How Do Look-Back Analyses and Evidence Specificity Affect Auditors’ Planning Judgments?*

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Abstract

In planning the audit of complex estimates, auditors perform a look-back analysis in which they conduct an ex post review of prior period evidence to understand differences in the assumptions underlying the prior period estimate and subsequent realizations of those assumptions. We examine how the specificity of the evidence reviewed ex post and the direction of an estimation inaccuracy identified during this review affect auditors’ risk assessments and planned audit effort for the current period. We find that auditors perceive management’s estimation process as least (most) reliable when the prior period evidence is more specific and the estimation inaccuracy is consistent (inconsistent) with management’s incentives. These reliability assessments, in turn, affect auditors’ risk assessments and planned audit effort. However, when the prior period evidence is less specific, the direction of the estimation inaccuracy impacts auditors’ risk assessments and planning judgments by altering auditors’ perceptions of bias. These results provide important insights into the impact of evidence obtained and evaluated as part of a prior period audit on the current period audit.
I. Introduction

Audit planning is a critical step in the audit process. When planning the audit of complex estimates, auditors perform a look-back analysis in which they review evidence from the prior period audit to understand differences in the assumptions underlying a complex estimate and subsequent realizations of those assumptions (AU 328.27, PCAOB 2003a; AU 342.06e, PCAOB 2003b). This study examines how auditors’ ex post review of this prior period audit evidence influences the current period audit. Specifically, we investigate how the specificity of the evidence reviewed ex post and the direction of an estimation inaccuracy identified during this review affect auditors’ risk assessments and planned audit effort for the current period.\(^1\)

The look-back analysis setting offers a unique opportunity to examine how auditors’ consideration of previously relied upon audit evidence affects their planning for the current period audit. During a look-back analysis, auditors obtain new information regarding the accuracy of management’s prior period forward-looking assumptions. Armed with this new information, auditors then reconsider the previously relied upon audit evidence for information regarding the reliability of management’s estimation process. These reliability assessments, in turn, inform auditors’ risk assessments and planned responses to those risks (AU 328.13, PCAOB 2003a; AU 342.05, PCAOB 2003b). We posit that the new information that has come available in the current period due to the passage of time can interact with characteristics of the prior period evidence to influence auditors’ planning for the current period audit.

We develop and test a theoretical framework detailing how the specificity of prior period, management-provided evidence and the direction of a subsequently revealed estimation

\(^1\) In this study, we define a estimation inaccuracy as a difference between an assumption used to derive the prior period estimate and the subsequent realization of that assumption (e.g., future revenue growth rate assumed in prior period estimation was 8% but realized revenue growth for current period is 6%).
inaccuracy impact auditors’ perceptions of the reliability of management’s estimation process and, in turn, auditors’ planning for the current audit. Discussions with practicing auditors indicate that the specificity of management-provided evidence varies greatly. Findings in the persuasion literature suggest that increased evidence specificity may increase auditors’ perceptions of management’s competence (e.g., Slater and Rouner 1996; Hamilton 1998). However, prior marketing (e.g., Friestad and Wright 1994), psychology (e.g., Hamilton 1998), and accounting (e.g., Anderson et al. 2004) research suggests that more specific evidence could alternatively reduce auditors’ perceptions of the trustworthiness of the source if the prior period estimation inaccuracy is consistent with management’s incentives. This is important because competence and trustworthiness are the primary components of source credibility (Berlo et al. 1970; Giffin 1967; Schewitzer and Ginsberg 1966; McCroskey 1966; and Mercer 2005) and source credibility is a key determinant of the reliability of the estimation process (AU 328.12, PCAOB 2003a; AU 342.06c, PCAOB 2003b).

We predict that auditors will provide the highest reliability assessment of management’s estimation process when evidence is more specific and the estimation inaccuracy is inconsistent with management’s incentives. However, we predict auditors will provide the lowest reliability assessment of management’s estimation process when evidence is more specific and the estimation inaccuracy is consistent with management’s incentives. Given that a reliable process does not always result in an unbiased estimate (AS No. 14 ¶27, PCAOB 2010c), we also examine how the specificity of prior period evidence and the direction of a subsequently revealed
estimation inaccuracy interact to influence auditors’ perceptions of bias in the evidence and how this perceived bias influences auditors’ planning for the current period audit.  

We conducted an experiment with practicing audit seniors in which they assumed the role of an audit senior responsible for planning the audit of the current period impairment analysis of a trademark. They were given a look-back analysis related to the trademark’s estimated fair value. This analysis included prior period evidence provided by management as support for the key assumptions underlying the fair value estimate, year-to-date information related to the forward-looking assumptions, management’s explanation for discrepancies between the assumptions made at the end of the prior period and the current year-to-date results, and a sensitivity analysis of the impact of the prior period estimation inaccuracy on the trademark’s estimated fair value.

Using a 2 X 2 full factorial design, we manipulated the specificity of the prior period evidence and the direction of the estimation inaccuracy revealed ex post. Half of the participants reviewed prior period workpapers containing less specific evidence provided by management to support its revenue growth rate assumption. Remaining participants reviewed more specific workpapers that included management’s description of research supporting that same assumption. We manipulated estimation inaccuracy direction at two levels. Half of the participants were presented an estimation inaccuracy that overstated the asset’s fair value (consistent with management’s incentives). For remaining participants, the estimation inaccuracy

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2 We measure auditors’ perception of bias in the evidence to determine its effect in our framework, as it may or may not influence auditors’ perception of the reliability of management’s estimation process. For example, management may choose to present select evidence or highlight certain evidence that supports its assumption, regardless of the reliability of the estimation process.

3 Our data was gathered through the Center for Audit Quality’s Access to Audit Personnel program. The views expressed herein are those of the authors and do not necessarily reflect those of the Center for Audit Quality or any of the firms that participated in this study.
led to an *understated* fair value (*inconsistent* with management’s incentives). The absolute value of the estimation inaccuracy was held constant across conditions.

As expected, we find that the specificity of the prior period evidence interacts with the direction of the estimation inaccuracy to influence auditors’ assessments of the reliability of management’s estimation process. When prior period evidence is *more specific* and the direction of the estimation inaccuracy is *inconsistent* with management’s incentives, auditors report the highest reliability assessments of management’s estimation process. However, when prior period evidence is *more specific* and the direction of the estimation inaccuracy is *consistent* with management’s incentives, auditors report the lowest reliability assessments of management’s estimation process. In contrast to the assessments of auditors who receive *more specific* prior period evidence, auditors’ assessments of the reliability of management’s estimation process are not influenced by the direction of the estimation inaccuracy when prior period evidence is *less specific*.

As for auditors’ subsequent planning judgments, we find that auditors respond to estimation inaccuracies that are consistent with management’s incentives with higher risk assessments and greater planned audit effort *regardless of the specificity of the prior period evidence*. We conduct a path analysis to better understand this main effect finding given the significant interaction of evidence specificity and estimation inaccuracy direction on auditors’ reliability assessments noted above. Results indicate that when evidence is *more specific*, auditors’ planning judgments are driven by their perceptions of the reliability of management’s estimation process. That is, when evidence is *more specific*, an estimation inaccuracy that is consistent (inconsistent) with management incentives leads to lower (higher) reliability assessments of management’s estimation process and, in turn, higher (lower) risk assessments.
and planned audit effort. Conversely, when evidence is less specific, auditors’ planning judgments are driven by their perceptions of bias in the prior period evidence. Specifically, when evidence is less specific, an estimation inaccuracy that is consistent (inconsistent) with management incentives leads to higher (lower) perceptions of bias in the prior period evidence and, in turn, higher (lower) risk assessments and planned audit effort. Importantly, though, we find that regardless of what factor drives their risk assessments, auditors respond to heightened risk assessments by increasing their planned audit effort. Thus, our findings indicate that the route through which a prior period estimation inaccuracy direction influences audit planning decisions depends on the specificity of the prior period evidence.

We believe this study makes a significant contribution to the literature and practice. First, we investigate auditors’ planning for an area of the audit that is replete with difficulty. One reason for such difficulty may be auditors’ lack of adequate valuation knowledge, which can have direct effects on the effectiveness of an audit of complex estimates (Griffith et al. 2015; Cannon and Bedard 2016). Auditors also attribute much of the difficulty in auditing complex estimates to the complexity, subjectivity, and inherent uncertainty in the forward-looking assumptions underlying a complex estimate (Cannon and Bedard 2016). Given that appropriate audit planning is crucial for an effective audit (Mock and Wright 1993), it is important to understand how auditors facing these difficulties plan a high-quality audit of complex estimates. Discussions with practicing auditors indicate that the look-back analysis is an important tool that auditors use during the planning process. However, the influence of this look-back analysis on the current period audit has not been widely studied. This study begins to bridge this gap by identifying two factors associated with a look-back analysis that influence auditors’ risk
assessments and planned audit effort for the audit of complex estimates. Moreover, we present evidence regarding the process through which these factors affect auditors’ planning judgments.

Second, the look-back analysis provides a unique setting in which to investigate the manner in which auditors’ ex post review of evidence obtained and evaluated as part of a prior period audit influences the current period audit. Prior research has demonstrated that auditors tend to overrely on prior year workpapers and conclusions at the expense of the consideration of new evidence (e.g., Joyce and Biddle 1981; Brazel et al. 2004). However, we know very little about whether or how characteristics of the prior period evidence (e.g., evidence specificity) interact with new evidence (e.g., subsequently revealed estimation inaccuracies) to affect auditors’ planning judgments for the current period audit. Regardless of the specificity of the prior period evidence, we find that auditors’ risk assessments and planned audit effort are sensitive to new information regarding management opportunism. However, we find that whether this new information influences auditors’ planning judgments through their perceptions of bias in the prior period evidence or their perceptions of the reliability of management’s estimation process depends on the specificity of the prior period evidence. Thus, our study provides important evidence regarding how characteristics of prior period audit evidence previously relied upon but reexamined as part of the planning for the current period audit can interact with new information to influence the current audit.

II. Background, Theory, and Hypotheses Development

Estimates made in the financial statements are based on management’s knowledge of past and current events and assumptions about the future (AU 342.03, PCAOB 2003b). While estimates provide relevant information to users of the financial statements (Lundholm 1999), the
actual value of the asset or liability will not be known until the asset is sold or the liability is paid. However, auditors are able to compare the underlying assumptions used in a valuation model (e.g., assumed revenue growth) to their subsequently realized values (e.g., actual revenue growth). During this look-back analysis (AU 328.27, PCAOB 2003a; AU 342.06e, PCAOB 2003b), auditors gain insight into the reliability of management’s estimation process by reviewing the evidence provided by management in the prior period to support its key assumptions in light of this new information about the accuracy of those assumptions. This is an important component of the planning for the audit of complex estimates as it aids auditors in their determination of the risk that the complex estimate is materially misstated and the planned audit effort necessary to conduct a high-quality audit of the estimate.4 Thus, we theorize and test how the specificity of the prior period evidence provided by management and the direction of a subsequently revealed estimation inaccuracy influence auditors’ reliance on management's estimation process and their planning for the current period audit. However, we note that a reliable estimation process does not always result in an unbiased estimate (AS No. 14 ¶27, PCAOB 2010c). Therefore, we also investigate how prior period evidence specificity and estimation inaccuracy direction influence auditors’ perceptions of bias in the prior period evidence and the role that perceived bias plays in auditors’ planning for the current audit.

Reliability of Management’s Estimation Process

In the case of complex estimates, the reliability of management’s estimation process is a key determinant of auditors’ risk assessments and their planned responses to those risks (AU

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4 A look-back analysis setting differs markedly from the analytical procedure settings examined in extant audit planning research (e.g., Anderson and Koonce 1998; Anderson et al. 2004, Asare et al. 2000; Asare and Wright 2003; Kaplan and Reckers 1989). In particular, analytical procedures performed during the planning phase of an audit typically require auditors to examine new evidence provided by management as an explanation for realized account fluctuations. In contrast, the look-back analysis setting is characterized by the ex post review of previously relied upon audit evidence to evaluate the reliability of management’s estimation process for a complex estimate whose value has not yet been realized.
328.13, PCAOB 2003a; AU 342.05, PCAOB 2003b). When evaluating the reliability of the estimation process, auditing standards require auditors consider the source of the estimate (AU 328.12, PCAOB 2003a; AU 342.06c, PCAOB 2003b). Thus, our hypotheses developed below are grounded in the fact that competence and trustworthiness are primary components of source credibility (Berlo et al. 1970; Giffin 1967; Schewitzer and Ginsberg 1966; McCroskey 1966; and Mercer 2005).

Prior auditing research suggests that auditors’ planning judgments may be influenced primarily by their perceptions of management trustworthiness (Anderson et al. 2004). In particular, Anderson et al. (2004) examine auditors’ judgments regarding the reliability of management’s explanation for a significant realized income-increasing fluctuation in revenue that is reminiscent of frequently perpetrated fraud schemes (Bonner et al. 1998). In this analytical procedures setting, they find that auditors’ evaluation of the evidence obtained from management is primarily influenced by evidence regarding management’s incentives to manage earnings. The sufficiency (i.e., quantification) of the explanation provided by management for the account fluctuation has no impact on auditors’ judgments and decision making. We argue, however, that auditors are more likely to take into consideration information related to management’s competence in a complex estimate setting where auditors recognize both the inherent uncertainty in the forward-looking assumptions underlying a complex estimate (Cannon and Bedard 2016) and the need for adequate valuation knowledge as evidenced by their frequent use of valuation specialists (Cannon and Bedard 2016; Griffith et al. 2015). Consequently, we expect that auditors’ perceptions of the source’s competence will play a larger role in the planning for the current period audit of complex estimates than in the setting examined in Anderson et al. (2004).
First, we consider the effect of the specificity of prior period evidence on auditors’ assessments of the reliability of management’s estimation process. Two separate streams of research suggest that increased specificity could increase auditors’ assessments of the reliability of management’s estimation process. Research in psychology finds that individuals assess the probability of a hypothesized event (e.g., future revenue growth) based on the ease with which representative cases (e.g., revenue growth through increasing sales prices or increasing volume) come to mind (Kahneman and Tversky 1972; Tversky and Kahneman 1973). However, specifying the underlying components of the hypothesized event (e.g., specific evidence supporting the market’s tolerance for increased prices and specific ways a company can garner increased customer demand) reminds individuals about the different ways in which the hypothesis could be supported (Tversky and Koehler 1994). This, in turn, increases the perceived support for the overall hypothesis proposed by the source (Sloman et al. 2004). Separately, research in persuasion and linguistics indicates that message recipients perceive the source of the message as more competent (Hamilton 1998) and as having greater expertise (Slater and Rouner 1996) as the message becomes more specific. Based on these two streams of research, we expect a positive association between evidence specificity and auditors’ perceptions of management’s competence and the reasonableness of their forward-looking assumptions. Consequently, we predict that auditors conducting a look-back analysis will perceive management’s estimation process as more reliable as the specificity of the prior period evidence increases.\footnote{Both streams of research investigate judgments made immediately after the information is issued by the source. Our setting differs, though, in that the information is being reviewed by the auditor one period hence. Thus, auditors’ have some knowledge about the accuracy of management’s predictions (i.e., hypothesis) presented in the prior period evidence. However, participants are told in our study that management plans to hold the asset for the foreseeable future. Consequently, the prior period assumption was not made for one year, but for many years. Further, given the known inherent uncertainty in complex estimates, we argue that auditors likely do not expect management to be able to foresee the future with complete accuracy. Thus, auditors likely expect some variance between management’s prediction and the actual realization. Therefore, we argue that in this setting auditors will still perceive management that provides more specific evidence as more competent one period hence.}
Second, we consider how estimation inaccuracies identified \textit{ex post} affect auditors’ assessments of the reliability of management’s estimation process. Holding the magnitude of an estimation inaccuracy constant, the inaccuracy can be characterized as either directionally consistent or inconsistent with management’s incentives. For example, in our impairment analysis setting, management can be viewed as having an incentive to overstate the estimated fair value of the trademark to avoid any uncertainty regarding the impairment decision.\(^6\) That is, management should prefer to estimate a fair value that is far greater than (vs. close to) the asset’s book value to avoid any questioning of the decision not to impair the asset. Thus, an estimation inaccuracy in a prior period assumption that leads to a larger fair value estimate of the trademark can be characterized as consistent with management’s incentives.

As previously noted, we expect that auditors’ perceptions of management competence will increase with the specificity of the evidence. However, we believe that the direction of any estimation inaccuracy in the prior period forward-looking assumptions will affect auditors’ perceptions of management trustworthiness. In particular, when a prior period estimation inaccuracy is inconsistent with management’s incentives, we expect that auditors’ perceptions of management competence and trustworthiness will increase with the specificity of the evidence. Consequently, when the look-back analysis suggests that the fair value of the complex estimate was potentially understated in the prior period, we predict that auditors’ perceptions of the reliability of management’s estimation process will increase with the specificity of the evidence. This leads to the following hypothesis:

\(^6\) Under certain circumstances, management can possess an incentive to record an impairment write-down (e.g., Francis, Hanna, and Vincent 1996; Zucca and Campbell 1992). Factors that incentivize management to record write-downs include change in top management and an expectation that earnings will be well below or well above target. The experimental materials presented to auditors did not contain information suggesting any of these circumstances. Moreover, the fair value estimate in both conditions was above the asset’s book value. As such, we believe auditor participants viewed this manipulation as we describe it in the study.
**H1:** Auditors’ assessments of the reliability of management’s estimation process will be highest when prior period evidence is more specific and the direction of the prior period estimation inaccuracy is inconsistent with management’s incentives.

On the other hand, prior research finds that more specific evidence can be detrimental when the evidence supports a belief or action that is consistent with the source’s incentives. In this context, more specific evidence is frequently viewed as a persuasion tactic employed by the source to achieve an ulterior motive (Friestad and Wright 1994; Hamilton 1998; Anderson et al. 2004). Consequently, the source is perceived as less trustworthy in light of this negative interpretation of the more specific evidence (Hamilton 1998). This is important because Anderson et al. (2004) find that auditors are particularly influenced by their perceptions of management’s trustworthiness when a realized account fluctuation aligns with management’s incentives.

Based on this prior research, when a prior period estimation inaccuracy is consistent with management’s incentives, we expect that auditors will perceive more specific prior period evidence as a tactic employed by management to persuade auditors to accept management’s preferred assumption. Such inferences should, in turn, lead auditors to perceive management as less trustworthy. Given the recent scrutiny of audits of complex estimates (PCAOB 2010d) and the call for more skepticism during these audits (PCAOB 2012), we expect that auditors’ concerns about management’s trustworthiness will be more influential than their perceptions of management’s competence when the prior period estimation inaccuracy is consistent with management’s incentives. Thus, we expect auditors’ assessments of the reliability of management’s estimation process to be lowest when the prior period evidence is more specific and the direction of the prior period estimation inaccuracy is a potential overstatement of the asset’s fair value. In other words, we expect the direction of an estimation inaccuracy to
moderate the effect of prior period evidence specificity on auditors’ assessments of the reliability of management’s estimation process. Therefore, we hypothesize the following:

**H2:** Auditors’ assessments of the reliability of management’s estimation process will be lowest when prior period evidence is more specific and the direction of the prior period estimation inaccuracy is consistent with management’s incentives.

**Audit Planning Judgments**

When planning their audit, auditors follow a risk-based audit approach whereby they identify the risks of material misstatement for each significant account (PCAOB 2010a) and design an audit to specifically address those risks (PCAOB 2010b). Strong internal controls over the estimation process can reduce the likelihood of material misstatement (AU 342.06, PCAOB 2003b). Assessment of the reliability of management’s estimation process through a look-back analysis provides key evidence as to strength of those internal controls (AU 342.06e, PCAOB 2003b). Therefore, we expect that auditors’ assessments of the reliability of management’s estimation process will directly affect their assessments of the risk of a material misstatement in the current period estimate and their planned audit effort. In particular, we expect that auditors will perceive a more (less) reliable estimation process as indicative of a lower (higher) risk of material misstatement. The auditor must then determine whether it is necessary to make changes to the audit plan to adequately address the assessed risk of material misstatement (AS No. 13 ¶6, PCAOB 2010b). Consequently, we expect that auditors will respond to lower (higher) risk assessments with a reduction (an increase) in their planned audit effort for the current period estimate. This leads to the following formal hypothesis.

**H3:** Lower (higher) reliability assessments of management’s estimation process will lead to higher (lower) risk assessments of material misstatement in the current period estimate and more (less) allocation of planned audit effort.
Effect of Perceived Bias in Prior Period Evidence on Audit Planning

Lastly, we consider the possibility that perceptions of bias influence auditors’ planning for the audit of complex estimates. Up to this point, we have focused on auditors’ assessments of the reliability of management’s estimation process which is a unique aspect of the audit of complex estimates. However, when auditing any aspect of the financial statements, auditors must also be on the lookout for potential bias in management’s judgments (AS No. 14 ¶24, PCAOB 2010c). Given that complex estimates are replete with judgment, auditing standards specifically require auditors to consider the existence of bias when evaluating the evidence related to a complex estimate (AS No. 14 ¶27, PCAOB 2010c).

Auditors’ assessments of the reliability of management’s estimation process can be independent of their determination of bias in the reported estimate (AS No. 14 ¶27, PCAOB 2010c). As the auditing standards note, a reliable estimation process may result in a range of reasonable estimates (AS No. 14 ¶27, PCAOB 2010c). However, only a single value is reported from that range. Therefore, auditors should consider whether there is evidence that suggests potential bias in the reported estimate (AS No. 14 ¶27, PCAOB 2010c). Put another way, auditors should consider whether the evidence provided by management was biased in favor of the specific assumptions that support the reported estimate. Because bias could lead to a material misstatement in the financial statements, the auditing standards require auditors to take into account any perceived bias when making their risk assessments (AS No. 14 ¶26, PCAOB 2010c). Thus, auditors’ concerns about bias, as well as their concerns about the reliability of management’s estimation process, could lead to elevated risk assessments that require additional audit effort to be adequately addressed. What is unclear, though, is the relative role these two factors play in auditors’ planning decisions and how the prior period evidence specificity and
estimation inaccuracy direction impact the relative importance of these two factors on auditors’ risk assessments and planned audit effort. As such, we pose the following research question:

**RQ1:** Under what conditions are auditors’ planning judgments impacted by their perceptions of bias compared to their assessments of the reliability of management’s estimation process?

III. Research method

**Participants**

We test our hypotheses using a 2 X 2 factorial design. Practicing auditors were recruited in coordination with the Center for Audit Quality’s Access to Audit Personnel program from four Big 4 firms and four non-Big 4 firms. Consistent with prior research examining audit planning decisions (e.g., Houston 1999; Low 2004), we enlisted the participation of experienced audit seniors. Of the 117 auditors who completed the case, we excluded six participants due to lack of experience planning an audit. The remaining 111 participants averaged 49 months of audit experience, with 86 percent having experience auditing fair value estimates and 58 percent reporting experience auditing Level 3 assets and liabilities.

**Procedure and Design**

We distributed our experiment to auditor participants with the assistance of the Center for Audit Quality. Using an online instrument administered by Qualtrics, participants were requested to complete the case study in one session. We asked all participants to assume the role of an audit senior on the hypothetical audit of Vermont Cheeses, a cheese company in the specialty food industry. Participants were responsible for planning the audit of the current period’s impairment analysis of the Chatsworth Cheddar trademark. The case included the accounting standard that governs the accounting for trademarks and the applicable guidance for auditing estimates. We also provided participants with management’s valuation model and assumptions
used to derive the fair value estimate of the trademark.\textsuperscript{7} As described in the case, the total amount of royalties (i.e., cash flows) Vermont Cheeses receives related to the Chatsworth Cheddar trademark in any given year is driven by (1) the number of locations selling the trademarked cheese and (2) the revenues per location. Therefore, the key assumptions in management’s discounted cash flow model are (1) the growth rate of stores selling the trademarked cheese, (2) the per-store revenue growth rate, and (3) the discount rate.

After participants reviewed the valuation model, they moved on to the look-back analysis. All participants received the prior year’s workpaper for each assumption underlying the trademark’s estimated fair value at that time, as well as actual year-to-date information for each of the three key assumptions. Only the actual year-to-date per-store revenue growth (i.e., assumption #2) differed significantly from the assumption underlying the prior period estimate. All participants received an explanation from management for this discrepancy that included information regarding a difference in the actual timing of both the new branding initiative and the price increase compared to original expectations, coupled with information about an unexpected price change implemented by Chatsworth Cheddar’s main competitor. In other words, all participants were provided with information that could lead them to attribute the inaccuracy to a deficiency in management’s estimation process or to an exogenous environmental shock.\textsuperscript{8} Finally, all participants were provided with a sensitivity analysis detailing

\textsuperscript{7} This case is adapted from the case used in Backof et al. (2016). Two practicing audit partners from different Big 4 accounting firms reviewed the current case materials for both relevance and reliability. Neither audit partner participated in the actual experiment. Both partners indicated that the valuation model and supporting evidence used in our experimental instrument were representative of the information that management typically provides to auditors as part of their audit of the impairment analysis of an intangible asset. In addition, we incorporated feedback from the CAQ’s Access to Audit Personnel Program Proposal Review Committee and the results from a pilot test with 35 Big 4 senior auditors at a national training session.

\textsuperscript{8} When assessing the reliability of management’s estimation process, auditors’ determination of the extent to which inaccuracies in prior period estimates arose due to internal or external factors is important (AS No. 12 §5, PCAOB 2010a). Inaccuracies attributable to deficiencies in management’s process (not exogenous environmental shocks)
the effect of the estimation inaccuracy in the prior period assumption on the trademark’s estimated fair value.

We manipulated our two independent variables within the evidence related to the per-store revenue growth rate assumption. We manipulated our first independent variable, *specificity of prior period evidence*, at two levels.9 Participants in our *less specific condition* reviewed evidence provided by management in the prior period that described the company’s plans to achieve the average industry per-store revenue growth rate by increasing sales prices and customer demand. The other half of our participants reviewed *more specific* prior period evidence that also included a discussion of research that supported the viability of the planned price increase, as well as details on the company’s efforts to increase customer demand. See the Appendix for the prior period evidence reviewed by participants in both evidence specificity conditions.

We also manipulated the *direction of the estimation inaccuracy* at two levels. Determination of whether the trademark is impaired hinges on the estimate of the fair value of the Chatsworth Cheddar as it compares to the trademark’s book value. To minimize the likelihood the auditor would determine the trademark is impaired, management would prefer to estimate a fair value that is far above the asset’s book value, as compared to a fair value that have the potential to persist and, thus, should be incorporated into auditors’ risk assessments for the current period estimate.

By providing all participants with information regarding an exogenous external shock, the design of our study works against us finding an effect of our manipulated factors on auditors’ risk assessments if our participants attribute the identified estimation inaccuracy to external factors rather than deficiencies in management’s estimation process.

9Our manipulation of specificity is consistent with the manipulations used in Hammersley et al. (2010). Our less specific condition provides a general description of the most available sources of revenue growth, while Hammersley et al. (2010)’s summary condition describes the general sources of fraud risk (i.e., incentives, opportunities, and pressures) for a company. Our more specific condition includes a discussion of the specific evidence supporting the market’s tolerance for increased prices and specific ways a company can garner increased customer demand, while Hammersley et al. (2010)’s specific condition details specific fraud risks that can be attributed to the general sources of fraud risk that the company faces.
exceeds but it close to book value. Consequently, we characterize an estimation inaccuracy that overstates (understates) the trademark’s estimated fair value as being consistent (inconsistent) with management’s incentive to reduce the uncertainty of whether an impairment loss exists. Therefore, participants in the inconsistent (consistent) condition reviewed a look-back analysis that revealed the per-store revenue growth rate was understated (overstated) by one percent.

After completing their review of the look-back analysis, the participants provided their assessments of the reliability of management’s estimation process and the risk of material misstatement. They also indicated their decisions regarding planned audit effort. We captured participants’ assessments of the reliability of management’s estimation process on a scale from 0 (“not at all reliable”) to 10 (“completely reliable”). Participants also assessed the risk of material misstatement in the current period estimate on a scale from 0 (“extremely low”) to 10 (“extremely high”). Finally, participants indicated the likelihood that they would recommend changing the hours allocated for the current period’s audit of the impairment analysis compared to the preliminary time budget on a scale from 0 (“definitely decrease audit hours”) to 10 (“definitely increase audit hours”).

During the final part of the experiment, all participants answered post-experimental and demographic questions. We asked our participants to assess management’s competence and trustworthiness, as well as to provide their assessments of the support provided by the prior period evidence as it related to the forward-looking assumption made by management in the prior period. Additionally, we measured auditor’s perception of bias in the prior period evidence. These measures were intentionally captured after the reliability assessment and planning variables to avoid priming participants to think about factors that they may not normally consider when making these judgments.
IV. Results

Comprehension Checks

To verify that the participants understood how the key assumptions impacted the fair value estimate, we asked participants to indicate how an increase in each of the assumptions would impact the overall fair value of the trademark. Ninety-one percent of our participants passed all three comprehension check questions. We include all participants in the analyses described below. However, the results of our hypothesis testing are qualitatively similar if we exclude those participants who failed the comprehension check questions.

Test of Hypotheses

Reliability of Management’s Estimation Process

We test our hypotheses related to auditors’ assessments of the reliability of management’s estimation process using auditors’ reliability assessments as the dependent variable and the specificity of prior period evidence and the direction of the estimation inaccuracy as the independent variables. We find that auditors from non-Big 4 audit firms assess management’s estimation process as more reliable than those auditors employed at Big 4 audit firms. However, the size of the firm in which participants are employed does not interact with either of our independent variables (all two-tailed p > 0.458). Therefore, we control for whether or not auditors are employed at a Big 4 audit firm in our ANCOVA model. Panel A of Table 1 provides the cell means and standard deviations of the dependent variable, Panel B details the ANCOVA model, and Panel C provides the results of the planned contrasts.

Our first hypothesis predicts that auditors will assess management’s estimation process as most reliable when the direction of the prior period estimation inaccuracy indicates a potential
understatement of the trademark’s fair value and the prior period evidence is more specific. This is based on the expectation that when the prior period estimation inaccuracy is inconsistent with management’s incentives to reduce uncertainty of impairment (i.e., the fair value is estimated to be only slightly greater than book value), auditors’ perceptions of management competence and trustworthiness will increase with the specificity of the evidence. The means in Panel A of Table 1 are consistent with our hypothesis, with auditors in the inconsistent, more specific condition providing the highest reliability assessments (mean = 7.73).

Our second hypothesis predicts that auditors will assess management’s estimation process as least reliable when the direction of the prior period estimation inaccuracy indicates a potential overstatement of the trademark’s fair value and the prior period evidence is more specific. This is based on the expectation that when the prior period estimation inaccuracy is consistent with management’s incentives (i.e., the fair value is estimated to be significantly greater than book value), auditors’ reliability assessments will be primarily influenced by their perceptions of management trustworthiness. Because inflating the valuation of the trademark helps management avoid any uncertainty regarding the impairment decision, we expect that auditors will, in hindsight, perceive more specific evidence as an attempt by management to persuade them to accept what appears to be an aggressive assumption. Consequently, we expect auditors in this condition to have the lowest perceptions of management trustworthiness. This, in turn, should lead to the lowest reliability assessments. The means in Panel A of Table 1 are consistent with our hypothesis that auditors in the consistent, more specific condition provide the lowest reliability assessments (mean = 7.17).

We test our first and second hypotheses using a linear contrast of cell means (Buckless and Ravenscroft 1990). We use a contrast weight of +1 for the inconsistent, more specific
condition, -1 for the consistent, more specific condition, and 0 for the two less specific conditions. In addition to the means in Panel A of Table 1 being consistent with our predictions, the planned contrast reported in Panel C of Table 1 supports this hypothesis (F_{1,106} = 3.68, one-tailed p = 0.029). Further, we find that the between-cells variance (i.e., residual) not captured by the planned contrast is insignificant (p = 0.961), indicating that the contrast is a good fit. Finally, our contrast explanation factor (k = 5.944) indicates that six times more of the explained variance can be attributed to the contrast rather than other sources.\(^{10}\) Thus, H1 and H2 are supported.

Analyses of auditors’ perceptions of the support provided by the prior period evidence for the revenue growth rate assumption, as well as their assessments of the reasonableness of this assumption in hindsight, further support this hypothesized interaction. Untabulated analyses indicate that auditors perceive there to be significantly less support for the assumption that is subsequently revealed to have been overstated compared to understated (i.e., consistent vs. inconsistent condition) (F_{1,106} = 2.71, one-tailed p = 0.052) and perceive the assumption to be significantly less reasonable (F_{1,106} = 7.03, one-tailed p = 0.005) when the prior period evidence is more specific.\(^{11}\) However, auditors’ perceptions of evidential support in the prior period evidence for the prior period assumption (F_{1,106} = 0.56, two-tailed p = 0.458) and their reasonableness assessments of that assumption (F_{1,106} = 0.39, two-tailed p = 0.532) do not differ with the direction of the estimation inaccuracy when the prior period evidence is less specific. This is consistent with our theory that auditors view more specific evidence as a persuasion

\(^{10}\) Guggenmos et al. (2016) establish this coding scheme to test a “pac-man” style interaction. However, in addition to a significant contrast test, a comprehensive custom contrast analysis should also be supported by an insignificant between-cells residual test and a measure of effect size.

\(^{11}\) As part of a set of post-experimental questions posed to auditor participants, auditors were asked, “How much support did the management-provided information provide for the revenue per store growth rate assumption used in the prior year’s estimate?” Auditors responded using an 11-point scale, with 0 being “No support” and 10 being “Complete support.” Auditors also rated the reasonableness of the prior period assumption on a scale from 0 (“Not at all reasonable”) to 10 (“Completely reasonable”).
attempt when the estimation inaccuracy is directionally consistent with management’s incentives.

**Audit Planning Judgments**

We predict in H3 that auditors will assess the risk of misstatement as higher and allocate more time to the audit of the current period’s impairment analysis when they perceive management’s estimation process to be less reliable and vice versa. Using 11-point Likert scales, auditors assessed (1) the risk of material misstatement in the current period estimate and (2) the likelihood that they would recommend changing the hours allocated for the current period’s audit of the impairment analysis compared to the preliminary time budget. Higher values reflected higher risk assessments and increased audit effort, respectively. Panels A and B of Table 2 provide the cell means and standard deviations of auditors’ risk of material misstatement assessments and changes to planned audit effort, respectively.

To test this hypothesis, we separately regressed auditors’ reliability assessments on their risk assessments and planning decisions. Panel C of Table 2 provides the results of these two regressions. We find that when auditors perceive management to have a less reliable estimation process, their assessments of the risk of material misstatement in the estimated account are higher (b = -0.26, one-tailed p = 0.036). Additionally, these lower reliability assessments are accompanied by increases in the amount of time allocated to auditing these complex estimates (b = -0.24, one-tailed p = 0.021). Thus, H3 is supported.

**Additional Analyses**

In our three hypotheses, we posit that the specificity of prior period evidence and the direction of the estimation inaccuracy identified during the look-back analysis affect the planning for the current period audit through their impact on auditors’ perceptions of the reliability of
management’s estimation process. To provide more insight into the impact of the specificity of the prior period evidence and the direction of the prior period estimation inaccuracy on auditors’ judgments, we asked auditors to assess management’s \textit{competence} and \textit{trustworthiness}. We then used these two measured variables to derive auditors’ perceptions of management’s credibility. Thus, we are able to test our theoretical model of how the evidence evaluated during the look-back analysis impacts auditors’ planning judgments as depicted in Figure 1.

This overall theoretical model fits the data well. In particular, the likelihood ratio Chi-square test indicates the model-implied covariance matrix does not differ from the observed covariance matrix ($\chi^2 = 22.48$, $p = 0.167$), the Tucker-Lewis Index is 0.90, and the incremental fit index is 0.95. Consistent with our expectations, we find that more specific evidence \textit{increases} auditors’ perceptions of management competence (one-tailed $p = 0.041$).

Contrary to our expectations, however, the direction of the prior period estimation inaccuracy has no direct (one-tailed $p = 0.313$) or interactive (two-tailed $p = 0.989$) impact on our measure of management trustworthiness. In the next section we turn to the standards to identify what could explain the moderating effect of the direction of a prior period estimation inaccuracy identified in the results supporting H1 and H2 reported above.

Tests of RQ1

\footnote{We gathered data from 60 additional participants to isolate the impact of the specificity of the prior period evidence on auditors’ judgments. Half of the participants reviewed experimental materials that included less specific prior period evidence while the other half reviewed more specific prior period evidence. Importantly, regardless of their assigned experimental condition, none of these additional participants reviewed case materials that provided comparisons of prior period assumptions to current year-to-date results. Of the 60 participants, we excluded two who had no experience planning an audit. Absent any information related to the direction of the prior period estimation inaccuracy, we find that evidence specificity alone does \textit{not} impact auditors’ perceptions of management’s competence ($t_{56} = 0.28$, two-tailed $p = 0.783$), their perceptions of management’s trustworthiness ($t_{56} = 1.13$, two-tailed $p = 0.293$), their evaluations of the reliability of management’s estimation process ($t_{56} = 0.25$, two-tailed $p = 0.806$), their assessed risk of material misstatement ($t_{56} = 0.83$, two-tailed $p = 0.412$), or their planned audit effort ($t_{56} = 0.68$, two-tailed $p = 0.498$). Thus, our evidence suggests that the specificity of the prior period evidence alone does not impact auditors’ judgments regarding the current period audit of complex estimates.}
Effect of Perceived Bias in Prior Period Evidence on Audit Planning

When it comes to auditing complex estimates, the auditing standards warn that there is the potential for bias in the subjective factors used in the estimation process even when that process is performed by competent personnel using relevant and reliable data (AU 342.04, PCAOB 2003b). Therefore, when assessing risk auditors should take into consideration both the reliability of management’s estimation process (AU 328.13, PCAOB 2003a; AU 342.05, PCAOB 2003b) and the effect of any identified bias in accounting estimates (AS No. 14 ¶26, PCAOB 2010c). However, what is not clear from the standards is the relative impact that these two factors should have on auditors’ risk assessments. Consequently, we examine this issue in our expanded model depicted in Figure 2. In this model, we have a direct link from auditors’ assessments of the reliability of management’s estimation process and auditors’ perceptions of the amount of bias in the prior period evidence to their risk assessments. We then include a link from the direction of the estimation inaccuracy to both auditors’ perceptions of bias and their reliability assessments. Finally, we use a multiple group analysis to simultaneously test the fit of the model for those auditors viewing more specific compared to less specific prior period evidence. This technique allows us to test the conditions under which auditors’ perceptions of bias and their perceptions of the reliability of management’s estimation process impact their planning judgments.

Our test of the expanded model depicted in Figure 2 provides important insights into how auditors’ judgment process changes based on the characteristics of the prior period evidence. The likelihood ratio Chi-square test ($\chi^2 = 37.56$, $p = 0.397$), the Tucker-Lewis Index (0.98), and the incremental fit index (0.99) all indicate that this expanded model fits the overall relationships in the data. Consistent with H1 and H2, we find that the direction of the estimation inaccuracy
impacts auditors’ perceptions of the reliability of management’s estimation process only when auditors review more specific prior period evidence. In particular, auditors in the more specific condition view estimation inaccuracies that are consistent with management’s incentives as indicative of a less reliable estimation process than do auditors for whom the estimation inaccuracy is inconsistent with management’s incentives (one-tailed p = 0.060). In response to their lower reliability assessments, auditors in the more specific, consistent condition assess the risk of material misstatement associated with the current period estimate as higher (one-tailed p = 0.096) and are more likely to increase planned audit effort (one-tailed p = 0.065) than are auditors in the more specific, inconsistent condition.

Further, we find evidence consistent with our expectations above that estimation inaccuracy direction does not influence auditors’ assessments of the reliability of management’s estimation process when auditors review less specific prior period evidence (one-tailed p = 0.252). Rather, when receiving less specific prior period evidence, the direction of the estimation inaccuracy impacts auditors’ planning judgments through their perceptions of the amount of bias in the prior period evidence. In particular, when the prior period evidence is less specific, auditors view evidence supporting estimation inaccuracies that are consistent with management’s incentives as more biased than that supporting estimation inaccuracies that are inconsistent with management’s incentives (one-tailed p = 0.019). This leads auditors to perceive there to be a greater risk that the current period estimate is materially misstated (one-tailed p = 0.001).

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13 One potential explanation for this finding is that it is difficult for auditors to evaluate management’s estimation process based on the limited evidence presented by management. Consequently, auditors reviewing less specific prior period evidence rely more heavily on their perceptions of bias which can be more easily ascertained based on the consistency of the prior period estimation inaccuracy with management’s incentives than their perceptions of the reliability of management’s estimation process.
Auditors, in turn, respond to their heightened risk assessments by increasing their planned audit effort (one-tailed $p < 0.001$).

In sum, our analyses suggest that auditors respond to estimation inaccuracies that are consistent with management’s incentives with higher risk assessments and greater planned audit effort regardless of the specificity of the prior period evidence. However, the process through which the direction of an estimation inaccuracy affects auditors’ planning judgments changes based on the specificity of the prior period evidence. In particular, when the prior period evidence is less specific, the direction of an estimation inaccuracy impacts auditors’ planning judgments though their assessments of evidence bias. However, when the prior period evidence is more specific, the consistency of an estimation inaccuracy with management’s incentives to avoid uncertainty of asset impairment affects auditors planning judgments directly through their assessments of the reliability of management’s estimation process.

V. Discussion and Conclusion

In this study, we examine how the specificity of prior period evidence examined during a look-back analysis and the direction of an estimation inaccuracy revealed during this analysis auditors’ planning for the current year audit of a complex estimate. Our results indicate that when prior period evidence is more specific, auditors’ planning judgments are driven by their assessment of the reliability of management’s estimation process. Specifically, after reviewing more specific prior period evidence, an estimation inaccuracy that is consistent (inconsistent) with management incentives leads to lower (higher) reliability assessments of management’s estimation process and, in turn, higher (lower) risk assessments and increased (decreased) planned audit effort. Conversely, when prior period evidence is less specific, auditors’ risk
assessments and planned audit effort are driven by their perception of bias in the prior period evidence. That is, an estimation inaccuracy that is consistent (inconsistent) with management incentives leads to higher (lower) perceptions of bias in the prior period evidence and, in turn, higher (lower) risk assessments and increased (decreased) planned audit effort. Thus, our findings indicate that the route through which the direction of a prior period estimation inaccuracy influences audit planning decisions depends on the specificity of the prior period evidence. We believe this is one of the first studies to present findings regarding a differential impact of auditors’ assessments of management’s estimation process versus auditors’ perceptions of evidence bias on their planning decisions.

Our study is subject to some limitations. First, we only measure the effects of prior period evidence specificity and the direction of a subsequently revealed estimation inaccuracy on auditors’ planned audit effort. We encourage future research to examine how characteristics of prior period evidence impact the nature and timing of the planned audit procedures for the current year audit. Secondly, we find evidence that suggests that the direction of the estimation inaccuracy has the opposite impact on auditors’ perceptions of evidence bias when auditors review more versus less specific prior period evidence. In particular, when the prior period evidence is more specific, auditors’ perceptions of bias are lower (one-tailed p = 0.077) when the estimation inaccuracy is consistent rather than inconsistent with management incentives. Although this effect does not flow through to auditors’ assessments of the risk of misstatement, we believe it is important to highlight this finding and encourage future research to investigate this issue.

In conclusion, we believe this study makes several important contributions that are informative to practitioners, auditors, and regulators. First, prior audit research (e.g., Hirst 1994;
Goodwin 1999) demonstrates that auditors’ perceptions of management’s credibility affect auditors’ reliance on management-provided evidence and explanations. However, we believe that factors associated with audit evidence can also affect auditors’ perception of management credibility. That is, the relation between management credibility and audit evidence can be bi-directional. We contribute to the auditing literature by providing insight as to how characteristics of management-provided evidence influence auditors’ perceptions of management’s credibility and how management credibility, in turn, affects auditors’ planning judgments in the area of complex estimates. Second, we provide important insights into how and why evidence obtained and evaluated as part of a prior period audit may impact the current period audit. In particular, we show that impacts auditors’ planning judgments can be impacted by their assessments of the reliability of management’s estimation process and their perceptions of evidence bias. However, the specificity of the prior period evidence determines the route through which the new evidence regarding management opportunism impacts auditors’ planning judgments. Finally, we extend the research examining the auditing of complex estimates by providing evidence that auditors are sensitive to information that suggests management opportunism when planning for the current year audit of a complex estimate. In particular, auditors respond to estimation inaccuracies identified during a look-back analysis that are consistent with management’s incentives with higher risk assessments and greater planned audit effort regardless of the specificity of the prior period evidence.
References


APPENDIX: EVIDENCE SPECIFICITY MANIPULATION

(More Specific Condition):

PRIOR YEAR WORKPAPER

KEY ASSUMPTION: REVENUE GROWTH RATE

Management’s Assumption: 8% annual growth in revenues by location through 2018, 3% thereafter.

Management-provided justification for this assumption:

When we acquired the Chatsworth Cheddar trademark in 2003, the average revenues (per store) from sales of Chatsworth Cheddar was $21,390. In 2013, the average revenues (per store) from sales of Chatsworth Cheddar was $42,074.

We expect revenues (per store) from sales of Chatsworth Cheddar to grow annually at 8% through 2018 and 3% (average inflation rate) thereafter. The 8% growth rate is consistent with the projected average industry growth rate which the company has historically met. We plan to achieve our expected growth by:

- Increasing sales prices – We intend to increase prices in the 3% to 5% range each year, which is consistent with historical pricing practices of the company and our competitors. Results of recent market research indicate that price increases can be maintained and marketing plans are in place to educate both our distributors and our consumers on the rationale for price increases.
  - A compilation of reports from the U.S. Census Bureau and the U.S. Department of Commerce indicate that consumers in our target market have experienced average annual wage increases of 5% over the last 24 months. As such, we expect consumers will experience increases in their disposable income commensurate with planned price increases.
  - Market research, including a survey conducted by marketing research agency, Survey Sampling International, indicates that target market consumers value product quality over both product price and ease of product access. Consequently, our planned changes to our marketing strategy will focus on the quality ingredients and production process used to make Chatsworth Cheddar.

- Increasing customer demand – Brand recognition of Chatsworth Cheddar as a consistent and high quality cheese has led to increased sales volume each year since 2003. Our new marketing campaigns and third party endorsements are expected to increase awareness of the Chatsworth Cheddar brand in future periods.
  - Our new marketing campaigns include:
    - Development of a new company website and blog ([www.ChatsworthCheddar.com](http://www.ChatsworthCheddar.com)) that explains our cheese making process, provides recipes from celebrity chefs that use our cheese, offers links to third party endorsements of our cheese, and educates consumers on different types of artisanal cheeses.
    - Redesigning our Chatsworth Cheddar packaging to highlight the local dairy farmers that supply the key ingredient for our product.
  - Social media endorsements of Chatsworth Cheddar anticipated to appear this year include popular food blogs and culinary and travel magazines such as:
    - Blogs
      - The Gastronomista’s Delight
      - A Clean Plate
      - Just a Nibble
    - Magazines
      - *Tasting and Touring Magazine*
      - *Sommelier and Affineur*
APPENDIX (CONTINUED):

(Less Specific Condition):

PRIOR YEAR WORKPAPER

KEY ASSUMPTION: REVENUE GROWTH RATE

Management’s Assumption: 8% annual growth in revenues by location through 2018, 3% thereafter.

Management-provided justification for this assumption:

When we acquired the Chatsworth Cheddar trademark in 2003, the average revenues (per store) from sales of Chatsworth Cheddar was $21,390. In 2013, the average revenues (per store) from sales of Chatsworth Cheddar was $42,074.

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- Increasing sales prices – We intend to increase prices in the 3% to 5% range each year, which is consistent with historical pricing practices of the company and our competitors. Results of recent market research indicate that price increases can be maintained and marketing plans are in place to educate both our distributors and our consumers on the rationale for price increases.

- Increasing customer demand – Brand recognition of Chatsworth Cheddar as a consistent and high quality cheese has led to increased sales volume each year since 2003. Our new marketing campaigns and third party endorsements are expected to increase awareness of the Chatsworth Cheddar brand in future periods.
APPENDIX (CONTINUED):

(Both Evidence Specificity Conditions):

<table>
<thead>
<tr>
<th><strong>CURRENT YEAR LOOK-BACK ANALYSIS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KEY ASSUMPTION: REVENUE GROWTH RATE</strong></td>
</tr>
</tbody>
</table>

In planning for the audit of the year ending December 31, 2014, you are asked to perform a look-back analysis of the assumptions used to derive the valuation of the trademark as part of the impairment analysis for the year ending December 31, 2013. The estimated fair value as of December 31, 2013 was calculated using a discounted cash flow model based on 3 key assumptions, including management’s revenue growth rate assumption. Below is a chart showing management’s revenue growth rate assumption used in the 2013 estimate, as well as the actual revenue growth since the prior year estimate was made.

Management’s key assumption (as of 12/31/2013):

- 8% annual growth rate through 2018; 3% annual growth rate thereafter

Update since prior year estimate (as of 8/31/2014):

- Revenues per store have grown 7% compared to the same time period in the prior year.

Sensitivity analysis:

- If a 7% (instead of 8%) growth rate had been used in the prior year estimate, the fair value estimate of the trademark decreases to $3.072 million which is $7,000 above the book value. See the attached revised DCF calculation for this computation.

Additional information gathered as part of look-back analysis:

- Conversations with management indicate that they attribute the difference between expected and actual revenue growth in the current year to a new fermentation process that the company’s main competitor implemented this year on a trial basis. Management did not know at the time of the prior year’s audit that the competitor was planning to implement this new fermentation process. This new process decreases production time of the cheese. Consequently, the competitor decreased the price of its products. This, in turn, negatively affected Chatsworth Co.’s ability to raise prices since the prior fiscal year-end and still maintain customer demand. However, there is uncertainty regarding the competitor’s continued use of the new fermentation process due to the need to purchase the expensive production equipment if the process was to be used going forward. Therefore, Chatsworth management continues to expect growth to be at the average industry growth rate of 8% through 2018, and 3% (average inflation rate) thereafter.
Figure 1

Expanded Theoretical Model

Specificity of Prior Period Evidence
(0 = Less, 1 = More)

Specificity X Direction Interaction

Direction of Estimation Inaccuracy
(0 = Inconsistent, 1 = Consistent)

Management Competence

Management Trustworthiness

Management Credibility

Reliability of Management’s Estimation Process

Risk of Material Misstatement

Planned Audit Effort

Big4
(0 = Non Big4, 1 = Big4)
This figure shows the results of the structural equation model. Unstandardized factor loadings and corresponding p-values (all one-tailed except the links between the interaction and assessments of management competence and trustworthiness are two-tailed) for each link are shown.

**Specificity** refers to the specificity of the prior period evidence (0 = Less specific, 1 = more specific).

**Direction of Inaccuracy** refers to the direction of the prior period estimation inaccuracy (0 = inconsistent with management’s incentives, 1 = consistent with management’s incentives).

**Management competence** refers to participants’ assessments of the competence of management in estimating the fair value on a scale from 0 (“Not at all”) to 10 (“Completely”).

**Management trustworthiness** refers to participants’ assessments of the trustworthiness of management in estimating the fair value on a scale from 0 (“Not at all”) to 10 (“Completely”).

**Reliability of estimation process** refers to participants’ assessments of the reliability of management’s estimation process on a scale from 0 (“Not at all reliable”) to 10 (“Completely reliable”).

**Risk of material misstatement** refers to participants’ assessments of the risk of material misstatement in the current period estimate on a scale from 0 (“extremely low”) to 10 (“extremely high”).

**Planned audit effort** refers to the likelihood that participants would recommend changing the hours allocated for the current period’s audit of the impairment analysis compared to the preliminary time budget on a scale from 0 (“definitely decrease audit hours”) to 10 (“definitely increase audit hours”).

**Big4** is a dichotomous variable where 1 (0) indicates the participant (does not) works for a Big 4 audit firm.
Figure 2
Multiple Group Analysis for Less vs. More Specific Evidence

Management Competence

Management Trustworthiness

Management Credibility

Reliability of Management’s Estimation Process

Risk of Material Misstatement

Planned Audit Effort

Direction of Estimation Inaccuracy
(0 = Inconsistent, 1 = Consistent)

0.972
(0.019)

-0.675
(0.077)

Big4
(0 = Non Big4, 1 = Big4)

Risk of Material Misstatement

0.809
(<0.001)

0.700
(<0.001)

0.726
(<0.001)

0.629
(<0.001)

0.472
(0.004)

0.792
(0.002)

0.204
(0.252)

-0.490
(0.060)

-0.587
(0.058)

-0.762
(0.031)

-0.189
(0.136)

-0.212
(0.096)

0.452
(0.001)

0.104
(0.172)

0.803
(<0.001)

1.090
(0.065)
This figure shows the results of the structural equation model. Unstandardized factor loadings and corresponding p-values (all one-tailed) for the more specific condition are italicized while those for the less specific condition are not.

Direction of Inaccuracy refers to the direction of the prior period estimation inaccuracy (0 = inconsistent with management’s incentives, 1 = consistent with management’s incentives).
Management competence refers to participants’ assessments of the competence of management in estimating the fair value on a scale from 0 (“Not at all”) to 10 (“Completely”).
Management trustworthiness refers to participants’ assessments of the trustworthiness of management in estimating the fair value on a scale from 0 (“Not at all”) to 10 (“Completely”).
Evidence bias refers to participants’ assessments of the amount of bias in the management-provided evidence on a scale from 0 (“No bias at all”) to 10 (“Completely biased”).
Reliability of estimation process refers to participants’ assessments of the reliability of management’s estimation process on a scale from 0 (“Not at all reliable”) to 10 (“Completely reliable”).
Risk of material misstatement refers to participants’ assessments of the risk of material misstatement in the current period estimate on a scale from 0 (“extremely low”) to 10 (“extremely high”).
Planned audit effort refers to the likelihood that participants would recommend changing the hours allocated for the current period’s audit of the impairment analysis compared to the preliminary time budget on a scale from 0 (“definitely decrease audit hours”) to 10 (“definitely increase audit hours”).
Big4 is a dichotomous variable where 1 (0) indicates the participant (does not) works for a Big 4 audit firm.
Table 1

Auditors’ Assessments of the Reliability of Management’s Estimation Process

Panel A: Reliability of Management’s Estimation Process mean (SD) N

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<th>Less Specific</th>
<th>More Specific</th>
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<tbody>
<tr>
<td></td>
<td>mean</td>
<td>(SD)</td>
<td>N</td>
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<tr>
<td>Inconsistent</td>
<td>7.37</td>
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<td></td>
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<td></td>
<td>7.55</td>
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</tr>
<tr>
<td></td>
<td>A</td>
<td>B</td>
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<tr>
<td>Consistent</td>
<td>7.62</td>
<td>(1.18)</td>
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<td></td>
<td>7.17</td>
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Panel B: ANCOVA model

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<td>5.91</td>
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Panel C: Planned Contrasts

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<th></th>
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<th>One-tailed p-value</th>
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<tbody>
<tr>
<td>H1 and H2 : Auditors’ assessments of the reliability of management’s estimation process will be highest (lowest) when prior period evidence is more specific and the direction of the prior period estimation inaccuracy is inconsistent (consistent) with management’s incentives.</td>
<td>3.68</td>
<td>0.029</td>
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</table>
Table 2
Auditors’ Planning Decisions

Panel A: Risk of Material Misstatement  mean (SD) N
Less specific   More specific

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<tr>
<th></th>
<th>Inconsistent</th>
<th>Consistent</th>
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<tbody>
<tr>
<td></td>
<td>Less specific</td>
<td>More specific</td>
</tr>
<tr>
<td></td>
<td>mean</td>
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<tr>
<td>Consistent</td>
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Panel B: Change in Audit Effort  mean (SD) N
Less specific   More specific

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Panel C: Regression Analyses
H3: Lower (higher) reliability assessments of management’s estimation process will lead to higher (lower) risk assessments of material misstatement in the current period estimate and more (less) allocation of planned audit effort.

H3: ROMM  b = -0.26 one-tailed p = 0.036
Effort  b = -0.24 one-tailed p = 0.021