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The Halo Effect in Business Risk Audits: Can Strategic Risk Assessment Bias Auditor Judgment about Accounting Details?

Ed O'Donnell
Arizona State University

Joseph J. Schultz, Jr.
Arizona State University

ABSTRACT: Many auditors use an audit methodology that requires a strategic risk assessment of their client's business model as a first step for assessing audit risks. This study examines whether the holistic perspective that auditors acquire in making a strategic risk assessment influences the extent to which they adjust account-level risk assessments when they encounter changes in accounts that are inconsistent with information about client operations. Based on halo theory from the performance evaluation literature, we hypothesize that auditors who (1) perform (do not perform) strategic assessment, and (2) develop favorable (unfavorable) strategic risk assessments, are less (more) likely to adjust account-level risk assessments for inconsistent fluctuations. Data from two laboratory experiments using experienced auditors support both hypotheses. Findings suggest that the halo effect generated during strategic assessment influences judgment by altering auditor tolerance for inconsistent fluctuations.

I. INTRODUCTION

In an attempt to improve their understanding of client business risk, many assurance services firms have developed a new approach to auditing financial statements that increases auditor attention to risks associated with their client's business strategy (Lemon et al. 2000). Auditors who use this business risk audit approach conduct strategic assessment to develop a holistic perspective of their client's business model (Bell et al. 2002). During strategic assessment, auditors focus on the organization's overall prospects—they learn about their client's strategy for creating customer value and then identify and document strategic business risks that threaten the business model (Eilifsen et al. 2001).

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Assessing strategic risk provides auditors with a rich context for evaluating audit evidence (Bell et al. 1997). Proponents assert that this holistic appraisal should help auditors recognize business conditions that impact audit risk across a variety of dimensions (Bell et al. 2002). Standard setters have endorsed strategic assessment as an important auditing procedure (AICPA 2002). Interviews conducted during this study reveal that each of the Big 4 audit firms requires their auditors to assess strategic risks early in an audit engagement. However, while strategic assessment is becoming institutionalized in audit practice, research examining its effect on audit judgment is just beginning to emerge (Ballou and Heitger 2004).

To the extent that a strategic assessment is valid and diagnostic of the client's future prospects, it seems logical that it should assist auditors in framing other assessments needed to complete the audit effectively. Our research question is more limited. We ask if strategic assessment influences auditors' ability to recognize risks that manifest at a more granular level. Specifically, could focusing on clients' overall prospects reduce the salience of audit evidence contained in accounting details? For example, a lack of auditor sensitivity to accounting details apparently played a role in the audit failure at WorldCom. External auditors, who believed that WorldCom had a successful business model and a viable business strategy (Kaplan and Kiron 2004), failed to interpret a $3.8 billion increase in capital expenditures and decrease in routine maintenance costs as a pattern of changes in accounts that signaled material financial misstatement (Glater and Eichenwald 2002).

In this study, we examine whether developing a holistic opinion about the strategic viability of a business model influences the misstatement risk that auditors attribute to patterns of fluctuations in accounts. Studies on performance evaluation show that evaluative judgments based on holistic characteristics have a ''halo effect'' on evaluative judgments about performance details (Murphy et al. 1993). Developing performance evaluations based on holistic characteristics reduces the influence of diagnostic information about detailed attributes. Typically, a favorable holistic evaluation leads to an overly positive assessment of information related to detailed performance measures. If auditors' strategic risk assessments produce a similar effect, then favorable judgments about the strategic viability of a client's business model may lead the auditor to unduly discount account-level changes that are inconsistent with client operations.

We examine this research question using data from two laboratory experiments. Experienced auditors develop (do not develop) favorable or unfavorable holistic opinions about strategic business risks, then perform analytical procedures to assess misstatement risk for selected financial statement accounts. There are three significant findings. First, account-level risk assessments developed by auditors who perform strategic assessment are less sensitive to inconsistent fluctuations than account-level risk assessments developed by auditors who do not assess strategic risks. Second, auditors who develop or are endowed with lower strategic risk assessments (favorable halo) are less sensitive to inconsistent fluctuations in accounts than auditors who develop or receive higher strategic risk assessments (unfavorable halo). Third, because our analyses revealed no evidence that strategic assessment influenced expectations about fluctuation in account balances or levels of effort and attention devoted to analyzing changes in accounts, it appears that the halo associated with strategic risk assessments influences auditor judgment by altering their tolerance for differences between actual and expected changes in the account.

These results should not be construed as an indictment of the potential for strategic assessment to improve audit effectiveness. Analyzing strategic risks could enhance auditor judgment across a range of auditing decisions that are beyond the scope of this study. The issue for audit practice is not whether to perform strategic assessment, but rather how to

structure this important audit task to avoid undesirable consequences. Assurance services firms may want to review their procedures for strategic assessment to ensure that they are reaping the benefits without diminishing the likelihood of properly evaluating evidence from accounting details.

This paper extends auditing research in the following ways. First, it introduces halo theory to the auditing literature and applies it to an important practice area (strategic assessment). Second, it extends knowledge of how holistic judgment (strategic risk assessment) influences audit-planning-phase analytical procedures by demonstrating the influence of an overall evaluative judgment on the evaluation of detailed evidence about account-level risk. Growing acceptance of strategic assessment makes this knowledge important. Due to increasing emphasis on more subjective judgments (e.g., business risk assessment and analytical procedures) and decreasing emphasis on more objective substantive tests of details (Kinney and Felix 1993; Glover et al. 2003), the need to understand any bias in planning-phase judgments is paramount because biases at these levels can cascade throughout the remainder of the audit, resulting in distorted evaluations of achieved audit risk. Third, the study augments research that deals with the deleterious effects that holistic audit judgments can have on the diagnosticity attributed to more detailed evidence that auditors acquire later in the audit (e.g., Phillips 1999; Wilks 2002).

The remainder of this study is organized into three sections. Section II describes the theoretical framework that provides a foundation for our study and presents the research hypotheses. Section III describes our experimental method and discusses results. Section IV provides our conclusions, acknowledges the limitations of our study, and suggests future research.

II. THEORY AND HYPOTHESES

Auditors who use the business risk auditing approach gather preliminary evidence about misstatement risk primarily from two auditing procedures, strategic assessment and analytical procedures, then design a program of substantive tests based on this knowledge (Bell et al. 1997). These two procedures allow auditors to tailor their substantive tests of details to reduce the likelihood of failing to detect materially misstated accounts. A key step in determining these tests is to identify financial statement accounts that have a greater risk of material misstatement. Our study examines how strategic assessment can influence the account-level risk assessments that auditors develop during analytical procedures. In this section, we describe these two auditing procedures, explain how strategic assessment could produce a halo that influences auditor judgment during analytical procedures, and present our research hypotheses.

Auditing Context

Strategic assessment provides auditors with an overall (holistic) perspective on their clients' business model (Bell et al. 1997). During this diagnostic task, auditors learn about their clients' business processes (e.g., bringing products and services to market) and assess risks that threaten the organization's ability to execute the processes effectively. For example, the audit methodology used by the firm that provided participants for this study directs its auditors to perform strategic assessment in three sequential phases.

First, auditors document client operations (or update this documentation for continuing clients). Documentation includes, among other things, descriptions of (1) strategic objectives, (2) core processes used to achieve those objectives, (3) internal and external drivers that constrain those processes, and (4) strategic management processes the client uses to monitor and control their business model. Second, auditors analyze strategic risks and

identify significant classes of transactions that could be threatened by those risks. Third, they perform a process analysis by (1) linking strategic risks and significant classes of transactions documented during the second phase to specific processes documented during the first phase; (2) evaluating factors that are critical to the success of each process; (3) identifying key performance indicators; and (4) using those metrics to analyze process performance. In other words, they assess how well the client is achieving its strategic business objectives.

This strategic assessment focuses on business processes and market conditions—the overall perspective. The objective is to understand conditions that influence strategic risks by evaluating the likelihood that processes will not work as intended. Auditors turn their attention to accounting details when they undertake analytical procedures. The objective of analytical procedures is to assess account-level audit risks so that auditors can target substantive auditing procedures to address those risks.

Auditors begin analytical procedures by learning about client operating activities and procedures used to account for business transactions. During analytical procedures, auditors analyze interperiod fluctuations in account balances and search for patterns of changes that are inconsistent with their understanding of client procedures and operations (Koonce 1993). When auditors believe that fluctuations are consistent with their understanding of client operations, they usually follow a standard program for testing individual account balances and may even decrease audit effort by reducing testing from prior year levels. In contrast, when auditors believe that fluctuations are inconsistent, they should increase misstatement risk for the account and expand audit effort by implementing additional tests. As a result, factors that affect auditor judgment about inconsistent fluctuations in accounts can have a significant impact on the likelihood that they will detect financial misstatements.

Throughout this paper, we use the term ''inconsistent fluctuations'' to describe changes in account balances that are not consistent with other information about client business operations. For example, a significant increase in accounts receivable from last year to this year would be inconsistent with information that sales and accounts receivable turnover are not significantly different from last year.

The central question in our study is whether the holistic evaluations that auditors develop when they assess strategic business risks affect their judgment about evidence from account-level details acquired during analytical procedures, even when strategic risks have no bearing on that particular audit evidence. Strategic risk assessments may have direct implications for some accounts but very limited implications for other accounts. For example, a new strategy leading to improved product quality is likely to influence fluctuations in warranty expense far more directly than fluctuations in accounts receivable.

Research has shown that holistic evaluative judgments can influence how auditors search for and evaluate detailed evidence. For example, Phillips (1999) found that auditors who analyzed evidence for accounts that had previously been classified as low risk were less sensitive to evidence of aggressive financial reporting in those accounts than auditors who analyzed the same information for accounts classified as high risk. Wilks (2002) found that auditors provided with the engagement partner's going-concern evaluation before evaluating detailed evidence and developing a going-concern judgment tended to conform to the partner's evaluation. These studies demonstrate that, when firm practices encourage auditors to develop a holistic opinion about a judgment task before they analyze detailed audit evidence, their holistic opinion biases evaluation of more granular diagnostic information.

Our study examines an audit decision context that differs from previous research in four ways. First, while Phillips (1999) examined a practice related to firm-specific procedures, we examine a practice advocated by auditing standard setters (AICPA 2002). Second, Phillips (1999) and other auditing researchers (e.g., Bamber and Bylinski 1987; Cohen and Kida 1989) have studied how different perceptions about account-level risk influence the search for and attention to account-level evidence. Our study focuses on how different perceptions about holistic business risks influence how account-level evidence is weighted. Third, Wilks (2002) examined the influence of holistic opinions about going concern that are developed near the end of an audit engagement (AICPA 2001, AU § 341). We examine the influence of holistic opinions that come very early in the audit process and are likely to influence many subsequent judgments. Fourth, prior studies (e.g., Phillips 1999; Wilks 2002) focus on how preliminary holistic opinions about an audit judgment task can influence the evaluation of subsequent, more detailed evidence closely related to the same task. Our study examines how holistic opinions (strategic risk assessments) can bias judgments about detailed audit evidence (patterns of changes in accounts) when the holistic opinions have virtually no direct implication for the more detailed evidence. To this end, we adapt a relevant theory from performance evaluation research.

Halo Theory

The original proponent of the halo effect defined it as a ''marked tendency to think of the person in general as rather good or rather inferior and to color the judgments of the [person's specific performance attributes] by this general feeling'' (Thorndike 1920, 25). Evaluative judgments that produce a halo subconsciously increase the diagnostic value afforded to information about holistic performance perceptions about the ratee, and diminish diagnosticity of analytic information about specific attributes of the ratee's performance (Balzer and Slusky 1992). When raters develop a holistic opinion of the person to be evaluated prior to analyzing detailed diagnostic information about the person, they tend to evaluate detailed performance information to be consistent with their holistic opinion (Murphy et al. 1993). The tendency to confirm initial evaluative judgments is often attributed to the need to reduce cognitive dissonance between the holistic judgment and the judgment of information underlying specific details (Devine et al. 1990).

Studies have provided evidence supporting the halo phenomenon in a variety of performance evaluation contexts (Nisbett and Wilson 1977). Halo effects are particularly prevalent when information is evaluated using a top-down task structure, that is, when the rater acquires general information before evaluating detailed performance criteria (Murphy et al. 1993). For example, Finucane et al. (2000) found that the overall impression people formed about the holistic attributes of decision alternatives created a halo that biased their evaluative judgments related to detailed analytic information about the level of risk associated with each alternative. That is, when sets of overall decision outcomes were viewed as more attractive, the resulting decision tended to be favorable in spite of the fact that detailed information suggested otherwise. Work by Slovic et al. (2002) and Lance et al. (1994) concludes that the favorable or unfavorable valence of an overall performance judgment is positively related to a bias that influences the evaluation of detailed performance criteria.

Conditions in the audit environment seem likely to encourage a halo effect from strategic assessment. Studies show that the halo effect on judgments regarding specific performance characteristics is intensified when the overall judgment is complex (Murphy et al. 1993) and highly salient (Balzer and Slusky 1992). When auditors perform strategic assessment, the complexity and ambiguity of the task require a nontrivial commitment of

cognitive effort (Bell 2004). Requiring auditors to document their conclusions during strategic assessment is likely to make their holistic judgment about strategic risk quite salient. Moreover, since strategic assessment is intended to frame all subsequent audit judgments (Bell et al. 1997), salience of the resulting judgment seems apparent.

In summary, if strategic assessment produces a halo effect, then the holistic judgment that auditors develop when they assess strategic risk will influence their judgment about the level of misstatement risk associated with changes in account balances. Halo theory suggests that developing a holistic judgment about strategic risk will reduce the diagnosticity of detailed evidence about changes in account balances, even if strategic risk has no direct implications for that account-level evidence. As a result, performing strategic assessment should reduce the extent to which evidence provided by inconsistent fluctuations influences account-level misstatement risk. Furthermore, auditors who evaluate strategic risk at higher (lower) levels are also likely to evaluate account-level misstatement risk at higher (lower) levels.

These associations between strategic assessment and analytical procedures give rise to the following alternative-form research hypotheses:

H1: For auditors who perform strategic assessment before analytical procedures, the difference between account-level risk assessments in the presence versus absence of inconsistent fluctuations will be less than the difference between account-level risk assessments for auditors do not perform strategic assessment before analytical procedures.

H2: When auditors perform strategic assessment before analytical procedures, assessments of strategic risk will be positively correlated with assessments of misstatement risk that auditors develop for accounts with inconsistent fluctuations.

III. METHOD

We test these research hypotheses using two laboratory experiments. The first experiment provides evidence for testing H1 and H2. The second experiment provides evidence for replicating tests of H2 under different conditions, and for evaluating alternative explanations for our findings. The experiments were conducted during two separate national training sessions for senior-level auditors who worked for one Big 4 firm.

All participants were classified as seniors. Some had recently been promoted to senior and had little or no experience supervising field work, while others had been in-charge auditors for as long as four years. Groups of about 30 participants completed the experimental exercise in their classrooms during a one-hour period that had been set aside for conducting research. Each classroom was supervised by a research proctor who distributed and collected the experimental instruments and monitored participants while they completed the task.

Both experiments were conducted in three phases. Participants received a package containing three envelopes labeled phases one, two, and three, and completed the phases in sequence. After completing each phase, participants sealed the materials in the envelope for that phase so that they could not refer to that information during subsequent phases. Research proctors monitored participants' compliance with these instructions.

The same strategic auditing case was used for both experiments with slight changes in the accounting metrics and client operating information. Case materials were patterned after the Loblaw Companies, Ltd. case for a chain of grocery stores (Greenwood and Salterio

2002) and account balances were adapted from the annual report for Safeway, Inc. The controller for a regional grocery chain (similar to the one described in the case) provided metrics for key performance indicators and reviewed the materials for realism.

Information about client operations was grouped by strategic business processes in the same format as the audit support software that participants used in the field. The comparative account balance information that participants used for analytical procedures was presented in four columns, which included balances for this year and last year, and the amount and percent of change between years. Information for key performance indicators included the same four columns of information plus the industry best-practices standard. In an attempt to make auditors more sensitive to unusual improvements in performance and increase their concern about unexpected fluctuations in accounts related to financial performance, all cases indicated that the company was currently negotiating a merger with a larger competitor.

In experiment one, some of the cases included an inconsistent-fluctuation manipulation while others did not. All cases stated that unit sales prices, sales mix, and product costs had not significantly changed from last year to this year, which suggests that fluctuations in cost of sales should be proportional to fluctuations in sales. In the case with no inconsistent fluctuation, sales and cost of sales increased by approximately the same amount (5.2 percent and 4.9 percent, respectively). However, in the case that included the inconsistent fluctuation, the increase in sales and cost of sales was disproportional (5.2 percent and 0.9 percent, respectively). This seeded condition resulted in an increase in gross profit that was inconsistent with information about unit sales prices, sales mix, and product costs. To increase salience, gross profit performance was stated to be an important measure in merger negotiations. We patterned these seeded conditions after the inconsistent fluctuation created by Bedard and Biggs (1991) that involved misallocation of overhead costs for a manufacturing client. For the grocer described in our case, this pattern of changes in two related accounts (sales and cost of sales) could, among other things, signal a misstatement that resulted from misallocation of distribution costs.

Experiment One

The first experiment employs a 2×2 between-subjects design. The presence or absence of the inconsistent fluctuation is one of the crossed factors. The other is whether participants perform strategic assessment before or after they perform analytical procedures. Misstatement risk assessment for cost of sales is the dependent variable. Including cases that did and did not contain inconsistent fluctuations provides a basis for (1) validating that the inconsistent-fluctuation manipulation increased account-level risk assessments, and (2) evaluating how the requirement to perform strategic assessment influenced account-level risk assessments for cases that did and did not contain an inconsistent fluctuation.

Procedure

Participants began phase one by answering questions about their auditing experience. Next, they read information about the audit engagement, control risk assessments, the client's industry, business operations, history with the firm, and key business processes. They reviewed a current-year balance sheet and income statement and then provided a baseline misstatement risk assessment for inventory, sales, cost of sales, and store expenses on a scale from 1 (low) to 7 (high). These pre-task assessments for account-level misstatement risk provided a metric (covariate) that was used to control for between-subject differences in misstatement risk expectations that existed prior to the experimental manipulations.

After providing pre-task risk assessments, participants who did not perform strategic assessment began phase two. Participants who performed strategic assessment were provided with two paragraphs of information that described the client's business strategy and explained how the client was attempting to execute the strategy. They were also provided with five key performance indicators that served as benchmarks for gauging how well the strategy was being accomplished. The five key performance indicators were taken from information about client operations that was provided to all participants when they assessed misstatement risk during phase two. Using a scale from 1 (low) to 7 (high), participants assessed the likelihood that the company would be able to execute its strategy successfully.

During phase two, all participants analyzed information about client operations and provided post-task risk assessments for inventory, sales, cost of sales, and store expenses on a scale from 1 (low) to 7 (high). Participants were asked to assess misstatement risk across four accounts to help disguise the seeded-inconsistency manipulation and reduce demand effects.

During phase three, strategic assessment was performed by all participants who did not complete that task during phase one. Next, all participants completed a debriefing questionnaire and were asked to provide their email address if they wanted a summary of the results. Responses to the debriefing questionnaire were used to check the validity of the case materials. Figure 1 illustrates the flow of tasks for this experiment.

Results

A total of 90 auditors with an average of 2.9 years of auditing experience (standard deviation = 1.3) participated in the first experiment. Most participants took about 45 minutes to complete the exercise and all finished within one hour. Descriptive statistics for all pertinent variables are presented in Table 1.

Before testing our hypotheses, we verified that the inconsistent fluctuation we seeded as one of our manipulations actually increased risk assessments for cost of sales. For the participants who performed analytical procedures on the case that contained the inconsistent

FIGURE 1
Flow of Tasks for Experiment One

	Strategic Risk Assessment	**No Strategic Risk Assessment**
Phase 1	Document pre-task misstatement risk assessments	Document pre-task misstatement risk assessments
	Perform strategic assessment	* * *
Phase 2	Perform analytical procedures and document misstatement risk	Perform analytical procedures and document misstatement risk
Phase 3	* * *	Perform strategic assessment
	Complete debriefing questionnaire	Complete debriefing questionnaire

TABLE 1
Means (Standard Deviations) for Measured Variables in Experiment One

	Variable	Inconsistent Fluctuation	No Inconsistent Fluctuation	Condition Means
Strategic assessment before analytical procedures	PreMR	4.4 (1.3)	3.8 (1.3)	4.1 (1.3)
	PostMR	4.2 (1.5)	3.6 (1.3)	3.9 (1.4)
	SRA	4.1 (1.1)	3.7 (1.2)	3.9 (1.1)
	Exp	2.8 (1.0)	2.7 (1.1)	2.8 (1.1)
		n = 24	n = 24	
Strategic assessment after analytical procedures	PreMR	4.5 (1.5)	3.8 (1.0)	4.1 (1.3)
	PostMR	5.2 (1.2)	3.7 (1.7)	4.4 (1.6)
	SRA	4.1 (1.1)	3.7 (1.3)	3.9 (1.2)
	Exp	3.2 (1.9)	2.8 (1.1)	3.0 (1.5)
		n = 20	n = 22	
Condition Means	PreMR	4.4 (1.4)	3.8 (1.1)	
	PostMR	4.6 (1.4)	3.7 (1.5)	
	SRA	4.1 (1.1)	3.7 (1.2)	
	Exp	3.0 (1.5)	2.8 (1.1)	

PreMR = pre-task misstatement risk assessment for cost of sales from 1 (low) to 7 (high);
PostMR = post-task misstatement risk assessment for cost of sales from 1 (low) to 7 (high);
SRA = strategic risk assessment from 1 (low) to 7 (high); and
Exp = years of auditing experience.

fluctuation, the average risk assessment for cost of sales was 4.7. However, for the participants who performed analytical procedures on the case with no inconsistent fluctuation, the average risk assessment for cost of sales was 3.7. The t-statistic for the difference between those means is 2.88, which is significant at the $p < .01$ level. It appears that, as intended, seeding the inconsistent fluctuation increased the level of misstatement risk that auditors associated with cost of sales.

Hypothesis Tests

Hypothesis 1 predicts that auditors who perform strategic assessment before analytical procedures will increase misstatement risk in the presence of an inconsistent fluctuation less than auditors who do not perform strategic assessment first. In other words, H1 predicts an ordinal interaction. The mean risk assessments for auditors who analyze the case with the inconsistent fluctuation but do not perform strategic assessment before analytical procedures should be greater than the mean risk assessments for auditors in the other three conditions.

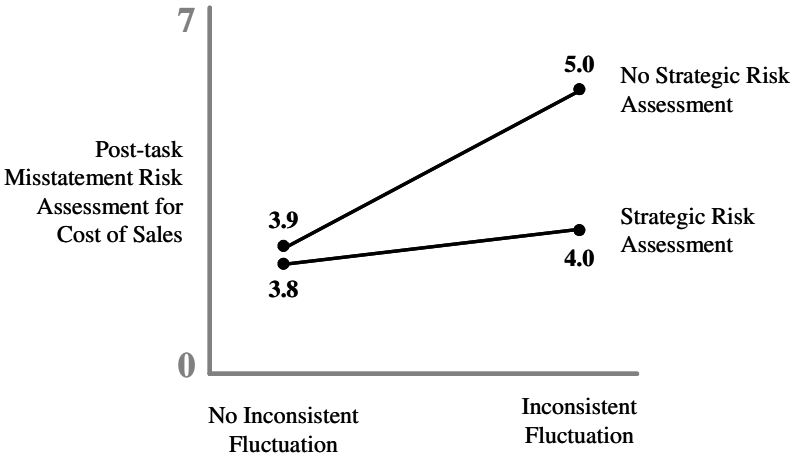
Buckless and Ravenscroft (1990) explain that, when using experimental designs involving this type of ordinal interaction, traditional analysis of variance does not provide the most powerful test of significance of the expected relationship among cell means. Therefore, we used the contrast coding approach that they recommend to test H1, which involves using pre-assigned weights for calculating the sum of squares for main and interactive effects. Our analysis, which is presented in Panel A of Table 2, indicates that the adjusted mean cost of sales risk assessments (5.0) for the group that analyzed the case with an inconsistent fluctuation but did not perform strategic assessment before analytical procedures is significantly greater than the mean assessments of the other three groups (see Panel B of Table 2). This finding suggests that auditors who performed strategic assessment before

TABLE 2
Summary for Planned Contrasts Used to Test the Influence of Strategic Assessment on Cost of Sales Risk Assessments

Panel A: Analysis of Covariance with Contrast Coding

Source of Variation	SS	df	MS	F-statistic	p-value[a]
Pre-task cost of sales risk assessment (covariate)	43.83	1	43.83	24.50	.0000
Model contrast (for pattern of interaction)[b]	17.59	1	17.59	9.83	.0024
Residual[c]	0.37	2	0.19	0.10	.9019
Error	152.09	85	1.79		

Panel B: Pattern of Interaction among Adjusted Cell Means



[a] All reported p-values are two-tailed.
[b] Contrast coefficients are 3 for the no strategic risk assessment-inconsistent fluctuation condition and −1 for the other three conditions.
[c] The residual sum of squares represents the between-group variance unexplained by the model contrast used to test H1. An insignificant p-value indicates that the model contrast and covariate explain all significant between-group variance in the data.

analytical procedures reacted less strongly to the inconsistent fluctuation than auditors who did not perform strategic assessment first, supporting H1.

Hypothesis 2 predicts that, when auditors perform strategic assessment before they perform analytical procedures on the case with an inconsistent fluctuation, their assessment of strategic risk will bias their assessment of misstatement risk for the account with the inconsistent fluctuation. In other words, because of the halo from strategic assessment, misstatement risk assessments for cost of sales should be positively correlated with strategic risk assessments.

On the other hand, when auditors perform strategic assessment before analytical procedures but do not encounter an inconsistent fluctuation, there should be no correlation between strategic risk assessments and misstatement risk assessments for cost of sales because auditors have no evidence that misstatement risk should be increased. When there is no evidence to interpret, there can be no potential for the halo effect to bias auditor

judgment about that evidence. Also, when auditors do not perform strategic assessment before analytical procedures, there can be no halo from strategic assessment and, therefore, no correlation between strategic risk assessments and misstatement risk assessments for cost of sales. In other words, evidence supporting H2 would demonstrate a positive correlation between strategic risk assessments and misstatement risk assessments for cost of sales when participants performed strategic assessment before they performed analytical procedures on the case with the inconsistent fluctuation, but no such correlation for the other three experimental conditions.

To test H2, we calculated the change in misstatement risk assessments for cost of sales by subtracting pre-task assessments from post-task assessments, which allowed us to control for any between-subjects differences in misstatement risk expectations that existed before the task began. Next, we calculated Pearson correlations between strategic risk assessments and the change in misstatement risk assessments for cost of sales for participants in each of the four experimental conditions. Results presented in Table 3 reveal a significant ($p < .01$) positive correlation when participants performed strategic assessment before they performed analytical procedures on the case with the inconsistent fluctuation, but no significant correlation in the other three experimental conditions. These findings provide evidence that supports H2.

Additional Analyses

The auditors who participated in this study worked for a firm that requires them to perform strategic risk assessment before they analyze account-level misstatement risk. One explanation for our findings could be that participants who did not perform strategic risk assessment were more skeptical because they did not follow their normal routine. As a result, the unfamiliar task structure might have inspired a more rigorous analysis. We used data from the debriefing questionnaire to evaluate this possibility.

After participants completed their risk assessments, they responded to two questions about the case materials that they had evaluated. They were asked to rate the similarity between the format used to present information in this exercise and the format used by their firm's audit support software on a scale from 1 (not similar) to 7 (very similar). Average ratings for participants who performed strategic assessment were 3.5 compared to 3.6 for participants who did not perform strategic assessment. Participants were also asked to rate how well the information they examined during this exercise helped them to understand the business processes their client uses to create customer value on a scale from 1 (not well) to 7 (very well). Average ratings for participants who performed strategic assessment were 3.8 compared to 4.0 for participants who did not perform strategic assessment. t-tests indicate that performing strategic assessment had no significant influence

TABLE 3
Pearson Correlations between Strategic Risk and the Pre-Task to Post-Task Change in Cost of Sales Risk across Experimental Conditions

	Case with Inconsistent Fluctuation	Case without Inconsistent Fluctuation
Performed strategic assessment before analytical procedures	0.65 ($p = .00$)	0.25 ($p = .22$)
Performed strategic assessment after analytical procedures	0.23 ($p = .32$)	0.09 ($p = .65$)

on either of these ratings, which suggests that familiarity with the task structure did not influence the results.

Another explanation for our findings is that auditors who performed strategic assessment were more fatigued when they performed analytical procedures and did not put forth as much effort as auditors who were not required to perform strategic risk assessment first. Participants completed the experimental task in less than an hour, immediately after returning from a break. It is unlikely that experienced auditors who perform this type of analysis on a regular basis were particularly fatigued after analyzing one page of information and the five key performance indicators provided for strategic assessment. We tested this alternative explanation by having auditors who did not perform strategic assessment before analytical procedures perform strategic assessment during phase three (see Figure 1).

During strategic assessment, all auditors were required to document the rationale for their conclusions. There was no significant difference ($p = .38$) between the number of words used in the documentation provided by auditors who performed strategic assessment before analytical procedures (mean = 38 words; standard deviation = 28 words) and auditors who performed strategic risk assessment after analytical procedures (mean = 34 words; standard deviation = 17 words). There also was no significant difference ($p = .77$) in average strategic risk assessments between these two groups. These findings indicate that fatigue did not affect our results.

Discussion

Our findings suggest that performing strategic assessment can bias auditor judgment about the risk associated with evidence that manifests in accounting details. In experiment one, (1) auditors who performed strategic assessment were less likely to adjust their account-level risk assessments in the presence of an inconsistent fluctuation than auditors who did not perform strategic assessment, and (2) holistic judgments about strategic risk biased auditor judgment about inconsistent accounting details. Auditors who assessed strategic risk at lower levels also assessed misstatement risk for the account with an inconsistent fluctuation at lower levels, even though strategic risks had no direct implications for inconsistent fluctuations in that account. These results suggest that a widely used auditing procedure, which is becoming institutionalized in practice, may impair auditor judgment.

Because strategic assessment can enhance auditor judgment in many ways (Bell et al. 2002), the question is not whether auditors should perform strategic assessment. Instead, the issue is how to mitigate the undesirable effects of the halo that strategic assessment can create. We are reluctant to propose future research on the halo effect based on findings from a single experiment, and without learning more about how the halo effect influences auditor cognition. Therefore, we conducted a second experiment to determine how the halo effect influences account-level risk assessments. Experiment two also replicates evidence that the halo effect influences auditor judgment about the level of misstatement risk associated with inconsistent fluctuations and provides evidence about the external validity of our findings.

Experiment Two

In this experiment, participants assessed account-level misstatement risk over two consecutive years for the same client's audit. Account balances for year one contained no inconsistent fluctuations. However, for year two, sales increased by 3.2 percent while cost

of sales increased by only 0.9 percent, which provided an inconsistent fluctuation similar to the seeded condition used in experiment one.[1]

For both years, participants were instructed to assume that the engagement partner had conducted the strategic assessment and they were provided with a summary of his conclusions. All participants received the same strategic assessment summary for the first year, but we manipulated the strategic assessment summary for the second year to be either favorable or unfavorable.[2] For the first year, information provided to all participants indicated that (1) the client had changed its strategy during the year, (2) sales revenue and market share had not significantly changed, (3c) net income had remained relatively stable, and (4) the engagement partner had concluded it was still too early to develop any meaningful assessment about the viability of the new strategy.

For the second year, participants assigned to the low strategic risk (favorable halo) condition received information that the engagement partner believed the new strategy may achieve the results that the client intended, that sales growth for the second year was 3.2 percent while the average sales growth in the client's market was only 1.9 percent, that net income had increased by 1.8 percent, and that the client had increased its market share. Second-year information provided to participants assigned to the high strategic risk (unfavorable halo) condition indicated that the engagement partner believed the new strategy may not achieve the results that the client expected, that sales growth during the second year was only 3.2 percent while the average sales growth in the client's market was 4.5 percent, and that although net income had increased by 1.8 percent, the client had lost market share.

Procedure

The experiment involved three phases. During phase one, participants were provided with information about (1) overall engagement risk, (2) business strategy (including information about strategic risk), (3) business process analyses, and (4) control risk assessments. This information was patterned after the documentation provided by the audit support software that participants use in the field. Next, they were provided with comparative account balances and key performance indicators for the first year and the previous year (including the amount and percent of change) and asked to assess misstatement risk for inventory, sales, cost of sales, and store expenses. Participants used a scale where 0 indicated very low risk and 100 indicated very high risk. After documenting their expectations, participants sealed phase one materials in an envelope and began phase two.

During phase two, participants were told to assume that they had returned to audit the same client for the following year, that the audit for the previous year had gone smoothly, there had been no proposed adjusting entries, and the client had received an unqualified opinion. They were provided with information about strategic risk (either high or low).

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[1] An expert panel validated our inconsistent fluctuation manipulation. We asked audit partners from four of the former Big 5 firms (minimum experience of eight years as an audit partner) to complete the case exercise that included the favorable strategic risk assessment. All four increased misstatement risk for cost of sales during the second year (two by 15 and two by 10). The average increase for cost of sales was larger than the increases for the other three accounts (average risk increases from the first year to the second were 1.6 for sales, 8.8 for store expenses, 10.0 for inventory, and 12.5 for cost of sales).

[2] We used this approach to stabilize between-subjects strategic risk assessments. Even when provided with the same information for strategic assessment, participants in the first experiment who performed strategic assessment prior to analytical procedures assessed strategic risk from 1 to 6 (on a scale from one to seven), resulting in with a standard deviation of 1.1.

Materials indicated that there were no significant changes in business processes or management personnel, and that unit sales prices, sales mix, and product costs remained stable. Case materials also indicated that engagement risk had increased from 25 to 35 (on a scale from 0 to 100) because the client was currently engaged in merger negotiations and that control risk had increased from 20 to 25 (on a scale from 0 to 100) because the client had implemented a significant upgrade to its supply chain management software. We included these conditions to increase participants' focus on risk factors during analytical procedures.

After reading information about the second year, participants indicated whether they expected balances for inventory, sales, cost of sales, and store expenses to decrease, not change, or increase, and documented their expectations on a scale from 1 (decrease significantly) to 7 (increase significantly). McDaniel and Kinney (1995) used this procedure to increase auditor attention to fluctuations in account balances during analytical procedures. We included the task to (1) increase the likelihood that participants would notice the inconsistent fluctuation and (2) provide metrics for evaluating whether strategic risk influences auditor expectations about changes in account balances. After documenting their expectations, participants were provided with second-year balances for the metrics they analyzed and asked to provide misstatement risk assessments for inventory, sales, cost of sales, and store expenses using a scale from 0 to 100. Next, for each of the four accounts, participants were asked to indicate whether they expected the amount of time spent gathering and evaluating evidence to substantiate the account balance to decrease, not change, or increase compared to year one. If they expected the amount of time to change, then participants were also asked to indicate the percent of increase or decrease in audit effort.[3]

During phase three participants answered debriefing questions, completed a surprise recognition task, and were given an opportunity to provide their email address if they wanted a summary of the results. The surprise recognition task provided data for differentiating levels of attention (a proxy for cognitive effort) across the experimental conditions (Libby and Trotman 1993). In multiple-choice format, participants were asked to indicate the change in inventory, sales, cost of sales, and store expenses from the first year to the second year. They were provided with the same five answer choices for each question, four of which represented the actual fluctuations in the accounts they had evaluated (inventory was 1.8 percent, sales was 3.2 percent, cost of sales was 0.9 percent, store expenses was 2.7 percent). The fifth choice was 3.0 percent.

Results

A total of 48 auditors participated in the second experiment. Participants took about 25 minutes to complete the exercise and all finished within 40 minutes. Descriptive statistics are presented in Table 4.

Before analyzing our findings, we checked our favorable versus unfavorable halo manipulation using our auditors' rating of strategic risk. In the debriefing questionnaire, participants were asked to provide their judgment that the client's business strategy would succeed on a scale from 1 (not likely) to 7 (very likely). Mean success ratings for participants in the unfavorable halo condition were 3.0, while mean success ratings for participants in the favorable halo condition were 4.4 ($t = 4.13$, $p < .01$). It appears that our halo manipulation worked as intended.

[3] We verified that participants' account-level misstatement risk assessments reflected their expectations about the audit effort needed to substantiate the cost of sales account balance, proxied by time budgeted for auditing procedures. The Spearman correlation between change in risk assessment and anticipated audit effort for cost of sales during year two is 0.28 ($p = .05$).

TABLE 4
Means (Standard Deviations) for Measured Variables in Experiment Two

Variable	Favorable Halo (n = 25)	Unfavorable Halo (n = 23)	Full Sample
ΔMR	1.0 (17.1)	13.3 (13.7)	6.9 (16.6)
ΔAE	14.4 (13.8)	16.3 (10.9)	15.3 (12.3)
Exp	2.4 (0.8)	2.8 (1.0)	2.6 (0.9)

ΔMR = change in misstatement risk assessment for cost of sales between years (year two minus year one) measured on a scale from 0 (low) to 100 (high);
ΔAE = percent change in anticipated audit effort for cost of sales (increase or decrease in budgeted hours for substantive tests) from year one to year two; and
Exp = years of auditing experience.

Our second hypothesis predicts that auditors who believe strategic risk is low (favorable halo) will rate account-level misstatement risk for accounts with inconsistent fluctuations at lower levels than auditors who believe that strategic risk is high (unfavorable halo). We calculated the amount by which cost of sales risk (rated on a scale from 0 to 100) changed from year one to year two. As shown in Table 4, the average within-subjects increase in cost of sales risk assessments for auditors in the favorable halo condition was 1.0 compared with 13.3 for auditors in the unfavorable halo condition ($t = 2.73$; $p < .01$). Experiment two replicates support for our second hypothesis by providing evidence that the favorable versus unfavorable nature of strategic risk assessments can bias misstatement risk assessments for accounts with unexpected fluctuations.

Additional Analyses

Our research hypotheses predict that, when auditors perform strategic assessment, they base diagnostic judgments during analytical procedures more on strategic risk assessments and less on evidence provided by fluctuations in accounts. These hypotheses predict that the halo associated with strategic assessment diminishes the diagnostic relevance of account-level evidence and, as a result, auditors are more tolerant of inconsistent fluctuations. However, the effects predicted by our research hypotheses could also be explained by two other conditions, which we examine to provide a more complete test of halo theory.

First, halo theory predicts that holistic evaluative judgments decrease the extent to which detailed performance measures influence performance evaluation, but do not decrease rater attention to detailed performance measures (Lance et al. 1994). However, it is possible that auditors who rely on the evaluative judgments developed during strategic assessment may devote less attention to analyzing accounting details. If so, then they may overlook inconsistent fluctuations entirely rather than, as predicted by halo theory, attend to them but put little weight on them. We tested this alternative explanation using participants' ability to remember evidence that they examined, which served as a proxy for their level of attention (Birnberg and Shields 1984).

During the surprise recognition task administered in phase thee, participants were asked to identify the percent change in accounts they analyzed during analytical procedures. We calculated Chi-square statistics (with one degree of freedom) for the difference between participants who remembered correctly in the favorable and unfavorable halo conditions. Of the 48 participants across both conditions, 73 percent correctly identified the change in sales (Chi-square = 1.32; $p = 0.24$), 48 percent correctly identified the change in cost of

sales (Chi-square = 0.00; p = 0.99), 52 percent correctly identified the change in inventory (Chi-square = 1.31; p = 0.25), and 46 percent correctly identified the change in store expenses (Chi-square = 0.79; p = 0.37). These findings suggest that our halo manipulation did not influence the amount of attention that participants devoted to analyzing fluctuations in accounts, which is consistent with halo theory.

A second alternative to halo theory is that auditors who develop favorable evaluative judgments during strategic assessment develop expectations about changes in account balances that differ from auditors who do not. During analytical procedures, the primary diagnostic for determining inconsistent fluctuations is the difference between the account balance that the auditor expects and the account balance that the auditor observes (Koonce 1993). If the fluctuations that auditors expect are closer to fluctuations that they actually observe, then the likelihood that a fluctuation will be construed as inconsistent should diminish.

To evaluate this alternative explanation, we used documentation that participants provided before they performed analytical procedures to test whether performing strategic assessment influenced participants' expectations about changes in accounts. On average, participants in the favorable halo condition rated their expectations about the change in cost of sales at 4.5 and participants in the unfavorable halo condition rated their expectations at 4.6 (t = 0.44; p = 0.66). These findings suggest that the halo from strategic assessment had no influence on auditor expectations about the size of interperiod fluctuations in accounts, and again contribute positively to the applicability of halo theory.

These findings provide insight about the cognitive mechanism through which a halo effect biases auditor judgment about misstatement risk. It appears that, consistent with halo theory, holistic judgment about strategic risk biases account-level risk assessments by diminishing the diagnostic value of evidence from accounting details. Because auditors in both the favorable and unfavorable halo conditions analyzed changes in accounts with similar levels of effort and against similar expectations about the size of interperiod fluctuations, we find no evidence that the association between strategic risk assessments and account-level risk assessments can be attributed to differences in auditor effort or attention to accounting details or auditor expectations about interperiod fluctuations in account balances.

Discussion

Results from experiment two provide additional evidence in support of halo theory. Analyses confirm H2, this time using an inherited strategic assessment risk from the engagement partner. Auditors who received lower (higher) evaluations of strategic risk rated account-level risk at lower (higher) levels. Also, consistent with halo theory, strategic risk assessments apparently influence auditor judgment about the risk associated with changes in accounts by altering their tolerance for unexpected fluctuations.

IV. SUMMARY

This study used halo theory to examine the effects that performing strategic assessment have on auditors' analytical procedures judgments about the misstatement risk associated with inconsistent fluctuations. Halo theory supports propositions that auditors' developing or inheriting high-level performance-related judgments (strategic risk assessments) prior to evaluating more detailed performance measures (changes in account balances) will reduce their use of the diagnostic information contained in the more detailed measures. Our results suggest that account-level risk assessments were not sensitive to inconsistent fluctuations

in account balances when auditors performed a strategic assessment before they performed analytical procedures. Our results also provide evidence of a positive relationship between strategic risk assessments and account-level risk assessments for accounts containing inconsistent fluctuations. These findings, if substantiated, indicate that auditors may underestimate the risk of financial misstatement when they assess strategic risks at lower levels based on the viability of their clients' business models.

These results must be interpreted with care. Although the auditors who participated in this study were provided with an opportunity to develop comprehensive evaluations, they did not perform strategic assessment with the degree of rigor that would be applied in the field. Another significant difference between audit practice and our experimental setting is the level of expertise that was brought to bear on the risk assessment process. In this study, senior-level auditors performed analyses and made the type of decisions they are responsible for in the field. However, in practice, their conclusions are scrutinized by managers and partners who are more likely to recognize patterns of account balances that represent inconsistent fluctuations (Bonner and Lewis 1990).

Both audit practice and the audit judgment literature could benefit from research that examines how alternative task structures influence the interaction between strategic risk assessment and analytical procedures. For example, research has shown that changing the way information is organized and presented during diagnostic auditing tasks can alter judgment (Ricchiute 1992) and help auditors recognize risk factors (O'Donnell and Schultz 2003). Altering task structures to direct auditor attention toward specific information can increase the extent to which that information influences audit judgment tasks (Knapp and Knapp 2001). Our results support the need for methods designed to increase the salience of evidence that manifests in detailed accounting information. Given the increasingly widespread adoption of the business risk approach, we believe that research on the business risk approach in general and strategic assessment in particular could help audit practitioners develop and use information about strategic risks more effectively.

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