Std. Dev.	(1.375)	(1.079)	(0.874)	(1.467)
SEARCH[b]				
Mean	0.063	0.228	0.187	0.085
Std. Dev.	(0.148)	(0.213)	(0.361)	(0.163)

[a]AGREE = The extent to which participants agree with management's fair value estimate (1=strongly disagree,8=strongly agree)
[b]SEARCH = Standardized measure of search emphasis on confirming versus disconfirming evidence (Confirming Evidence-Disconfirming Evidence)/Total Evidence Viewed

3.8.6.2 Test of Hypotheses (Pilot Study)

I test my hypotheses using Analysis of Variance (ANOVA) as shown in Table 5. Table 6 summarizes the relationships tested in the pilot study. Given that the primary purpose of the pilot study was to test the salience of the manipulations and the understandability of the task, the pilot materials did not include questions related to all of the covariates identified for the study. As a result, covariates are not included in the analyses described below.

Table 5: The Overall Effect of Audit Guidance and Estimation Uncertainty on Extent of Agreement with Management's Fair Value Estimate (AGREE) and Information Search (SEARCH)
Panel A – Analysis of Variance – Effect of Audit Guidance and Estimation Uncertainty on AGREE

Source	df	SS	F	p
Corrected Model	3	4.643	3.078	.038
Audit Guidance	1	7.382	4.893	.033
Estimation Uncertainty	1	3.436	2.278	.139
Audit Guidance*Estimation Uncertainty	1	3.250	2.155	.150
Error	41	61.848		

Table 5: The Overall Effect of Audit Guidance and Estimation Uncertainty on Extent of Agreement with Management's Fair Value Estimate (AGREE) and Information Search (SEARCH) (continued)
Panel B – Analysis of Variance – Effect of Audit Guidance and Estimation Uncertainty on SEARCH

Source	df	SS	F	p
Corrected Model	3	.071	1.274	.296
Audit Guidance	1	.001	.018	.895
Estimation Uncertainty	1	.011	.202	.656
Audit Guidance*Estimation Uncertainty	1	.201	3.627	.064
Error	41	2.276		

Table 6: Tests of Expected Relationships

		Audit Guidance		
		Directionally-Driven (Support)	Accuracy-Driven (Generate Own)	
Uncertainty	*Low Uncertainty*	A	B	AB
	High Uncertainty	C	D	CD
		AC	BD	

AC>BD	Main effect of Audit Guidance on Extent of Agreement	ANOVA – main effect test	Supported (F = 4.893, p = .033)
AC>BD	Main effect of Audit Guidance on Information Search	ANOVA – main effect test	Not Supported Model not Significant
measured variable	Main effect of search strategy on Extent of Agreement	ANOVA – main effect test	Not Supported Model not Significant
CD>AB	Main effect of Uncertainty on Extent of Agreement	ANOVA – main effect test	Not Supported (F = 2.278, p = .139)
C>A, B, D	Moderating effect of Uncertainty on Main Effect of Audit Guidance	ANOVA – interaction test Planned Comparisons (t-tests)	Not Supported Model not Significant

First, I discuss the results of a 2 x 2 ANOVA testing the effects of audit guidance and estimation uncertainty on extent of agreement with management's estimate (Table 5, Panel A). The pilot study investigated whether auditors presented with directional

guidance to support management's estimate will agree with management's estimate to a greater extent than auditors presented with non-directional guidance to generate their own estimate. This test result ($F = 4.893$, $p = 0.033$) indicates that auditors exhibit confirmation bias to a greater extent when they are told to support management's estimate (mean = 4.64) compared to when they are told to generate their own estimate (mean = 3.83).

I also investigated whether auditors evaluating a fair value estimate involving high uncertainty will agree with the estimate to a greater extent than auditors evaluating a fair value estimate involving low uncertainty. While the mean values are in the direction expected, test results are not significant at conventional levels ($F = 2.278$, $p = 0.139$).

An interaction effect between guidance and estimation uncertainty on extent of agreement with management's estimate was tested. The interaction term is not significant at conventional levels ($F = 2.155$, $p = 0.150$).

The remaining tests relate to the effects of audit guidance and estimation uncertainty on information search, as well as the effect of information search on extent of agreement with management's estimate. Specifically, I test whether auditors presented with directional guidance to support management's estimate will focus their search on confirming evidence versus disconfirming evidence to a greater extent than auditors presented with non-directional guidance to generate their own estimate. In the first remaining test I investigate whether auditors whose information search emphasizes confirming evidence will agree with management's estimate to a greater extent than auditors whose information search emphasizes disconfirming evidence. In addition, I examine the possibility of an interaction effect between audit guidance and uncertainty on

information search. None of these tests were conclusive as the overall models were not statistically significant. I conducted a power analysis for each of the tested relationships and found that the observed power was too low to detect an effect. This may be due to small sample sizes (i.e., 11-12 participants per treatment cell) or lack of requisite knowledge by participants completing the task. Despite the low power, I conducted additional analyses to determine whether the means were in the predicted directions. Table 3 presents the descriptive statistics for information searched and information saved in the work paper file. These statistics show that on average, all conditions viewed more confirming than disconfirming evidence.

The 2 x 2 ANOVA results presented in Table 5 Panel B show that the model was not statistically significant ($F = 1.274$, $p = 0.296$) so my subsequent interpretation of the results should be considered inconclusive. The interaction term had a marginally significant p-value ($F = 3.627$, $p = 0.064$) and it is possible that this effect would be observed with increased power. To further examine the potential of an interaction effect, I analyzed post hoc comparisons between the cell means and found that participants instructed to support management's estimate in the high uncertainty condition emphasized confirming evidence over disconfirming evidence to a greater extent than all other conditions ($p = 0.108$).

3.9 Implications of the Pilot Study

Overall, the pilot study finds that participants receiving directional audit guidance telling them to support management's FVE tended to agree more with management's estimate than did participants receiving non-directional audit guidance telling them to generate their own estimate. Estimation uncertainty, however, had no effect on auditors'

extent of agreement with management's estimate. These results, however, should be interpreted with caution as many of the models tested were not statistically significant.

Given the limited scope and purpose of the pilot study, the results are subject to other limitations. First, evidence, including interviews with student participants, revealed that the manipulations and manipulation check questions were not clear to participants. Several changes were made to the instrument and the post-experimental questionnaire to improve the salience of the manipulations and to clarify the manipulation check questions. Second, the pilot study utilized a paper-based instrument which limited the ability to investigate participants' search processes. A customized web-based instrument was developed for the full experiment which allowed for the collection of richer data regarding participants' search strategies. The web-based instrument was pilot tested by five Ph.D. students and two faculty members prior to making it available to study participants. Last, the web-based instrument was expanded to include measures of the covariates identified in Section 3.5.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the results of the tests of hypotheses. Details regarding the data collection and sample selection process are provided first, followed by a discussion of the participant demographics and manipulation checks. The tests of the study's hypotheses are described next. The chapter concludes with a discussion of alternative tests performed to test the robustness of the findings.

4.2 Background and Descriptive Statistics

I collected data over a two-month period using a customized web-based survey instrument. Participants included 30 professional auditors and 101 auditing students. The professional auditors were recruited via an e-mail sent to 21 School of Accountancy advisory council members of a large public university in the southeastern United States. The e-mail requested advisory council members to forward the survey instrument to auditors within their firms.

Forty-three auditor attempts were recorded on the website; 30 auditors completed all questions. Of these 30 auditors, three were excluded from the analyses based on their recorded time spent viewing task instructions and background information. Pilot testing revealed that participants required approximately three minutes to read both the client background and financial information, as well as the audit task instructions. Thus, I felt confident that participants who spent 60 seconds or less on either of these sections did not put forth the effort necessary to understand the task. Consequently, three auditors who

spent less than 60 seconds on these sections were excluded from the analyses, leaving 27 total auditors in the sample.

The auditing students were recruited from three undergraduate audit courses at the same large public university. The three courses were Audit I, Audit II, and Internal Control Auditing. One-hundred and eighty-two attempts were recorded on the website; however, only 101 students completed all questions. Of these 101 students, 25 were excluded from the analyses because they spent less than 60 seconds viewing either the client background and financial information, or the audit task instructions. Finally, one student participant was identified as an influential outlier (discussed in Section 4.2.3), and was excluded from the analyses. The final sample is depicted below in Table 7.

Upon login, participants were randomly assigned to one of the six treatment conditions. The web program was designed to fill the treatment cells sequentially to enhance the likelihood of obtaining balanced cell sizes. Following the data screening, however, the final sample as reflected in Table 6 did not retain balanced cell sizes. This can potentially affect the robustness of the statistical analyses, thus the data were screened for adherence to the assumptions underlying MANOVA and regression.

Table 7: Description of Final Sample
Panel A – Participants Included in Sample

	Auditors	Students
Total number of recorded survey attempts	43	182
Total number of incomplete surveys	-13	-81
Total number of participants dropped for insufficient effort	-3	-25
Total number of participants identified as extreme outliers	0	-1
Total number of participants retained for the analyses	27	75

Table 7: Description of Final Sample (continued)
Panel B – Number of Participants in each Treatment Condition

Estimation Uncertainty	Audit Guidance			
	Support	Oppose	Generate Own	Total
Low	A = 6 S = 11 C = 17	A = 3 S = 12 C = 15	A = 6 S = 14 C = 20	A = 15 S = 37 C = 52
High	A = 5 S = 15 C = 20	A = 3 S = 9 C = 12	A = 4 S = 14 C = 18	A = 12 S = 38 C = 50
Total	A = 11 S = 26 C = 37	A = 6 S = 21 C = 27	A = 10 S = 28 C = 38	A = 27 S = 75 C = 102

A = auditors, S = students, C = combined

Table 7, Panel A shows that the 27 auditors retained in the sample included 9 staff, 12 seniors, 4 managers, and 2 partners. Almost half (14) of the auditors worked for an international firm. Twelve auditors held a bachelor's degree in accounting, 13 held a master's degree in accounting, and one auditor held a master's degree in another field. Mean audit experience for the auditors was 5.26 years, while the mean number of times that auditors had evaluated a fair value estimate was 2.19 times. This suggests that the auditors had relatively little experience in evaluating fair values. On a scale of one to nine, where one is not at all knowledgeable and nine is extremely knowledgeable, auditors' mean self-reported fair value knowledge was 4.59.

Table 7, Panel B shows that the mean work experience for the 75 students retained in the sample was 6.77 years and the mean audit experience was 0.18 years, indicating that the majority of students had no audit experience. Only one student had work experience related to fair values; however, 72 students had taken a college course that covered fair value accounting.

An independent samples t-test was conducted to compare evidence search time for auditors and students. There was no significant difference in minutes of search time between auditors (M=6.33, SD=1.73) and students (M=5.74, SD=1.93; t(100)=1.40, p=.17). Further, fair value experience was not a significant explanatory variable in the analyses. Based on these factors, participants were combined in the subsequent statistical analyses. Additionally, when sample size is small (e.g., n=20), it is possible that a non-significant result is due to insufficient power (Stevens 2007). Such is the case with the auditor participants (n=27). For example, a power analysis revealed that there was only a 27 percent chance of detecting a main effect of audit guidance on confirmation bias when the analyses included only the 27 auditor participants. This percentage increased to 78 percent when the auditor responses were combined with student responses. Given the similarities in search patterns and fair value experience between auditors and students, and in the interest of increasing confidence in the results, all participants were combined in the analyses.

Table 8: Participant Demographics for Confirmation Bias Hypotheses Tests
Panel A – Descriptive Statistics for Auditor Participants (n=27)

Evidence Search Time (minutes)		
Mean		6.33
Standard Deviation		1.73
Minimum		0.81
Maximum		8.79
Audit Experience (# of years)		
Mean		5.26
Standard Deviation		6.55
Minimum		.83
Maximum		32
FV Experience (# of times)		
Mean		2.19
Standard Deviation		2.69
Minimum		0
Maximum		10
FV Knowledge (1=not at all knowledgeable, 9=extremely knowledgeable)		
Mean		4.59
Standard Deviation		1.62
Minimum		1
Maximum		7
Firm Size		
Local		4
Regional		6
National		3
International		14
Auditor Rank		
Staff		9
Senior		12
Manager		4
Partner		2
Highest Education Level*		
BS/BBA Accounting		12
Master of Accounting		13
Master – Other		1

* = 1 missing data point

Table 8: Participant Demographics for Confirmation Bias Hypotheses Tests (continued)
Panel B – Descriptive Statistics for Student Participants (n=75)

Evidence Search Time (minutes)	
Mean	5.74
Standard Deviation	1.93
Minimum	0.23
Maximum	8.49
Work Experience (# of years)	
Mean	6.77
Standard Deviation	5.86
Minimum	0
Maximum	25
Audit Experience (# of years)	
Mean	.18
Standard Deviation	.66
Minimum	0
Maximum	5
Fair Value Work Experience	
Yes	1
No	74
Fair Value Classroom Experience	
Yes	72
No	3

Two manipulation check questions were included in the survey instrument. The first question related to the audit guidance manipulation. This question asked participants whether the relevant audit guidance (i.e., audit standards and the firm's policies) for evaluation of the fair value estimated required that the auditor obtain evidence supporting management's assertions, opposing management's assertions, or develop their own independent estimate. Sixty-four percent of total participants answered this question correctly (67 percent of auditors and 63 percent of students). Of the 36 percent who missed this question, 51 percent were in the "support" condition, 33 percent were in the "oppose" condition, and 16 percent were in the "generate own estimate" condition. Seventy-seven percent of participants who missed the manipulation check question in the "support" and "oppose" conditions selected "generate own" as the correct answer. This

evidence supports my suspicion that the placement of the manipulation check question within the instrument may have confused participants. Prior to the manipulation check question, participants are asked whether they would recommend an adjustment to the client's reported book value for reacquired franchise rights, and if so, for how much. It is likely that participants interpreted this question as an instruction to generate their own estimate and subsequently answered the manipulation check question with this understanding in mind. Given the potential that the manipulation check question was unclear, no participants were excluded from the analyses even if they answered the manipulation check question incorrectly.

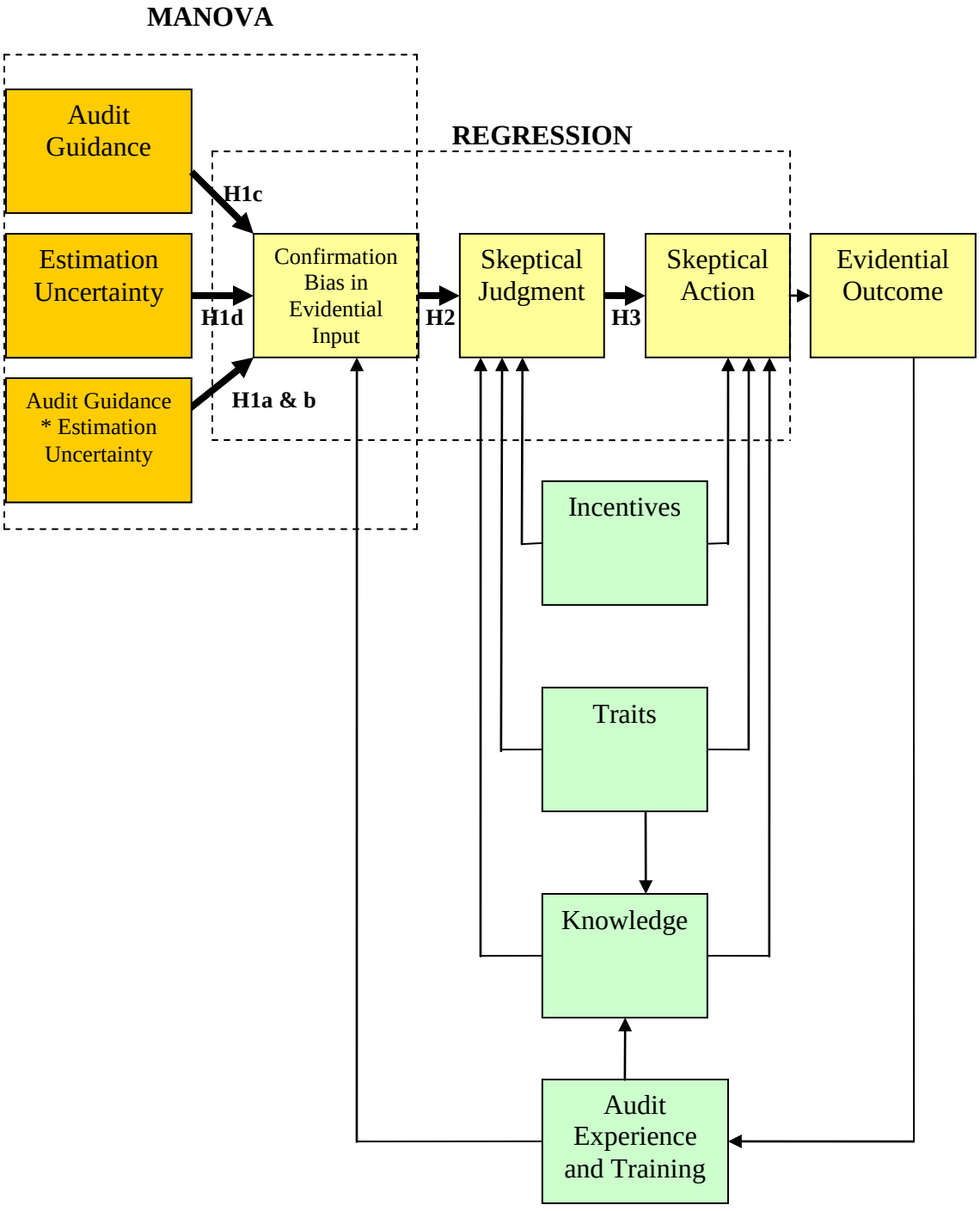
The second manipulation check question related to the degree of estimation uncertainty inherent in the estimate. This question asked participants whether the fair value estimate in the task involved low or high uncertainty. Sixty-six percent of total participants responded to this question correctly (56 percent of auditors and 70 percent of students). Of the 34 percent who answered incorrectly, 80 percent were in the low condition while only 20 percent were in the high condition. Further analysis reveals that 53 percent of participants in the low condition felt that the fair value estimate involved high uncertainty. This trend suggests that many of the participants in the low estimation uncertainty condition considered the fair value estimate to be highly uncertain, regardless of the information provided in the task. This is not an unreasonable perception given that the determination of the fair value of an intangible asset is more uncertain than other fair value estimates. Additionally, as noted previously, the participants lacked much experience with fair value estimation and therefore may have considered the task in

general to involve a high level of uncertainty. Given that this manipulation check could also be considered unclear, all participants were included in the following analyses.

4.3 Tests of Confirmation Bias Hypotheses (H1a, H1b, H1c, H1d)

Prior to testing the hypotheses, the data were examined for any violations of statistical assumptions related to multivariate analysis of variance and linear regression. Due to correlations among the dependent variables (discussed in the next section), it was determined that multivariate analysis of variance (MANOVA) was an appropriate approach for testing Hypotheses 1a, 1b, 1c, and 1d. It was also determined that linear regression was an appropriate approach for testing Hypotheses 2 and 3 (See Figure 4). Following is a description of the preliminary data analyses, as well as detailed discussions of the MANOVA and regressions employed to test the hypotheses.

Figure 4: Statistical Approach to Testing the Hypotheses



4.3.1 Correlation Analyses

The approach used to examine correlations depends on whether the dependent variables are normally distributed. Analysis of normality (discussed in the next section) indicates that the dependent variables are not normally distributed, thus a Spearman rank correlation matrix was used to examine correlations. Table 9, which presents the Spearman's rho correlation coefficients for the dependent variables, shows that the dependent variables are moderately to highly correlated. This provides support for using a multivariate approach to test the confirmation bias hypotheses (H1a, b, c, and d).

Table 9: Correlation Matrix for the Confirmation Bias Dependent Variables
Spearman Rank Correlations

Complete Data Set (n=102)

	TIMESTD	VIEWSTD	SAVED
TIMESTD[a]	1.000	.787**	.556**
VIEWSTD[b]		1.000	.646**
SAVED[c]			1.000

**Correlation is significant at the 0.01 level (2-tailed)
[a]TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds
[b]VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views
[c]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

Correlations between the dependent variables and the potential covariates were examined to determine whether any covariates should be included in the analyses. Stevens (2007) suggests that covariate variables that are highly correlated (e.g., .80) with the dependent variable should be included in the analyses. Examination of the Spearman's rho correlation coefficients revealed that none of the covariates were highly correlated with the dependent variables, thus no covariates were included in the tests of hypotheses. Descriptive statistics for the potential covariates are presented in Table 10.

Table 10: Descriptive Statistics of Potential Covariates
(n=102)

	Mean	Minimum	Maximum	Range	Standard Deviation
PSTrait[a]	138.86	80	170	90	13.59
AITrait[b]	56.77	36	77	41	8.76
CONF[c]	5.33	1	9	8	1.79
RiskPC[d]	5.96	1	9	8	1.88
RiskCL[e]	5.2	2	8	6	1.70
JUSTIF[f]	6.61	1	9	8	1.48
ACCOUNT[g]	6.14	2	9	7	1.86
GOAL[h]	19.36	8	25	17	3.54

[a]PSTrait = Participants' general propensity to be skeptical was measured using the Hurtt (2007) scale. Scores can range from 30 to180; higher scores equate to greater skepticism.
[b]AITrait = Participants' ambiguity intolerance was measured using the Budner (1962) scale. Scores can range from 16 to 112; higher scores indicate a greater intolerance of ambiguity.
[c]CONF = Participants' assessment of how confident they feel about their assessment of management's fair value estimate, where 1 = not at all confident and 9 = extremely confident.
[d]RiskPC = Participants' assessment of the likelihood that the PCAOB would scrutinize the client's fair value estimate, where 1 = PCAOB would not scrutinize and 9 = PCAOB would definitely scrutinize.
[e]RiskCL = Participants' assessment of how risky the client is (compared to the population of all possible clients), where 1 = minimum risk and 9 = maximum risk.
[f]JUSTIF = Participants' assessment of how motivated they were to give answers which they could justify, where 1 = not at all motivated and 9 = extremely motivated.
[g]ACCOUNT = Participants' assessment of the likelihood that someone (e.g., a supervisor) would contact them regarding their recommendations related to the client's fair value estimate, where 1 = someone would definitely not contact me and 9 = someone would definitely contact me.
[h]GOAL = Participants' assessment of the extent to which they are committed to their respective goals outlined in the audit guidance and firm policies. Scores can range from 0 to 25; higher scores indicate a greater degree of goal commitment.

4.3.2 Tests of Normality

Multivariate analysis relies on an assumption that the dependent variables are normally distributed (Mendenhall and Sincich 2003). To assess multivariate normality of the dependent variables, I first evaluated whether each dependent variable exhibited univariate normality. The rationale for testing each dependent variable individually is that

if the dependent variables each exhibit univariate normality, then in combination they should be normally distributed. To test for univariate normality I used two statistical tests: Kolmogorov-Smirnov with Lilliefors significance correction and Shapiro-Wilk. For both of these tests, a non-significant result indicates normality. As shown in Table 11, only SAVED is normally distributed. These tests, however, may be of limited use as they are highly sensitive to minor departures from normality (Mendenhall and Sincich 2003). Therefore, I also relied on histograms to assess normality for each of the dependent variables. Visual inspection of the data revealed patterns of a bell-shaped curve for each of the dependent variables used to measure confirmation bias (TIME, VIEW, and SAVED), indicating distributions were relatively normal.

Table 11: Tests of Normality for Confirmation Bias Dependent Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Significance	Statistic	df	Significance
Dependent Variable						
TIME[b]	.179	103	.000	.906	103	.000
VIEWS[c]	.173	103	.000	.847	103	.000
SAVED[d]	.116	103	.002	.981	103	.151

[a]Lilliefors Significance Correction
[b]TIME = Time spent viewing confirming evidence minus time spent viewing opposing evidence, in seconds
[c]VIEWS = Number of views of confirming evidence minus number of views of opposing evidence
[d]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

The data were screened for extreme outliers that could affect normality. Histograms and box plots revealed 11 potential outliers. Each of these outliers was analyzed and it was determined that only one of these outliers was suspect. Further screening using Mahalanobis distances corroborated this result, thus, the suspect outlier was removed from the analyses, resulting in the final sample of 102, which is used in all

analyses. To test the sensitivity of the results to the suspect outlier, the analyses were repeated with the outlier and the levels of significance reported were qualitatively similar.

One option for dealing with any remaining non-normality is to standardize the dependent variables. To standardize the TIME variable, I divided the total time spent viewing confirming evidence less time spent viewing opposing evidence by the total amount of time spent viewing evidence. This new variable was called TIMESTD. I applied a similar approach to standardize the VIEW variable. Specifically, I divided the total number of views of confirming evidence minus the number of views of opposing evidence by the total number of views. This new variable was called VIEWSTD. Following these transformations, histograms indicated an improvement in the distribution of the data. Visual inspection and the robustness of the methods being used indicates that interpretation of the results is not unduly influenced by the remaining non-normality. Therefore, the standardized variables are used in the analyses.

4.3.3 Homogeneity of Variance-Covariance Matrices

The second assumption of MANOVA is the equality of the variance-covariance matrices. I used the Box's M Test to test the null hypothesis that the observed covariance matrices of the dependent variables are equal across all groups. A significance value above .001 indicates that the assumption is not violated (Pallant 2005, 258). My results indicate a significance value of .128, suggesting that the assumption has been met. This result should be interpreted with caution, however, because the Box's M Test relies on normality.

I also used Levene's test of equality of variances to test the null hypothesis that the error variance of the dependent variable is equal across groups. A significance value

of less than .05 indicates that the error variances are not equal (Mendenhall and Sincich 2003). As shown in Table 12, the dependent variables TIMESTD and VIEWSTD violate the equality of error variances criteria. An analysis of the variance-covariance matrices for TIMESTD and VIEWSTD (untabulated) indicates that stated significance levels related to these variables are slightly conservative. According to Hair et al. (1998) if the largest variance is associated with the smallest treatment group the power of the test is reduced indicating that the alpha is somewhat understated.

Table 12: Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
TIMESTD[a]	1.720	5	97	.003
VIEWSTD[b]	2.187	5	97	.001
SAVED[c]	2.594	5	97	.230

[a]TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds
[b]VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views
[c]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

4.3.4 Additional Considerations for MANOVA

While not considered assumptions of MANOVA, there are additional issues that contribute to the goodness or validity of the MANOVA, including independence of the observations, sample size, linearity, and multicollinearity. Each of these is discussed below.

Independence of the observations was achieved by randomly assigning participants to one of six treatments. Furthermore, participants completed the survey on their own time, minimizing the risk of participants influencing each other in a business or classroom setting.

Linearity refers to a straight line relationship between each pair of the dependent variables. A visual examination of scatterplots indicated that linear relationships were present.

MANOVA is more powerful when the dependent variables are only moderately correlated. When the dependent variables are highly correlated, there may be multicollinearity problems and one of the dependent variables should be dropped. An examination of Pearson correlation coefficients indicates that TIMESTD and VIEWSTD are highly correlated (0.906), thus separate ANOVAs will be used to test the robustness of the MANOVA in Section 4.3.5.3.

4.3.5 MANOVA Results

4.3.5.1 Descriptive Statistics

Confirmation bias is measured using three dependent variables: TIMESTD, VIEWSTD, and SAVED. The descriptive statistics for these three variables are reported below in Tables 13 and 14. Table 13 provides the descriptive statistics for the unstandardized dependent variables TIME, VIEWS, and SAVED; whereas, Table 14 provides descriptive statistics for the standardized values of TIME and VIEWS. The standardized values of TIME and VIEWS are used in the subsequent analyses because these values more closely adhere to the assumptions of MANOVA.

Table 13: Descriptive Statistics of Evidence Viewed and Saved

Panel A - Means [Medians] (Range) of TIME spent viewing evidence

Estimation Uncertainty	Audit Guidance		
	Support	Oppose	Generate Own
Low	C[a] = 198.32 [205.71] (271) D[b] = 149.17 [134.28] (261) N[c] = 49.15 [28.97] (311) n = 17	C = 138 [150.97] (254) D = 213.53 [231.38] (378) N = -75.53 [-28.69] (389) n = 15	C = 171 [163.51] (285) D = 172.69 [160.47] (394) N = -1.69 [-.82] (627) n = 20
High	C = 170.59 [192.30] (274) D = 160.45 [175.67] (265) N = 10.13 [-2.39] (282) n = 20	C = 141.03 [160.01] (350) D = 236.17 [241.44] (272) N = -95.14 [-87.39] (561) n = 12	C = 177.67 [172.98] (198) D = 177.61 [192.66] (286) N = 0.06 [13.06] (278) n = 18

Panel B - Means [Medians] (Range) of VIEWS of evidence

Estimation Uncertainty	Audit Guidance		
	Support	Oppose	Generate Own
Low	C[a]= 14.12 [13.0] (34) D[b] = 9.47 [10.0] (12) N[c] = 4.63 [1.0] (38) n = 17	C = 8.80 [10.0] (12) D = 12.00 [12.0] (17) N = -3.20 [-1.0] (23) n = 15	C = 13.30 [13.0] (18) D = 13.45 [12.0] (26) N = -.15 [0.0] (21) n = 20
High	C = 13.45 [13.5] (17) D = 10.50 [12.0] (18) N = 4.64 [1.0] (25) n = 20	C = 8.50 [8.5] (16) D = 12.25 [12.0] (15) N = -3.75 [-2.5] (22) n = 12	C = 13.50 [13.0] (15) D = 12.78 [12.5] (16) N = 0.72 [1.00] (18) n = 18

Panel C - Means [Medians] (Range) of Evidence SAVED to the Work Paper File

Estimation Uncertainty	Audit Guidance		
	Support	Oppose	Generate Own
Low	C[a] = 4.24 [4.0] (10) D[b] = 3.18 [3.0] (9) N[c] = 1.06 [0.0] (14) n = 17	C = 3.07 [2.0] (11) D = 6.40 [6.0] (10) N = -3.33 [-4.0] (10) n = 15	C = 4.94 [5.0] (12) D = 5.20 [5.00] (12) N = -.90 [-2.0] (18) n = 20
High	C = 4.0 [3.0] (11) D = 4.60 [5.0] (11) N = -0.60 [0.50] (16) n = 20	C = 2.17 [2.5] (4) D = 7.0 [6.5] (11) N = -4.83 [-4.5] (15) n = 12	C = 4.94 [5.0] (12) D = 5.94 [6.0] (12) N = -0.83 [-0.50] (10) n = 18

[a]C = confirming evidence

[b]D = disconfirming evidence

[c]N = net difference between confirming and disconfirming evidence

Table 14: Descriptive Statistics for Dependent Variables by Experimental Condition
Panel A - Means (Standard Deviations) of Dependent Variable – TIMESTD*

Estimation Uncertainty	Audit Guidance			
	Support	Oppose	Generate Own	Total
Low	0.14 (0.34) n = 17	-0.17 (0.39) n = 15	0.02 (0.30) n = 20	0.01 (0.36) n = 52
High	0.11 (0.36) n = 20	-0.30 (0.43) n = 12	0.02 (0.18) n = 18	-0.02 (0.36) n = 50
Total	0.12 (0.35) n = 37	-0.22 (0.41) n = 27	0.02 (0.25) n = 38	-0.01 (0.36) n = 102

*TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds

Panel B - Means (Standard Deviations) of Dependent Variable – VIEWSTD**

Estimation Uncertainty	Audit Guidance			
	Support	Oppose	Generate Own	Total
Low	0.15 (0.29) n = 17	-0.16 (0.32) n = 15	-0.01 (0.17) n = 20	0.00 (0.28) n = 52
High	0.16 (0.29) n = 20	-0.18 (0.35) n = 12	0.03 (0.18) n = 18	0.03 (0.30) n = 50
Total	0.16 (0.29) n = 37	-0.17 (0.32) n = 27	0.01 (0.17) n = 38	0.02 (0.29) n = 102

**VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views

The information in Table 13 reveals that participants in the oppose condition spent more time looking at disfavoring versus favoring evidence than did participants in the support or generate own conditions. These participants also viewed more pieces of disfavoring evidence versus favoring evidence than did participants in the support or generate own conditions. Following their search strategies, participants in the oppose condition also saved more pieces of disfavoring evidence versus favoring evidence in the electronic work paper file than did the participants in the support and generate own

conditions. Collectively, these patterns suggest that participants in the oppose condition exhibited greater bias relative to participants in the support and generate own conditions.

A second factor influencing participants' search strategies was the level of uncertainty involved in the fair value estimate. As shown in Table 14, the extent of bias in the oppose condition was greater when uncertainty was high. Specifically, participants in the oppose/high uncertainty condition (1) spent more time viewing disfavoring versus favoring evidence, (2) viewed more disfavoring versus favoring items, and (3) saved more disfavoring versus favoring items of evidence to the electronic work paper file than did participants in the oppose/low uncertainty condition.

Overall, this evidence suggests that both audit guidance and estimation uncertainty affect the extent of bias when evaluating fair value estimates. Specifically, the observed patterns of the means indicate that participants in the oppose-high uncertainty condition exhibited the greatest bias relative to participants in all other conditions. While these descriptive statistics indicate that the means are going in the expected directions, the next section presents the formal tests of hypotheses.

4.3.5.2 Tests of Hypotheses

Hypothesis 1a (H1a) predicts that directional audit guidance increases bias in auditor evaluation of management's fair value estimate as the uncertainty associated with the estimate increases from a low level to a high level. In other words, H1a predicts an interactive effect of directional audit guidance and estimation uncertainty on bias. I use a 2 x 2 MANOVA to test this hypothesis. The first factor, Audit Guidance, is collapsed into two levels: directional audit guidance (support and oppose) and non-directional audit guidance (generate own). To form a single level of directional audit guidance, scores for

the oppose condition are multiplied by a value of negative one. This transformation in the oppose condition is necessary so that the magnitude of bias is not affected by the direction of the bias when the two groups (support and oppose) are combined. Following the transformation, values closer to zero are representative of a more balanced strategy, whereas values further from zero indicate a biased approach evidence evaluation. The MANOVA results for the dependent measures are presented in Panel A of Table 15. As indicated in Table 15 Panel A, overall H1a (the interaction hypothesis) is not supported (F=0.360, p=.782). Since the MANOVA provides no evidence of an interaction, the ANOVA results are not interpreted.

Table 15: The Overall Effect of Audit Guidance and Estimation Uncertainty on Bias
Panel A – Multivariate Results

Independent Variable:		F-Value[1]	p-value
Audit Guidance (AG)		3.880	.011
Estimation Uncertainty (EU)		0.309	.819
AG x EU		0.360	.782

Panel B – Univariate Results

Independent Variable:	df	SS	MS	F-Value	p-value
Audit Guidance					
TIMESTD[a]	1	.507	.507	4.457	.037
VIEWSTD[b]	1	.545	.545	7.835	.006
SAVED[c]	1	154.157	154.517	8.106	.005
Estimation Uncertainty					
TIMESTD[a]	1	.003	.003	.030	.863
VIEWSTD[b]	1	.014	.014	.198	.657
SAVED[c]	1	.000	.000	.001	.977
AG x EU					
TIMESTD[a]	1	.002	.002	.021	.886
VIEWSTD[b]	1	.007	.007	.105	.747
SAVED[c]	1	.051	.051	.154	.695

[1]Wilks' Lambda
[a]TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds
[b]VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views
[c]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

Although the overall interaction of guidance and uncertainty is not significant, hypothesis 1b (H1b) examines differences at the cell level, predicting that the combination of disconfirm directional guidance and high uncertainty in management's fair value estimate will result in the greatest bias by auditors when evaluating the estimate. Given that the interaction tested in H1a relied on combining support and oppose manipulations into a single value, it is possible that the effect of the oppose manipulation is being subsumed as a result of the combination. This possibility is somewhat supported by the descriptive statistics reported in Tables 13 and 14. Therefore, H1b is tested using a planned comparison. Results of the planned comparisons indicate that there is a statistically significant difference between the oppose/high uncertainty group and all other groups for TIMESTD ($F(1,96)=1.978$, $p=.051$) and SAVED ($F(1,14.423)=3.720$, $p=.002$). Inspection of the means supports the prediction that bias is greatest in conditions of high uncertainty and disconfirm directional guidance, thus H1b is supported.

Hypothesis 1c (H1c) and Hypothesis 1d (H1d) investigate the main effects of audit guidance and estimation uncertainty, respectively. H1c predicts that auditors presented with directional audit guidance will exhibit a greater magnitude of bias during the evidential input phase relative to auditors presented with non-directional audit guidance. The overall MANOVA test finds a significant effect of audit guidance ($F=3.600$, $p=.016$). Results from univariate analysis to determine which dependent variables were affected by audit guidance are presented in Table 15, Panel B. As indicated in the table, audit guidance was significant for all three dependent variables: TIMESTD ($F=4.457$, $p=.037$), VIEWSTD ($F=7.835$, $p=.006$), SAVED ($F=8.381$, $p=.005$), thus H1c is supported.

While not predicted, I also examine whether magnitude differences in bias exist between the two types of directional audit guidance (support and oppose) and the non-directional audit guidance (generate own). To test for these differences, I separated the audit guidance variable into three levels (support, disconfirm, and generate own) and ran a new 3 x 2 MANOVA model with audit guidance and estimation uncertainty as the independent variables. In conformance with the results of H1c, the main effect of Audit Guidance was significant (Wilks' Lambda=.718, F=5.652, p=.000). Post hoc tests, applying a Bonferroni adjustment, were used to determine where the differences between groups occurred for each of the dependent variables. For TIMESTD, oppose was significantly different from generate own (p=.054). A review of the means indicates that the magnitude of bias was greater for participants in the disconfirm condition (mean = -0.22) versus the generate own condition (mean = 0.02). The negative sign in front of the mean for the disconfirm condition indicates a conservative bias, signifying that participants' bias was in the direction of disfavoring evidence versus favoring evidence. Similarly, for VIEWSTD, oppose was significantly different from generate own (p=.056). Again, the means indicate that bias was greater in the disconfirm (mean = -0.17) versus generate own (mean = 0.01) condition. Generate own was also significantly different from support (mean = 0.16, p=.058), suggesting that participants in the support condition exhibited greater confirmation bias than those in the generate own condition. Lastly, for SAVED, oppose was significantly different from generate own (p=.000) and support (p=.001). Consistent with the results for TIMESTD, bias was greater in the disconfirm condition (mean = -4.00) than the generate own condition (mean = -0.89) and the support condition (mean = 0.16). Together, these results indicate that audit guidance directing the

participant to oppose management's fair value estimate leads to a greater extent of bias, relative to audit guidance directing the participant to either support management's estimate or generate their own estimate. Furthermore, this bias is also a conservative bias in that the bias results from a greater emphasis on disfavoring versus favoring evidence.

Hypothesis 1d (H1d) predicts that auditors evaluating a fair value estimate involving high estimation uncertainty will exhibit a greater magnitude of bias than auditors evaluating a fair value estimate involving low estimation uncertainty. Contrary to expectations, estimation uncertainty did not affect bias and H1d is not supported (p=.529).

4.3.5.3 Sensitivity Analyses

A variety of sensitivity analyses were conducted to test the robustness of the results. First, a separate MANOVA was conducted with only the auditor participants to enhance the generalizability of the results. The MANOVA revealed non-significant results for the effects of both audit guidance and estimation uncertainty on confirmation bias. A power analysis revealed that the observed power was insufficient to detect a relationship between the independent variables (audit guidance and estimation uncertainty) and the dependent variables (TIMESTD, VIEWSTD, and SAVED). As discussed in Section 4.2, insufficient power is likely due to the small sample size.

Second, supplemental analysis was conducted to determine whether the results are driven by participants who did not pass the manipulation checks. The MANOVA described in the prior analyses was repeated with only the participants who passed the manipulation checks for both audit guidance and estimation uncertainty. The total number of participants included in this analysis was 45. The results of the MANOVA

indicate that neither audit guidance (F=3.124, p=.321) nor estimation uncertainty (F=.079, p=.753) had a statistically significant effect on confirmation bias. These results, however, are likely attributable to insufficient power due to the small sample size. Specifically, the observed power of the effects of audit guidance and estimation uncertainty were 30 percent and 12 percent, respectively.

Third, the dependent variables were standardized using different measures to test the sensitivity of the results to the construction of the measures. The first measure standardized the dependent variables by dividing each observation by 24 which represented the total number of different evidence items that participants could view. The second measure standardized the dependent variables by dividing each observation by 51 which represented the highest number of views recorded by a participant. The results of the analyses with these alternative measures did not qualitatively differ from those reported in Table 15.

As discussed previously, MANOVA may have multicollinearity problems when the dependent variables are highly correlated. Since TIMESTD and VIEWSTD were highly correlated (Pearson correlation = 0.906), three separate analysis of variances (ANOVAs) were conducted. Consistent with results of the MANOVA, the separate ANOVA results indicate that audit guidance was significant for all three dependent variables: TIMESTD (F=4.457, p=.037); VIEWSTD (F=7.835, p=.006), and SAVED (F=8.785, p=.004).

An alternative approach to dealing with multicollinearity is to create a new dependent variable by combining the three dependent variables. Since the dependent variables (TIMESTD, VIEWSTD, and SAVED) used different techniques for measuring

confirmation bias it was necessary to scale the variables prior to their combination. Once scaled and combined, the Cronbach's alpha coefficient of the new variable was .851 which indicates high internal consistency of the single measure of confirmation bias. An ANOVA was run to determine the effects of audit guidance and estimation uncertainty on the single measure of confirmation bias. Consistent with the MANOVA, the results indicate a significant main effect of audit guidance on confirmation bias ($F=9.087$, $p=.003$).

4.4 Tests of Professional Skepticism Hypotheses (H2 and H3)

Hypothesis 2 tests whether bias observed during the evidence evaluation phase affects skeptical judgment (JUDGE). Specifically, I expect that auditors exhibiting bias during the evidential input phase will demonstrate low skeptical judgment while those exhibiting conservative bias will demonstrate high skeptical judgment. Recall that skeptical judgment is measured by asking participants to assess the risk that management's fair value estimate is materially misstated using a scale of one to nine, where one is minimum risk and nine is maximum risk. Using linear regression, I test whether each of the measures of confirmation bias (TIMESTD, VIEWSTD, and SAVED) leads to skeptical judgment.

4.4.1 Assumptions of Regression

Visual inspection of a residuals plot detected a rectangular-shaped pattern, which is indicative that the normality assumption has not been violated. An analysis of the residual and predicted values indicates that the variances are relatively constant. Multiple regression is sensitive to multicollinearity among the independent variables because it limits the explanatory ability of these variables. The results of a Pearson correlation

analysis, presented in Table 16, reveal that TIMESTD and VIEWSTD are highly correlated (r=.906); therefore, the effects of the independent variables on the dependent variable (JUDGE) were assessed individually using three different regressions. The results of these regressions are presented in Table 17.

Table 16: Correlation Matrix for the Bias Independent Variables and Skeptical Judgment Dependent Variable

Pearson Correlations (n=102)

	TIMESTD	VIEWSTD	SAVED	JUDGE
TIMESTD[a]	1.000	.906**	.574**	-.005
VIEWSTD[b]		1.000	.598**	-.030
SAVED[c]			1.000	-.299**
JUDGE[d]				1.000

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

[a]TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds

[b]VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views

[c]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

[d]JUDGE = Risk that management's fair value estimate is materially misstated (1= minimum risk and 9 = maximum risk)

Table 17: Regression Results for Skeptical Judgment

Panel A: JUDGE[a] = $\beta_0 + \beta_1$TIMESTD + ε

Variable	Predicted Sign	Beta Coefficient	t-statistic	p-value
Intercept			28.173	.000
TIMESTD[b]	-	-.005	-.049	.961
Adjusted R^2		-.010		

Panel B: JUDGE = $\beta_0 + \beta_1$VIEWSTD + ε

Variable	Predicted Sign	Beta Coefficient	t-statistic	p-value
Intercept			28.169	.000
VIEWSTD[c]	-	-.030	-.298	.766
Adjusted-R^2		-.009		

Panel C: JUDGE = $\beta_0 + \beta_1$SAVED + ε

Variable	Predicted Sign	Beta Coefficient	t-statistic	p-value
Intercept			27.331	.000
SAVED[d]	-	-.299	-3.129	.002
Adjusted-R^2		.080		

[a]JUDGE = Risk that management's fair value estimate is materially misstated (1= minimum risk and 9 = maximum risk)

[b]TIMESTD = Time spent on supporting evidence minus time spent on opposing evidence divided by total time, in seconds

[c]VIEWSTD = Number of views of supporting evidence minus number of views of opposing evidence divided by total views

[d]SAVED = Number of confirming evidence items saved to the electronic work paper file minus number of opposing evidence items saved to the electronic work paper file

4.4.2 Test of Hypotheses

Hypothesis 2 predicts that skeptical judgment is affected when auditors exhibit bias during the evidential input phase. The results of the regressions indicate that only the SAVED measure of bias was a significant explanatory variable of skeptical judgment (t=-3.129, p=.002). The significant negative coefficient suggests that when auditors are required to make a decision regarding the evidence they would save in a work paper file to justify their actions, this behavior subsequently affects their skeptical judgment. Interestingly, auditors' search processes (i.e., TIMESTD and VIEWSTD) do not

influence their skeptical judgment; rather, the requirement to "save" their evidence is the influential factor on skeptical judgment.

The negative coefficient for SAVED suggests that there is an inverse relationship between bias and skeptical judgment. In other words, as confirmation bias increases, the level of skeptical judgment decreases. Of further interest in this study is whether conservative bias (e.g., confirmation bias which favors disconfirming evidence versus confirming evidence) increases skeptical judgment. Since confirmation bias in the disconfirm condition is identified by a negative number, the inverse relationship suggests that as conservative bias increases, the level of skeptical judgment increases. In summary, these results provide only partial support for H2 since only the SAVED measure of bias influenced skeptical judgment.

Hypothesis 3 (H3) predicts that auditors' skeptical judgment leads to skeptical action. Skeptical action was measured by the participant's recommended dollar adjustment to the client's reported book value for the reacquired franchise rights. A downward adjustment is evidence of skeptical action (ACTION).

To test H3, regression analysis was performed using the following model: $ACTION = \beta_0 + \beta_1 JUDGE + \varepsilon$. The results, reported in Table 18, indicate that as predicted, skeptical action is influenced by skeptical judgment (t=-.3472, p=.001). Recall that a downward adjustment is indicative of skeptical action, thus the negative Beta coefficient supports the directional prediction that skeptical judgment leads to skeptical action, thus H3 is supported.

Table 18: Regression Results for Skeptical Action
Model: ACTION[a] = $\beta_0 + \beta_1$JUDGE + ε

Variable	Predicted Sign	Beta Coefficient	t-statistic	p-value
Intercept			2.058	.042
JUDGE[b]	-	-.328	-.3472	.001
Adjusted R^2		.099		

[a]ACTION = Skeptical action measured by the amount of recommended dollar adjustment to management's reported book value for reacquired franchise rights.
[b]JUDGE = Skeptical judgment measured as the risk that management's fair value estimate is materially misstated (1= minimum risk and 9 = maximum risk)

4.4.3 Sensitivity Tests

Visual inspection of scatterplots for JUDGE indicated some slight heteroscedasticity. Rank regressions, which are fairly robust to heteroscedasticity, were utilized to test H2 and the results are qualitatively similar to those reported in Table 17. Visual inspections of histograms and scatterplots for ACTION indicated that the data were not normally distributed and that this pattern was driven by a high concentration of data points at zero. Further examination of the data revealed that 21 participants (72 percent) elected not to make an adjustment to management's fair value estimate and four participants (four percent) made upward adjustments to management's estimate. Although regression is robust to departures from normality, a rank regression was used to test the robustness of the results.[11] Results of the rank regression are significant at a p-value of .000, consistent with the results reported in Table 18.

Ideally, additional statistical techniques such as covariance-based structural equation modeling (SEM) would be employed to test the entire model. Structural equation modeling techniques may be a more powerful statistical method for testing the hypothesis as those techniques allow for testing of all the relationships in the model

[11] For the rank regression, upward dollar adjustments to management's fair value estimate were interpreted as non-skeptical judgment and were accordingly recoded as zero values.

including direct and indirect effects of variables. However, these techniques generally require very large sample sizes to render a specified model. Loehlin (1992) summarizes results from studies which examined the effects of sample sizes on accuracy of estimation and frequency of improper or nonconvergent models. Loehlin reports that with samples of 100 or less, models experienced convergence failures, improper solutions (e.g., negative estimates of residual variance), and less precise estimates of the population values. Loehlin recommends the use of 200 cases and at least three indicators per factor. Similarly, Chin and Newsted (1999) warn that "when the latent variates are dependent, fit indices tend to overreject models at sample sizes of 250 or less" (Hu and Bentler 1995, 95). Further, they warn that small sample sizes have the potential for Type II error in which a poor model falsely achieves a good model fit and that small samples can lead to poor parameter estimates and model test statistics (Chin and Newsted 1999).

An alternative to covariance-based SEM analysis is the variance-based approach of partial least squares (PLS). Claims have been made that PLS can be a powerful method of analysis when sample size is small. However, Monte Carlo studies have demonstrated that this is not the case (Goodhue et al. 2007). Furthermore, "PLS shifts the orientation from causal model/theory testing to component-based predictive modeling" (Chin and Newsted 1999, 312). In other words, the goal of SEM is to obtain population parameter estimates for explaining covariances under the assumption that the model is correct. On the other hand, the goal of PLS is to create latent variable scores that can be used to predict its own indicators or other latent variable (Chin and Newsted 1999).Given that the goal of my study involves theory testing (i.e., Motivated Reasoning Theory) and causal

model testing (i.e., Nelson's Professional Skepticism Model), PLS was not employed in this context.

CHAPTER 5: DISCUSSION

5.1 Conclusions

Using professional auditors and undergraduate auditing students, this study examined the effects of audit guidance and estimation uncertainty on auditor judgment and decision making in a fair value setting. The study predicted that directional audit guidance and estimation uncertainty would individually and jointly affect confirmation bias and, subsequently, professional skepticism when evaluating fair value estimates. Following motivated reasoning theory, it was expected that directional audit guidance (support/oppose management's estimate) would lead the auditor to engage in greater bias than non-directional audit guidance (generate own estimate). Further, according to theories of ambiguity intolerance and negativity bias, it was expected that estimation uncertainty would exacerbate this bias. Lastly, following Nelson's (2009) professional skepticism model, bias in evidential input was predicted to affect professional skepticism. The findings support aspects of these expectations. The effects of both directional audit guidance and estimation uncertainty on bias and, subsequently, professional skepticism are summarized below.

Hypotheses 1a and 1b examined the joint effects of directional audit guidance and estimation uncertainty on auditor confirmation bias. Specifically, H1a predicted that directional audit guidance increases auditor bias in the evaluation of management's fair value estimate as the uncertainty in the estimate increases from a low level to a high level. The interaction effect between audit guidance and estimation uncertainty predicted in H1a was not supported. This result suggests that audit guidance and estimation

uncertainty do not work in concert to affect confirmation bias; however, their joint effect may have been masked by the method used to test the hypothesis. For instance, H1a relied on combining the two levels of directional guidance (support and oppose) into a single level, and it is possible that the differences at the individual cell levels were masked by this combination of directional audit guidance into one level. Thus, H1b examined differences in the individual cells. Specifically, H1b predicted that bias would be greatest when audit guidance directed the auditor to disconfirm management's estimate and estimation uncertainty was high. H1b focuses on the disconfirm and high uncertainty condition as this cell is expected to exhibit the greatest magnitude of conservative bias, which would presumably alleviate concerns regarding the auditor's propensity to agree with management's potentially biased estimate. Results support H1b for the TIMESTD and SAVED bias variables, implying that participants were more prone to exhibit bias in the time spent viewing evidence and the evidence saved to the work paper file when they were directed to disconfirm management's estimate and estimation uncertainty was high. This bias was a conservative bias, in that participants emphasized more opposing evidence than supporting evidence. This result has implications for standard setters and practitioners who express concern over confirmatory proneness in auditors as they evaluate fair value estimates of varying degrees of uncertainty. Specifically, this result indicates that directional guidance focusing on opposing management's reported fair value estimate can shift the auditor's focus from supporting evidence to disconfirming evidence when estimation uncertainty is high.

While an interaction effect is detected in H1b, it remains of interest to investigate whether audit guidance and estimation uncertainty individually affect bias in auditor

review of fair value estimates. For example, the effects of directional audit guidance may have implications for the review of fair value estimates, irrespective of the level of uncertainty involved in the estimate reviewed. This information could be informative to standard setters and firms who develop guidance for auditors via formal standards and less formal practice guides.

H1c examined the individual main effect of audit guidance. Specifically, H1c predicted that auditors presented with directional audit guidance would exhibit a greater magnitude of bias than auditors presented with non-directional guidance. To test this hypothesis, the two levels of directional guidance (i.e., support/oppose management's estimate) were combined into one level and then compared to the level of non-directional guidance (e.g., generate own estimate). This main effect of audit guidance was supported for all three dependent variables: TIMESTD (measured as the time spent on supporting evidence minus time spent on opposing evidence divided by total time), VIEWSTD (measured as the number of views of supporting evidence minus number of views of opposing evidence divided by total views), and SAVED (measured as the number of confirming evidence items minus number of opposing evidence items saved to an electronic work paper file). While this finding supports H1c, it does not provide information about which type of directional audit guidance leads to the greatest bias. A review of the means in each guidance condition indicates a conservative bias in the disconfirm condition. Post hoc analyses confirm that bias in the oppose condition was greater than the degree of bias in the generate own condition for all three dependent variables. In addition, bias in the support condition was greater than the degree of bias in the generate own condition for only VIEWSTD. In summary, these findings suggest that

bias is greatest when audit guidance directs the auditor to oppose management's estimate and that this bias shifts the auditors' search strategy from a confirming approach to a more conservative approach that emphasizes disconfirming evidence. Further, little difference was found between audit guidance directing the auditor to support management's estimate and guidance directing the auditor to generate their own estimate. Collectively, these results suggest that requiring an auditor to generate his or her own estimate may not be an effective remedy for decreasing bias in auditors; however, requiring an auditor to oppose management's estimate shifts the bias to a conservative bias. Thus, constituents such as the PCAOB who are interested in increasing auditor professional skepticism during the audit of fair value estimates may view the instruction to disconfirm management's estimate as a vehicle to heighten skepticism via this conservative bias. This possibility was explored further in H2 and H3, but first the main effect of estimation uncertainty is discussed.

H1d predicted that auditors evaluating a fair value estimate involving high uncertainty would exhibit a greater magnitude of bias than auditors evaluating a fair value estimate involving low estimation uncertainty. This hypothesis was not supported. Given the uncertain nature of fair value estimation in general, and the low levels of fair value experience represented in the sample of participants, it is possible that the uncertainty manipulation was not salient to participants. In other words, auditors may perceive little difference in levels of uncertainty when dealing with a fair value estimate involving many assumptions, even when those assumptions involve differences in uncertainty. Interestingly, interviews with partners at Big Four firms indicated that auditors become involved in fair value auditing as early as the staff level, and it is

possible that early in their careers, auditors will perceive fair value auditing as an ambiguous task, regardless of the actual degree of uncertainty inherent in the estimate. Further research with a more select sample of auditors will provide more insight into the effects of estimation uncertainty on confirmation bias. For example, a sample including auditors at both low levels (e.g., staff) and high levels (e.g., partners) may provide insight into whether experience influences auditors' perceptions of and reactions to varying levels of estimation uncertainty. A larger sample may also detect differences that were not observed in this study because of low statistical power.

Overall, the results of H1a, b, c, and d should be of interest to standard setters and accounting firms as they consider the development of guidance for evaluating fair value estimates. Although bias is generally considered to be a deficiency in judgment and decision making (JDM) it is possible that bias (e.g., conservative bias) can have positive effects on other aspects of the audit, including auditors' professional skepticism. Accordingly, Hypotheses 2 and 3 investigated the effects of confirmation (conservative) bias on auditor professional skepticism.

Hypothesis 2 predicted that auditors' bias during the evidential input phase would affect auditors' skeptical judgment. This hypothesis was partially supported as only one of the measures of bias (i.e. SAVED) was significant. This finding suggests that when auditors are required to make a decision regarding which pieces of evidence to save in a work paper file as support for their recommendations, bias exhibited in the saving process affects auditors' skeptical judgment. This relationship makes intuitive sense as judgment is inherently involved in making a decision to save to the work paper file. However, it raises the question of whether there is a recursive relationship between actions taken

during the evidential input phase and skeptical judgment. This study finds that auditor bias in evidence saved to the work paper file affects auditors' skeptical judgment. Thus, auditors exhibiting confirmation (conservative) bias exercise lower (higher) skeptical judgment. This finding, when combined with the results of H1c, suggests that directional audit guidance directing the auditor to oppose management's estimate can increase conservative bias in the evidential input phase, thereby increasing skeptical judgment in the evaluation of fair value estimates.

Hypothesis 3 examines whether skeptical judgment leads to skeptical action. Consistent with Nelson's (2009) professional skepticism model, this hypothesis is supported. Collectively, H2 and H3 provide evidence that confirmation bias can have a positive effect on auditors' professional skepticism. Specifically, auditors exhibit conservative bias, wherein the auditor focuses on more disfavoring than favoring evidence, and professional skepticism is elevated. Together, the findings of this study provide evidence toward Nelson's (2009) call for research investigating whether confirmation bias can be exploited to increase professional skepticism. Based on the results of this study, directional audit guidance, which orients the auditor towards a disconfirming approach, leads to higher professional skepticism in the evaluation of fair value estimates.

5.2 Contributions

The findings of this study have important implications for standard setters and audit firms as they develop guidance for the audit of fair value estimates. Much of the debate regarding the veracity of fair value reporting rests on the auditor's ability to provide assurance as to the representational faithfulness of the estimate. This study

provides evidence that current audit guidance directing an auditor to support management's fair value estimates leads to a confirmation bias, wherein the auditor favors supporting versus disconfirming evidence. Further, this confirmation bias leads to decreased professional skepticism. This finding validates opponents' concerns that fair value reporting could result in misstated fair values if management's estimate is biased. The results also show that non-directional guidance telling the auditor to generate his or her own estimate leads to a less biased search than either of the directional guidance conditions (e.g., support or disconfirm management's estimate). This finding is consistent with motivated reasoning theory, and offers the profession insight when considering the effects of alternative wording in audit guidance on auditor bias.

This study also directly answers a call for research in the professional skepticism literature. Nelson (2009) urges researchers to investigate whether confirmation bias can be exploited to increase professional skepticism in auditors. As predicted, this study provides evidence that confirmation bias can be used to favor professional skepticism by changing the focus of directional guidance from a confirming focus to a disconfirming focus. Specifically, when auditors are directed to oppose management's estimate, they exhibit a conservative bias, wherein they favor disconfirming evidence over confirming evidence, and this bias increases professional skepticism. These results, however, do not provide information regarding the effects of confirmation (conservative) bias on the efficiency of the audit. Thus, standard setters and audit firms should consider the results in combination with other objectives of the audit. Further, the results are subject to limitations that are inherent in the experimental approach. These limitations are discussed in section 5.3.

The findings of this study also have implications for judgment and decision making research. Bonner (2008) suggests that judgment and decision research should extend beyond the study of judgment biases and should also identify remedies for such biases or situations where the bias can have positive effects on JDM. This study extends judgment and decision making research by providing an example of how confirmation bias can be optimized to have positive effects on auditors' skeptical judgment and skeptical action. The question remains, however, whether professional skepticism can actually be heightened to an extent that it leads to an inefficient audit. Additionally, the implications of this study are predicated on the potential for management's fair value estimates to be biased. In other words, if management's estimates are in fact reliable, then it could be argued that a confirmation bias would lead to a more efficient audit. The weakness in this argument is that the auditor does not know a priori whether management's estimate is reliable, thus exercising professional skepticism in the audit of the fair value estimate is critical.

5.3 Limitations

Due to the experimental approach utilized in the study, this research is subject to a number of limitations. First, to increase the internal validity of the study, the fair value task excluded additional information typically available to auditors when making fair value judgments. It is therefore possible that additional factors may be present in the auditing environment which would either mitigate or exacerbate the effects of confirmation bias on professional skepticism.

Second, it is likely that the manipulation of estimation uncertainty was not salient to the participants. While pilot testing provided evidence that the manipulation was

effective, only 66 percent of participants passed the manipulation check in the main experiment. Given the nature of the experiment (i.e., fair value estimation of a Level 3 fair value), it is likely that even the low uncertainty condition was perceived as a highly uncertain situation for participants. Additionally, the experimental materials provided sensitivity ranges reflecting management's consideration of alternative assumptions or outcomes. The range for the low uncertainty condition provided a spread of $5,124,500 which represented nearly 24 percent of the total fair value estimate. Thus, it is possible that this range was too large and that participants perceived the estimate as one that involved high uncertainty. These issues potentially suggest that the results of the experiment may not be representative of real differences in confirmation bias which may exist between fair values of low versus high uncertainty.

Third, the small sample size may have contributed to low power in the statistical approaches utilized. A larger sample would allow for more powerful statistical techniques such as structural equation modeling to be utilized. Structural equation modeling has the advantage of testing all of the relationships in the model including direct and indirect effects of the constructs within the model. This approach would provide more compelling evidence regarding the total effects of audit guidance and estimation uncertainty on both confirmation bias and professional skepticism exercised in the audit of fair value estimates.

Last, participants may have lacked the knowledge necessary to make fair value judgments. While interviews with partners from Big Four firms and regional firms revealed that even staff auditors are involved in the audit of fair values, the demographical analysis indicated that participants had very little (if any) experience with

auditing fair values. This factor might explain why so few participants recommended an adjustment to management's fair value estimate. In other words, participants may have opted not to make an adjustment to management's fair value estimate out of convenience because of a lack of confidence in their own fair value knowledge. Further research is needed to determine whether this lack of experience was an artifact of the students and auditors included in the sample, or whether it is representative of the lack of knowledge and confidence held by auditors in general. Post-experimental discussions with professional auditors and valuators suggest that the audit profession as a whole is lacking confidence and experience in fair value judgments.

5.4 Future Research

The results of this study provide avenues for future research in the area of auditor judgment and decision making as it relates to the evaluation of fair value estimates. Auditors commonly face countervailing incentives during an audit engagement, including the requirement to comply with auditing standards, and time pressures to complete the audit efficiently. While the results of my study indicate that directional audit guidance increases professional skepticism when it shifts the focus of the auditors' search from a confirmatory to a disconfirmatory approach, it is possible that this shift leads to an inefficient audit. A future extension of my study includes an examination of the overall differences in time spent viewing evidence to determine whether directional guidance and estimation uncertainty affect the overall efficiency of the audit. Similarly, while the primary purpose of this study was not to determine the optimal level of professional skepticism, future research could investigate the effects of total search time on professional skepticism.

Bonner (2008) suggests that auditors may be less susceptible to confirmation bias during the information search phase because their requirements to exercise professional skepticism may make them focus more on negative information. Thus, it is possible that there is in fact a recursive relationship in Nelson's (2009) professional skepticism model wherein skeptical judgment influences evidential input. Future analyses could investigate whether skeptical judgment influences evidence search. In addition, it is possible that audit guidance and estimation uncertainty affect professional skepticism, irrespective of evidence search. Future path analyses could investigate the direct and indirect links between audit guidance, estimation uncertainty, bias in evidential search, and professional skepticism.

Future research could also investigate whether the source of evidence influences auditors' professional skepticism when evaluating fair value estimates. In other words, a study could be designed to determine the relative weights that auditors give to internally-generated evidence versus externally-generated evidence when making fair value judgments and decisions. Similarly, future research could investigate whether auditors' decisions are influenced when a valuation specialist is involved in reviewing the estimate and whether judgments and decisions are influenced by whether the specialist is employed by the client versus the audit firm. Further, future research could investigate whether differences in auditor JDM emerge when the auditor reviews quantitative versus qualitative evidence.

Finally, various covariates supported by theory and prior research were included in the study; however, none proved to be significant explanatory variables of confirmation bias as expected. Future research should seek to explain why covariates that

have been shown to affect auditor behavior in situations of uncertainty did not influence auditor JDM in a fair value setting.

Through exploring some of the suggestions discussed above, researchers will gain further insight into the direct and indirect effects of confirmation (conservative) bias on professional skepticism, as well as other aspects of the audit. These future studies could further enhance our understanding of the effects of bias and professional skepticism on the efficiency and effectiveness of the audit, as these areas were not touched on by the results of this study.

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APPENDICES

APPENDIX A: PROFESSIONAL SKEPTICISM SCALE

Skepticism Scale and Instructions for administration (Hurtt 2007)

Statements that people use to describe themselves are given below. Please circle the response that indicates how you ***generally*** feel. There are no right or wrong answers. Do not spend too much time on any one statement.

	Strongly Disagree					**Strongly Agree**
I often accept other peoples' explanations without further thought	1	2	3	4	5	6
I feel good about myself.	1	2	3	4	5	6
I wait to decide on issues until I can get more information	1	2	3	4	5	6
The prospect of learning excites me.	1	2	3	4	5	6
I am interested in what causes people to behave the way that they do	1	2	3	4	5	6
I am confident of my abilities	1	2	3	4	5	6
I often reject statements unless I have proof that they are true	1	2	3	4	5	6
Discovering new information is fun	1	2	3	4	5	6
I take my time when making decisions	1	2	3	4	5	6
I tend to immediately accept what other people tell me	1	2	3	4	5	6
Other peoples' behavior doesn't interest me	1	2	3	4	5	6
I am self-assured	1	2	3	4	5	6
My friends tell me that I usually question things that I see or hear	1	2	3	4	5	6
I like to understand the reason for other peoples' behavior	1	2	3	4	5	6
I think that learning is exciting	1	2	3	4	5	6
I usually accept things I see, read or hear at face value	1	2	3	4	5	6
I don't feel sure of myself	1	2	3	4	5	6
I usually notice inconsistencies in explanations	1	2	3	4	5	6
Most often I agree with what the others in my group think	1	2	3	4	5	6
I dislike having to make decisions quickly	1	2	3	4	5	6
I have confidence in myself	1	2	3	4	5	6
I don't like to decide until I've looked at all of the readily available information	1	2	3	4	5	6

	Strongly Disagree					Strongly Agree
I like searching for knowledge	1	2	3	4	5	6
I frequently question things that I see or hear	1	2	3	4	5	6
It is easy for other people to convince me	1	2	3	4	5	6
I seldom consider why people behave in a certain way	1	2	3	4	5	6
I like to ensure that I've considered most available information before making a decision	1	2	3	4	5	6
I enjoy trying to determine if what I read or hear is true	1	2	3	4	5	6
I relish learning	1	2	3	4	5	6
The actions people take and the reasons for those actions are fascinating	1	2	3	4	5	6

Skepticism Scale Instructions:

This is a 30 item scale that normally takes less than 5 minutes to administer. I normally explain that the scale is used to measure differences in individual characteristics and that there are no right or wrong answers.

Items 1, 10, 11, 16, 17, 19, 25, 26 are reverse scored. (Subtract the score from 7 and use the reversed number in summing the total score.)

Scale scores can range from 30 – 180. Student scores have tended to fall within the 90 – 150 range and higher scores equate to greater skepticism.

APPENDIX B: AMBIGUITY INTOLERANCE SCALE

Ambiguity Intolerance Scale and Scoring Instructions (Budner 1962)

Please respond to the following statements by indicating the extent to which you agree or disagree with them.

	Strongly Disagree						**Strongly Agree**
An expert who doesn't come up with a definite answer probably doesn't know much.	1	2	3	4	5	6	7
I would like to live in a foreign country for a while	1	2	3	4	5	6	7
There is really no such thing as a problem that can't be solved.	1	2	3	4	5	6	7
People who fit their lives to a schedule probably miss most of the joy of living	1	2	3	4	5	6	7
A good job is one where what is to be done and how it is to be done is always clear	1	2	3	4	5	6	7
It is more fun to tackle a complicated problem than to solve a simple one	1	2	3	4	5	6	7
In the long run it is possible to get more done by tackling small simple problems rather than large and complicated ones.	1	2	3	4	5	6	7
Often the most interesting and stimulating people are those who don't mind being different and original.	1	2	3	4	5	6	7
What we are used to is always preferable to what is unfamiliar.	1	2	3	4	5	6	7
People who insist upon a yes or no answer just don't know how complicated things really are.	1	2	3	4	5	6	7
A person who leads an even, regular life in which few surprises or unexpected happening arise really has a lot to be grateful for.	1	2	3	4	5	6	7
Many of our most important decisions are based upon insufficient information.	1	2	3	4	5	6	7
I like parties where I know most of the people more than ones where all or most of the people are complete strangers.	1	2	3	4	5	6	7
Teachers and supervisors who hand out vague assignments give one a chance to show initiative and originality.	1	2	3	4	5	6	7
The sooner we all acquire similar values and ideals the better.	1	2	3	4	5	6	7
A good teacher or supervisor is one who makes you wonder about your way of looking at things.	1	2	3	4	5	6	7

Scoring Instructions: The even numbered items must be reverse-scored. The sum of all 16 items represents the total score. High scores indicate a greater intolerance of ambiguity.

APPENDIX C: EXPERIMENTAL MATERIALS

Experimental Condition: Oppose Management's Estimate/High Estimation Uncertainty

Dear auditor: eIRB#: **(Pro00000980)**

My name is Norma Montague and I am a Ph.D. student in the School of Accountancy at the University of South Florida. I would like to request your participation in a research study related to "Auditing Fair Value Estimates." This research is extremely timely can help advance knowledge in both the academic and audit areas. This research study is being conducted as part of my dissertation and I would really appreciate your participation in the study.

To participate, I will ask you to evaluate an issue pertaining to a hypothetical public client's intangible asset account. You will be asked to evaluate the client's fair value estimate for the intangible asset by reviewing the client's assumptions as well as evidence available to the client when making the assumptions.

The case should take no more than 30 minutes. Your participation is voluntary and your identity will be kept confidential.

Below is a link to the study. It will be necessary for you to use Internet Explorer as your browser in order to access the study.

Please enter the following access code on the initial screen.

Access Code: pyr921

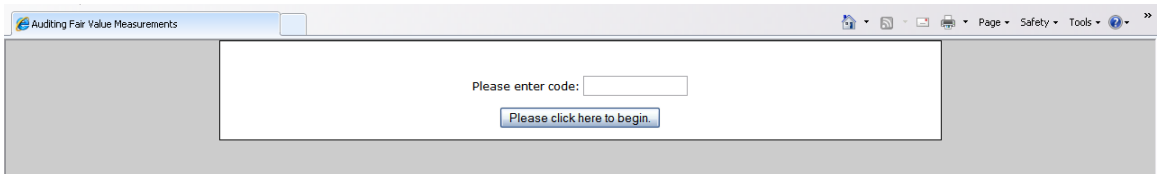
Entering this access code and proceeding past the initial screen indicates consent to participate in the study.

If you have any questions, please direct your requests to:

Norma R. Montague
University of South Florida
4202 E. Fowler Avenue, BSN 3403
Tampa, Florida 33620
(813) 974-7340
nmontagu@usf.edu

Link to Study: http://forecast-study.com/research/

Thank you for your participation!


Auditing Fair Value Measurements
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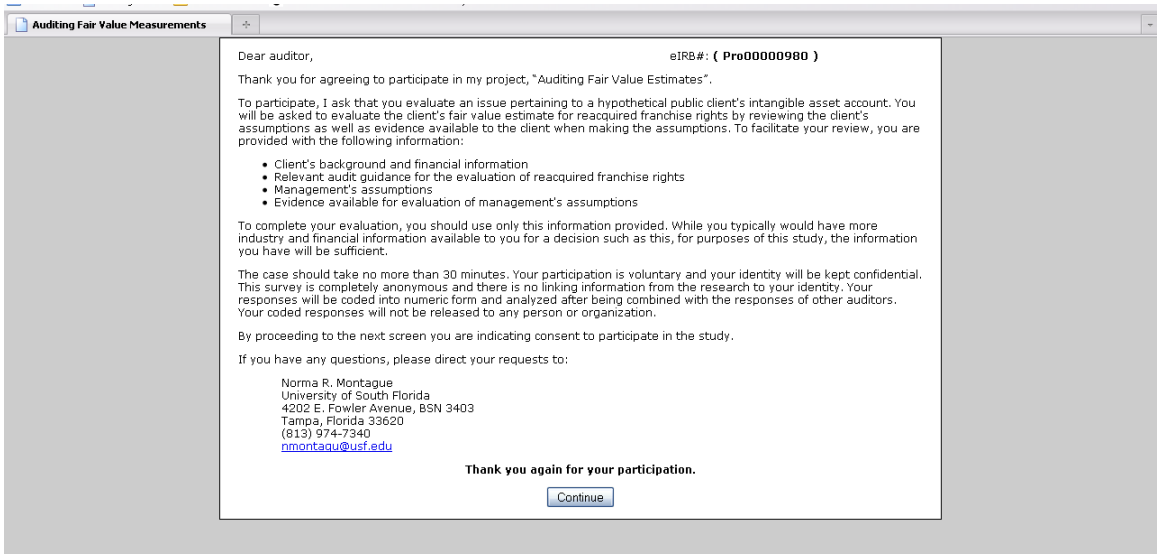
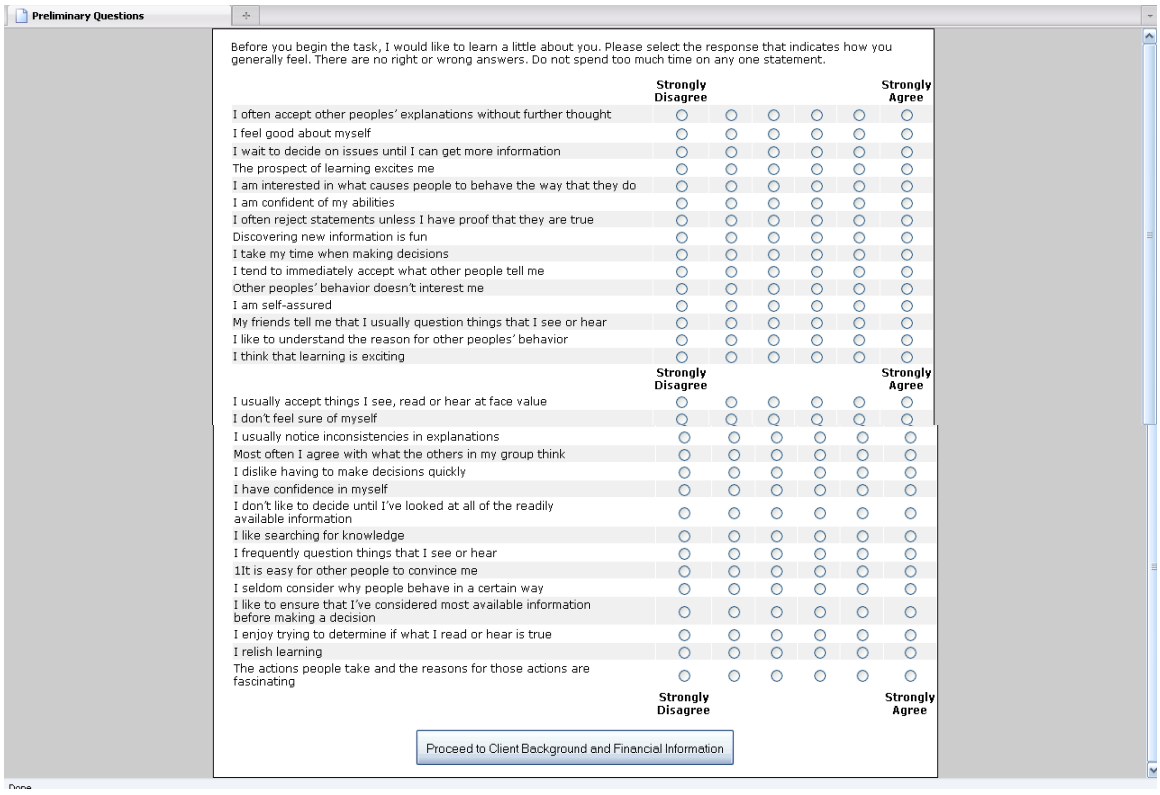
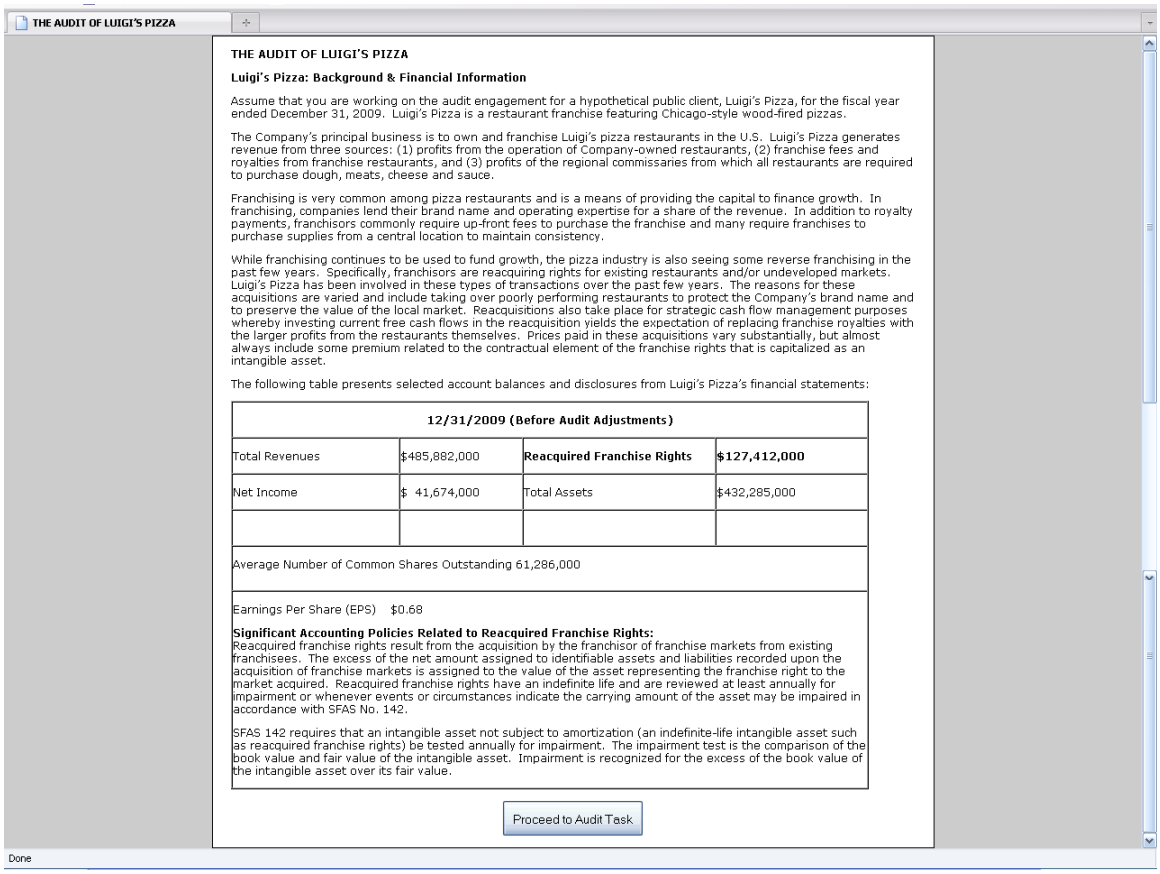
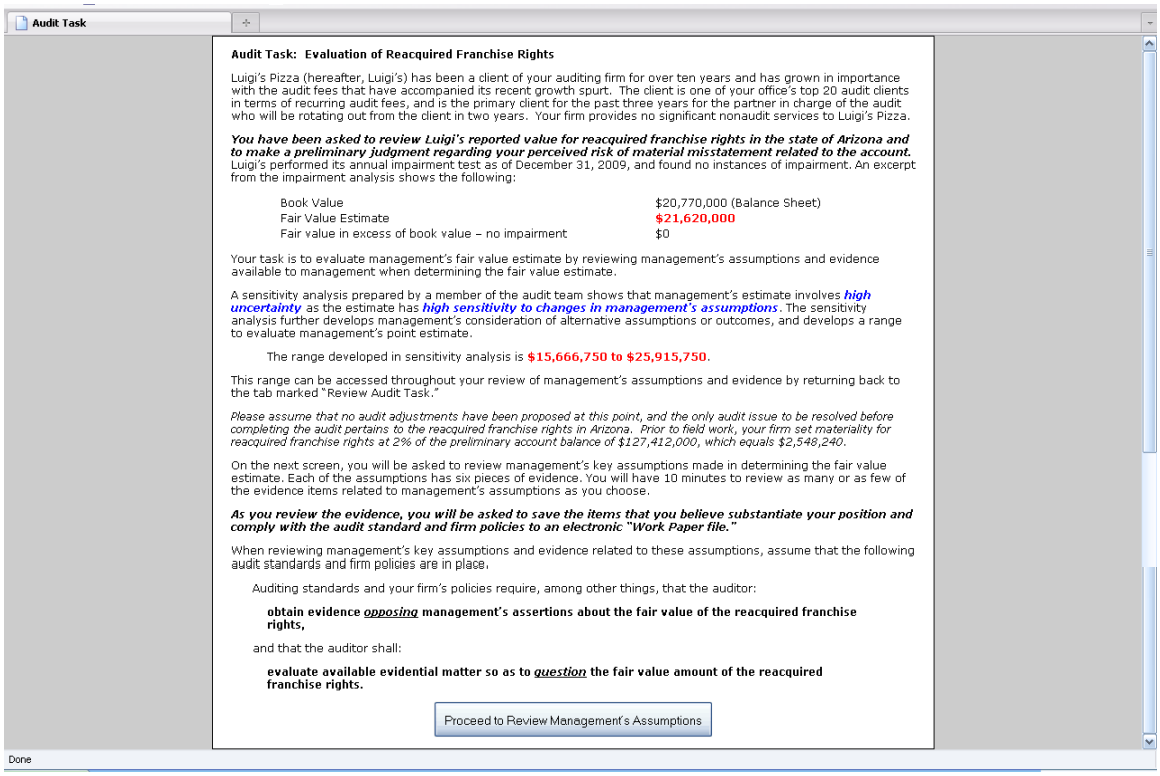
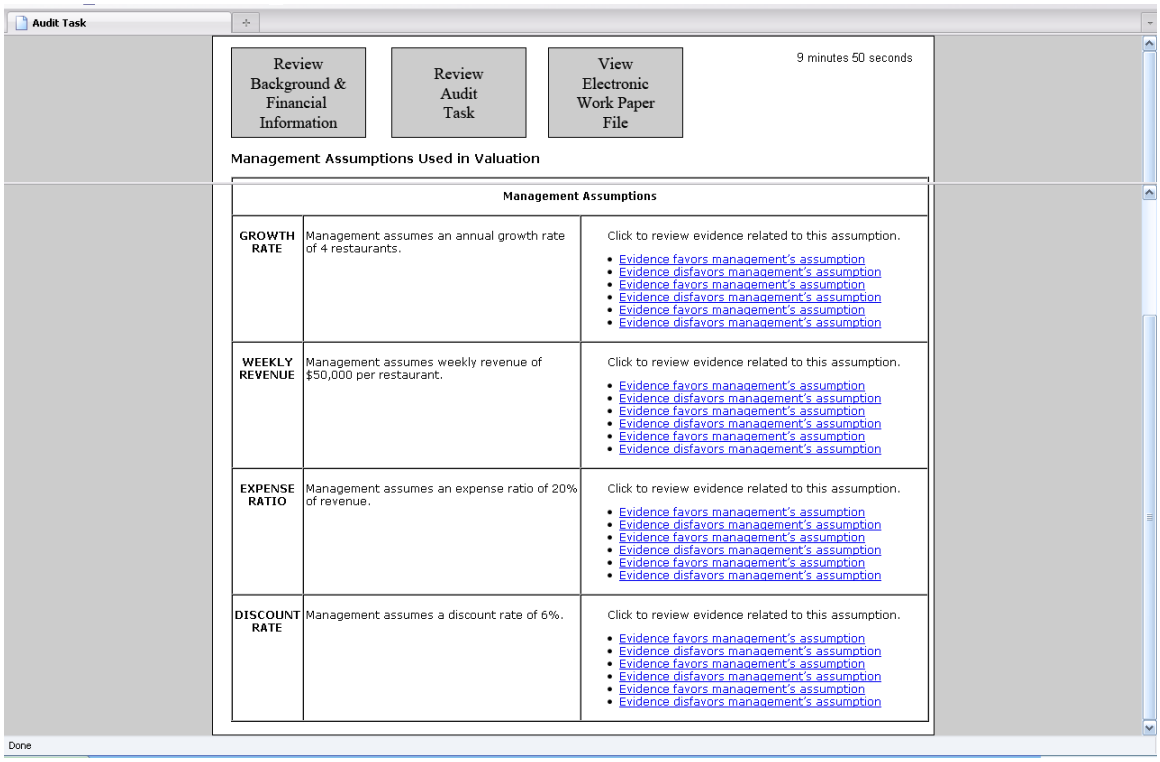
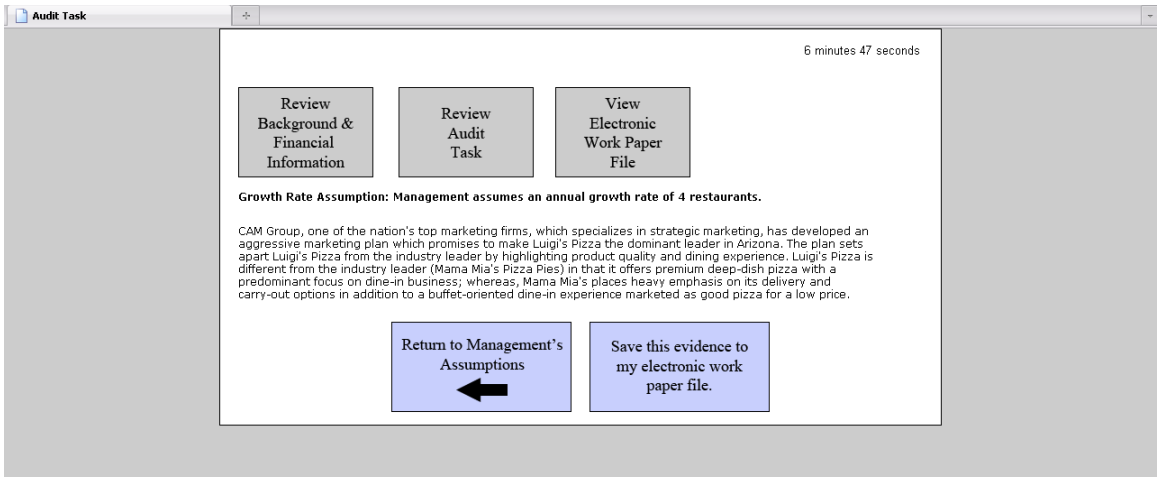

Auditing Fair Value Measurements
Dear auditor,
eIRB#: (Pro00000980)
Thank you for agreeing to participate in my project, "Auditing Fair Value Estimates".
To participate, I ask that you evaluate an issue pertaining to a hypothetical public client's intangible asset account. You will be asked to evaluate the client's fair value estimate for reacquired franchise rights by reviewing the client's assumptions as well as evidence available to the client when making the assumptions. To facilitate your review, you are provided with the following information:
Client's background and financial information
Relevant audit guidance for the evaluation of reacquired franchise rights
Management's assumptions
Evidence available for evaluation of management's assumptions
To complete your evaluation, you should use only this information provided. While you typically would have more industry and financial information available to you for a decision such as this, for purposes of this study, the information you have will be sufficient.
The case should take no more than 30 minutes. Your participation is voluntary and your identity will be kept confidential. This survey is completely anonymous and there is no linking information from the research to your identity. Your responses will be coded into numeric form and analyzed after being combined with the responses of other auditors. Your coded responses will not be released to any person or organization.
By proceeding to the next screen you are indicating consent to participate in the study.
If you have any questions, please direct your requests to:
Norma R. Montague
University of South Florida
4202 E. Fowler Avenue, BSN 3403
Tampa, Florida 33620
(813) 974-7340
nmontagu@usf.edu
Thank you again for your participation.
Continue

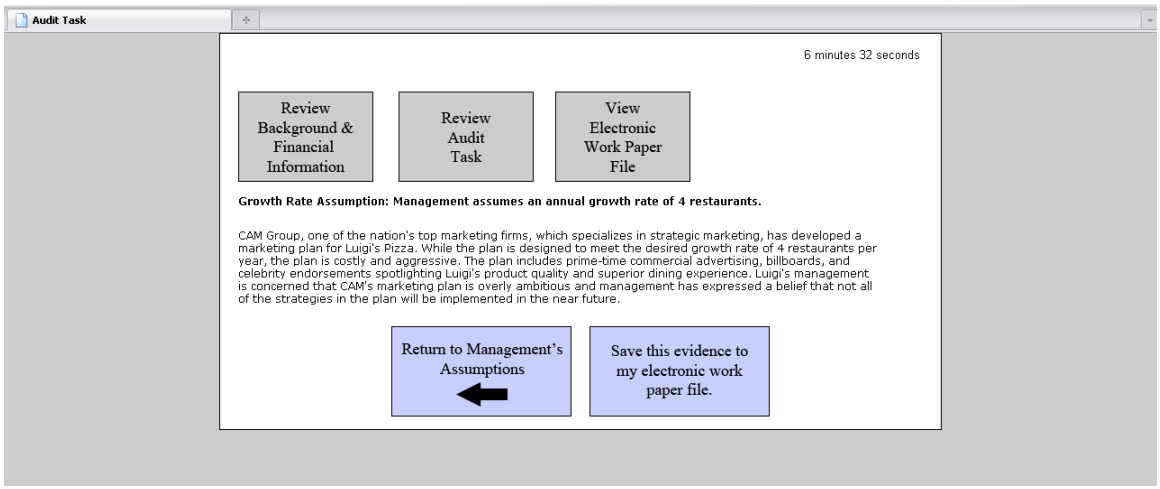

Preliminary Questions
Before you begin the task, I would like to learn a little about you. Please select the response that indicates how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement.
Strongly Disagree
Strongly Agree
I often accept other peoples' explanations without further thought
I feel good about myself
I wait to decide on issues until I can get more information
The prospect of learning excites me
I am interested in what causes people to behave the way that they do
I am confident of my abilities
I often reject statements unless I have proof that they are true
Discovering new information is fun
I take my time when making decisions
I tend to immediately accept what other people tell me
Other peoples' behavior doesn't interest me
I am self-assured
My friends tell me that I usually question things that I see or hear
I like to understand the reason for other peoples' behavior
I think that learning is exciting
Strongly Disagree
Strongly Agree
I usually accept things I see, read or hear at face value
I don't feel sure of myself
I usually notice inconsistencies in explanations
Most often I agree with what the others in my group think
I dislike having to make decisions quickly
I have confidence in myself
I don't like to decide until I've looked at all of the readily available information
I like searching for knowledge
I frequently question things that I see or hear
1It is easy for other people to convince me
I seldom consider why people behave in a certain way
I like to ensure that I've considered most available information before making a decision
I enjoy trying to determine if what I read or hear is true
I relish learning
The actions people take and the reasons for those actions are fascinating
Strongly Disagree
Strongly Agree
Proceed to Client Background and Financial Information

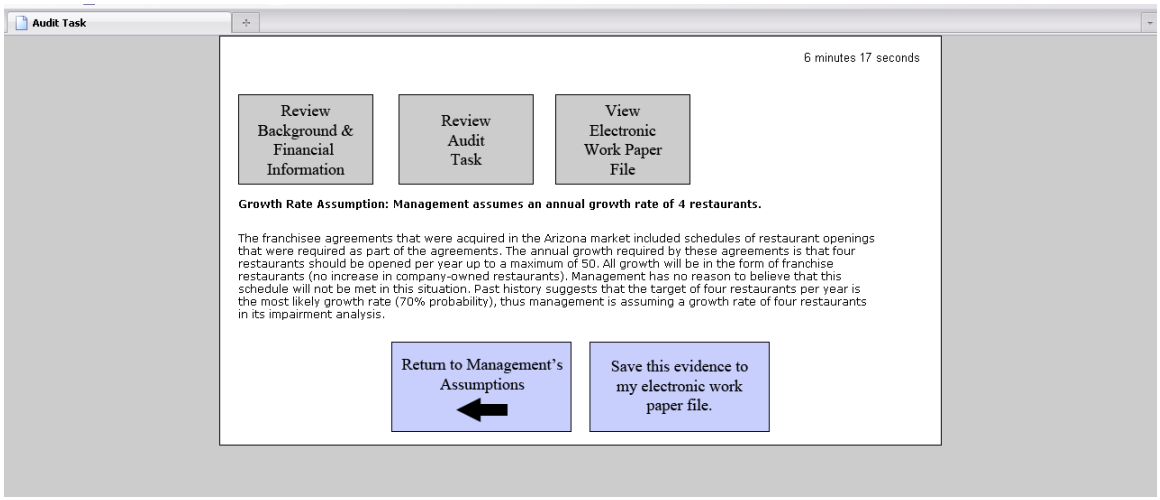

THE AUDIT OF LUIGI'S PIZZA
THE AUDIT OF LUIGI'S PIZZA
Luigi's Pizza: Background & Financial Information
Assume that you are working on the audit engagement for a hypothetical public client, Luigi's Pizza, for the fiscal year ended December 31, 2009. Luigi's Pizza is a restaurant franchise featuring Chicago-style wood-fired pizzas.
The Company's principal business is to own and franchise Luigi's pizza restaurants in the U.S. Luigi's Pizza generates revenue from three sources: (1) profits from the operation of Company-owned restaurants, (2) franchise fees and royalties from franchise restaurants, and (3) profits of the regional commissaries from which all restaurants are required to purchase dough, meats, cheese and sauce.
Franchising is very common among pizza restaurants and is a means of providing the capital to finance growth. In franchising, companies lend their brand name and operating expertise for a share of the revenue. In addition to royalty payments, franchisors commonly require up-front fees to purchase the franchise and many require franchises to purchase supplies from a central location to maintain consistency.
While franchising continues to be used to fund growth, the pizza industry is also seeing some reverse franchising in the past few years. Specifically, franchisors are reacquiring rights for existing restaurants and/or undeveloped markets. Luigi's Pizza has been involved in these types of transactions over the past few years. The reasons for these acquisitions are varied and include taking over poorly performing restaurants to protect the Company's brand name and to preserve the value of the local market. Reacquisitions also take place for strategic cash flow management purposes whereby investing current free cash flows in the reacquisition yields the expectation of replacing franchise royalties with the larger profits from the restaurants themselves. Prices paid in these acquisitions vary substantially, but almost always include some premium related to the contractual element of the franchise rights that is capitalized as an intangible asset.
The following table presents selected account balances and disclosures from Luigi's Pizza's financial statements:
12/31/2009 (Before Audit Adjustments)
Total Revenues $485,882,000
Reacquired Franchise Rights $127,412,000
Net Income $ 41,674,000
Total Assets $432,285,000
Average Number of Common Shares Outstanding 61,286,000
Earnings Per Share (EPS) $0.68
Significant Accounting Policies Related to Reacquired Franchise Rights:
Reacquired franchise rights result from the acquisition by the franchisor of franchise markets from existing franchisees. The excess of the net amount assigned to identifiable assets and liabilities recorded upon the acquisition of franchise markets is assigned to the value of the asset representing the franchise right to the market acquired. Reacquired franchise rights have an indefinite life and are reviewed at least annually for impairment or whenever events or circumstances indicate the carrying amount of the asset may be impaired in accordance with SFAS No. 142.
SFAS 142 requires that an intangible asset not subject to amortization (an indefinite-life intangible asset such as reacquired franchise rights) be tested annually for impairment. The impairment test is the comparison of the book value and fair value of the intangible asset. Impairment is recognized for the excess of the book value of the intangible asset over its fair value.
Proceed to Audit Task
Done

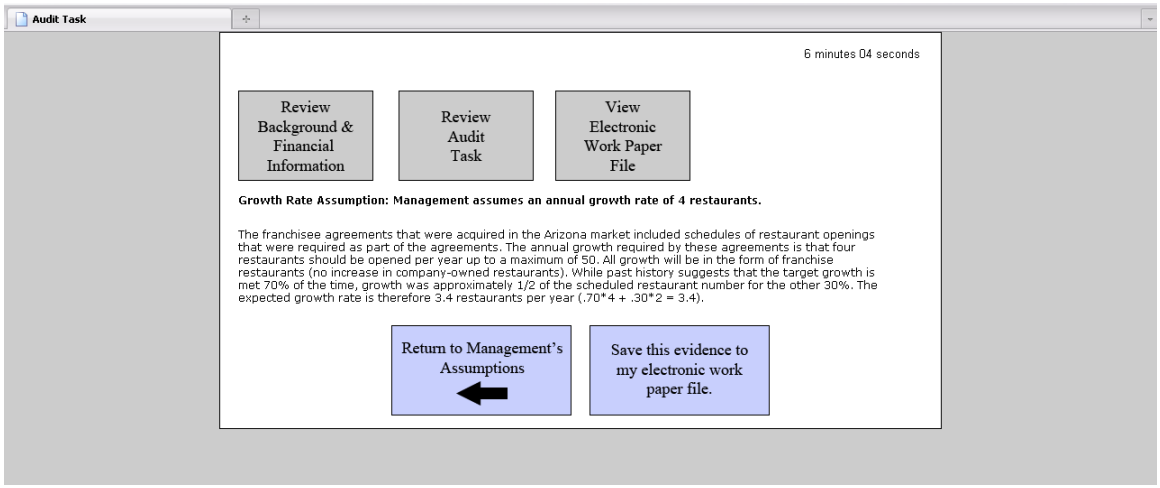

Audit Task
Audit Task: Evaluation of Reacquired Franchise Rights
Luigi's Pizza (hereafter, Luigi's) has been a client of your auditing firm for over ten years and has grown in importance with the audit fees that have accompanied its recent growth spurt. The client is one of your office's top 20 audit clients in terms of recurring audit fees, and is the primary client for the past three years for the partner in charge of the audit who will be rotating out from the client in two years. Your firm provides no significant nonaudit services to Luigi's Pizza.
You have been asked to review Luigi's reported value for reacquired franchise rights in the state of Arizona and to make a preliminary judgment regarding your perceived risk of material misstatement related to the account. Luigi's performed its annual impairment test as of December 31, 2009, and found no instances of impairment. An excerpt from the impairment analysis shows the following:
Book Value $20,770,000 (Balance Sheet)
Fair Value Estimate $21,620,000
Fair value in excess of book value – no impairment $0
Your task is to evaluate management's fair value estimate by reviewing management's assumptions and evidence available to management when determining the fair value estimate.
A sensitivity analysis prepared by a member of the audit team shows that management's estimate involves high uncertainty as the estimate has high sensitivity to changes in management's assumptions. The sensitivity analysis further develops management's consideration of alternative assumptions or outcomes, and develops a range to evaluate management's point estimate.
The range developed in sensitivity analysis is $15,666,750 to $25,915,750.
This range can be accessed throughout your review of management's assumptions and evidence by returning back to the tab marked "Review Audit Task."
Please assume that no audit adjustments have been proposed at this point, and the only audit issue to be resolved before completing the audit pertains to the reacquired franchise rights in Arizona. Prior to field work, your firm set materiality for reacquired franchise rights at 2% of the preliminary account balance of $127,412,000, which equals $2,548,240.
On the next screen, you will be asked to review management's key assumptions made in determining the fair value estimate. Each of the assumptions has six pieces of evidence. You will have 10 minutes to review as many or as few of the evidence items related to management's assumptions as you choose.
As you review the evidence, you will be asked to save the items that you believe substantiate your position and comply with the audit standard and firm policies to an electronic "Work Paper file."
When reviewing management's key assumptions and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.
Auditing standards and your firm's policies require, among other things, that the auditor:
obtain evidence opposing management's assertions about the fair value of the reacquired franchise rights,
and that the auditor shall:
evaluate available evidential matter so as to question the fair value amount of the reacquired franchise rights.
Proceed to Review Management's Assumptions
Done

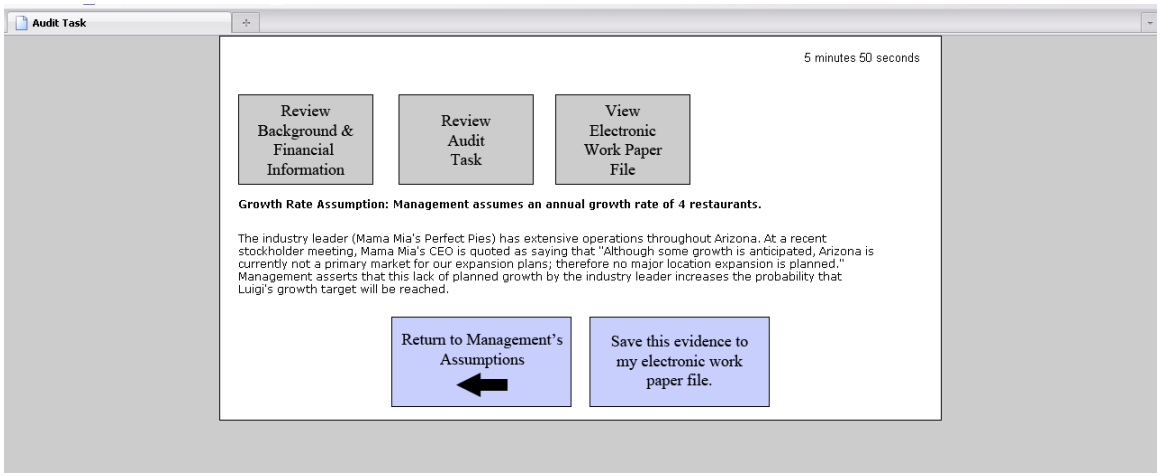

Audit Task
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
9 minutes 50 seconds
Management Assumptions Used in Valuation
Management Assumptions
GROWTH RATE
Management assumes an annual growth rate of 4 restaurants.
Click to review evidence related to this assumption.
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
WEEKLY REVENUE
Management assumes weekly revenue of $50,000 per restaurant.
Click to review evidence related to this assumption.
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
EXPENSE RATIO
Management assumes an expense ratio of 20% of revenue.
Click to review evidence related to this assumption.
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
DISCOUNT RATE
Management assumes a discount rate of 6%.
Click to review evidence related to this assumption.
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
Evidence favors management's assumption
Evidence disfavors management's assumption
Done

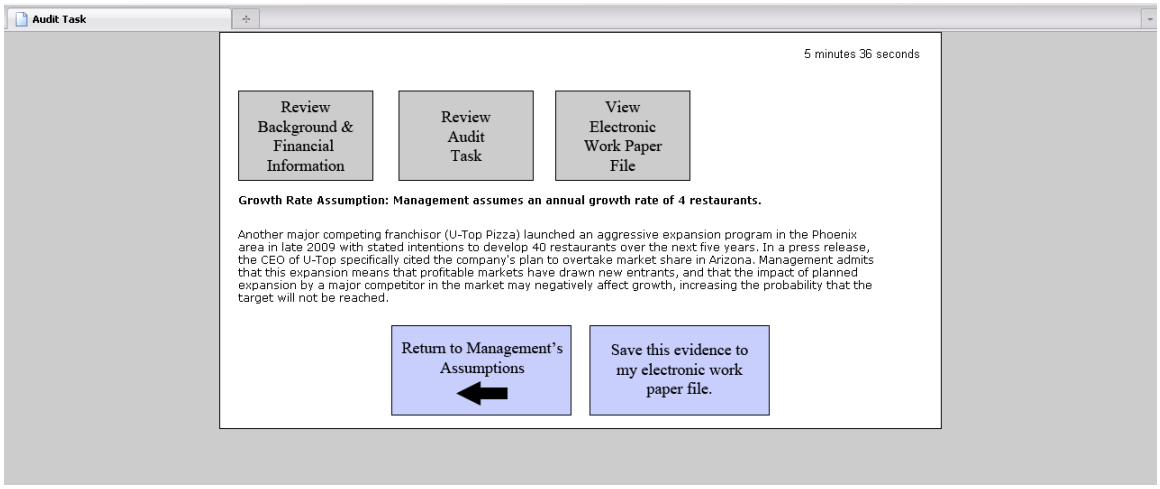

Audit Task
6 minutes 47 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
CAM Group, one of the nation's top marketing firms, which specializes in strategic marketing, has developed an aggressive marketing plan which promises to make Luigi's Pizza the dominant leader in Arizona. The plan sets apart Luigi's Pizza from the industry leader by highlighting product quality and dining experience. Luigi's Pizza is different from the industry leader (Mama Mia's Pizza Pies) in that it offers premium deep-dish pizza with a predominant focus on dine-in business; whereas, Mama Mia's places heavy emphasis on its delivery and carry-out options in addition to a buffet-oriented dine-in experience marketed as good pizza for a low price.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

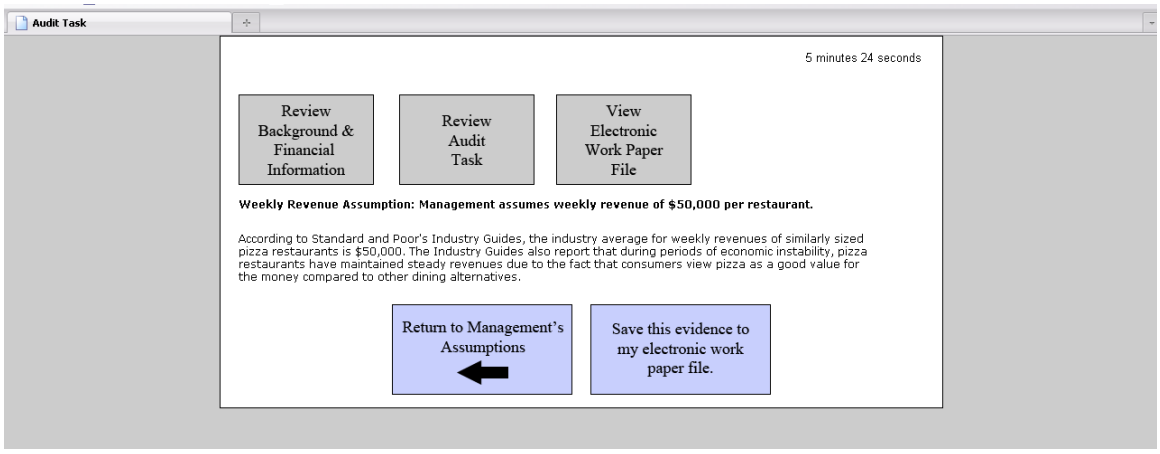

Audit Task
6 minutes 32 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
CAM Group, one of the nation's top marketing firms, which specializes in strategic marketing, has developed a marketing plan for Luigi's Pizza. While the plan is designed to meet the desired growth rate of 4 restaurants per year, the plan is costly and aggressive. The plan includes prime-time commercial advertising, billboards, and celebrity endorsements spotlighting Luigi's product quality and superior dining experience. Luigi's management is concerned that CAM's marketing plan is overly ambitious and management has expressed a belief that not all of the strategies in the plan will be implemented in the near future.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

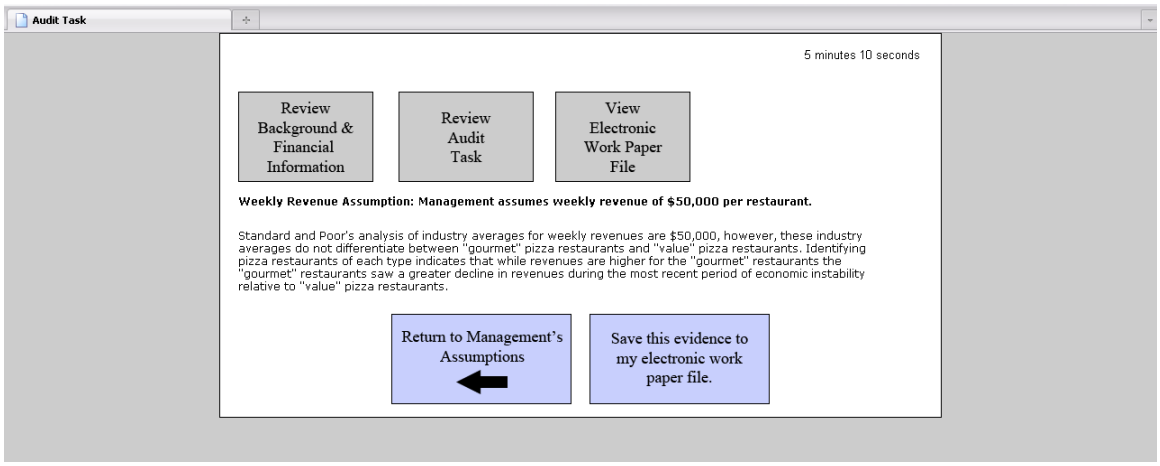

Audit Task
6 minutes 17 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
The franchisee agreements that were acquired in the Arizona market included schedules of restaurant openings that were required as part of the agreements. The annual growth required by these agreements is that four restaurants should be opened per year up to a maximum of 50. All growth will be in the form of franchise restaurants (no increase in company-owned restaurants). Management has no reason to believe that this schedule will not be met in this situation. Past history suggests that the target of four restaurants per year is the most likely growth rate (70% probability), thus management is assuming a growth rate of four restaurants in its impairment analysis.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

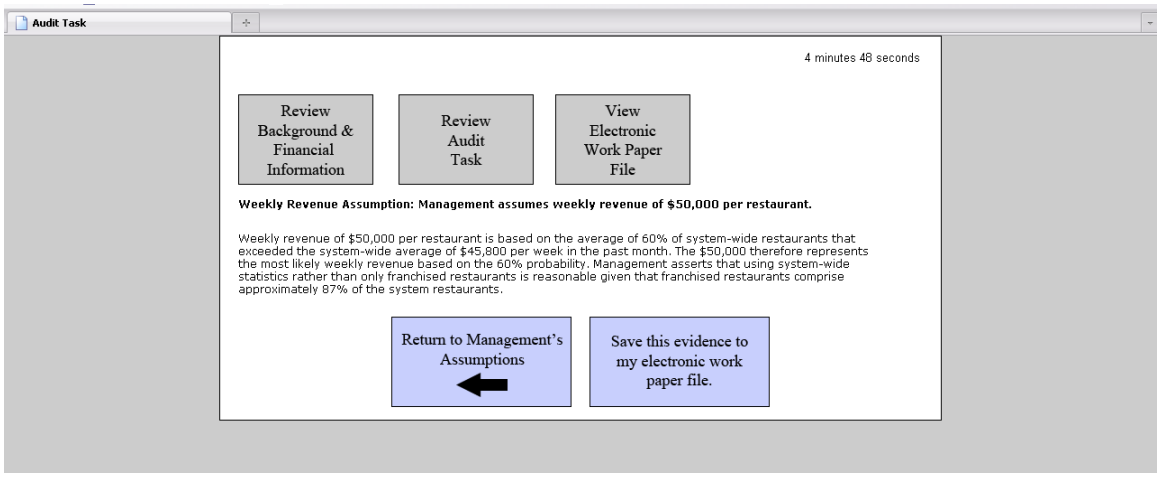

Audit Task
6 minutes 04 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
The franchisee agreements that were acquired in the Arizona market included schedules of restaurant openings that were required as part of the agreements. The annual growth required by these agreements is that four restaurants should be opened per year up to a maximum of 50. All growth will be in the form of franchise restaurants (no increase in company-owned restaurants). While past history suggests that the target growth is met 70% of the time, growth was approximately 1/2 of the scheduled restaurant number for the other 30%. The expected growth rate is therefore 3.4 restaurants per year (.70*4 + .30*2 = 3.4).
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

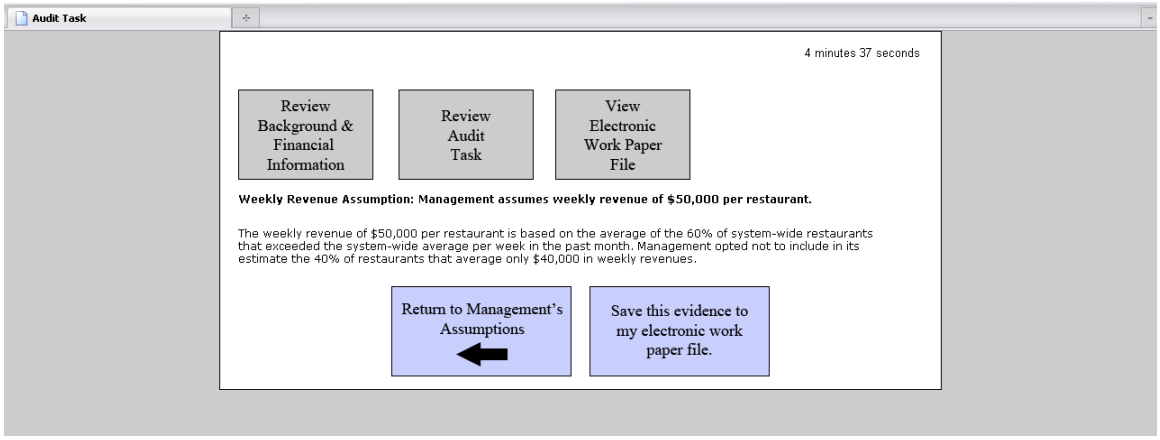

Audit Task
5 minutes 50 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
The industry leader (Mama Mia's Perfect Pies) has extensive operations throughout Arizona. At a recent stockholder meeting, Mama Mia's CEO is quoted as saying that "Although some growth is anticipated, Arizona is currently not a primary market for our expansion plans; therefore no major location expansion is planned." Management asserts that this lack of planned growth by the industry leader increases the probability that Luigi's growth target will be reached.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

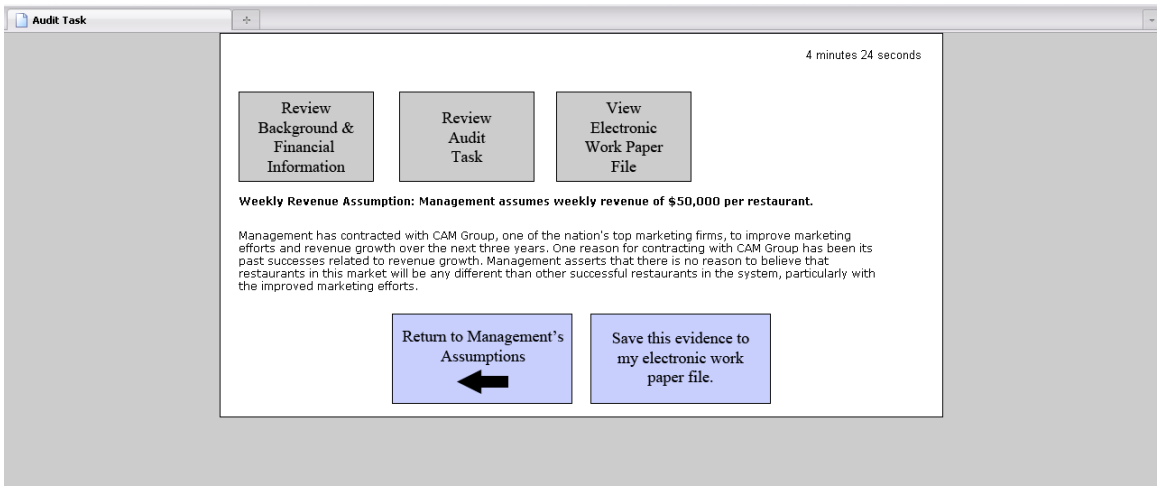

Audit Task
5 minutes 36 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
Another major competing franchisor (U-Top Pizza) launched an aggressive expansion program in the Phoenix area in late 2009 with stated intentions to develop 40 restaurants over the next five years. In a press release, the CEO of U-Top specifically cited the company's plan to overtake market share in Arizona. Management admits that this expansion means that profitable markets have drawn new entrants, and that the impact of planned expansion by a major competitor in the market may negatively affect growth, increasing the probability that the target will not be reached.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

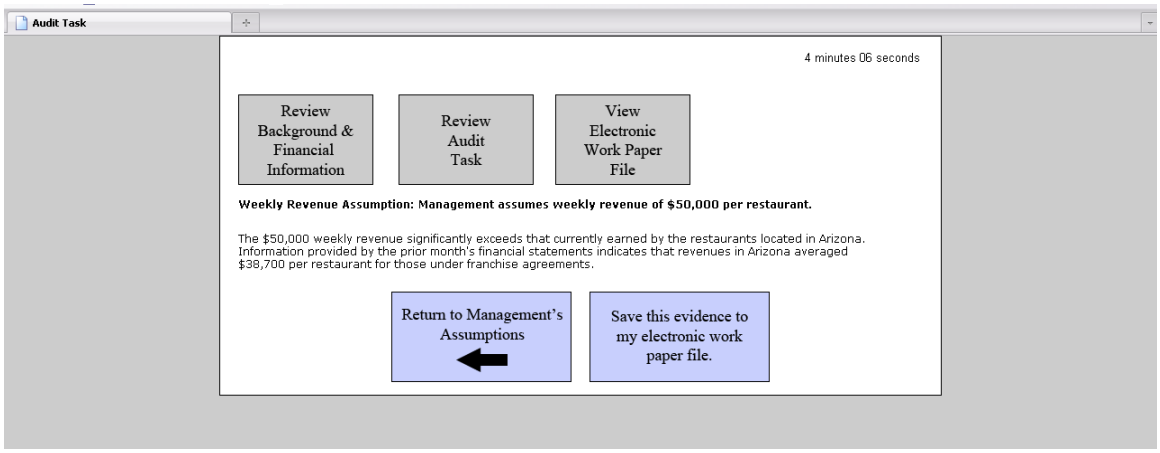

Audit Task
5 minutes 24 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
According to Standard and Poor's Industry Guides, the industry average for weekly revenues of similarly sized pizza restaurants is $50,000. The Industry Guides also report that during periods of economic instability, pizza restaurants have maintained steady revenues due to the fact that consumers view pizza as a good value for the money compared to other dining alternatives.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

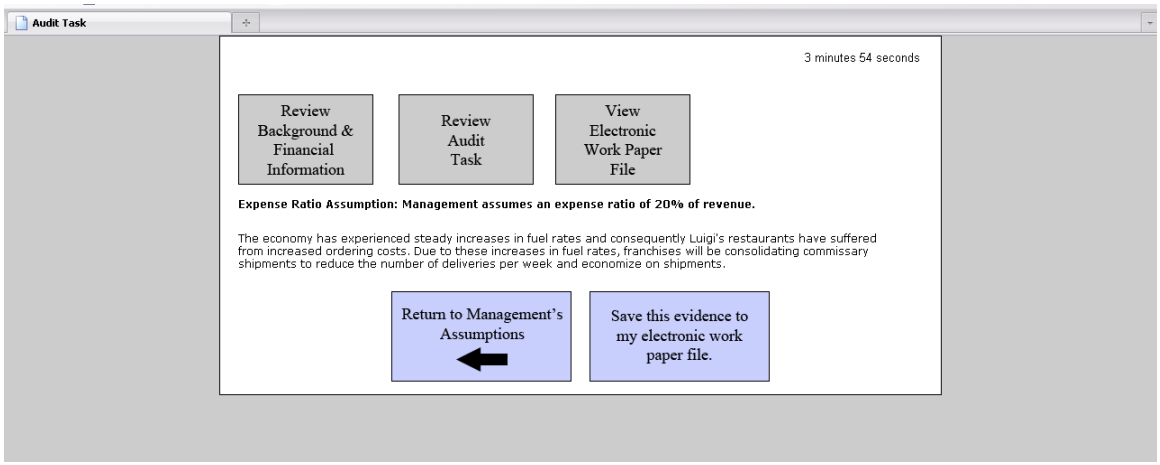

Audit Task
5 minutes 10 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Standard and Poor's analysis of industry averages for weekly revenues are $50,000, however, these industry averages do not differentiate between "gourmet" pizza restaurants and "value" pizza restaurants. Identifying pizza restaurants of each type indicates that while revenues are higher for the "gourmet" restaurants the "gourmet" restaurants saw a greater decline in revenues during the most recent period of economic instability relative to "value" pizza restaurants.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

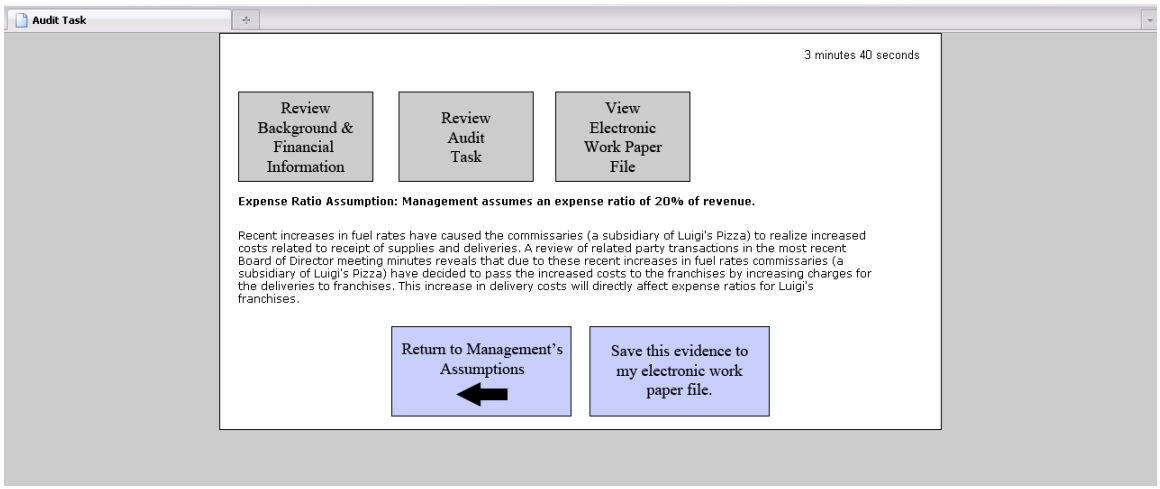

Audit Task
4 minutes 48 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Weekly revenue of $50,000 per restaurant is based on the average of 60% of system-wide restaurants that exceeded the system-wide average of $45,800 per week in the past month. The $50,000 therefore represents the most likely weekly revenue based on the 60% probability. Management asserts that using system-wide statistics rather than only franchised restaurants is reasonable given that franchised restaurants comprise approximately 87% of the system restaurants.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

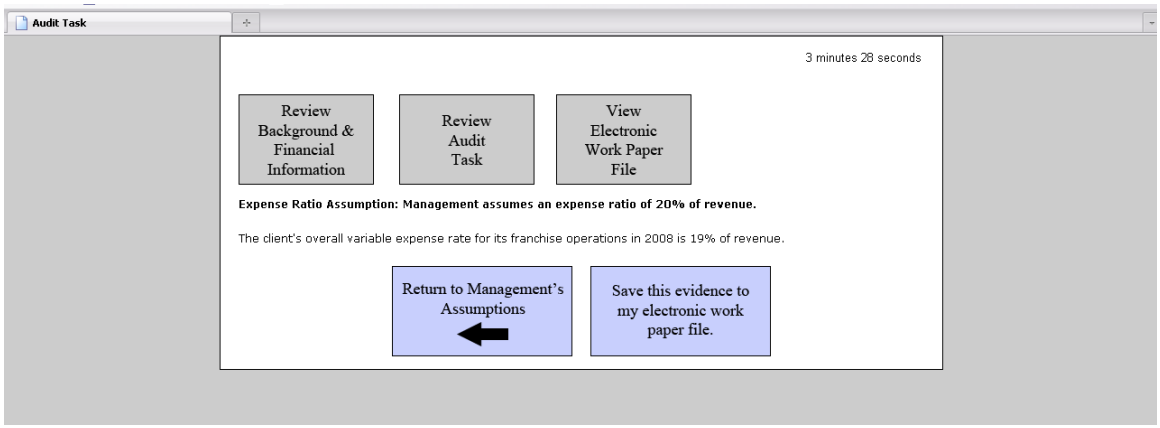

Audit Task
4 minutes 37 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
The weekly revenue of $50,000 per restaurant is based on the average of the 60% of system-wide restaurants that exceeded the system-wide average per week in the past month. Management opted not to include in its estimate the 40% of restaurants that average only $40,000 in weekly revenues.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

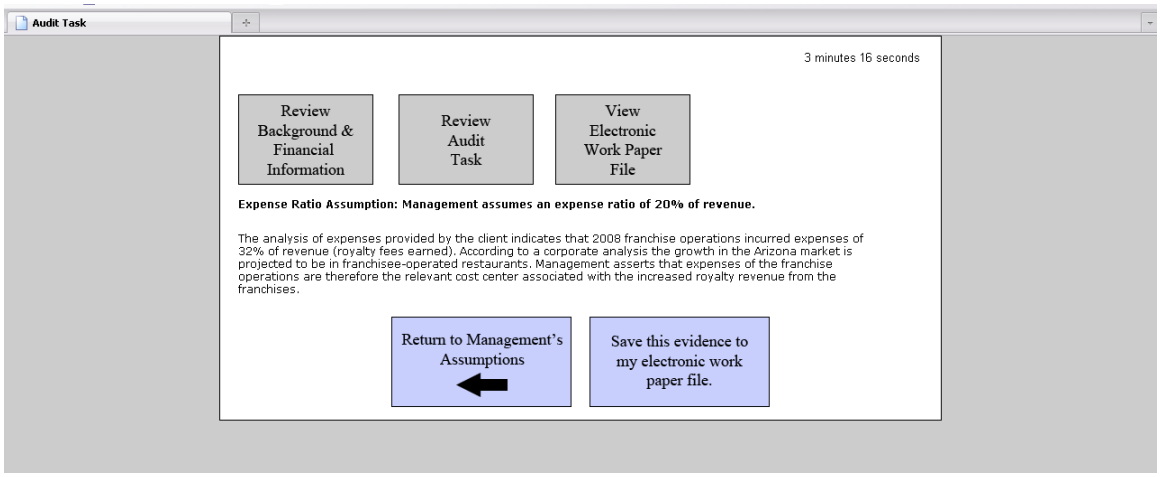

Audit Task
4 minutes 24 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Management has contracted with CAM Group, one of the nation's top marketing firms, to improve marketing efforts and revenue growth over the next three years. One reason for contracting with CAM Group has been its past successes related to revenue growth. Management asserts that there is no reason to believe that restaurants in this market will be any different than other successful restaurants in the system, particularly with the improved marketing efforts.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

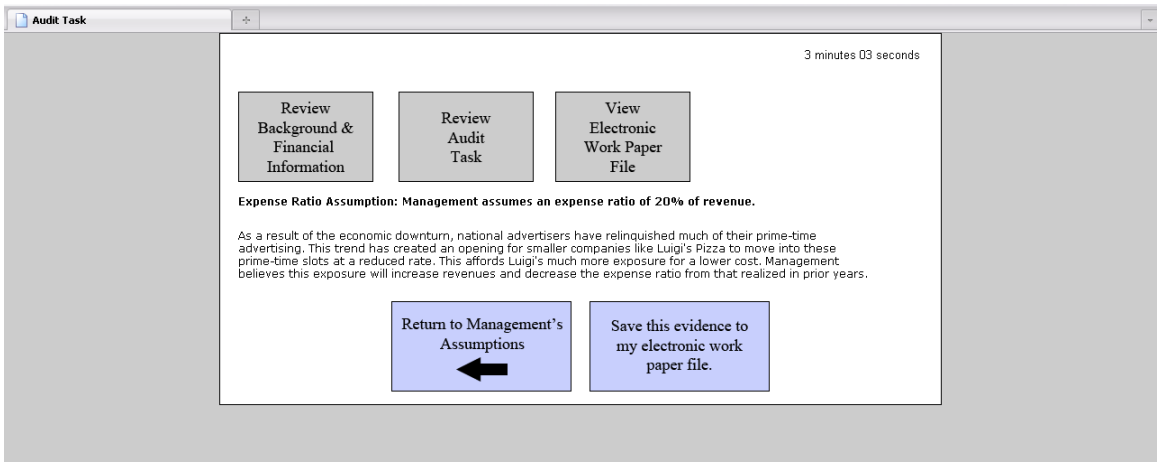

Audit Task
4 minutes 06 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
The $50,000 weekly revenue significantly exceeds that currently earned by the restaurants located in Arizona. Information provided by the prior month's financial statements indicates that revenues in Arizona averaged $38,700 per restaurant for those under franchise agreements.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

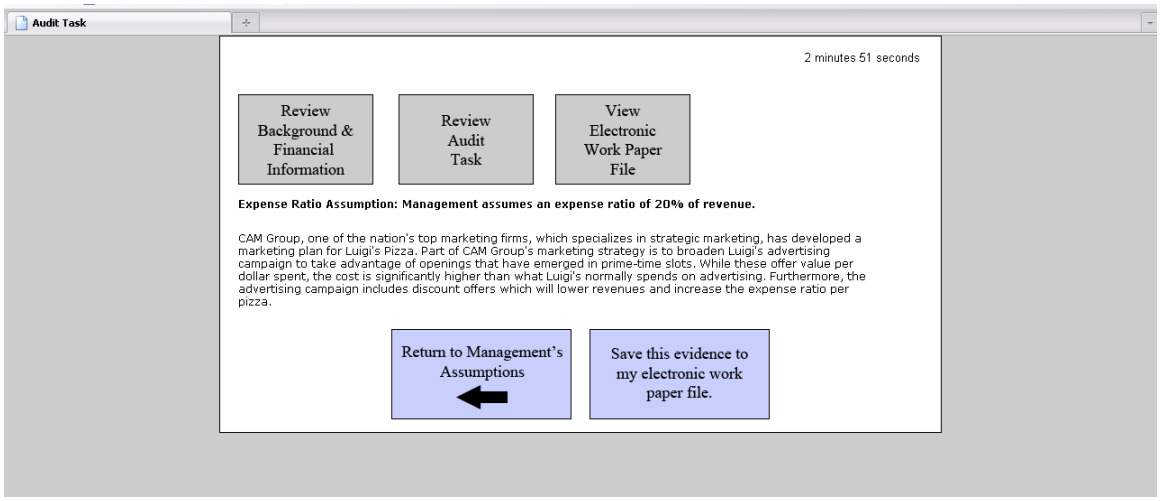

Audit Task
3 minutes 54 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The economy has experienced steady increases in fuel rates and consequently Luigi's restaurants have suffered from increased ordering costs. Due to these increases in fuel rates, franchises will be consolidating commissary shipments to reduce the number of deliveries per week and economize on shipments.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

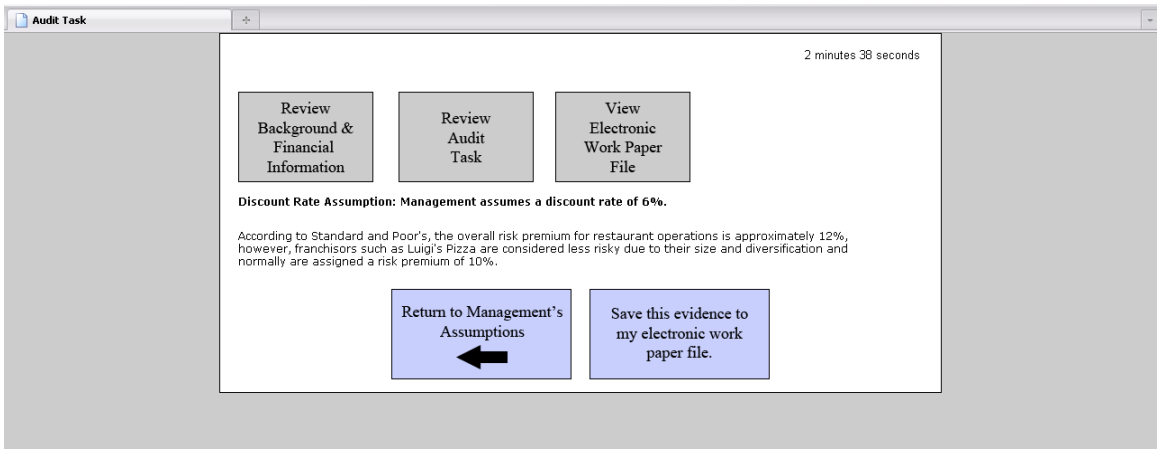

Audit Task
3 minutes 40 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
Recent increases in fuel rates have caused the commissaries (a subsidiary of Luigi's Pizza) to realize increased costs related to receipt of supplies and deliveries. A review of related party transactions in the most recent Board of Director meeting minutes reveals that due to these recent increases in fuel rates commissaries (a subsidiary of Luigi's Pizza) have decided to pass the increased costs to the franchises by increasing charges for the deliveries to franchises. This increase in delivery costs will directly affect expense ratios for Luigi's franchises.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

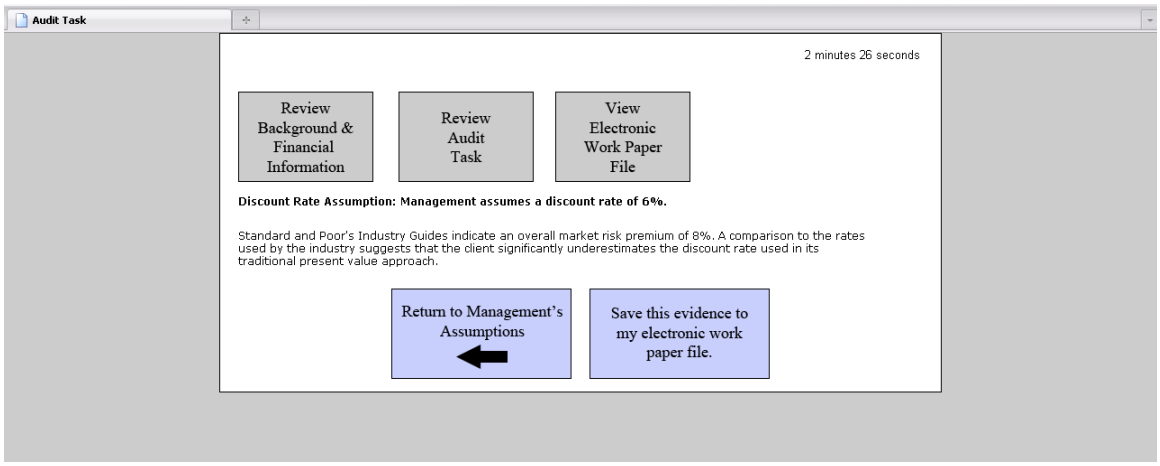

Audit Task
3 minutes 28 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The client's overall variable expense rate for its franchise operations in 2008 is 19% of revenue.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

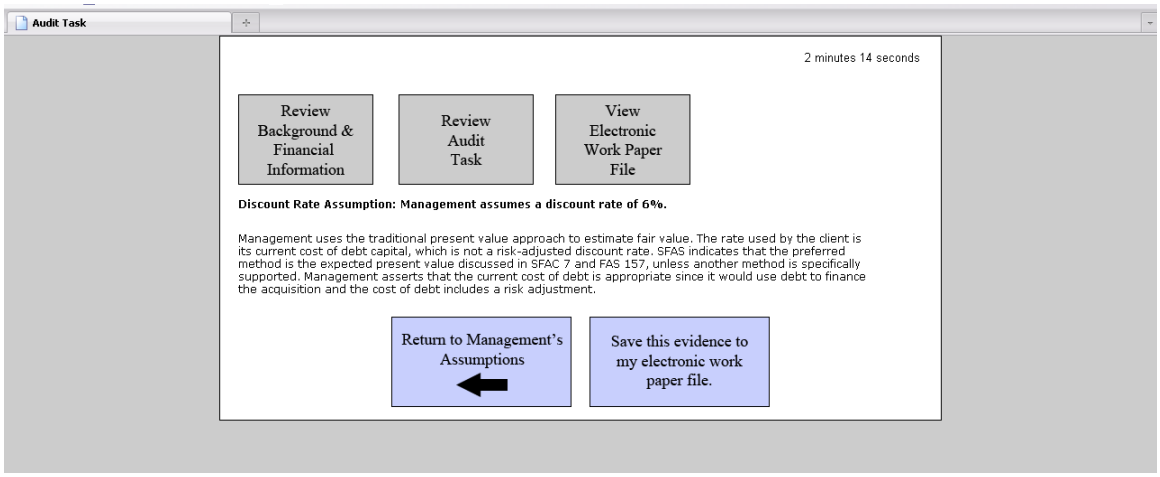

Audit Task
3 minutes 16 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The analysis of expenses provided by the client indicates that 2008 franchise operations incurred expenses of 32% of revenue (royalty fees earned). According to a corporate analysis the growth in the Arizona market is projected to be in franchisee-operated restaurants. Management asserts that expenses of the franchise operations are therefore the relevant cost center associated with the increased royalty revenue from the franchises.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

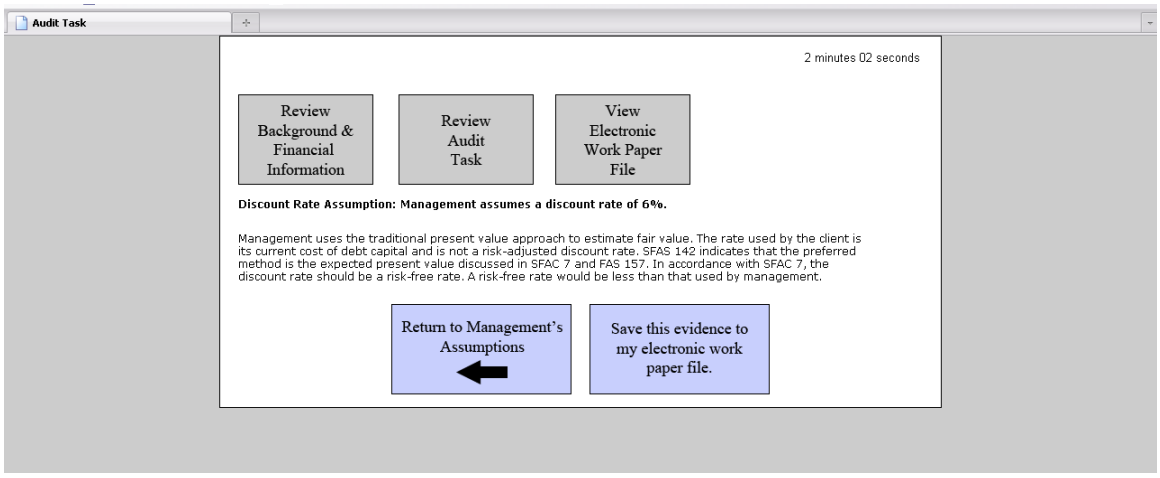

Audit Task
3 minutes 03 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
As a result of the economic downturn, national advertisers have relinquished much of their prime-time advertising. This trend has created an opening for smaller companies like Luigi's Pizza to move into these prime-time slots at a reduced rate. This affords Luigi's much more exposure for a lower cost. Management believes this exposure will increase revenues and decrease the expense ratio from that realized in prior years.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

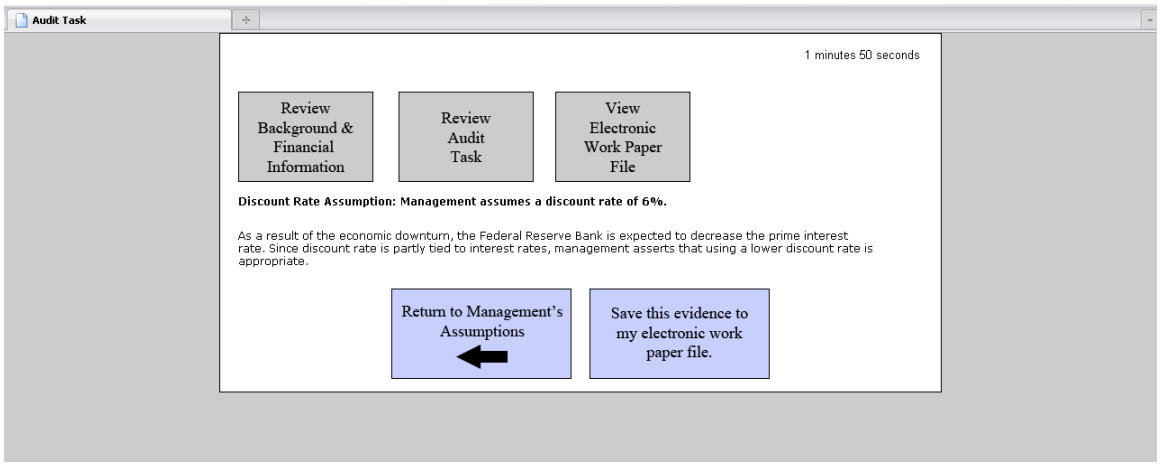

Audit Task
2 minutes 51 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
CAM Group, one of the nation's top marketing firms, which specializes in strategic marketing, has developed a marketing plan for Luigi's Pizza. Part of CAM Group's marketing strategy is to broaden Luigi's advertising campaign to take advantage of openings that have emerged in prime-time slots. While these offer value per dollar spent, the cost is significantly higher than what Luigi's normally spends on advertising. Furthermore, the advertising campaign includes discount offers which will lower revenues and increase the expense ratio per pizza.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

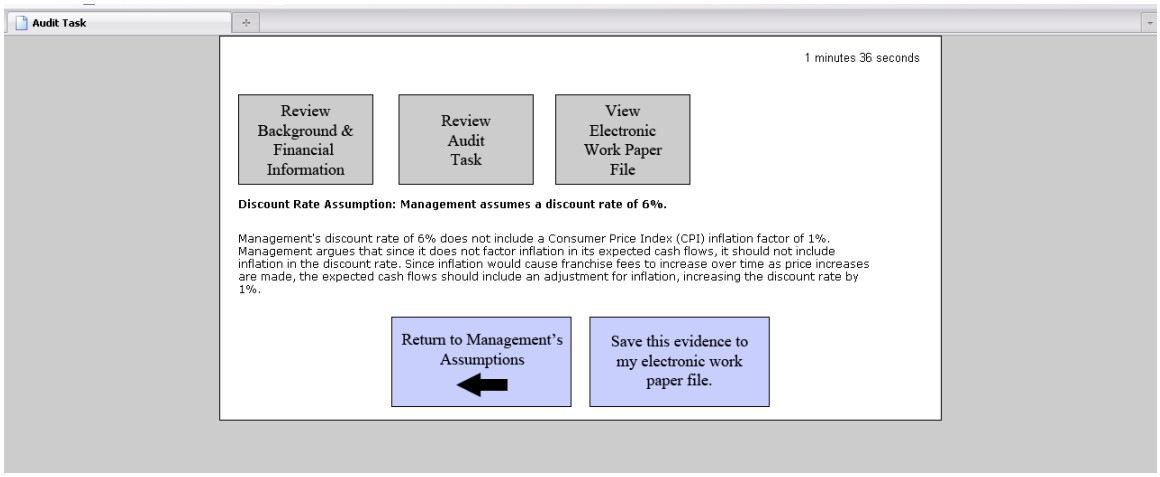

Audit Task
2 minutes 38 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
According to Standard and Poor's, the overall risk premium for restaurant operations is approximately 12%, however, franchisors such as Luigi's Pizza are considered less risky due to their size and diversification and normally are assigned a risk premium of 10%.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

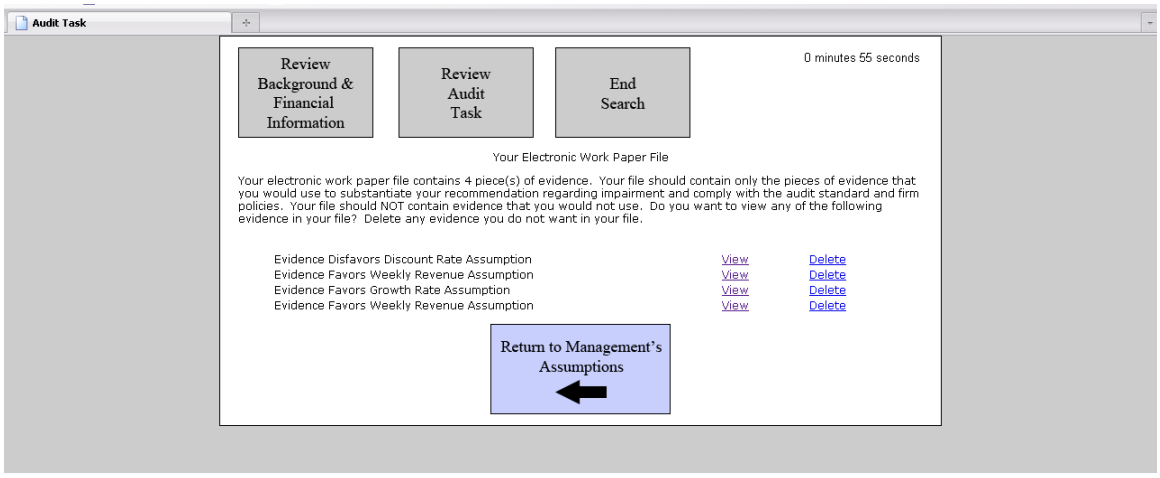

Audit Task
2 minutes 26 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
Standard and Poor's Industry Guides indicate an overall market risk premium of 8%. A comparison to the rates used by the industry suggests that the client significantly underestimates the discount rate used in its traditional present value approach.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

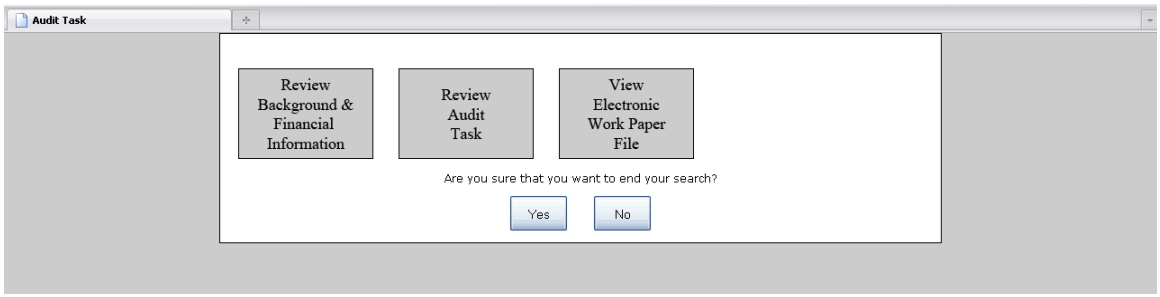

Audit Task
2 minutes 14 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
Management uses the traditional present value approach to estimate fair value. The rate used by the client is its current cost of debt capital, which is not a risk-adjusted discount rate. SFAS indicates that the preferred method is the expected present value discussed in SFAC 7 and FAS 157, unless another method is specifically supported. Management asserts that the current cost of debt is appropriate since it would use debt to finance the acquisition and the cost of debt includes a risk adjustment.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

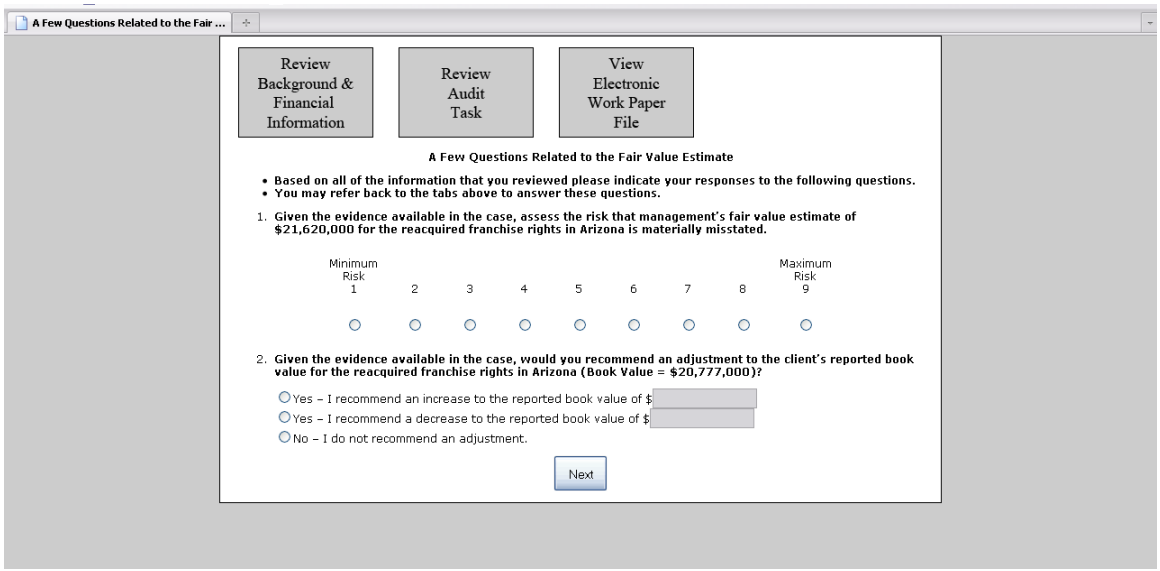

Audit Task
2 minutes 02 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
Management uses the traditional present value approach to estimate fair value. The rate used by the client is its current cost of debt capital and is not a risk-adjusted discount rate. SFAS 142 indicates that the preferred method is the expected present value discussed in SFAC 7 and FAS 157. In accordance with SFAC 7, the discount rate should be a risk-free rate. A risk-free rate would be less than that used by management.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

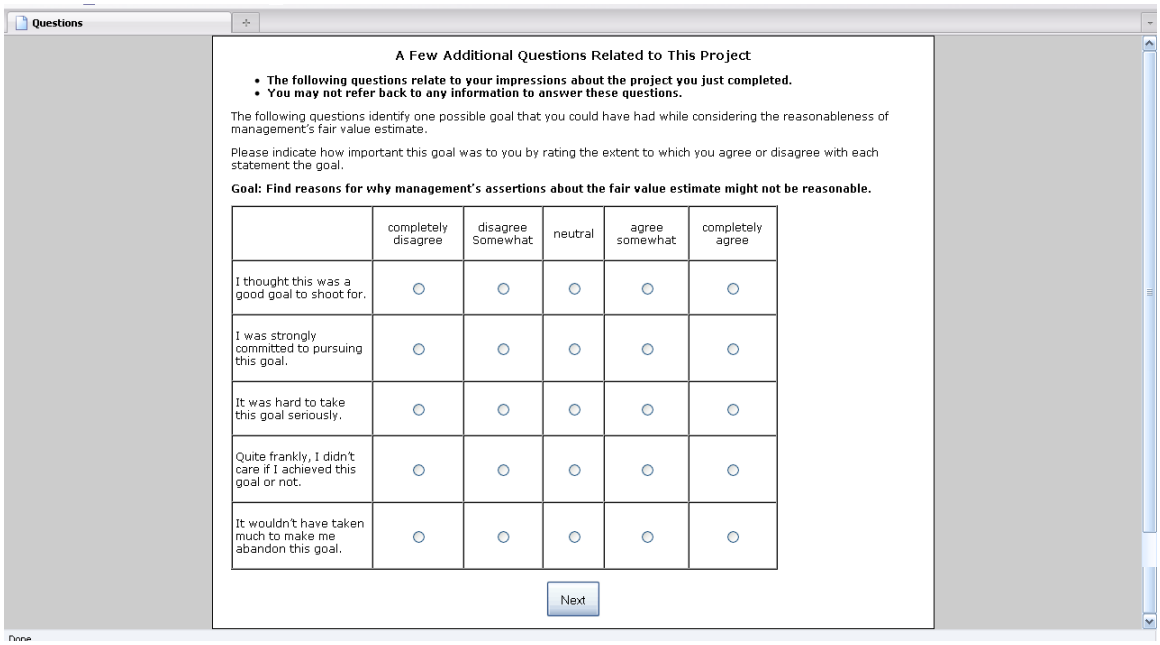

Audit Task
1 minutes 50 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
As a result of the economic downturn, the Federal Reserve Bank is expected to decrease the prime interest rate. Since discount rate is partly tied to interest rates, management asserts that using a lower discount rate is appropriate.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

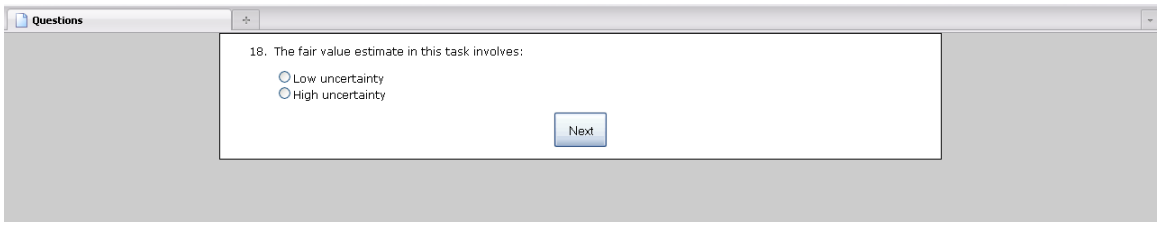

Audit Task
1 minutes 36 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Discount Rate Assumption: Management assumes a discount rate of 6%.
Management's discount rate of 6% does not include a Consumer Price Index (CPI) inflation factor of 1%. Management argues that since it does not factor inflation in its expected cash flows, it should not include inflation in the discount rate. Since inflation would cause franchise fees to increase over time as price increases are made, the expected cash flows should include an adjustment for inflation, increasing the discount rate by 1%.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.

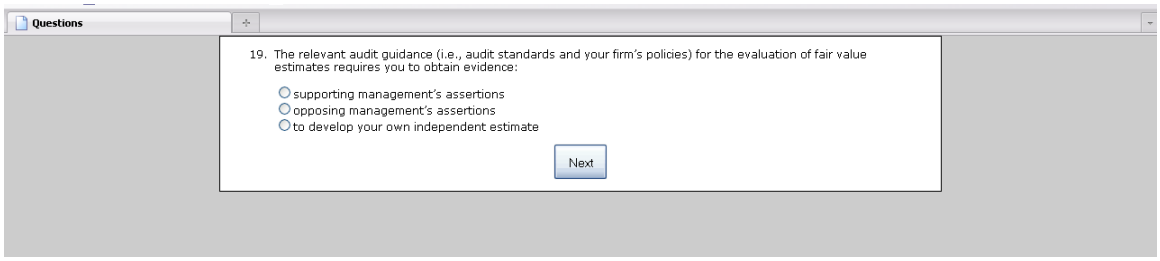

Audit Task
Review Background & Financial Information
Review Audit Task
End Search
0 minutes 55 seconds
Your Electronic Work Paper File
Your electronic work paper file contains 4 piece(s) of evidence. Your file should contain only the pieces of evidence that you would use to substantiate your recommendation regarding impairment and comply with the audit standard and firm policies. Your file should NOT contain evidence that you would not use. Do you want to view any of the following evidence in your file? Delete any evidence you do not want in your file.
Evidence Disfavors Discount Rate Assumption View Delete
Evidence Favors Weekly Revenue Assumption View Delete
Evidence Favors Growth Rate Assumption View Delete
Evidence Favors Weekly Revenue Assumption View Delete
Return to Management's Assumptions

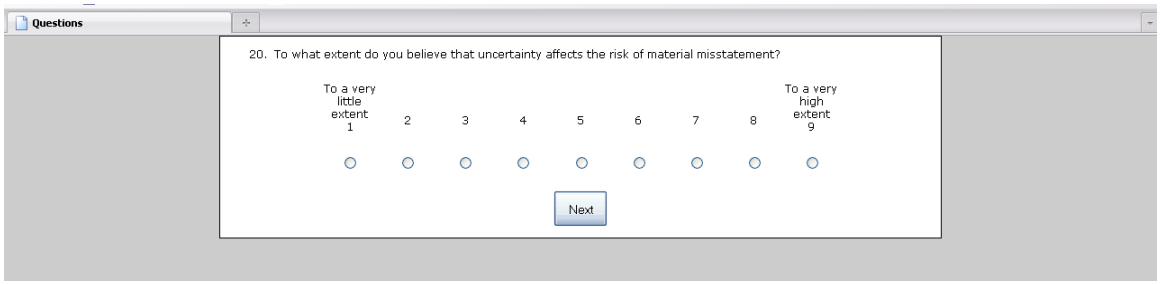

Audit Task
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Are you sure that you want to end your search?
Yes
No

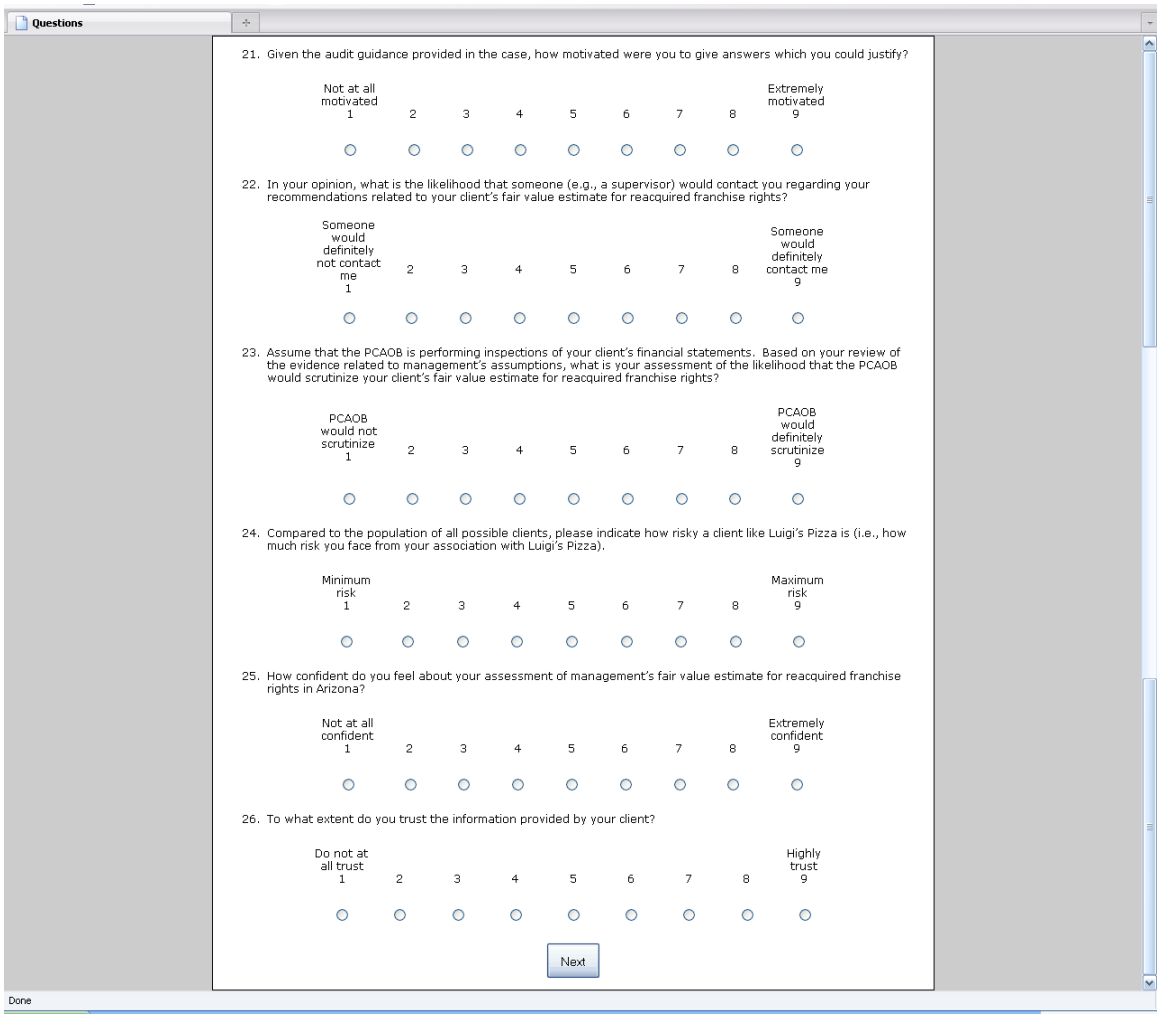

A Few Questions Related to the Fair ...
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
A Few Questions Related to the Fair Value Estimate
Based on all of the information that you reviewed please indicate your responses to the following questions.
You may refer back to the tabs above to answer these questions.
1. Given the evidence available in the case, assess the risk that management's fair value estimate of $21,620,000 for the reacquired franchise rights in Arizona is materially misstated.
Minimum Risk
1 2 3 4 5 6 7 8
Maximum Risk
9
2. Given the evidence available in the case, would you recommend an adjustment to the client's reported book value for the reacquired franchise rights in Arizona (Book Value = $20,777,000)?
Yes – I recommend an increase to the reported book value of $
Yes – I recommend a decrease to the reported book value of $
No – I do not recommend an adjustment.
Next

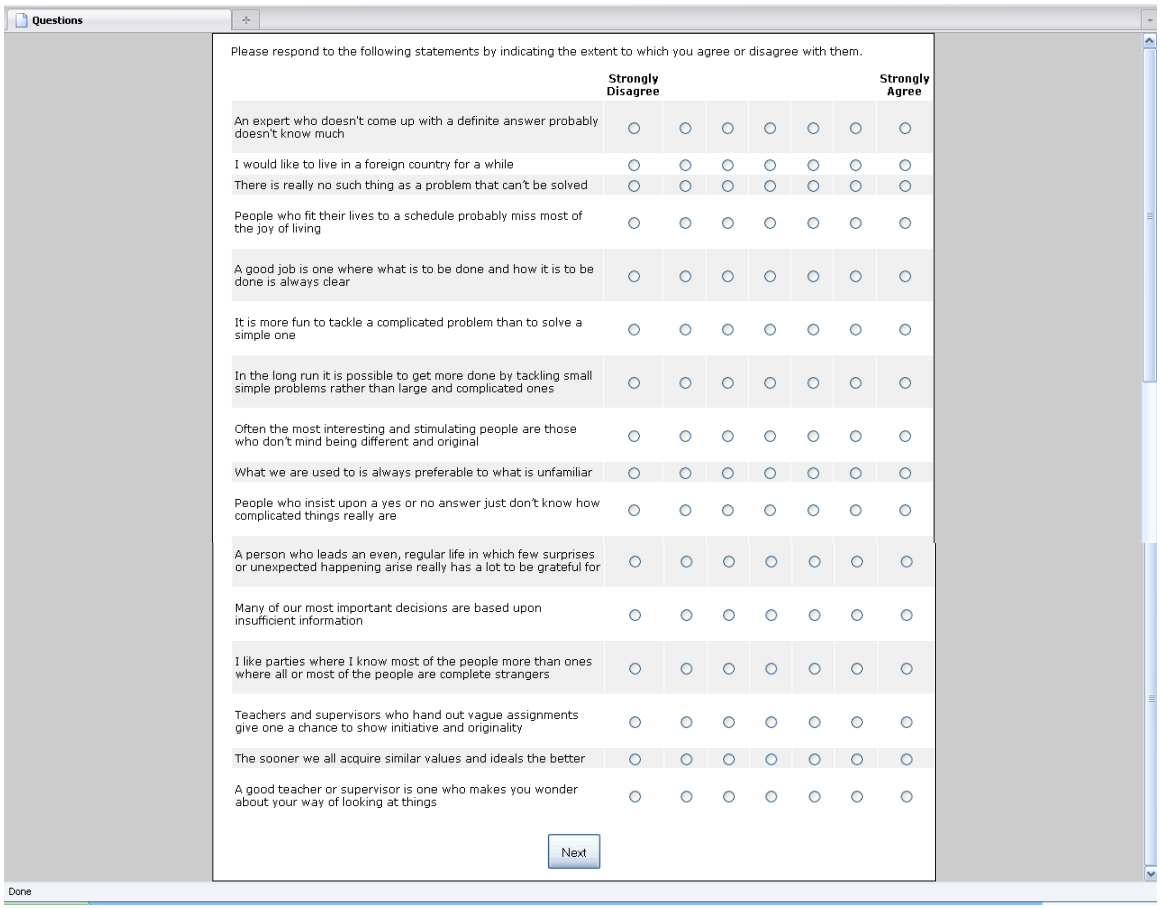

Questions
A Few Additional Questions Related to This Project
The following questions relate to your impressions about the project you just completed.
You may not refer back to any information to answer these questions.
The following questions identify one possible goal that you could have had while considering the reasonableness of management's fair value estimate.
Please indicate how important this goal was to you by rating the extent to which you agree or disagree with each statement the goal.
Goal: Find reasons for why management's assertions about the fair value estimate might not be reasonable.
completely disagree
disagree Somewhat
neutral
agree somewhat
completely agree
I thought this was a good goal to shoot for.
I was strongly committed to pursuing this goal.
It was hard to take this goal seriously.
Quite frankly, I didn't care if I achieved this goal or not.
It wouldn't have taken much to make me abandon this goal.
Next
Done

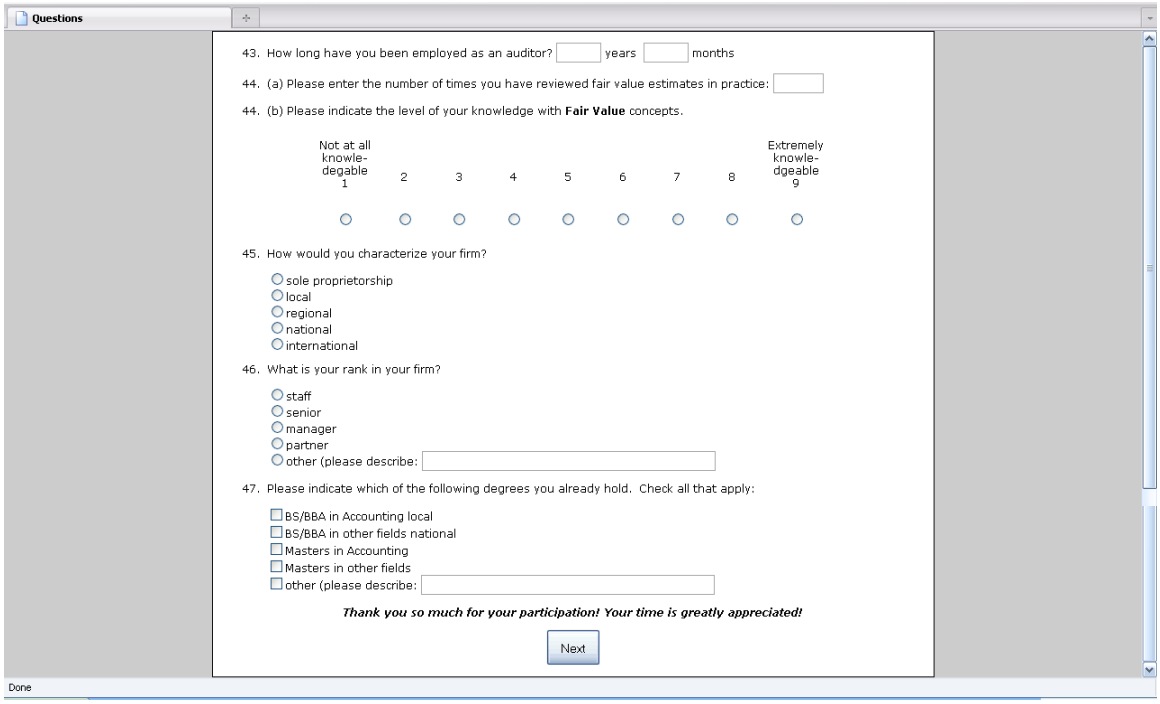

Questions
18. The fair value estimate in this task involves:
Low uncertainty
High uncertainty
Next


Questions
19. The relevant audit guidance (i.e., audit standards and your firm's policies) for the evaluation of fair value estimates requires you to obtain evidence:
supporting management's assertions
opposing management's assertions
to develop your own independent estimate
Next


Questions
20. To what extent do you believe that uncertainty affects the risk of material misstatement?
To a very little extent
1
2
3
4
5
6
7
8
To a very high extent
9
Next

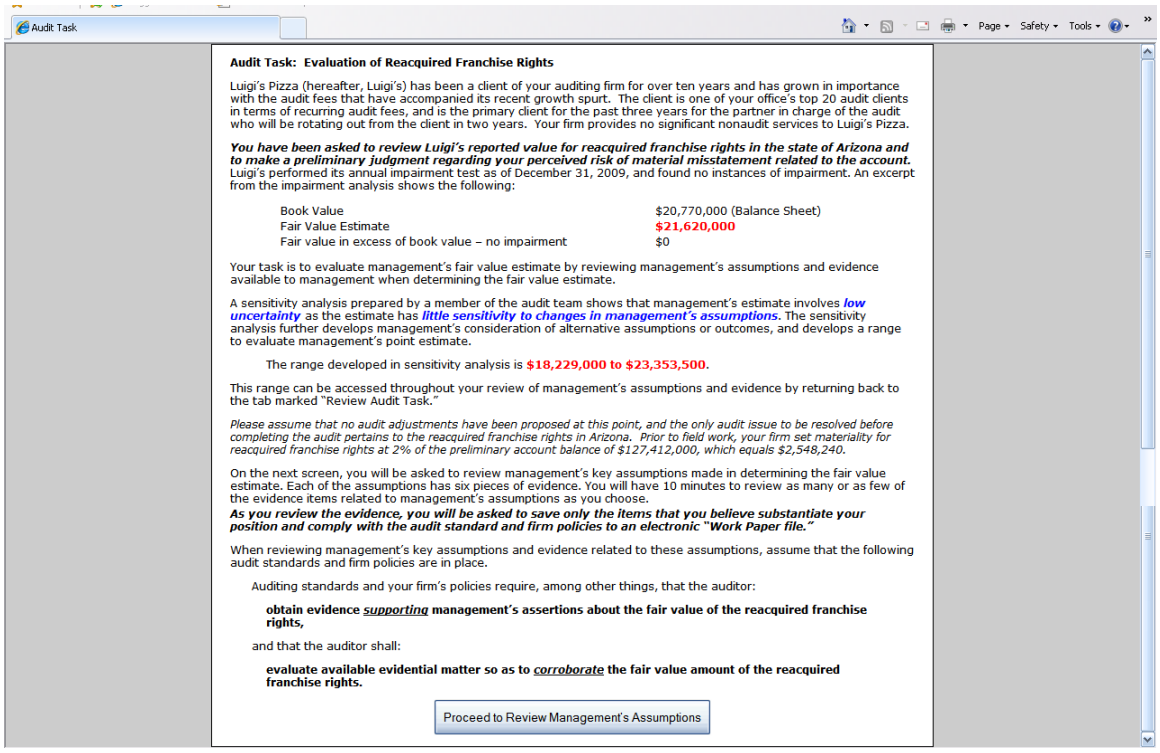

Questions
21. Given the audit guidance provided in the case, how motivated were you to give answers which you could justify?
Not at all motivated 1 2 3 4 5 6 7 8 Extremely motivated 9
22. In your opinion, what is the likelihood that someone (e.g., a supervisor) would contact you regarding your recommendations related to your client's fair value estimate for reacquired franchise rights?
Someone would definitely not contact me 1 2 3 4 5 6 7 8 Someone would definitely contact me 9
23. Assume that the PCAOB is performing inspections of your client's financial statements. Based on your review of the evidence related to management's assumptions, what is your assessment of the likelihood that the PCAOB would scrutinize your client's fair value estimate for reacquired franchise rights?
PCAOB would not scrutinize 1 2 3 4 5 6 7 8 PCAOB would definitely scrutinize 9
24. Compared to the population of all possible clients, please indicate how risky a client like Luigi's Pizza is (i.e., how much risk you face from your association with Luigi's Pizza).
Minimum risk 1 2 3 4 5 6 7 8 Maximum risk 9
25. How confident do you feel about your assessment of management's fair value estimate for reacquired franchise rights in Arizona?
Not at all confident 1 2 3 4 5 6 7 8 Extremely confident 9
26. To what extent do you trust the information provided by your client?
Do not at all trust 1 2 3 4 5 6 7 8 Highly trust 9
Next
Done


Questions
Please respond to the following statements by indicating the extent to which you agree or disagree with them.
Strongly Disagree
Strongly Agree
An expert who doesn't come up with a definite answer probably doesn't know much
I would like to live in a foreign country for a while
There is really no such thing as a problem that can't be solved
People who fit their lives to a schedule probably miss most of the joy of living
A good job is one where what is to be done and how it is to be done is always clear
It is more fun to tackle a complicated problem than to solve a simple one
In the long run it is possible to get more done by tackling small simple problems rather than large and complicated ones
Often the most interesting and stimulating people are those who don't mind being different and original
What we are used to is always preferable to what is unfamiliar
People who insist upon a yes or no answer just don't know how complicated things really are
A person who leads an even, regular life in which few surprises or unexpected happening arise really has a lot to be grateful for
Many of our most important decisions are based upon insufficient information
I like parties where I know most of the people more than ones where all or most of the people are complete strangers
Teachers and supervisors who hand out vague assignments give one a chance to show initiative and originality
The sooner we all acquire similar values and ideals the better
A good teacher or supervisor is one who makes you wonder about your way of looking at things
Next
Done


Questions
43. How long have you been employed as an auditor? years months
44. (a) Please enter the number of times you have reviewed fair value estimates in practice:
44. (b) Please indicate the level of your knowledge with Fair Value concepts.
Not at all knowle-degable 1
2
3
4
5
6
7
8
Extremely knowle-dgeable 9
45. How would you characterize your firm?
sole proprietorship
local
regional
national
international
46. What is your rank in your firm?
staff
senior
manager
partner
other (please describe:
47. Please indicate which of the following degrees you already hold. Check all that apply:
BS/BBA in Accounting local
BS/BBA in other fields national
Masters in Accounting
Masters in other fields
other (please describe:
Thank you so much for your participation! Your time is greatly appreciated!
Next
Done

The Audit Task was varied to reflect the various experimental conditions as follows:

Support Management's Estimate/Low Uncertainty Condition:



Audit Task

Page ▾ Safety ▾ Tools ▾

Audit Task: Evaluation of Reacquired Franchise Rights

Luigi's Pizza (hereafter, Luigi's) has been a client of your auditing firm for over ten years and has grown in importance with the audit fees that have accompanied its recent growth spurt. The client is one of your office's top 20 audit clients in terms of recurring audit fees, and is the primary client for the past three years for the partner in charge of the audit who will be rotating out from the client in two years. Your firm provides no significant nonaudit services to Luigi's Pizza.

You have been asked to review Luigi's reported value for reacquired franchise rights in the state of Arizona and to make a preliminary judgment regarding your perceived risk of material misstatement related to the account. Luigi's performed its annual impairment test as of December 31, 2009, and found no instances of impairment. An excerpt from the impairment analysis shows the following:

Book Value	$20,770,000 (Balance Sheet)
Fair Value Estimate	**$21,620,000**
Fair value in excess of book value – no impairment	$0

Your task is to evaluate management's fair value estimate by reviewing management's assumptions and evidence available to management when determining the fair value estimate.

A sensitivity analysis prepared by a member of the audit team shows that management's estimate involves ***low uncertainty*** as the estimate has ***little sensitivity to changes in management's assumptions***. The sensitivity analysis further develops management's consideration of alternative assumptions or outcomes, and develops a range to evaluate management's point estimate.

The range developed in sensitivity analysis is **$18,229,000 to $23,353,500**.

This range can be accessed throughout your review of management's assumptions and evidence by returning back to the tab marked "Review Audit Task."

Please assume that no audit adjustments have been proposed at this point, and the only audit issue to be resolved before completing the audit pertains to the reacquired franchise rights in Arizona. Prior to field work, your firm set materiality for reacquired franchise rights at 2% of the preliminary account balance of $127,412,000, which equals $2,548,240.

On the next screen, you will be asked to review management's key assumptions made in determining the fair value estimate. Each of the assumptions has six pieces of evidence. You will have 10 minutes to review as many or as few of the evidence items related to management's assumptions as you choose.
As you review the evidence, you will be asked to save only the items that you believe substantiate your position and comply with the audit standard and firm policies to an electronic "Work Paper file."

When reviewing management's key assumptions and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.

Auditing standards and your firm's policies require, among other things, that the auditor:

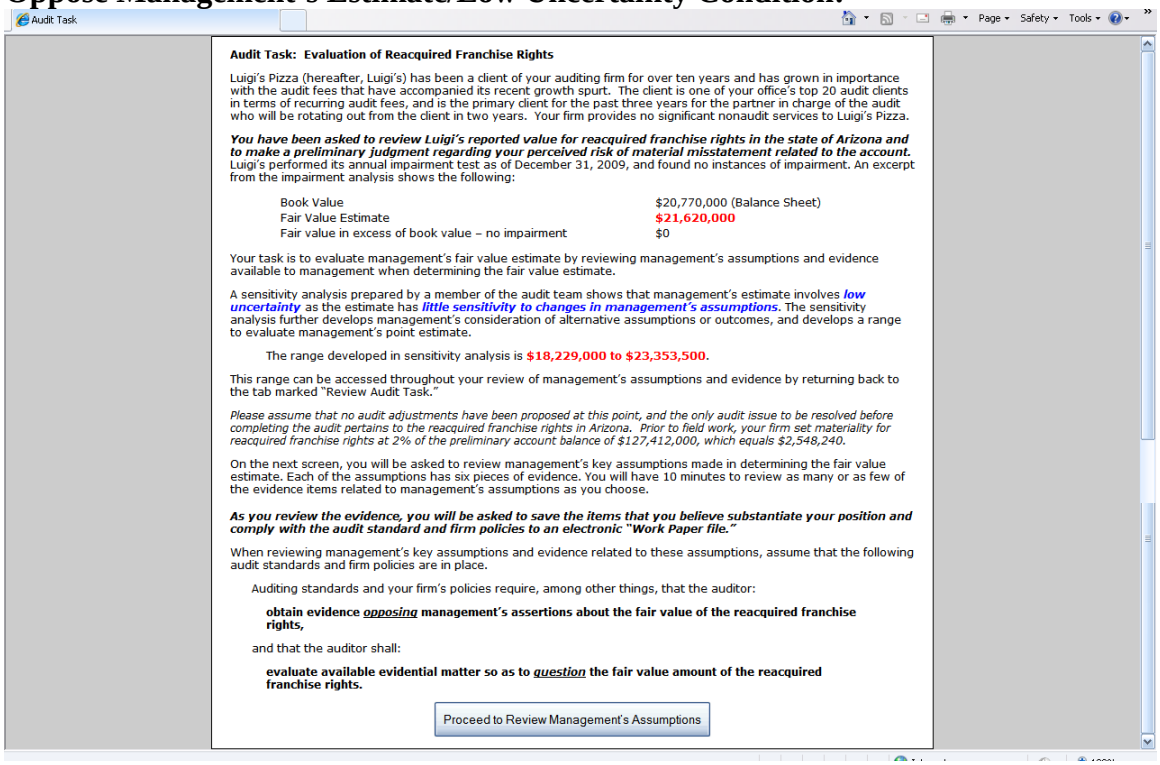
obtain evidence *supporting* management's assertions about the fair value of the reacquired franchise rights,

and that the auditor shall:

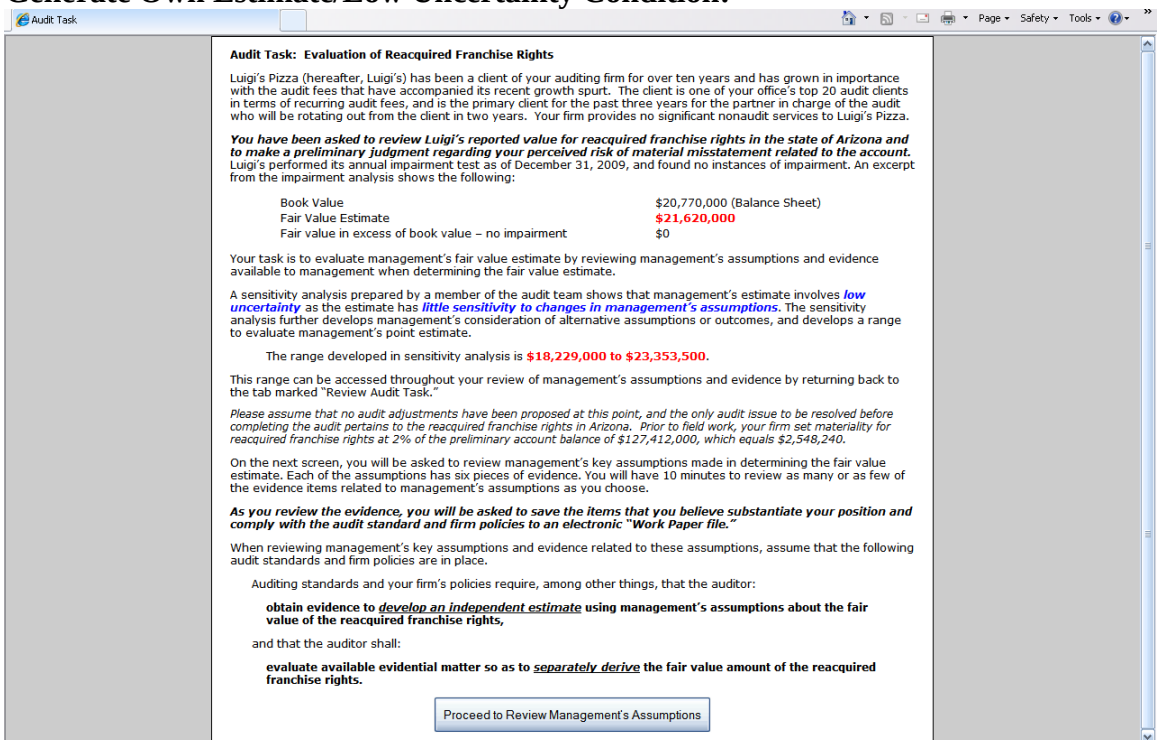
evaluate available evidential matter so as to *corroborate* the fair value amount of the reacquired franchise rights.

Proceed to Review Management's Assumptions

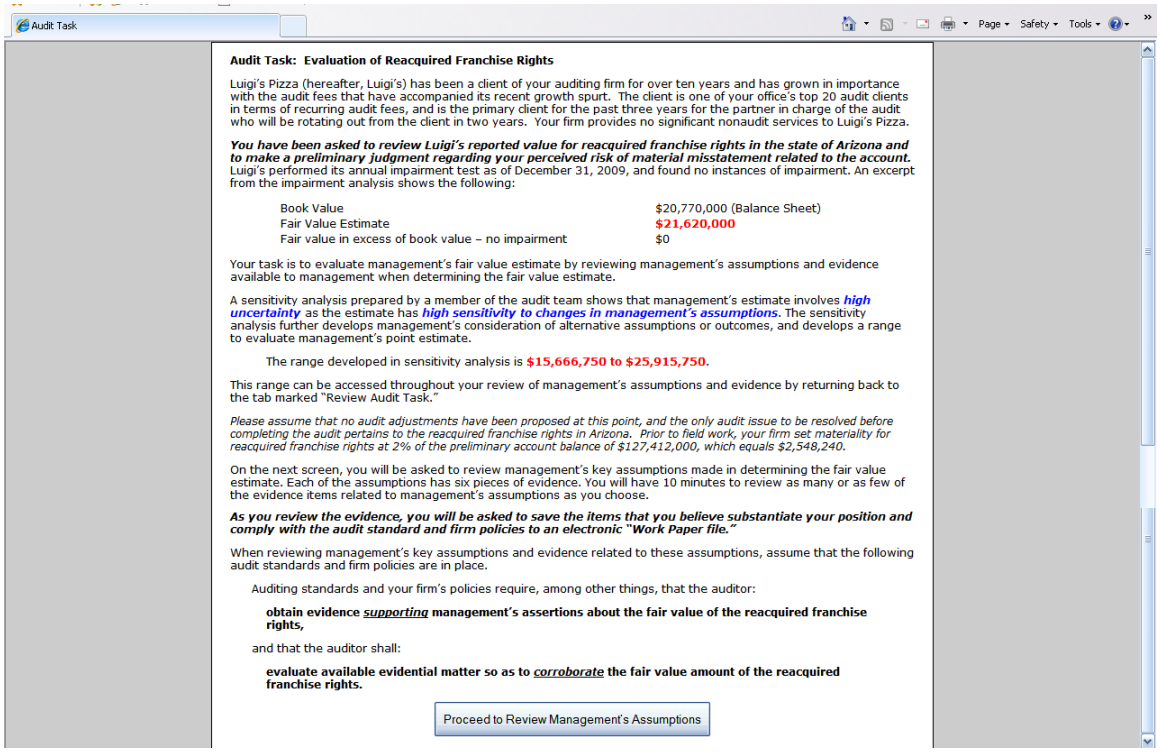
Oppose Management's Estimate/Low Uncertainty Condition:



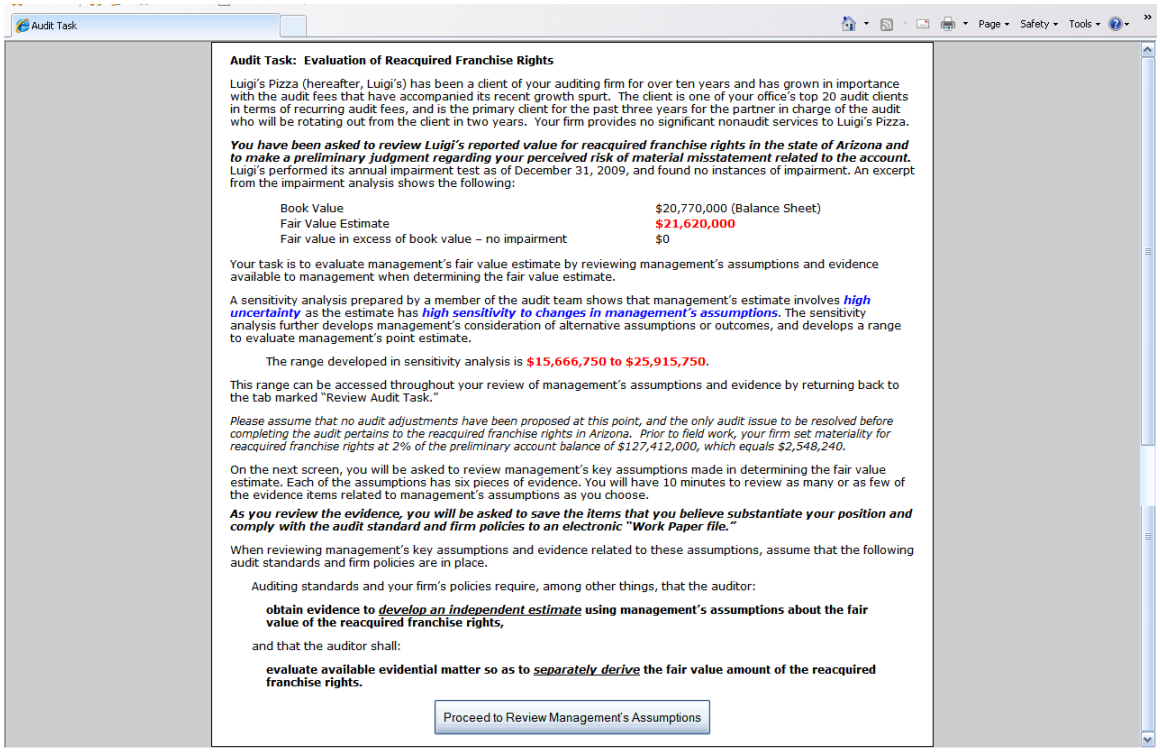
Generate Own Estimate/Low Uncertainty Condition:



Support Management's Estimate /High Uncertainty Condition:



Generate Own Estimate/High Uncertainty Condition:



Audit Task: Evaluation of Reacquired Franchise Rights

Luigi's Pizza (hereafter, Luigi's) has been a client of your auditing firm for over ten years and has grown in importance with the audit fees that have accompanied its recent growth spurt. The client is one of your office's top 20 audit clients in terms of recurring audit fees, and is the primary client for the past three years for the partner in charge of the audit who will be rotating out from the client in two years. Your firm provides no significant nonaudit services to Luigi's Pizza.

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Book Value	$20,770,000 (Balance Sheet)
Fair Value Estimate	**$21,620,000**
Fair value in excess of book value – no impairment	$0

Your task is to evaluate management's fair value estimate by reviewing management's assumptions and evidence available to management when determining the fair value estimate.

A sensitivity analysis prepared by a member of the audit team shows that management's estimate involves ***high uncertainty*** as the estimate has ***high sensitivity to changes in management's assumptions***. The sensitivity analysis further develops management's consideration of alternative assumptions or outcomes, and develops a range to evaluate management's point estimate.

The range developed in sensitivity analysis is **$15,666,750 to $25,915,750**.

This range can be accessed throughout your review of management's assumptions and evidence by returning back to the tab marked "Review Audit Task."

Please assume that no audit adjustments have been proposed at this point, and the only audit issue to be resolved before completing the audit pertains to the reacquired franchise rights in Arizona. Prior to field work, your firm set materiality for reacquired franchise rights at 2% of the preliminary account balance of $127,412,000, which equals $2,548,240.

On the next screen, you will be asked to review management's key assumptions made in determining the fair value estimate. Each of the assumptions has six pieces of evidence. You will have 10 minutes to review as many or as few of the evidence items related to management's assumptions as you choose.

As you review the evidence, you will be asked to save the items that you believe substantiate your position and comply with the audit standard and firm policies to an electronic "Work Paper file."

When reviewing management's key assumptions and evidence related to these assumptions, assume that the following audit standards and firm policies are in place.

Auditing standards and your firm's policies require, among other things, that the auditor:

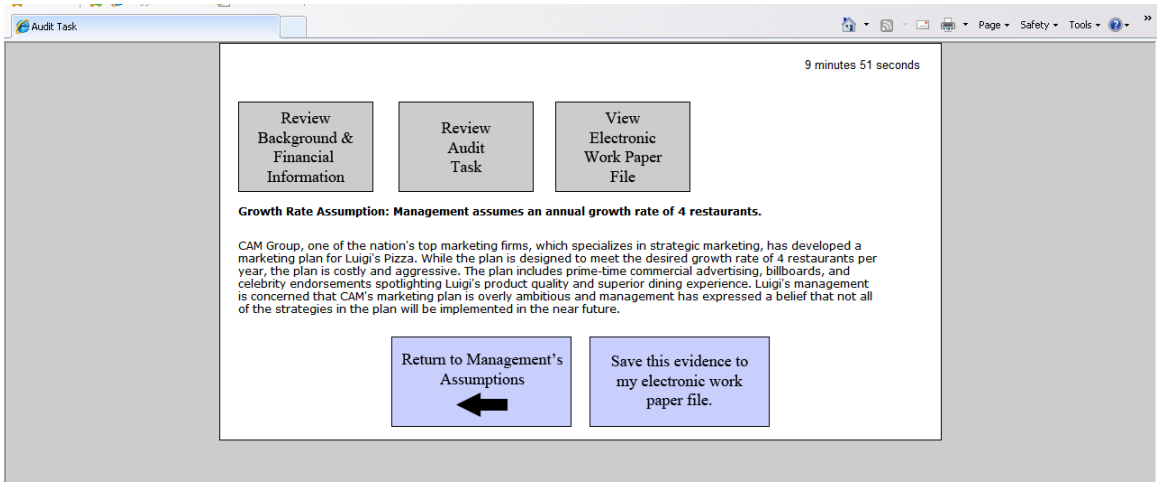
obtain evidence to *develop an independent estimate* using management's assumptions about the fair value of the reacquired franchise rights,

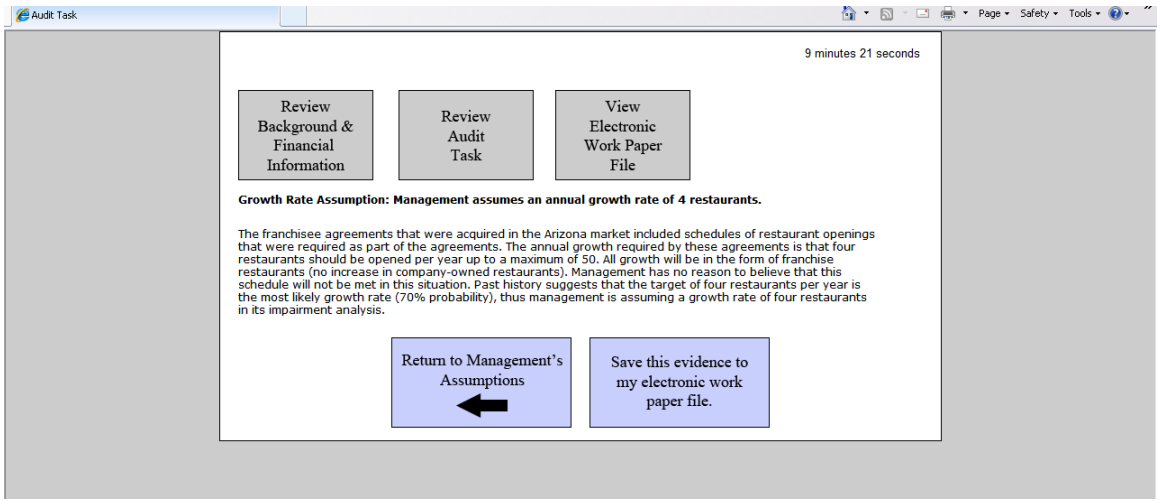
and that the auditor shall:

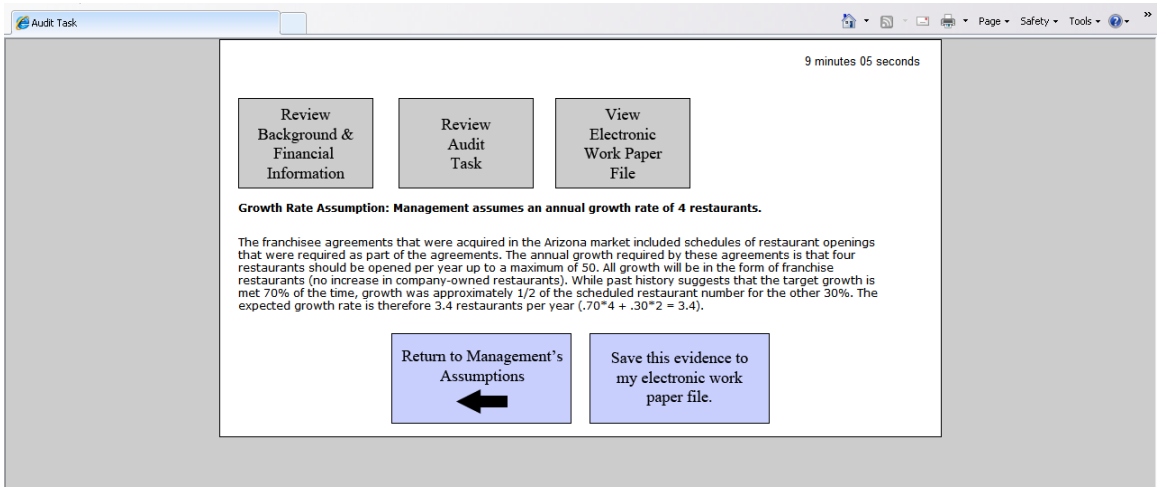
evaluate available evidential matter so as to *separately derive* the fair value amount of the reacquired franchise rights.

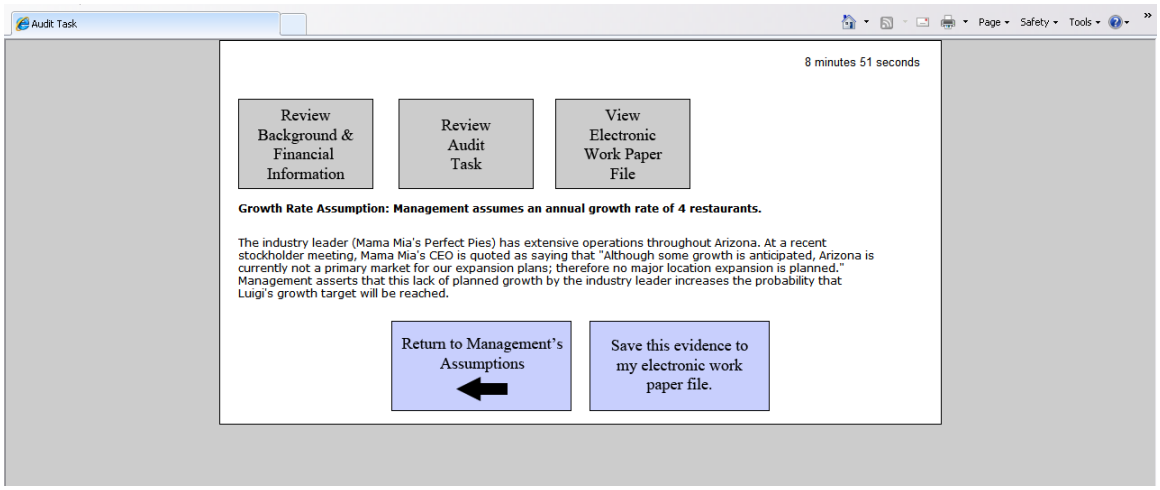
Proceed to Review Management's Assumptions

Evidence items in the Low Uncertainty Condition:








Audit Task
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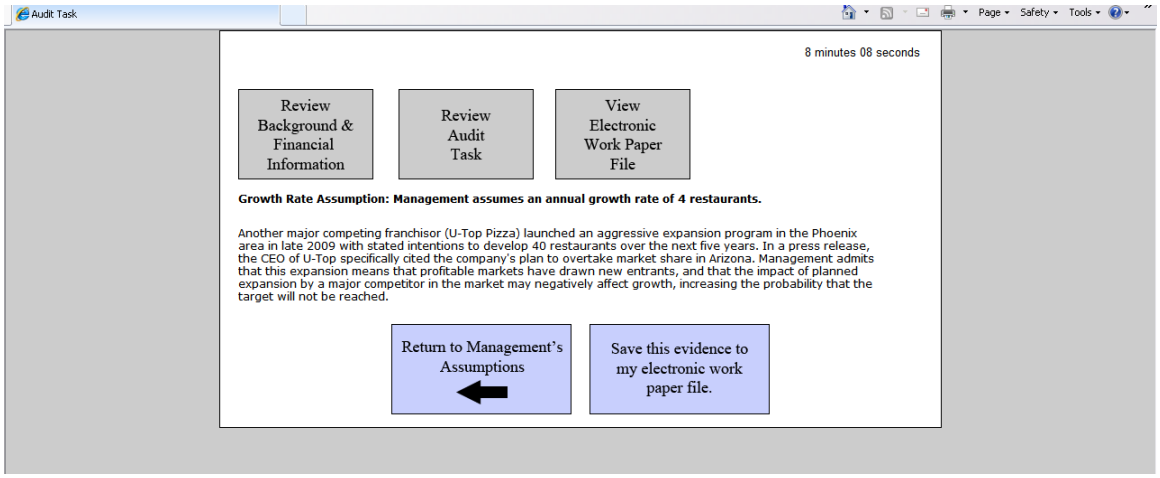
Safety
Tools
8 minutes 51 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
The industry leader (Mama Mia's Perfect Pies) has extensive operations throughout Arizona. At a recent stockholder meeting, Mama Mia's CEO is quoted as saying that "Although some growth is anticipated, Arizona is currently not a primary market for our expansion plans; therefore no major location expansion is planned." Management asserts that this lack of planned growth by the industry leader increases the probability that Luigi's growth target will be reached.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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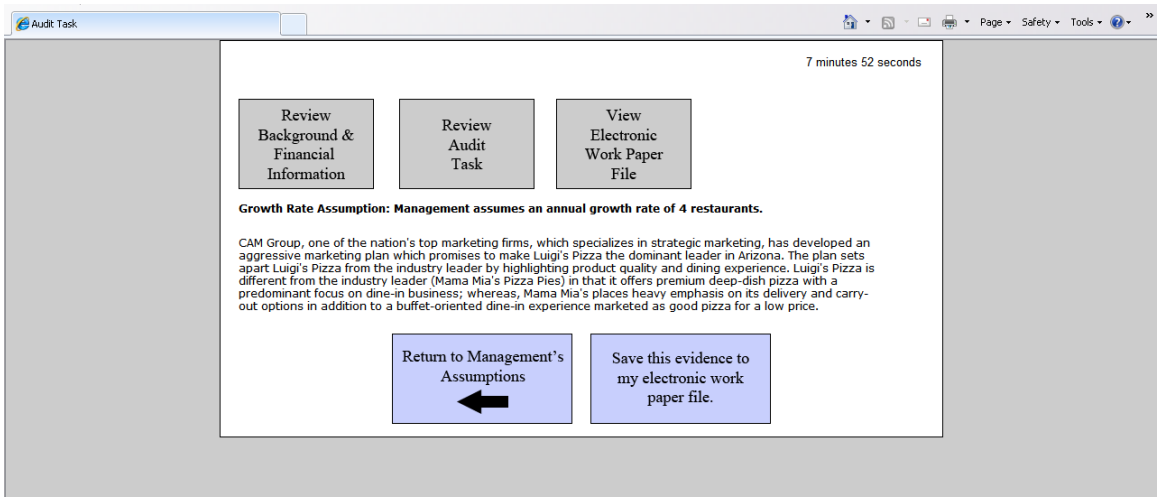
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
Another major competing franchisor (U-Top Pizza) launched an aggressive expansion program in the Phoenix area in late 2009 with stated intentions to develop 40 restaurants over the next five years. In a press release, the CEO of U-Top specifically cited the company's plan to overtake market share in Arizona. Management admits that this expansion means that profitable markets have drawn new entrants, and that the impact of planned expansion by a major competitor in the market may negatively affect growth, increasing the probability that the target will not be reached.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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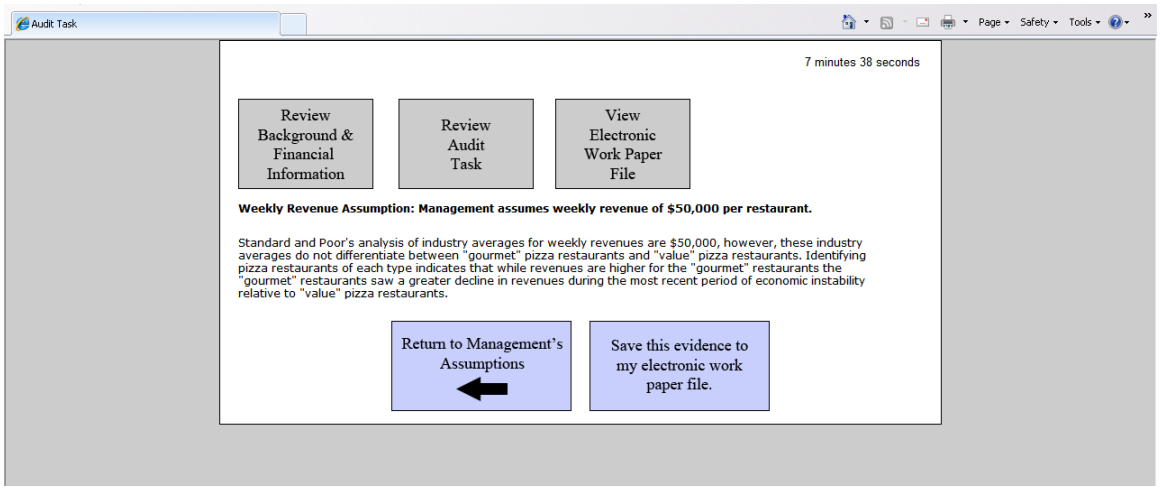
7 minutes 52 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Growth Rate Assumption: Management assumes an annual growth rate of 4 restaurants.
CAM Group, one of the nation's top marketing firms, which specializes in strategic marketing, has developed an aggressive marketing plan which promises to make Luigi's Pizza the dominant leader in Arizona. The plan sets apart Luigi's Pizza from the industry leader by highlighting product quality and dining experience. Luigi's Pizza is different from the industry leader (Mama Mia's Pizza Pies) in that it offers premium deep-dish pizza with a predominant focus on dine-in business; whereas, Mama Mia's places heavy emphasis on its delivery and carry-out options in addition to a buffet-oriented dine-in experience marketed as good pizza for a low price.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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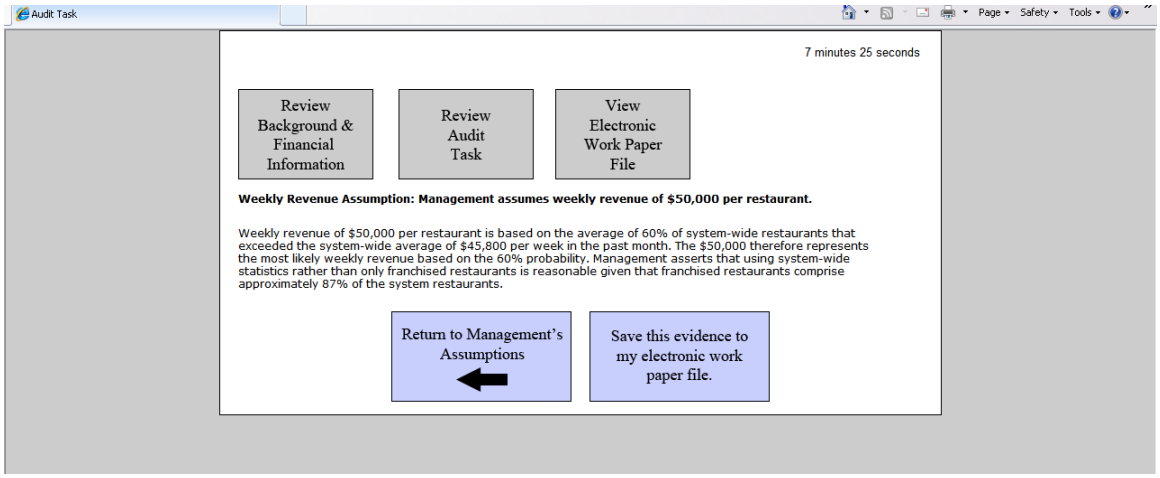
Safety
Tools
7 minutes 38 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Standard and Poor's analysis of industry averages for weekly revenues are $50,000, however, these industry averages do not differentiate between "gourmet" pizza restaurants and "value" pizza restaurants. Identifying pizza restaurants of each type indicates that while revenues are higher for the "gourmet" restaurants the "gourmet" restaurants saw a greater decline in revenues during the most recent period of economic instability relative to "value" pizza restaurants.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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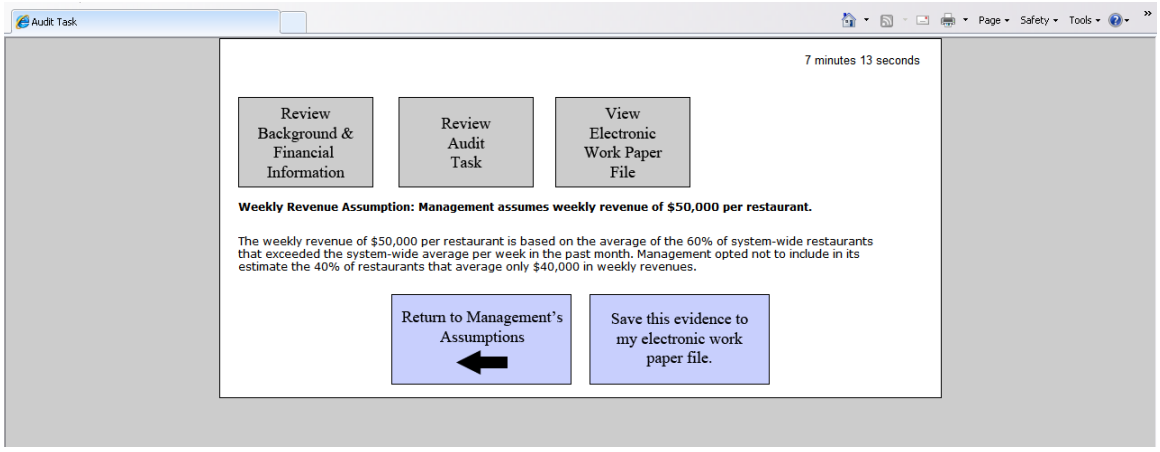
Safety
Tools
7 minutes 25 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Weekly revenue of $50,000 per restaurant is based on the average of 60% of system-wide restaurants that exceeded the system-wide average of $45,800 per week in the past month. The $50,000 therefore represents the most likely weekly revenue based on the 60% probability. Management asserts that using system-wide statistics rather than only franchised restaurants is reasonable given that franchised restaurants comprise approximately 87% of the system restaurants.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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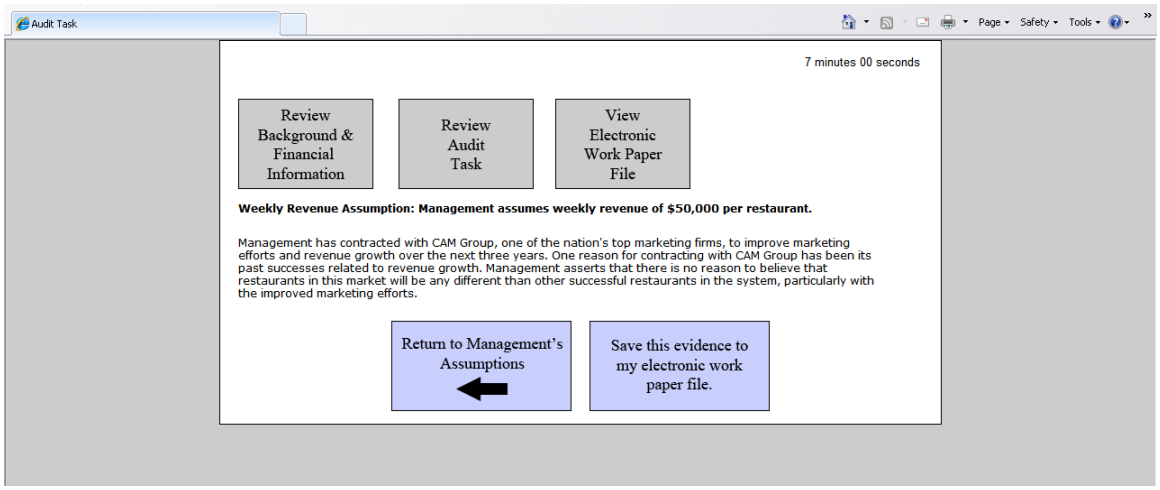
Safety
Tools
7 minutes 13 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
The weekly revenue of $50,000 per restaurant is based on the average of the 60% of system-wide restaurants that exceeded the system-wide average per week in the past month. Management opted not to include in its estimate the 40% of restaurants that average only $40,000 in weekly revenues.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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Safety
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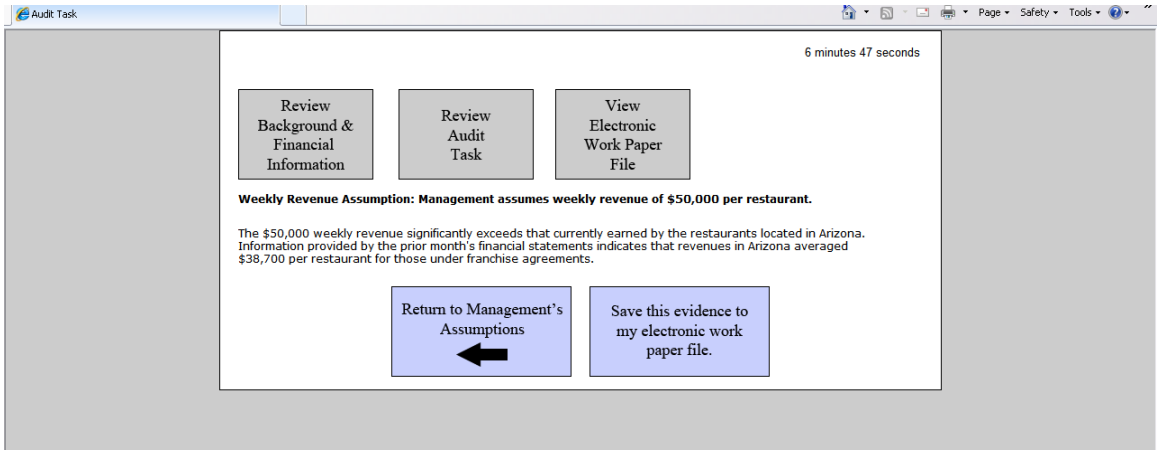
7 minutes 00 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
Management has contracted with CAM Group, one of the nation's top marketing firms, to improve marketing efforts and revenue growth over the next three years. One reason for contracting with CAM Group has been its past successes related to revenue growth. Management asserts that there is no reason to believe that restaurants in this market will be any different than other successful restaurants in the system, particularly with the improved marketing efforts.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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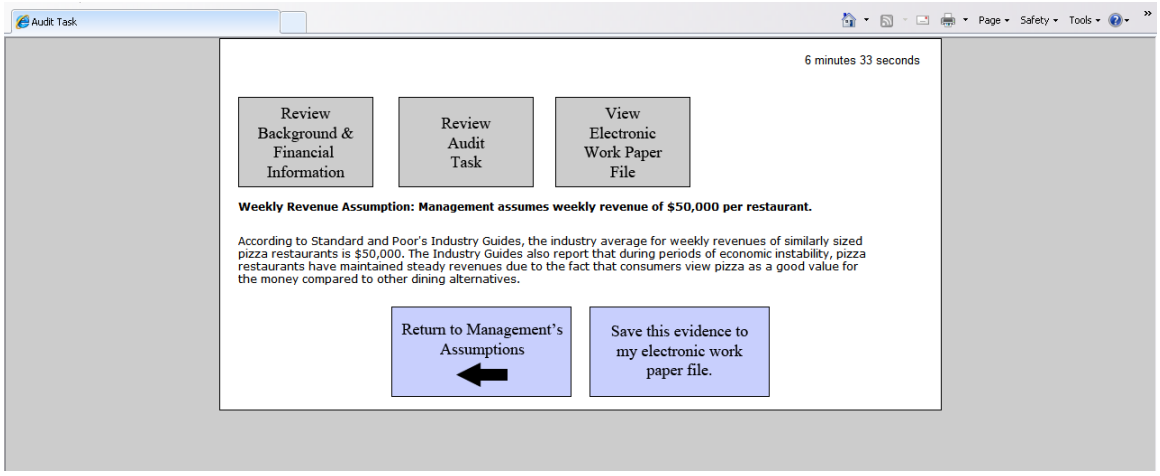
Safety
Tools
6 minutes 47 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
The $50,000 weekly revenue significantly exceeds that currently earned by the restaurants located in Arizona. Information provided by the prior month's financial statements indicates that revenues in Arizona averaged $38,700 per restaurant for those under franchise agreements.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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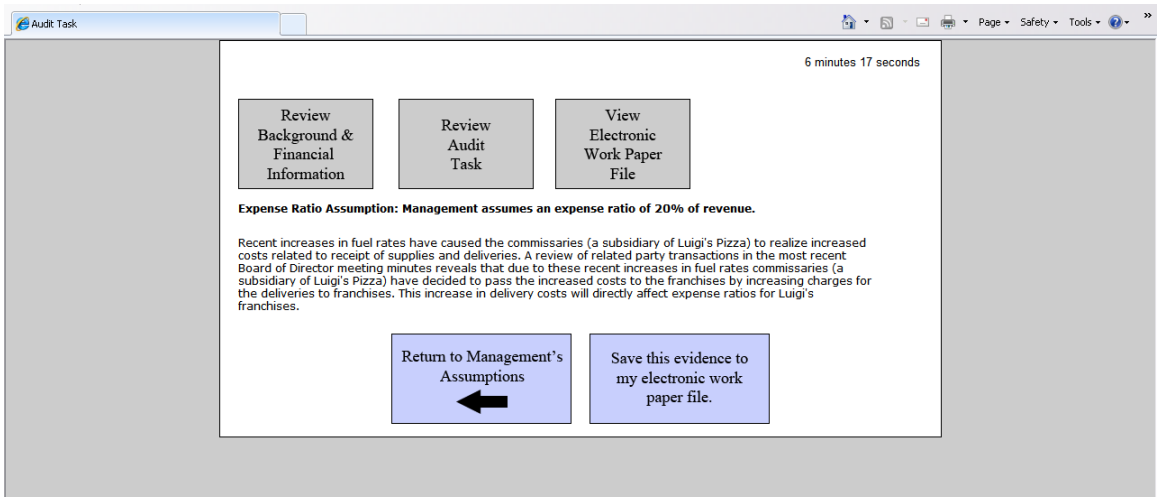
Safety
Tools
6 minutes 33 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Weekly Revenue Assumption: Management assumes weekly revenue of $50,000 per restaurant.
According to Standard and Poor's Industry Guides, the industry average for weekly revenues of similarly sized pizza restaurants is $50,000. The Industry Guides also report that during periods of economic instability, pizza restaurants have maintained steady revenues due to the fact that consumers view pizza as a good value for the money compared to other dining alternatives.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.


Audit Task
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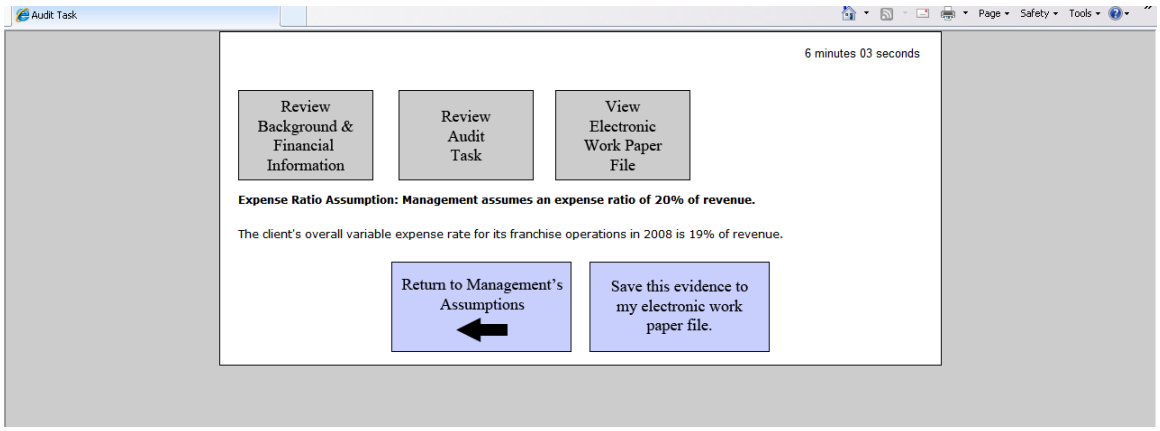
Safety
Tools
6 minutes 17 seconds
Review Background & Financial Information
Review Audit Task
View Electronic Work Paper File
Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
Recent increases in fuel rates have caused the commissaries (a subsidiary of Luigi's Pizza) to realize increased costs related to receipt of supplies and deliveries. A review of related party transactions in the most recent Board of Director meeting minutes reveals that due to these recent increases in fuel rates commissaries (a subsidiary of Luigi's Pizza) have decided to pass the increased costs to the franchises by increasing charges for the deliveries to franchises. This increase in delivery costs will directly affect expense ratios for Luigi's franchises.
Return to Management's Assumptions
Save this evidence to my electronic work paper file.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Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The client's overall variable expense rate for its franchise operations in 2008 is 19% of revenue.
Return to Management's Assumptions
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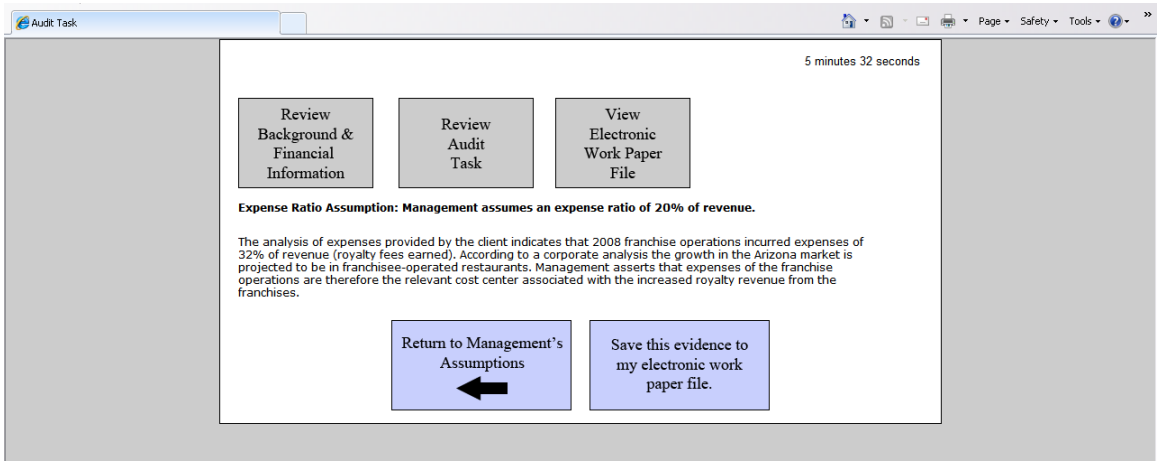
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Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The analysis of expenses provided by the client indicates that 2008 franchise operations incurred expenses of 32% of revenue (royalty fees earned). According to a corporate analysis the growth in the Arizona market is projected to be in franchisee-operated restaurants. Management asserts that expenses of the franchise operations are therefore the relevant cost center associated with the increased royalty revenue from the franchises.
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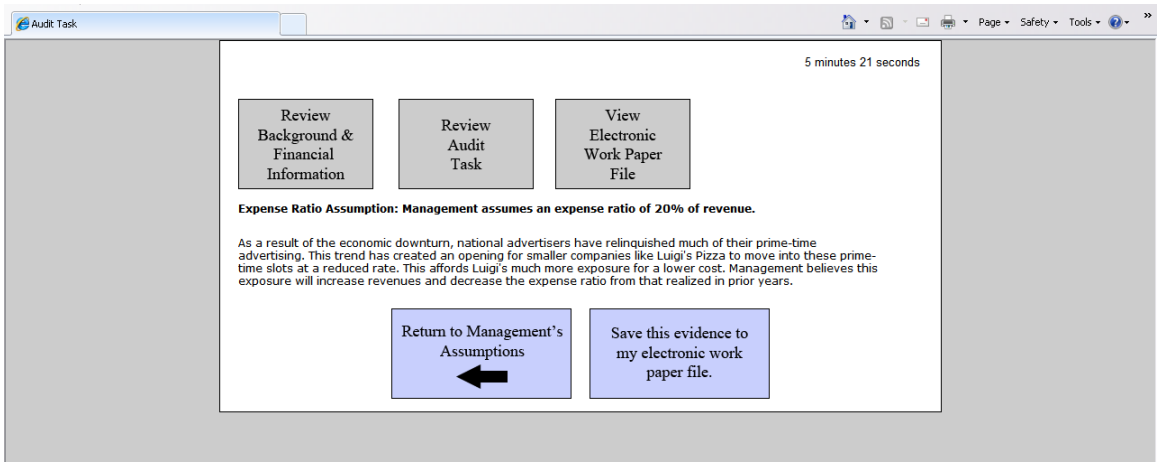
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Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
As a result of the economic downturn, national advertisers have relinquished much of their prime-time advertising. This trend has created an opening for smaller companies like Luigi's Pizza to move into these prime-time slots at a reduced rate. This affords Luigi's much more exposure for a lower cost. Management believes this exposure will increase revenues and decrease the expense ratio from that realized in prior years.
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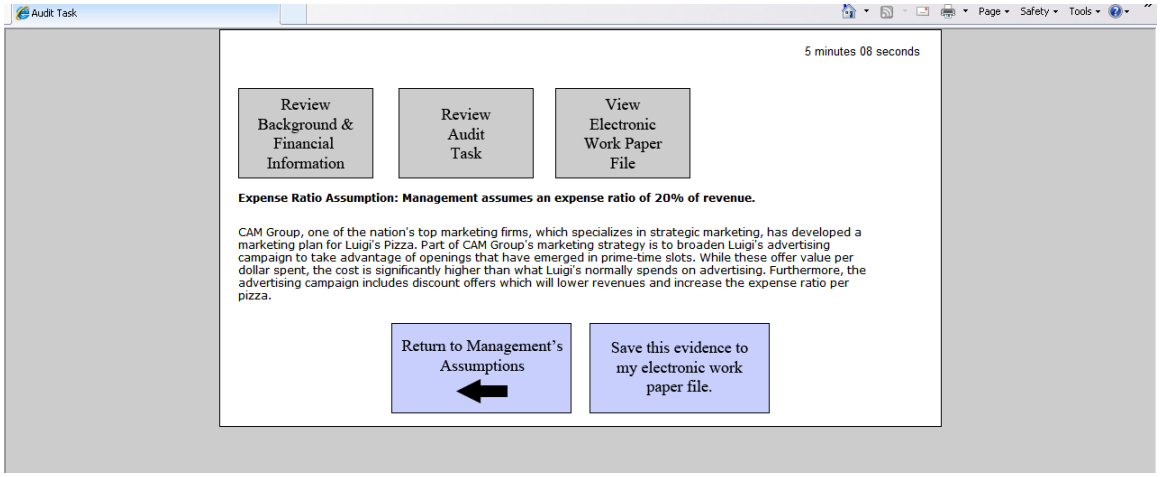
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Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
CAM Group, one of the nation's top marketing firms, which specializes in strategic marketing, has developed a marketing plan for Luigi's Pizza. Part of CAM Group's marketing strategy is to broaden Luigi's advertising campaign to take advantage of openings that have emerged in prime-time slots. While these offer value per dollar spent, the cost is significantly higher than what Luigi's normally spends on advertising. Furthermore, the advertising campaign includes discount offers which will lower revenues and increase the expense ratio per pizza.
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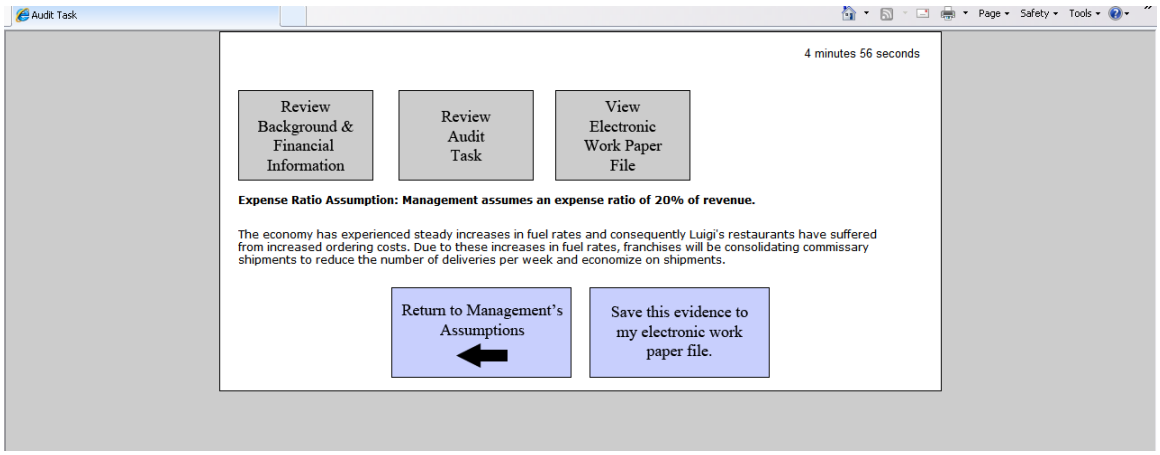
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Expense Ratio Assumption: Management assumes an expense ratio of 20% of revenue.
The economy has experienced steady increases in fuel rates and consequently Luigi's restaurants have suffered from increased ordering costs. Due to these increases in fuel rates, franchises will be consolidating commissary shipments to reduce the number of deliveries per week and economize on shipments.
Return to Management's Assumptions
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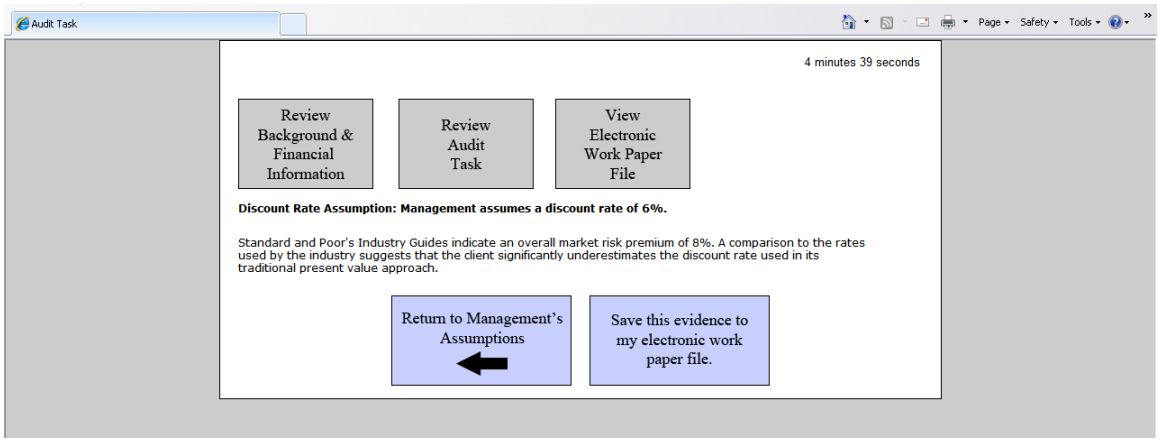
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Discount Rate Assumption: Management assumes a discount rate of 6%.
Standard and Poor's Industry Guides indicate an overall market risk premium of 8%. A comparison to the rates used by the industry suggests that the client significantly underestimates the discount rate used in its traditional present value approach.
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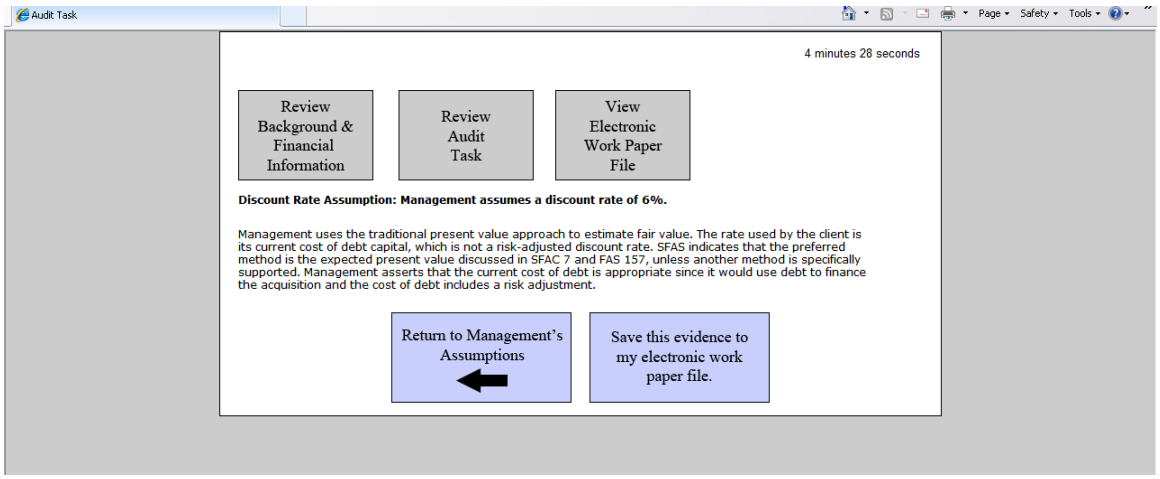
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Discount Rate Assumption: Management assumes a discount rate of 6%.
Management uses the traditional present value approach to estimate fair value. The rate used by the client is its current cost of debt capital, which is not a risk-adjusted discount rate. SFAS indicates that the preferred method is the expected present value discussed in SFAC 7 and FAS 157, unless another method is specifically supported. Management asserts that the current cost of debt is appropriate since it would use debt to finance the acquisition and the cost of debt includes a risk adjustment.
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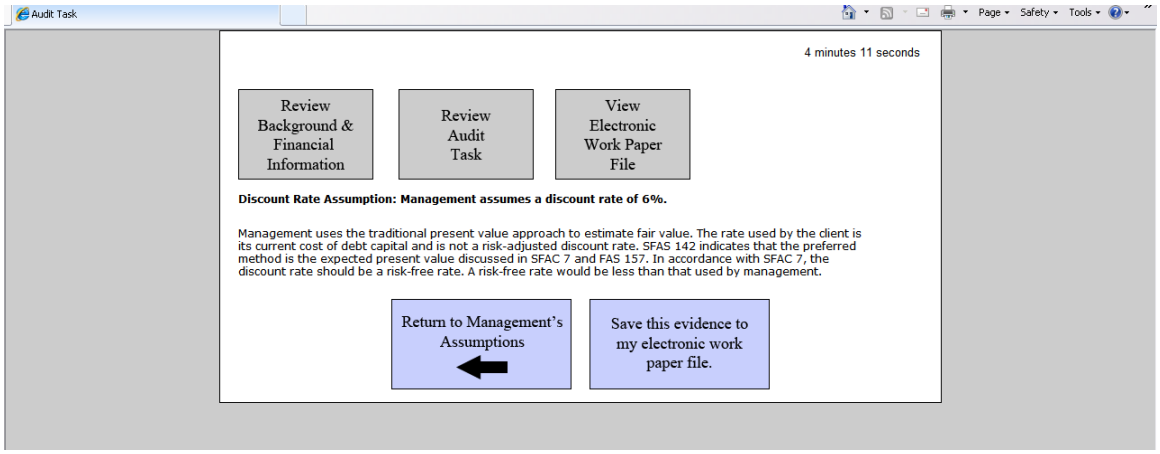
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Discount Rate Assumption: Management assumes a discount rate of 6%.
Management uses the traditional present value approach to estimate fair value. The rate used by the client is its current cost of debt capital and is not a risk-adjusted discount rate. SFAS 142 indicates that the preferred method is the expected present value discussed in SFAC 7 and FAS 157. In accordance with SFAC 7, the discount rate should be a risk-free rate. A risk-free rate would be less than that used by management.
Return to Management's Assumptions
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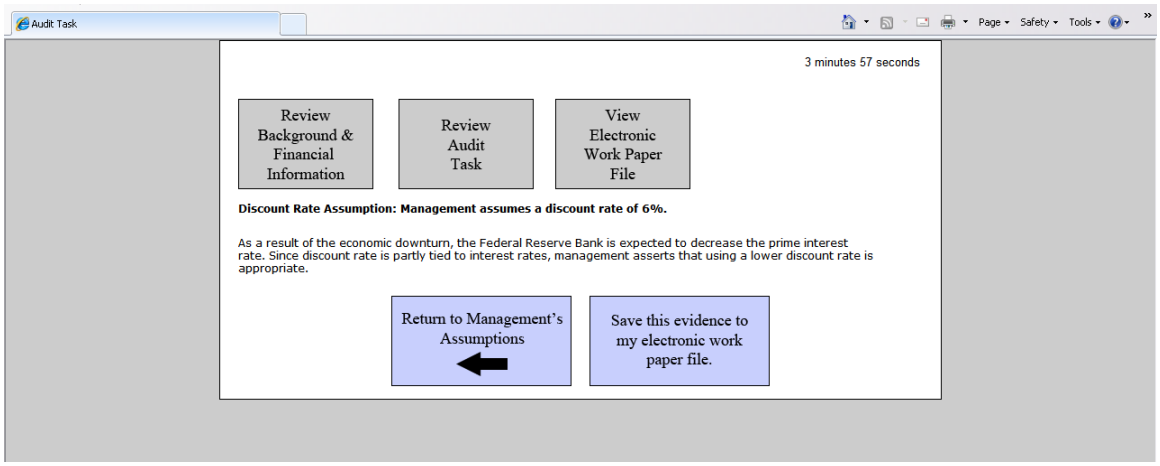
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Discount Rate Assumption: Management assumes a discount rate of 6%.
As a result of the economic downturn, the Federal Reserve Bank is expected to decrease the prime interest rate. Since discount rate is partly tied to interest rates, management asserts that using a lower discount rate is appropriate.
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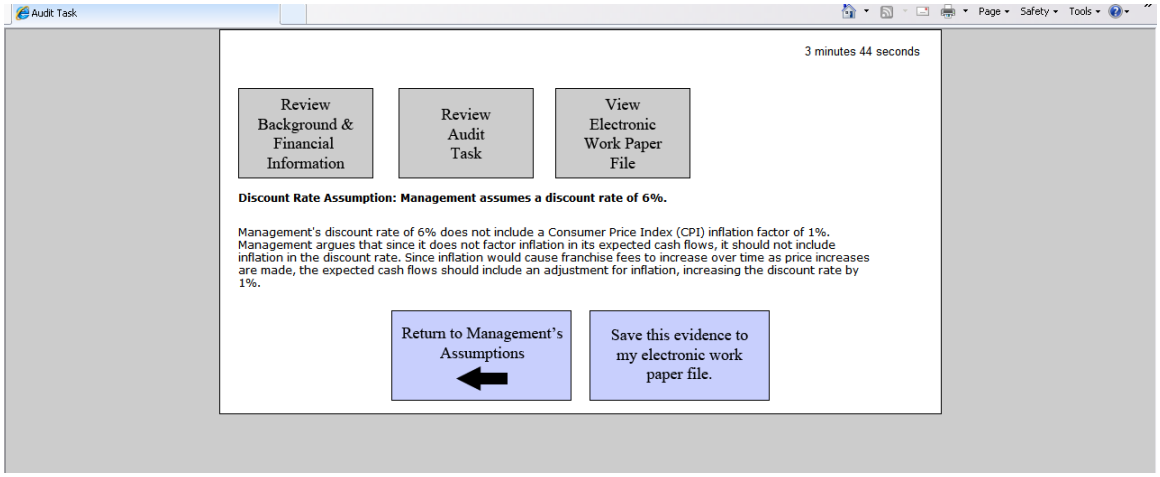
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Discount Rate Assumption: Management assumes a discount rate of 6%.
Management's discount rate of 6% does not include a Consumer Price Index (CPI) inflation factor of 1%. Management argues that since it does not factor inflation in its expected cash flows, it should not include inflation in the discount rate. Since inflation would cause franchise fees to increase over time as price increases are made, the expected cash flows should include an adjustment for inflation, increasing the discount rate by 1%.
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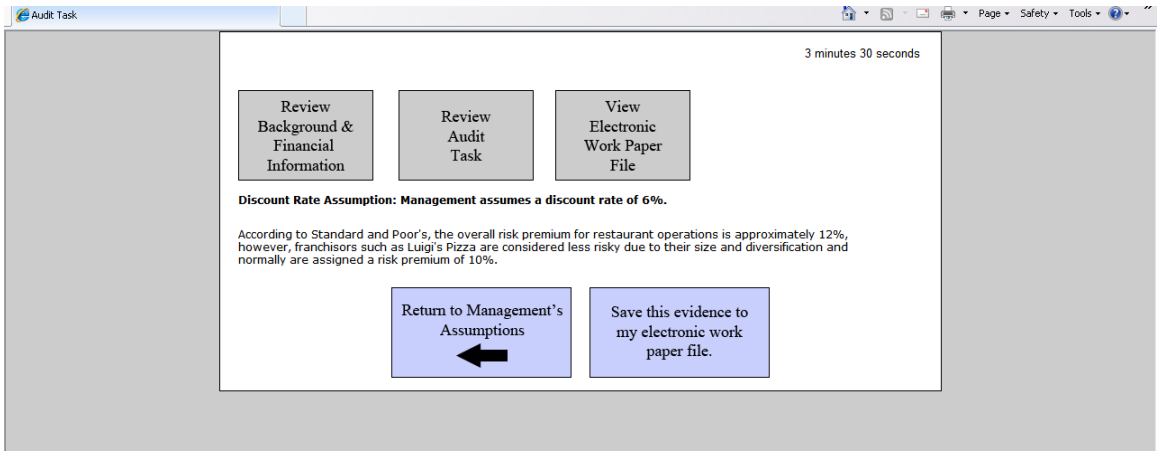
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Discount Rate Assumption: Management assumes a discount rate of 6%.
According to Standard and Poor's, the overall risk premium for restaurant operations is approximately 12%, however, franchisors such as Luigi's Pizza are considered less risky due to their size and diversification and normally are assigned a risk premium of 10%.
Return to Management's Assumptions
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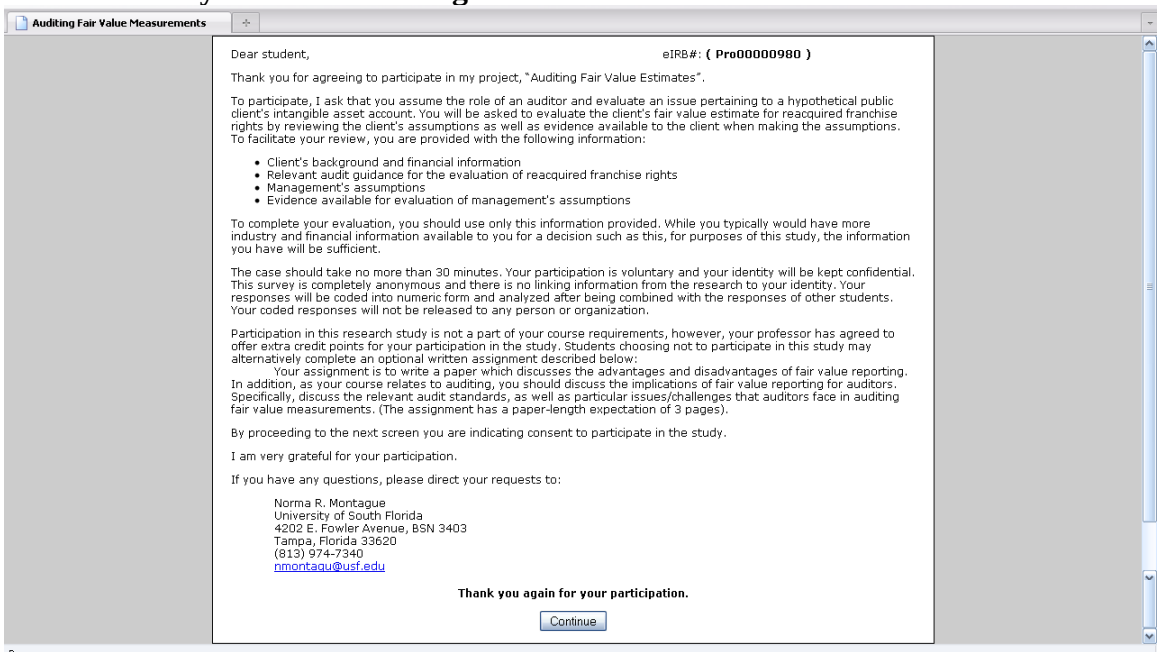
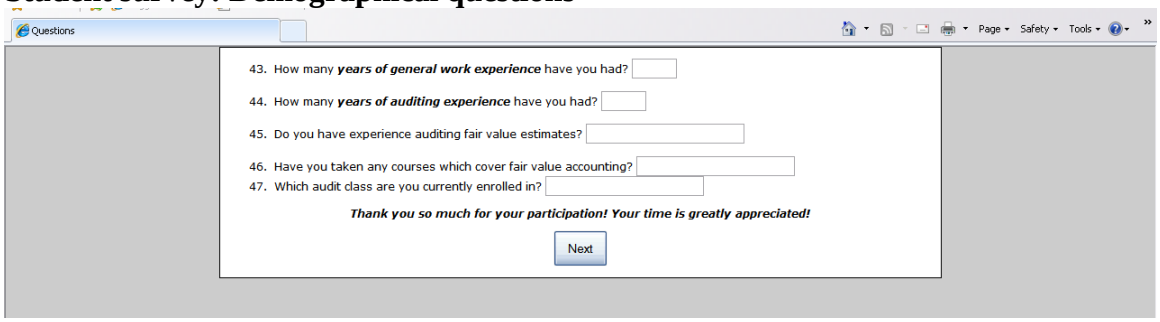
The student participant survey was identical to the auditor participant survey with the exception of the two following screens:

Student Survey: Introduction Page



Student survey: Demographical questions



ABOUT THE AUTHOR

Norma Ramirez Montague obtained her Ph.D. in Business Administration, with a concentration in Accounting, from the University of South Florida in 2010. Her research and teaching interests include auditing and financial accounting with a behavioral and decision making focus. She is currently an Assistant Professor at Wake Forest University. She resides in Winston-Salem, North Carolina with her husband and two sons.