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The Effects of Regulatory Scrutiny on Tax Avoidance: An Examination of SEC Comment Letters

Thomas R. Kubick
The University of Kansas

Daniel P. Lynch
University of Wisconsin–Madison

Michael A. Mayberry
University of Florida

Thomas C. Omer
University of Nebraska–Lincoln

ABSTRACT: This study examines the tax avoidance behavior of firms prior to the issuance, and following the resolution, of SEC tax comment letters. We find that firms that appear to engage in greater tax avoidance are more likely to receive a tax-related SEC comment letter. We also find that firms receiving a tax-related SEC comment letter, relative to firms receiving a non-tax comment letter, subsequently decrease their tax avoidance behavior consistent with an increase in expected tax costs. Additionally, we document evidence consistent with other firms that do not receive a comment letter reacting to multiple publicly disclosed tax-related comment letters within their industry by increasing their reported GAAP ETR, consistent with an indirect effect of regulatory scrutiny on certain types of tax avoidance.

Keywords: tax avoidance; tax costs; SEC comment letters; SEC scrutiny; regulatory scrutiny.

I. INTRODUCTION

This study examines the effects of Securities and Exchange Commission (SEC) scrutiny of firms' financial statement tax disclosures on the tax behaviors of firms under scrutiny and other firms within their respective industry. Although prior research has examined the consequences of scrutiny by tax authorities on tax avoidance (Hoopes, Mescall, and Pittman 2012), the literature provides little evidence on the effect of scrutiny by other regulatory bodies on firms' tax avoidance. The SEC and the Internal Revenue Service (IRS) both focus on firms' reporting behaviors; however, the two agencies have different objectives. Specifically, the SEC is primarily concerned with the financial reporting of tax information, while the IRS is primarily concerned with tax avoidance.[1] Nonetheless, we document an association between SEC scrutiny of firms' financial statement tax disclosures, which results in tax-related comment letters, and tax avoidance. We also document an association between the receipt of a tax-related comment letter and a reduction in both the scrutinized firms' generally accepted accounting principles (GAAP) and cash effective tax rates (ETRs) and their industry peers' GAAP ETR. We provide evidence that scrutiny

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[1] The two agencies have engaged in minimal coordination and information sharing in the past. See https://www.sec.gov/info/municipal/sec-irs-mou030210.pdf/ for an exception where the SEC and the IRS worked together regarding tax-exempt bonds and municipal securities.

by one governmental agency that focuses on the financial reporting of tax information (i.e., the SEC) positively affects other agencies that focus on tax avoidance (e.g., the IRS).

We use publicly available tax-related SEC comment letters as our measure of regulatory scrutiny. Section 408 of the Sarbanes-Oxley Act (SOX) mandates that the SEC examine each registrants' 10-K at least once every three years and issue comment letters when the SEC requires clarification of firms' financial statement disclosures. Firms must respond to comment letters within ten business days. Responses to the comment letter include additional information, disclosures, and a commitment to either adjust future filings or restate previously issued filings (Cassell, Dreher, and Myers 2013). Upon resolution, SEC comment letters and firms' responses are posted on the SEC's website. The primary reason for tax-related SEC comment letters is a lack of disclosure of accounting assumptions and items such as the reconciliation of the GAAP ETR, undistributed foreign earnings, uncertain tax positions, and valuation allowances (Deloitte 2012; PricewaterhouseCoopers [PwC] 2014).[2]

We first investigate whether firms' tax avoidance elicits regulatory scrutiny from the SEC. Next, we consider the association between SEC scrutiny and changes in firms' tax avoidance following the receipt of a tax-related comment letter. We also examine the extent to which SEC regulatory scrutiny has additional indirect effects by investigating whether peer firms in the same industry where other firms receive a tax-related comment letter also reduce their tax avoidance.

Using a sample of firm-years from 2004–2012, we first find a positive association between tax avoidance and the propensity to receive a tax-related SEC comment letter. This result is consistent with firms with higher levels of tax avoidance having lower-quality tax disclosures. This result could suggest intentional obfuscation of tax information by management that elicits regulatory scrutiny from the SEC. Next, we consider how regulatory scrutiny, and its associated increase in the salience of tax-related information, affects tax avoidance. We employ a propensity score matching design to isolate the effect of tax-related scrutiny, and examine the subsequent tax avoidance of firms receiving a *tax*-related comment letter compared to firms receiving a *non-tax* comment letter, thus holding constant general regulatory scrutiny.[3] Using a difference-in-differences design, we find that following the resolution of tax-related comment letters, firms engage in lower levels of tax avoidance than the control sample of firms receiving non-tax comment letters. Our results suggest that following tax-related comment letter resolution, firms increase their GAAP and cash ETRs by approximately 1.4 percentage points and 1.5 percentage points, respectively. This result is consistent with SEC scrutiny of tax-related disclosures leading to decreases in tax avoidance, potentially benefiting the IRS and other taxing authorities. Next, we match firms that have not received a comment letter (in industries where multiple peer firms received a tax comment letter) to tax comment letter firms in the same industry and year. We find that peer firms react to the disclosure of tax-related comment letter resolution within their industry by increasing their GAAP ETRs, consistent with an indirect effect of SEC scrutiny on certain forms of tax avoidance.

We perform several supplemental tests to support our primary results. First, we conduct falsification tests by reestimating our difference-in-differences tests using pseudo-events occurring in years preceding the actual receipt of a tax-related comment letter. We observe no change in tax avoidance related to these pseudo-events, which supports our primary result that the receipt of a tax comment letter is associated with changes in tax avoidance. Second, we consider the extent to which firms alter their tax disclosures following a tax-related comment letter. We find that after a tax-related comment letter, firms increase the length of their tax footnote and the number of references to tax issues in their 10-Ks and Management Discussion and Analyses (MD&As). This finding is consistent with firms responding to regulatory scrutiny by increasing the volume of their tax-related public disclosures, in addition to altering their tax avoidance activities. Third, to examine managerial responses to regulatory scrutiny, we investigate the extent to which firms alter their estimation of tax reserves following the resolution of a tax-related comment letter when tax reserve (UTB) disclosures are the subject of the comment letter. We find that firms increase their tax reserves for uncertain tax positions following the receipt and resolution of the comment letters specifically mentioning UTB issues. These results are consistent with firms responding to regulatory scrutiny by altering their subsequent reporting of the issues that are specifically targeted by the SEC.

The effect of SEC scrutiny on tax avoidance is important for several reasons. First, it informs legislators on the effectiveness of the SEC, which has been the subject of both historical and contemporary debate (Stigler 1964; Benston 1969; Seligman 2003; Bushee and Leuz 2005). We document both a direct effect of regulatory scrutiny on firms receiving tax-related comment letters (i.e., higher GAAP and cash ETRs) and an indirect effect on peer firms in the same industry (i.e., higher GAAP ETRs). Second, tax authorities could potentially use the SEC comment letter process in determining which firms to target for an examination and the scope of issues targeted for subsequent audits.[4] We inform legislators and regulators on the potential

[2] As we discuss later in the paper, we examine a sample of tax-related comment letters and find that many of these comment letters relate specifically to a firm's effective tax rate.

[3] We match firms receiving tax-related comment letters to firms receiving non-tax comment letters on prior-period tax avoidance and other firm characteristics that prior research indicates are associated with SEC scrutiny (Cassell et al. 2013). We require exact matches for each industry (based on two-digit SIC) and fiscal year.

[4] Consistent with the IRS using SEC comment letters, Bozanic, Hoopes, Thornock, and Williams (2015) use IRS download counts of SEC filings to document that the IRS is also downloading SEC comment letters.

benefits of cross-agency resource allocation and note a "spillover effect" in the benefits of SEC enforcement to other government agencies. Finally, by demonstrating that higher levels of tax avoidance result in tax-related comment letters, we inform investors and researchers on the disclosure aspects of tax avoidance.

This study contributes to several lines of literature. First, we contribute to the literature investigating the determinants (Cassell et al. 2013; Ettredge, Johnstone, Stone, and Wang 2011) and consequences (Johnston and Petacchi 2012; Robinson, Xue, and Yu 2011) of SEC comment letters and their resolution. We expand this literature to include tax-related topics, which represent a unique tension between the interests of regulators that favor full disclosure of tax information and investors that likely prefer less disclosure to facilitate increased after-tax cash flows through greater tax avoidance. Prior studies find that comment letters result in changes in disclosure (Brown, Tian, and Tucker 2013), but fail to find a real change in firms' operations (Robinson et al. 2011). We contribute to the literature on the consequences of comment letters by documenting an effect beyond a change in disclosures where firms targeted by the SEC reduce the level of their tax avoidance activities.

Second, we contribute to the literature on regulatory scrutiny that primarily focuses on SEC scrutiny and earnings quality (Blackburne 2014; Comprix and Muller 2011) by focusing on the tax avoidance dimension of firms' operating environments. Concurrent research performed on U.K. firms examines the effect of public interest group scrutiny on tax avoidance (Dyreng, Hoopes, and Wilde 2014). We distinguish our study from theirs by focusing on regulatory scrutiny, as opposed to non-governmental activist scrutiny, and by focusing on U.S. firms. Additionally, we examine the regulatory scrutiny associated with any tax-related disclosure or account, whereas Dyreng et al. (2014) strictly focus on disclosure of subsidiary locations. Finally, we also examine indirect effects of regulatory scrutiny on firms in the same industry, whereas Dyreng et al. (2014) only consider a direct effect.

Third, we contribute to the literature on the spillover effect of regulatory scrutiny, which to date have focused only on the effect of IRS actions (Guedhami and Pittman 2008; Hanlon, Hoopes, and Shroff 2014). We document a spillover effect for SEC scrutiny of firms' financial statement tax disclosures that could benefit multiple government agencies. Additionally, we document an indirect effect of regulatory scrutiny by demonstrating that peer industry firms also increase their GAAP ETR.

Finally, we contribute to the literature examining the costs of book-tax differences (Hanlon and Heitzman 2010). Mills (1998) and Mills and Sansing (2000) find a positive association between book-tax differences and IRS proposed audit deficiencies. Similarly, Wilson (2009) provides evidence of a positive association between book-tax differences and tax sheltering, and notes that tax sheltering activity, if successfully challenged by the IRS, can result in significant additional costs in the form of interest and penalties. Our results contribute to this literature by providing evidence that lower GAAP effective tax rates and higher permanent book-tax differences result in increased SEC scrutiny. This scrutiny increases the expected costs of tax avoidance and results in a decrease in subsequent tax avoidance activities.

The remainder of this paper proceeds as follows: Section II provides background on the SEC comment letter process, along with a discussion of prior research, and develops the research hypotheses. Section III discusses the methodology, Section IV discusses the results, Section V discusses additional analyses performed, and Section VI concludes.

II. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

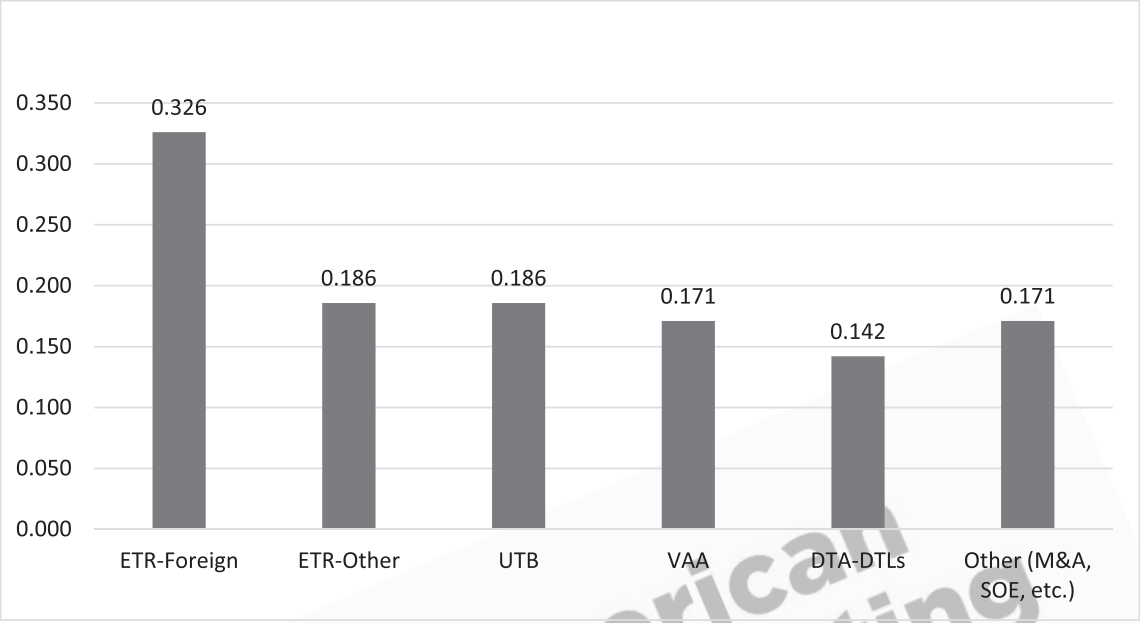
The SEC is required to review each registrant's 10-K at least once every three years (SOX Section 408). The SEC issues comment letters when a registrant's filing is materially deficient or if the filing requires additional clarification. SEC staff reviews not only a company's filings, but also other publicly available information, such as earnings call transcripts, press releases, and company websites, among others (Deloitte 2014). Registrants must respond to comment letters within ten business days, and responses typically include supplemental information addressing the deficiency or providing additional clarification. In some cases, firms are required to restate the reviewed filing, but, typically, the firm commits to providing the requested information in future disclosures.[5]

Recently, the SEC began devoting resources to target firms' tax disclosures and accounting for income taxes (Deloitte 2012; PwC 2014). Anecdotal evidence suggests that these tax-related comment letters primarily relate to items such as permanently reinvested earnings (PRE), uncertain tax benefits (UTB), and valuation allowances (Deloitte 2012; PwC 2014). Figure 1 provides an array of tax issues disclosed in each of the SEC tax-related comment letters in our sample. Consistent with practitioner publications, we find that foreign ETR issues, UTB disclosures, and valuation allowance disclosures are the issues most often cited in SEC tax-related comment letters in our sample.

Appendix A provides three examples of tax-related comment letters. In the first example, Tyson Foods Inc. (Tyson) receives a tax-related comment letter in which the SEC asks for clarification regarding an error in recording fixed assets that resulted in an increase in tax expense. In response, Tyson describes the error that occurred during a conversion in fixed asset

[5] Johnston and Petacchi (2012) report that more than 17 percent of firms amend filings to resolve SEC comment letters during the 2004–2006 period.

FIGURE 1
Percentage of SEC Tax-Related Comment Letters in Our Matched Sample by Disclosed Issues



ETR-Foreign includes any issues related to the firm's ETR, including permanently reinvested earnings. *ETR-Other* are any issues related to the firm's ETR not explicitly mentioning foreign issues. *UTB* is unrecognized tax benefits or tax reserves. *VAA* is valuation allowance account. *DTA-DTLs* are any issues related to the deferred tax assets or liabilities of the firm. *Other* are other issues that do not explicitly reference one of the aforementioned categories (e.g., mergers and acquisitions, stock option compensation).

software. This error switched the book and tax basis of certain assets, resulting in misstated depreciation amounts. This letter and response shed light on an accounting error that could have implications for tax authorities who could be in the process of auditing previously filed tax returns.

In the second example, the SEC asks VF Corporation (VFC) about its foreign tax structure, as well as for additional risk factor disclosures. The SEC references a comment by VFC's CFO in an analyst conference call regarding its 15 percent ETR. In response, VFC disclosed tax haven locations with substantial operations, including Switzerland, Hong Kong, and Panama. The disclosure draws attention to VFC's tax avoidance activities in these jurisdictions that could have implications for its past and future tax planning activities.

In a third example, Riverbed Technologies Inc. (Riverbed) receives a comment letter for not highlighting its UTB balance in the contractual obligations portion of its financial statements. The SEC seeks additional information on what Riverbed considered when estimating the UTB balance and the accounts in which any income taxes are payable. Riverbed subsequently disclosed the components of its UTB balances and committed to disclosing these details in future contractual obligation disclosures. Notably, in each of these examples, the SEC required firms to discuss information that provided additional insight or highlighted ongoing tax events that could be relevant to avoidance strategies.

Determinants of Tax-Related Comment Letters (H1)

Comment letters identify deficiencies in firms' disclosures or financial statements (Cassell et al. 2013; Bozanic, Dietrich, and Johnson 2014). Prior literature has modeled the determinants of firms' receipt of SEC comment letters and finds that lower profitability, higher complexity, weaker corporate governance, and retaining a small audit firm are all positively associated with the likelihood of receiving an SEC comment letter (Cassell et al. 2013). Boone, Linthicum, and Poe (2013) find a positive association between firms subject to rule-based standards and standards that require subjective accounting estimates and receiving SEC comment letters. Additionally, Johnston and Petacchi (2012) find that firms with a history of amended filings and restatements are more likely to receive comment letters. Robinson et al. (2011) examine comment letters for firms' 8-Ks and document a positive association between comment letters concerning defective compensation disclosures and excess CEO compensation and prior media criticism of CEO compensation. Their results suggest that excessive compensation incentivized managers to withhold information for private benefit.

Given that comment letters identify deficiencies in firms' filings with the SEC, we consider the potential consequences of tax avoidance on firms' disclosures to inform our hypothesis development and motivation. All else equal, firms face incentives to minimize the disclosure of information related to tax planning. For example, Hope, Ma, and Thomas (2013) find that firms engaged in higher levels of tax avoidance exploited discretion in segment reporting to hide foreign segments, presumably to withhold information from taxing authorities. Similarly, Robinson and Schmidt (2013) find that Financial Accounting Standards Board (FASB) Interpretation No. 48 (FIN 48) disclosure quality is inversely related to tax avoidance and that investors reward firms with poor disclosure quality. In an international context, Dyreng et al. (2014) find that firms that fail to comply with mandatory subsidiary disclosures in the United Kingdom have higher levels of tax avoidance.[6]

The incentive to withhold information about tax avoidance is multi-faceted. Most obviously, firms withhold information that increases the probability of a taxing authority challenging a tax position. In addition to concern over the loss of tax benefits, reducing scrutiny of the tax authorities is likely important if managers rely on obfuscation of tax information to facilitate rent extraction (Desai and Dharmapala 2006). Moreover, firms also have an incentive to withhold information to minimize reputational penalties (Graham, Hanlon, Shevlin, and Shroff 2014). Important for our context, Bozanic et al. (2015) document that IRS Internet Protocol (IP) addresses access both comment letters and responses when posted on the SEC's website. The IRS's downloading activity suggests that the SEC's investigation of material disclosure deficiencies is relevant to the IRS's selection of firms and issues for audit. To the extent that the SEC is concerned about disclosure quality, and to the extent that disclosure quality increases the salience of information, such studies aid us in developing hypotheses regarding regulatory scrutiny.

Given theory and evidence that managerial incentives to withhold information predict comment letters (Robinson et al. 2011) and the literature noting that tax avoidance impairs disclosure quality, we predict that the SEC is more likely to issue tax-related comment letters to firms with higher levels of tax avoidance. Accordingly, we hypothesize:

H1: Tax avoidance is positively associated with receiving a tax-related SEC comment letter.

Our argument assumes that tax avoidance incentivizes firms to obfuscate and withhold tax-related information. However, it is plausible for this assumption to be true without H1 being valid. For example, firms may have low-quality tax disclosures for reasons other than tax avoidance, such as internal control weaknesses (Bauer 2016; Lynch 2016) or complexity. Moreover, the SEC's primary concern is the *disclosure* of tax avoidance activities and not the level of tax avoidance *per se*. If the SEC primarily scrutinizes the quality of firms' tax disclosures without regard to tax avoidance, then we would not expect to find evidence consistent with H1.

Additionally, prior research suggests that some managers do not withhold or even increase the disclosure of information regarding tax avoidance. For example, Balakrishnan, Blouin, and Guay (2012) find that aggressive tax planning decreases corporate transparency. However, they also find that managers of firms engaging in higher levels of tax avoidance attempt to offset the obfuscation resulting from higher tax avoidance by increasing their disclosure quantity. To the extent that firms engaging in tax avoidance disclose greater amounts of tax-related information in their financial statements, the SEC would be less likely to target them for tax-related comment letters. Likewise, Lennox, Lisowsky, and Pittman (2013) find that firms with higher levels of certain forms of tax avoidance are less likely to receive an Accounting and Auditing Enforcement Release (AAER). This result suggests that some forms of tax avoidance do not incentivize managers to distort information on mandated financial statements.

Direct Consequences of Regulatory Scrutiny (H2)

Prior research finds several consequences associated with the receipt of generic (i.e., not necessarily tax-related) SEC comment letters. First, Bozanic et al. (2014) find that firms increase the length of their 10-K filings following a comment letter, increase the quantitative nature of their disclosures related to the issues cited in the comment letters, and become less optimistic. Second, Johnston and Petacchi (2012) document an increase in earnings response coefficients (ERCs), in addition to a reduction in return volatility and trading volume around earnings announcements, following the resolution of SEC comment letters. These results suggest that managers and investors are cognizant of SEC comment letters and that the additional disclosure from the resolution of the comment letter process results in a decrease in information asymmetry.

Accounting researchers have used new accounting standards and changes in regulation as a proxy for regulatory scrutiny. Using these alternative proxies, prior research documents several effects of regulatory scrutiny on firm behavior (Dechow, Ge, and Schrand 2010; Eldenburg and Soderstrom 1996; Cohen, Dey, and Lys 2008; Gupta, Laux, and Lynch 2016; Gupta, Mills, and Towery 2014). Specific to tax avoidance, Gupta et al. (2014) find a reduction in multistate tax avoidance following the implementation of FIN 48. Similarly, Blouin, Gleason, Mills, and Sikes (2010) find that firms reduced tax reserves before implementation of FIN 48, consistent with a change in the costs of financial reporting of uncertain tax positions.

[6] Both Dyreng et al. (2014) and Robinson and Schmidt (2013) focus on the presence of a specific required disclosure. In contrast, the use of SEC comment letters allows us to examine both the presence and precision of specific disclosures.

Another relevant line of literature documents a spillover from the regulatory scrutiny by the IRS to financial reporting quality. The IRS regularly consults firms' financial statement filings, especially when firms engage in a high level of tax avoidance. Thus, tax regulators are cognizant of firms' financial reporting and appear to employ publicly available data in their auditing process (Bozanic et al. 2015). Moreover, Desai, Dyck, and Zingales (2007) argue that tax authority enforcement benefits outside stakeholders by reducing managerial rent diversion. Three studies have empirically examined this theory. First, Guedhami and Pittman (2008) find that U.S. tax enforcement mitigates agency problems between controlling shareholders and minority shareholders and results in cheaper debt financing. Second, El Ghoul, Guedhami, and Pittman (2011) find that the cost of equity capital is decreasing in the level of IRS enforcement. Finally, Hanlon et al. (2014) examine the effect of IRS monitoring on financial reporting quality. Consistent with a material spillover effect of tax enforcement on financial reporting quality, they find that firms report higher-quality accruals as audit probability increases.

Consistent with the prior literature on the consequences of IRS scrutiny on firms' financial reporting quality, the regulatory scrutiny of firms' financial statement tax disclosures, as suggested by the receipt of tax-related SEC comment letters, has the potential to change the costs and benefits of tax avoidance. Upon receipt of a comment letter, best practices dictate that firms assemble a team that involves staff from all relevant parties, including both the accounting and tax functions (Deloitte 2008; Bens, Cheng, and Neamtiu 2016).[7] Thus, staff from the tax function are likely aware of the regulatory scrutiny and the potential increase in the salience of tax-related information to tax regulators. SEC scrutiny could increase the likelihood that a tax position is examined, ultimately helping identify individual tax avoidance activities to target during an audit. All else equal, these factors should increase the expected costs of tax avoidance for firms receiving a tax-related comment letter and lead to lower subsequent levels of tax avoidance.[8]

Given the detailed information the IRS already has access to in firms' tax returns (e.g., Schedule M-3 and Schedule UTP), SEC comment letters might not provide additional information. However, the IRS, as well as other taxing authorities, faces resource constraints. While taxing authorities likely possess a broad array of tax-related data, such data must be processed into information that allows them to target specific firms, as well as relevant tax issues. To the extent that the SEC comments on material tax issues, the IRS can rely on the SEC's investigation of tax disclosures to help identify and target material tax issues at a relatively lower processing cost. Consistent with the IRS finding comment letters to be informative, Bozanic et al. (2015) use IRS IP addresses to document that the IRS regularly downloads SEC comment letters. The IRS interest in SEC comment letters suggests that additional information disclosed as a result of the comment letter likely facilitates the IRS's choice of firms or issues for examination.

Given prior evidence on firms' responses to regulatory scrutiny and the IRS's interest in tax-related comment letters, we expect that regulatory scrutiny increases the costs of tax avoidance. Accordingly, we hypothesize in the alternative form:

H2: The receipt of tax-related comment letters is negatively associated with future tax avoidance.

While we make a directional prediction, we may not observe a change in tax avoidance behavior even if SEC scrutiny highlights or requires revealing sensitive tax information. First, in a non-tax context, prior research finds that not all SEC comment letters change firm behavior. For example, Robinson et al. (2011) fail to find changes in executive compensation following SEC comment letters on the quality of compensation disclosures. Their result suggests that for comment letters that might highlight sensitive information, the newly incurred costs from disclosure may not exceed the benefit of current corporate policies. Second, our reasoning assumes that a nontrivial portion of the tax avoidance that triggers comment letters is either subject to adjustment by taxing authorities or reputation penalties. To the extent that firms engage in benign forms of tax planning and not tax avoidance with greater uncertainty, we would not expect H2 to hold. However, benign forms of tax avoidance are less likely to impair a firm's tax disclosures. Thus, to the extent that we document a positive association between tax avoidance and the likelihood of a comment letter, we expect our second hypothesis to hold. Third, as already noted, the IRS already possesses an extensive information set about firms' tax activities, and many of the largest firms are likely under continuous audit, implying that an SEC comment letter would not reveal any new information about tax activities. However, given that Bozanic et al. (2015) find that the IRS downloads comment letters and evidence of the IRS's resource constraints, firms are more likely to behave as if comment letters elicit IRS scrutiny.[9]

[7] For example, Apple Inc.'s corporate charter requires its audit committee to review and discuss the ETR, adequacy of tax reserves, and significant tax developments. Because the audit committee is charged with oversight of the financial statement reporting process, they are aware of, and involved in, the SEC comment letter response.

[8] Erickson, Hanlon, and Maydew (2004) provide some small-sample evidence that firms are willing to pay taxes on fraudulent earnings, presumably to avoid additional scrutiny. This finding suggests that firms could be willing to change tax disclosures and potentially pay higher taxes in response to regulatory scrutiny.

[9] Moreover, anecdotal conversations with a tax director of a Fortune 500 company suggest that even if a firm is under continuous audit, there is still significant variation in the issues chosen for examination.

Fourth, evidence suggests that firms behave strategically when under regulatory scrutiny. Firms receiving a tax-related comment letter may be skeptical that their future disclosures will be subject to a higher level of scrutiny in the next few years. This belief might lead to limited changes in firm-level decisions, consistent with a "bomb crater" effect noted in DeBacker, Heim, Tran, and Yuskavage (2013). Also, the prior literature suggests that a firm's tax positions can be an opening bid in a strategic game of IRS audit adjustments (Slemrod 2007; Slemrod, Blumenthal, and Christian 2001; Hoopes et al. 2012). Consistent with this theory, firms might continue to be aggressive following SEC scrutiny that highlights tax issues in anticipation of future IRS audit negotiations.

Finally, other tax-related studies that use newly required tax return disclosures to proxy for regulatory scrutiny also produce little evidence of an effect on firms' tax avoidance. Specifically, Towery (2013) finds that firms required to file Schedule UTP with the IRS do not reduce tax benefits claimed on their tax returns. Similarly, Hasegawa, Hoopes, Ishida, and Slemrod (2013) fail to detect changes in tax avoidance for Japanese firms following new public disclosure guidelines for corporate tax returns.

The Effect of Regulatory Scrutiny on Peer Firms (H3)

Prior research documents that firms are affected by the actions and outcomes of their competitors (Davis and Greve 1997; Shepard 1970). Indeed, several tax studies find that firms are cognizant of and adjust their behaviors to accommodate peer firm tax avoidance. Brown (2011) finds that corporate-owned life insurance tax sheltering strategies spread through board interlocks. Brown and Drake (2014) similarly find that firms related via social network ties exhibit similar levels of tax avoidance. Kubick, Lynch, Mayberry, and Omer (2015) find a positive association between firms' tax avoidance outcomes and the prior-period tax avoidance of product market leaders, suggesting that firms observe and mimic the tax avoidance outcomes of product market leaders. In a non-tax context, Brown et al. (2013) find that firms alter their risk factor disclosures when peer firms in the industry alter their disclosures in response to SEC comment letters on risk factors. Presumably, this response is to clarify the issues targeted by the SEC in comment letters of peer firms. This finding is consistent with an indirect effect of regulatory scrutiny on disclosure.

Regulatory scrutiny could affect the tax avoidance behavior of peer firms if peer firms have tax avoidance strategies or tax disclosures similar to firms receiving a tax-related SEC comment letter. We posit that this effect is most likely to occur when the peer firm is in an industry with significant tax-related SEC scrutiny. Specifically, we predict that firms alter their tax avoidance when multiple firms in their industry receive a tax-related comment letter.[10] We hypothesize the following:

H3: The receipt of a tax-related comment letter by multiple peer firms is associated with lower future tax avoidance.

III. METHODOLOGY

Sample

We use the intersection of the Compustat Annual files and the Audit Analytics database to construct our primary sample for the period 2004–2012. We begin our sample in 2004 because the SEC disclosed comment letters publicly for the first time in 2004, and end it in 2012 because of data limitations.[11] Consistent with prior research, we remove firms in the financial and utility industries because of their unique regulatory and institutional structures (two-digit SIC codes 49 and 60–69). We also exclude firms with missing total tax expense (Compustat TXT), missing cash taxes paid (Compustat TXPD), or negative pretax book income (Compustat PI). We exclude these firms because they are in a different tax position compared to firms traditionally examined in this line of research (Dyreng, Hanlon, and Maydew 2008).

To identify firms that receive a tax-related comment letter for their 10-K or 10-Q, we begin with the Audit Analytics Comment Letter database. We use the taxonomy provided by Audit Analytics to identify a tax-related comment letter. To ensure that we have identified all possible tax-related comment letters, we also conduct a separate search of the comment letter issues listed for each set of correspondence for variations of the following words: "Tax," "FAS 109," "FIN 48," and "ASC 740." Our search methodology captures variations of these keywords, including the usage of lowercase and the usage of

[10] We require that at least two firms in an industry receive tax-related comment letters to ensure that the level of tax-related scrutiny is sufficient to warrant a peer firm response. This approach avoids the instances where a single tax-related comment letter is misidentified or viewed as a random event by firms.

[11] Before 2004, comment letters were only available via Freedom of Information Act requests (Johnston and Petacchi 2012). We end the sample in 2012 as we only have data through 2013 and we require firms to have at least one valid firm-year observation after receipt of a comment letter in order to estimate a difference-in-differences. Thus, we end the sample in 2012 for our first-stage model (H1), but include 2013 in our second-stage difference-in-differences design (H2 and H3).

"SFAS" instead of "FAS." We provide the distribution of tax-related comment letters by fiscal year and industry for each of our difference-in-differences regressions (Tables 3 and 4).

Measures of Tax Avoidance

Following Hanlon and Heitzman (2010) and prior tax research, we define tax avoidance as the reduction in firms' explicit tax liabilities. Accordingly, we employ three commonly used proxies to measure tax avoidance: GAAP ETR, cash ETR, and permanent book-tax differences. GAAP ETR (*ETR*) is the ratio of total income tax expense (TXT) to pretax income (PI) and reflects tax avoidance activities that generate permanent book-tax differences and, thus, affect accounting earnings. *ETR* also captures changes in the tax accrual accounts (i.e., UTB and VAA). In contrast, the cash ETR (*CETR*) is the ratio of cash taxes paid (TXPD) to pretax income (PI) and represents the effects of both permanent and temporary tax avoidance strategies. In most circumstances, *CETR* is not affected by changes in the tax accrual accounts. Following the prior literature, we winsorize our effective tax rate measures to lie between 0 and 1 to ensure a valid economic interpretation. Both effective tax rate measures (*ETR* and *CETR*) are *decreasing* in tax avoidance. Permanent book-tax differences (*PBTD*) is measured as pretax income (PI) less minority interest in earnings (MII), less estimated taxable income ((TXFED + TXFO)/0.35), and less deferred taxes (TXDI), scaled by lagged assets (AT). *PBTD* is *increasing* in tax avoidance.[12]

The Association between Tax Avoidance and Receipt of a Tax-Related Comment Letter (H1)

To examine H1, regarding the relationship between tax avoidance and tax-related comment letter issuance, we estimate the following logistic regression using firms that receive a comment letter of any kind (i.e., both tax and non-tax comment letters):

$$TAXCOMMLETT_{i,t} = \gamma_0 + \gamma_1 TAX_{i,t} + \gamma_2 Foreign_{i,t} + \gamma_3 Volatility\_ETR_{i,t} + \gamma_k SOX408_{i,t} + \gamma_k AUDITOR_{i,t} + \gamma_k GOVERNANCE_{i,t} + \gamma_k FIRM\_CHARACTERISTICS_{i,t} + \gamma_k IndustryScrutiny_{i,t} + e_{i,t} \quad (1)$$

Our model is adapted from Cassell et al. (2013), who estimate a model of factors associated with the issuance of any SEC comment letter. The dependent variable (*TAXCOMMLETT*) is an indicator variable equal to 1 if the firm receives a tax-related SEC comment letter for the 10-K filing for the fiscal year ended, and 0 if the firm receives a non-tax-related comment letter. We expand this model to include three tax-related factors that influence the issuance of a tax-related comment letter to improve discriminatory power between comment letter topics.

Our primary variable of interest, *TAX*, is one of the three previously defined tax avoidance proxies. A negative (positive) coefficient on *TAX* for *ETR* or *CETR* (*PBTD*) suggests that firms engaging in higher levels of tax avoidance are more likely to receive a tax-related comment letter, consistent with H1. Second, because foreign-related matters are a highly cited topic in comment letters, we include an indicator variable (*Foreign*) to control for tax and financial reporting complexities arising from the presence of foreign operations.[13] Third, because tax accruals, such as UTBs and valuation allowances, are a large proportion of comment letters, we also include the five-year volatility of GAAP ETR (*Volatility_ETR*), which is likely to be affected by large adjustments to these tax accrual accounts.

Cassell et al. (2013) identify four categories of potential determinants of SEC comment letters: (1) Section 408 selection criteria (*SOX408*); (2) auditor characteristics (*AUDITOR*); (3) governance characteristics (*GOVERNANCE*); and (4) other firm characteristics (*FIRM_CHARACTERISTICS*). We include control variables for all of these determinants. We control for material weaknesses in internal controls (*M_Weak*), restatements (*Restate*), stock return volatility (*HighVolatility*), and market capitalization (*lnMarketCap*), which are factors that SOX Section 408 requires the SEC to consider in the comment letter process. Big 4 auditor (*Big4*), second-tier auditor (*Second-Tier*), auditor tenure (*AudTenure*), auditor resignations (*AuditorResigned*), and auditor dismissals (*AuditorDismissed*) control for auditor characteristics. We control for governance characteristics using nontransient institutional ownership (*InstPerc_NonTrans*), CEO characteristics (*CEO_Chair, CEO_Tenure*), CFO characteristics (*CFO_BOD, CFO_Tenure*), and board of director characteristics (*BoardIndPct, BoardMtgs*). To control for other firm characteristics, we include company age (*CompanyAge*), losses (*Loss*), bankruptcy risk (*BankruptcyRank*), sales growth (*SalesGrowth*), the number of segments (*Segments*), mergers and acquisitions (*M&A*), restructuring charges (*Restructuring*), external financing (*ExtFinancing*), and litigation (*Litigation*). We also control for the number of

[12] Although *ETR* and *PBTD* capture similar tax planning strategies, we use *PBTD*, which is scaled by assets rather than income, as the SEC has expressed concerns about the divergence between book and taxable income and to eliminate concerns that changes in pretax income could be driving our results.

[13] Because we use a continuous measure of foreign income in our second-stage regressions, we use a dummy variable in our first-stage model in order to capture the effect of the presence of foreign operations. In untabulated robustness tests, we observe covariate balance on the continuous measure of foreign income after estimating the first-stage model.

comment letters issued for a given industry-year to control for the possibility that the SEC may be scrutinizing disclosures among certain industries (*IndustryScrutiny*).[14] Finally, we employ robust standard errors.[15]

The Effect of Regulatory Scrutiny on Tax Avoidance (H2)

To examine H2, on the effects of resolving a tax-related comment letter on future tax avoidance, we employ a propensity score matching (PSM) design. We first model the determinants of tax-related comment letters using Model (1). We then match each firm receiving a tax-related comment letter (*TAXCOMMLETT* = 1) to a firm that received a *non-tax-related* comment letter (*TAXCOMMLETT* = 0).[16] We ensure exact matching on industry and year and use nearest-neighbor matching on all other covariates without replacement.[17] By matching tax-related comment letter firms to firms receiving other types of comment letters, we hold constant generic regulatory scrutiny; thus, our treatment effect is tax-related regulatory scrutiny. Moreover, matching on ETR alleviates the concern that changes in tax avoidance following a tax-related comment letter are the result of mean reversion rather than deliberate changes in tax behavior. Because we use a difference-in-differences design, we require each firm entering the first-stage logit model to have at least one valid observation before and after the receipt of a comment letter to estimate a valid difference-in-differences. This restriction reduces the likelihood that matching firms lacking observations for years before and/or after the receipt of a tax-related comment letter could affect our difference-in-differences estimator. Using this matched sample of tax-related comment letter firms and control firms, we estimate the following ordinary least squares (OLS) regression:

$$TAX_{i,t} = \beta_0 + b_1 TAXCLFIRM_i + \beta_2 POST_{i,t} + \beta_3 TAXCLFIRM_i * POST_{i,t} + \beta_k Controls_k + \tau_t + \lambda_j + \varepsilon_{i,t} \quad (2)$$

The dependent variable is one of our three tax avoidance measures (*ETR*, *CETR*, or *PBTD*), defined previously. *TAXCLFIRM* is an indicator variable that equals 1 if a firm received a tax-related comment letter at any point during our sample period, and 0 for the control firms that received a non-tax comment letter. *POST* is an indicator variable equaling 1 for fiscal years after the resolution of each firm's individual comment letter. Thus, the interaction $TAXCLFIRM_i * POST_{i,t}$ represents the effect of resolving a tax-related comment letter on firms' tax avoidance, controlling for the level of tax avoidance before receiving the comment letter. We expect a positive (negative) and significant interaction ($TAXCLFIRM_i * POST_{i,t}$) when *ETR* or *CETR* (*PBTD*) is the dependent variable, consistent with firms decreasing their tax avoidance following the resolution of a tax-related comment letter.

We include controls identified in prior research that influence firm-level tax avoidance. These include profitability (*ROA*), performance matched discretionary accruals (*ACC*), firm size (*SIZE*), foreign operations (*FI*), equity method earnings (*EQINC*), intangibles (*INTAN*), depreciation tax shields (*PPE*), the presence and change in net operating losses (*NOL* and Δ*NOL*), lagged market-to-book ratio (*MTB*), leverage (*LEV*), free cash flow (*FCF*), research and development (*R&D*), sales growth (*SalesGrowth*), and the number of foreign segments (*FORSEGMENTS*) (Stickney and McGee 1982; Gupta and Newberry 1997; S. Chen, X. Chen, Cheng, and Shevlin 2010; Dyreng, Hanlon, and Maydew 2010; Dhaliwal, Huang, Moser, and Pereira 2011). We also include year (τ_t) and industry (λ_j) fixed effects and employ robust standard errors.[18]

The Effect of Regulatory Scrutiny on Peer Firms' Tax Avoidance (H3)

To examine the effect of regulatory scrutiny on peer firms' tax avoidance, we modify our PSM design. Using Model (1), we now match all *TAXCOMMLETT* observations to firms that have never received a comment letter and in industry-years where the SEC issued at least two tax-related comment letters. By matching within industry, year, prior-period tax avoidance, and other firm characteristics, we hope to identify peer firms with similar tax planning strategies that did not receive an SEC

[14] All variables are defined in Appendix B.

[15] Given the small number of observations per firm (i.e., three or less in many cases) we do not cluster standard errors by firm (Petersen 2009; Angrist and Pischke 2010). However, inferences remain unchanged if we employ robust standard errors clustered by firm.

[16] Matching tax-related comment letter firms to non-tax-related comment letters also holds constant the SEC's decision to review, yet not issue, a comment letter. Thus, endogeneity arising from the SEC's unobserved decision to review a firm's financial statement should not influence our findings.

[17] We have 2,820 comment letter observations in our first-stage logit model, with 839 (29.75 percent) tax-related comment letters. Employing a caliper of 0.30 and requiring exact matching on industry and year yields 479 treatment and 479 control firms. We also remove any matched pairs that fall outside of common support.

[18] Results from the estimation of Model (2) are robust to using firm fixed effects instead of industry fixed effects.

comment letter. Moreover, by including ETR in the matching procedure, we identify peer firms with similar levels of tax avoidance. We use this sample of treatment and control firms to estimate the OLS regression displayed in Model (2).[19] If peer firms respond to tax-related scrutiny by decreasing the level of their tax avoidance, then we predict a positive and significant coefficient on the *POST* variable, consistent with peer firms decreasing their tax avoidance after observing resolution of tax-related comment letters in their industry. If peer firm tax avoidance changes are similar to firms receiving tax-related comment letters, then we do not expect the coefficient on $TAXCLFIRM * POST_{i,t}$ to be significant. These two results would be consistent with firms receiving tax-related SEC comment letters and their peer firms decreasing their tax avoidance to a similar degree following tax-related regulatory scrutiny. However, if peer firms react less than firms receiving tax-related comment letters, then we would expect a positive (negative) and significant coefficient on the interaction term ($TAXCLFIRM * POST_{i,t}$) in the *ETR* and *CETR* (*PBTD*) specifications.

IV. RESULTS

Multivariate Results—H1

We present descriptive statistics for the sample used to estimate Model (1) in Table 1.[20] We then provide the results of estimating Model (1) in Table 2. In each specification, the area under the ROC curve is greater than 0.70, which suggests that the logit models have reasonable discriminatory power (Hosmer and Lemeshow 2000).[21] Recall that *TAXCOMMLETT* equals 0 for firms that receive a comment letter for non-tax issues. Thus, we are estimating the likelihood of a tax-related comment letter conditioned on the issuance of a comment letter.[22] In our logit regressions, we find a negative (positive) and significant coefficient on *TAX* ($p < 0.01$) in our *ETR* (*PBTD*) specifications in Column (1) (Column (3)). These results support a positive association between tax avoidance and the receipt of a tax-related comment letter (H1). Holding constant all of the independent variables at their mean values, we find that a 10 percentage point decrease in *ETR* (our sample interquartile range is 10.3 percent) is associated with a 4.8 percent increase in the likelihood of receiving a tax-related comment letter. In contrast, the coefficient on *TAX* in our *CETR* regression (Column (2)) is not significant, which is consistent with the SEC's concern with financial statement disclosures related to tax issues affecting reported earnings rather than cash taxes paid. Overall, the results suggest that firms engaged in greater tax avoidance affecting the GAAP ETR (*ETR*) and total permanent book-tax differences (*PBTD*) are more likely to experience greater SEC scrutiny.[23]

Trend in ETRs Surrounding Tax-Related Comment Letters

To offer some preliminary evidence on how tax-related comment letters affect tax avoidance, we plot the mean values of *ETR* in the three years before and following tax-related comment letters for all tax comment letter observations (Figure 2). Among firms receiving a tax-related comment letter, we observe a decrease in *ETR* in the year of comment letter receipt and an increase in *ETR* in the two years after the receipt of a tax-related comment letter. This pattern offers some initial insights into the trend of ETRs for tax comment letter firms and provides support for the conjecture that firms decrease tax avoidance following receipt of a tax-related comment letter.

To further explore the specific mechanisms that could be driving these changes, we plot the mean values of *ETR* surrounding tax comment letters identified by the specific issues cited in the tax-related comment letters (Figure 3). The largest

[19] Our design for testing H3 (comparing firms that have received a tax-related comment letter to firms that have never received a comment letter) also serves another purpose in addressing the potential differential effects of regulatory scrutiny. Specifically, firms receiving a non-tax comment letter may be less inclined to reduce their tax avoidance because they are spending more resources responding to non-tax comments and less resources on tax planning, or they may increase their tax avoidance because they perceive implicit approval by the SEC regarding their tax disclosures. Thus, while our design for H2 controls for the determinants of regulatory scrutiny, our design for H3 allows for the possibility of different consequences of tax versus non-tax regulatory scrutiny. We thank an anonymous reviewer for this suggestion.

[20] For H2, of the 6,715 firm-year observations used to estimate our second-stage difference-in-differences regression, 3,712 (3,003) are treatment (control) observations. There are 2,071 (1,727) treatment (control) observations where $POST = 1$ and 1,641 (1,276) treatment (control) observations where $POST = 0$.

[21] Tjur's coefficient of discrimination is 15.85 percent, and we correctly classify observations into tax and non-tax comment letter observations 68 percent of the time, which suggests significant discriminatory power.

[22] We present results using logistic regressions estimated over a sample of tax-related and non-tax-related comment letters, as this model is used in later analysis for propensity score matching. However, in untabulated analysis, we estimate a bivariate probit system of equations in which we simultaneously estimate the probability of receiving *any* comment letter and then the incremental probability of receiving a tax-related comment letter. We predict any comment letter using the Cassell et al. (2013) model and tax-related comment letters using the determinants specified in Model (1). Results from the bivariate probit agree with Table 2; namely, we find a negative and significant coefficient on *ETR* ($p < 0.01$), a positive and significant coefficient on *PBTD* ($p < 0.01$), and an insignificant coefficient on *CETR*.

[23] The lack of results for the cash ETR could suggest that the SEC is focusing on particular types of tax avoidance and tax accruals that affect reported earnings.

TABLE 1

Descriptive Statistics

Variable	n	Mean	Std. Dev.	10th Pctl	50th Pctl	90th Pctl
Tax Avoidance						
ETR_t	6,715	0.310	0.145	0.121	0.329	0.405
$CETR_t$	6,715	0.267	0.199	0.034	0.251	0.466
$PBTD_t$	6,715	0.033	0.069	−0.006	0.016	0.076
SEC Comment Letters						
$TAXCOMMLETT_t$	2,820	0.298	0.457	0.000	0.000	1.000
Comment Letter Controls						
$Foreign_t$	2,820	0.515	0.500	0.000	1.000	1.000
$Volatility\_ETR_t$	2,820	0.339	1.644	0.008	0.047	0.563
M_Weak_t	2,820	0.141	0.349	0.000	0.000	1.000
$Restate_t$	2,820	0.174	0.379	0.000	0.000	1.000
$HighVolatility_t$	2,820	0.150	0.357	0.000	0.000	1.000
$lnMarketCap_t$	2,820	7.176	1.815	4.848	7.171	9.543
$CompanyAge_t$	2,820	24.668	15.750	8.000	19.000	50.000
$Loss_t$	2,820	0.115	0.319	0.000	0.000	1.000
$BankruptcyRank_t$	2,820	3.815	1.771	2.000	4.000	6.000
$SalesGrowth_t$	2,820	0.137	0.174	−0.007	0.099	0.316
$Segments_t$	2,820	2.314	1.822	1.000	1.000	5.000
$M\&A_t$	2,820	0.239	0.427	0.000	0.000	1.000
$Restructuring_t$	2,820	0.442	0.497	0.000	0.000	1.000
$ExtFinancing_{t+1}$	2,820	−0.027	0.109	−0.139	−0.026	0.083
$Litigation_t$	2,820	0.322	0.467	0.000	0.000	1.000
$Big4_t$	2,820	0.831	0.375	0.000	1.000	1.000
$Second\text{-}Tier_t$	2,820	0.093	0.291	0.000	0.000	0.000
$AudTenure_t$	2,820	11.432	6.587	3.000	10.000	21.000
$AuditorResigned_t$	2,820	0.030	0.172	0.000	0.000	0.000
$AuditorDismissed_t$	2,820	0.129	0.335	0.000	0.000	1.000
$IndustryScrutiny_t$	2,820	8.694	9.927	1.000	4.000	24.000
$InstPerc\_NonTrans_t$	2,820	0.705	0.266	0.000	0.786	0.921
CEO_Chair_t	2,820	0.385	0.487	0.000	0.000	1.000
CFO_BOD_t	2,820	0.026	0.160	0.000	0.000	0.000
$BoardIndPct_t$	2,820	0.524	0.336	0.000	0.667	0.875
$BoardMtgs_t$	2,820	5.636	4.178	0.000	6.000	10.000
CFO_Tenure_t	2,820	3.240	3.657	0.000	2.000	9.000
CEO_Tenure_t	2,820	6.018	7.006	0.000	4.000	16.000
Tax Avoidance Controls						
ROA_t	6,715	0.130	0.096	0.034	0.108	0.250
ACC_t	6,715	0.005	0.130	−0.110	−0.002	0.121
$SIZE_{t-1}$	6,715	6.987	1.886	4.466	7.063	9.408
FI_t	6,715	0.030	0.045	0.000	0.009	0.093
$EQINC_t$	6,715	0.178	0.383	0.000	0.000	1.000
$INTAN_t$	6,715	0.249	0.235	0.004	0.195	0.577
PPE_t	6,715	0.239	0.212	0.045	0.177	0.512
NOL_t	6,715	0.491	0.500	0.000	0.000	1.000
ΔNOL_t	6,715	−0.001	0.057	−0.025	0.000	0.021
MTB_{t-1}	6,715	3.278	2.937	1.111	2.450	6.115
LEV_t	6,715	0.163	0.178	0.000	0.125	0.389
FCF_t	6,715	0.085	0.091	−0.009	0.081	0.187
$R\&D_t$	6,715	0.035	0.053	0.000	0.010	0.111
$SalesGrowth$	6,715	0.133	0.180	−0.015	0.098	0.305
$FORSEGMENTS_t$	6,715	2.133	2.396	0.000	2.000	5.000

This table reports summary statistics for the variables used in the primary analyses. All continuous variables are winsorized at the 1 percent and 99 percent levels to mitigate the influence of outliers.
All variables are defined in Appendix B.

TABLE 2

The Effect of Tax Avoidance on the Receipt of a Tax-Related Comment Letter (H1)

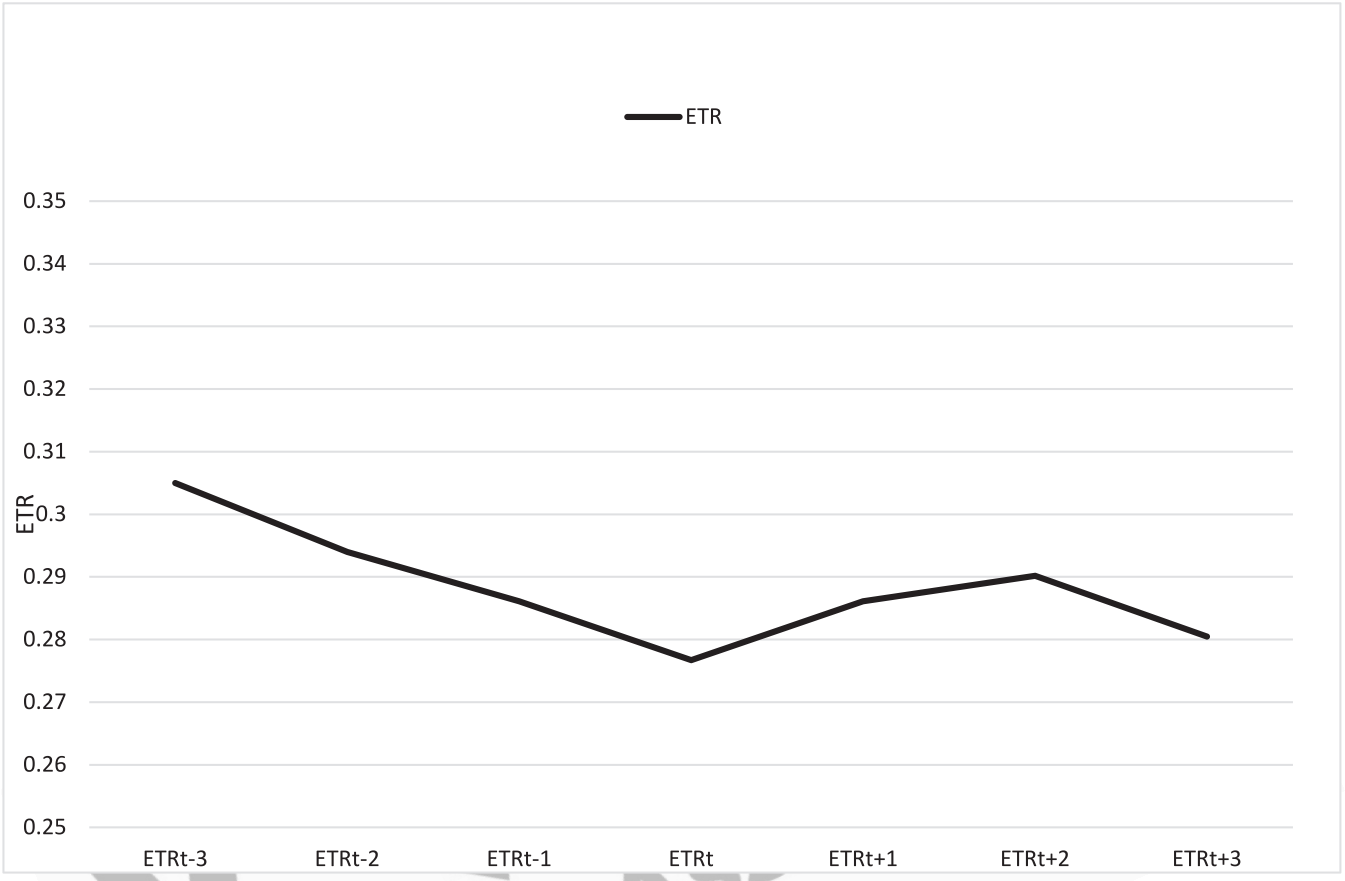
	(1) $TAXCOMMLETT_t$		(2) $TAXCOMMLETT_t$		(3) $TAXCOMMLETT_t$	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
***ETR*$_t$**	**−2.134**	**0.000**				
***CETR*$_t$**			**0.018**	**0.471**		
***PBTD*$_t$**					**3.383**	**0.000**
Foreign$_t$	0.752	0.000	0.813	0.000	0.818	0.000
Volatility_ETR$_t$	−0.053	0.027	−0.040	0.090	−0.053	0.039
M_Weak$_t$	0.046	0.770	0.031	0.842	0.044	0.778
Restate$_t$	0.132	0.324	0.108	0.414	0.122	0.364
HighVolatility$_t$	0.220	0.145	0.318	0.031	0.228	0.132
lnMarketCap$_t$	0.141	0.000	0.139	0.000	0.132	0.001
CompanyAge$_t$	0.006	0.087	0.007	0.057	0.007	0.051
Loss$_t$	−0.279	0.086	−0.255	0.100	−0.319	0.045
BankruptcyRank$_t$	0.083	0.005	0.087	0.003	0.104	0.000
SalesGrowth$_t$	−0.634	0.044	−0.650	0.040	−0.785	0.015
Segments$_t$	−0.062	0.016	−0.060	0.018	−0.063	0.013
M&A$_t$	0.055	0.620	0.049	0.654	0.048	0.659
Restructuring$_t$	0.317	0.002	0.376	0.000	0.335	0.001
ExtFinancing$_{t+1}$	0.073	0.867	0.163	0.708	0.175	0.688
Litigation$_t$	0.353	0.002	0.394	0.000	0.366	0.001
Big4$_t$	−0.419	0.046	−0.433	0.035	−0.448	0.031
Second-Tier$_t$	−0.447	0.069	−0.450	0.066	−0.452	0.067
AudTenure$_t$	0.004	0.678	0.005	0.581	0.004	0.622
AuditorResigned$_t$	−0.218	0.459	−0.195	0.508	−0.187	0.528
AuditorDismissed$_t$	−0.120	0.446	−0.098	0.533	−0.102	0.519
IndustryScrutiny$_t$	0.041	0.000	0.044	0.000	0.041	0.000
InstPerc_NonTrans$_t$	0.143	0.738	0.171	0.688	0.262	0.547
CEO_Chair$_t$	0.122	0.294	0.102	0.377	0.111	0.334
CFO_BOD$_t$	0.134	0.628	0.156	0.567	0.117	0.681
BoardIndPct$_t$	−0.403	0.229	−0.359	0.275	−0.386	0.244
BoardMtgs$_t$	0.021	0.232	0.021	0.206	0.023	0.176
CFO_Tenure$_t$	0.024	0.136	0.024	0.132	0.024	0.125
CEO_Tenure$_t$	−0.011	0.224	−0.012	0.194	−0.010	0.272
Pseudo R^2	0.13		0.12		0.13	
ROC curve	0.73		0.73		0.73	
n	2,820		2,820		2,820	

This table reports results from logistic regressions in which *TAXCOMMLETT* is the dependent variable and one of three measures of tax avoidance (*ETR, CETR, PBTD*) is the independent variable of interest (in bold). *TAXCOMMLETT* equals 1 (0) if the firm receives a tax-related (non-tax-related) comment letter. For brevity, the intercept and year fixed effects are not tabulated. Robust standard errors are used; p-values are one-tailed on our primary variable of interest where we make a directional prediction, and two-tailed otherwise.
All other variables are defined in Appendix B.

observed increases in *ETR* are in tax-related comment letters referencing issues related to tax accruals, such as the unrecognized tax benefits and valuation allowance accounts.[24] The results suggest an increase in *ETR* in the year following these tax-related comment letters, followed by a decrease in *ETR*. This pattern is consistent with transitory adjustments to tax accruals following tax-related comment letters specifically mentioning these tax accruals. Our observation that *ETR* responds relatively quickly following a tax-related comment letter is consistent with Kim, McGuire, Savoy, and Wilson (2015), who provide evidence that firms adjust quickly to deviations from their target *ETR*, and Hoopes et al.'s (2012) survey evidence that many tax executives

[24] In the "Additional Analyses" section, we discuss tests where we specifically examine changes in UTB balances following tax-related comment letters mentioning UTB issues.

FIGURE 2
Trend in Mean ETR Surrounding Tax Comment Letter Issuance



This figure depicts the mean tax avoidance trend for the three years prior to and three years following the year a firm receives a tax comment letter.

believe tax planning positions can be changed within one to three years. We also see an increase in *ETR* for comment letters mentioning foreign ETR and other ETR issues. However, the effect of these increases appears to be more persistent in nature, extending out to three years following the receipt of comment letters.

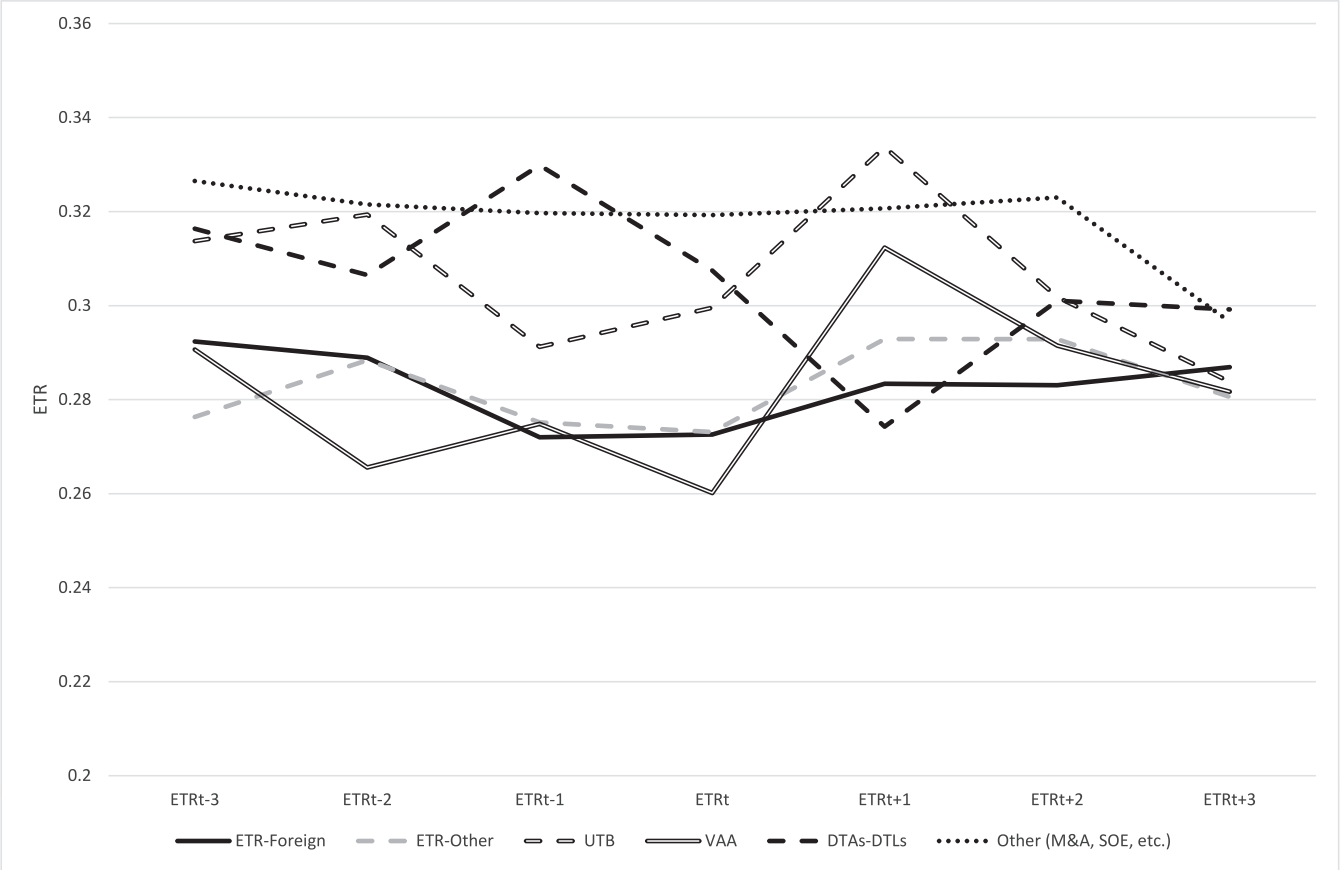
In untabulated analyses, we also plot the mean values of *CETR* and find that the largest increases are related to comment letters citing foreign ETR issues. This pattern suggests that firms receiving comment letters that relate to their foreign ETR could be decreasing the amount of earnings designated as permanently reinvested (i.e., an increase to GAAP ETR) and also repatriating these earnings that require additional tax payments (i.e., an increase to cash ETR). Collectively, these patterns provide preliminary evidence consistent with firms decreasing tax avoidance following the resolution of a tax-related comment letter and supporting H2.

Multivariate Results—H2

Table 3 reports results from our difference-in-differences tests of tax avoidance following comment letter resolution.[25] Panel A reports the covariate balance, in means and medians, of the variables used to form matched pairs. With few exceptions

[25] For H3, of the 1,326 firm-year observations used to estimate our second-stage difference-in-differences regression, 891 (435) are treatment (control) observations. There are 660 (330) treatment (control) observations where $POST = 1$ and 231 (105) treatment (control) observations where $POST = 0$.

FIGURE 3
Trend in Mean ETR Across Tax Comment Letters by Issue Cited



This figure depicts mean tax avoidance trend for the three years prior to and three years following the year a treatment firm receives a tax comment letter (*t*) broken down by the issues cited in the tax comment letter. Each group is not mutually exclusive, as a firm could have multiple tax-related issues mentioned in their respective tax comment letter.

(Wilcoxon tests of differences in medians for *ETR*, *Volatility_ETR*, and *Segments*), our matched pairs are balanced, as the means and medians are statistically indistinguishable between the treatment and control firms.[26] Given that tax comment firms and control firms have statistically similar means and, with the exception of *ETR*, medians across tax avoidance measures, our subsequent results are unlikely to be attributable to mean reversion.[27] Panels B and C report the time and industry (by two-digit SIC) distribution of our treatment and control firms. We note an equal number of observations in each row, reflecting an exact match by fiscal year and industry.

We also assess the appropriateness of our difference-in-differences methodology by investigating the parallel trends assumptions (Roberts and Whited 2012). We calculate the percentage growth rate of our three dependent variables in the period preceding a tax-related comment letter. We find statistically indistinguishable growth rates for *ETR* ($p = 0.33$), *CETR* ($p = 0.89$), and *PBTD* ($p = 0.36$), suggesting that our tests meet the parallel trends assumptions necessary for a valid difference-in-differences estimation.

[26] We also examine the variance bias using the pstest command in Stata. Mean bias does not exceed 10 percent for any covariate, suggesting that we have reasonable balance (Diprete and Gangl 2004). To further alleviate concerns that covariate imbalance could be driving our results, we perform entropy matching within our sample of treatment and control firms, which forces covariate balance by assigning weights to the control firms based on the level of covariate imbalance generated by specific observations. We continue to find significant coefficient estimates in the predicted direction for the coefficient *TAXCLFIRM* $*$ *POST* when using the estimated weights in a weighted least squares estimation of Model (2) ($p < 0.10$).

[27] In untabulated results, we also find our sample covariates are balanced on the length of firms' tax footnotes, as well as the number of references to tax issues in a firm's 10-K filing and MD&A. Thus, differences in tax-related disclosure quality do not appear to influence our results.

TABLE 3

The Effect of Tax-Related Comment Letters on Subsequent Tax Avoidance (H2)

Panel A: Covariate Balance

	Treatment Firms			Control Firms			Mean	Median
Variable	**n**	**Mean**	**Median**	**n**	**Mean**	**Median**	**p-value**	**p-value**
ETR_t	479	0.295	0.318	479	0.303	0.333	0.328	0.011
$CETR_t$	479	0.265	0.228	479	0.259	0.263	0.631	0.257
$PBTD_t$	479	0.043	0.019	479	0.035	0.016	0.154	0.100
$Foreign_t$	479	0.630	1.000	479	0.633	1.000	0.947	0.947
$Volatility\_ETR_t$	479	0.267	0.075	479	0.298	0.038	0.143	0.000
M_Weak_t	479	0.152	0.000	479	0.167	0.000	0.538	0.537
$Restate_t$	479	0.188	0.000	479	0.186	0.000	0.934	0.934
$HighVolatility_t$	479	0.157	0.000	479	0.161	0.000	0.860	0.860
$lnMarketCap_t$	479	7.235	7.437	479	7.198	7.161	0.753	0.514
$CompanyAge_t$	479	23.555	18.000	479	23.453	19.000	0.917	0.874
$Loss_t$	479	0.117	0.000	479	0.119	0.000	0.920	0.920
$BankruptcyRank_t$	479	3.729	4.000	479	3.814	4.000	0.445	0.617
$SalesGrowth_t$	479	0.144	0.103	479	0.130	0.101	0.174	0.847
$Segments_t$	479	2.221	1.000	479	2.384	2.000	0.164	0.090
$M\&A_t$	479	0.255	0.000	479	0.288	0.000	0.246	0.245
$Restructuring_t$	479	0.497	0.000	479	0.518	1.000	0.519	0.518
$ExtFinancing_{t+1}$	479	−0.021	−0.019	479	−0.024	−0.029	0.623	0.168
$Litigation_t$	479	0.430	0.000	479	0.405	0.000	0.432	0.432
$Big4_t$	479	0.839	1.000	479	0.846	1.000	0.791	0.790
$Second\text{-}Tier_t$	479	0.088	0.000	479	0.079	0.000	0.641	0.641
$AudTenure_t$	479	11.196	10.000	479	11.278	10.000	0.845	0.963
$AuditorResigned_t$	479	0.033	0.000	479	0.021	0.000	0.233	0.233
$AuditorDismissed_t$	479	0.125	0.000	479	0.125	0.000	1.000	1.000
$IndustryScrutiny_t$	479	12.593	8.000	479	12.593	8.000	1.000	1.000
$InstPerc\_NonTrans_t$	479	0.714	0.789	479	0.697	0.784	0.334	0.620
CEO_Chair_t	479	0.374	0.000	479	0.338	0.000	0.252	0.252
CFO_BOD_t	479	0.025	0.000	479	0.025	0.000	1.000	1.000
$BoardIndPct_t$	479	0.517	0.667	479	0.515	0.625	0.957	0.552
$BoardMtgs_t$	479	5.553	6.000	479	5.789	6.000	0.393	0.432
CFO_Tenure_t	479	3.169	2.000	479	3.424	2.000	0.296	0.510
CEO_Tenure_t	479	6.071	4.000	479	5.407	3.000	0.140	0.182

Panel B: Distribution of Matched Pairs by Fiscal Year

Year	Treated	Control	Total
2003	1	1	2
2004	44	44	88
2005	63	63	126
2006	60	60	120
2007	38	38	76
2008	53	53	106
2009	41	41	82
2010	59	59	118
2011	71	71	142
2012	49	49	98
Total	479	479	958

(continued on next page)

TABLE 3 (continued)

Panel C: Distribution of Matched Paris by Industry

Two-Digit SIC	Treated	Control	Total
10	3	3	6
13	10	10	20
16	2	2	4
20	18	18	36
23	6	6	12
25	2	2	4
26	2	2	4
27	5	5	10
28	47	47	94
29	1	1	2
30	1	1	2
31	2	2	4
32	3	3	6
33	8	8	16
34	9	9	18
35	42	42	84
36	49	49	98
37	17	17	34
38	39	39	78
39	3	3	6
42	4	4	8
45	3	3	6
47	1	1	2
48	9	9	18
50	18	18	36
51	5	5	10
53	4	4	8
54	1	1	2
55	5	5	10
56	9	9	18
57	3	3	6
58	9	9	18
59	11	11	22
73	107	107	214
79	2	2	4
80	8	8	16
82	1	1	2
87	10	10	20
Total	479	479	958

Panel D: Difference-in-Differences Regressions

	(1) ETR_t		(2) $CETR_t$		(3) $PBTD_t$	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	0.304	0.000	0.143	0.000	0.016	0.048
$TAXCLFIRM_t$	−0.022	0.000	−0.016	0.024	0.009	0.001
$POST_t$	−0.002	0.790	−0.000	0.982	0.002	0.391
$TAXCLFIRM * POST_t$	0.014	0.022	0.015	0.049	−0.007	0.009
ROA_t	0.063	0.054	−0.075	0.060	0.139	0.000
ACC_t	−0.069	0.000	−0.187	0.000	0.045	0.000
$SIZE_{t-1}$	0.005	0.000	0.005	0.001	−0.003	0.000

(continued on next page)

TABLE 3 (continued)

	(1) ETR_t		(2) $CETR_t$		(3) $PBTD_t$	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
FI_t	−0.448	0.000	−0.151	0.012	0.178	0.000
$EQINC_t$	−0.017	0.000	−0.020	0.002	0.006	0.004
$INTAN_t$	0.012	0.275	−0.010	0.450	−0.016	0.004
PPE_t	−0.007	0.594	−0.035	0.066	−0.019	0.022
NOL_t	−0.014	0.000	−0.024	0.000	0.005	0.006
ΔNOL_t	0.180	0.000	0.291	0.000	−0.150	0.000
MTB_{t-1}	−0.000	0.663	0.000	0.870	0.001	0.013
LEV_t	0.015	0.277	−0.042	0.017	0.013	0.112
FCF_t	−0.020	0.519	−0.291	0.000	0.025	0.177
$R\&D_t$	−0.475	0.000	−0.521	0.000	0.244	0.000
$SalesGrowth_t$	−0.010	0.459	−0.060	0.000	0.021	0.008
$FORSEGMENTS_t$	0.001	0.220	0.005	0.000	−0.001	0.009
Year fixed effects?	Yes		Yes		Yes	
Industry fixed effects?	Yes		Yes		Yes	
R^2	0.113		0.120		0.218	
n	6,715		6,715		6,715	

Firms receiving a tax-related comment letter are matched to firms receiving a non-tax-related comment letter using the PSM model reported in Column (1) of Table 2. Table 3, Panel A reports the covariate balance for our matched sample using the selection criteria in the first-stage logit. The far right columns in Panel A report p-values from t-tests and Wilcoxon rank sum tests for differences in means and medians, respectively. Panels B and C confirm that our sample firms are matched within fiscal year and industry (two-digit SIC). Panel D reports difference-in-differences regressions in which tax avoidance is the dependent variable of interest and *TAXCLFIRM* ∗ *POST* is the difference-in-differences estimator. Robust standard errors are used; p-values are one-tailed on our primary variable of interest where we make a directional prediction, and two-tailed otherwise.
All variables are defined in Appendix B.

Panel D of Table 3 reports the results of estimating Model (2) in our multivariate test of H2. The regressions in Panel D use the sample of treatment and control firms formed from the first-stage logit model reported in Column (1) of Table 2. The positive (negative) and significant coefficients on our difference-in-differences estimator, $TAXCLFIRM * POST_{i,t}$, across Columns (1)–(3) ($p < 0.05$) indicate that firms decrease their level of tax avoidance following the resolution of a tax-related comment letter. Coefficient estimates on $TAXCLFIRM * POST_{i,t}$ suggest that firms increase their GAAP ETRs (cash ETRs) by 1.4 (1.5) percentage points and decrease their permanent BTDs by 0.7 percent. These estimates appear to be economically meaningful. Given that the mean pretax income and lagged assets for this sample are $422 million and $4.548 million, respectively, a difference of 1.4 (1.5) [0.7] is associated with a $5.9 million ($6.3 million) [$31.8 million] increase in total income tax expense (cash taxes paid) [permanent book-tax differences]. Results from all three specifications support H2 and are consistent with the tax-related regulatory scrutiny of financial statement disclosures increasing the expected costs of firms' tax avoidance and, thus, decreasing their tax avoidance. This effect is incremental to the generic regulatory scrutiny control firms receive in comment letters related to non-tax matters. In particular, the increase in *CETR* suggests that SEC scrutiny has a spillover benefit for tax authorities in the form of increased tax collections.[28]

Multivariate Results—H3

Table 4, Panel A reports the results of estimating Model (1), which generates the matched sample to test H3. In this design, control firms do not receive an SEC comment letter and operate in an industry-year with at least two tax-related SEC comment letters.[29] The area under the ROC curve for the logit model in Table 4, Panel A is 0.854, suggesting excellent discriminate

[28] In untabulated analyses, we confirm that our results are robust to using three-year ETR (CETR) measures. Specifically, the coefficient estimates on the *TAXCLFIRM* ∗ *POST* interaction equal 0.011 (0.017) ($p < 0.10$) in the three-year GAAP (cash) ETR specifications. We also confirm that our results for H2 are robust to including only one year prior to and one year following the receipt of a comment letter when using *ETR* and *PBTD* as the dependent variable.

[29] We have 1,312 observations in our first-stage logit model, with 782 (532) of those observations classified as tax-related. We have fewer observations in the H3 logit, as we require that each peer firm is in an industry where at least two firms receive a tax-related comment letter. We confirm in untabulated tests that our results are robust to requiring one, two, or three tax-related comment letters for each industry-year match.

TABLE 4

The Spillover Effect of Tax-Related Comment Letters on Subsequent Tax Avoidance in Industries with High Tax Scrutiny (H3)

Panel A: First-Stage Logit

	(1) $TAXCOMMLETT_t$	
Variable	**Estimate**	**p-value**
ETR_t	−0.738	0.071
$Foreign_t$	0.557	0.001
$Volatility\_ETR_t$	−0.086	0.055
M_Weak_t	0.257	0.265
$Restate_t$	0.310	0.147
$HighVolatility_t$	0.124	0.538
$lnMarketCap_t$	0.428	0.000
$CompanyAge_t$	0.003	0.526
$Loss_t$	−0.379	0.084
$BankruptcyRank_t$	0.132	0.004
$SalesGrowth_t$	−0.998	0.018
$Segments_t$	0.022	0.636
$M\&A_t$	0.181	0.345
$Restructuring_t$	−0.188	0.288
$ExtFinancing_{t+1}$	0.164	0.817
$Litigation_t$	0.332	0.06
$Big4_t$	−0.591	0.047
$Second\text{-}Tier_t$	−0.030	0.925
$AudTenure_t$	0.052	0.000
$AuditorResigned_t$	0.355	0.398
$AuditorDismissed_t$	0.339	0.14
$IndustryScrutiny_t$	0.037	0.000
$InstPerc\_NonTrans_t$	−0.230	0.654
CEO_Chair_t	−0.184	0.384
CFO_BOD_t	0.947	0.12
$BoardIndPct_t$	1.190	0.043
$BoardMtgs_t$	−0.022	0.457
CFO_Tenure_t	0.011	0.703
CEO_Tenure_t	0.016	0.31
Pseudo R^2	0.311	
ROC curve	0.854	
n	1,312	

Panel B: Covariate Balance

	Treatment Firms			Control Firms				
Variable	**n**	**Mean**	**Median**	**n**	**Mean**	**Median**	**p-value**	**p-value**
ETR_t	126	0.306	0.335	126	0.295	0.346	0.593	0.534
$CETR_t$	126	0.269	0.199	126	0.253	0.230	0.624	0.800
$PBTD_t$	126	0.382	0.013	126	0.053	0.012	0.270	0.403
$Foreign_t$	126	0.524	1.000	126	0.476	0.000	0.452	0.536
$Volatility\_ETR_t$	126	0.411	0.141	126	0.632	0.084	0.360	0.082
M_Weak_t	126	0.135	0.000	126	0.143	0.000	0.856	0.859
$Restate_t$	126	0.135	0.000	126	0.135	0.000	1.000	0.859
$HighVolatility_t$	126	0.270	0.000	126	0.278	0.000	0.888	0.890
$lnMarketCap_t$	126	6.225	5.798	126	5.799	5.884	0.083	0.145

(continued on next page)

TABLE 4 (continued)

	Treatment Firms			Control Firms				
Variable	**n**	**Mean**	**Median**	**n**	**Mean**	**Median**	**p-value**	**p-value**
$CompanyAge_t$	126	19.381	14.500	126	21.682	18.500	0.165	0.085
$Loss_t$	126	0.190	0.000	126	0.143	0.000	0.312	0.244
$BankruptcyRank_t$	126	3.786	4.000	126	3.341	3.000	0.041	0.027
$SalesGrowth_t$	126	0.134	0.105	126	0.152	0.132	0.399	0.156
$Segments_t$	126	2.126	1.000	126	1.944	1.000	0.333	0.388
$M\&A_t$	126	0.135	0.000	126	0.167	0.000	0.483	0.483
$Restructuring_t$	126	0.476	0.000	126	0.421	0.000	0.377	0.318
$ExtFinancing_{t+1}$	126	−0.019	−0.016	126	−0.021	−0.006	0.876	0.850
$Litigation_t$	126	0.452	0.000	126	0.389	0.000	0.309	0.314
$Big4_t$	126	0.754	1.000	126	0.683	1.000	0.209	0.126
$Second\text{-}Tier_t$	126	0.143	0.000	126	0.175	0.000	0.492	0.396
$AudTenure_t$	126	8.580	8.000	126	9.222	7.500	0.295	0.571
$AuditorResigned_t$	126	0.016	0.000	126	0.040	0.000	0.255	0.152
$AuditorDismissed_t$	126	0.206	0.000	126	0.183	0.000	0.635	0.753
$IndustryScrutiny_t$	126	11.944	10.00	126	11.944	10.000	1.000	1.000
$InstPerc\_NonTrans_t$	126	0.640	0.769	126	0.710	0.817	0.094	0.055
CEO_Chair_t	126	0.310	0.000	126	0.190	0.000	0.029	0.063
CFO_BOD_t	126	0.008	0.000	126	0.000	0.000	0.318	0.317
$BoardIndPct_t$	126	0.289	0.000	126	0.293	0.000	0.928	0.963
$BoardMtgs_t$	126	3.167	0.000	126	3.468	0.000	0.568	0.687
CFO_Tenure_t	126	1.881	0.000	126	1.468	0.000	0.230	0.304
CEO_Tenure_t	126	3.667	0.000	126	3.016	0.000	0.350	0.426

Panel C: Distribution of Matched Pairs by Fiscal Year

Year	Treated	Control	Total
2003	2	2	4
2004	37	37	74
2005	23	23	46
2006	19	19	38
2007	9	9	18
2008	9	9	18
2009	5	5	10
2010	7	7	14
2011	8	8	16
2012	7	7	14
Total	126	126	252

Panel D: Distribution of Matched Pairs by Industry

Two-Digit SIC	Treated	Control	Total
13	2	2	4
20	4	4	8
27	1	1	2
28	14	14	28
30	1	1	2
31	1	1	2
33	1	1	2
34	1	1	2
35	15	15	30
36	21	21	42
37	4	4	8
38	18	18	36

(continued on next page)

TABLE 4 (continued)

Two-Digit SIC	Treated	Control	Total
48	2	2	4
50	2	2	4
56	3	3	6
57	1	1	2
59	4	4	8
73	27	27	54
80	1	1	2
87	3	3	6
Total	126	126	252

Panel E: Difference-in-Differences Regressions

	(1) ETR_t		(2) $CETR_t$		(3) $PBTD_t$	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	0.306	0.000	0.111	0.177	0.020	0.334
$TAXCLFIRM_t$	0.018	0.316	0.000	0.999	−0.001	0.925
$POST_t$	0.037	0.017	0.009	0.351	−0.007	0.214
$TAXCLFIRM * POST_t$	−0.030	0.181	−0.023	0.430	−0.007	0.513
ROA_t	0.039	0.576	−0.155	0.087	0.199	0.000
ACC_t	−0.081	0.04	−0.266	0.000	0.031	0.073
$SIZE_{t-1}$	0.004	0.247	0.002	0.635	−0.005	0.000
FI_t	−0.514	0.000	−0.255	0.077	0.161	0.007
$EQINC_t$	−0.019	0.309	0.037	0.133	0.014	0.015
$INTAN_t$	0.072	0.008	0.006	0.869	−0.031	0.042
PPE_t	0.029	0.296	−0.045	0.278	−0.024	0.169
NOL_t	−0.009	0.347	−0.019	0.129	0.008	0.077
ΔNOL_t	0.221	0.01	0.202	0.03	−0.141	0.015
MTB_{t-1}	0.002	0.355	0.003	0.215	−0.001	0.414
LEV_t	−0.016	0.65	−0.033	0.471	0.043	0.041
FCF_t	−0.098	0.126	−0.370	0.000	0.104	0.014
$R\&D_t$	−0.734	0.000	−0.759	0.000	0.381	0.000
$SalesGrowth_t$	−0.023	0.401	−0.031	0.439	0.007	0.475
$FORSEGMENTS_t$	0.001	0.78	0.012	0.000	0.000	0.674
Year fixed effects?	Yes		Yes		Yes	
Industry fixed effects?	Yes		Yes		Yes	
n	1,326		1,326		1,326	
R^2	0.134		0.186		0.277	

Firms receiving a tax-related comment letter are matched to firms that have never received a comment letter using the PSM model reported in Panel A. Panel B confirms that our sample firms are matched within fiscal year and industry (two-digit SIC). Panels C and D report the covariate balance for our matched sample using the selection criteria in the first-stage logit. The far right columns in Panels C and D report p-values from t-tests and Wilcoxon rank sum tests for differences in means and medians, respectively. Panel E reports difference-in-differences regressions in which tax avoidance is the dependent variable of interest and *TAXCLFIRM* ∗ *POST* is the difference-in-differences estimator. Robust standard errors are used; p-values are one-tailed on our primary variable of interest where we make a directional prediction, and two-tailed otherwise.
All variables are defined in Appendix B.

power (Hosmer and Lemeshow 2000). Panel B reports the covariate balance for our matched sample of firms. With minor exceptions (*lnMarketCap, InstPerc_NonTrans,* and *CEO_Chair*), means are not statistically different across treatment and control firms, indicating acceptable covariate balance.[30] Panels C and D report the time and industry (by two-digit SIC) distribution of matched pairs. We note an equal number of observations in each row, reflecting an exact match by fiscal year

[30] In untabulated tests, we confirm that our results are inferentially similar if we include *lnMarketCap, InstPerc_NonTrans,* and *CEO_Chair* in the second-stage model.

and industry. We also examine the parallel trends assumption for this matched pair sample of firms. We find growth rates for *ETR* ($p = 0.22$), *CETR* ($p = 0.72$), and *PBTD* ($p = 0.78$) statistically indistinguishable in the period preceding a tax-related comment letter, suggesting that we meet the parallel trends assumptions for tests of H3 (Roberts and Whited 2012).

Panel E of Table 4 reports multivariate tests of H3. We observe a positive and significant coefficient on $POST_t$ in Column (1) ($p < 0.05$), suggesting that firms in industries subject to tax-related scrutiny increase their GAAP ETR (decrease avoidance), on average, following resolution of tax-related comment letters by 3.7 percent. The coefficients on *POST* in Columns (2)–(3) are not statistically significant ($p > 0.10$). The coefficients on $TAXCLFIRM * POST_{i,t}$ in Columns (1)–(3) are also insignificant ($p > 0.10$). The insignificant coefficient on the interaction combined with the positive coefficient on *POST* in the *ETR* specification (Column (1)) suggests that the firms in industries subject to tax-related regulatory scrutiny increase their GAAP ETR whether they receive a tax-related comment letter or not. However, they do not alter their tax avoidance strategies that affect cash taxes paid or permanent BTDs.[31] Overall, our results support H3 and suggest that peer firms in industries subject to tax-related regulatory scrutiny react by reducing their future tax avoidance activities that affect the GAAP ETR.

V. ADDITIONAL ANALYSES

Falsification Tests

To provide additional evidence that our results are attributable to tax scrutiny and not an unknown past event, we follow Roberts and Whited (2012) and reestimate our difference-in-differences analysis on pre-event years. Specifically, we reestimate Model (2) and replace actual event years (i.e., years in which a firm receives a tax-related comment letter) with pseudo-events that are deemed to occur one and two years before the actual receipt of a tax-related comment letter. If comment letters trigger the change in tax avoidance, then we would expect an insignificant coefficient on the interaction between *TAXCLFIRM* and *PSEUDO_POST*. In untabulated results for pseudo-events occurring in year $t-1$, we find insignificant interaction coefficients for the *ETR* ($p = 0.226$) and *CETR* ($p = 0.263$) specifications. We find a negative and significant interaction in the *PBTD* specification ($p < 0.05$). In untabulated results for pseudo-events occurring in year $t-2$, we find insignificant interaction coefficients for *ETR* ($p = 0.722$), *CETR* ($p = 0.229$), and *PBTD* ($p = 0.712$) specifications. Overall, the effect of tax-related comment letters on tax avoidance appears in the year of the comment letter and not in previous periods (in five of our six specifications), alleviating concerns about an association between unknown past events and the occurrence of a tax-related comment letter.

Tax-Related Disclosure

Prior literature documents that firms change their disclosures following a comment letter (Brown et al. 2013; Robinson et al. 2011). We investigate the extent to which such changes in disclosure hold in our tax-specific setting. We use the Seek iNF database (see: https://www.seekedgar.com:8443) to search each 10-K filing on the SEC's EDGAR server for identifiable patterns in footnotes (e.g., "Note 1," "Note A"). We then search individual footnote headings for specific references to taxes (e.g., "Income Taxes," "Taxes") and record the word count for each footnote related to taxes. We supplement our tax footnote word count with two additional variables that represent the number of references to tax-related issues. For these measures, we count the number of times "tax" is mentioned in the entire 10-K and in the Management Discussion and Analysis (MD&A), respectively. Collectively, these measures represent the level of tax-related disclosure and provide an additional test of tax disclosure following the resolution of a tax-related comment letter. We also perform a factor analysis on these three tax disclosure proxies to determine whether they all load on a single underlying construct that we argue is tax disclosure quality. We find that all three variables load on a single factor (eigenvalue = 1.50), providing evidence that all three relate to the same underlying construct. We also use each firm's factor score (*TAX_FACTOR*) as our fourth tax disclosure proxy.

We replace the dependent variable in Model (2) with one of our tax disclosure proxies and present results in Table 5. *TaxFNLength* is the word count for the tax footnote. *Tax10KCount* is the number of times firms' 10-K filings refer to taxes. *TaxMDA* is the number of times firms' MD&A refers to taxes. Using all four tax disclosure proxies, we find positive and significant interaction coefficients ($p < 0.05$) on *TAXCLFIRM* and *POST*, suggesting that, in addition to decreasing their tax avoidance, firms also increase their tax-related disclosures following tax-related comment letter resolution.

Uncertain Tax Benefits

Uncertain tax benefits are a common topic in tax-related comment letters (see Figure 1; Deloitte 2012; PwC 2014) and, unlike other issues, are directly quantifiable from firms' financial statements. Specifically, after reading and coding each tax-

[31] We perform a number of additional robustness tests on this result. First, we confirm that the differing results between *ETR* and *PBTD* are not attributable to changes in denominators. We estimate the model with pretax ROA as the dependent variable and find insignificant changes in pretax income following a tax-related comment letter. Second, results are unchanged when we control for common auditor between our treatment and control firms.

TABLE 5

The Effect of Tax-Related Comment Letters on Tax Disclosure

	(1) $TaxFNLength_t$		(2) $Tax10KCount_t$		(3) $TaxMDA_t$		(4) TAX_FACTOR	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	474.240	0.000	47.450	0.019	−7.545	0.164	−2.397	0.000
$TAXCLFIRM_t$	1.892	0.881	−0.574	0.796	0.916	0.293	0.003	0.918
$POST_t$	−22.071	0.151	−7.364	0.007	−1.820	0.079	−0.057	0.066
$TAXCLFIRM * POST_t$	40.460	0.014	14.193	0.000	2.511	0.028	0.150	0.000
ROA_t	−787.673	0.000	−113.286	0.000	−28.639	0.000	−1.331	0.000
ACC_t	11.484	0.798	8.898	0.25	−1.802	0.606	0.046	0.661
$SIZE_{t-1}$	50.797	0.000	14.771	0.000	2.501	0.000	0.143	0.000
FI_t	1,768.857	0.000	196.870	0.000	67.047	0.000	3.019	0.000
$EQINC_t$	62.721	0.000	13.140	0.000	2.770	0.009	0.119	0.000
$INTAN_t$	−130.930	0.000	−7.076	0.147	−3.345	0.073	−0.173	0.002
PPE_t	−167.663	0.000	−18.866	0.002	−4.058	0.098	−0.282	0.000
NOL_t	103.434	0.000	11.049	0.000	3.631	0.000	0.164	0.000
ΔNOL_t	−170.137	0.035	−11.566	0.404	−11.609	0.032	−0.306	0.066
MTB_{t-1}	−4.510	0.068	−0.783	0.029	−0.253	0.121	−0.013	0.004
LEV_t	162.774	0.000	20.500	0.001	1.193	0.608	0.232	0.001
FCF_t	35.096	0.647	−2.352	0.852	−2.025	0.680	−0.015	0.923
$R\&D_t$	650.450	0.000	76.996	0.000	40.715	0.000	1.190	0.000
$SalesGrowth_t$	77.518	0.008	14.332	0.022	3.105	0.075	0.174	0.004
$FORSEGMENTS_t$	19.728	0.000	2.933	0.000	1.106	0.000	0.043	0.000
Year fixed effects?	Yes		Yes		Yes		Yes	
Industry fixed effects?	Yes		Yes		Yes		Yes	
R^2	0.455		0.393		0.236		0.476	
n	5,501		5,852		4,496		4,128	

related comment letter, we find that approximately 19 percent of tax-related comment letters in our sample raise UTB-related disclosure issues. Previous research provides evidence that regulatory scrutiny of specific portions of the financial statements leads firms to alter their disclosures in the targeted section (Bozanic et al. 2014). Thus, to examine a response by management to a tax-related comment letter that could result in the observed increases in ETRs, we examine changes in uncertain tax benefits (UTBs) surrounding tax-related comment letters and tax-related comment letters that mention UTB-related disclosure issues. To the extent that regulatory scrutiny targeted at UTBs results in managers altering their opinions regarding the sufficiency of tax reserves, managers should increase their UTB balances.

Using the matched sample used to test H2, we expand the regression model to include two additional variables that represent the effect of tax-related comment letters that mention UTB disclosure issues (*UTBIssue*) and its interaction with our *POST* variable (*UTBIssue* * *POST*). We present our results in Table 6. We document an insignificant coefficient for $TAXCLFIRM * POST_t$ ($p = 0.218$). In contrast, we find a positive and marginally significant coefficient on *UTBIssue* * *POST* ($p < 0.10$). This result provides evidence that a tax-related comment letter on a UTB disclosure-related issue subsequently results in higher UTBs.

Robustness Tests

Alternative Sampling Procedures

We perform several sampling procedures to verify the robustness of our results. First, we ensure that our results are not an artifact of matching by replicating our analysis without matching by comparing firms that receive tax-related comment letters with all other firms with the data necessary to estimate Model (2). In untabulated analysis, we continue to find positive (negative) and significant coefficients ($p < 0.01$) for the *ETR* and *CETR* specifications (*PBTD* specification). Our results are, therefore, representative of a broader sample, as well as a matched sample. Second, we perform propensity score matching using two different calipers. Our primary sample relies on a caliper distance of 0.30. We verify that our results are not sensitive to this caliper setting by replicating Model (2) with caliper distances of 0.25 and 0.35.

TABLE 6

Difference-in-Differences Design with Propensity Score Matching for Uncertain Tax Benefits

	(1) UTB_t		(2) UTB_t	
Variable	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	0.005	0.242	0.006	0.155
$TAXCLFIRM_t$	−0.002	0.151	−0.002	0.086
$POST_t$	−0.003	0.033	−0.003	0.019
$TAXCLFIRM * POST_t$	0.003	0.023	0.001	0.218
UTB_t			0.004	0.145
$UTB * POST_t$			0.004	0.070
ROA_t	−0.012	0.009	−0.011	0.017
ACC_t	−0.002	0.434	−0.001	0.524
$SIZE_{t-1}$	0.001	0.000	0.001	0.000
FI_t	0.103	0.000	0.100	0.000
$EQINC_t$	0.002	0.004	0.001	0.092
$INTAN_t$	−0.002	0.234	−0.002	0.225
PPE_t	−0.004	0.041	−0.004	0.047
NOL_t	0.000	0.892	−0.000	0.863
ΔNOL_t	0.007	0.348	0.007	0.376
MTB_{t-1}	0.000	0.273	0.000	0.596
LEV_t	0.000	0.868	0.001	0.711
FCF_t	0.001	0.809	0.001	0.803
$R\&D_t$	0.076	0.000	0.075	0.000
$SalesGrowth_t$	−0.004	0.015	−0.004	0.028
$FORSEGMENTS_t$	0.000	0.972	0.000	0.978
Year fixed effects?	Yes		Yes	
Industry fixed effects?	Yes		Yes	
R^2	0.26		0.28	
n	3,335		3,335	

This table reports difference-in-differences regressions using the propensity score matched sample from Table 3 and uncertain tax benefits (*UTB*) as our dependent variable of interest. Column (1) reports the difference-in-differences estimator for the matched sample, while Column (2) reports the coefficient loadings for two additional variables that track whether UTBs were specifically mentioned in the tax-related comment letters. All variables are winsorized at the 1 percent and 99 percent levels to mitigate the influence of outliers. Robust standard errors are used; p-values are one-tailed on our primary variable of interest where we make a directional prediction, and two-tailed otherwise.
All variables are defined in Appendix B.

In untabulated analysis, we continue to find positive (negative) and significant coefficients on $TAXCLFIRM * POST_{i,t}$ for the *ETR* ($p < 0.05$) and *CETR* ($p < 0.10$) specifications (*PBTD* specification, $p < 0.05$). Third, while our primary analysis performs matching without replacement, we replicate Model (2) over a propensity score matched sample allowing for replacement. In untabulated analysis, we again find positive (negative) and significant coefficients ($p < 0.05$) for the *ETR* and *CETR* specifications (*PBTD* specification).[32] Allowing for replacement of control firm matches does not influence our results.

Multiple Tax-Related Comment Letters

Approximately 7.5 percent of our sample receives more than one tax-related comment letter. We verify that our results are not an artifact of the multiple tax-related comment letters by replicating our Model (2) over the first tax-related comment letter each firm receives. We continue to find positive (negative) and significant coefficients ($p < 0.06$) on $TAXCLFIRM * POST_{i,t}$ for the *ETR* and *CETR* specifications (*PBTD* specification).

[32] Because one control firm can potentially be matched to numerous treatment firms, we weight our regressions by the number of times that a control firm is used in the matching process.

CIC Program

While Bozanic et al. (2015) find evidence consistent with the IRS using information contained in comment letters, the IRS arguably possesses greater information about firms in the Coordinated Industry Case (CIC) program. To ensure that our results are not sensitive to firms participating in the CIC program, we use the predicted probabilities from the Ayers, Seidman, and Towery (2015) CIC participation model. Results are robust to controlling for the predicted probabilities ($p < 0.05$) on $TAXCLFIRM * POST_{i,t}$ for the *ETR, CETR,* and *PBTD* specifications. We also reestimate Table 3, Panel D using a subsample of firms with predicted probabilities less than 80 percent and continue to find positive (negative) and significant coefficients ($p < 0.08$) on $TAXCLFIRM * POST_{i,t}$ for the *ETR* and *CETR* specifications (*PBTD* specification). Thus, our results do not appear sensitive to the likelihood of a firm participating in the CIC program.

VI. CONCLUSION

We examine the relation between the regulatory scrutiny of financial statement tax disclosures and firms' tax avoidance using SEC tax-related comment letters to proxy for tax-specific regulatory scrutiny. Consistent with firms attempting to obfuscate information, the revelation of which could result in increased tax-related costs, we find that the likelihood of receiving an SEC tax-related comment letter increases with higher tax avoidance. We also document that tax avoidance decreases for both firms receiving tax-related comment letters and their industry peers following an increase in regulatory scrutiny. This finding is consistent with the tax-specific regulatory scrutiny of financial statement information increasing the expected costs of tax avoidance and with firms responding to the scrutiny by decreasing their levels of tax avoidance.

This study makes several contributions to the literature on the interactions between accounting and regulatory enforcement. First, we extend the comment letter literature by investigating both the determinants (Cassell et al. 2013; Ettredge et al. 2011) and consequences (Johnston and Petacchi 2012; Robinson et al. 2011) of SEC comment letters. In particular, we expand the scope of prior research to consider the SEC concern with, and influence on, tax-related issues and disclosures. Our results are consistent with the SEC scrutinizing firms with reported GAAP ETRs that suggest higher tax avoidance or disclosure of tax-related information that is incomplete or unclear, which suggests that they consider tax-related information on the financial statements to be relevant to investors.

Furthermore, our finding that firms decrease their tax avoidance following comment letters implies that firms make operational changes following SEC scrutiny, whereas previous research primarily focuses on reporting changes. Second, we contribute to the literature on regulatory scrutiny. Given that the SEC's primary task is the regulation of capital markets, prior research has logically focused on SEC scrutiny and earnings quality (Blackburne 2014; Comprix and Muller 2011). Other papers consider the consequences of tax enforcement (Guedhami and Pittman 2008; Hanlon et al. 2014). We focus on the interplay between the regulatory scrutiny of a capital markets regulator and firms' tax avoidance. Our findings are important to legislators because we document evidence of spillover benefits from a securities regulator to tax regulators. Our conclusions also inform tax regulators, suggesting that targeting firms receiving SEC tax-related comment letters could aid in identifying firms engaged in aggressive tax avoidance.

We attempt to control for multiple alternative explanations for our findings, and although we cannot completely rule out all of these explanations, we suggest that it is unlikely that a systematic correlation exists between these explanations and tax-related comment letters. Nevertheless, we acknowledge our research design limitations. First, because the receipt of a comment letter is not a random event, we use propensity score matching to construct a matched sample of similar firms based on observable variables. We do this to isolate the treatment effect of receiving a tax-related comment letter. Propensity score matching, however, cannot control for unobservable differences across firms (Tucker 2010). Second, we provide some evidence on the specific mechanisms that could explain our observed changes in tax avoidance (i.e., trend analyses by issue and UTB tests). However, we acknowledge that data limitations make it difficult to identify the exact underlying mechanisms that result in increases in tax avoidance (Lee, Strong, and Zhu 2014). Finally, our results for H1 reveal a positive association between tax avoidance, through lower GAAP ETRs and higher permanent book-tax differences, and receipt of a tax-related comment letter. SEC concern with tax accrual manipulation could explain our lack of results for the cash ETR tests of H1. However, anecdotal discussions with individuals involved in the comment letter process, as well as our own reading of tax-related comment letters, do not suggest that tax accrual manipulation is the only reason for issuing a tax-related comment letter. Indeed, our results for H2 suggest that firms increase both their cash and GAAP ETRs, which implies that managers are increasing their cash taxes paid and not just their tax accruals. Nevertheless, we look forward to future research that empirically separates tax avoidance from aggressive accounting for income taxes.

Our results offer some interesting opportunities for future research. Specifically, future research could examine how the type of tax-related comment letter affects qualitative (e.g., disclosure) versus quantitative (e.g., tax avoidance or tax accrual manipulation) tax outcomes. The literature could also benefit from examining whether tax settlements, disclosed through the

UTB reconciliation, are affected by the receipt of a tax-related comment letter. We hope our results stimulate future research examining the effects of regulatory scrutiny on tax avoidance and related topics.

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APPENDIX A
Examples of SEC Comment Letters and Resolutions

1. Tyson Foods 09/29/2007 10-K Filing SEC Comment Letter and Response

SEC Comment (3/18/2008)

We note your disclosure that during fiscal 2007 you discovered a certain population of your tax cost and accumulated depreciation values were not accurately recorded, primarily related to a property, plant and equipment system conversion in 1999, and as a result, you increased you [your] deferred tax liabilities $17 million and recognized additional tax expense of $17 million. Please explain to us in detail the nature of these adjustments including whether any part of the adjustments related to prior years. If the amounts did relate to prior years, please tell us why the amount was not adjusted in the appropriate prior period and tell us why you do not believe that this should be accounted for as a correction of an error. See APB 20. Also, please tell us why this adjustment was not identified during the detailed tax liability review process that took place during fiscal 2006.

Management Response (3/28/2008)

We recognized an expense of approximately $15 million to correct an error associated with a property, plant and equipment system (fixed asset system) conversion in 1999. Prior to 1999, a certain fixed asset population was established in our fixed asset system for which a single physical asset had two asset identification numbers. The first asset identification number contained a book cost but no tax cost, and the second asset identification number had a tax cost but no book cost. This was a method historically utilized by us to account for different book versus tax cost basis on assets acquired via corporate stock acquisitions (i.e., carry-over tax basis and stepped-up book basis). The process of converting from this old fixed asset system to the new one included transferring data between the systems. However, a certain asset population, which appropriately had a book cost but no tax cost (as the tax cost was recorded under a second identification number), was erroneously assigned tax cost equal to book cost upon conversion. The transfer error resulted in an incorrect step-up in the tax basis from zero to the book cost for those assets, creating an invalid tax cost and therefore an invalid deferred tax asset. The legacy tax asset cost was carried over as well. Due to the manner in which the invalid tax cost was created, it was not configured to depreciate. At the time of the data transfer a proper reconciliation of the old system and new system book values was completed, but a similar process for the tax values was not completed. We concluded this adjustment was related to periods prior to fiscal 2005.

2. VF Corporation 01/01/2011 10-K Filing SEC Comment Letters and Response

SEC Comment (4/15/2011)

1. We note your disclosures indicating that the declines in your effective income tax rates in 2010 from 2009 and in 2009 from 2008 were primarily attributable to growth in your international businesses in jurisdictions having effective income tax rates that are substantially lower than rates in the United States. We further note from remarks with respect to your international operations by Mr. Bob Shearer, Chief Financial Officer, during your March 11, 2011 analyst meeting that "...a 15 percent effective tax rate is a great plus to an already superior model." In future filings, please quantify your international effective tax rate and compare such rate with your U.S. effective tax rate.

2. With a view towards discussion and analysis in future filings, please tell us the specific countries where earnings are generated that benefited from the lower international effective tax rate, and explain if recent uncertainty in economic conditions in such countries may result in material increases to the effective tax rates you have historically experienced. See Item 303(a)(3)(i) of Regulation S-K and Section III.B of SEC Release 33-8350.

Management Response (4/29/2011)

1) The Company agrees that information regarding our taxation in foreign jurisdictions is relevant to investors and other users in understanding the impact of the continuing growth of the Company's foreign operations. To assist users in this understanding, we disclose the allocation of domestic and foreign income, as well as the impact of foreign rate differences, in Note P–Income Taxes on page F-31. Further, our discussion in MD&A correlates the reduction in the effective income tax rate to the increased proportion of our earnings taxed in foreign jurisdictions. In response to the Staff's comment, we will enhance this MD&A disclosure in future annual filings to include a quantification of the international effective tax rate compared to the U.S. effective rate.

2) The Company operates in more than 100 jurisdictions. With the exception of Japan, every jurisdiction in which the Company operates has a lower statutory tax rate than the U.S. In particular, our substantial operations in Switzerland, Belgium, Hong Kong, and Panama drive our lower international effective tax rate. As disclosed in Note P of the Company's financial statements, we have negotiated decreases to the statutory tax rates in two of these jurisdictions based on our significant investments in these jurisdictions. The other two jurisdictions have substantially lower effective tax rates when compared to the U.S. based on a combination of lower statutory rates and territorial tax systems within those jurisdictions. Given the agreements in place and the relative financial and political stability of these four countries, we do not currently believe there is substantial risk to our ability to maintain a low international effective tax rate due to the economic conditions of these jurisdictions.

Considering the guidance in Item 303(a)(3)(i) of Regulation S-K and Section III.B of SEC Release 33-8350, the Company will make an assessment at each future filing date and supplement our MD&A disclosure if we identify any significant exposure related to increases in tax rates based on economic conditions within international jurisdictions where the Company operates. Based on our most recent assessment noted above and the results of the quarter ended April 2, 2011, we do not currently anticipate the need for such disclosure in our first quarter report on Form 10-Q for 2011.

3. Riverbed Technology, Inc. 12/31/2011 10-K Filing SEC Comment Letter and Response

SEC Comment (8/1/2012)

Tell us what consideration you gave to including the liability associated with your unrecognized tax benefit obligation in the table of contractual obligations. We refer you to Discussion Document E of the SEC Regulations Committee Meeting on April 17, 2007. In addition, please tell us where you have classified income taxes payable related to your uncertain tax positions.

Management Response (8/17/2012)

The Company respectfully advises the Staff that we have evaluated Discussion Document E of the SEC Regulations Committee Meeting on April 17, 2007. Accordingly, we considered whether the liability associated with our unrecognized tax benefit obligations should be included in the contractual obligations table in Management's Discussion and Analysis. Given the high degree of uncertainty regarding the timing of future cash outflows associated with our unrecognized tax benefit obligations, the Company is unable to make reasonable estimates of the period of cash settlement with the respective taxing authorities, and we have therefore excluded our unrecognized tax benefit obligations from the contractual obligations table.

The Company supplementally informs the Staff that as of December 31, 2011, the Company had $27.2 million of unrecognized tax benefits related to our uncertain tax positions (including $0.2 million related to interest and penalties). Of this

amount, $22.9 million is recorded as income taxes payable and included in "Other long-term liabilities." The remaining $4.3 million is reported as a reduction of deferred tax assets.

In response to the Staff's comment, we hereby undertake in future annual and quarterly reports filed with the Commission to include disclosure substantially similar to the following as a footnote to the contractual obligations table: "As of _____, 20XX, we had $XX.X millions of unrecognized tax benefits, including interest and penalties, related to uncertain tax positions (See Note XX to our Consolidated Financial Statements). Because of the high degree of uncertainty regarding the settlement of these liabilities, we are unable to estimate the years in which future cash outflows may occur. As a result, this amount is not included in the table above."

APPENDIX B

Variable Definitions

Variable	Source	Definition
Tax Avoidance		
ETR_t	Compustat	Total tax expense divided by pretax book income (TXT/PI).
$CETR_t$	Compustat	Cash taxes paid divided by pretax book income (TXPD/PI).
$PBTD_t$	Compustat	Pretax book income less minority interest in earnings less estimated taxable income less deferred taxes (PI − MII − (TXFED + TXFO)/0.35) − TXDI/0.35) scaled by lagged assets (AT).
SEC Comment Letters		
$TAXCOMMLETT_t$	Audit Analytics	Equals 1 if a firm receives a tax-related comment letter, and 0 if the firm receives a non-tax-related comment letter.
Tax Comment Letter Controls		
$Foreign_t$	Compustat	Equals 1 if the firm reports positive foreign income (PIFO).
$Volatility\_ETR_t$	Compustat	Volatility of ETR, computed as standard deviation of prior five years of GAAP ETRs (TXT/PI).
All Comment Letter Controls (following Cassell et al. 2013)		
M_Weak_t	Audit Analytics	Equals 1 if the firm reports a material weakness under SOX 302 or 404 within the last three years.
$Restate_t$	Audit Analytics	Equals 1 if the firm has a restatement within the last three years.
$HighVolatility_t$	CRSP	Equals 1 if the volatility of monthly stock returns (RET − VWRETD) is in the highest quartile for that fiscal year.
$lnMarketCap_t$	Compustat	Natural logarithm of market value of equity (PRCC_F * CSHO).
$CompanyAge_t$	Compustat	Number of years the firm has reported total assets in the Compustat database.
$Loss_t$	Compustat	Equals 1 if the firm reports a loss (IB < 0) in any of the last three fiscal years.
$BankruptcyRank_t$	Compustat	Decile rank of the Altman Z-score. Z-score 1.2 * ((ACT − LCT)/AT) + 1.4 * (RE/AT) + 0.6 * (CSHO * PRCC_F) + 1.0 * (SALE/AT).
$SalesGrowth_t$	Compustat	Mean sales (REVT in year t/REVT in year $t-1$) growth over the past three fiscal years.
$Segments_t$	Compustat	Number of reported operating segments.
$M\&A_t$	Compustat	Equals 1 if there are reported acquisitions (AQP) in any of the last three years.
$Restructuring_t$	Compustat	Equals 1 if there is reported restructuring (RCP) in any of the last three years.
$ExtFinancing_{t+1}$	Compustat	Equals equity and debt financing, scaled by total assets ((SSTK + PRSTKC − DV) + (DLTIS − DLTR − DLCCH))/AT.
$Litigation_t$	Compustat	Equals 1 if the firm is in a highly litigious industry (SIC codes: 2833–2836, 3570–3577, 3600–3674, 5200–5961, 7370–7374), following Francis, Philbrick, and Schipper (1994).
$Big4_t$	Compustat	Equals 1 if the firm has a Big 4 auditor.
$Second\text{-}Tier_t$	Compustat	Equals 1 if the firm has a second-tier auditor.
$AudTenure_t$	Compustat	Number of consecutive years the auditor has audited the firm.
$AuditorResigned_t$	Audit Analytics	Equals 1 if the auditor resigned in any of the last three years.
$AuditorDismissed_t$	Audit Analytics	Equals 1 if the auditor was dismissed in any of the last three years.
$IndustryScrutiny_t$	Audit Analytics	Number of tax-related comment letters issued by two-digit SIC.
$InstPerc\_NonTrans_t$	Thomson	Percentage of nontransient institutional investors, following Bushee (1998).
CEO_Chair_t	Execucomp	Equals 1 if the CEO is also Chair of the Board.

(continued on next page)

APPENDIX B (continued)

Variable	Source	Definition
CFO_BOD_t	Execucomp	Equals 1 if the CFO is on the Board of Directors.
$BoardIndPct_t$	Corporate Library	Percentage of independent board members.
$BoardMtgs_t$	Corporate Library	Number of board meetings.
CFO_Tenure_t	Execucomp	Tenure (in years) of the CFO.
CEO_Tenure_t	Execucomp	Tenure (in years) of the CEO.
Tax Avoidance Controls		
ROA_t	Compustat	Pretax return on assets (PI/AT).
ACC_t	Compustat	Performance matched pretax discretionary accruals, following Frank, Lynch, and Rego (2009).
$SIZE_{t-1}$	Compustat	Lagged market value of equity (PRCC_F $*$ CSHO).
FI_t	Compustat	Pretax foreign income, scaled by lagged assets (PIFO/AT).
$EQINC_t$	Compustat	Equals 1 if positive equity in earnings (ESUB $>$ 0).
$INTAN_t$	Compustat	Intangibles, scaled by lagged assets (INTAN/AT).
PPE_t	Compustat	Net property, plant, and equipment scaled by lagged assets (PPENT/AT).
NOL_t	Compustat	Equals 1 if the firm reports a positive NOL carryforward (TLCF).
ΔNOL_t	Compustat	Change in NOL, scaled by lagged assets.
MTB_{t-1}	Compustat	Lagged market-to-book (PRCC_F $*$ CSHO)/CEQ).
LEV_t	Compustat	Long-term debt divided by lagged assets (DLTT/AT).
FCF_t	Compustat	Free cash flow, scaled by lagged assets ((OANCF-CAPX)/AT).
$R\&D_t$	Compustat	Research and development expense divided by lagged assets (XRD/AT).
$FORSEGMENTS_t$	Compustat	Number of foreign operating segments.