# Evaluating the Effects of Auditor Expertise on the Accuracy of Complex Financial Reporting Standards

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## 1 Introduction

The landscape of financial reporting has undergone significant transformation in recent decades, characterized by the proliferation of complex accounting standards that require substantial professional judgment in application. Standards such as ASC 606 (Revenue from Contracts with Customers) and ASC 842 (Leases) represent paradigmatic shifts from rules-based to principles-based accounting, demanding sophisticated interpretation and application by financial statement preparers and auditors alike. This evolution has raised critical questions about the capacity of auditing professionals to consistently apply these standards accurately, particularly given the cognitive demands inherent in interpreting principles-based guidance. While the auditing literature has extensively documented the importance of auditor expertise generally, the specific mechanisms through which expertise influences accuracy in complex standard application remain inadequately understood.

Our research addresses this gap by examining the cognitive foundations of auditor expertise in complex standard interpretation. Traditional audit quality research has relied predominantly on outcome-based measures and archival data, which while valuable, cannot illuminate the cognitive processes underlying professional judgment. We introduce an innovative methodological approach that bridges neuroscience and auditing research, employing functional near-infrared spectroscopy (fNIRS) to monitor neural activity during audit

judgment tasks. This interdisciplinary perspective allows us to move beyond correlational findings to identify the specific cognitive mechanisms that differentiate expert from novice performance in complex standard application.

The primary research questions guiding this investigation are: How does domain-specific expertise influence the accuracy of financial reporting under complex accounting standards? What cognitive processes distinguish expert auditors when interpreting ambiguous provisions in principles-based standards? To what extent do complexity thresholds moderate the relationship between expertise and accuracy? These questions are particularly timely given ongoing debates about accounting standard complexity and its implications for audit quality and financial reporting reliability.

Our findings contribute to multiple literatures. For auditing research, we provide novel evidence about the cognitive dimensions of expertise and their relationship to judgment accuracy. For standard setters, our results offer empirical grounding for discussions about standard complexity and implementation challenges. For audit practice, we identify specific conditions under which expertise provides diminishing returns, suggesting targeted interventions for training and quality control. By integrating neuroscientific methods with traditional audit experimentation, we demonstrate the value of interdisciplinary approaches to addressing persistent challenges in accounting and auditing.

# 2 Methodology

We employed a mixed-methods research design combining experimental tasks with neurophysiological measurements to examine the effects of auditor expertise on complex standard application. Our participant pool consisted of 120 actively practicing certified public accountants recruited from international audit firms, regional firms, and corporate accounting departments. Participants were stratified into three expertise groups based on a multidimensional assessment: domain specialists with significant experience in either revenue recognition

or lease accounting (n=40), generalist audit partners with broad experience but limited specialization in the target standards (n=40), and staff-level auditors with less than five years of experience (n=40).

The experimental protocol involved participants evaluating eight complex financial reporting scenarios while undergoing fNIRS monitoring. Four scenarios focused on revenue recognition under ASC 606, requiring judgments about performance obligations, variable consideration, and contract modifications. The remaining four scenarios addressed lease accounting under ASC 842, involving assessments of lease identification, lease term determination, and discount rate selection. Each scenario contained deliberate ambiguities and required interpretation of multiple intersecting standards, reflecting the complexity auditors encounter in practice.

The fNIRS system monitored hemodynamic responses in the prefrontal cortex, a brain region critically involved in complex decision-making and professional judgment. This technology allowed us to measure oxygenated and deoxygenated hemoglobin concentration changes during task performance, providing indicators of cognitive effort, conflict monitoring, and working memory engagement. Participants also provided think-aloud protocols during task completion, which were transcribed and coded for analytical strategies and problem-solving approaches.

Dependent variables included accuracy scores for each scenario (determined by comparison with expert panel consensus), decision time, confidence ratings, and neural activation patterns. We employed multivariate regression analyses to examine relationships between expertise measures and outcome variables, while controlling for factors such as firm size, general experience, and cognitive ability. Qualitative analysis of verbal protocols provided additional insight into the reasoning processes underlying quantitative findings.

This methodological approach represents a significant advance over prior audit judgment research by capturing both behavioral outcomes and the underlying cognitive processes in real time. The integration of neuroscientific measurements with traditional experimental

methods allows for a more comprehensive understanding of how expertise manifests in complex professional judgment contexts.

# 3 Results

Our analyses revealed several important patterns regarding the relationship between auditor expertise and accuracy in complex standard application. First, we found strong evidence that domain-specific expertise significantly enhances judgment accuracy. Domain specialists demonstrated markedly higher accuracy rates compared to both generalist partners and staff auditors across all scenarios. Specifically, in revenue recognition scenarios, specialists achieved mean accuracy of 78.3

The fNIRS data provided compelling insights into the cognitive mechanisms underlying these performance differences. Expert auditors displayed more efficient neural processing during task performance, characterized by focused activation in the dorsolateral prefrontal cortex associated with working memory and analytical reasoning. In contrast, less experienced auditors showed more diffuse activation patterns and greater recruitment of anterior cingulate cortex, suggesting higher cognitive conflict and uncertainty. These neural signatures were particularly pronounced in scenarios requiring interpretation of ambiguous provisions or integration of multiple standards.

Interestingly, our data revealed important boundary conditions for expertise benefits. When scenarios involved exceptionally high complexity—defined by the presence of more than three intersecting standards, significant interpretive ambiguity, or novel transaction structures—even domain specialists experienced substantial performance degradation. Under these conditions, specialist accuracy dropped to 52.7

Analysis of verbal protocols further illuminated the strategies employed by different expertise groups. Domain specialists consistently employed schema-based reasoning, rapidly identifying familiar patterns and applying established interpretive frameworks. They demon-

strated superior ability to distinguish relevant from irrelevant information and to prioritize key standard provisions. Generalist auditors more frequently relied on analogy and comparison to previous experiences, while staff auditors tended toward sequential, rule-based processing without effective integration of multiple considerations.

We also identified significant interactions between expertise type and standard characteristics. Domain specialists performed particularly well when scenarios fell squarely within their area of specialization, but showed less advantage when standards intersected with unfamiliar domains. This suggests that the benefits of expertise may be somewhat narrow rather than transferring broadly across different complex standards. Additionally, we found that the relationship between expertise and accuracy was moderated by time pressure, with expertise advantages diminishing under severe time constraints.

These results paint a nuanced picture of auditor expertise in complex standard application. While expertise clearly enhances accuracy, its benefits are constrained by complexity thresholds, domain specificity, and situational factors. The neural efficiency observed in experts suggests developed cognitive frameworks that facilitate processing of complex information, but these frameworks appear vulnerable to breakdown under extreme complexity or novel conditions.

# 4 Conclusion

This research provides novel insights into the relationship between auditor expertise and financial reporting accuracy under complex accounting standards. Our findings demonstrate that domain-specific expertise significantly enhances auditors' ability to accurately apply complex standards, but that this relationship is moderated by important boundary conditions. The cognitive efficiency observed in expert auditors, as evidenced by focused neural activation patterns, suggests developed mental models that facilitate interpretation of ambiguous provisions. However, these advantages diminish substantially when complexity

exceeds certain thresholds or when standards intersect with unfamiliar domains.

These results have important implications for multiple stakeholders. For audit firms, our findings suggest the value of targeted specialization in complex standards, but also highlight the limitations of expertise alone in ensuring accurate financial reporting. Firms may need to develop additional structural supports, such as specialized consultation networks or decision aids, particularly for engagements involving exceptionally complex or novel transactions. For standard setters, our results provide empirical evidence about implementation challenges associated with complex principles-based standards, potentially informing future standard-setting processes and implementation guidance.

The methodological innovations in this study—particularly the integration of neuroscientific measurements with traditional audit experimentation—open new avenues for auditing research. By examining the cognitive processes underlying professional judgment, we move beyond correlational findings to identify mechanisms through which expertise influences outcomes. Future research could extend this approach to other auditing contexts, such as fraud detection or going concern assessments, where professional judgment plays a critical role.

Several limitations should be acknowledged. Our experimental scenarios, while designed to reflect real-world complexity, cannot fully capture the contextual factors present in actual audit engagements. The laboratory setting, while necessary for controlled measurement, may lack the accountability pressures and review processes that influence auditor judgment in practice. Additionally, our participant pool, while diverse, may not fully represent the broader population of auditing professionals.

Despite these limitations, our findings make significant contributions to understanding how auditor expertise functions in an environment of increasing accounting complexity. The evidence that expertise benefits have boundary conditions challenges complacent assumptions that specialization alone will ensure audit quality. Instead, our results suggest the need for multifaceted approaches to enhancing financial reporting accuracy, including thoughtful standard design, structural support within audit firms, and continued development of pro-

fessional judgment capabilities.

Future research should explore interventions to enhance auditor performance in high-complexity conditions, examine how expertise develops over time, and investigate whether decision aids or collaborative processes can mitigate the performance degradation observed at complexity thresholds. The integration of cognitive science methods with auditing research promises to yield continued insights into the fundamental processes underlying audit quality and financial reporting reliability.

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