

# Strategic Analysis and Auditor Risk Judgments

**Natalia Kochetova-Kozloski and William F. Messier, Jr.**

**SUMMARY:** The study investigates whether and how senior auditors' strategic analysis of a client affects their identification of significant business and financial statement risks, and their risk assessments. Sixty-seven senior auditors participated in an experiment that examined the effect of analyzing two aspects of strategic analysis (strategic positioning and the strategy implementation process) against performing no strategic analysis. An expert panel of senior managers was used to develop a benchmark for comparison purposes. Our results show that (1) auditors who performed guided strategic analysis did not identify more significant business and financial statement risks than auditors who did not perform strategic analysis, (2) senior auditors who performed strategic analysis of strategic positioning or the strategy implementation process assessed risk of material misstatement at the entity level more consistently with an expert panel than auditors who did not perform such an analysis, and (3) senior auditors' analysis of the client's strategy implementation process was associated with assessments of the strength of the control environment that were more consistent with the expert panel than assessments done by auditors who did not perform any strategic analysis or who performed only an analysis of strategic positioning.

**Keywords:** risk assessment; strategic analysis; strategic positioning; strategy implementation.

**Data Availability:** Contact the first author.

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*Natalia Kochetova-Kozloski is an Associate Professor at Saint Mary's University, and William F. Messier, Jr., is a Professor at the University of Nevada, Las Vegas and the Norwegian School of Economics and Business Administration.*

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## INTRODUCTION

Over the last decade or so, the major public accounting firms have changed their audit methodologies to emphasize a business risk-based approach (e.g., [Lemon et al. 2000](#); [Bell et al. 1997](#)).<sup>1</sup> Subsequently, standard setters revised the core auditing standards to reflect the processes related to a risk-based audit (e.g., [AICPA 2006a, 2006b](#); [IAASB 2005a, 2005b](#); [PCAOB 2010](#)). Conducting a business risk-based audit requires the auditor to develop an understanding of the client and its environment, make risk assessments based on that knowledge, and design appropriate audit procedures to respond to those risks. A significant component of understanding the client and its environment involves conducting a strategic analysis of the client ([Bell et al. 1997](#)).

There is an emerging body of research investigating various aspects of risk-based auditing ([Bell et al. 2008](#); [Ballou et al. 2004](#); [Choy and King 2005](#); [Curtis and Turley 2007](#); [O'Donnell and Schultz 2005](#); [Schultz et al. 2010](#); [Knechel et al. 2010](#); [Robson et al. 2007](#)). This paper extends this line of work by examining two issues. First, we test whether strategic analysis undertaken by auditors to develop an understanding of the client's business affects their risk identification. Unlike participants of prior studies who were *presented* with results of strategic analysis (e.g., [Knechel et al. 2010](#); [Schultz et al. 2010](#)) and focused on how risk-related information in the clients' key performance indicators (including those benchmarked or non-benchmarked as in [Knechel et al. \[2010\]](#); or fluctuations in specific accounts as in [Schultz et al. \[2010\]](#)) gets incorporated in risk assessments, auditors in our study *performed* and *documented* detailed analysis of the client's strategy with an emphasis on either the firm's strategic positioning, or the firm's management strategy development and implementation process. Thus, our study contributes to the overall understanding of how analysis of various dimensions of the client's strategy may (or may not) aid auditors in identification of significant business and financial statement risks. Second, we investigate how two aspects of strategic analysis (analysis of strategic positioning and the strategy implementation process) influence auditors' risk assessments. We contribute to the business-risk audit literature by going beyond the analysis of the linkage between significant risk identification and assessment (see [Kochetova-Kozloski et al. 2010](#)) by incorporating a quality measure in our analysis. That is, we examine whether auditors who perform strategic analysis assess risk of material misstatement and strength of the control environment (our proxy for the inverse of control risk at the entity level) more consistently with experts, as compared to those who do not perform and document such analysis.

We test two hypotheses in a 3 (strategic analysis type)  $\times$  1 between-subjects experiment using 67 audit seniors as participants. The results are as follows. First, auditors who performed strategic analysis did not identify more significant business and financial statement risks than auditors who did not perform strategic analysis. Second, senior auditors who performed strategic analysis of strategy positioning, or analysis of the strategy implementation process, assessed risk of material misstatement at the entity level more consistently with an expert panel than auditors who did not perform such analyses. Third, the senior auditors' analysis of the client's strategy implementation process was associated with assessments of the strength of the control environment that were more consistent with the expert panel than assessments done by auditors

<sup>1</sup> Risk-based auditing is also referred to as a "strategic systems audit" ([Bell et al. 1997](#); [Bell et al. 2002](#)) or a "business risk audit" ([Lemon et al. 2000](#)). See the forum of papers published in *Accounting, Organizations and Society* ([Curtis and Turley 2007](#); [Knechel 2007](#); [Peecher et al. 2007](#); [Robson et al. 2007](#)) for a discussion of the possible motivations behind the adoption of risk-based auditing. For a discussion of the evolution of risk-based auditing, see [Bell et al. \(2005, Chapter 2\)](#).

who did not perform any strategic analysis, or who performed only an analysis of strategy positioning.<sup>2</sup>

In the next section we review the relevant extant literature in order to develop testable hypotheses. A section that presents the methodology used in the study follows. Next, we present the results. The last section offers conclusions, the limitations of the study, and suggestions for future research.

## THEORY AND HYPOTHESES

### Overview of the Risk-Based Audit Process

A risk-based audit involves the following steps (AICPA 2006a, 2006b; IAASB 2005a, 2005b; PCAOB 2010). The first step requires the auditor to obtain an understanding of the entity and its environment, and to assess the risks of material misstatement by performing risk assessment procedures (inquiry of management and others, analytical procedures, and observation and inspection).<sup>3</sup> The second step requires the auditor to use the information from the risk assessment procedures to assess the risk of material misstatement (*RMM*) at the financial statement and account levels.<sup>4</sup> The third step requires the auditor to design and perform audit procedures (tests of controls and substantive tests) that are linked to the assessed *RMM* at the relevant account and assertion level. The final step involves evaluating the evidence obtained and issuing an audit report on the financial statements.<sup>5</sup> Our research addresses hypotheses related to the first two steps: (1) identification of significant business and financial statement risks based on an understanding of the client business, and (2) the auditor's assessment of the *RMM*.

### Strategic Analysis and Risk Assessment

Bell et al. (1997) and Bell et al. (2002, 2005) argue that employing strategic analysis enhances the auditor's ability to understand the entity's business in order to identify and assess its business risks. Recent management accounting research has portrayed the accounting and reporting system as "an active link between strategy and external conditions of the firm" (Skæbræk and Tryggestad 2010), suggesting that without understanding one or the other, auditors' comprehension of the client's business is incomplete.<sup>6</sup> Strategic analysis views an entity as an open system that is able to

<sup>2</sup> We view the strength of the control environment as a proxy for the inverse of control risk at the entity level. We recognize the limitation of such a view of controls (see, for example, COSO or CoCo internal control frameworks). However, the methodologies used by some of the major public accounting firms include risk assessments based on inherent risk (i.e., misstatement risk at the entity level before considering impact of internal controls) and the control environment. We chose to focus on the control environment because this element of controls can be measured and documented at the entity level without significantly increasing the size of the experimental materials (as compared to risk assessment, control activities, information and communication, and monitoring [COSO 1994]). It should also be noted that our study does not consider an audit of internal control over financial reporting. We exclude such audit consideration so that we can focus directly on business risk analysis related to a financial statement audit.

<sup>3</sup> This understanding of the entity includes gathering information in the following areas: (1) industry, regulatory, and other external factors; (2) the nature of the entity; (3) its objectives and strategies, and the related business risks that may result in a material misstatement of the financial statements; (4) how management measures and reviews the entity's financial performance; and (5) its internal control.

<sup>4</sup> Business risk is the risk that an entity's business objectives will not be attained or its strategies will not be executed successfully as a result of the external and internal factors, pressures, and forces adversely impacting the entity and, ultimately, the risk associated with the entity's survival and profitability (Bell et al. 1997; Knechel 2007; AICPA 2006a; Messier et al. 2010).

<sup>5</sup> For simplicity's sake, we assume that detection risk has been reduced to an acceptably low level and management has corrected identified material misstatements.

<sup>6</sup> See Chapman (2005), Hansen and Mouritsen (2005), Smith (2003), and Skæbræk and Melander (2004) on the issue of accounting as an integral part of framing and implementing strategy.

adapt to changes in the external and internal environment by coordinating its business processes so that the entity's goals are achieved (Jackson 1991, 46).<sup>7</sup> The analysis of the entity's objectives and strategies helps the auditor obtain an understanding sufficient to identify and assess the impact of the entity's strategy, business processes, and related business risks on risks of material misstatement. To assess the client's business risks, the auditor evaluates macro-economic, industry-level, and firm-specific strategic risk factors, as well as management's reactions to those risks. Thus, strategic analysis should allow an auditor to understand the relationship between the entity's strategy, its business risks, and management's representations (assertions) contained in the financial statements (Knechel et al. 2010; Peecher et al. 2007). Therefore, the auditor can use the knowledge gathered from the strategic analysis (i.e., the client's business risks and their financial statement implications) to make an assessment of the risk of material misstatement for the entity (Choy and King 2005; Knechel et al. 2010; Schultz et al. 2010).

### Strategic Positioning and the Strategy Implementation Process

Our focus in this research is on the judgmental effects of strategic analysis along two theoretical dimensions suggested by the strategic management literature: (1) analysis of strategic positioning, and (2) analysis of the strategy implementation process (Ketchen et al. 1996).<sup>8</sup> Our choice of these two dimensions is theory driven and thus allows for the consideration of research and practice implications that are not constrained by a proprietary firm audit methodology. We adhere to the classical analytical school of strategic analysis (Ansoff 1991; Porter 1980, 1985) that underlies the existing methodologies used by the major public accounting firms and is captured implicitly in the auditing standards (e.g., IAASB 2005a, 2005b). Currently, no systematic evidence exists as to whether one of these two dimensions of strategy better assists auditors in performing strategic analysis and making subsequent risk judgments.

In using strategic analysis, an auditor interprets and analyzes both the client's strategic positioning and its strategy implementation process.<sup>9</sup> Strategic positioning includes the entity's goals, specific strategies, their importance, and timing at the corporate or business unit level. It also includes how those decisions are intended to affect an entity's economic performance (Chrisman et al. 1988; Fahey and Christensen 1986; Ketchen et al. 1996). In order to analyze strategic positioning, an auditor needs to gather and interpret information about the client's organization, including information on its industry and global business environment, competitive forces, and the entity's strategies in the context of those forces.

Analysis of the strategy implementation process should help the auditor evaluate how the client understands and deals with strategic positioning. More specifically, analysis of the strategy implementation process focuses on the realized managerial actions, planning methods, and decision-making processes that generate and implement strategy (Bhimani and Langfield-Smith 2007; Chakravarthy and Doz 1992; Huff and Reger 1987; Naranjo-Gil and Hartmann 2006; Narayanan and Fahey 1982). In order to analyze strategy implementation, an auditor needs to identify, interpret, and understand how the client's management executes strategic decisions based on existing and intended strategic position. Analysis of the strategy implementation process also

<sup>7</sup> Management accounting research shows that both financial and non-financial information generated by accounting systems is used in both strategy development and strategy implementation (Bhimani and Langfield-Smith 2007; Naranjo-Gil and Hartmann 2006).

<sup>8</sup> Ketchen et al. (1996) refer to these dimensions as *strategy content* and *strategy process*, respectively.

<sup>9</sup> In most cases, firm-specific audit guidance does not explicitly distinguish between the strategic positioning and the strategy implementation aspects of strategic analysis. However, both aspects are embedded in strategic analysis performed by the major public accounting firms.

includes management controls used to monitor organizational processes that, in turn, are used to accomplish the entity's strategic objectives.

In addition to research in strategic management, research in management accounting and control suggests that there is an association between an entity's business environment, its strategic positioning, and the choice of management control and accounting systems (Khandwalla 1972, 1973; Gordon et al. 1978; Simons 1987, 1990; Dent 1990; Dirsmith et al. 1991; Ittner and Larcker 1997). This association is in line with the auditor's assumption that management controls over strategy implementation, business processes, and financial reporting will differ depending on the strategy chosen. This association suggests that different business risks can have a different impact on financial statement assertions.<sup>10</sup> In other words, the management control literature recognizes that strategic positioning and the strategy implementation process are distinct but interrelated aspects of a firm's strategy, and both influence not only management's response to business risks, but also financial statements and assertions therein.

While we recognize that the auditor may normally conduct analyses of strategic positioning and the strategy implementation process together, we separate these aspects of strategic analysis for the purpose of our experiment. We do this because the strategic management literature tends to treat these aspects of strategy as two connected but distinct dimensions (e.g., see references earlier in this section). Our interest is in testing which of these two dimensions contributes more to the auditors' understanding of the business and financial statement risks faced by the client, as well as associated risk assessment.<sup>11</sup>

### Strategic Analysis

Strategic analysis emphasizes the linkages between the entity's external economic agents and its internal processes in ways that are consistent with those proposed by the systems-thinking literature (Kauffmann 1980; Jackson 1991; Anderson and Johnson 1997; Brewster 2011). However, different strategies by management may invoke different management control systems and process-level controls. Thus, in order to develop a comprehensive understanding of the client's business, the auditor must understand both the client's strategic positioning and the process of strategy implementation.

The difficulty and complexity of information processing (e.g., demands on working memory) during the course of strategic analysis can be alleviated by the auditor's application of specific, systems theory-based frameworks for understanding the industry environment and the client's business objectives and strategy, and by the documentation of results of their analyses in working papers (Legrenzi et al. 1993; Legrenzi and Sonino 1993). For example, in the analysis of industry structure, auditors may use "the five forces model" by Porter (1980) and determine the strength of the factors affecting the threats from each force. Frameworks such as the "five forces model" are expected to assist an auditor in generating a systems-based, explicit model of the entity's business. Legrenzi et al. (1993) and Legrenzi and Giroto (1996) show that there is a natural tendency for individuals to focus on what is explicit in their mental model. For example, Knechel et al. (2010) demonstrate that auditors who are presented with more extensive ("in-depth") strategic analysis develop more complex mental representations of the client's business model. Further, Brewster

<sup>10</sup> For example, Ittner and Larcker (1997) demonstrate that management's choice of strategy affects the choice of process-level controls, thereby allowing for differentiated effect of client business risks on financial statement assertions.

<sup>11</sup> We also ran an experimental condition that included the materials where auditors performed analysis of both strategic positioning and strategy implementation process. We excluded it from the paper because our participants reported fatigue and decreased motivation to complete the experimental task due to its time-consuming nature.

(2011) shows that auditors who develop systems-thinking and strategy-based mental models of the client's dynamic business environment exhibit better performance in analytical tasks (i.e., they are better able to identify managements' representations that are inconsistent with industry evidence, and their mental models are more coherently organized). Thus, strategic analysis should aid auditors in developing explicit, strategy-driven mental models of the entity, thus *aiding* in dealing with the difficulty in information processing and improving their performance.<sup>12</sup>

If the auditor does not perform strategic analysis, risk identification and risk assessment are based on his/her ability to use declarative knowledge inductively obtained from facts about the entity's business, and supported by professional judgment and experience. Without formal strategic analysis, unless an auditor is an expert (Libby and Frederick 1990), he/she is not likely to have a systematic framework for how to integrate the diverse set of client business facts and would develop a more "naive" and less accurate mental model of a client's business compared to an auditor who performs strategic analysis (Brewster 2011; Knechel et al. 2010).<sup>13</sup> This should result in a different and better-informed identification and assessment of the client's business and financial statement risks.

In implementing strategic analysis, the major firms provide a structured approach to analyzing the client. Following a structured approach (e.g., using a template or decision aid) to perform a strategic analysis may inhibit an auditor's ability to properly evaluate the client's business risks and thus affect the related risk assessment (Messier 1995). Indeed, prior research on the use of simple decision aids indicated that the use of a decision aid might inhibit hypothesis generation (Chu 1991; Johnson and Kaplan 1996) and impairs judgment performance of participants with good technical knowledge of the task domain (Seow 2009). Therefore, we propose the following research question:

**RQ1:** Will auditors using strategic analysis document more significant business risks (*signBR*) and significant financial statement risks (*signFSR*) than auditors who do not use strategic analysis?

### Assessment of the Risk of Material Misstatement

Risk of material misstatement (*RMM*) is the combined assessment of inherent risk and control risk (AICPA 2006a, 2006b; IAASB 2005a, 2005b). To the extent that auditors are able to relate the client's business risks, its business processes, and management control system to their potential effects on management's assertions in the financial statements, the assessment of *RMM* is influenced by their evaluation of the client's business risks (Knechel 2007; Messier et al. 2010; Bell et al. 2008; Knechel et al. 2010; Schultz et al. 2010). For example, auditors assess whether a client's specific business environment and related risks create conditions for the susceptibility of accounting data to being misstated. The risk of misstating the financial statements can arise as a result of the client's failure in strategy implementation, resulting in lower performance than market expectations. Since strategic analysis focuses the auditor's attention on the link between the client's strategy, its successful implementation, and related potential financial statement effects, it should lead to a more

<sup>12</sup> Due to time constraints that resulted from the case, we focused on the judgment outputs (risk assessments) and not process properties. In addition to the two papers mentioned, see Brewster (2011), Hammersley (2006), and Knechel et al. (2010) for other approaches to measurement of auditors' mental models.

<sup>13</sup> For example, ISA 315 (IAASB 2005a) provides an auditor with lists of items that the auditor should obtain information about in the course of understanding the entity and its environment (see ¶20 of ISA 315 and Appendix I for examples). It suggests use of inquiries, analytical procedures, observations, and discussions among the engagement team as ways to gather and process these items (see ¶7–13 and ¶14–19 of ISA 315). However, it does not provide a specific framework or format for conducting strategic analysis.

accurate assessment of *RMM*, conditioned on the identification and assessment of significant business and financial statement risks:

**H1:** Auditors using strategic analysis will assess the risk of material misstatement more consistently with the expert panel than auditors who do not use strategic analysis.

### The Strategy Implementation Process and Strength of the Control Environment

While analysis of strategic positioning is important to identification and assessment of a client's business risks, its impact on the financial statement assertions is affected by the success of strategy implementation (Huff and Reger 1987, 212). As mentioned earlier, managerial accounting research shows that the planned strategy and its execution affects the choice of management control and accounting systems, which is a key variable in determining the relative success in strategy implementation. Strategy research has shown that the extent to which an organization attempts to be exhaustive in implementing its strategy is positively related to firm performance (Fredrickson 1984; Fredrickson and Mitchell 1984). Analysis of strategy implementation should focus the auditor on the management control system, including the control environment and control activities within the entity (Simons 1991, 1994; Knechel 2007). In particular, the elements of the control environment that map to the auditor's assessment of control risk include management's philosophy and operating style, organizational structure, performance metrics monitoring, and the assignment of authority and responsibility. Thus, while analysis of strategic process does not provide an auditor with full understanding of the entity's control risk, it aids his/her understanding of the entity-level control environment, which can be viewed as an inverse of control risk at the entity level.<sup>14</sup> Hence, we test the following hypothesis:

**H2:** Auditors who analyze the strategy implementation process will assess the strength of the control environment more consistently with the expert panel than auditors who do not perform strategic analysis or auditors who only perform analysis of strategic positioning.

## METHODOLOGY

### Research Design

We use a  $3 \times 1$  between-subjects factorial design with no strategic analysis ("No SA") as a control condition, and analysis of strategic positioning ("SA: strategic positioning") and analysis of strategy implementation process ("SA: strategic process") as treatment conditions. In the "No SA" condition, participants read the case materials and documented the entity's business risks. They were not required to perform any type of strategic analysis on their own.<sup>15</sup> We prepared a "generic" (i.e., non-firm-specific) form of strategic analysis guidance. The "SA: strategic positioning" and "SA: strategic process" manipulations were based on prior research in strategic management and adapted for an audit setting.

In the "SA: strategic positioning" condition, participants performed an analysis of the client's strategic positioning by (1) responding to a questionnaire regarding the client's key business objectives, strategy, and its effectiveness and sustainability using measures of strategic breadth from Ketchen et al. (1996) and McDougall et al. (1994); (2) identifying key environmental threats (business risks) to the sustainability of the client's strategy using measures of environmental

<sup>14</sup> All of our hypotheses are set strictly in the context of financial statement audit and not an integrated audit.

<sup>15</sup> Auditors in the control condition could have performed some type of strategic analysis on their own. However, this works against our finding significant results between No SA and the two SA conditions.

uncertainty from Miller and Dröge (1986); (3) considering the characteristics of the client's market conditions and its competitive position (Buzzell and Gale 1987); (4) applying Porter's "five forces model" to the client's industry in order to recognize potential industry threats to the client's strategic position; and (5) analyzing an entity-level business model of a client (Bell et al. 1997).

Participants in the "SA: strategic process" condition performed the analysis, but with an emphasis on the client's strategy implementation process. The participants (1) identified the client's key business processes and their objectives, (2) evaluated the degree to which the client's inter-organizational politics influence the attainment of those objectives, and (3) assessed the comprehensiveness of the client strategic process using measures from Fredrickson (1984, 1985) and Fredrickson and Mitchell (1984).

## Experimental Task and Administration

### Participants

Sixty-nine audit seniors from three Big 4 firms completed the experiment. They had an average of 2.6 years of audit experience (range 1.5 to 6 years) and had planned, on average, 8.7 engagements. Fifty-seven percent had a CPA certification, and the most frequently reported specializations were consumer markets (48.9 percent) and manufacturing (11.4 percent).<sup>16</sup> The auditors reported that they performed strategic analysis on their clients, as well as the analysis of the client's management and decision-making processes (mean 5.75 for strategic analysis and 5.67 for analysis of the client's management and decision-making process, both on a scale from 1 = never to 7 = always). They also indicated that they typically documented results of such analyses in a memo or firm-specific template. Two of the auditors did not document significant business risks and significant financial statement risks, and were dropped from the sample. Thus, our final sample includes 67 participants.

### Administration and Case Materials

Experimental materials were delivered to the participants by e-mail or at a national training session.<sup>17</sup> Prior to the receipt of experimental materials, the auditors who participated via e-mail received an electronic memo from a partner or recruiting manager of their firm encouraging participation and supplying a charge code for the time spent completing the questionnaire. The instructor and one of the researchers supervised participants who completed the case materials at a training session. Each participant was randomly assigned to one of the three experimental cells.<sup>18</sup>

The experimental materials included the following items. First, every participant received a cover letter from the researchers explaining the purpose of the study, its importance, and providing general instructions about participating in the experiment. For auditors who participated by e-mail, the cover letter referred to the partner's or recruiting manager's earlier request to take part in the study. Next, all participants read *Part 1, Background Information about National Foods, Inc.* This part contained background information about the client entity, its industry, strategic goals, and management processes. All participants also received National Foods, Inc.'s financial statement

<sup>16</sup> In addition to relevant experience, audit seniors offer an appropriate level of labor for audit planning tasks (Abdolmohammadi 1999; Abdolmohammadi and Usoff 2001).

<sup>17</sup> The experimental materials were first pre-tested for realism and understandability using undergraduate auditing students. The experimental materials were revised and reviewed by three managers, one senior manager, and one experienced senior associate at three Big 4 firms. Based on the auditors' comments, changes to the experimental materials were made. Second, experimental materials were pilot-tested using 40 auditors as participants. Based on their responses, materials were modified, and the final version was developed.

<sup>18</sup> There was no statistically significant difference between the responses based on the administration of the experiment (i.e., e-mail versus training session).



information (balance sheets for two years and income statements for three years).<sup>19</sup> Next, participants received *Part 2A, Additional Task Instructions*. These instructions contained a set of questions and visual models for either the “SA: strategic positioning” condition or the “SA: strategic process” condition. In the “No SA” condition, the auditors were provided with no specific questions/models and they proceeded directly from Part 1 to Part 2B.

*Part 2B, Risk Assessment and Audit Planning* contained a questionnaire requesting (1) identification of entity-level business risks, (2) identification of financial statement impact of business risks in (1), and (3) entity-level assessments of the risk of material misstatement and strength of the control environment. Finally, *Part 3, Debriefing Questionnaire* requested demographic and background information about participants, as well as their opinion of case realism, the quality of experimental materials, and the usefulness of strategic analysis for the purpose of risk assessments.

Participants found the experimental materials to be realistic (mean 5.74 on a seven-point scale, standard deviation = 1.01) and understandable (mean 5.49 on a seven-point scale, standard deviation = 1.07). They reported that the case materials were useful for the purpose of performing either the analysis of strategic positioning or strategy implementation process (mean 4.93 on a seven-point scale, standard deviation = 1.32), and for risk assessments (mean 5.16 on a seven-point scale, standard deviation = 1.23). The participants found strategic analysis moderately useful for the purpose of making risk assessments (mean 4.70 on seven-point scale, standard deviation = 1.29). On average, participants took 48.41 minutes to complete the study materials (standard deviation 11.96). The mean time taken to complete the study by treatment condition was as follows: 46 minutes in the “No SA” condition (standard deviation = 14.58), 50.83 minutes in the “SA: strategic positioning” condition (standard deviation = 9.63), and 48.5 minutes in the “SA: strategic process” condition (standard deviation = 10.78) ( $p > 0.05$ ).<sup>20</sup>

### Expert Panel

The case that was used in our experiment does not have a solution. In order to develop one, we had a panel of nine senior managers (experts) with three in each treatment condition complete the case.<sup>21</sup> We use the solutions provided by experts to assess the quality of the senior auditors’ work. This assumption is based on extant research that demonstrates, using multiple auditing tasks (knowledge retrieval, information search, comprehension, estimation) and multiple performance measurement methods (consensus, accuracy, consistency over time), that more experienced auditors perform better at gaining an understanding of the client’s business than less experienced auditors (Ashton 1985; Bonner and Lewis 1990; Bonner and Pennington 1991; Lin et al. 2003).<sup>22</sup>

On average, the experts had 8.13 years of general audit experience (range of 5 to 10.83 years) and had worked on 41 engagements (range of 20 to 150). They reported substantial experience in

<sup>19</sup> Part 1 of the experimental materials was based on a case by Greenwood and Salterio (2002), and was approved by KPMG and by the authors of the case for use in the experiment. None of the participants in the final sample indicated that they had completed this case exercise in the past.

<sup>20</sup> When we include time to complete as a covariate into our analyses, it is not significant ( $p > 0.05$ ).

<sup>21</sup> An alternative approach would be to use a Delphi panel technique in order to derive benchmark risk assessments. However, given the length of the experimental materials, we were only able to obtain one iteration of responses from participating managers. This approach seems reasonable given that Trotman et al. (1983) show, using an internal control system evaluation task, that interacting groups do not differentially weight group members’ contributions. Instead, they act as if they average members’ judgments to derive a group judgment.

<sup>22</sup> Bell et al. (2008) show that business-risk audits involve a greater proportion of manager and partner time as compared to non-business risk audits. We interpret this finding as to suggest that it is reasonable to use higher-ranked labor as a proxy for well-established expertise in such audits.

audit planning (a mean of 35 engagements). The experts indicated that they performed and documented strategic analysis on a typical engagement (the respective means were 4.83 and 4.75, on a scale from 1 = “never” to 7 = “always”), and indicated that they frequently performed and documented an analysis of their clients’ management and decision processes (in each case, the mean was 6 on a seven-point scale).

### Dependent Variables

The participants documented the client’s business risks (*BR*), financial statement risks (*FSR*), and made separate entity-level assessments of the risk of material misstatement (*RMM*) and strength of the client’s control environment (*SCE*).<sup>23</sup> Each assessment was made using a nine-point scale where 1 = “very low risk,” 5 = “moderate risk,” and 9 = “very high risk.” The questions requesting risk assessments contained definitions of each type of risk.<sup>24</sup> To measure the number of *significant* business and financial statement risks identified, we compared participants’ lists of risks *vis-à-vis* those provided by our panel of experts (see Table 1, Panels A and B). We considered a risk to be “significant” if it was mentioned by more than 50 percent of experts. Two independent coders with knowledge of accounting and auditing compared our participants’ risk listings to those by the expert panel.<sup>25</sup> We then calculated the number of risks mentioned by participants that were deemed “significant” by the expert panel to arrive at the measurement of dependent variables for RQ1. Thus, for RQ1, the dependent variables are significant business risks (*signBR*) and significant financial statement risks (*signFSR*). We calculated the dependent variables used to test our hypotheses as the *absolute* deviation (difference) between the auditors’ responses to questions and the mean of the expert panel in each cell.

## RESULTS

### Descriptive Statistics

Table 2, Panel A presents the descriptive statistics for the experts’ responses to the questions about risk identification and risk assessment. Given the complexity of the case, the amount of variability among the experts seems reasonable. Table 2, Panel B reports the descriptive statistics for the auditors’ responses to the dependent variables. Across all three experimental cells, auditors identified and assessed risks differently from the experts ( $p < 0.001$ ). Specifically, the pattern of means in Table 2, Panel B indicates that, on average, participants across three experimental cells identified fewer significant business risks (*signBR*: mean of 2.0 for all experts versus mean of 1.5 for all participants) and financial statement risks (*signFSR*: mean of 3.11 for all experts versus mean of 1.28 for all participants) than the experts ( $p < 0.001$ ). Participants overestimated, relative to the expert panel, strength of the control environment (*SCE*: mean of 4.89 for all experts versus mean of 5.26 for all participants) and underestimated risk of material misstatement (*RMM*: mean of 5.67 for all experts versus mean of 4.97 for all participants) ( $p < 0.05$  and  $p < 0.001$ , respectively).

<sup>23</sup> For the purposes of this study, we view *SCE* as a proxy for the inverse of control risk at the entity level.

<sup>24</sup> In addition, participants made assessments (*RMM*, inherent risk, and control risk) for the client’s logistics and distribution business process. We dropped the process-level risk assessment from the analysis because these assessments were not preceded by a formal analysis of the corresponding business process and do not relate to the hypotheses tested. See Kochetova-Kozloski et al. (2010) for a study that examines the linkages between entity-level and process-level risk assessments.

<sup>25</sup> There were several instances of disagreements between coders that were fully resolved via discussion.

## Tests of Hypotheses

### General Approach

To test the hypotheses, we used the following general approach. First, we performed a MANOVA using *Strategic Analysis* at two levels (“No SA” versus “SA: strategic positioning/strategy process”) as an independent variable. The MANOVA used the number of significant risks documented (*signBR*, *signFSR*) and the assessment consistency measures (*RMM<sub>absdev</sub>* and *SCE<sub>absdev</sub>*) as dependent variables. Table 3 presents multivariate tests that indicate a significant effect of *Strategic Analysis* (Wilk’s  $\lambda = 0.937$ ,  $F = 96.400$ ,  $p = 0.000$ ). A test of specific between-subjects effects shows that main effect of strategic analysis is significant for *RMM<sub>absdev</sub>* ( $p = 0.021$ , two-tailed), and marginally significant for *signFSR* ( $p = 0.086$ , two-tailed) and for *SCE<sub>absdev</sub>* ( $p = 0.072$ , two-tailed). These results indicate potential support for H1 (i.e., for consistency of risk of material misstatement assessments with experts—*RMM<sub>absdev</sub>*). They also indicate that RQ1 and H2 warrant further testing.

To directly test the hypotheses, we performed AN[C]OVAs with *Strategic Analysis* as the independent variable at three levels (“No SA,” “SA: strategic positioning,” and “SA: strategic process”), appropriate dependent variables, and covariate(s). We then calculated contrasts to compare individual cells or a combination of cells as suggested by the respective hypotheses.

### Test of RQ1

RQ1 asks whether auditors will identify more significant entity-level business risks and significant financial statement risks when they perform strategic analysis using a generic template based on models developed in strategic management, as compared to auditors who are not guided through such an analysis. Table 4, Panels A and B present the results of the ANOVA using *signBR* as the dependent variable. *Strategic Analysis* is not significant, and none of the contrasts are significant. Thus, the number of significant business risks documented by participants did not differ significantly depending on whether they were asked to perform a structured strategic analysis or not. Table 4, Panels C and D show results for the ANOVA using *signFSR* as the dependent variable. This analysis indicates a marginally significant effect for *Strategic Analysis* ( $p = 0.098$ , two-tailed). Planned contrasts for *signFSR* (Table 4, Panel D) show that auditors documented *more* significant financial statement risks when they did *not* perform strategic analysis, as compared to when they performed either analysis of strategic positioning or strategy implementation process (Table 4, Panel E: adjusted means 1.52 for “No SA” versus 1.143 for “SA: either strategic positioning or strategy process”) ( $p = 0.049$ , one-tailed). Additional contrasts show that the pattern is similar for “SA: strategic positioning” (Table 4, Panels D and E:  $p = 0.064$ , one-tailed; adjusted means 1.52 for “No SA” versus 1.125 for “SA: strategic positioning”) and for “SA: strategy process” (Table 4, Panels D and E:  $p = 0.104$ , one-tailed; adjusted means 1.52 for “No SA” versus 1.167 for “SA: strategic process”). These results indicate that a generic, template/model-based approach to strategic analysis is not associated with auditors’ improved identification of significant business and financial statement risks. These results are consistent with extant literature about relatively simple decision aids providing little benefit to participants with good technical knowledge of the task domain (Seow 2009), including inhibiting their ability to generate hypotheses (Johnson and Kaplan 1996; Messier 1995). It is also possible that a simple guidance through the process of analyzing client strategic positioning or a strategy implementation process, via application of templates, models, and questions, as was done in our experiment, resulted in a decision aid that was not a perfect match (in terms of cognitive fit) for our participants and thus impaired their ability to identify significant business and financial statement risks (Arnold and Sutton 1998; Arnold et al. 2006).

**TABLE 1**  
**Business and Financial Statement Risks**

**Panel A: List of Business Risks**

Business Risk (BR)	Description	Managers Who Listed a Business Risk as Significant	
		Number	(%)
BR 1	<i>Entry of Walmart, Costco, pharmacy chains, and the like into grocery industry with their lower distribution costs, efficient logistics, and low prices, causes increase in competition from new industry entrants.</i>	6	(67%)
BR 2	<i>Severe price war from traditional (other grocery chains) and non-traditional (e.g., Internet, local markets) competitors. The industry is saturated and has declining profit margins.</i>	9	(100%)
BR 3	Change in home eating patterns: (1) customers are increasingly moving away from traditional food items to food-away-from-home purchases (such as take out, semi-prepared foods, and eating out); (2) consumers are becoming increasingly health conscious, therefore National Foods has to consider whether products meet consumers' healthy (low-fat, low-calorie) preferences and it has logistics to back these products; (3) greater emphasis on organic foods and ethnic foods in eating patterns due to changing demographics—similar to item (2).	3	(33%)
BR 4	Internet shopping market making real estate (“traditional”) stores obsolete, especially in non-food items, such as home appliances and china. National Foods may lose some revenue because consumers prefer to order these items via catalogues or Internet. On the other hand, entrance into e-commerce is a new area for National Foods and it bears risks as well.	4	(44%)
BR 5	Expansion into new geographical areas is risky; it is also inconsistent with cost leadership strategy, especially in the case of acquiring small chains.	4	(44%)
BR 6	Inventory management and property (real estate) management are key risk areas.	3	(33%)
BR 7	<i>Change in information system (implementation of PeopleSoft in HR and Financial/Treasury functions), and inconsistent IT and procedures between stores.</i>	6	(67%)
BR 8	Entrance into a new business line—“Your Choice Financial MasterCard” program.	2	(22%)
BR 9	<i>Emphasis in performance evaluation is placed on long-term increase and market share, and maintaining stock price (via favorable financial results). Internal set of target performance measures in each functional area creates a competitive environment.</i>	6	(67%)

(continued on next page)

TABLE 1 (continued)

Business Risk (BR)	Description	Managers Who Listed a Business Risk as Significant	
		Number	(%)
BR 10	<i>New CEO is replacing the old CEO. Dominant management style of the new CEO/President of the Board.</i>	8	(89%)
BR 11	Lack of internal audit department. Potential lack of internal control as processes in acquired store chains is not formally integrated.	2	(22%)

## Panel B: List of Financial Statement Risks

Financial Statement Risk (FSR)	Description	Managers Who Listed a Business Risk as Significant	
		Number	(%)
FSR 1	<i>Negative impact of company strategy on gross margins and overall decrease in revenues.</i>	6	(67%)
FSR 2	<i>Overstatement of revenues and, in general, improper revenue recognition.</i>	8	(89%)
FSR 3	<i>Understatement of expenses; capitalization of expenses that should flow to income statement.</i>	5	(56%)
FSR 4	<i>Misstatements due to errors in overall financial statements.</i>	5	(56%)
FSR 5	<i>Fraud and/or fraudulent reporting, fraudulent earning management or earnings manipulation.</i>	5	(56%)
FSR 6	Cash flow statement errors.	1	(11%)
FSR 7	Incorrect inventory valuation; overstated inventory; misstated inventory account.	5	(56%)
FSR 8	Errors in recording asset impairment.	1	(11%)
FSR 9	Unreasonable estimates for liabilities; understatement of liabilities.	1	(11%)
FSR 10	Risk of using inconsistent accounting policies, or applying accounting policies inconsistently.	4	(44%)
FSR 11	Overvalued/misstated property and capital (fixed) assets.	4	(44%)
FSR 12	Debt covenant violation.	2	(22%)
FSR 13	Increase in technology costs.	1	(11%)

Panel A: Risks in italics (BR 1, 2, 7, 9, and 10) were listed by 50 or more percent of expert panel and therefore were deemed "significant."

Panel B: Risks in italics (FSR 1, 2, 3, 4, and 5) were listed by 50 or more percent of expert panel and therefore were deemed "significant."

## Test of H1

H1 predicts that assessments of the risk of material misstatement are more consistent with those provided by the expert panel when auditors perform strategic analysis. We performed a  $2 \times 1$  ANCOVA with *Strategic Analysis* as an independent variable at two levels ("No SA" versus "SA: strategic positioning/strategy process"),  $RMM_{absdev}$  as a dependent variable, and *signBR* and

**TABLE 2**  
**Descriptive Statistics**

**Panel A: Mean Risk (Standard Deviation) Assessments and Number of Risks Documented by the Expert Panel**

Variable	No SA (n = 3)	SA: Strategic Positioning (n = 3)	SA: Strategic Process (n = 3)	Overall (n = 9)
<i>RMM</i>	6.33 (1.15)	5.67 (1.00)	5.00 (0.00)	5.67 (1.00)
<i>SCE</i>	3.67 (1.15)	5.67 (1.15)	5.33 (1.53)	4.89 (1.45)
<i>BR</i>	6.33 (5.68)	4.33 (0.58)	5.00 (0.00)	5.22 (2.99)
<i>signBR</i>	2.33 (2.08)	1.00 (1.73)	2.67 (1.15)	2.00 (1.66)
<i>FSR</i>	5.33 (3.00)	4.67 (1.15)	5.00 (1.00)	5.00 (2.60)
<i>signFSR</i>	3.00 (1.73)	2.67 (1.15)	3.67 (0.58)	3.11 (1.17)

**Panel B: Means (Standard Deviations) of the Dependent Variables and a Covariate**

Variable	No SA (n = 25)	SA: Strategic Positioning (n = 24)	SA: Strategic Process (n = 18)	Overall (n = 67)
<i>signBR</i>	1.68 (0.94)	1.71 (0.99)	1.50 (0.79)	1.64 (0.92)
<i>signFSR</i>	1.52 (1.05)	1.13 (0.85)	1.17 (0.71)	1.28 (0.90)
<i>RMM</i>	4.88 (1.45)	5.21 (1.38)	4.72 (1.41)	4.95 (1.41)
<i>SCE</i>	5.12 (1.39)	5.13 (1.57)	5.72 (1.07)	5.28 (1.39)
<i>RMM<sub>absdev</sub></i>	1.68 (1.18)	1.13 (0.90)	0.94 (1.06)	1.28 (1.08)
<i>SCE<sub>absdev</sub></i>	1.61 (1.20)	1.38 (0.89)	0.98 (0.54)	1.36 (0.97)

No SA = no strategic analysis.

SA: strategic positioning = strategic analysis with a focus on strategic positioning of the client.

SA: strategic process = strategic analysis with a focus on the client's strategy implementation process.

**Variable Definitions:**

*BR* = number of business risks documented by participants prior to making risk assessments;

*signBR* = number of significant business risks (as per Table 2, Panel A) documented by participants prior to making risk assessments;

*FSR* = number of financial statement risks documented by participants prior to making risk assessments;

*signFSR* = number of significant financial statement risks (as per Table 2, Panel B) documented by participants prior to making risk assessments;

*RMM* = the assessed risk of material misstatement (risk of material misstatement) for the company depicted in the experimental case at the entity level on a scale from 1 "very low risk" to 9 "very high risk";

*SCE* = the assessed strength of the control environment in the experimental case at the entity level on a scale from 1 "very weak" to 9 "very strong";

*RMM<sub>absdev</sub>* = abs [Participant's Risk of Material Misstatement Assessment – Experts' Risk of Material Misstatement Assessment]; and

*SCE<sub>absdev</sub>* = abs [Participant's Strength of the Control Environment Assessment – Experts' Strength of the Control Environment Assessment].

**TABLE 3**  
**Multivariate Analysis of Variance**

Effect		Value	F	df	p-value
Strategic Analysis	Pillai's Trace	0.863	96.400	4	0.000
	Wilk's Lambda	0.137	96.400	4	0.000
	Hotelling's Trace	6.321	96.400	4	0.000
	Roy's Largest Root	6.321	96.400	4	0.000
<b>Tests of Between-Subjects Effects</b>					
Effect	Dependent Variable	SS	df	F	p-value
Strategic Analysis	<i>signBR</i>	0.035	1	0.040	0.842
	<i>signFSR</i>	2.429	1	3.042	0.086
	<i>RMM<sub>absdev</sub></i>	6.118	1	5.610	0.021
	<i>SCE<sub>absdev</sub></i>	3.043	1	3.340	0.072

Strategic Analysis has two levels: No SA and SA (either strategic positioning or strategic process).

Variable Definitions:

*signBR* = number of significant business risks (as per Table 2, Panel A) documented by participants prior to making risk assessments;

*signFSR* = number of significant financial statement risks (as per Table 2, Panel B) documented by participants prior to making risk assessments;

*RMM<sub>absdev</sub>* = abs [Participant's Risk of Material Misstatement Assessment – Experts' Risk of Material Misstatement Assessment]; and

*SCE<sub>absdev</sub>* = abs [Participant's Strength of the Control Environment Assessment – Experts' Strength of the Control Environment Assessment].

*signFSR* as covariates.<sup>26</sup> Table 5, Panel A shows a significant main effect of strategic analysis ( $F = 5.507$ ,  $p = 0.022$ , two-tailed). Since our predications are directional, we proceed to planned contrasts, which show that auditors performing analysis of strategic positioning or strategy implementation process assessed the *RMM*, on average, more consistently with the expert panel than participants who did not perform any strategic analysis (Table 5, Panel B: all  $p < 0.05$ , one-tailed). This provides overall support for H1.

### Test of H2

H2 predicts that auditors who perform an analysis of the client's strategic implementation process will assess the strength of the control environment more consistently with experts than auditors who perform no strategic analysis or only perform an analysis of strategic positioning. Thus, H2 predicts a main effect for SA: strategic process when *SCE<sub>absdev</sub>* is used as a dependent variable. We include the assessment of *RMM* as a covariate. The ANCOVA reported in Table 6, Panel A shows a significant main effect ( $F = 4.902$ ,  $p = 0.030$ , two-tailed). Since our predictions are directional, we proceed to perform planned contrasts. Planned contrasts show that the auditors who performed analysis of the client's strategy implementation process exhibited greater consistency with the expert panel in assessing the strength of the control environment relative to participants who performed either no strategic analysis ("No SA") or only performed analysis of

<sup>26</sup> Despite our finding with respect RQ1, we include *signBR* and *signFSR* as covariates because auditing standards state that assessment of risk of material misstatement should be driven by results of business risk assessment and that the number of significant business and financial statement risks identified should affect the assessment of *RMM* (AICPA 2006a; IAASB 2005a).

**TABLE 4**  
**Tests of Research Question 1**

**Panel A: Analysis of Variance with *signBR* as a Dependent Variable**

<u>Source of Variation</u>	<u>SS</u>	<u>df</u>	<u>F</u>	<u>p-value</u>
Intercept	170.566	1	200.322	0.000
Strategic Analysis	0.058	1	0.068	0.795
Error	55.345	65		

**Panel B: Contrasts for *signBR***

<u>Contrast</u>	<u>Contrast Estimate</u>	<u>F</u>	<u>p-value (one-tailed)</u>
$\mu_1 < (\mu_2 + \mu_3)/2$	0.152	0.104	0.374
$\mu_1 < \mu_2$	-0.028	0.011	0.458
$\mu_1 < \mu_3$	0.180	0.395	0.266

**Panel C: Analysis of Variance with *signFSR* as a Dependent Variable**

<u>Source of Variation</u>	<u>SS</u>	<u>df</u>	<u>F</u>	<u>p-value</u>
Intercept	111.125	1	140.574	0.000
Strategic Analysis	2.229	1	2.820	0.098
Error	51.383	67		

**Panel D: Contrasts for *signFSR***

<u>Contrast</u>	<u>Contrast Estimate</u>	<u>F</u>	<u>p-value (one-tailed)</u>
$\mu_1 < (\mu_2 + \mu_3)/2$	0.748	2.713	0.049
$\mu_1 < \mu_2$	0.395	2.380	0.064
$\mu_1 < \mu_3$	0.353	1.628	0.104

**Panel E: Adjusted Means by Strategic Analysis (Standard Error)**

	<u>No SA (n = 25)</u>	<u>SA: Strategic Positioning (n = 24)</u>	<u>SA: Strategic Process (n = 18)</u>	<u>Two SA Cells Combined (n = 42)</u>	<u>Overall Mean (n = 67)</u>
<i>signBR</i>	1.680 (0.185)	1.708 (0.189)	1.500 (0.218)	1.619 (0.142)	1.629 (0.114)
<i>signFSR</i>	1.520 (0.179)	1.125 (0.183)	1.167 (0.211)	1.143 (0.137)	1.271 (0.111)

Strategic Analysis has two levels: No SA and SA (either strategic positioning or strategic process).

Variable Definitions:

*signBR* = number of significant business risks (as per Table 2, Panel A) documented by participants prior to making risk assessments; and

*signFSR* = number of significant financial statement risks (as per Table 2, Panel B) documented by participants prior to making risk assessments.



**TABLE 5**  
**Tests of H1**

**Panel A: Analysis of Covariance with  $RMM_{absdev}$  as a Dependent Variable**

<u>Source of Variation</u>	<u>SS</u>	<u>df</u>	<u>F</u>	<u>p-value</u>
Intercept	21.082	1	18.828	0.000
Strategic Analysis	6.166	1	5.507	0.022
Covariates:				
<i>signBR</i>	0.324	1	0.289	0.593
<i>signFSR</i>	0.139	1	0.124	0.726
Error	69.423	62		

**Panel B: Contrasts for  $RMM_{absdev}$**

<u>Contrast</u>	<u>Contrast Estimate</u>	<u>F</u>	<u>p-value (one-tailed)</u>
$\mu_1 > (\mu_2 + \mu_3)/2$	1.292	5.734	0.010
$\mu_1 > \mu_2$	0.556	3.359	0.036
$\mu_1 > \mu_3$	0.736	5.055	0.014

**Panel C: Adjusted Means by Strategic Analysis (Standard Error)**

	<u>No SA (n = 25)</u>	<u>SA: Strategic Positioning (n = 24)</u>	<u>SA: Strategic Process (n = 18)</u>	<u>Two SA Cells Combined (n = 42)</u>	<u>Overall Mean (n = 67)</u>
$RMM_{absdev}$	1.692 (0.165)	1.125 (0.214)	0.944 (0.247)	1.041 (0.165)	1.367 (0.136)

Strategic Analysis has two levels: No SA and SA (either strategic positioning or strategic process).

Variable Definitions:

*signBR* = number of significant business risks (as per Table 2, Panel A) documented by participants prior to making risk assessments;

*signFSR* = number of significant financial statement risks (as per Table 2, Panel B) documented by participants prior to making risk assessments; and

$RMM_{absdev}$  = abs [Participant's Risk of Material Misstatement Assessment – Experts' Risk of Material Misstatement Assessment].

strategic positioning (“SA: strategic positioning”) (Table 6, Panel B:  $p < 0.05$ , one-tailed, for either “No SA,” or the average of a combination of “No SA” and “SA: strategic positioning”).<sup>27</sup> These results provide support for H2.

## DISCUSSION

This study tested one research question and two hypotheses related to auditors performing strategic analysis. Our results show the following: First, auditors did not identify more significant business and financial statement risks when they performed strategic analysis. It is possible that the presence of a

<sup>27</sup> The finding for the contrast comparing the “SA: strategic process” cell with “SA: strategic positioning” cell is marginally significant (Table 6, Panel B:  $p = 0.094$ , one-tailed) and in the expected direction.

**TABLE 6**  
**Tests of H2**

**Panel A: Analysis of Covariance with  $SCE_{absdev}$  as a Dependent Variable**

Source of Variation	SS	df	F	p-value
Intercept	17.819	1	20.313	0.000
SA: Strategic Process	4.300	1	4.902	0.030
Covariates:				
<i>RMM</i>	2.389	1	2.723	0.104
Error	55.263	64		

**Panel B: Contrasts for  $SCE_{absdev}$**

Contrast	Contrast Estimate	F	p-value (one-tailed)
$(\mu_1 + \mu_2)/2 > \mu_3$	1.026	3.840	0.027
$\mu_1 > \mu_3$	0.632	4.178	0.018
$\mu_2 > \mu_3$	0.394	1.768	0.094

**Panel C: Adjusted Means by SA: Strategic Process (Standard Error)**

	No SA (n = 25)	SA: Strategic Positioning (n = 24)	SA: Strategic Process (n = 18)	“No SA” and “SA: Strategic Positioning” Cells Combined (n = 43)	Overall Mean (n = 67)
$SCE_{absdev}$	1.613 (0.190)	1.375 (0.194)	0.981 (0.224)	1.526 (0.135)	1.238 (0.130)

SA: Strategic Process has two levels: “SA: strategic process” and “SA: strategic positioning” or “No SA.”

Variable Definitions:

*RMM* = the assessed risk of material misstatement (risk of material misstatement) for the company depicted in the experimental case at the entity level on a scale from 1 “very low risk” to 9 “very high risk”; and  
 $SCE_{absdev}$  = abs [Participant’s Strength of the Control Environment Assessment – Experts’ Strength of the Control Environment Assessment].

template or decision aid causes some type of output interference and inhibits auditors’ hypothesis generation about risks (Chu 1991; Johnson and Kaplan 1996). This is potentially problematic because such templates are embedded in a firm’s audit methodology (or electronic platform), and auditors may over-rely on them when conducting strategic analysis. We think that when auditors are *not* provided with a template or decision aid for how to perform strategic analysis that they conduct more internal brainstorming about the entity’s risks. This finding is subject to future investigation.

Second, H1 predicted that the auditors’ assessments of the risk of material misstatement would be more consistent with the expert panel when auditors performed strategic analysis. We found that strategic analysis results in more consistent assessment of the risk of material misstatement between our participants and experts. We interpret this finding as suggesting that strategic analysis is associated with greater quality of *RMM* assessments, which was one of the main goals of including it in the audit process (Bell et al. 2002; Knechel 2007). Finally, we find support for H2 where an analysis of the strategic implementation process leads to more consistent assessment of the strength of the control environment than either no strategic analysis or an analysis of strategic positioning.

From a standard-setting and practice perspective, our results for H1 support the theoretical contention that systems-thinking-based analysis of the client's industry conditions, other macro- and micro-level forces affecting the client business environment, and the client's strategic objectives and specific strategies are associated with an enhanced understanding of the risk factors that may create "pressure points" on the financial statements, possibly through building a more comprehensive mental model of such relevant risk factors. Additionally, the finding for the auditors' analysis of the client's strategy implementation process suggests that providing auditors with a framework for understanding the client's strategic management and decision-making processes is linked to a greater appreciation of entity-level controls—an important part of the control environment. Finally, the results of this study contribute to a recently developed stream in the accounting literature that views accounting and financial reporting as a communication device about the success of strategy development and implementation, through an auditor's lens.

Our results have the following implications for practitioners and regulators. First, they demonstrate that auditor judgments of the risk of material misstatement at the entity (financial statement) level are linked to the performance and documentation of strategic analysis of strategy positioning and the strategy implementation process. This finding is important because such linkages have been documented to be, at the very least, challenging for practicing auditors (Bell et al. 2002; Knechel 2007; Kochetova-Kozloski et al. 2010). Second, this study provides preliminary evidence on the association between performing an analysis of the entity's strategy implementation process and auditors' judgments of the strength of the control environment. Third, the fact that auditors who performed strategic analysis did not identify a greater number of significant business and financial statement risks than auditors who did not perform strategic analysis warrants further research. We suspect that when auditors are not provided with a template/model (or a simple decision aid) to guide them through analysis of an entity's strategy, they conduct more internal brainstorming about the entity's risks. This is consistent with prior research on aided hypothesis generation (Johnson and Kaplan 1996). However, because such templates are likely to be embedded in a firm's audit methodology, including currently emerging e-audit platforms (e.g., KPMG's e-Audit), auditors may over-rely on them in conducting strategic analysis.

This study is subject to a number of limitations. First, the experiment used a "generic" version of strategic analysis. Therefore, there is limited generalizability of the results to the audit methodologies used by public accounting firms. Second, it is possible that some participants in a control condition who had extensive training and experience in analysis of a client's strategy may have applied strategic analysis techniques used by their firm. Third, the auditors did not perform the analysis of a business process that would normally follow strategic analysis at the entity level. We made this design choice in order to ensure completion of the experimental materials without causing excessive participant fatigue.

Future research should focus more directly on measuring mental models that are, *ceteris paribus*, created by strategy-driven frameworks provided to auditors by strategic analysis (also see Brewster 2011; Knechel et al. 2010). Such studies will allow for the examination of how mental models are formed, and what aspects of such models affect risk assessments pervasively (i.e., both at the entity and at the process level). Related to mental model building, future research could investigate how auditors process counterfactual information in the course of strategic analysis. Finally, research concerning the application of strategic analyses for various types of clients (e.g., large versus small and medium-sized, first-year versus continuing) is also warranted.

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