The Effects of Industry Specialization on Audit Risk Assessments and Audit-Planning Decisions

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ABSTRACT: This study investigates the effects of industry specialization on auditors' risk assessments and audit-planning decisions. In an experiment, auditors from different industry specializations complete a hypothetical audit case set in a specific (bank) industry, which creates either a match or a mismatch between the auditors' industry specialization and the hypothetical client's industry. Furthermore, I manipulate the industry-specific case information to achieve differential audit risk levels. I also provide the auditors with a set of preliminary audit procedures and a constrained time budget. I find that the auditors' knowledge of the client's industry improves their audit risk assessments and directly influences the nature and the perceived quality of their audit-planning decisions. In addition, the auditors' knowledge of the client's industry moderates the sensitivity of the auditors' planning decisions to their audit risk assessments.

Keywords: industry specialization; audit risk assessment; audit-planning decisions; auditors' performance.

Data Availability: Available upon request.

I. INTRODUCTION

Recognizing the increasing complexities of today's business in a knowledge-based economy, many public accounting firms have reorganized their staff and practice by industry (Bell et al. 1997; Emerson 1993). Consequently, today's auditors' training and experience are becoming more industry-specific earlier in their audit career. While early industry specialization could potentially reduce auditors' breadth of general audit experience, industry-specialist auditors have greater opportunities to develop more in-depth knowledge of the industry in which they specialize. Such in-depth knowledge should lead to greater audit effectiveness.

Prior research on auditors' industry experience and/or specialization has found that auditors with greater industry-specific experience generally possess greater knowledge of

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the industry related to their experience. However, few studies have examined whether and how industry knowledge acquired through industry experience translates into more effective audit performance.\(^1\) In this study, I contribute to the extant literature by investigating the effects of industry specialization on auditors’ risk assessments and audit-planning decisions as well as the relationship between auditors’ risk assessments and their planning decisions.

Examining whether auditors’ industry specialization leads to better audit risk assessment is important because auditors’ risk assessments will influence the subsequent design and conduct of an audit. During the early stages of an audit, inappropriate audit risk assessments can result in misdirected audit resource allocation and, ultimately, in an ineffective and/or inefficient audit. I posit that auditors’ knowledge of the client’s industry positively affects auditors’ ability to assess audit risks.\(^2\) In addition, I posit that the manner and extent to which auditors change planned audit procedures and the quality of auditors’ planning decisions are affected by their knowledge of the client’s industry and/or risk assessment.

In an experiment, auditors from different industry specializations complete a hypothetical audit case set in the banking industry, which creates either a match or mismatch between the auditor’s industry specialization and the hypothetical client’s industry. Further, I manipulate the industry-specific case information between the auditors to achieve differential audit risk levels. I also provide the auditors with a set of preliminary audit procedures and a constrained time budget.\(^3\) I find that the auditors’ knowledge of the client’s industry improves their audit risk assessments. The auditors’ knowledge of the client’s industry also directly affects the nature and the perceived quality of changes made by the auditors to the planned audit procedures and time budgets. Auditors working in their industry specialization modify the nature of the planned audit procedures more than those working outside their industry specialization. Industry experts judge the quality of audit procedure changes as well as the final audit programs and time budgets proposed by industry-specialist auditors to be higher than those of auditors working outside their industry specialization. Last, the extent of audit procedure changes made by industry-specialist auditors is sensitive to their audit risk assessments, but not for auditors who are working outside their industry specialization. Overall, the results have important implications for audit effectiveness and efficiency as auditors’ knowledge of the client’s industry is found to affect not only the auditors’ risk assessments, but also the nature, quality, and risk-sensitivity of their planning decisions.

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\(^1\) One notable exception is Owhoso et al. (2002). The study’s findings reveal that audit seniors and managers, working on an individual basis or in a team consisting of a senior and a manager, detect more mechanical and conceptual errors when reviewing working papers of a client in (rather than outside) the industry of the auditors’ specialization.

\(^2\) I use the term “knowledge of the client’s industry” to refer to auditors’ knowledge of accounting, auditing, and business environment that is specific to a client’s industry (as opposed to knowledge that is applicable across industries). This definition is consistent with prior research that distinguishes three categories of auditors’ knowledge—accounting, auditing, and business-environment knowledge (Bonner and Lewis 1990; Solomon et al. 1999). Further, each category of knowledge may be general or industry-specific (Waller and Felix 1984a, 1984b; Wright and Wright 1997).

\(^3\) In practice, every audit engagement has a time budget, which imposes time constraints on the auditors. Consequently, when designing and conducting an audit, auditors are concerned not only with audit effectiveness but also with audit efficiency. Presenting the study participants with a constrained time budget reinforces the participants’ concern for audit efficiency. It also enables the study to contribute to extant time-constraint literature by examining the effects of auditors’ industry specialization and risk assessment on auditors’ planning response to an impending time constraint. Extant time-constraint studies in auditing (see review by DeZoort and Lord 1997) have largely focused on auditors’ behaviors and performance under time constraints as opposed to auditors’ response to impending time constraints (Solomon and Brown 1992).

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The remainder of the paper is organized as follows. Section II reviews the prior literature and develops the hypotheses. In Section III, I describe the experiment. Section IV reports the results. In Section V, I present concluding comments.

II. HYPOTHESIS DEVELOPMENT

Prior research on auditors’ industry-specific experience suggests that auditors with greater industry-specific experience possess more complete knowledge as well as more accurate frequency knowledge of plausible business environment explanations for unexpected ratio fluctuations (Solomon et al. 1999), and generate more industry-unique financial statement error hypotheses (Wright and Wright 1997). Research shows that auditors with greater industry-specific experience more frequently recognize the correct error-cause of unexpected financial statement balance fluctuations (Bedard and Biggs 1991) and are more likely to correctly detect management fraud (Johnson et al. 1991). Bonner and Lewis (1990) find industry-specific experience to be a significant predictor of auditors’ performance in tasks more commonly encountered in a specific industry. However, Ashton (1991) finds no strong positive relationship between auditors’ industry-specific experience and the accuracy of their error frequency knowledge.

Overall, the studies on auditors’ industry-specific experience suggest that auditors develop more extensive knowledge of the industry in which they specialize or have greater audit experience. Consistent with these findings, Bell et al. (1997) suggest that auditors develop extensive knowledge of their clients’ businesses and industries, and that this knowledge contributes significantly to the auditors’ ability to detect anomalies and verify consistencies. This reasoning implies that industry-specialist auditors are likely to better recognize the audit risks associated with an engagement when they face a client in that industry as opposed to another industry. For example, auditors’ knowledge of a client’s industry enables them to benchmark the client’s performance against its industry. The pattern and/or levels of the client’s performance measures against industry norms can be diagnostic of the audit risks associated with the client.

I am aware of only two studies that have investigated the effects of industry-specific experience on auditors’ audit risk assessments (Wright and Wright 1997; Taylor 2000). The findings of both studies on improved risk assessments based on industry-specific experience, however, are not conclusive. Wright and Wright (1997) find that, contrary to their expectations, auditors’ industry-specific experience is not significantly associated with their audit risk assessments and budgeted hours for the error-embedded, industry-specific accounts. Taylor (2000) finds that auditors with less bank audit experience assess inherent risk generally higher than auditors with greater bank audit experience, and that the difference is greater for bank-specific accounts than for generic accounts. However, Taylor (2000) does not examine or discuss whether the industry specialists’ lower risk assessments are driven by or consistent with the risk factors in the audit case.

To test the proposition that auditors’ knowledge of the client’s industry improves auditors’ ability to discern audit risks (formally presented below), I employ two hypothetical audit cases with embedded industry-specific information that signal different audit risk levels (higher versus lower). As part of the audit-risk-level manipulation, I also provide auditor-participants with a subordinate’s risk assessment that is, unknown to the participants, incorrect (i.e., the subordinate’s risk assessment is lower in the higher-risk case than the lower-risk case). Prior studies in psychology and auditing find that when initial anchors are available, individuals make their judgments by adjusting from the initial anchors but these adjustments are generally inadequate (Slovic and Lichtenstein 1971; Tversky and Kahneman 1974; Smith and Kida 1991). Thus, the subordinate’s risk assessments are likely
to influence the participants’ risk assessments, but the strength of the anchor’s influence is likely to depend on whether the participants realize that the subordinate’s risk assessments are incorrect. Industry-matched auditors, possessing greater knowledge of the client’s industry, are likely to recognize the industry-specific information indicative of higher or lower audit risk and realize that the subordinate’s risk assessments are incorrect. On the other hand, industry-mismatched auditors who lack knowledge of the client’s industry are expected to anchor on the subordinate’s incorrect risk assessments and fail to adequately adjust their risk assessments to the industry-specific information indicative of higher or lower audit risk.

**H1:** Industry-matched auditors better discern audit risks of a higher-risk engagement and a lower-risk engagement than do industry-mismatched auditors.

In practice, when designing the audit programs for an engagement, auditors either develop the audit programs on their own or rely on standard audit programs adopted by their firms and/or prior years’ audit programs (i.e., inherited audit programs). In this study, I examine the changes auditors make to an inherited audit program and time budget. I provide the participants with a set of planned audit procedures, including the assigned auditor-rank level and budgeted hours for each audit procedure, which is described as developed by a subordinate from the prior year’s audit.

When customizing inherited audit programs and time budgets to a client’s current circumstances, auditors generally can make three kinds of changes: procedure-changes, staff-changes, and/or hour-changes. A procedure-change involves modifications to the planned audit procedures, which can take the form of adding new procedures, replacing planned procedures, deleting planned procedures, and changing sample sizes of planned procedures. A staff-change involves changes to the assigned staff level without any change in the planned procedures. The assigned staff level may be substituted with more or less senior staff level. Finally, an hour-change involves changes to the budgeted audit hours without any change in the planned procedures and assigned staff level.

Of these three changes, a procedure-change is more heavily reliant on auditors’ (auditing) knowledge of the client’s industry than either a staff-change or an hour-change. This greater knowledge dependency is because in addition to potential changes to the assigned staff level and budgeted hours, the auditor must specify the nature, timing, and/or extent of planned audit procedures. To be able to do this, an auditor must have an appreciation of the audit tests that should or could be performed for a client in a specific industry. Consequently, I posit that industry-matched auditors, possessing more extensive (auditing) knowledge of the client’s industry, have greater ability than do industry-mismatched auditors to make procedure-changes when customizing inherited audit programs.

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4 I use the term “industry-matched auditors” to refer to auditors whose industry specialization matches the client’s industry, and the term “industry-mismatched auditors” to refer to auditors whose industry specialization does not match the client’s industry.

5 By providing participants with a common audit program and time budget (as opposed to participants developing audit program and time budget on their own), and observing the changes that participants make to the provided audit program and time budget, I am better able to track and identify the differences in participants’ audit-planning decisions associated with their industry specialization. However, modifying an inherited audit program and time budget is probably less difficult than developing an audit program and time budget from scratch. Thus, my approach is likely to weaken and bias against my ability to detect audit-planning differences between auditors of different industry specializations.
H2: Industry-matched auditors make more procedure-changes than do industry-mismatched auditors.

When customizing inherited audit programs and time budgets to a client’s current circumstances, auditors are generally concerned not only with audit effectiveness, but also with audit efficiency. Auditors will want to minimize any perceived inefficiency in the planned audit procedures and time budgets. However, perceived inefficiencies in the planned audit procedures and time budgets are likely to be inversely related to the auditors’ risk assessments because as audit risk increases, more audit work generally is required. Thus, ceteris paribus, the higher the assessed audit risks, the lower the assessed inefficiencies in the planned audit procedures and time budgets.

Audit procedures, however, vary in their effectiveness and importance in addressing audit risk. For auditors to make procedure-changes, staff-changes, and hour-changes that are sensitive to their audit risk assessments (i.e., more audit resources are assigned as perceived audit risk increases), they need to evaluate the audit risks as well as the relevant audit procedures to address the risks. Both steps require auditors to possess extensive (business-environment and auditing) knowledge of the client’s industry. Consequently, I posit that industry-matched auditors’ procedure-changes, staff-changes, and hour-changes are more sensitive to their risk assessments than are those of industry-mismatched auditors.

H3: Industry-matched auditors’ procedure-changes, staff-changes, and/or hour-changes are more sensitive to their audit risk assessments than are those of industry-mismatched auditors.

Industry-matched auditors’ more extensive knowledge of the client’s industry not only enables them to better assess audit risks, but also to better decide when and where it is suitable to make procedure-changes, staff-changes, and/or hour-changes. For instance, industry-matched auditors should better understand how to modify planned audit procedures, what level of audit staff possesses the required skills and knowledge, as well as the amount of time required for performing the planned audit procedures. In addition, industry-matched auditors should better understand the mix or combination of audit tests and audit resources (staff level and hours) to address the risks associated with an audit engagement. As a result, the quality of industry-matched auditors’ final audit programs and time budgets also is likely to be better than that of industry-mismatched auditors. For the purposes of this study, industry experts from the participating firm will judge the quality of the participants’ audit procedure changes, final audit programs and time budgets based on the given audit engagement’s underlying circumstances and risks.

H4: The perceived quality of industry-matched auditors’ procedure-changes, staff-changes, hour-changes, final audit programs, and/or final time budgets is higher than that of industry-mismatched auditors.

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6 Efficiency refers to the achievement of desired objectives with a minimum expenditure of resources. Inefficiency, therefore, is an excess employment of resources (i.e., beyond the minimum needed) to achieve desired objectives. In the context of my study, inefficiency refers to the extent of redundancy in the planned audit procedures, the assigned staff level, and the budgeted hours to conduct a proper audit.

7 The focus in H4 is on the perceived quality of auditors’ audit procedures, final audit programs, and final time budgets in addressing the audit risks underlying an audit engagement. On the other hand, H3 focuses on the sensitivity of auditors’ planning decisions to their risk assessments per se (rather than the underlying audit risks of an audit engagement).
III. RESEARCH METHOD

Participants

Participants are 98 supervising audit seniors from a then Big 5 firm recruited at two in-house training sessions. I use the participating audit firm’s industry designation of its auditors as the basis for determining participants’ industry specialization. Given that the audit case used in the study is set in the banking industry, there are 36 industry-matched auditors who are firm-designated bank specialist auditors. The remaining 62 participants are classified as industry-mismatched auditors. They are firm-designated specialist auditors in industries other than the banking industry (such as real estate, healthcare, consumer and industrial markets, information, communication and entertainment, and manufacturing, retail, and distribution).

The industry-matched participants do not differ significantly from the industry-mismatched participants in the terms of total audit experience (37.81 versus 40.00 months, \( p = 0.312 \)), industry specialization designation (27.25 versus 31.39 months, \( p = 0.119 \)), and audit experience in their industries of specialization (30.86 versus 32.58 months, \( p = 0.487 \)). The industry-matched participants spent a significantly greater percentage of their audit time in the preceding three years on banking clients (such as commercial banks, mortgage banks, credit unions, thrifts, and savings and loans institutions) than did the industry-mismatched participants (73.39 versus 2.87 percent, \( p = 0.000 \)). The above results are similar for both versions of the audit case (i.e., the higher-risk case and the lower-risk case).

Materials

The experimental materials include an audit case that contains background information on a bank-client and some financial information relating to the client’s loan portfolio.\(^8\) The case also contains a set of planned audit procedures and the related time budget for the client’s loan portfolio.\(^9\) The time budget reveals that the total budgeted cost exceeded the total projected audit fee. The total projected audit fee is set at 65 percent of the total budgeted cost. From discussions with senior bank audit managers, 65 percent is deemed to be sufficiently low to cause participating auditors to be concerned with the engagement’s efficiency, but not so low that the engagement is perceived to be an impossible undertaking. The participating firm’s realization percentage for audits (including bank audits) ranges from 50 percent to 90 percent. In addition, the audit case states that the audit engagement partner is concerned with the potential budget overrun and that the partner believes that the engagement efficiency can be improved. The time budget deficit and the partner’s concern are meant to reinforce participants’ concern for audit efficiency in addition to effectiveness when finalizing the audit program and time budget.

\(^8\) The general instructions of the experimental materials included an accountability requirement to ensure that the participants took the experimental tasks seriously. Participants were asked to print their name and business contact and were instructed that a professional from their firm would review their responses. They were told that a random sample of their responses would be selected. If they were selected, then they would be contacted concerning their responses. After the experiment, ten participants (10 percent) were randomly selected and provided with the summarized responses of their own and their treatment group.

\(^9\) The assigned staff level and budgeted hours were also specified for each audit procedure, which added up to the total budgeted hours for each staff level in the time budget provided in the case. The budgeted hours are converted into budgeted costs at the hourly billing rate of the respective staff levels. The budgeted hours for the preliminary audit procedures are based on two senior bank audit managers’ estimates for a bank of a size similar to the hypothetical bank in the case. The budgeted hour estimates were inflated by an average of 10 percent to allow for some slack.
There are two versions of the audit case. The two versions are identical except for some industry-specific information on the loan portfolio, which I manipulate between participants to achieve differential audit risk levels (higher versus lower). The industry-specific information as well as the audit procedures and the time budget presented in the case were developed in consultation with two senior bank audit managers. A summary of the industry-specific information used to achieve the differential audit risk levels is presented in the Appendix.

As part of the risk manipulation, the case information includes a subordinate’s risk assessment that is, unknown to the participants, in a direction opposite to the manipulated risk level of the case (i.e., incorrect). The subordinate’s risk assessment is lower in the higher-risk case than in the lower-risk case. The subordinate’s risk assessment is stated as 3.5 on a scale from 0 (very low risk) to 10 (very high risk) in the higher-risk case and 7.5 in the lower-risk case. I expect industry-matched auditors to rely more on their knowledge of the client’s industry than on the subordinate’s risk assessment when assessing audit risk. Industry-matched auditors’ knowledge of the client’s industry would enable them to recognize whether the industry-specific information indicates a higher or lower audit risk level. On the other hand, industry-mismatched auditors are more likely to be influenced by the subordinate’s risk assessment as they lack the relevant knowledge of the client’s industry to assess audit risk. As a result, industry-matched (industry-mismatched) auditors’ risk assessments are likely to be higher (lower) for the higher-risk case than the lower-risk case.

Procedure

I randomly assigned the participants to complete either the higher-risk case or the lower-risk case. I first presented the participants with background and financial information in the audit case and asked them to assess the audit risk that the client’s current net loan balance was significantly misstated on an 11-point scale. After that, I presented the participants with a list of the audit procedures and the related time budget for the client’s loan portfolio, and asked them to finalize the audit procedures and the time budget.

An independent coder (with five years of audit experience) and I coded the participants’ changes to the planned audit procedures into procedure-changes, staff-changes, and hour-changes. The independent coder had no knowledge of the hypotheses. Both coders were blind to the participants’ treatment condition and identity during the coding. Kappa (interrater agreement) coefficient for the coding of the participants’ changes into procedure-changes, staff-changes, and hour-changes was 0.94 (p = 0.000). Coding disagreements were resolved through discussion. I also compiled the final time budget for each participant based on the participant’s final audit program, which included the planned audit procedures that were not modified as well as those that the participant modified.

Two senior bank audit managers and two bank audit partners who were not involved in the audit case development independently assessed the quality of each participant’s audit

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10 The presence of initial audit anchors (such as the subordinate’s risk assessment, preliminary audit program, and budget depicted in the study) is not uncommon in practice. The initial anchors may come from members of the engagement team or prior year working papers. In the study, the initial anchors serve two specific purposes. One, they provide all of the participants within each risk condition with a common starting point, which allows me to better detect relative performance differences between industry-matched and industry-mismatched auditors. Two, initial audit anchors may or may not be correct. When initial anchors are available, incorrect anchors pose greater threats to the audit than correct anchors as prior literature finds that individuals often make inadequate adjustments from initial anchors. Thus, the positive effect of industry specialization, if any, is more beneficial and critical in situations where initial anchors are incorrect than correct. The incorrect initial anchors in the study, therefore, create an interesting and important context for investigating industry specialization effects.

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procedure changes, final audit programs, and final time budgets using an 11-point scale. The four assessors had average bank audit experience of 148.5 months. The assessors were not aware of the participants' actual identities and industry specialization (i.e., whether the participants were industry-matched or industry-mismatched). The transcribed participants' responses were randomly ordered for the assessment.

The assessors were instructed to exercise their review skills and knowledge just as they would normally do in practice. I asked the assessors to identify the considerations that they took into account in their quality ratings after they had completed some trial assessments. The identified considerations generally suggested that the assessors were concerned with the impact of the participants' audit procedure changes, final audit program, and final time budget on the audit engagement's effectiveness and efficiency.

For the quality ratings, I organized the four assessors into two groups. Each group consisted of a senior bank audit manager and a senior bank audit partner. One group of assessors judged the participants' transcribed responses for the higher-risk case and the other group judged the participants' transcribed responses for the lower-risk case. While the review arrangement confounded audit case risk level with assessor group, it was selected to minimize the review task complexity and the individual time commitments of the assessors, who were very senior industry auditors from the participating firm. To address the impact of confounding audit case risk level with assessor group on the assessors' quality ratings, I performed two additional analyses. One analysis involved standardizing the raters' quality ratings and the other involved conducting independent-samples t-tests within each audit case risk level. The results are reported in Section IV.

IV. ANALYSIS AND RESULTS

Participants' Audit Risk Assessments

In H1, I predict that industry-matched auditors better discern audit risks of a higher-risk engagement and a lower-risk engagement than do industry-mismatched auditors. The results of an ANOVA with the participants' audit risk assessments as dependent variable and industry specialization (matched versus mismatched) and audit case (higher-risk versus lower-risk) as independent variables reveal a significant industry specialization by audit case interaction ($F_{1, 197} = 18.67, p = 0.000$, Panel B of Table 1).

The industry-matched (industry-mismatched) participants' mean audit risk assessments for the higher-risk case and the lower-risk case are 5.55 (4.41) and 4.37 (5.60), respectively (Panel A, Table 1). The industry-matched (industry-mismatched) participants' average audit risk assessment for the higher-risk case is higher (lower) than for the lower-risk case (Panel C, Table 1). Thus, the results support H1 and suggest that industry-matched auditors are better than industry-mismatched auditors at discerning differential audit risk levels using industry-specific information.

Participants' Changes to Planned Audit Procedures

The participants' changes to the planned audit procedures are classified into procedure-changes, staff-changes, and hour-changes. I measure the extent of each of these changes in terms of the change in initial budgeted cost.\footnote{In the paper, I report only the budgeted cost changes to avoid cluttering. Results of the analyses reported in the paper are qualitatively the same using budgeted staff hour changes as the dependent measure, but some of the results are statistically weaker using the number of times that changes are made.} Table 2 shows the change in budgeted cost associated with the three types of changes made by the participants to the planned audit procedures. Note that, on average, the participants' changes to the planned audit procedures

\[\text{The Accounting Review, January 2004}\]
TABLE 1
Effects of Auditors’ Industry Specialization on Audit Risk Assessments

Panel A: The Participants’ Mean Audit Risk Assessments (standard deviations in parentheses)*

<table>
<thead>
<tr>
<th>Industry-Matched Participants</th>
<th>Industry-Mismatched Participants</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher-risk case</td>
<td>5.55 (1.19)</td>
<td>4.84 (1.32)</td>
</tr>
<tr>
<td>n = 19</td>
<td>n = 31</td>
<td>n = 50</td>
</tr>
<tr>
<td>Lower-risk case</td>
<td>4.37 (0.92)</td>
<td>5.17 (1.51)</td>
</tr>
<tr>
<td>n = 17</td>
<td>n = 31</td>
<td>n = 48</td>
</tr>
<tr>
<td>Combined</td>
<td>4.99 (1.21)</td>
<td>5.00 (1.42)</td>
</tr>
<tr>
<td>n = 36</td>
<td>n = 62</td>
<td>n = 98</td>
</tr>
</tbody>
</table>

Panel B: ANOVA of the Participants’ Audit Risk Assessments

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>F-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry specialization</td>
<td>1</td>
<td>0.032</td>
<td>0.858</td>
</tr>
<tr>
<td>Audit case</td>
<td>1</td>
<td>0.001</td>
<td>0.980</td>
</tr>
<tr>
<td>Industry specialization * Audit case</td>
<td>1</td>
<td>18.673</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Panel C: Graph of the Participants’ Mean Audit Risk Assessments

*Participants assessed audit risk on an 11-point scale with endpoints labeled 0 = very low and 10 = very high. Participants were told that a subordinate assessed audit risk as 3.5 on the 11-point scale in the higher-risk case and 7.5 in the lower-risk case.

result in reductions of the initial budgeted cost. The participants’ budgeted cost reductions suggest that the participants responded to the constrained time budget and the engagement partner’s concern with improving the engagement efficiency as stated in the case.

In H2, I posit that industry-matched auditors make more procedure-changes than do industry-mismatched auditors. The results of the ANCOVA with the participants’ cost reduction via procedure-changes as dependent variable, the participants’ audit risk assessments as covariate, and industry specialization and audit case as independent variables reveal only a significant main effect for industry specialization ($F_{1,97} = 4.015$, $p = 0.048$, Panel B of Table 2). On average, the industry-matched (industry-mismatched) participants’ procedure-changes reduce the budgeted cost by $2,444 ($1,750) (Panel A, Table 2). Thus, the results support H2.12

12 The participants’ procedure-changes can be further classified into replacement, deletion, and change of sample sizes of the planned procedures. On average, the industry-matched participants replace and delete planned procedures more but change sample sizes of planned procedures less than the industry-mismatched participants ($696 versus $420 for replacement of planned procedures, $920 versus $496 for deletion of planned procedures, (continued on page 211)
### Table 2
Effects of Auditors’ Industry Specialization on Audit Procedure Changes

**Panel A: The Participants’ Changes to the Planned Audit Procedures (standard deviations in parentheses)**

<table>
<thead>
<tr>
<th>Source</th>
<th>Industry-Matched Participants</th>
<th>Industry-Mismatched Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Higher-Risk (n = 19)</td>
<td>Lower-Risk (n = 17)</td>
</tr>
<tr>
<td></td>
<td>Higher-Risk (n = 31)</td>
<td>Lower-Risk (n = 31)</td>
</tr>
<tr>
<td>Mean Budgeted Cost Change ($)</td>
<td>-2272 (1824)</td>
<td>-2635 (2140)</td>
</tr>
<tr>
<td>Procedure-changes *</td>
<td>-1794 (1675)</td>
<td>-1706 (1194)</td>
</tr>
<tr>
<td>Staff-changes **</td>
<td>-239 (1113)</td>
<td>-915 (928)</td>
</tr>
<tr>
<td>Hour-changes ***</td>
<td>-1863 (2079)</td>
<td>-2780 (2142)</td>
</tr>
<tr>
<td>Total changes</td>
<td>-4374 (2737)</td>
<td>-6330 (2764)</td>
</tr>
</tbody>
</table>

**Panel B: ANCOVA of the Participants’ Procedure-Changes**

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>F-Value (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit risk assessment (covariate)</td>
<td>1</td>
<td>2.604 (0.110)</td>
</tr>
<tr>
<td>Industry specialization</td>
<td>1</td>
<td>4.015 (0.048)</td>
</tr>
<tr>
<td>Audit case</td>
<td>1</td>
<td>0.160 (0.690)</td>
</tr>
<tr>
<td>Industry specialization * Audit case</td>
<td>1</td>
<td>0.004 (0.952)</td>
</tr>
</tbody>
</table>

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*Procedure-changes refer to modifications made by the participants to the planned audit procedures such as addition of new procedures, replacement of planned procedures, deletion of planned procedures, and change of sample sizes of planned procedures.

**Staff-changes refer to changes made by the participants to the assigned staff level without any change in the planned procedures. The assigned staff level may be substituted with either more or less senior staff level.

***Hour-changes refer to changes made by the participants to the budgeted audit hours without any change in the planned procedures and assigned staff level.
Additional ANOVA with the participants’ cost reduction via staff-changes or hour-changes as dependent variable and industry specialization and audit case as independent variables reveal no significant main or interaction effect.\(^{13}\) On the other hand, ANOVA with the participants’ total cost reduction via procedure-changes, staff-changes, and hour-changes as dependent variable and industry specialization and audit case as independent variables reveal an interaction effect significant at \(p = 0.091\) (\(F_{1, 97} = 2.915\)). Follow-up analyses reveal that the industry-matched participants’ total cost reduction is significantly greater for the lower-risk case ($6,330) than the higher-risk case ($4,374) (t = 2.13, two-tailed \(p = 0.04\)). However, there is no significant difference in the industry-mismatched participants’ total cost reduction for the higher-risk case ($4,752) and the lower-risk case ($4,483) (t = 0.374, two-tailed \(p = 0.748\)).

Further analyses reveal that the industry-matched participants make significantly more procedure-changes ($2,444) than staff-changes ($558) (t = 4.930, \(p = 0.000\)). The industry-matched participants also make more procedure-changes ($2,444) than hour-changes ($2,297), but the difference is not significant (t = 0.275, \(p = 0.393\)). Like the industry-matched participants, the industry-mismatched participants make significantly more procedure-changes ($1,750) than staff-changes ($542) (t = 4.722, \(p = 0.000\)). However, the industry-mismatched participants make more hour-changes ($2,325) than procedure-changes ($1,750) and the difference is significant at \(p = 0.054\) (t = 1.637). The latter result is consistent with the explanation that industry-mismatched auditors lack relevant knowledge of the client’s industry, which inhibits their ability to make procedure-changes. Overall, the results suggest that auditors’ knowledge of the client’s industry affects the manner and the extent to which auditors change planned audit procedures.

**Sensitivity of the Participants’ Audit Procedure Changes to Their Audit Risk Assessments**

I predict in H3 that the sensitivity of auditors’ audit procedure changes to their audit risk assessments is greater for industry-matched auditors than for industry-mismatched auditors. To test the hypothesis, I first regress all the participants’ total cost reductions (i.e., the sum of cost reductions via procedure-changes, staff-changes, and hour-changes) on their industry specialization (a dummy variable), their risk assessments, and the interaction term between the participants’ industry specialization and their audit risk assessment. The regression results reveal that the interaction between audit risk assessment and industry specialization is significant at \(p = 0.080\).

Next, I regress the industry-matched participants’ total cost reductions on their audit risk assessments. The industry-matched participants’ total cost reductions are associated with their audit risk assessments (\(\beta\) coefficient = −978.46, \(p = 0.013\)). The association is negative, which implies that the industry-matched participants reduce the total cost by smaller amounts as their audit risk assessments increase. On the other hand, the regression

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Footnote 12, continued and $828 versus $834 for change of planned procedure sample sizes). The results of a MANOVA with the participants’ cost reduction via the three types of procedure-changes as multiple dependent variables, and industry specialization and audit case as independent variables reveal a main effect of industry specialization, significant at \(p = 0.098\). The other main and interaction effects are not significant (\(p > 0.345\)). Only the univariate ANOVA with the participants’ cost reduction via deletion of planned procedures as dependent variable, and industry specialization and audit case as independent variables reveal a main effect of industry specialization significant at \(p = 0.077\). The other main and interaction effects are not significant (\(p > 0.111\)).

\(^{13}\) A MANOVA with the participants’ cost reduction via procedure-changes, staff-changes, and hour-changes as multiple dependent variables, and industry specialization and audit case as independent variables reveals no significant main or interaction effect (\(p > 0.263\)).
of the industry-mismatched participants’ total cost reductions on their audit risk assessments reveal no significant association between their total cost reductions and their audit risk assessments (β coefficient = −89.69, p = 0.745). Thus, industry-matched auditors’ total cost reductions are sensitive to their audit risk assessments, but industry-mismatched auditors’ total cost reductions are not risk-sensitive (consistent with H3).

I repeat the above two-stage regression analyses for each type of audit procedure change (i.e., procedure-changes, staff-changes, and hour-changes) made by the participants. The first-stage regression results reveal a significant interaction between audit risk assessment and industry specialization for procedure-changes and staff-changes (p ≤ 0.08), but not for hour-changes (p = 0.976).

The second-stage regression results reveal that the industry-matched participants’ cost reductions via procedure-changes (β coefficient = −506.15, p = 0.063) and staff-changes (β coefficient = −289.84, p = 0.051) are associated with their audit risk assessments. The industry-matched participants make fewer procedure-changes and staff-changes as their audit risk assessments increase. On the other hand, the industry-matched participants’ cost reductions via hour-changes are not significantly associated with their audit risk assessments (β coefficient = −182.47, p = 0.547).

The second-stage regression results reveal that the industry-mismatched participants’ cost reductions from procedure-changes (β coefficient = −92.18, p = 0.449), staff-changes (β coefficient = 196.04, p = 0.138), and hour-changes (β coefficient = −193.55, p = 0.313) do not vary significantly with their audit risk assessments. The above results indicate that industry-matched auditors’ procedure-changes and staff-changes are more sensitive to their audit risk assessments than those of industry-mismatched auditors. However, both industry-matched and industry-mismatched auditors’ hour-changes are not sensitive to their audit risk assessments. Thus, H3 is supported only for procedure-changes and staff-changes but not for hour-changes.

**Perceived Quality of the Participants’ Audit-Planning Decisions**

In H4, I hypothesize that the quality of industry-matched auditors’ audit procedure changes, final audit programs, and final time budgets, as perceived by industry experts, is higher than that of industry-mismatched auditors. Panel B of Table 3 presents the ANCOVA results with the average of the assessors’ quality ratings of the participants’ audit procedure changes, final audit program, and final time budget as dependent variables, the participants’ audit risk assessments as covariate, and industry specialization and audit case as independent variables. Panel A of Table 3 reveals that the mean assessors’ quality ratings of the industry-matched participants’ audit procedure changes, final audit programs, and final time budgets are higher than those of the industry-mismatched participants for both the higher-risk and lower-risk cases. The results also show that the mean assessors’ quality ratings are generally higher for the higher-risk case than for the lower-risk case. Panel B of Table 3 indicates that the main effects of industry specialization (p < 0.016) and unexpectedly, audit case (p < 0.000), are significant for the participants’ audit procedure changes, final audit programs, and final time budgets.

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14 I include the participants’ audit risk assessments as covariate because the assessors are provided with the participants’ risk assessments. Thus, the participants’ risk assessments could have affected the assessors’ evaluations. Informing the assessors of the participants’ risk assessments is consistent with practice because audit partners and/or managers normally would be cognizant of their subordinates’ risk assessments from the audit work paper documentation.
### Table 3
Effects of Auditors' Industry Specialization on Audit Planning Quality (Raw Ratings)

#### Panel A: Average Quality Ratings of the Participants' Audit Procedure Changes, Final Audit Programs, and Final Time Budgets (standard deviations in parentheses)a

<table>
<thead>
<tr>
<th>Industry-Matched Participants</th>
<th>Industry-Mismatched Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Higher-Risk</td>
</tr>
<tr>
<td>Mean Quality Ratings</td>
<td></td>
</tr>
<tr>
<td>Procedure-changesb</td>
<td>7.079 (1.042)</td>
</tr>
<tr>
<td>Staff-changesc</td>
<td>7.187 (0.758)</td>
</tr>
<tr>
<td>Hour-changesd</td>
<td>7.096 (0.851)</td>
</tr>
<tr>
<td>Final audit programs</td>
<td>7.553 (0.643)</td>
</tr>
<tr>
<td>Final time budgets</td>
<td>7.737 (0.510)</td>
</tr>
</tbody>
</table>

#### Panel B: ANCOVA of the Average Quality Ratings of the Participants' Audit Procedure Changes, Final Audit Programs, and Final Time Budgets

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>Procedure-Changes</th>
<th>Staff-Changes</th>
<th>Hour-Changes</th>
<th>Final Audit Programs</th>
<th>Final Time Budgets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit risk assessment (covariate)</td>
<td>1</td>
<td>1.572 (0.211)</td>
<td>4.534 (0.034)</td>
<td>3.892 (0.049)</td>
<td>0.011 (0.916)</td>
<td>1.195 (0.277)</td>
</tr>
<tr>
<td>Industry specialization</td>
<td>1</td>
<td>8.221 (0.004)</td>
<td>5.855 (0.016)</td>
<td>9.962 (0.002)</td>
<td>7.934 (0.006)</td>
<td>12.42 (0.001)</td>
</tr>
<tr>
<td>Audit case</td>
<td>1</td>
<td>231.3 (0.000)</td>
<td>514.8 (0.000)</td>
<td>136.1 (0.000)</td>
<td>157.4 (0.000)</td>
<td>124.02 (0.000)</td>
</tr>
<tr>
<td>Industry specialization * Audit case</td>
<td>1</td>
<td>0.306 (0.581)</td>
<td>0.189 (0.664)</td>
<td>1.203 (0.273)</td>
<td>0.026 (0.873)</td>
<td>0.653 (0.421)</td>
</tr>
</tbody>
</table>

a The assessors rated the quality of the participants' audit procedure changes, final audit programs, and final time budgets on an 11-point scale with endpoints labeled as 0 = Not appropriate at all and 10 = Most appropriate.
b Procedure-changes refer to modifications made by the participants to the planned audit procedures such as addition of new procedures, replacement of planned procedures, deletion of planned procedures, and change in sample sizes of planned procedures.
c Staff-changes refer to changes made by the participants to the assigned staff level without any change in the planned procedures. The assigned staff level may be substituted with either more or less senior staff level.
d Hour-changes refer to changes made by the participants to the budgeted audit hours without any change in the planned procedures and assigned staff level.
As noted in Section III, audit case risk level is confounded with assessor group in the quality-rating task because one group of assessors is assigned to judge the quality of participants’ responses to the higher-risk case and another group is assigned to the lower-risk case. To address the issue of audit case risk level being confounded with assessor group, I perform two additional analyses.

One, to minimize assessor-specific impacts, I standardize the individual assessors’ quality ratings for the audit procedure changes, the final audit programs, and the final time budgets by converting them into z-scores (Ferguson and Takane 1989, 479–489), and I reperform the earlier ANCOVAs using the average of assessors’ standardized quality ratings as dependent variable. The ANCOVA results with the average of assessors’ standardized quality ratings as dependent variable reveal only significant main effects of industry specialization (p < 0.094, Panel B of Table 4) in the direction predicted by H3. The main effects of audit case are no longer significant (p > 0.334, Panel B of Table 4). The results thus support H3.

Two, I perform independent-samples t-tests on the average of assessors’ quality ratings within each risk level. Within each risk level, the assessor group is held constant. For the higher-risk case, the means of the assessors’ quality ratings are higher for the industry-matched participants’ procedure-changes (p = 0.000), staff-changes (p = 0.016), hour-changes (p = 0.244), final audit programs (p = 0.017), and final time budgets (p = 0.012) than for those of the industry-mismatched participants. For the lower-risk case, the means of the assessors’ quality ratings are higher for the industry-matched participants’ procedure-changes (p = 0.170), staff-changes (p = 0.021), hour-changes (p = 0.003), final audit programs (p = 0.026), and final time budgets (p = 0.005) than for those of the industry-mismatched participants.15 Thus, the results within each audit risk level are also consistent with H3.

V. CONCLUDING COMMENTS

In this study, I seek to contribute to the extant research on auditors’ industry experience and/or specialization by investigating whether and how industry specialization affects auditors’ performance. More specifically, I examine the effects of auditors’ industry specialization on their audit risk assessments and planning decisions as well as the moderating effect of auditors’ industry specialization on the sensitivity of auditors’ planning decisions to their audit risk assessments.

The study results suggest that auditors’ knowledge of the client’s industry enables them to better assess the audit risks associated with a client. I find that industry-matched auditors discern differential audit risk levels better than do industry-mismatched auditors, which implies that industry-matched auditors can better identify areas requiring greater audit attention and resources when making audit-planning decisions.

The results also suggest that auditors’ knowledge of the client’s industry influences their planning decisions in three ways. One, auditors’ knowledge of the client’s industry directly affects the manner in which auditors modify inherited audit procedures. I find that industry-matched auditors make more procedure-changes than industry-mismatched auditors. On the other hand, industry-mismatched auditors make more hour-changes than procedure-changes. While some reduction of budgeted hours via hour-changes may not affect audit quality, extensive reduction of budgeted hours via hour-changes is likely to increase the time-stress experienced by audit staff during fieldwork and the propensity of

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15 The results of independent-samples t-tests on the average of the assessors’ standardized quality ratings within each risk level are qualitatively similar.
### TABLE 4
Effects of Auditors' Industry Specialization on Audit Planning Quality (Standardized Ratings)

**Panel A: Average Standardized Quality Ratings of the Participants' Audit Procedure Changes, Final Audit Programs, and Final Time Budgets (standard deviations in parentheses)**

<table>
<thead>
<tr>
<th>Industry-Matched Participants</th>
<th>Industry-Mismatched Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Higher-Risk</td>
</tr>
<tr>
<td>Mean Standardized Ratings</td>
<td></td>
</tr>
<tr>
<td>Procedure-changes&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.132 (0.779)</td>
</tr>
<tr>
<td>Staff-changes&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.077 (0.575)</td>
</tr>
<tr>
<td>Hour-changes&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.083 (0.638)</td>
</tr>
<tr>
<td>Final audit programs</td>
<td>0.141 (0.662)</td>
</tr>
<tr>
<td>Final time budgets</td>
<td>0.322 (0.519)</td>
</tr>
</tbody>
</table>

**Panel B: ANCOVA of the Average Standardized Quality Ratings of the Participants' Audit Procedure Changes, Final Audit Programs, and Final Time Budgets**

<table>
<thead>
<tr>
<th>Source</th>
<th>Degree of Freedom</th>
<th>Procedure-Changes</th>
<th>Staff-Changes</th>
<th>Hour-Changes</th>
<th>Final Audit Programs</th>
<th>Final Time Budgets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit risk assessment (covariate)</td>
<td>1</td>
<td>1.042 (0.308)</td>
<td>0.862 (0.354)</td>
<td>1.110 (0.293)</td>
<td>0.295 (0.588)</td>
<td>0.916 (0.341)</td>
</tr>
<tr>
<td>Industry specialization</td>
<td>1</td>
<td>7.539 (0.006)</td>
<td>2.822 (0.094)</td>
<td>8.984 (0.003)</td>
<td>7.283 (0.008)</td>
<td>13.408 (0.000)</td>
</tr>
<tr>
<td>Audit case</td>
<td>1</td>
<td>0.142 (0.706)</td>
<td>0.454 (0.501)</td>
<td>0.306 (0.580)</td>
<td>0.944 (0.334)</td>
<td>0.038 (0.846)</td>
</tr>
<tr>
<td>Industry specialization * Audit case</td>
<td>1</td>
<td>1.357 (0.245)</td>
<td>0.209 (0.648)</td>
<td>0.078 (0.781)</td>
<td>0.006 (0.938)</td>
<td>0.003 (0.956)</td>
</tr>
</tbody>
</table>

<sup>a</sup> The assessors rated the quality of the participants' audit procedure changes, final audit programs, and final time budgets on an 11-point scale with endpoints labeled as 0 = Not appropriate at all and 10 = Most appropriate. Each assessor's quality ratings of the participants' audit procedure changes, final audit programs, and final time budgets are then standardized (i.e., converted into z-scores).

<sup>b</sup> Procedure-changes refer to modifications made by the participants to the planned audit procedures such as addition of new procedures, replacement of planned procedures, deletion of planned procedures, and change of sample sizes of planned procedures.

<sup>c</sup> Staff-changes refer to changes made by the participants to the assigned staff level without any change in the planned procedures. The assigned staff level may be substituted with either more or less senior staff level.

<sup>d</sup> Hour-changes refer to changes made by the participants to the budgeted audit hours without any change in the planned procedures and assigned staff level.
audit staff to engage in adverse task behaviors like premature sign-off and underreporting of chargeable time (Alderman and Deitrick 1982; Ponemon 1992).

Two, auditors' knowledge of the client's industry not only directly affects the manner in which auditors modify inherited audit procedures, but also the quality of their audit procedure changes. Industry experts in the study judge the quality of the industry-matched participants' audit procedure changes, final audit programs, and final time budgets to be better than those of the industry-mismatched participants based on the impact of the participants' planning decisions on the audit engagement's effectiveness and efficiency.

Three, auditors' knowledge of the client's industry affects the risk-sensitivity of auditors' planning decisions. I find that industry-matched auditors' final budgeted costs are greater for engagements with higher rather than lower underlying audit risks. On the other hand, industry-mismatched auditors' final budgeted costs do not differ significantly for engagements of differential audit risk levels. I also find that the extent of industry-matched auditors' changes to planned audit procedures (except for their hour-changes) is sensitive to their audit risk assessments, while the extent of industry-mismatched auditors' changes to planned audit procedures is not sensitive to their audit risk assessments. These findings, together with the earlier finding on auditors' ability to discern differential audit risk levels, suggest that auditors' knowledge of the client's industry is crucial to their abilities to make more discerning audit risk assessments and risk-sensitive audit-resource allocation decisions. These abilities have important implications for audit efficiency and effectiveness because inappropriate audit risk assessments and resource allocation decisions will result in over- and/or under-auditing.

Another observation is that while neither the industry-matched auditors' nor the industry-mismatched auditors' hour-changes are sensitive to their audit risk assessments, industry experts judge the quality of the industry-matched auditors' hour-changes to be better than that of the industry-mismatched auditors. This suggests that budgeting more (fewer) hours as audit risk increases (decreases) alone is not necessarily appropriate in addressing audit risk. The key is to consider and modify (where necessary) the nature, assigned staff level, and/or budgeted hours of the planned audit procedures to address the perceived audit risk.

The study findings reveal that the industry-matched auditors reduce total costs even for the higher-risk case, which suggests that the industry-matched auditors may have succumbed to the influence of the partner's efficiency concern. However, other evidence from the study indicates that the industry-matched auditors are not merely reducing the budgeted costs without considering the level of audit risk. On average, the industry-matched auditors' total cost reductions for both the higher-risk and lower-risk cases ($4,374 and $6,330, respectively) do not adequately cover the estimated budgetary deficit ($8,697). Furthermore, the industry-matched auditors' total cost reductions are inversely related to the audit case risk levels, which imply that more audit resources are allocated at higher audit risk levels. Finally, the industry-matched auditors' average risk assessment for the higher-risk case is 5.55, which suggests that they assess audit risk to be moderate rather than high. Thus, the industry-matched auditors' total cost reductions in the higher-risk case do not seem to be inconsistent with their risk assessments. Note that the industry-matched auditors assess audit risk prior to becoming aware of the time budget deficit and the partner's efficiency concern.

The study has several limitations. For instance, the participants come from a single then Big 5 firm, and are mainly at the supervising-senior level. The study findings, thus, may be peculiar to the participating firm and the investigated auditor-rank. Further, the audit case is set in a particular industry (banking). Consequently, I am not able to rule out alternative hypotheses. For example, auditors specializing in the banking industry may respond differently to the 65 percent realization percentage used in the case or be more
adept to making procedure-changes than auditors specializing in other industries. However, nothing has come to my attention during the development, pretests, and tests of the study that would suggest that the working practices of participating auditors from different industry specializations would cause a difference between industry groups in the experimental task.

In the study, the auditors are provided with a flawed subordinate’s risk assessment and a preliminary audit program and time budget. Future research can investigate the difference between industry-matched and industry-mismatched auditors' performance in assessing audit risks and developing audit procedures without the influence of either a flawed subordinate’s risk assessment, or a preliminary audit program and time budget.

In addition, the assessors (industry experts) evaluated the participants’ responses based on the presented case facts. Consequently, the assessors’ quality ratings may be influenced by how they perceive auditors should respond to those task demands rather than how auditors should ideally respond without considering the flawed subordinate’s risk assessments, the constrained time budget, and the partner’s efficiency concern. The assessors’ quality ratings may also be less than objective and biased by potential cues of the participants’ own industry specialization (such as the participants’ risk assessments). It is also unclear how the assessors weigh the trade-offs between effectiveness and efficiency in their evaluations of the participants’ responses. Future research can examine how industry specialists make these decisions and the factors that affect their decisions.

This study mainly focuses on the effects of auditors’ industry specialization on auditors’ planning decisions. Future research may investigate the effects of auditors’ industry specialization on auditors’ execution of audit programs or performance of other tasks such as fraud and error identification and detection. Future research may also investigate ways to improve the risk sensitivity of auditors’ planning decisions relating to hour-changes.

**APPENDIX**

**Summary of Industry-Specific Risk Information Embedded in the Audit Cases**

*For the Higher-Risk Case*

a. There is a large increase in the current loan balance (11.04 percent) and the increase is mainly in commercial loans.

b. The bank expanded into two new territories where it has not marketed before.

c. The gap between the bank’s average loan yield and the one-year Treasury bill yield has been increasing over the past three years. *

d. Delinquent loan rates have been increasing over the past three years, particularly for the larger components of the commercial loans. *

e. Over the past three years, credit losses have been increasing and credit recoveries have been decreasing, resulting in an increasing trend of net credit losses, particularly for the larger components of commercial loans (both in dollars and percentages of average loans outstanding). There is a large increase in provision for credit losses in the current year.*

f. Nonaccrual asset rates have been increasing over the past three years, particularly for the larger components of the commercial loans.*

g. Similarly, loans past due 90 days or more and still accruing interest have been increasing over the past 3 years.*

*The participants have to identify these trends on their own from the financial information provided in the audit case.
For the Lower-Risk Case

a. There is a large increase in the current loan balance (11.04 percent) and the increase is mainly in consumer loans.
b. The bank’s operations and its geographical market have not changed.
c. The gap between the bank’s average loan yield and the one-year Treasury bill yield has remained relatively stable in the past three years.*
d. Current delinquent loan rates have decreased compared to the prior two years, particularly for the consumer loan components.*
e. Over the past three years, credit losses have remained relatively stable while credit recoveries increase, resulting in lower current net credit losses, particularly for most of the loan components (both in dollars and percentages of average loans outstanding). The percentage change in provision for credit losses is relatively stable over the past three years.*
f. Nonaccrual asset rates have been either relatively stable or decreasing over the past three years, for most of the loan components.*
g. Loans past due 90 days or more and still accruing interest have been relatively stable over the past three years.*

*The participants have to identify these trends on their own from the financial information provided in the audit case.

REFERENCES


The Accounting Review, January 2004


