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Disclosure of tax-related critical audit matters and tax-related outcomes

Katharine D. Drake[1] | **Nathan C. Goldman**[2] | **Stephen J. Lusch**[3] | **Jaime J. Schmidt**[4]

[1]University of Arizona, Tucson, Arizona, USA

[2]North Carolina State University, Raleigh, North Carolina, USA

[3]Texas Christian University, Fort Worth, Texas, USA

[4]University of Texas at Austin, Austin, Texas, USA

Correspondence
Nathan C. Goldman, Poole College of Management, North Carolina State University, Raleigh, NC, USA.
Email: nathan.goldman@ncsu.edu

Abstract

Given that tax-related critical audit matters (tax CAMs) were prevalent among accelerated filers (18.5% of observations) during the initial year of CAM disclosures, we examine whether an auditor's disclosure of tax CAMs is associated with variation in tax-related financial reporting quality, tax avoidance, and tax-related earnings management. Finding an association between tax CAMs and one of these tax outcomes would indicate that the new auditor reporting standard has indirectly affected investors. Examining the first year of CAM disclosures, we do not find that tax CAMs are associated with broad proxies of tax-related audit or financial reporting quality (e.g., restatements, internal control weaknesses, comment letters) or tax avoidance (e.g., effective tax rates or book-to-tax differences). We do find that tax CAMs are associated with a modest increase in tax accrual quality, an increase in the reserve for unrecognized tax benefits, and a reduction in the likelihood of tax-related earnings management. However, we do not find these tax CAM effects persist into the second year of CAM reporting. Our evidence is consistent with tax CAM disclosures having a modest but short-lived effect on companies' reporting of tax accounts. Our findings should inform the PCAOB as they conduct their post-implementation review of the new audit reporting standard.

KEYWORDS

critical audit matters, expanded audit reports, financial reporting quality, tax avoidance, tax reporting, tax-related earnings management

Accepted by Miguel Minutti-Meza.

La divulgation des questions critiques de l'audit et des résultats liés à l'impôt

Résumé

Les auteurs se penchent sur les questions critiques de l'audit liées à l'impôt (QCA fiscales), récurrentes chez les déposants utilisant le processus accéléré (représentant 18,5 % des observations), lors de la première année de divulgation des QCA. Ils examinent si l'information fournie par un auditeur sur les QCA fiscales est associée à une variation de la qualité de l'information financière relative à l'impôt, à l'évitement fiscal et à la gestion du résultat lié à l'impôt. Un lien entre les QCA fiscales et l'un de ces résultats fiscaux indiquerait que la nouvelle norme de rapport d'audit a eu un effet indirect sur les investisseurs. En examinant la première année de divulgation des QCA, les auteurs ne trouvent pas de lien entre les QCA fiscales et les indicateurs à large échelle de la qualité de l'audit ou de l'information financière relative à l'impôt (tels que les retraitements, les faiblesses du contrôle interne ou les lettres de commentaire), ni avec l'évitement fiscal (par exemple les taux d'imposition effectifs ou les écarts entre les valeurs fiscales et les valeurs comptables). Toutefois, ils trouvent un lien entre les QCA fiscales et une légère amélioration de la qualité des documents comptables, une augmentation de la réserve calculée en fonction des avantages fiscaux incertains et la réduction de la probabilité de la gestion du résultat lié à l'impôt. Cependant, ils n'observent pas que les effets liés aux QCA fiscales persistent lors de la deuxième année de divulgation des QCA. Les données recueillies par les auteurs indiquent que les divulgations des QCA fiscales ont un effet modeste, mais temporaire sur les rapports fiscaux des entreprises. Ces résultats devraient informer la Commission de surveillance de la comptabilité des sociétés cotées en bourse lors de son examen de suivi des nouvelles normes de rapport d'audit.

MOTS-CLÉS

évitement fiscal, gestion du résultat lié à l'impôt, qualité de l'information financière, questions critiques de l'audit, rapports d'audit élaborés, rapports fiscaux

1 | INTRODUCTION

In 2017, the US PCAOB adopted a new audit standard (AS 3101), which expands the audit report by requiring auditors to disclose the areas of the audit that involved especially challenging, subjective, or complex auditor judgment—known as critical audit matters (CAMs).[1] While

[1]Expanded audit reports exist in other jurisdictions as well, most of which use the terminology "key audit matters" (KAMs). Even though some studies we reference focus on non-US settings, for ease of exposition, we use the verbiage CAMs throughout the manuscript. See Minutti-Meza (2021) for a discussion of similarities and differences between CAMs and KAMs.

the primary objective of AS 3101 was to make audit reports more informative to investors, the PCAOB suggested that a possible indirect benefit of CAM disclosures could be improved audit and financial reporting quality (PCAOB, 2017). If managers, auditors, and audit committees perceive CAM disclosures will increase the salience of the underlying accounting and attract external scrutiny by outside stakeholders, then they may focus more closely on the matters identified as CAMs. This attention could potentially alter the reporting of the accounts identified in the CAM disclosures. In this study, we perform an in-depth examination into whether disclosure of tax-related CAMs (hereafter, tax CAMs) is associated with various tax-related reporting outcomes, including tax financial reporting quality, tax avoidance, and tax-related earnings management.

Examining the outcomes of CAM disclosures is important because prior academic and regulator research in the United States and other countries indicates that expanded audit reports have fallen short of their primary objective to provide investors with incremental useful information (e.g., Burke et al., 2023; PCAOB, 2020a). Providing evidence that expanded audit reporting under AS 3101 has improved tax-related audit and financial reporting quality would inform the PCAOB that the new standard has achieved one of its indirect benefits in at least one reporting area. Providing such evidence is especially important given that the PCAOB's post-implementation review based on survey evidence found contradicting results. On the one hand, financial statement preparers who responded to the PCAOB indicated that CAMs minimally affected their internal procedures and did *not* affect their company disclosures. On the other hand, audit partners reported that companies did make changes to financial statement disclosures (PCAOB, 2020a, 2020b).

Our study also aims to better understand the mixed findings in the prior literature. Reid et al. (2019) find that expanded UK audit reports are associated with improvements in financial reporting quality as measured by discretionary accruals, a company's propensity to meet or beat consensus analysts' forecasts, and increases in the earnings response coefficient. However, Gutierrez et al. (2018), Liao et al. (2022), and Burke et al. (2023) find that US and non-US expanded audit reports are not associated with changes in discretionary accruals or the likelihood of subsequent restatement of the financial statements. Given that expanded audit reports contain, on average, two account-specific CAMs, these studies are limited in their ability to directly infer an association between expanded audit reports and changes in broad measures of reporting quality. As such, there is a need for research that provides more direct evidence of the effect of specific types of CAMs on the accounts or estimates to which they relate. Concurrent research suggests that account-specific CAMs, including CAMs that relate to goodwill, mergers and acquisitions, and property, plant, and equipment, may affect account-specific reporting and be informative to investors.[2]

We contribute to this evolving literature by focusing on tax-related CAMs and the associated tax accounts as a similarly powerful test of the outcomes associated with expanded audit reports. Tax CAMs, relative to many other CAM types, can be more directly linked to the company's underlying tax reporting. Thus, our tests should detect an effect if one were to exist. Additionally, the financial accounting rules for income taxes allow for significant judgment (e.g., Dhaliwal et al., 2004; Goldman et al., 2022; Gupta et al., 2016; Phillips et al., 2003); thus, the increased salience of taxes from tax CAM disclosure could potentially influence tax reporting more so than other reporting areas. Finally, taxes are one of the largest expenditures for most companies (Armstrong et al., 2015), and tax CAM disclosures are frequent.[3] Thus, if there is a meaningful CAM effect on reporting outcomes, we anticipate it should be detectable in the tax area.

[2]See, for example, Andreicovici et al. (2023), Camacho-Minano et al. (2023), Nylen et al. (2023), Hu et al. (2023), Carrillo et al. (2022), Abbott and Buslepp (2023), and Kuster et al. (2023).

[3]For example, the Center for Audit Quality identifies taxes as the most common category (representing 16%) of CAM disclosures among the S&P 100 (CAQ, 2020). Among 1,900 initial CAM disclosures, Audit Analytics documents that 9.4% of CAMs disclosed by first adopters relate to taxes (McKeon & Coleman, 2020) and 15% in the second year (Coleman et al., 2021b).

To comprehensively analyze the impact of tax CAMs on tax reporting, we examine a wide array of empirically measurable tax outcomes. First, we investigate whether tax CAMs are associated with direct measures of tax-related audit and financial reporting quality, such as tax-related restatements (e.g., Goldman et al., 2022; Seetharaman et al., 2011), tax-related internal control weaknesses (e.g., Gleason et al., 2017; Graham & Bedard, 2015), and tax-related SEC comment letters (e.g., Kubick et al., 2016). Then, we investigate whether tax CAMs are associated with tax avoidance by examining cash and GAAP effective tax rates (ETRs) and book tax differences (BTDs) (e.g., Hanlon & Heitzman, 2010). Finally, we investigate whether tax CAMs are associated with indirect measures of tax-related earnings management (Dhaliwal et al., 2004; Gupta et al., 2016). Specifically, we examine tax reporting discretion within the unrecognized tax benefit (UTB) and tax accrual accounts (Choudhary et al., 2016). While restatements likely identify egregious tax earnings management, these measures should enable us to capture less severe manipulations.[4]

Our primary tests focus on large accelerated filers (LAFs), the only companies subject to the CAM disclosure requirements for fiscal year 2019. Specifically, we identify the 2019 fiscal year annual reports of LAFs and categorize the CAM disclosures in the associated audit reports by financial reporting area. Of these 1,298 LAFs observations, 239 (18.4%) report at least one tax CAM in the audit report. We then add the year before the CAM disclosure requirement became effective to create a 2-year sample that includes the first year of CAM reporting for LAFs (i.e., 2019) as well as the year before the CAM disclosure requirement became effective (i.e., 2018). We test for differences in tax outcomes in 2019 compared to 2018 between companies with and without 2019 tax CAM disclosures.

Overall, we fail to find evidence of an association between tax CAMs and tax-related audit and financial reporting quality. Specifically, we do not find that tax CAMs are associated with changes in the likelihood of tax-related internal control weaknesses, tax-related SEC comment letters, or tax-related restatements. In addition, we do not find tax CAMs are associated with changes in tax avoidance measured by cash or GAAP ETRs and BTDs. These results suggest that tax CAMs do not change tax planning decisions (i.e., the underlying tax transactions).

However, we do find that tax CAMs are associated with a lower likelihood of engaging in tax-related earnings management. Specifically, we use a measure from Gupta et al. (2016) to identify observations that would miss the consensus analyst after-tax EPS forecast using forecasted (i.e., unmanaged) tax expense but ultimately meet the consensus analyst after-tax EPS using actual tax expense. We compare the frequency of tax-related earnings management between tax and non-tax CAM companies in the year before CAM disclosure and the first year of CAM reporting. We find that tax CAMs are associated with a lower likelihood of using tax expense to meet analyst earnings forecasts in the initial CAM year. However, we do not find that non-tax CAM companies exhibit a similar decrease in tax-related earnings management.

We provide additional context for our earnings management results by examining the use of discretion in tax reporting. First, we examine whether tax CAMs are associated with changes in the reporting of UTBs and its components. The complexities and managerial discretion involved in revising the UTB reserve for prior-period tax positions make it an ideal setting to test how CAM disclosure affects current-period tax reporting separate from current-period tax avoidance (Drake et al., 2016). We find that tax CAMs are associated with increases in the UTB liability related to prior-period tax positions (i.e., revisions that require a change in judgment related to a tax position taken in a prior tax period). This increase suggests an upward revision to the liability, thereby increasing the tax expense and plausibly reducing prior-period upwards earnings management using UTBs in response to the tax CAM disclosure. Second, we examine tax accrual quality (Choudhary et al., 2016) and find that tax CAM companies

[4]However, we acknowledge that these measures also have disadvantages. Specifically, it is difficult to measure the economic magnitude of the earnings management using these measures, and they capture earnings management that may be less meaningful to investors.

increase their tax accrual quality relative to non-tax CAM companies after the disclosure of a tax CAM. Overall, our tax earnings management, UTB, and tax accrual quality findings suggest that discretionary adjustments to tax accounts to meet earnings targets are less prevalent when CAMs highlight the complexity of auditing tax accounts.

We extend these primary findings by conducting a myriad of additional analyses. First, we examine the second year of CAM disclosures for LAFs and do not document evidence that the effects persist into the second year of CAM reporting. Second, we partition tax CAMs into expected and unexpected tax CAMs (following Burke et al., 2023) and find that the effects documented in our primary analysis appear in both groups of CAMs. Third, we find that tax CAM companies increased the length of their income tax footnotes, increased the use of words with a negative tone and weak modal tone, and increased the readability of the tax footnote (as measured by the Fog index) relative to non-tax CAM companies. Finally, we examine whether tax CAMs are associated with audit fees and do not observe a significant association between tax CAMs and audit fees or auditor-provided tax services fees.

We also test the robustness of our primary findings in a number of additional analyses. First, we examine parallel trends for the outcome variables where we find significant results in our primary analysis. Second, we reestimate our models (1) employing propensity score matching, (2) employing entropy balancing, or (3) including company fixed effects. Across these three alternative specifications, we find inferences that are largely consistent with our primary analysis. Third, we examine the first year of CAM reporting for non-accelerated filers and fail to find significant effects; however, we note significantly smaller sample sizes and a lower prevalence of tax CAMs within this group. Finally, we alter the sample by including LAFs whose audit reports did not include CAM disclosures, and our results are robust to the inclusion of these additional observations.

Our study informs the PCAOB's ongoing post-implementation review of AS 3101 (PCAOB, 2020a). We find that *initial* tax CAMs are associated with some improvements in tax-related disclosures (via tax accruals and more elaborate tax footnote disclosures) and a reduction in tax-related earnings management. In addition, we find that the changes in tax-related earnings management seems to be driven by changes in UTBs. However, we find these effects are short-lived and do not persist into the second year of CAM reporting. In addition, we fail to find that tax CAMs are associated with other more direct measures of tax reporting (e.g., tax-related restatements, internal control weakness, or comment letters) or tax avoidance.

Our study also informs the audit literature that provides mixed evidence on expanded audit reports' effect on broad financial reporting quality measures. While we cannot fully reconcile the differences from prior research, our findings help illuminate that the connection between CAMs and financial reporting quality is nuanced and not always easy to identify in a pooled sample. Prior studies that use a pooled sample of all CAMs and examine broad financial reporting outcomes may identify an effect depending on the significance of the CAMs in the sample or the connection of the CAMs to specific outcomes. Using a setting with a tighter mapping between CAMs and the underlying reporting, we show a mild but short-lived effect.

2 | BACKGROUND AND HYPOTHESIS DEVELOPMENT

In 2017, the PCAOB issued a new audit standard, AS 3101, entitled, *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*. The new standard requires auditors to disclose financial statement matters that involve especially challenging, subjective, or complex auditor judgment, known as CAMs. The purpose of the new audit reporting standard "is to provide audit-specific information that is meaningful to investors and other financial statement users" (PCAOB, 2019, p. 1); however, prior academic and regulator research in the United States and elsewhere indicates that expanded audit reports may have fallen short of this intended objective. For example, the PCAOB's *Interim Analysis Report*

indicates that investors have not responded to the information content in CAM disclosures in the first year of implementation (PCAOB, 2020a). Similarly, Burke et al. (2023) fail to find any statistically significant overall price or volume response to US CAM disclosures, suggesting that expanded US audit reports for LAFs do not communicate incremental value-relevant information to investors.[5]

While the new audit reporting standard may have fallen short of its primary goal to provide incremental value-relevant information to investors, a possible indirect benefit of the new standard could be improved audit and financial reporting quality of the financial statement accounts underlying CAMs. For example, the PCAOB suggests that managers could *anticipate* that CAMs will increase the salience of the underlying financial statement accounts, thereby attracting additional scrutiny from auditors and investors. Consistent with the PCAOB's expectation, Chan and Liu (2023) use an analytical model to show that CAMs can influence investor scrutiny. If management expects CAMs to increase external scrutiny of the underlying accounts, management will likely focus on these accounts and improve the quality of the disclosures (PCAOB, 2017). In both an experimental setting (Tan & Yeo, 2022) and a non-US archival setting (Hu et al., 2023), there is evidence that management may change disclosures that relate to CAMs, at least in certain circumstances. Similarly, the PCAOB suggested that auditors may focus more closely on the matters identified as CAMs because they may expect the disclosure of difficult-to-audit areas to attract greater external scrutiny of their audit procedures (PCAOB, 2017).

As part of their first postimplementation review, the PCAOB asked financial statement preparers and auditors about their experiences with initial CAM implementation. Preparers' responses indicate that CAMs minimally affected their internal procedures and did *not* affect their company disclosures; however, audit partners' responses indicate that companies changed financial statement disclosures (PCAOB, 2020a, 2020b). We use the tax CAM setting to delve more deeply into these potentially differing views.

Experimental and analytical findings suggest that CAMs attract audit committee and investor scrutiny (Chan & Liu, 2023; Kang, 2019); archival studies in diverse settings (i.e., United Kingdom, Hong Kong, and United States) provide mixed evidence on whether expanded audit reporting has improved overall financial reporting quality (e.g., Burke et al., 2023; Liao et al., 2022; Reid et al., 2019). While it is difficult to know for certain, the mixed findings of these studies may be due to their focus on broad measures of financial reporting quality (e.g., restatements, accruals) that may not tie directly to the specific financial statement account underlying the CAM. We examine the association between tax CAMs and numerous tax-specific outcomes to perform more direct empirical tests. Tax CAMs can be linked to the company's underlying tax disclosures, enabling us to detect a tax-related audit and financial reporting quality effect if one exists. Specifically, detailed tax disclosures are relatively consistent across companies and allow us to examine variation in specific tax-related outcomes associated with the disclosure of tax CAMs, which is not the case for many other CAMs. In addition, because financial reporting tax rules require detailed tax-related disclosures (e.g., FIN 48), tax reporting provides us with an ideal setting to detect a CAM effect on reporting.

The financial accounting rules for income taxes allow for significant judgment (e.g., Dhaliwal et al., 2004; Goldman et al., 2022; Gupta et al., 2016; Phillips et al., 2003). Thus, it is not surprising that taxes often result in internal control weaknesses (ICWs) (Ge & McVay, 2005), are one of the top five restatement issues since 2011 (Coleman et al., 2021a), and frequently attract SEC attention, accounting for 13% of SEC comment letters in 2016 alone (Deloitte, 2017). As such, the increased salience of tax accounts from CAM disclosure

[5]However, Burke et al. (2023) document some negative price reactions when the number of CAM disclosures deviates from expectations or when there are unexpected revenue-related CAM disclosures.

could potentially affect tax reporting. Finally, tax CAMs are one of the most common CAMs among US companies (Coleman et al., 2021b), and taxes make up one of a company's largest cash outflows and one of the largest expenses on the income statement (Armstrong et al., 2012). Thus, tax CAMs and the tax reporting that underlies CAMs are economically meaningful.

If management *anticipates* increased scrutiny from external stakeholders (e.g., tax authorities, the SEC, investors), regardless of whether or not the external stakeholders actually attend to the tax CAMs, then we would expect tax CAMs to be associated with tax-related outcomes. For example, the anticipated additional scrutiny may be associated with a decrease in tax avoidance if management expects external stakeholders to increase attention to the company's tax planning activities after disclosing a tax CAM. Likewise, tax CAMs could also motivate companies to improve tax-related internal controls and improve the quality of the underlying income tax reporting and the associated footnote disclosures (ACCA, 2018), reducing the likelihood of a restatement or SEC scrutiny. Finally, with increased attention from auditors and investors, management may be less likely to engage in tax-related earnings management.

Second, tax CAMs increase the transparency of the auditor's work and highlight the complexities of auditing tax accounts. Given the public disclosure of CAMs, auditors may expect regulators and other stakeholders to scrutinize their auditing of the tax accounts when a tax CAM is disclosed. As a result, auditors may apply a higher level of professional skepticism or increase the number of substantive audit procedures, which could result in higher audit quality, leading to a decreased probability of a restatement and a lower likelihood that the company receives a tax-related SEC comment letter. Increased attention to the tax accounts could also increase the likelihood that the auditor identifies a tax-related ICW or management's effort to use taxes to manage earnings.

Several studies suggest that CAMs have a disciplining effect on audit and financial reporting. For example, Kang (2019) finds that audit committee members, in an experimental setting, may ask more challenging questions in the presence of prospective CAMs, especially when the investors the audit committee represents are less sophisticated. In an experiment, Fuller et al. (2021) document that managers increase the disclosure of complex estimates in response to auditor CAM disclosures. Dee et al. (2021) provide archival evidence that CAMs are broadly associated with subsequent improvements in internal controls. Using archival UK evidence, Andreicovici et al. (2023) similarly document that managers increase goodwill disclosures when auditors identify goodwill impairment as a risk of material misstatement (i.e., the UK version of CAMs). In sum, the findings of this prior literature suggest that tax CAMs could affect tax-related outcomes.

However, disclosure of tax CAMs may not change manager or auditor behavior. Most studies have been unable to document that expanded audit reports are incrementally informative to investors (e.g., Burke et al., 2023; Lennox et al., 2022; PCAOB, 2020a). If CAMs are not incrementally informative to investors, and managers and auditors do not anticipate increased scrutiny from the disclosure of tax CAMs, we may not expect to observe a change in manager or auditor behavior. In addition, audit regulators did not expect expanded audit reporting to affect the underlying work of the auditors (Gutierrez et al., 2018); thus, it is not surprising that most prior research (e.g., Burke et al., 2023; Gutierrez et al., 2018, 2022) has generally not been able to document an association between CAMs and increased audit fees, which suggests that audit effort has not increased due to CAMs. Given the conflicting predictions, we state our hypothesis in the null as follows:

> **Hypothesis.** Tax CAMs are not associated with tax-related outcomes, including tax-related audit and financial reporting quality, tax avoidance, and tax-related earnings management.

3 | RESEARCH DESIGN

3.1 | Empirical model

For our primary analyses, we use the following model to examine the effect of tax CAMs on multiple tax-related outcomes in the initial year of CAM implementation:

$$Tax\ Outcome_{i,t} = \alpha_0 + \beta_1 TaxCAM_i + \beta_2 2019\ Indicator + \beta_3 TaxCAM_i \times 2019\ Indicator + \beta_k Controls_i + \varepsilon_{i,t}. \quad (1)$$

Our tax outcome variables are defined below. *TaxCAM* is an indicator equal to one if a tax-related issue was disclosed as a CAM in 2019, and zero otherwise. *2019 Indicator* is set equal to one for the 2019 fiscal year-end, and zero otherwise. The interaction term, *TaxCAM* × *2019 Indicator*, captures the incremental tax CAM effect in the year of CAM adoption, annually, anticipating a change in the year of the tax CAM disclosure. We define all variables, including the control variables, in the Appendix. In all regressions, we include industry fixed effects (Fama-French 17) and cluster standard errors by company.[6]

3.2 | Tax outcomes

3.2.1 | Tax-related audit and financial reporting quality

We begin our empirical analysis by examining the most direct and empirically available tax outcomes related to audit and financial reporting quality. First, we examine whether tax CAMs are associated with a different likelihood that the year *t* tax accounts are material misstated and thereby subsequently disclosed as a tax-related restatement. If tax CAMs increase the salience of tax accounts and thereby improve reporting quality, then the likelihood of tax-related material misstatements existing in year *t* would decrease. However, if tax CAMs only increase attention to the underlying tax transactions without an accompanying change in reporting quality, then the likelihood of tax-related misstatements may not differ. For this first test, we set *Tax Outcome* equal to one if the company's year *t* financial statements are subsequently restated for a tax-related issue (*Tax-Related Restatement*), and zero otherwise.

Second, we examine whether tax CAMs are associated with disclosed tax-related material weaknesses in internal control because material weaknesses are often associated with lower-quality financial reporting (e.g., Graham & Bedard, 2015). Graham and Bedard (2015) argue that the complexities involved in tax reporting make material weaknesses in internal controls over the financial reporting of income taxes more frequent and consequential than other accounts. If tax CAMs highlight the complexities of tax accounts and increase the salience of tax accounts, then auditors may be better able to identify tax-related ICWs in the year of the tax CAM disclosure. However, given that Dee et al. (2021) find that CAM disclosures are associated with improvements in internal controls, we could find a decrease in disclosed tax-related ICWs. For this test, we set *Tax Outcome* equal to one if the company's auditor discloses a tax-related internal control weakness in year *t* (*Tax-Related ICW*), and zero otherwise.

[6]In untabulated analysis, we reestimate our models using Fama-French 48 fixed effects, and all inferences hold. We note in all models that all VIFs are under 10, which by conventional standards suggests that multicollinearity is unlikely to be a concern. Additionally, when we reestimate our regressions using a more narrowly defined industry measure (SIC2), we continue to find similar significance across all analyses.

Finally, we examine whether tax CAMs are associated with receiving a tax-related SEC comment letter. Section 408 of the Sarbanes-Oxley Act mandates the SEC examination of financial statements, and the SEC issues comment letters for clarification of disclosures or other information related to the financial statements. Kubick et al. (2016) document that the primary reasons for tax-related SEC comment letters are a lack of adequate disclosure of required tax information and clarification of accounting assumptions. If tax CAMs result in improved tax reporting quality through increased auditor and manager attention to tax disclosures, tax CAMs could be associated with a decrease in the subsequent receipt of tax-related comment letters. If tax CAMs highlight complexities in the audit of tax accounts, tax CAMs could increase SEC attention to the company's tax reporting and be associated with an increase in the receipt of tax-related comment letters. For this test, we set *Tax Outcome* equal to one if the company subsequently receives a tax-related comment letter from the SEC that relates to year *t* (*Tax-Related SEC Comment Letter*), and zero otherwise.[7]

Following Choudhary et al. (2016), for these tests, *Controls* include UTBs (*UTB*), an indicator variable for industries with high levels of employee stock options (*ESOIndustry*), large discretionary or extraordinary items on the statement of cash flows (*DiscExtra*), volatility in pre-tax book income (*PTBIVol*), an indicator variable indicating whether the company has negative pre-tax income (*TaxLoss*), an indicator variable indicating whether the company has foreign operations (*Foreign*), the natural log of the company's assets (*Size*), and the number of CAMs disclosed for the company in the year (*NumCAMs*).

3.2.2 | Tax avoidance

Next, we examine various measures that capture whether tax CAMs affect companies' tax planning strategies. A change in tax avoidance could reflect an expectation of greater external scrutiny with the disclosure of a tax CAM. If tax CAMs affect management's expectation of tax authority attention, then companies may reduce tax avoidance activities to avoid such scrutiny. However, tax avoidance strategies are complex and take time to unwind (Hoopes et al., 2012), and prior literature suggests that investors value tax avoidance (e.g., Drake et al., 2019). Thus, we may not observe an association between tax CAMs and tax avoidance.

For these tests, we replace *Tax Outcome* in Equation (1) with one of three measures of tax avoidance: *Adj. Cash ETR*, *Adj. GAAP ETR*, and *Adj. BTD*. In particular, we define *Adj. Cash ETR* as industry-year-size adjusted cash taxes paid divided by pre-tax book income less special items and *Adj. GAAP ETR* as industry-year-size adjusted total GAAP tax expenses divided by pre-tax book income. Consistent with the literature, both *Adj. Cash ETR* and *Adj. GAAP ETR* are censored at zero and one. Finally, we define *Adj. BTD* as industry-year-size adjusted BTD. We adjust all three measures by their industry-year and size quintile mean (based on the total Compustat population) to capture potentially more aggressive tax planning strategies. If tax CAMs induce a change in tax strategies, we expect to detect a change in ETRs or BTDs.

Given that our outcome variables for the tax avoidance tests differ from those in our tax-related audit quality and financial reporting quality tests, our control variables differ as well. We include a series of control variables following Drake et al. (2022). These controls include foreign income scaled by prior-year assets (*FI*), R&D expense scaled by prior-year assets (*R&D*), the natural log of total assets (*Size*), total plant, property, and equipment scaled by prior-year assets (*PP&E*), cash holding scaled by prior-year assets (*Cash*), equity income

[7]These tax-related and audit quality tests are estimated using a logistic regression model. We confirm in untabulated additional analysis that our findings are robust to estimation via OLS regression.

(*EqInc*), the company's book-to-market ratio (*BTM*), depreciation expense scaled by prior-year assets (*Depr*), SG&A expenses scaled by prior-year assets (*SGA*), ROA (*ROA*), capital expenditures scaled by prior-year assets (*CapEx*), an indicator for whether the company reports a net operating loss (*NOLInd*), change in the company's net operating loss balance (*ΔNOL*), the change in sales from $t-1$ to t (*SalesGrowth*), leverage (*Lev*), and a control for the likelihood of valuation allowance (VA) release (Drake et al., 2020) (*VARelease*).

3.2.3 | Tax-related earnings management, UTBs, and tax accrual quality

Next, we examine whether tax CAMs are associated with tax-related earnings management. Reid et al. (2019) find that the issuance of UK expanded audit reports is associated with a decrease in companies' propensity to meet or beat consensus analysts' forecasts. Similarly, Santos et al. (2020) find an association between the number of CAMs disclosed in audit reports in Brazil and earnings management. Thus, prior international research suggests that tax CAMs could be associated with reduced tax-related earnings management in the United States. However, while the definition of KAMs and CAMs are somewhat similar, their implementation occurs in different regulatory, legal, and market environments, resulting in variation across countries in the number and types of CAMs disclosed as well as the level of detail provided in the CAM disclosure (Minutti-Meza, 2021). Thus, it is difficult to know if the prior findings based on international audit reports will extend to the US setting. Additionally, Velte (2018) notes that, although there are some indications of decreased earnings management due to expanded audit reports, most studies find no significant changes in auditor behavior. Thus, it is possible that tax CAMs may not be associated with changes in tax-related earnings management in the United States.

To measure tax-related earnings management, we follow Gupta et al. (2016) and identify observations that would miss the consensus analyst after-tax EPS forecast using forecasted (i.e., unmanaged) tax expense but ultimately meet the consensus analyst after-tax EPS using actual tax expense.[8] Specifically, we create an indicator variable *TaxEM* set equal to one when $UnmanagedAftertaxEPS < AftertaxEPS_{forecast}$, but $AftertaxEPS_{actual} \geq Aftertax\ EPS_{forecast}$.[9] In other words, *TaxEM* is set equal to one if the company uses the tax expense account to meet the analyst forecast, and zero otherwise. We reestimate Equation (1) using a logistic model with *Tax Outcome* equal to *TaxEM* and include commonly used controls for tax avoidance.[10] If tax CAMs increase the salience of tax accounts and constrain companies' use of tax expense to meet analysts' forecasts, then we expect, relative to non-tax CAM companies, that tax CAM companies will be less likely to use tax expense to meet analysts' earnings forecasts in the CAM year than in the pre-CAM year.

Tax-related earnings management is achieved through tax accounts that often involve a high degree of uncertainty. Thus, we examine whether tax CAMs are associated with UTB reporting and the quality of tax-related accruals (Choudhary et al., 2016). UTB reporting is complex and exhibits a high degree of discretion (De Simone et al., 2014). As such, this is an account where we might expect to observe changes in reporting when there is increased salience of the tax accounts. In addition, since taxes are complex, highly technical, and involve estimation uncertainty, the matching between accrual and cash is difficult (Choudhary et al., 2016). Thus, if tax

[8]There are a number of ways to measure tax-related earnings management using various thresholds, including non-negative earnings and prior-year earnings (e.g., Phillips et al., 2003). We choose the Gupta et al. (2016) methodology because it provides us a broad measure of earnings management without sacrificing sample size. Our tax earnings management findings are robust (tabulated in Appendix S1 in the Supporting Information) to the research design employed in Dhaliwal et al. (2004).

[9]Gupta et al. (2016) define after-tax unmanaged EPS as $PretaxEPS_{Actual} \times (1 - ETR_{forecast})$, where $ETR_{forecast}$ is calculated by dividing the median $AftertaxEPS_{forecast}$ less median $PretaxEPS_{forecast}$ by the median $PretaxEPS_{forecast}$.

[10]Due to the complexity of interpreting interactions in a logistic regression model, we also run an OLS regression model and find consistent results.

CAMs increase auditor or management scrutiny, then we might expect an improvement in the quality of tax accruals that underlie the tax CAM disclosure.

To examine whether tax CAMs are associated with changes in the reserve for UTBs, we replace *Tax Outcome* with various measures of UTBs. First, we examine the year-end balance in the *UTB* reserve scaled by lagged total assets. We also separate the annual change in UTB into its components, which are available in the annual UTB rollforward disclosure. Specifically, we consider the adjustments to the reserve associated with current (*CY_Inc*) and prior-period tax positions (*PY_Change*). As Drake et al. (2016) note, the change in the reserve for prior-period positions is a particularly fruitful account to examine for evidence of discretion as the tax position was taken in a prior year. This revision reflects a change in management's judgment. Finally, we also follow Nesbitt (2020) and Bauer et al. (2021) and separate *UTB* into its predicted and discretionary components (*PRED* and *RESID*, respectively) and expect an association between tax CAMs and the discretionary component of UTB (*RESID*).

For this model, in addition to the controls used in our tax-related earnings management model, we include additional variables from Drake et al. (2022) to control for the determinants of *UTB*s. Specifically, we include property, plant, and equipment (*PP&E*), cash holdings (*Cash*), equity income (*EqInc*), the book-to-market ratio (*BTM*), depreciation and amortization expense (*Depr*), selling, general, and administrative expenses (*SGA*), capital expenditures (*CapEx*), *SalesGrowth*, and the debt-to-asset ratio (*Lev*). For the specifications using *CY_Inc* and *PY_Change*, we construct change measures of all control variables from year $t-1$ to t scaled by total assets in year $t-1$.

To examine whether tax CAMs are associated with tax accrual quality, we replace *Tax Outcome* with a continuous measure, *TaxAQ*, that captures how well tax accruals map into tax-related cash flows (Choudhary et al., 2016). Choudhary et al. (2016) argue that low tax accrual quality may result from estimation errors or financial reporting standards that create a mismatch between income tax expense and income tax cash flows. *TaxAQ* equals negative one times the standard deviation of the residuals from company-specific estimations of tax accruals being regressed on prior, current, and future cash taxes paid and contemporaneous changes in long-term deferred tax assets and liabilities.[11]

3.3 | Sample selection

In Figure 1, we present a timeline that illustrates the timing of AS 3101 adoption, pilot testing by the accounting firms, and its effective date for LAFs. We also identify the two samples used in our analysis. While our primary focus is on the effects of the initial year of CAM reporting, in additional analyses, we consider the effects in the second year, examining companies that continue to have, initially receive, or no longer receive a tax CAM from its auditor.[12]

We describe our sample selection in Table 1. We begin our sample selection with all LAFs as these were the first companies subject to the auditor's CAM disclosure requirement (i.e., for fiscal years ending on or after June 30, 2019).[13] Our primary analyses examine the initial year of CAM reporting. In particular, we obtain the annual reports of LAFs for fiscal year 2018 (pre-CAM) and 2019 (initial CAM) disclosure year from Audit Analytics and classify the CAM disclosures to separate the sample into companies whose auditor discloses a tax CAM

[11]Choudhary et al. (2016) use a 10-year pre-period to measure *TaxAQ*. Given our focus on the initial tax CAMs, such a long window is not appropriate for our analysis. Thus, we use their measure and adapt it for a shorter-window period (3 years).

[12]We assume that companies are aware of the forthcoming disclosure of tax-related CAMs in their audit reports before the financial statements are filed with the SEC. The Center for Audit Quality and the PCAOB confirm this assumption (Amato, 2014; PCAOB, 2020a). See Figure 1 for specifics of the pilot testing period.

[13]We require a company's auditor to report at least one CAM because the PCAOB guidance suggests that, in most audits, the auditor will identify at least one CAM (AS 3101). In our robustness tests, we rerun our analysis including companies without a CAM and find that our inferences about earnings management among tax CAM companies do not change.

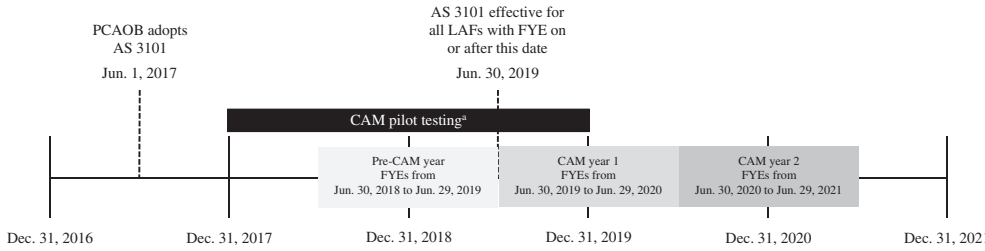

FIGURE 1 CAM reporting timeline and sample. This figure presents a timeline of dates in the adoption and implementation of AS 3101 and our sample timeline. [a]CAM pilot testing period identified per PCAOB staff white paper "Stakeholder Outreach on the Initial Implementation of CAM Requirements" (October 2020). CAM, critical audit matter; FYE, fiscal year-end; LAF, large accelerated filer.

TABLE 1 Sample selection.

Restriction	Full sample	*TaxCAM*	Non-*TaxCAM*
Compustat company-year observations for 2018 and 2019	22,963		
Less: Non-accelerated filers	(16,649)		
Less: Observations missing CAM data	(2,698)		
	3,616	534	3,082
Less: Financial/utility companies	(1,019)	(56)	(963)
Less: Companies without two consecutive years of data	(1)	(0)	(1)
Total CAM sample	2,596	478	2,118
Less: Observations without data for audit and financial reporting quality outcome tests	(912)	(166)	(746)
Sample for Tables 3 and 7 and Column 1 of Tables 8 and 9	1,684	312	1,372
Total CAM sample	2,596	478	2,118
Less: Observations without data for tax avoidance outcome tests	(1,464)	(256)	(1,206)
Sample for Table 4	1,132	222	910
Total CAM sample	2,596	478	2,118
Less: Observations without data for tax-related earnings management tests	(658)	(128)	(530)
Sample for Table 5 and Column 2 of Tables 8 and 9	1,938	350	1,558
Total CAM sample	2,596	478	2,118
Less: Observations without data for UTB tests	(910)	(116)	(794)
Sample for Table 6 and Column 3 of Tables 8 and 9	1,686	362	2,006
Total CAM sample	2,596	478	2,118
Less: Observations without data for text analysis tests	(660)	(164)	(496)
Sample for Table 10	1,936	314	1,622

Abbreviations: CAM, critical audit matter; UTB, unrecognized tax benefit.

(i.e., CAM relating to deferred taxes, uncertain tax positions, or other taxes) and companies whose auditor does not disclose a tax CAM.[14] We require observations to have the necessary data for our tests for both the pre-CAM disclosure and the CAM disclosure year. Finally,

[14]While there are several different categories of tax CAMs (e.g., uncertain tax positions, valuation allowances), given our limited sample size (approximately 150 tax CAMs), we do not tabulate our results separated by tax CAM type as we believe the results would be too tenuous. In untabulated analyses, we find that our results are directionally consistent when we examine the specific nature of the CAM.

consistent with the tax literature, we exclude financial and utility companies (SIC 4900–4932 and 6000–6999) because they have different tax reporting incentives. This cut arrives at our initial sample of 2,596 annual reports, representing 1,298 unique companies. Of these 2,596 company-year annual reports, 478 (18.41%) of them include an audit report with tax CAMs. To conduct each of our tax outcome tests, we lose additional observations due to the enhanced data requirements of each corresponding analysis. This results in a final test sample of 1,684 observations (18.53% with a tax CAM) for the audit and financial reporting quality tests (Table 3), 1,132 observations (19.61% with a tax CAM) for the tax avoidance tests (Table 4), 1,938 observations (18.06% with a tax CAM) for the tax-related earnings management tests (Table 5), and 1,686 observations (21.47% with a tax CAM) for the UTB tests (Table 6). The sample for the tax accrual quality tests (Table 7) is consistent with the sample for audit and financial reporting quality tests (Table 3).

To examine whether tax CAMs are associated with changes in the audit and financial reporting quality of tax accounts, tax avoidance, and tax-related earnings management, we create an indicator variable set equal to one for companies in which the auditor discloses a tax CAM in its audit opinion ($TaxCAM = 1$) in 2019, and zero otherwise. Our control sample is companies whose auditor does not disclose a tax CAM.

4 | RESULTS

4.1 | Descriptive statistics

In Table 2, we present descriptive statistics for each of our tax CAM and tax outcome variables (Panel A) and control variables (Panel B). In both panels, we present within-group comparisons of 2018 and 2019 for companies with and without a 2019 tax CAM. Our univariate evidence presented in Panel A suggests that neither tax CAM companies nor non-tax CAM companies experienced significant increases or decreases in tax-related ICWs, tax-related restatements, tax-related SEC comment letters, or proxies for tax avoidance from 2018 to 2019. We observe a slight univariate increase in tax accrual quality for both tax CAM companies and non-tax CAM companies from 2018 and 2019, with a higher increase for tax CAM companies. Likewise, we observe a decrease in earnings management via the tax accounts for tax CAM companies from 2018 to 2019; however, we do not observe a decrease for non-tax CAM companies. Finally, among tax CAM companies, we observe a univariate increase in changes in the UTB reserve related to prior-year positions, consistent with tax CAM companies making upward adjustments to positions taken in prior tax years. Non-tax CAM companies have a decrease in this same component over the period. Overall, the univariate statistics provide some preliminary support for some differences in tax-related outcomes associated with tax CAMs in the initial year of CAM reporting.[15]

Table 2, Panel B, presents descriptive statistics for our control variables. Given that the majority of our control variables are used in multiple analyses, which vary in sample size, this panel presents the descriptive statistics for each variable based on the largest sample size for which that variable was available. For example, the control variable *Depr* is used in Tables 4, 6, and 9. Since Table 6 has the largest sample size of those analyses, the descriptive statistics presented in Table 2 for *Depr* pertain to observations in Table 6. Overall, we observe very few

[15]We present additional univariate tests for our outcome variables in Appendix S1. In particular, we provide *t*-tests comparing within-company changes in the outcome variables from 2018 to 2019 between tax CAM and non-tax CAM companies. In these tests, we observe decreased tax-related earnings management, increased UTBs, and increased tax accrual quality for tax CAM companies relative to non-tax CAM companies. Likewise, in the online Appendix S1, we provide difference-in-differences univariate tests and observe a decrease in tax-related earnings management, an increase in discretionary UTB and the *PY_Change* component of UTB, and an increase in tax accrual quality for tax CAM companies relative to non-tax CAM companies.

TABLE 2 Descriptive statistics: Initial CAM disclosure year sample (2018–2019).

Panel A: Descriptive statistics—Dependent variables

	TaxCAM = 1			*TaxCAM* = 0		
Variable	***N***	**2018 mean**	**2019 mean**	***N***	**2018 mean**	**2019 mean**
Tax-Related ICW	156	0.0321	0.0192	686	0.0044	0.0058
Tax-Related Restatement	156	0.0321	0.0128	686	0.0073	0.0058
Tax-Related SEC Comment Letter	156	0.0513	0.0192	686	0.0233	0.0204
Adj. Cash ETR	111	0.0237	0.0097	455	0.0126	0.0101
Adj. GAAP ETR	111	0.0364	0.0197	455	0.0216	0.0291
Adj. BTD	111	0.0231	0.0194	455	0.0331	0.0373
TaxEM	175	0.1429	0.0914**	794	0.1385	0.1574
UTB	181	1.4860	1.5687	662	0.9276	0.9112
Non-Discretionary UTB (PRED)	181	−0.0090	−0.0089	662	−0.0062	−0.0066
Discretionary UTB (RESID)	181	0.0034	0.0035	662	0.0000	0.0002*
CY_Inc	181	0.1591	0.1645	662	0.1321	0.1244
PY_Change	181	0.0013	0.0798*	662	0.0326	−0.0226*
TaxAQ	156	−0.0169	−0.0130**	686	−0.0130	−0.0109***
Word Count	157	7.2388	7.1565***	811	6.9419	6.8465***
Positive Words	157	1.0898	1.1182	811	1.0876	1.1084
Negative Words	157	1.4973	1.6706***	811	1.5285	1.6699***
Strong Modal Words	157	0.2935	0.3052	811	0.3351	0.3507
Weak Modal Words	157	0.4655	0.5154	811	0.4774	0.4708
Fog	157	18.9359	19.0401	811	19.3795	19.9330***

Panel B: Descriptive statistics—Control variables

		TaxCAM = 1			*TaxCAM* = 0		
Variable	**Tables**	***N***	**2018 mean**	**2019 mean**	***N***	**2018 mean**	**2019 mean**
Acquisition	10	157	0.5924	0.5541	811	0.5166	0.5327
AnalystFollowing	5, 6	175	14.8686	14.5029	794	11.1814	11.2947
Age	10	157	33.2866	34.2866	811	26.5154	27.5154
BTM	4, 6, 10	181	0.3481	0.3190	662	0.3731	0.3445
CapEx	4, 6	181	0.0336	0.0323	662	0.0347	0.0331
Cash	4, 6	181	0.1495	0.1413	662	0.1966	0.1838
CashETR	5, 6	175	0.1710	0.1809	794	0.1263	0.1393
Depr	4, 6	181	0.0393	0.0392	662	0.0389	0.0391
DelawareInc	10	157	0.8089	0.8089	811	0.7250	0.7250
DiscExtra	3, 7	156	0.0192	0.0192	686	0.0146	0.0262
EqInc	4, 6	181	0.0007	0.0005	662	0.0005	0.0006
ESOIndustry	3, 7	156	0.6026	0.6090	686	0.4781	0.4796
EarnVol	10	157	708.8626	670.9024	811	251.9759	254.1075
FI	4, 5, 6	175	0.0493	0.0442	794	0.0122	0.0108
Foreign	3, 7	156	0.9551	0.9551	686	0.9490	0.9475
GeoSeg	10	157	14.7006	14.5229	811	9.4587	9.1837
Lev	4, 6	181	0.3341	0.3707	662	0.3146	0.3746***
NOLInd	4, 5, 6	175	0.9771	0.9771	794	0.9181	0.9181

TABLE 2 (Continued)

Panel B: Descriptive statistics—Control variables							
		TaxCAM = 1			*TaxCAM* = 0		
Variable	**Tables**	***N***	**2018 mean**	**2019 mean**	***N***	**2018 mean**	**2019 mean**
ΔNOL	4, 5, 6	175	0.0010	0.0032	794	0.0481	0.0533
NumCAMs	3, 4, 5, 6, 7	175	0.0000	1.9886	794	0.0000	1.5680
PP&E	4, 6	181	0.1904	0.2155	662	0.1952	0.2225**
PTBIVol	3, 7	156	0.0354	0.0334	686	0.0467	0.0445
R&D	4, 5, 6	175	0.0372	0.0339	794	0.0559	0.0540
ROA	4, 5, 6	175	0.0643	0.0663	794	0.0107	0.0038
SalesGrowth	4, 6	181	−0.0073	−0.0190	662	−0.0158	−0.0437***
SGA	4, 6	181	0.1772	0.1687	662	0.2003	0.1889
SpecialItems	10	157	−0.0158	−0.0082*	811	−0.0106	−0.0130
Size	3, 4, 5, 6, 7, 10	175	8.7582	8.8547	794	7.9756	8.1283**
TaxLoss	3, 7	156	0.2115	0.2051	686	0.1676	0.1662
UTB	3, 7	156	1.3676	1.3881	686	0.6616	0.6684
VARelease	4	113	−1.8572	−2.0002	456	−1.9588	−2.0517**

Note: This table presents descriptive statistics for the variables used in our analyses. We separately present means in 2018 and 2019 for companies with a *TaxCAM* in 2019. Panel A presents the dependent variables, and Panel B presents the control variables. For controls used in more than one test, controls are tabulated for the largest sample. Tables 8 and 9 contain partitioned analyses for outcomes tested in earlier tables. For these analyses, the controls for a particular column align with the controls used for that outcome variable in the primary analyses. We outline our sample selection in Table 1 and define all variables in the Appendix.
Abbreviations: CAM, critical audit matter; ETR, effective tax rate; UTB, unrecognized tax benefit.
*, **, and *** represent significant differences in within-group means between 2018 and 2019 at the 0.10, 0.05, and 0.01 levels, respectively.

significant changes in Panel B, reducing the possibility that any results are attributable to contemporaneous changes in the economy, business environment, and so on.

4.2 | Multivariate analyses

In Table 3, we present the results of estimating Equation (1), examining whether tax CAMs in the initial year of the disclosure requirement are associated with tax-related ICWs, subsequent tax-related restatements, and the receipt of tax-related SEC comment letters in Columns 1, 2, and 3, respectively.[16] The significant coefficient on *TaxCAM* in Columns 1 and 2 indicates that companies with tax CAMs are more likely to have a tax-related ICW and have a tax-related misstatement in the pre-CAM year (i.e., 2018) than those without tax CAMs. This confirms findings in concurrent research that companies with greater tax risk are more likely to receive a tax CAM (Lynch et al., 2023; Nickpour et al., 2022), thereby suggesting that CAMs are not entirely uninformative disclosures. We do not find evidence that the receipt of tax-related SEC comment letters differs between the tax CAM and non-tax CAM companies in the pre-CAM period. Likewise, based on the insignificant coefficient on the interaction between *TaxCAM* and *2019 Indicator* in Columns 1, 2, and 3, we fail to find an association between tax CAMs and a change in the probability of a tax-related ICW, a tax-related restatement, or tax-related SEC comment letters in the initial year of CAM reporting.

In Table 4, we present the results of our tax avoidance tests using industry-year-size-adjusted cash ETR, GAAP ETR, and BTD in Columns 1, 2, and 3, respectively. The

[16]These results are estimated using a linear probability model. We confirm in untabulated additional analysis that these null findings are robust to estimation via logistic regression.

TABLE 3 Audit and financial reporting quality outcomes: Initial CAM disclosure year sample (2018–2019).

Dependent variable	**(1)** ***Tax-Related Restatement***	**(2)** ***Tax-Related ICW***	**(3)** ***Tax-Related SEC Comment Letter***
Variable	**Coeff. (*t*-stat)**	**Coeff. (*t*-stat)**	**Coeff. (*t*-stat)**
Intercept	0.029	0.017	0.036
	(1.33)	(1.13)	(−1.23)
TaxCAM	0.027*	0.031**	0.028
	(1.71)	(2.08)	(1.45)
2019 Indicator	−0.007	−0.009	−0.021*
	(−0.84)	(−0.90)	(−1.79)
TaxCAM × 2019 Indicator	−0.019	−0.016	−0.035
	(−1.28)	(−1.29)	(−1.50)
Controls	Yes	Yes	Yes
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company
N	1,684	1,684	1,684
Adj. R^2	0.009	0.026	0.024

Note: This table presents coefficients and *t*-statistics from estimating Equation (1) on audit quality and financial reporting quality outcomes using OLS on our initial year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix. Our results are robust with a logistic regression model.
Abbreviations: CAM, critical audit matter; ICW, internal control weakness.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

TABLE 4 Tax avoidance outcomes: Initial CAM disclosure year sample (2018–2019).

Dependent variable	**(1)** ***Adj. Cash ETR***	**(2)** ***Adj. GAAP ETR***	**(3)** ***Adj. BTD***
Variable	**Coeff. (*t*-stat)**	**Coeff. (*t*-stat)**	**Coeff. (*t*-stat)**
Intercept	0.099**	0.132***	0.130***
	(2.06)	(2.79)	(4.94)
TaxCAM	0.000	0.005	−0.003
	(0.03)	(0.41)	(−0.38)
2019 Indicator	−0.011	0.019	0.014**
	(−0.84)	(1.14)	(2.31)
TaxCAM × 2019 Indicator	−0.010	−0.020	0.005
	(−0.78)	(−1.12)	(0.57)
Controls	Yes	Yes	Yes
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company
N	1,132	1,132	1,132
Adj. R^2	0.087	0.084	0.471

Note: This table presents the coefficients and *t*-statistics from estimating Equation (1) on tax avoidance outcomes using OLS on our initial year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix.
Abbreviations: CAM, critical audit matter; BTD, book tax difference; ETR, effective tax rate.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

TABLE 5 Tax-related earnings management: Initial CAM disclosure year sample (2018–2019).

Dependent variable	***TaxEM* = 1**
Variable	**Coeff. (*z*-stat)**
Intercept	2.297***
	(3.04)
TaxCAM	−0.031
	(−0.12)
2019 Indicator	0.504**
	(1.96)
TaxCAM × 2019 Indicator	−1.189***
	(−2.99)
Fixed effects	Industry (FF17)
Clustering	Company
N	1,938
Pseudo R^2	0.070

Note: This table presents the coefficients and *z*-statistics from estimating Equation (1) on tax earnings management outcomes using logit on our initial year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix.
Abbreviation: CAM, critical audit matter.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

insignificant coefficient on *TaxCAM* across all three columns indicates that, in the year before required CAM disclosures, the tax avoidance of companies with tax CAMs did not differ significantly from companies without tax CAMs. Likewise, the coefficient on the *TaxCAM × 2019 Indicator* interaction is insignificant; thus, we do not observe a change in tax avoidance as a result of the tax CAM disclosure. Together, the results in Tables 3 and 4 suggest that tax CAMs reflect tax complexity (e.g., restatements and ICWs) but are not indicative of tax avoidance.

In Table 5, we present the tax-related earnings management results. The coefficient on *TaxCAM* is insignificant, suggesting that we do not identify a difference in tax-related earnings management between companies with and without tax CAMs in the pre-CAM period. However, the coefficient on the *TaxCAM × 2019 Indicator* interaction is negative and significant, indicating that tax CAMs are associated with a reduction in managements' use of the tax accounts to manage earnings in the initial year of CAM disclosure.

Next, we validate our earnings management findings by examining changes in the reserve for UTBs. FIN 48 requires companies to estimate, record, and disclose a contingent liability for uncertain tax positions. FIN 48 specifically discusses changes in management judgment that result in changes in recognition, derecognition, and measurement in subsequent periods (FIN 48, paragraph 12). Furthermore, Cazier et al. (2015) suggest that, given the complexity and uncertainty associated with tax positions, companies may use discretion in establishing tax reserves.[17]

Table 6 presents our UTB results. Consistent with tax CAM and non-tax CAM companies exhibiting differences in the pre-CAM disclosure period, we observe a positive and significant coefficient on *TaxCAM* for *UTB*s, the current-year increase in UTBs (*CY_Inc*), the non-discretionary component of UTBs (*PRED*), and the discretionary component of UTBs

[17]Cazier et al. (2015) fail to find evidence that the disclosure of tax reserve information required under FIN 48 reduces companies' use of tax reserves to meet annual analysts' forecasts. By contrast, Gupta et al. (2016) find a decrease in companies' use of tax reserves to meet quarterly benchmarks in the post–FIN 48 period.

TABLE 6 UTB regressions: Initial CAM disclosure year sample (2018–2019).

Dependent variable	(1) *UTB*	(2) *CY_Inc*	(3) *PY_Change*	(4) *Non-Discretionary UTB (PRED)*	(5) *Discretionary UTB (RESID)*
Variable	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)
Intercept	−1.243***	0.102***	0.064**	−0.010***	0.002
	(−4.72)	(9.88)	(2.18)	(−5.11)	(1.29)
TaxCAM	0.472***	0.041***	−0.037	0.003***	−0.001***
	(6.11)	(2.86)	(−0.97)	(4.75)	(−4.00)
2019 Indicator	−0.051	−0.002	−0.085	−0.000	−0.000
	(−0.74)	(−0.17)	(−1.28)	(−0.92)	(−0.94)
TaxCAM × 2019 Indicator	0.100*	0.020*	0.148***	−0.000	0.001***
	(1.74)	(1.67)	(3.14)	(−0.31)	(2.82)
Controls	Yes—levels	Yes—changes	Yes—changes	Yes—levels	Yes—levels
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company	Company	Company
N	1,686	1,686	1,686	1,686	1,686
Adj. R^2	0.352	0.162	0.025	0.118	0.323

Note: This table presents the coefficients and *t*-statistics from estimating Equation (1) on UTB and UTB component outcomes on our initial year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We define all variables in the Appendix. For Columns 1, 4, and 5, we measure controls using levels of the variables. For Columns 2 and 3, we measure the controls as the change from year $t-1$ to t.
Abbreviations: CAM, critical audit matter; UTB, unrecognized tax benefit.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

(*RESID*). In Column 1, we also find a positive and significant coefficient on the interaction of *TaxCAM × 2019 Indicator*, consistent with an increase in UTBs in the initial year of CAM reporting for tax CAM companies. In Columns 2 and 3, we replace UTB with the components of the annual rollforward. For *CY_Inc* we observe a positive and marginally significant coefficient on the interaction between *TaxCAM* and *2019 Indicator*, suggesting the tax CAM companies, relative to companies without tax CAMs, increased their UTB reserve for current-year tax positions more so in 2019 than in 2018. In Column 3, we examine *PY_Change*. This variable represents changes in management's assessment of the likelihood that tax benefits will be realized for positions taken in prior tax years. Thus, unlike *UTB* or *CY_Inc*, *PY_Change* is not influenced by the company's tax strategy in the initial CAM disclosure year itself. We observe a positive and significant coefficient on the interaction between *TaxCAM* and *2019 Indicator*, which suggests that companies with tax CAMs disclosed in 2019 increase the UTB reserve for positions taken in prior tax years in 2019 to a greater extent than in 2018 relative to companies without disclosed tax CAMs in 2019. In Columns 4 and 5, we separate UTB into its predicted (*PRED*) and residual or discretionary components (*RESID*) and find that tax CAMs are associated with an increase in UTBs only in the discretionary component (Column 5). This result is consistent with the use of discretion and a decrease in the use of tax accounts, specifically UTBs, for earnings management. These results, coupled with our insignificant change in tax avoidance above, are consistent with tax CAM disclosures resulting in a change in tax reporting, plausibly relating to a decrease in the use of tax accounts to manage earnings.

Table 7 reports our tax accrual quality test. The insignificant coefficient on *TaxCAM* suggests no discernable difference in tax accrual quality between companies with and without tax

TABLE 7 Tax accrual quality: Initial CAM disclosure year sample (2018–2019).

Dependent variable	***TaxAQ***
Variable	**Coeff. (*t*-stat)**
Intercept	−0.004
	(−0.93)
TaxCAM	−0.002
	(−1.19)
2019 Indicator	0.003**
	(2.45)
TaxCAM × 2019 Indicator	0.002*
	(1.80)
Fixed effects	Industry (FF17)
Clustering	Company
N	1,684
Pseudo R^2	0.043

Note: This table presents the coefficients and *t*-statistics from estimating Equation (1) for tax accrual quality on our initial year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix.
Abbreviation: CAM, critical audit matter.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

CAMs in the pre-CAM period. However, the coefficient on *TaxCAM × 2019 Indicator* is positive and marginally significant, consistent with an increase in tax accrual quality in the initial year of CAM reporting for tax CAM companies.

5 | ADDITIONAL ANALYSES

We conduct a series of additional analyses, which are categorized into two groups: (1) analyses that extend or main findings and (2) analyses that examine the robustness of our main findings. For brevity, we only highlight the primary findings of these analyses in the manuscript. For a more thorough discussion of the rationale behind these tests, the design of these tests, and a full tabulation of results, see Appendix S1.

As extensions of our main findings, we (1) examine the second year of CAM reporting, (2) partition CAMs into expected and unexpected CAMs, (3) examine changes in tax footnote disclosures, and (4) examine the effect of tax-related CAMs on audit fees. Overall, the results of the second-year analysis (presented in Table 8) suggest that the effects observed for tax accrual quality, tax earnings management, and UTBs for first-time tax CAMs in 2019 do not extend to the second year of CAM reporting.[18] In

[18]However, the results for the second year (i.e., comparing 2019 to 2020) are subject to numerous important caveats. First, the second year of CAM reporting was affected by the COVID-19 pandemic. To the extent COVID "stay at home" orders affected companies and auditors, the results of our second-year analysis may not reflect CAMs but rather uncertain environments. In addition, the pandemic's effects on company profitability and analyst forecasts may affect our second-year earnings management analyses. If companies' profits declined or were affected by the pandemic, we expect the pandemic effects could make it difficult for analysts to forecast earnings (e.g., Aaron et al., 2021; Bilinski, 2021). Finally, because we are interested in tax CAMs and tax reporting outcomes, the second year of CAM reporting was affected by tax law changes in the Coronavirus Aid, Relief, and Economic Security (CARES) Act, signed into law on March 27, 2020, which may affect tax accounts or footnote disclosures. Thus, we caution readers from relying too heavily on the results of our second-year analyses.

TABLE 8 Additional analysis: Second CAM disclosure year sample (2019–2020).

Dependent variable	(1) *TaxAQ* Coeff. (*t*-stat)	(2) *TaxEM = 1* Coeff. (*z*-stat)	(3) *UTB* Coeff. (*t*-stat)
Intercept	−0.001	1.999***	−0.896***
	(−0.43)	(2.70)	(−2.97)
2020 Indicator	0.003***	−0.061	−0.024
	(7.16)	(−0.42)	(−1.07)
Tax CAM both 2019 & 2020	−0.000	−0.588*	0.556***
	(−0.09)	(1.76)	(6.57)
Tax CAM both 2019 & 2020 × 2020 Indicator	−0.001	0.794*	−0.025
	(−0.57)	(1.88)	(−0.52)
Tax CAM 2020 only	0.000	−0.579	0.119
	(0.06)	(−0.74)	(0.67)
Tax CAM 2020 only × 2020 Indicator	0.000	0.787	0.023
	(0.07)	(0.82)	(0.18)
Tax CAM 2019 only	−0.001	−0.852	0.560***
	(−0.51)	(−1.10)	(3.11)
Tax CAM 2019 only × 2020 Indicator	0.000	1.195	−0.135
	(0.01)	(1.28)	(−1.00)
Controls	Yes	Yes	Yes
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company
N	1,684	1,938	1,686
Adjusted R^2 (1) and (3)/Pseudo R^2 (2)	0.055	0.061	0.334

Note: This table presents the coefficients and *t*-statistics (*z*-statistics) from estimating Equation (1), which has been modified to allow for the testing of two years of effects (i.e., 2019 and 2020). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We define all variables in the Appendix.

Abbreviations: CAM, critical audit matter; UTB, unrecognized tax benefit.

*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

the unexpected/expected tax CAM analysis (presented in Table 9), we observe that the findings in the primary analysis hold for *both* expected and unexpected tax CAMs. In our tax footnote analysis (presented in Table 10), we find that the disclosure of a tax CAM is associated with an increase in the length, readability, and use of words that are negative or weak modal in tone in the income tax footnote. Finally, in the audit fee analysis, we fail to identify an association between tax CAMs and an increase in audit or auditor-provided tax services (APTS) fees in the CAM year relative to the pre-CAM year.

As robustness tests of our primary findings, we (1) examine parallel trends, (2) employ propensity score matching, (3) employ entropy balancing, (4) include company fixed effects, (5) examine non-accelerated filers, and (6) include LAFs with zero CAMs. The parallel trends (available in Appendix S1) show that each of the outcomes where we observe

TABLE 9 Partitioning tax CAM into expected/unexpected (Burke et al., 2023): Initial CAM disclosure year sample (2018–2019).

Dependent variable	(1) *TaxAQ* Coeff. (*t*-stat)	(2) *TaxEM = 1* Coeff. (*z*-stat)	(3) *UTB* Coeff. (*t*-stat)
Intercept	−0.005	2.300***	−0.681**
	(−1.08)	(3.02)	(−2.41)
2019 Indicator	0.003**	−0.018	−0.079
	(2.33)	(−0.07)	(−1.15)
TaxCAM Expected	−0.002	0.468	0.856***
	(−1.15)	(1.47)	(9.41)
TaxCAM Unexpected	−0.004*	0.734*	0.677***
	(−1.84)	(1.72)	(6.35)
TaxCAM Missed	−0.003	0.332	0.129
	(−0.95)	(0.85)	(1.01)
TaxCAM Expected × 2019 Indicator	0.002**	−1.160**	0.151**
	(2.16)	(−2.43)	(2.33)
TaxCAM Unexpected × 2019 Indicator	0.003*	−1.290*	0.132**
	(1.77)	(−1.94)	(2.38)
TaxCAM Missed × 2019 Indicator	0.002	−0.118	0.023
	(0.99)	(−0.23)	(0.21)
Controls	Yes	Yes	Yes
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company
N	1,684	1,938	1,686
Adjusted R^2 (1) and (3)/Pseudo R^2 (2)	0.066	0.071	0.420

Note: This table presents the coefficients and *t*-statistics (*z*-statistics) from estimating Equation (1) on *TaxAQ*, *TaxEM*, and *UTB* outcomes on our initial year CAM reporting sample (2018 and 2019). The variable of interest, *TaxCAM*, has been disaggregated into Expected, Unexpected, and Missed, following Burke et al. (2023). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix.

Abbreviations: CAM, critical audit matter; UTB, unrecognized tax benefit.

*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

results in our primary analysis (i.e., *TaxAQ*, *TaxEM*, and *UTB*) are within a 90% confidence interval (i.e., the confidence interval crosses the zero line) between tax CAM and non-tax CAM companies in the pre-CAM time period (e.g., 2015–2018) but differ in 2019 (does not cross the zero line). When we make use of propensity score matching, entropy balancing, or include company fixed effects, we find that the inferences are largely consistent with our primary analysis. When examining non-accelerated filers (NAFs), we do not observe changes in tax-related earnings management, UTBs, or tax accrual quality for NAFs in their first year of CAM reporting (i.e., 2020), but also note significant data constraints with these tests relative to LAFs. Finally, our primary analysis excludes LAFs that do not have a CAM disclosure in their 2019 audit report; our findings are consistent if we include these LAFs in the analysis.

TABLE 10 Changes in income tax footnote disclosures: Initial CAM disclosure year sample (2018–2019).

Dependent variable	(1) *Word Count*	(2) *Positive Words*	(3) *Negative Words*	(4) *Strong Modal Words*	(5) *Weak Modal Words*	(6) *Fog*
Variable	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)	Coeff. (*t*-stat)
Intercept	6.397***	0.838***	2.085***	0.555***	0.413***	20.378***
	(77.37)	(8.00)	(14.58)	(10.44)	(5.72)	(28.93)
TaxCAM	0.169***	0.009	−0.016	−0.013	0.004	−0.111
	(5.17)	(0.27)	(−0.36)	(−0.72)	(0.14)	(−0.44)
2019 Indicator	−0.101***	0.017*	0.154***	0.021***	0.023***	0.564***
	(11.85)	(1.72)	(11.41)	(3.97)	(3.85)	(6.83)
TaxCAM × 2019 Indicator	0.025*	0.010	0.043*	−0.005	0.026**	−0.474***
	(1.77)	(0.48)	(1.86)	(−0.45)	(1.99)	(−2.91)
Controls	Yes—levels	Yes—levels	Yes—levels	Yes—levels	Yes—levels	Yes—levels
Fixed effects	Industry (FF17)	Industry (FF17)	Industry (FF17)	Industry (FF17)	Industry (FF17)	Industry (FF17)
Clustering	Company	Company	Company	Company	Company	Company
N	1,936	1,936	1,936	1,936	1,936	1,936
Adjusted R^2	0.236	0.047	0.109	0.069	0.070	0.063

Note: This table presents coefficients and *t*-statistics from estimating Equation (1) using an OLS regression of tax footnote word count, positive words, negative words, strong modal words, weak modal words, and complexity in Columns 1–6, respectively, on our initial-year CAM reporting sample (2018 and 2019). We suppress coefficients on control variables for brevity. We present full tables in Appendix S1. We outline our sample selection in Table 1 and define all variables in the Appendix.
Abbreviation: CAM, critical audit matter.
*, **, and *** represent significance (two-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

6 | CONCLUSION

The PCAOB suggested that a possible indirect benefit of CAM disclosures could be improved audit and financial reporting quality, yet prior audit research provides mixed evidence on whether CAMs impact financial reporting quality (e.g., Burke et al., 2023; Gutierrez et al., 2018). While we cannot fully reconcile the difference from prior research, our findings indicate that the connection is nuanced and not always easily identified in a pooled sample. Using a setting with a tighter mapping between CAMs and the underlying reporting, we show a mild but short-lived effect. Our findings complement the findings in other recent studies that examine specific CAM effects on specific financial statement areas (e.g., Andreicovici et al., 2023; Fuller et al., 2021; Hu et al., 2023). Like these studies, we show that there can be a CAM benefit, but the effects appear to be account-specific rather than related to broad measures of financial reporting quality.

Our study should also inform the PCAOB as they continue to conduct post-implementation review of the CAM reporting standard. In recent PCAOB surveys, preparers and audit partners provided conflicting views—with audit partners (managers) indicating the CAMs did (not) affect disclosures (PCAOB, 2020a, 2020b). Our study provides evidence that tax footnote content did change consistent with audit partners' views. However, consistent with preparers' views, we find that the impact of CAMs on financial reporting quality was minimal and short-lived. Thus, our study provides some context as to why these differing views can coexist.

Our results are subject to several caveats. First, while we argue that focusing on tax-related CAM disclosures and tax outcomes allows us to more directly identify an association between

the CAM disclosure and the outcome of interest, it is possible that the tax-related CAM disclosures are unique and not representative of other CAM disclosures. Additionally, while our results suggest revisions to the tax accounts in response to tax CAM disclosures, if tax CAM companies differentially use tax accounts in the pre-CAM period (Lynch et al., 2023), our results could reflect a differential reversal of prior-year tax accruals for tax CAM companies. However, it is also important to note that our expected/unexpected CAM analysis and parallel trends do not indicate this to be the case. Finally, we acknowledge that there are mixed views on whether earnings management is harmful to investors. While we believe that a tax CAM-related reduction in tax earnings management is beneficial, not all agree.

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DATA AVAILABILITY STATEMENT

Data used in this study are available from the sources identified in the text.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX: VARIABLE DEFINITIONS

Panel A: Variables of interest and dependent variables

Variable	Definition (data source)
Independent variables of interest	
TaxCAM	Indicator equal to one if a tax-related issue was disclosed as a critical audit matter in 2019, and zero otherwise (Audit Analytics) (Tables 3–7 and 10)
2019 Indicator	Indicator set equal to one for the 2019 fiscal year-end, and zero otherwise (Tables 3–7, 9, and 10)
2020 Indicator	Indicator set equal to one for the 2020 fiscal year-end, and zero otherwise (Table 8)
Tax CAM both 2019 & 2020	Indicator set equal to one if a tax-related issue was disclosed as a critical audit matter in both 2019 and 2020, and zero otherwise (Audit Analytics) (Table 8)
Tax CAM 2020 only	Indicator set equal to one if a tax-related issue was disclosed as a critical audit matter 2020 only, and zero otherwise (Audit Analytics) (Table 8)
Tax CAM 2019 only	Indicator set equal to one if a tax-related issue was disclosed as a critical audit matter in 2019 only, and zero otherwise (Audit Analytics) (Table 8)
TaxCAM Expected	Indicator variable equal to one if the company-year observation was *expected* to receive a tax CAM and *did* receive one, and zero otherwise. We determine whether an observation was expected to receive a tax CAM following the methodology of Burke et al. (2023). In particular, we use the regression model from their tab. 6, Panel B. Using this prediction model, an observation is considered to be expected to have a tax CAM if the observation's fitted value is in the top quintile (various) (Table 9)
TaxCAM Unexpected	Indicator variable equal to one if the company-year observation was *not expected* to receive a tax CAM and *did* receive one, and zero otherwise. We determine whether an observation was expected to receive a tax CAM following the methodology of Burke et al. (2023). In particular, we use the regression model from their tab. 6, Panel B. Using this prediction model, an observation is considered to be expected to have a tax CAM if the observation's fitted value is in the top quintile (various) (Table 9)
TaxCAM Missed	Indicator variable equal to one if the company-year observation was *expected* to receive a tax CAM and *did not* receive one, and zero otherwise. We determine whether an observation was expected to receive a tax CAM following the methodology of Burke et al. (2023). In particular, we use the regression model from their tab. 6, Panel B. Using this prediction model, an observation is considered to be expected to have a tax CAM if the observation's fitted value is in the top quintile (various) (Table 9)
Dependent variables	
Tax-Related ICW	Indicator variable equal to one if the company's auditor discloses a tax-related internal control weakness (ICW) for year t, and zero otherwise (Audit Analytics) (Table 3)
Tax-Related Restatement	Indicator variable equal to one if the company's year t financial statements are subsequently restated for a tax-related issue, and zero otherwise (Audit Analytics) (Table 3)
Tax-Related SEC Comment Letter	Indicator variable equal to one if the company subsequently receives a tax-related comment letter from the SEC that relates to year t, and zero otherwise (Audit Analytics) (Table 3)
TaxAQ	Following Choudhary et al. (2016), measured as negative one times the standard deviation of the residuals from client-specific estimations of tax accruals being regressed on prior, current, and future cash taxes paid and contemporaneous changes in long-term deferred tax assets and liabilities. These estimations are by Fama-French 48 industry-year for industry-years with at least 20 observations. *TaxAQ* is calculated as the standard deviation of the residuals from $t-2$ to t (various) (Table 7)

APPENDIX (Continued)

Panel A: Variables of interest and dependent variables

Variable	Definition (data source)
Adj. Cash ETR	Industry-year-size-adjusted cash ETR measured as cash taxes paid scaled by pre-tax income (TXPD/PI) (Compustat). We use Fama-French 17 industry definitions and size quintiles. We determine the average using all Compustat observations with available data (Table 4)
Adj. GAAP ETR	Industry-year-size-adjusted GAAP ETR measured as total tax expense scaled by pre-tax income (TXT/PI) (Compustat). We use Fama-French 17 industry definitions and size quintiles. We determine the average using all Compustat observations with available data (Table 4)
Adj. BTD	Industry-year-size-adjusted BTD measured using the following equation: $((PI - MII) - ((TXFED + TXFO)/0.21)) - (TLCF_t - TLCF_{t-1}))$. If missing, we calculate BTD as follows: TXT – (TXDI + TXS + TXO) (Compustat) We scale BTD by prior year total assets. We use Fama-French 17 industry definitions and size quintiles. We determine the average using all Compustat observations with available data (Table 4)
TaxEM	Following Gupta et al. (2016), an indicator equal to one if after-tax earnings per share ($AftertaxEPS_{actual}$) meets or beats the after-tax EPS forecast ($AftertaxEPS_{forecast}$) but the unmanaged after-tax EPS (*UnmanagedAftertaxEPS*) does not meet or beat the after-tax EPS forecast ($AftertaxEPS_{forecast}$), and zero otherwise. *UnmanagedAftertaxEPS* is measured as actual pre-tax earnings per share adjusted for forecasted tax expense ($(PretaxEPS_{Actual}) \times (1 - ETR_{forecast})$), where $ETR_{forecast}$ is the forecasted effective tax rate that is obtained from I/B/E/S by dividing the median $AftertaxEPS_{forecast}$ less median pre-tax earnings per share forecast ($PretaxEPS_{forecast}$) by the median $PretaxEPS_{forecast}$ (I/B/E/S) (Table 5)
UTB	Total UTBs scaled by prior-year total assets (Compustat) (Table 6)
CY_Inc	Increase in the reserve for UTBs for positions taken during the current year divided by prior-year total assets (Compustat) (Table 6)
PY_Change	Sum of increases and decreases in the reserve for UTBs for positions taken during the prior years divided by prior-year total assets (Compustat) (Table 6)
Non-Discretionary UTB (*PRED*)	Predicted level of UTBs, which we calculate following eq. 1 from Nesbitt (2020) (Table 6)
Discretionary UTB (*RESID*)	Discretionary level of UTBs, which we calculate as the difference between actual levels of UTBs and *PRED* (Table 6)
Word Count	Tax footnote length by word count obtained by performing a textual analysis of company tax footnotes (see the discussion in Section 4) (Table 10)
Positive Words	Ratio of positive words to total words in the tax footnote multiplied by 100 to convert to a percentage. We identify positive words by performing a textual analysis of company tax footnotes and applying the Loughran and McDonald word lists available from https://sraf.nd.edu/loughranmcdonald-master-dictionary/ (Table 10)
Negative Words	Ratio of negative words to total words in the tax footnote multiplied by 100 to convert to a percentage. We identify negative words by performing a textual analysis of company tax footnotes and applying the Loughran and McDonald word lists available from https://sraf.nd.edu/loughranmcdonald-master-dictionary/ (Table 10)
Strong Modal Words	Ratio of strong modal words to total words in the tax footnote multiplied by 100 to convert to a percentage. We identify strong modal words by performing a textual analysis of company tax footnotes and applying the Loughran and McDonald word lists available from https://sraf.nd.edu/loughranmcdonald-master-dictionary/ (Table 10)

(Continues)

APPENDIX (Continued)

Panel A: Variables of interest and dependent variables	
Variable	**Definition (data source)**
Weak Modal Words	Ratio of weak modal words to total words in the tax footnote multiplied by 100 to convert to a percentage. We identify weak modal words by performing a textual analysis of company tax footnotes and applying the Loughran and McDonald word lists available from https://sraf.nd.edu/loughranmcdonald-master-dictionary/ (Table 10)
Fog	Fog index of the tax footnote. We follow Li (2008) and measure the Fog index as the (words per sentence + percent of complex words) × 0.4, where complex words are defined as words with three syllables or more (Gunning, 1952) (Table 10)
Panel B: Control variables	
Acquisition	Indicator equal to one if acquisition or restructuring costs are greater than zero, and zero otherwise (Compustat) (Table 10)
Age	Number of company fiscal years included in Compustat (Table 10)
AnalystFollowing	Number of analysts following the company (I/B/E/S) (Tables 5 and 6)
BTM	Book-to-market ratio. Book value of equity (CEQ) divided by market value of equity (PRCC_F × CSHO) (Tables 4, 6, and 10)
CapEx	Capital expenditures (CAPX) scaled by prior year total assets (AT) (Compustat) (Tables 4 and 6)
Cash	Cash holdings (CHE) divided by prior year total assets (AT) (Compustat) (Tables 4 and 6)
CashETR	Cash taxes paid (TXPD) divided by pre-tax income (PI) less special items (SPI) (Compustat) (Tables 5 and 6)
DelawareInc	Indicator equal to one if the company is incorporated in Delaware, and zero otherwise (Compustat) (Table 10)
Depr	Depreciation and amortization expense (DP) divided by prior year total assets (AT) (Tables 4 and 6)
DiscExtra	Indicator variable equal to one when a company reports a large discretionary or extraordinary item, and zero otherwise. We follow Choudhary et al. (2016) and define a large item as an observation with XIDOC >1% of REVT (Compustat) (Tables 3 and 7)
EarnVol	Standard deviation of income before extraordinary items (IB) over the prior 3 years from year $t-2$ to year t (Compustat) (Table 10)
EqInc	Equity income (ESUB) scaled by prior year total assets (AT) (Compustat) (Tables 4 and 6)
ESOIndustry	Indicator variable equal to one if an observation operates in an industry with potentially large tax deductions from the exercise of options (SIC codes 30–39 and 70–89), and zero otherwise (Choudhary et al., 2016) (Compustat) (Tables 3 and 7)
FI	Pre-tax foreign income (PIFO) divided by prior-year total assets (AT) (Compustat) (Tables 4–6)
Foreign	Indicator variable equal to one if an observation reports nonzero and nonmissing foreign tax expense (TXFO), and zero otherwise (Compustat) (Tables 3, 6, and 7)
GeoSeg	Number of geographic segments in year t (Compustat) (Table 10)
Lev	Long-term-debt-to-asset ratio. Long-term debt (DLTT) divided by prior year total assets (AT) (Tables 4 and 6)
NOLInd	Indicator equal to one if tax-loss carryforwards (TLCF) are greater than zero, and zero otherwise (Compustat) (Tables 4 and 5)
ΔNOL	Tax-loss carryforwards less prior year tax-loss carryforwards divided by prior-year total assets (Compustat) (Tables 4–6)
NumCAMs	Total number of CAMs disclosed in the audit report (Audit Analytics) (Tables 3–7)

APPENDIX (Continued)

Panel B: Control variables	
PP&E	Net property, plant, and equipment (PPENT) divided by prior-year total assets (AT) (Compustat) (Tables 4 and 6)
PTBIVol	Standard deviation of income before extraordinary items (IB) over years t, $t-1$, and $t-2$ (Compustat) (Tables 3 and 7)
R&D	Research and development expense (XRD) divided by prior-year total assets (AT) (Compustat) (Tables 4–6)
ROA	Income before extraordinary items (IB) divided by average total assets (AT) for year t and the prior year (Compustat) (Tables 4–6)
SalesGrowth	Sales (REVT) divided by prior year sales (REVT) (Tables 4 and 6)
SGA	SG&A expenses (XSGA) divided by prior year total assets (AT) (Tables 4 and 6)
Size	Natural log of total assets (AT) (Compustat) (Tables 3–7 and 10)
SpecialItems	Special items (SPI) scaled by prior-year total assets (AT) (Compustat) (Table 10)
TaxLoss	Indicator variable equal to one if the observation has negative pre-tax income (PI), and zero otherwise (Compustat) (Tables 3 and 7)
UTB	Total UTBs (TXTUBEND) scaled by prior-year total assets (AT) (Compustat) (Tables 3 and 7)
VARelease	Following Drake et al. (2020), the probability of reporting a VA release based on the coefficients from their tab. 8 (Table 4)

Note: All continuous variables are winsorized at the 1% and 99% levels.