

DISCUSSION

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DISCUSSION PAPER

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Tax Strategy Disclosure: A Greenwashing Mandate?

Tax strategy disclosure: A greenwashing mandate?*

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Abstract

We investigate the effects of a *qualitative* tax disclosure mandate aimed at improving tax transparency and compliance by imposing reputational costs for firms. We use, as an exogenous shock, the 2016 UK reform that required large businesses to disclose their tax strategy. We find that treated firms—those that must publish a tax strategy report—also significantly increase the volume of tax strategy disclosure in their annual reports but this disclosure contains more boilerplate. The standalone tax strategy reports contain narratives similar to those in the annual reports, are sticky, and their quality is correlated with those of disclosures on gender and human rights. Turning to real behavioral changes, we document no significant effect on tax planning across several proxies and firm characteristics. While we find that the mandate increased media attention on treated firms, our results suggest that this enforcement channel might not work in the context of qualitative disclosure, which may be hard to verify for outside stakeholders. Even in subsamples of firms that we would expect to behave differently, we document similar responses. Taken together, our findings indicate that mandating qualitative tax disclosure has incentivized firms to portray themselves as good tax citizens without changing their practices.

JEL: G38, M41, M48, H26, H20

Keywords: Disclosure Regulation, Nonfinancial Disclosure, Corporate Social Responsibility, Tax Transparency, Corporate Tax Avoidance

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I. INTRODUCTION

Increasingly, taxes are seen as part of a firm's corporate social responsibility. Around the world, domestic and international regulations are mandating that multinationals disclose more information on their tax affairs. While early initiatives mandated quantitative disclosures,¹ more recent ones have promoted or required *qualitative* ones. However, qualitative information is harder to verify, and firms may be able to provide unsubstantiated disclosures that say what stakeholders want to hear without changing their behavior. To understand firm responses to qualitative disclosure mandates, we study the effects of a 2016 regulation that requires large businesses with operations in the United Kingdom to disclose tax strategy information.²

This regulatory change, hereafter the UK Tax Strategy Mandate, requires firms to report their tax strategies, including the relationship with the UK tax authority, i.e., Her Majesty's Revenue and Customs (HMRC), as well as their approach to tax planning and tax risk governance. The mandated report can either stand alone or be integrated into another report, for example, the annual report. The two objectives behind mandating that firms publish their tax strategy are to increase transparency and reduce tax avoidance by imposing reputational costs (*The Guardian* [2015]). The regulator explicitly relies on public scrutiny, so-called "naming and shaming," as the enforcement mechanism (HMRC [2015a]). We investigate whether the UK Tax Strategy Mandate achieved its objectives.

The UK Tax Strategy Mandate may impose reputational costs large enough to prompt changes in behavior. Evidence shows that public attention has induced changes in firm tax disclosure and avoidance in response to quantitative mandates (Dyreng et al. [2016]). Mandating *qualitative* tax disclosures could further inform stakeholders by providing details to judge tax affairs and hold companies accountable, especially given findings on the informativeness of a narrative discussion on tax risks in annual reports (Campbell et al. [2014]; Beatty et al. [2019]; Bozanic et al. [2017]).

¹ Examples include the Dodd-Frank Financial Reform and Consumer Protection Act, the FIN48, the EU CRD IV and the Capital Requirements Regulation, the Action 13 of the BEPS project, which has now been introduced in most countries around the world.

² See Schedule 19 "Large business: tax strategies and sanctions" of the Finance Act 2016, available at <https://www.legislation.gov.uk/ukpga/2016/24/schedule/19> and HMRC [2016] and Appendix B.

Actionable elements of a tax strategy report include a delineation of who has key roles and responsibilities, examples of internal actions taken to address tax risk, and explanations of factors shaping tax planning choices (Fair Tax Foundation [2017]). In our setting, some firms were already voluntarily disclosing tax strategy information in their annual reports before the reform (PwC [2016]). Still, the reform may lead to new disclosures even for those firms, as it sets a minimum bar for the content of tax strategy disclosures. In addition, behavioral change may occur through a reduction in information processing costs for stakeholders, as the UK Tax Strategy Mandate increased awareness³ and accessibility⁴ and decreased integration costs⁵ (Blankespoor et al. [2019]).

Yet research provides mixed evidence about the reputational costs of tax avoidance (Gallemore et al. [2014]; Chen et al. [2019]; Hoopes et al. [2018]; Dyreng et al. [2020]). Especially given the qualitative nature of tax strategy disclosures, firms may be tempted to communicate that their actions comport with broad societal interests without changing their behavior. Qualitative CSR information risks being boilerplate and vague (SASB [2017]) and can be harder to verify than quantitative information (e.g., Christensen et al. [2021]; She [2022]), potentially resulting in unsubstantiated claims (O'Donovan [2002]). This practice is known as “greenwashing” in the CSR literature (Siano et al. [2017]; Christensen et al. [2021]). Thus, it is unclear whether requiring narrative tax strategy reporting will lead to the intended outcomes.

We study whether the UK Tax Strategy Mandate has helped improve tax strategy disclosures and reduce avoidance. Three assumptions undergird our analysis. The first is that stakeholders consume the new disclosure. Consumers of tax strategy information are investors, who may demand more details of a firm’s tax strategy (KMPG [2022])⁶; NGOs, who closely monitor these disclosures; and the general

³ The regulatory change was salient for stakeholders. The tax authorities established a dedicated page and issued related notices. Government officials also discussed the reform in media outlets. Several reports from Big Four and other tax advisors were issued to explain the new disclosure requirement.

⁴ The reports are easy to access. We were able to retrieve the reports of treated firms through a simple Google search with the company name and key words like “tax strategy.”

⁵ It can reduce integration costs, as it provides four clearly defined categories of disclosure that can facilitate benchmarking against peers (Robinson and Schmidt [2013]; Healy and Palepu [2001]; Maines and McDaniel [2000]).

⁶ For example, the Norwegian wealth fund took concrete actions against multinationals that disclosed little about their tax strategies; see <https://www.reuters.com/world/europe/first-time-norways-wealth-fund-ditches-firms-over-tax-transparency-2021-02-01/>

public, who may rely on firms' tax strategy disclosure to judge tax behavior. The latter stakeholder group is expected to care about firm tax behavior, as tax avoidance ranks among the most important business ethics issues for the civil society in the United Kingdom (IBE, [2023]). The second key assumption is that firms care about stakeholder preferences. The fact that some firms were already disclosing tax strategy information voluntarily before the UK Tax Strategy Mandate (PwC [2016]) suggests that societal interest in corporate tax affairs can lead to better disclosures. The increase in reputational costs around the UK Tax Strategy Mandate should induce more firms to care about stakeholders' preferences. And the third assumption is that the public pressure on firms *before* the mandate was insufficient for them to fully align their tax practices with stakeholders' preferences. Otherwise, firms would not be able to further change their behavior after the reform. Under these three assumptions, we expect the qualitative tax strategy disclosure to induce firms to change their tax planning.

We start by considering the effects on the availability of tax information, which we proxy by the *quantity* and *quality* of tax strategy disclosures in the annual reports. Annual reports are a critical disclosure outlet and they were where firms voluntarily discussed their tax strategies before the mandate (PwC [2016]). This feature allows us to investigate the causal effects of the mandate on changes in firms' quantity and quality of tax strategy disclosure, holding the disclosure outlet fixed. To quantify the availability of tax information in the annual report, we use naïve Bayes machine learning to classify sentences in all annual reports in our sample as those about tax strategy based on a self-developed training sample. We measure the *quantity* of tax strategy information disclosed with the number of tax strategy sentences and the number of words in these sentences. We measure its *quality* by computing the level of boilerplate and the specificity of firms' tax strategy sentences following the textual analysis literature (e.g., Lang and Stice-Lawrence, [2015]; Hope et al., [2016]; Dyer et al., [2017]). Next we investigate the effect of the mandate on tax planning. To capture possible changes in tax avoidance, we use the following proxies: cash and book ETRs and a textual measure of tax haven operations, following Law and Mills [2022].

We begin our analysis with descriptive evidence on disclosures in the standalone tax strategy reports. Understanding their quality and quantity matters from a policy perspective, as future regulations may require a similar standalone report. Three main takeaways emerge. First, when comparing tax strategy reports for the same firm over time, we document high stickiness: firms tend to report the same information every year. We provide anecdotal evidence that firms remove relevant information from their reports, which is reflected in a reduction in average disclosure quality between reports from 2019 and 2023. Second, we show that the disclosure in the annual report resembles that in the tax strategy report. The average level of similarity between the two reports is 53%. Third, we collect two other standalone CSR reports that UK companies must publish: the Modern Slavery Statement and the Gender Pay Gap Report. We find that the disclosure characteristics across the three reports are correlated. For example, firms that misreport their gender gap statistics (Bailey et al. [2022]) report lower quality disclosure in their standalone tax strategy reports than other firms.

To provide causal evidence on the effect of the UK Tax Strategy Mandate, we use a difference-in-differences methodology and compare the UK-headquartered multinationals affected by the mandate, that is, those with turnover exceeding GBP 200 million or a balance sheet total exceeding GBP 2 billion, and unaffected ones, before and after the reform. To pinpoint the effects of *qualitative* tax disclosure, we exclude the very large firms that fall under the *quantitative* country-by-country reporting requirements, which were introduced around the same time. Hence our treated sample includes only firms above the mandatory *qualitative* threshold and below the country-by-country reporting threshold. Our control group includes UK firms below the *qualitative* threshold, which are most comparable to the treatment group. For this purpose, we exclude small firms. Our final regression sample includes 206 firms (69 treated and 137 controls) with 1,183 observations from 2013–2019.

We show that the volume of tax strategy disclosure increased on average: the number of sentences and words used to describe tax strategies in the annual reports increased significantly for treated firms. However, the quality of tax strategy information provided in annual reports decreased, as the amount of boilerplate increased significantly. Additionally, we find no evidence that firms reduce their overall tax avoidance, as we detect no significant change in effective tax rates nor in the scale of tax haven

operations. We show that the parallel trends assumption holds in the pre-reform period and that firms do not anticipate the reform both in terms of disclosure and tax avoidance outcomes. We interpret these results as evidence of greenwashing, where firms portray themselves as good tax citizens without changing their behavior.

In the second part of the paper, we focus on understanding why the enforcement mechanism—increased public pressure—did not produce the intended behavioral changes. We proxy for public pressure using the level of media attention and find that treated firms experience a statistically significant increase in attention after the reform.⁷ We show that this increased scrutiny made companies comply with the letter of the law (increasing the quantity of their overall tax strategy disclosure) but did not make them comply with its spirit (decreasing the quality of their disclosures).

In the final part of our analysis, we analyze the effects of the reform across four sub-groups of firms for which we would expect higher reputational costs. We start with firms subject to higher public attention pre reform, for which we might observe improved reporting of their tax strategies and tax compliance post reform because they could expect higher scrutiny of their tax affairs. We then investigate whether responses differ, depending on the firms' attitude toward corporate social responsibility, in line with the notion that firms view tax strategy disclosures as a CSR measure. Third, we study whether more tax aggressive firms, the primary target of the reform, feel more pressure to change behavior in anticipation of higher reputational damage or whether they instead opt to greenwash.

Finally, we provide further support for the greenwashing hypothesis. For greenwashing to materialize, we expect firms to portray themselves as good corporate citizens without changing their behavior, which is what our baseline results indicate. However, the lack of changes in tax avoidance that we document could also indicate an inability of firms to make changes, for example, because they have already adjusted their tax planning following earlier anti-avoidance initiatives. To separate the two interpretations, we isolate firms that might not have aligned their tax practices with stakeholders' preferences in the years preceding the reform and may therefore have the highest ability to adjust their

⁷ Manual inspection of media material revealed around 40 dedicated articles and two reports from NGOs scrutinizing the quality of tax strategy reports (Tax Justice Network [2015]; Fair Tax Foundation [2017]).

behavior afterward. Empirically, we capture these firms by splitting the sample into high versus low ETR increases pre 2016. We do not find any statistically significant differences in the quantity of disclosure and tax avoidance response to the mandate across the two groups. However, we find that firms that can adjust their ETRs increase their boilerplate while the other ones do not. This allows us to conclude that even the treated firms that can change their tax planning behavior do not feel pressured to do so and opt instead to greenwash their tax strategy reports.

Overall our cross-sectional tests corroborate the conclusion that the reform did not impose a reputational threat that altered real behavior, even for firms for which we would have expected that outcome. We only find evidence suggesting that companies that care less about stakeholders (proxied by below median CSR score) and those that have not adjusted their tax practices following previous episodes of public pressure in the UK (proxied by no pre-period increases in the ETR) provide more boilerplate disclosures post reform. This comports with the idea that, if a qualitative disclosure can be strategically drafted in a vague greenwashing language, reputational costs may be insufficient to change behavior after a qualitative disclosure mandate.

Our study contributes to two streams of literature. Specifically, it addresses (1) the effects of tax transparency initiatives and (2) the effects of CSR-type narrative disclosures. While there is a growing literature on the effects of *quantitative* tax disclosures, researchers know little about the effects of *qualitative* ones, despite their increasing popularity. Mandating the disclosure of *quantitative* tax information can affect firm behavior (Blouin et al. [2010]; Tomohara et al. [2012]; Gupta et al. [2014]; Henry et al. [2016]; Hope et al. [2013]; Joshi [2020 a,b]; Overesch and Wolff [2021]), and it offers valuable information to tax authorities (Bozanic et al. [2017]). At the extreme, mandating the disclosure of country-level economic activity can affect the organizational structures of multinationals (De Simone and Olbert [2022]). We contribute to the literature by developing a novel machine-learning based measure of qualitative tax disclosure to classify tax strategy sentences. This refines previous methodologies that use a dictionary approach (e.g., Balakrishnan et al. [2019]; Campbell et al. [2014]; Allen et al. [2021]). Using our novel measure, we show that a qualitative mandate can have unintended consequences on the quality of overall tax disclosure and does not lead to reductions in tax avoidance.

A concurrent paper, by Xia [2023] uses the same setting and also finds no reduction in tax avoidance. Our paper complements hers, as she does not investigate the effect of the mandate on overall tax transparency, the second policy goal.

Second, we contribute to the literature on CSR by analyzing the effects of a CSR-like narrative disclosure mandate where firms can exploit discretion to greenwash. We add to the literature on CSR disclosure by showing that the quality of tax strategy disclosures relates to other nontax CSR disclosures. We extend the findings of Dyer et al. [2017] by documenting that, in addition to accounting standards and financial regulators' initiatives, mandating nonfinancial disclosure can affect the information volume and content of financial disclosure and reduce its quality. Since qualitative information is harder to verify (She [2022]), firms seem to be able to provide unsubstantiated CSR disclosures that say what stakeholders want to hear (Cho and Patten [2007]; Christensen et al. [2021]). Hence, for CSR-type mandated disclosures to change firm behavior, they may need to be more verifiable than the currently proposed formats for tax strategy reports in the United Kingdom and the very similar recent Global Reporting Initiative Tax Standard (GRI 207). Otherwise, firms can comply by greenwashing and not changing their real activities.

II. HYPOTHESIS DEVELOPMENT

In what follows, we develop our hypotheses related to how the reform can affect (1) the availability of tax information to the public and (2) tax planning.

The Availability of Tax Information

Increasingly, taxes are seen as part of a firm's corporate social responsibility (e.g., Grewal and Serafeim [2020]), and both investors and other stakeholders value firms' efforts concerning these issues. As such, we would expect firms to react to the UK Tax Strategy Mandate by conveying that their actions comport with broader societal interests across all corporate communication channels, that is, not only by issuing a standalone tax strategy report but also by incorporating this disclosure in the financial reports (O'Donovan [2002]). The annual report may be an especially salient disclosure outlet, as it is considered more credible and visible than other reports (Grewal [2019]). However, it is unclear whether

an increase in the volume of disclosure would lead to an increase in the *quality* of tax information available to the public.

On the one hand, the quality of tax strategy disclosure could increase, as the UK Tax Strategy Mandate provides clear categories for the information to be disclosed. Clear categories suggest that the mandate may work well for stakeholders as a benchmarking tool (Robinson and Schmidt [2013]; Healy and Palepu [2001]; Maines and McDaniel [2000]). Benchmarking can enhance public pressure, helping stakeholders determine firms' *relative* compliance (Christensen et al. [2021]) and can induce firms to increase transparency. On the other hand, due to the *qualitative* nature of the disclosure, firms may be able to draft vague disclosures (Freedman and Vella [2015], [2016]). Our first set of hypotheses follows.

H1a: The UK Tax Strategy Mandate will increase the volume of tax strategy disclosure in the annual report.

H1b: The UK Tax Strategy Mandate will not affect the quality of tax strategy disclosure in the annual report.

Tax Planning Strategies

While the literature has mainly focused on analyzing the effects of mandating *quantitative* tax information on tax avoidance (e.g., Hope et al. [2013]; Gupta et al. [2014]; Henry et al. [2016]), requiring the disclosure of *qualitative* tax information could induce similar benefits but only if a mandate imposes reputational costs for firms.

In our setting, past events demonstrated that reputational costs can lead to changes in tax planning behavior. In 2010, UK firms faced public scrutiny from ActionAid International, a global NGO, highlighting how around 50 percent of the FTSE100 did not comply with the requirement to disclose their full list of subsidiaries and their respective (tax haven) locations in annual reports. This reputational threat induced almost all FTSE100 to comply within two years after the ActionAid International campaign and decrease tax aggressiveness (Dyreng et al. [2016]). In a similar spirit, the UK Tax Strategy Mandate increased stakeholders' *awareness* of tax strategy disclosure because the regulatory change was salient for stakeholders, improved *accessibility* through an easily available report, and set clear

information categories that enhanced the availability of tax information and the comparability across firms' disclosure, reducing *integration costs* (Robinson and Schmidt [2013]; Healy and Palepu [2001]; Maines and McDaniel [2000]).

Yet research provides mixed evidence about the reputational costs of tax avoidance (Gallemore et al. [2014]; Chen et al. [2019]; Hoopes et al. [2018]; Dyreng et al. [2020]), and mandating the disclosure of qualitative tax information can have limitations, compared to quantitative tax information, because of the characteristics of such a disclosure. Specifically, nonnumerical disclosures may not help stakeholders because they are hard to verify (She [2022]) since they can contain boilerplate and vague terms (Hope et al. [2016]; Christensen et al. [2021]). In line with this, anecdotal evidence indicates that stakeholders are concerned about the quality of tax strategy disclosures.⁸

We can expect a change in behavior of firms post UK Tax Strategy Mandate if three assumptions are satisfied. First, reputational costs only arise if stakeholders consume firms' tax strategy disclosure and can pressure firms to change behavior. Stakeholders have demonstrated interest in consuming tax strategy information in the past, and the UK Tax Strategy Mandate increased disclosure and reduced information processing costs. Consequently, this reform could equip stakeholders with relevant information to pressure firms. Second, changes in tax planning behavior post UK Tax Strategy Mandate can only be expected if firms care about stakeholder preferences. In our setting, in 2016, 66% of the FTSE100 companies voluntarily disclosed their approach to tax and their tax governance. However, according to survey evidence, tax-aggressive firms were less willing to voluntarily disclose (TNS [2015]). Thus, anecdotally, many UK firms appear to care about nonshareholders' preferences, and this correlates with their level of tax avoidance. Mandating *all* large firms to explain their tax practices had the goal of discouraging aggressive tax planning via bringing stakeholders' attention to those practices (HMRC [2015a], Point 1.18.). The potential increase in reputational costs following the mandate should induce also the more aggressive firms to care about stakeholders at large. Third and finally, some firms

⁸ Cisco's shareholders have stated in relation to the UK Tax Strategy report the company issues: "The document is not fit-for-purpose, insofar as it does not provide investors with the information to undertake an appraisal of the company's tax risk appetite" (<https://www.forbes.com/sites/taxnotes/2022/06/28/microsoft-and-cisco-face-shareholder-pressure-over-public-disclosures/?sh=23a665515d39>).

may have already aligned their tax practices with stakeholders' preferences in the pre-reform period. For example, the costs imposed by previous episodes of public pressure (e.g., through the ActionAid International campaign) could have induced firms to adjust their tax strategies, even before the UK Tax Strategy Mandate. If so, firms would have little margin to further change their tax planning post reform, and observing no real responses would not indicate greenwashing. While we do not expect to observe large changes in tax planning for firms that have aligned their tax strategy with stakeholders' preferences prior to the mandate, not all firms made such adjustments, leaving them able to do so following the UK Tax Strategy Mandate. In line with this, firms expected an increase in their proprietary costs after the UK Tax Strategy Mandate, as shown by their lobbying during the consultation phase preceding the publication of the law (HMRC [2015b]).

Overall it remains uncertain whether firms will alter their tax planning, once they had to disclose their tax strategy, as they can fulfill the legal mandate without adhering to its intended spirit, resulting in poor quality disclosures. Our second hypothesis follows:

H2: Following the UK Tax Strategy Mandate, firms will not reduce the level of tax avoidance.

III. RESEARCH DESIGN

To causally identify the effects of mandating disclosure of qualitative tax information, we use the UK Tax Strategy Mandate as an exogenous shock to tax information disclosure and employ a difference-in-differences strategy. This legislation requires firms over a certain size to disclose additional qualitative tax information. Thus, we consider as our treated firms those that exceed the size threshold and must publish a tax strategy report. As a control group, we use firms that fall below the size threshold and need not publish the report. Our difference-in-differences specification takes the following form:

$$ReformOutcomes_{it} = \alpha + \beta_1 Post_t \times TaxStrategyReport_t + BX_{it} + \gamma_i + \delta_t + \varepsilon_{it}, \quad (1)$$

where i is firm and t is year. $Post_t$ is a dummy, which denotes years after 2016.⁹ $TaxStrategyReport_t$ is a dummy equal to one for those firms that must publish a tax strategy report. For firm-level controls (X_{it}), we follow Balakrishnan et al. [2019] and use size, leverage, age, geographical complexity, market-to-book ratio, operating volatility, an information production quantity proxy, and performance volatility. In addition, we control for media attention and the board's tax accounting expertise, which are important determinants of voluntary tax strategy disclosure.¹⁰ We lag all our controls because some of our control variables may also be affected by the reform: for example, in Section VII, we show that media attention increased post reform. To attenuate potential concerns that treated, and control group firms differ in terms of some of the observable characteristics before the reform (see Table 2), we also construct a matched sample using kernel matching on total assets for two years beforehand, 2015 and 2014. We include firm (γ_i) and year (δ_t) fixed effects. Thus, we estimate the effect of mandatory disclosure using the within-firm variation. We cluster standard errors at the firm level.

We examine the effects of the reform on the *volume* of tax strategy information, as proxied by the number of tax strategy sentences ($Tax\ Strategy\ Sentences_{it}$) and the number of words in these sentences ($Tax\ Strategy\ Words_{it}$). We next consider the *quality* of the tax strategy disclosures, as proxied by the level of boilerplate ($Boilerplate_{it}$) and the degree of specificity ($Specificity_{it}$). We then test whether mandating a tax strategy report affects firm tax avoidance, measured by cash ETR ($Cash\ ETR_{it}$), book ETR ($Book\ ETR_{it}$), and tax haven operations ($Law/Mills\ Tax\ Haven\ Activity_{it}$). To understand whether firms reallocate between more and less risky tax havens, we also split tax haven activity in Dot ($Law/Mills\ Dot\ Haven\ Activity_{it}$) and Big 7 havens ($Law/Mills\ Big7\ Haven\ Activity_{it}$).

Our identification strategy assumes that qualitative tax disclosure and the appetite for tax avoidance for the control and treated firms would have evolved in parallel absent the reform. We test

⁹ Although the first articles about the proposal to introduce a mandatory tax strategy report are from May 2015, the size threshold was only announced in the summer of 2015 (HMRC [2015a]). This threshold applied to turnover and assets in 2015. The reform is effective for fiscal years starting on or after September 2016.

¹⁰ In an untabulated analysis, we consider firm characteristics that determine voluntary tax disclosure in our setting. We show that media attention encourages a firm to offer insights into its tax practices. Firms with greater tax and accounting expertise on the board tend to disclose their tax strategy in the annual reports, and, in such firms, this type of disclosure is, on average, longer.

the plausibility of this assumption using an event study.¹¹ We also use this method to evaluate the speed with which the reform affects our outcome variables. In a version of Equation 1, we replace the coefficient on the interaction between the post-2016 dummy and the treated firm indicator with seven separate indicator variables, each marking one year during the t-3 to t+3 periods, relative to the year before the treatment event date (t=-1). We omit the indicator for period t-1 to serve as a benchmark. We estimate the following equation:

$$ReformOutcomes_{it} = \sum_{k=-3}^3 \beta_k * D_t^k + BX_{it} + \gamma_i + \delta_t + \varepsilon_{it}. \quad (2)$$

The variables of interest are the dummies D_t^k , which indicate a point in k periods from the reform year for treated firms (2016). The coefficient on each dummy estimates the difference in each dependent variable in that year, relative to year k-1 (2015). As a dependent variable, we use the reform outcome variables described above. We cluster standard errors at the firm level, as specified in Equation 1. We include year and firm fixed effects and the same control variables as in Equation 1.

IV. SAMPLE SELECTION AND VARIABLE MEASUREMENT

Sample Construction

Our initial sample consists of 1,157 listed firms that have headquarters in the United Kingdom based on the ownership information from the Orbis database in 2019 and that we can match to Datastream. We focus our analysis on listed firms for two reasons. First, to construct our measure of tax disclosure, we require firms to have easily accessible and comparable annual reports, that is, all written under international financial reporting standards (IFRS) rather than local generally accepted accounting principles (GAAP) standards. Second, listed firms may face more public scrutiny (Dyreng et al. [2016]). Thus, we expect them to face the highest compliance burden and the highest reputational costs. We focus on the UK-headquartered multinationals over domestic firms because their tax planning opportunities differ from those of domestic firms (Bilicka, 2019), and over foreign multinationals

¹¹ The level differences in firm characteristics in Table 2 do not invalidate our causal identification strategy, especially since we control for them in all specifications, and we provide matched results as well. In the robustness section, we further provide additional tests to address any remaining concerns about comparability between treated and control groups by showing results using alternative variants of a matched sample.

because the compliance burden of the UK Tax Strategy Mandate applies to the whole firm, not just a UK portion of its operations. We show that our results are robust to including both of those excluded groups of firms in Section VIII.

For each of those 1,157 firms, we obtain data from four sources: Accounting data and firm information from Datastream, CSR ratings from Refinitiv ESG (Asset4), and firm media exposure from Ravenpack. We merge these datasets using ISIN numbers. We then add annual reports from the Perfect Information Filings Experts database, matching by firm name to firms in Datastream. We then remove firms for which we have no financial data on relevant variables (tax paid, pre-tax income, assets, sales) two years prior and two years after the reform. Following the literature, we set ETR observations in loss years to missing, since losses distort ETR-based tax measures and inhibit interpretation (e.g., Dyreng et al. [2017]; Chyz et al. [2019]; Robinson et al. [2010]). Next we restrict our sample to firms that are not subject to country-by-country reporting. In the United Kingdom, the country-by-country reporting requirement was also introduced in 2016 but at a different size threshold: it applies to multinationals with sales above EUR 750 million. Excluding these firms enables us to isolate the effect of mandating the disclosure of a tax strategy report from that of mandating country-by-country reporting.

Using this sample, we construct treatment and control groups for our analysis. Our treated firms are UK multinationals that must publish tax strategy reports from 2016 onward but do not have to disclose country-by-country reports, that is, firms that have over GBP 200 million in annual sales or GBP 2 billion of total assets but have sales below EUR 750 million. Given that the UK Tax Strategy Mandate sets thresholds at the unconsolidated level but UK firms need not disclose their unconsolidated profit and loss account when having a consolidated one (see Company Act 2006 – S408), we use consolidated data to define thresholds. We then manually inspect the annual reports to evaluate where firms operate, relying either on geographical segment reporting, or, if unavailable, on disclosure on the main markets of the company. We exclude companies for which we find that their UK operations are likely too small to be subject to the mandate and publish no tax strategy reports. We have 75 treated firms.

Firms in our control group are those that do not have to publish the tax strategy report because they are below the size threshold¹² but are most comparable to the treatment group. For this purpose, we exclude small firms, according to the UK small business size thresholds.¹³ Finally, we remove observations with missing and singleton financial data, which excludes nine of the firms for which we have tax strategy reports from our final sample. Table 1 provides an overview of each step of the final sample selection. Our final sample consists of 206 (212) unique firms for the disclosure (tax planning) outcomes: 69 (67) firms belong to the treated group, and 137 (145) firms belong to the control group.

Measures of Tax Strategy Disclosure

We construct a firm-level measure of tax strategy disclosure in the annual report by employing textual analysis. We pick a representative subsample of annual reports from years 2010 to 2016 and manually collect sentences in which firms discuss their tax strategy. Our classification is based on a PwC analysis of the voluntary tax disclosure in annual reports of firms listed in the FTSE100 (PwC [2016]). This analysis considers five categories of information: approach to tax, tax governance, cash tax reconciliation, total tax contribution, and geographical reporting of the tax liability. We consider only the first two categories because they represent purely qualitative tax information and reflect the information required in the tax strategy reports under the UK Tax Strategy Mandate.¹⁴

We use our manually constructed training sample to classify the tax sentences in all annual reports using the naïve Bayes classifier. We use a test sample to evaluate the effectiveness of the classifier and find consistently high levels of *accuracy* and *recall* ranging from 0.88 to 0.95.¹⁵ Based on the classified sentences in each annual report, we construct a measure of the volume of firm-year level qualitative disclosure, which is equal to the number of tax strategy sentences in a firm's annual report.

¹² We also manually check that firms in the control group do not publish a tax strategy report.

¹³ We rely on the UK government-defined size thresholds to identify small firms: GBP 10.2 million annual turnover and GBP 5.1 million total assets, see <https://www.gov.uk/annual-accounts/microentities-small-and-dormant-companies>. We show that our results are robust to including small firms in the online appendix.

¹⁴ In Table C5 in the online appendix, we test how the reform affected these three quantitative voluntary disclosures that we do not analyze in the paper, as a mandate for qualitative tax disclosure may spur firms to also voluntarily increase their quantitative tax disclosures. We find very small and insignificant coefficients for these outcomes (Coeff on sentences, 0.0464, on words, 0.752 with high p-values). This comports with PWC's [2016] observation of much less voluntary quantitative than qualitative tax strategy disclosure for large UK firms. It also shows that firms do not go beyond what is required of them.

¹⁵ For details of the technique and robustness analysis of the machine learning approach, see Appendix C.

In Appendix C, we include examples of the tax strategy sentences classified using the trained naïve Bayes classifier. We include the number of words as an additional proxy for the *quantity* of tax strategy disclosure provided.

Having isolated the portion of the annual report in which a firm discusses its tax strategy, we follow the literature studying qualitative disclosures (e.g., Dyer et al. [2017]; Hope et al. [2016]; Lang and Stice-Lawrence [2015]) to construct two proxies for the *quality* of the information provided: the level of boilerplate and the degree of specificity. The level of boilerplate captures the amount of common phrases a firm uses in its tax strategy sentences and is computed as the portion of trigrams in a firm’s tax strategy sentences that is found in at least 5 percent of the documents in a given fiscal year. To measure the degree of specificity, we use the Stanford Named Entity Recognition (NER) tool and capture words that convey details relevant to the disclosing firm. Specific words are determined based on how often the text refers to people, places, organizations, time, date, money, or percentages. We scale the number of specific words by the number of tax strategy words in the annual report. We provide examples of tax strategy sentences including common phrases and specific words in Appendix D. We verify that both proxies capture disclosure characteristics that are relevant for stakeholders to evaluate firms’ tax strategies. In an interview we conducted, the chief executive of the Fair Tax Foundation, Paul Monaghan, indicated that *informative* tax strategies avoid boilerplate statements and include specifics, such as the name of the person responsible for the tax strategy and a list of firm subsidiaries.¹⁶

Measures of Tax Planning Strategies

Our main measures of tax avoidance are cash and book ETRs—the two most common proxies for analyzing non-US settings (Hanlon and Heitzman [2010]; Bruehne and Jacob [2019]).¹⁷ While these measures are widely used, they may remain unchanged even when firms change their tax avoidance practices in some regions, as ETR changes in different regions can cancel each other out. Therefore, we

¹⁶ The Fair Tax Foundation reviewed the quality of the tax strategy reports of the largest UK listed companies; see Fair Tax Foundation [2017]. We conducted a 45-minute online interview with Paul Monaghan on January 19, 2024. The Fair Tax Foundation is an NGO that accredits firms exhibiting responsible tax conduct.

¹⁷ While we use the unadjusted cash and book ETRs in our baseline tests, we show in online appendix Table C3 panel B that our results are fully robust to industry-size adjusted measures of cash and book ETR.

also study the effects of the mandate on tax haven operations of our firms. For this, we rely on the newly introduced textual measure from Law and Mills [2022], which captures the degree of tax planning related economic activity in tax havens by using a dictionary of textual offshore input and output activity mentions in direct proximity to tax haven mentions in the annual reports.¹⁸ We are interested in this measure for two reasons. First, firms could use nonhaven tax planning more aggressively and reduce the reputationally riskier haven activity. This would reduce tax avoidance, but our ETR measure could not capture that, since firms are substituting between two types of avoidance strategies. Second, firms may also reallocate their operations across tax havens from very risky Dot havens to less risky Big7 ones, as documented in the context of country-by-country reporting (De Simone and Olbert [2022]). It is harder to argue for economic substance in a Dot Haven relative to Big7 haven, and hence the reputational threat of having unsubstantiated activity is high there. Since this reallocation would not show up in the overall tax haven activity measure, we also split tax haven activity in Dot and Big7 haven activity.

V. DESCRIPTIVE EVIDENCE

Characteristics of Control and Treated Groups

In Panel A of Table 2, we show the pre-2016 descriptive statistics for our variables, which we break down into treatment and control groups.¹⁹ Treated firms in our sample provide more tax strategy discussion in their annual reports with seven tax strategy sentences (289 tax strategy words), which corresponds to 0.4 percent of the total sentences in the average annual report in our sample. Firms in the control group disclosed, on average, 3.2 sentences (134 tax strategy words). Further, we observe less boilerplate in the treated group but do not detect a statistically significant difference in the level of specificity between the two groups. Treated firms are significantly larger, more levered, older, less likely

¹⁸ We must slightly adapt the methodology of Law and Mills [2022] to a non-US setting. Given that UK annual reports exhibit a less standardized structure relative to 10-Ks (El-Haj et al. [2020]), we cannot identify the list of our sample firms' subsidiaries from Exhibit 21-like disclosures. Instead we rely on mentions of tax haven names in the full text of the annual report. Law and Mills [2022] also validate their measure for firms without Exhibit 21 relying on tax haven disclosures in 10-Ks narrative. This measure is based on the methodology of Hoberg and Moon [2017, 2019].

¹⁹ In Table A1 of the online appendix, we provide descriptive statistics for the complete sample period.

to incur losses, and more likely to have at least a board member with a tax or accounting background. Moreover, they have higher operating volatility, analyst following, and media attention but lower return volatility. Differences in size between treated and control groups are to be expected, given that the threshold to belong to the treated group depends on size and turnover.

In Panel B of Table 2, we show the industry distribution for both treated and control group firms. We find that most firms in our sample belong to B2C industries (non-B2C firms are highlighted in gray) and that treated and control firms operate in similar industries. Yet the percentage of B2C firms in the treated group (86%) is higher than in the control group (66%).

Characteristics of Standalone Tax Strategy Reports

In this section, we provide a set of comprehensive descriptives on the standalone tax strategy reports. As our baseline, we choose tax strategy reports in 2019, as this is the last year we include in our causal analysis. We compare these standalone tax strategy reports against the tax strategy disclosure in the annual reports, across time (between 2019 and 2023), and against the latest version of other CSR-related reports available on firms' websites at the time of writing (Gender Pay Gap Reports and Modern Slavery Statements).

We start by summarizing the characteristics of the tax strategy reports of our treated firms in Table 3. First, the length of documents in our treated sample varies substantially with an average length of 817 words and 43 sentences and a standard deviation of 500 words. Second, on average, the level of boilerplate is 26 percent, and the degree of specificity is 10 percent. Thus, overall specificity is low, and boilerplate is high.²⁰

Then we focus on similarities between tax strategy disclosure in annual reports and in tax strategy reports. In Figure 1 Panel A, we plot the distribution of the similarity between the annual report tax strategy disclosure and the tax strategy report.²¹ The similarity score ranges between 15 and 80 percent, with mean of 52%, and is homogeneously distributed over this interval. To understand which

²⁰ In online appendix B, we present examples of tax strategy reports to showcase variation in length, boilerplate, and specificity across the treated firms in our sample.

²¹ We capture the similarity of the tax strategy disclosures in the two outlets by computing the cosine similarity.

firm characteristics are correlated with the similarity measure, in Table 4, we compare means of company characteristics during the period of 2013–2019 for firms exhibiting high and low similarity levels. We document that firms with higher similarity across their annual report and standalone disclosure on tax strategy are larger and have more growth opportunities. They also have higher CSR ratings, more analysts following, and more media attention. They tend to have longer tax strategy disclosures in the annual reports and less boilerplate in both outlets. These correlations suggest that larger firms with more attention on them pay more attention to the consistency of their disclosures across the two outlets. Furthermore, these more similar disclosures contain less boilerplate, which comports with higher quality disclosure for firms with more attention on them. We do not observe the same pattern for similarity.

To investigate firm characteristics that correlate with similarity in the two disclosures beyond the textual *content* of disclosure, we then study the relationship between the *quality* of disclosure in tax strategy and annual reports. In Table H1 in the appendix, we examine whether more similar levels of boilerplate and specificity across the two disclosure outlets are correlated with any observable firm characteristics. In line with content similarity, we show that larger firms have lower differences in specificity, and that higher media attention and longer annual report disclosure relates to more similar boilerplate and specificity levels. This does not mean large firms have more boilerplate disclosure but that the quality of disclosure relates more between outlets. Overall Tables 4 and H1 comport with larger firms having more resources to invest in conveying a *consistent* message across disclosure channels. For example, they likely have an investor relations officer, and recent survey evidence suggests that these officers can considerably influence corporate disclosures (Brown et al. [2019]). In untabulated tests, we do not find any systematic industry patterns.

We conclude that mainly size, length of disclosure, and public attention on firms (characteristics that are all positively correlated with each other) drive similarity in disclosure content and quality between firms. This finding is consistent with a notion that firms under more public scrutiny feel pressured to provide more consistent and extensive disclosure. To further isolate the drivers of

disclosure quantity and quality, we turn to regression analysis in the next section, where we can exploit the UK mandate as a shock.

We proceed with the descriptive analysis by comparing the standalone tax strategy reports for the same firm across time (2019 and 2023).²² When comparing their similarity in Figure 1 Panel B, we can see that firms mostly continue using the same sentences over time. Strikingly, around 80 percent of the firms in our sample have little to no change in the content of the reports between 2019 and 2023. When considering how disclosure quantity and quality evolve, we detect a statistically significant decrease in specificity in Table 5. We manually review the reports and find three broad categories of changes.²³ Some firms change the title of the unit or the person responsible for the tax strategy report. Others add context to help clarifying a statement, especially if the statement can be misunderstood as aggressive tax planning. In line with the tax strategy being viewed as part of CSR, one firm modified the report from stating that it is acting in the interest of shareholders to stating that it is acting in the interest of stakeholders, including shareholders, clients, employees, and tax authorities. We also find instances in which firms reduce specificity. For example, the name of the person signing the report or the list of subsidiaries or entities covered in the report were removed.

Finally, we compare the quality of the disclosure across different CSR-related reports to study whether firms that provide a poor-quality tax strategy report also do so along other dimensions of their sustainability reporting. For this purpose, we examine two important CSR reports mandated for UK firms of a certain size. Since 2017, UK firms with at least 250 employees have had to provide key statistics on their pay policy, including the median and mean gender pay gap. The related report is collected by the Government Equalities Office, and the data is made publicly available on the UK government website.²⁴ In addition, since 2015, UK firms with turnover of at least £36 million have been mandated to publish a report on how they comply with legal requirements to ensure slavery-free supply

²² For 2023, we only found 68 out of 75 tax strategy reports. We manually review the missing ones and detect that either the firm has become insolvent, has been acquired, or the UK operations are no longer above the turnover/asset thresholds.

²³ Examples of changes are provided in Appendix E.

²⁴ For more information on the Gender Gap Report, see the government related page available at <https://www.gov.uk/government/publications/gender-pay-gap-reporting-guidance-for-employers>.

chains.²⁵ Companies publish both their Gender Pay Gap Report and the Modern Slavery Statement on their websites. We manually collected these documents for all treated firms in our sample.²⁶ We also obtain statistics on “impossible reporting” from Bailey et al. [2022]. The authors study the quality of gender pay gap reports of UK firms and develop a measure called “impossible disclosure” that detects when the statistics reported on the gender pay gap are mathematically impossible. For example, when the separate median pay values for women and men cannot be reconciled with the combined values.

Table 6 provides evidence of positive but not always very strong correlations between the quality of disclosure in the tax strategy reports and gender pay gap and modern slavery disclosures. In Panels A and B, we show the correlations between length, boilerplate, and specificity across the different reports. Specifically, there is a very significant correlation of 25.4 % in specificity between gender pay gap and tax strategy reports and a positive correlation in boilerplate between tax strategy reports and both the gender pay gap and modern slavery reports. Panel C shows means of disclosure quality for tax strategy reports separately for firms that report impossible gender pay gap statistics and those that do not. We find that firms that provide impossible disclosure on their gender pay gap provide shorter tax strategy reports with more boilerplate and less specificity. Bailey et al. [2022] suggest that impossible reporting indicates very poor-quality disclosures. They show that, on average, firms with clear incentives to misreport are more likely to provide impossible disclosures (e.g., in instances where the median pay gap is favorable for the employer). As such, the evidence from Panel C indicates that firms with very poor quality disclosure for gender pay gaps have significantly worse tax strategy disclosures. Taken together, our findings indicate that the quality of tax strategy reports relates to the quality of other CSR reports that firms in our sample provide.

VI. CAUSAL EFFECTS OF THE UK TAX STRATEGY MANDATE

²⁵ For more information on the Modern Slavery Statement, see the government related page available at <https://www.gov.uk/guidance/publish-an-annual-modern-slavery-statement>.

²⁶ We collected 59 Gender Gap Reports and 72 Modern Slavery Statements out of the 75 treated firms in our sample. The missing reports are either due to the conditions for reporting not being satisfied (firms being below the employee size threshold) or noncompliance.

We present the results from our difference-in-differences estimations in Table 7 Panels A and B. Panel A Columns (1) to (4) and Columns (5) to (8) report the results for the unmatched and matched samples respectively. Columns (1), (2), (5) and (6) show the results for the quantity measures, and columns (3), (4), (7) and (8) for the quality ones. We find that, for affected firms, the volume of tax strategy disclosure in the annual report significantly increased relative to the control firms after the reform. Results from Columns (1) and (2) suggest that, on average, treated firms included additional 77 tax strategy words and 1.7 tax strategy sentences in their annual reports, compared to control firms. Given that the average treated firm had 289 tax strategy words and seven tax strategy sentences in its annual report before the reform (Table 2), this suggests an increase of around 27 percent and 24 percent, respectively. Results from Columns (3) and (4) indicate that the mandate significantly increased the level of boilerplate, without having any effect on specificity. The magnitude of the coefficient in column (3) suggests a 5.6 percentage points increase in boilerplate, which translates to a large increase—42 percent.

We find similar effects using the matched sample, with 65 words and 1.4 sentences increase. The effect of the reform on boilerplate is even larger in this matched sample, a 6.4 percentage point increase, and we continue to see no significant effect on specificity. Overall the results in Panel A indicate that, although the volume of tax strategy disclosure increased, its quality deteriorated.

In Panel B, we report the effects of the reform on tax planning. In columns (1)–(5) we show results for the unmatched sample and in columns (6)–(10), we present the corresponding results for the matched sample. In columns (1), (2), (6), and (7), we present the results for cash and book ETRs, and in the remaining columns, we show the effects on tax haven operations. We find no significant effect on tax planning for our treated firms after the reform across all measures of tax avoidance and profit shifting.

We present the corresponding dynamic event study results for the unmatched sample in Figure 2. For each year, we plot the coefficient estimates and the 95 percent confidence intervals. We show that the quantity of tax strategy disclosure for treated, and control groups evolved similarly before the UK Tax Strategy Mandate. We document that, after the reform, treated firms increased the volume of their tax strategy disclosure in the annual report at a much quicker rate than control group firms, as

shown in Panels (a) and (b). Given that some firms were already disclosing some information on their tax strategy in the annual report before the reform, these findings suggest that the mandate significantly accelerated the tax strategy disclosure trend for the treated firms. Panel (c) shows that the level of boilerplate disclosure evolved similarly before the reform for both treated and control groups but increased substantially for treated firms afterward. The degree of specificity did not change following the reform for treated firms, as evidenced in Panel (d). Overall our results suggest that the reform did not increase tax transparency, as proxied by the disclosure quality.

In Panels (e), (f), and (g), we show that there was no significant difference in the evolution of cash ETRs, book ETRs, and the Law and Mills tax haven operations measure between treated and control firms before the reform in any of the pre- or post-treatment periods. This suggests that firms did not change tax avoidance in anticipation of the reform and that the disclosure mandate did not affect tax avoidance.

VII. MECHANISMS

In this section, we explore potential mechanisms that could influence firms' behavior after the reform. We first directly examine the effect of the mandate on public pressure, i.e., the channel the regulator envisioned to drive the changes in firms' disclosures and tax planning. We then consider firm characteristics likely to indicate exposure to higher reputational costs. These are the level of pre-reform media attention, the attitude toward societal stakeholders, the degree of tax aggressiveness (cash ETR level), and pre-reform adjustments to tax planning (pre-reform cash ETR increase). We split the sample of both control and treated firms according to the sample median of each of those measures in the pre-reform period and study the effects of the mandate in each of these subsamples separately. We repeat the analysis from Section VI on each subsample by directly comparing, for example, high (low) media attention firms in our treated group to high (low) media attention in our control group.

Effect of the reform on public pressure

We begin by investigating whether the UK Tax Strategy Mandate affected the extent of public pressure exerted on our treated firms. Since the literature offers mixed evidence on the effects of public

pressure on firm behavior (e.g., Chen et al. [2019]; Dyreng et al. [2020]; Dyreng et al. [2016]), it is critical to understand whether a qualitative regulation such as the one we are examining can induce public scrutiny. As a proxy, we use a measure of media attention: the maximum number of distinct news events over a 91-day window from Ravenpack. In Table 8 and Figure 3, we show that media attention on treated firms significantly increased after the reform. This is the case for both firms that had high and low media attention in the pre-reform years, although the increase is higher for the former group.²⁷ Evidence from Figure 3 shows a jump in attention right around the reform for treated relative to control firms.

While our measure captures general media attention to firms in our sample, it does not allow us to say whether this attention relates to the new tax strategy mandate. To do so, we complement this evidence with a manual search of news, business, and legal publications using Nexis Uni.²⁸ We find around 40 articles with explicit references to the UK reform appearing in leading news outlets, like the *The Guardian* and *The Financial Times*. Moreover, we find that two NGOs scrutinized the existence and quality of the tax strategy report of different groups of firms. The Tax Justice Network shamed a sample of US companies for not complying with the law or for the poor quality of their published reports. The Fair Tax Foundation analyzed the 50 largest UK-listed companies and reached out to the scrutinized companies to push for improving their low-quality reports. Overall our evidence suggests that this new disclosure has been the subject of public scrutiny.

Belnap [2022] shows that scrutiny by Tax Justice Network helped induce full compliance to publish tax strategy reports for US multinationals. Yet only 6% of companies in his sample improved the quality of their reports. Our evidence on the UK multinationals comports with Belnap's findings, as we show a high and persistent level of boilerplate for tax strategy reports and a reduction in their specificity. Thus, we conclude that firms do not perceive the increased public attention as a major reputational threat. It

²⁷ Firms in the high media attention category have above-median news coverage before the reform, while those in the low media attention category have below-median coverage.

²⁸ Using Ravenpack, we cannot access the original text of the news. This is why we complement the analysis with Nexis Uni. Beyond the articles we manually select, there might be many more about firms' tax affairs. We focus on articles that explicitly refer to the UK Tax Strategy Mandate to make the hand collection feasible and because those articles directly demonstrate the visibility of the reform.

appears that qualitative disclosure about tax strategy is hard to verify for stakeholders, as firms can comply by publishing a tax strategy report as required by the UK Tax Strategy Mandate without providing sensitive information that they can be held accountable for.

Heterogenous responses according to firm characteristics

We summarize the results from the heterogeneity analyses in Figure 4. Each panel of that figure considers the effects of the mandate on a different outcome. Within each panel, we plot the difference-in-differences coefficients with 90% confidence intervals across six subsamples: in purple circles, we have high and low media attention firms, in green diamonds high and low CSR rating firms, in red squares high and low tax aggressiveness firms, and in orange triangles, firms that experience an or no ETR increase in the pre-period. We mark firms with low levels of each of those characteristics in empty shapes and those with high levels of each of the characteristics in filled shapes. The corresponding regression coefficients are reported in Tables G1–G4 in the appendix.

We first examine differences in reactions to the reform for firms subject to high and low media attention measured in pre-reform years.²⁹ We document a significant increase in the quantity of disclosure for high media attention firms only. While low media attention firms do not increase their disclosure significantly, we find that the difference in the response between the high and low media attention firms is not statistically significant. This evidence suggests that, at least for high attention firms, the reform led to significantly more disclosure. We do not detect any further differences in the response to the reform between those two types of firms. Together with the findings on the increase in media attention, our results suggest that the tax strategy disclosure was subject to public scrutiny but firms did not perceive any reputational threat, as the quality of the disclosure did not increase and tax planning did not decline, even in firms with higher media attention.

²⁹ An alternative measure for capturing perceived public pressure is being in a B2C business. The idea is that companies that are more exposed to consumer attention might feel more pressure to change behavior post reform. In unreported robustness tests, we split the sample on B2C firms but do not find a significant difference in outcomes between the two groups, confirming our results on the media attention split.

We then study whether firms with different levels of stakeholder focus, in terms of CSR strategy, respond differently to the reform. A company's tax footprint is a core component of its CSR strategy because the payment of a fair share of taxes is an immediate indication of the impact a company has on society.³⁰ The literature provides mixed evidence on the relationship between CSR and tax aggressiveness, as it shows that firms scoring very low on different CSR metrics are more tax aggressive (e.g., Hoi et al. [2013], Watson [2015]) while those with higher CSR scores do not necessarily pay more taxes (e.g., Davis et al. [2016]). Our descriptive evidence in the UK context suggests that the quality (or lack thereof) of the tax strategy report is correlated with the quality of other CSR reports, which supports the idea that a firm's tax strategy and its CSR activities are connected.

Upfront, however, it is unclear how CSR performance moderates the effect of the reform we study. On the one hand, firms with less sustainable strategies may anticipate reputational damage and be more likely to change their behavior following the disclosure mandate. On the other, these same firms may be the only ones willing to depict themselves as good tax citizens while not making real changes to their actions. We test this by relying on the CSR score provided by Refinitiv (Asset4), which is among the most prominent CSR rating agencies. Refinitiv uses the largest list of individual indicators (282), as indicated by Berg et al. [2022], and it is suitable for our analysis because it offers several CSR-related scores. We use the *Controversy Adjusted ESG Score* because it adjusts the CSR performance for material controversies identified by negative media stories relative to those directly reported by the company. Thus, it provides us with a measure of real CSR performance in contrast to the general *ESG score*, which is not adjusted for controversies and is more likely subject to possible biases from company self-reporting. We document that the tax strategy disclosure of firms with a lower CSR score becomes more boilerplate after the reform suggesting that low CSR-performing firms are also those providing the least useful tax strategy disclosure in their annual report, with a significant *boilerplate* change of 10 percentage points compared to firms with high CSR performance showing an insignificant and small

³⁰ See PwC's "Tax is a crucial part of the ESG conversation," available at <https://www.pwc.com/gx/en/services/tax/publications/tax-is-a-crucial-part-of-esg-reporting.html>.

boilerplate change of 3 percentage points.³¹ We detect no change in tax planning across the two sub-groups.

Since the UK reform was targeted at tax aggressive firms, we study whether they reacted differently to it. On the one hand, highly tax aggressive firms could increase the quality and quantity of tax strategy disclosure and reduce tax avoidance more. One reason could be that they may be more exposed to public attention after the reform, which could result in a need to justify their tax positions. If they cannot credibly do so, they may reduce avoidance. On the other hand, if firms can greenwash, highly tax aggressive ones may not change their avoidance while still increasing the quantity of tax disclosure to display a *commitment* to good tax citizenship. Consistent with this argument, Towery [2017] finds that firms facing the highest costs of disclosing provide lower quality narrative descriptions to tax authorities in response to Schedule UTP in the United States. We find no significant difference between more and less tax aggressive firms across all outcomes, both related to tax disclosure and tax planning. Thus, we do not find evidence that the reform had a differential impact, even for those firms with potentially higher reputational costs due to the reform.

Finally, we test whether firms that increased their cash ETR before the reform react to the UK Tax Strategy Mandate differently than do firms that did not change their cash ETR beforehand. The goal of this test is to provide additional support to allow us to interpret our results as greenwashing. In our context, greenwashing requires firms to depict themselves as good citizens while continuing to aggressively tax plan. Our baseline results, as well as heterogeneity tests discussed in this section, suggest no tax planning response. However, firms may have aligned their tax planning with their stakeholder's preferences before the UK Tax Strategy Mandate in response to previous stakeholder pressure (e.g., through the ActionAid campaign). If so, our baseline results could also be interpreted as the lack of ability to further adjust tax strategy that already accords with stakeholder preferences. To empirically distinguish this interpretation from greenwashing, we isolate firms that have the largest potential margin to change their tax planning and split treated firms into those that increased their cash

³¹ From table G2 in the appendix, the p-value for the difference in coefficients between the two samples is 18.8%. Thus, the coefficient difference is almost significant at the traditional level, despite the small sample size. We have the CSR score only for 87 treated and control firms in our sample.

ETR and those that did not in the *pre-period*, where an increase in ETR is defined by comparing the two-year average cash ETR in 2010–2011 (around the ActionAid Campaign) and in 2014–2015 (the years immediately before the introduction of the UK Tax Strategy Mandate). Firms that already responded to the prior pressure will have increased their ETR in the pre-period.

We find that firms with no increase in ETRs prior to the reform are the ones that increase their boilerplate language the most. The magnitude of the coefficients suggests an 8.6 percentage points increase in boilerplate compared to firms with pre-reform ETR increases having only a 2.8 percentage points and insignificant increase. Despite the different reaction in terms of changes in the quality of tax strategy disclosure, we find no statistically significant effect of the UK mandate across all tax planning outcomes.³² This result supports the *greenwashing* interpretation, as we document no change in tax planning, even for those firms that still could adjust their conduct according to their stakeholders' preferences. The fact that they provide more boilerplate disclosure suggests that they reduce potential reputational costs by making their tax strategy disclosure more uninformative to stakeholders.

Overall our results consistently show an increase in the volume of tax strategy disclosure combined with a reduction in its quality and no change in tax planning across firms.

VIII. ROBUSTNESS AND ADDITIONAL ANALYSIS

In this section, we discuss several tests we conduct to check the robustness of our causal findings. Apart from the first set of results using alternative measures of tax planning, the results we discuss here are not tabulated in the main text to streamline the paper's exposition. They can be found in the online appendix, as indicated below.

Additional tax planning-related outcomes

Tax planning-related investment and financing strategies

³² In the appendix Table G4, we show the regression results for the split on pre-reform ETR changes. Although, the coefficients for cash ETR are statistically insignificant for both groups, the difference in coefficient across the two groups is significant. This is driven by mean reversion since cash ETR is the variable we use to define the split of the two groups. Thus, the coefficients for the cash ETR result should be interpreted with caution.

In Appendix F, we further expand our set of tax planning measures by studying several potential drivers of reductions in ETRs. First, firms can reduce tax expenses temporarily by investing in certain asset classes that enjoy preferential depreciation rates. Second, they can opt for permanent tax rate reduction strategies, such as debt shifting—where they shift interest expenses from high to low tax countries—or invest in R&D and intangible assets to enjoy reduced tax rates from IP box regimes, like the one existing in the United Kingdom, or investment tax credits abroad. Relatedly, intangibles also facilitate tax planning via transfer pricing arrangements, as they are considered hard-to-value assets. In Table F1, we investigate whether firms alter the use of these different tax planning strategies by analyzing changes to leverage, capital intensity, intangible intensity, and R&D intensity (e.g., Hanlon and Heitzman [2010]; Dyreng et al. [2019]). While changes in these real outcomes need not to be driven by tax planning, if firms reduce tax planning through these channels, we expect changes in these variables. For example, if firms change their R&D tax planning strategies, they could adjust R&D spending and their intangibles intensity. We find no significant change across all these measures with very small coefficient magnitudes. This confirms that treated firms did not change tax planning-related activities compared to our control firms after treatment. Event studies in Figure C1 in the online appendix also show no indication of anticipated tax planning changes prior to the reform. Instead, trends in the three years prior to the reform are flat.

Unconsolidated measures of Cash and Book ETR

In addition, in Table F2, we use unconsolidated cash and book ETR measures for the subsidiaries of our multinationals for which this information is available. This measure allows us to capture regional changes in ETRs that may be obscured by the overall multinational ETR. We start by showing that subsidiary-level ETRs did not significantly change on average, consistent with our main tax planning result at the multinational level. We then consider ETRs for the following geographic regions separately: UK, non-UK, non-UK high, and low tax countries as well as non-UK tax haven countries. We do not find any ETR increases for any of those regional subsamples. For subsidiaries of treated firms located in non-UK low tax countries, we even find a significant reduction in cash ETRs, in line with some of our matching results.

One caveat with this analysis is that Orbis data has limited coverage of subsidiaries in general and specifically for the UK multinationals. While we find at least one subsidiary for all 206 firms, on average Orbis provides firm identifiers for 51% of subsidiaries that the multinational reports to have and ETRs for 15% of all reported subsidiaries. Further, the coverage of financial information in tax havens is limited to Cyprus, Ireland, Luxemburg, Malta, and Singapore. Therefore, we caution about overinterpreting these results.

Industry-Adjusted Tax Aggressiveness Measure

As a robustness check to our main ETR measures, in Panel B of Table C3 in the online appendix, we explore industry-size adjusted versions of tax aggressiveness (Balakrishnan et al. [2019]), which measures the difference between the three-year cash ETR (book ETR) and the median cash ETR (book ETR) of the industry-size cohort to which the firm belongs (where the median is a within three-year median). We continue to find no statistically significant change in tax planning using the industry-size-adjusted tax aggressiveness measure.

The Effect of the Reform including Domestic Firms and Non-UK Multinationals with UK Presence

While our main analysis evaluates the effects of the mandate on the UK multinationals only, domestic firms and foreign multinationals operating in the United Kingdom also had to satisfy the disclosure requirements. For UK-headquartered multinationals, the compliance burden under the UK Tax Strategy Mandate is higher than for non-UK headquartered multinationals, for which only part of the structure is subject to the regulation. Hence, we expect the UK mandate to have a smaller effect on those latter firms. While domestic firms have limited international tax planning opportunities compared to multinationals, they could be using domestic tax planning schemes, and the reform applies to their entire business; hence, the magnitude of their reaction to the mandate is ambiguous.

As a robustness test, we extend the analysis to the domestic firms and the foreign multinationals with a UK presence. We report results in the online appendix Table C2 Panels B and C. Our results using these extended samples confirm our baseline results. When adding foreign multinationals, we find

that tax strategy sentences (words) increase by 1.3 (60) and boilerplate increases by four percentage points. As expected, these coefficients are smaller compared to our baseline results since foreign multinationals are less exposed to the reform. In turn, the effects for the UK mandate on the sample that includes domestic firms are larger, suggesting the salience of this reform for domestic UK firms. Our findings for specificity and tax avoidance are unaffected by these sample extensions and continue to be small and insignificant.

Dictionary Approach

Our preferred method of identifying the volume of tax strategy disclosure in the annual reports involves using a naïve Bayesian algorithm, which could be considered a complex method. However, for the purpose of our analysis, a dictionary approach that simply counts the tax strategy sentences that include the word “tax” is not well suited. There is no set of ideal keywords that we can use to clearly identify tax strategy sentences. When a firm discusses its approach to tax or tax governance, examples of the most frequent phrases include “group tax,” “tax laws,” “tax rate,” and “tax position.” These words can be used in several other tax contexts in the annual reports unrelated to tax strategy. Thus, it is the sentence as a whole that determines whether a firm is discussing its approach to tax or tax governance.

Still, as a robustness test of our measures for the volume of tax strategy disclosure, we construct a very conservative dictionary-based count of the most frequent words used in tax strategy sentences but not used in nontax strategy sentences. We use this dictionary approach to classify sentences in the annual reports. Since we explicitly exclude words that appear in both types of sentences, the resulting classification severely underestimates the volume of the true tax strategy sentences in the annual reports. This means that we continue to find that the tax strategy mandate significantly increases the volume of disclosure in the annual reports but that the magnitude of the effect is smaller.

IX. CONCLUSION

Governments worldwide are striving to reduce corporate tax avoidance and increase tax transparency. We focus on one of the measures designed to achieve this—mandating the disclosure of a qualitative tax strategy report—and investigate its effects on firm behavior. We find that firms tend to

provide a similar narrative about their tax strategy across outlets and over time. Importantly, we detect a decrease of disclosure quality as firms provide less specific information about their tax strategy in newer reports. Firms that offer low-quality disclosure in tax strategy reports also provide low-quality disclosures across CSR-related outlets, such as, for example, the Gender Pay Gap Reports.

We find that, while affected firms increase the volume of discussion of their tax strategy in their annual reports, they also include more boilerplate statements without changing their behavior. We thus demonstrate the difficulty of generating a standard that avoids low-quality disclosures when the disclosure mandate asks for qualitative information only. This is true even in the presence of increased public pressure on the affected companies. Our results contribute to a better understanding of the differences between demanding *qualitative* and *quantitative* tax disclosures. In contrast to mandates for quantitative disclosures, our findings suggest that qualitative information may not be verifiable for outside stakeholders, making public pressure ineffective as a driver for behavioral changes. In our setting, firms may increase the volume of qualitative disclosure as a type of insurance against negative public attention, which in turn can reduce the overall quality of their tax strategy disclosures, including in a very central disclosure outlet, the annual report. Since the UK tax strategy reports in many respects resemble qualitative CSR disclosures, which are becoming more common, our findings are of relevance to policymakers considering introducing purely qualitative disclosure mandates.

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Tables and Figures

Table 1: Sample Selection Steps.

	Unique Firms	Firm-Year Observations
<i>Selection Steps</i>		
Unbalanced sample: Domestic MNEs with time-series data in Datastream for the period 2013-2019	1,157	7,297
Balanced sample on sales, taxes paid, total assets, and cash ETR for the period 2014-2018	675	4,725
<i>Dropping CbC reporting firms</i>	(208)	(1,456)
<i>Dropping firms with uncertain control/treated assignment (hand-checked)</i>	(45)	(315)
<i>Dropping small firms</i>	(149)	(1,043)
<i>Dropping observations if missing controls</i>	(38)	(580)
Intermediate Sample	235	1,331
<i>Selection Steps Disclosure Sample</i>		
<i>Dropping if missing documents from Perfect Information</i>	(20)	(139)
<i>Dropping singleton observations</i>	(9)	(9)
Final Disclosure Analysis Sample	206	1,183
<i>Selection Steps ETR Analysis Sample</i>		
<i>Dropping if missing Cash/Book ETR outcome variable</i>	(13)/(13)	(216)/(214)
<i>Dropping singleton observations</i>	(10)/(10)	(10)/(10)
Final Cash (Book) ETR Analysis Sample	212	1,105
	(212)	(1,107)

Note: This Table presents the sample selection steps we follow to identify our final sample of firms as described in Section IV.

Table 2: Characteristics of Control and Treated Firms.

Panel A: Test for the Difference in Means for Control and Treated Firms Pre-treatment.

Variable	Control		Treated		Difference in means			
	Obs	Mean	Obs	Mean	Diff	St Err	t-value	p-value
<i>Outcomes</i>								
Tax Strategy Words	306	134.095	146	288.726	-154.632	21.904	-7.05	0
Tax Strategy Sentences	306	3.203	146	7.157	-3.955	.522	-7.6	0
Boilerplate	257	.241	140	.134	.106	.022	4.85	0
Specificity	257	.042	140	.038	.003	.003	1.1	.279
Cash ETR	296	.222	141	.249	-.028	.022	-1.25	.216
Book ETR	297	.209	142	.227	-.018	.015	-1.15	.259
Law/Mills Haven	306	.271	146	.35	-.078	.047	-1.65	.099
Law/Mills Dot Haven	306	.095	146	.123	-.029	.032	-.9	.374
Law/Mills Big 7Haven	306	.229	146	.288	-.059	.044	-1.3	.188
Media Attention	306	8.415	146	19.061	-10.646	1.403	-7.6	0
<i>Controls</i>								
Size	306	10.954	146	12.941	-1.988	.106	-18.7	0
Leverage	306	.072	146	.133	-.061	.017	-3.65	.001
Age	306	2.970	146	3.319	-.349	.057	-6.2	0
Geographic Com.	306	.598	146	.63	-.032	.032	-1	.308
Loss	306	.108	146	.069	.04	.028	1.45	.153
Mkt to Book Ratio	306	1.415	146	1.645	-.23	.137	-1.7	.095
Std Dev of Sales	306	8.876	146	10.4	-1.524	.074	-20.55	0
Analyst Following	306	1.175	146	1.903	-.729	.051	-14.25	0
Std Dev of Returns	306	2.301	146	2.12	.18	.031	5.8	0
Board Tax/Acc	306	.195	146	.247	-.052	.013	-4.15	0

Note: Panel A presents the pre-2016 (pre-treatment) summary sample statistics on the variables used in the analysis. We show the results of the t-test for the difference in means for our outcome and control variables for treated and control firms respectively over the pre-period. All variables are winsorized at the 1st and 99th percentiles besides ETRs which are censored to be between 0 and 1. We show summary statistics for the full sample period in the online appendix. All variables are defined in Appendix A.

Table 2 continued from previous page

Panel B: Industry distribution for Control and Treated Firms Pre-treatment.

Fama-French industry code (30 industries)	Control		Treated	
	Freq.	Percent	Freq.	Percent
Apparel	1	1%	0	0%
Banking, Insurance, Real Estate, Trading	16	12%	13	19%
Beer & Liquor	0	0%	1	1%
Business Equipment	20	15%	4	6%
Business Supplies and Shipping Container	1	1%	1	1%
Chemicals	2	1%	2	3%
Communication	1	1%	2	3%
Construction and Construction Materials	5	4%	7	10%
Consumer Goods	5	4%	0	0%
Electrical Equipment	4	3%	0	0%
Everything Else	2	1%	1	1%
Fabricated Products and Machinery	7	5%	1	1%
Food Products	6	4%	4	6%
Healthcare, Medical Equipment, Pharmaceutical	7	5%	3	4%
Personal and Business Services	43	31%	14	20%
Petroleum and Natural Gas	1	1%	0	0%
Precious Metals, Non-Metallic, and Indu	5	4%	0	0%
Printing and Publishing	0	0%	1	1%
Recreation	2	1%	0	0%
Restaurants, Hotels, Motels	0	0%	2	3%
Retail	3	2%	4	6%
Steel Works	0	0%	1	1%
Textiles	0	0%	1	1%
Transportation	4	3%	3	4%
Wholesale	2	1%	4	6%
Total	137	100%	69	100%

Note: Panel B presents the industry composition of our sample control and treated firms. We highlight non-B2C firms in grey. We follow the B2C classification of Boyd and Kannan [2018].

Table 3: Descriptive Statistics on Tax Strategy Reports.

Tax Strategy Disclosure	Obs	Mean	St. Dev.	P25	Median	P75
Words TSR	75	816.88	499.72	514.00	728.00	992.00
Sentences TSR	75	43.04	36.23	27.00	34.00	46.00
Boilerplate TSR	75	0.26	0.06	0.22	0.25	0.30
Specificity TSR	75	0.10	0.04	0.07	0.09	0.12

Note: This Table presents summary sample statistics related to relevant variables used in the analysis of the tax strategy reports. For the sample of treated firms, we manually collected 75 tax strategy reports for our treated firms of which 69 are in the regression sample. All variables are defined in Appendix A.

Table 4: Disclosure Characteristics Across Outlets – Tax Strategy Reports and Annual Reports.

Means of Firm Characteristics by Similarity between Annual Reports and Tax Strategy Reports.	Observations		Means		Difference	
	Similarity:	High	Low	High		Low
Cash ETR		249	248	0.271	0.309	-0.038
Size		233	231	13.744	12.722	1.022***
Leverage		249	249	0.201	0.178	0.022
Age		249	245	2.971	2.917	0.054
GEO Complexity		249	249	0.598	17.000	-16.402
Loss Firm		249	249	0.076	0.124	-0.048*
MTB Ratio		233	231	2.069	1.248	.822***
Sales Volatility		242	241	10.504	10.370	0.134*
Analyst Following		218	223	2.058	1.613	0.446***
Media Attention		229	216	41.205	25.685	15.52***
Board Tax/Acc		227	227	0.241	0.255	-0.013
CSR Rating		188	94	0.447	0.411	0.036*
B2C Industry		249	249	0.896	0.832	0.065**
Words (TSR)		249	249	817.45	819.028	-1.579
Sentences (TSR)		249	249	44.466	42.008	2.458
Boilerplate (TSR)		249	249	0.255	0.272	-0.017***
Specificity (TSR)		249	249	0.089	0.102	-0.013***
Words (AR)		236	230	463.288	242.465	220.823***
Sentences (AR)		236	230	11.632	5.909	5.723***
Boilerplate (AR)		232	215	0.12	0.163	-0.043***
Specificity (AR)		232	215	0.041	0.042	-0.001

Note: This Table provides descriptive characteristics on the drivers of the similarities across the tax strategy disclosure in the annual report and in the standalone report. Here, we compare firm characteristics for all of the 75 treated firms with tax strategy reports of which 69 are later included in the final regression sample. We measure firm characteristics and annual report (AR) characteristics over the period 2013-2019. We measure disclosure characteristics of the tax strategy report (TSR) in 2019. High (low) similarity means above (below) median level of similarity. The Table excludes the one treated firm with integrated tax strategy disclosure in the annual report, i.e., that does not have a standalone tax strategy report. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. All variables are defined in Appendix A.

Table 5: Disclosure Characteristics Across Time – Tax Strategy Reports in 2019 and 2023

	Observations	Means		Diff
		2019	2023	
Words (TSR)	68	843.323	874.294	30.97
Sentences (TSR)	68	44.279	37.691	-6.588
Boilerplate (TSR)	68	.267	0.259	-0.007
Specificity (TSR)	68	.099	0.068	-0.032***

Note: This Table describes correlations of disclosure characteristics for standalone tax strategy report across time. For 2023, we only found 68 out of 75 tax strategy reports. The Table excludes the one treated firm with integrated tax strategy disclosure in the annual report, i.e., that does not have a standalone tax strategy report. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Disclosure Characteristics Across CSR-related Reports.

Panel A: Correlation Table Comparing Disclosure Characteristics between Tax Strategy Reports (TSR) and Modern Slavery Statement (MSS)

Variables	(1) Words (TSR)	(2) Sentences (TSR)	(3) Boilerplate (TSR)	(4) Specificity (TSR)
Words (MSS)	-0.024			
Sentences (MSS)		0.009		
Boilerplate (MSS)			0.143	
Specificity (MSS)				0.091

Panel B: Correlation Table Comparing Disclosure Characteristics between Tax Strategy Reports (TSR) and Gender Pay Gap Reports (GPGR)

Variables	(1) Words (TSR)	(2) Sentences (TSR)	(3) Boilerplate (TSR)	(4) Specificity (TSR)
Words (GPGR)	0.074			
Sentences (GPGR)		0.006		
Boilerplate (GPGR)			0.139	
Specificity (GPGR)				0.254*

Panel C: Difference in Means of Tax Strategy Report Characteristics by Misreporting Statistics

	Observations		Means		Diff
	No	Yes	No	Yes	
Impossible Disclosure (GPGR):					
Words (TSR)	53	9	874.793	638.111	236.681**
Sentences (TSR)	53	9	47.358	35.666	11.692*
Boilerplate (TSR)	53	9	0.260	.294	-.035**
Specificity (TSR)	53	9	0.100	.084	.016*

Note: This Table describes correlations of disclosure characteristics across different CSR-related reports. Panel A shows correlations between disclosure characteristics of tax strategy reports and modern slavery statements for the firms in our sample. Panel B shows correlations between disclosure characteristics of tax strategy reports and gender pay gap reports for the firms in our sample. Panel C describes the disclosure characteristics of the tax strategy report by impossible disclosure in the gender pay gap report. *** p<0.01, ** p<0.05, * p<0.1.

Note: The table summarizes the results on the effect of the reform on quantity and quality of tax strategy disclosure using both an unmatched and a matched sample. The dependent variable is displayed at the top of each column, respectively. Columns (3)-(4) and (7)-(8) have fewer observations than columns (1)-(2) and (5)-(6) because zero tax strategy sentences lead to missing observations for the Boilerplate and Specificity measures. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes a dummy equal 1 for all periods from 2016. In all columns we control for lagged: Size, Leverage, Age (dropped because of multicollinearity with time fixed effects), Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following, Return Volatility, Media Attention, Tax and Accounting Board Members. All variables are defined in Appendix A. In the matched sample analysis, we use a kernel matching and we match on pre-treatment total assets (over two pre-treatment years 2014 and 2015). Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7 Panel B: The Effect of Mandatory Qualitative Tax Strategy Disclosure Regulation on Tax Planning.

Dep. Var.	<i>Non-Matched Sample</i>					<i>Matched Sample</i>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Cash ETR	Book ETR	Law/Mills Tax Haven Activity	Law/Mills Dot Haven Activity	Law/Mills Big7 Haven Activity	Cash ETR	Book ETR	Law/Mills Tax Haven Activity	Law/Mills Dot Haven Activity	Law/Mills Big7 Haven Activity
<i>Treated × Post</i>	-0.012 (0.025)	-0.008 (0.018)	-0.015 (0.062)	-0.041 (0.039)	0.015 (0.055)	-0.045 (0.031)	-0.015 (0.025)	0.030 (0.073)	-0.039 (0.046)	0.086 (0.067)
Size	0.057** (0.027)	0.026 (0.045)	0.026 (0.045)	-0.030 (0.030)	0.036 (0.043)	0.082* (0.047)	0.010 (0.033)	0.040 (0.070)	-0.014 (0.048)	0.051 (0.061)
Leverage	-0.234** (0.098)	-0.159 (0.167)	-0.159 (0.167)	0.082 (0.122)	-0.133 (0.171)	-0.328** (0.139)	0.055 (0.119)	-0.278 (0.226)	-0.004 (0.127)	-0.260 (0.224)
GEO Complexity	-0.041 (0.037)	0.129* (0.066)	0.129* (0.066)	0.033 (0.036)	0.092 (0.062)	-0.009 (0.040)	-0.027 (0.028)	0.150 (0.096)	0.075* (0.042)	0.083 (0.083)
Loss Firm	-0.024 (0.043)	-0.068 (0.057)	-0.068 (0.057)	-0.024 (0.036)	-0.072 (0.054)	-0.034 (0.050)	0.048 (0.056)	-0.085 (0.081)	-0.015 (0.045)	-0.111 (0.076)
MtB Ratio	-0.027** (0.013)	-0.042 (0.027)	-0.042 (0.027)	0.014 (0.021)	-0.026 (0.031)	-0.032 (0.024)	-0.026 (0.020)	-0.036 (0.049)	0.013 (0.038)	-0.030 (0.043)
Sales Volatility	-0.004 (0.013)	-0.024 (0.028)	-0.024 (0.028)	-0.024 (0.021)	-0.016 (0.025)	-0.012 (0.017)	0.004 (0.015)	-0.027 (0.038)	-0.029 (0.028)	-0.015 (0.033)
Return Volatility	0.036 (0.023)	-0.025 (0.044)	-0.025 (0.044)	-0.014 (0.027)	-0.043 (0.042)	0.047 (0.036)	0.035 (0.023)	-0.032 (0.062)	0.008 (0.033)	-0.067 (0.058)
Analyst Following	0.034 (0.029)	-0.029 (0.056)	-0.029 (0.056)	0.028 (0.042)	0.016 (0.053)	-0.028 (0.047)	0.038 (0.038)	0.084 (0.076)	0.097 (0.060)	0.084 (0.073)
Board Tax/Acc	-0.030 (0.109)	0.168 (0.235)	0.168 (0.235)	0.084 (0.135)	0.061 (0.217)	-0.013 (0.140)	0.036 (0.120)	0.317 (0.272)	0.207 (0.170)	0.154 (0.233)
Media Attention	0.001 (0.000)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.001 (0.000)	-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.001)
R-squared	0.487	0.525	0.484	0.496	0.484	0.444	0.379	0.456	0.491	0.451
Observations	1,105	1,107	1,183	1,183	1,183	571	572	675	675	675
N. of Firms	212	212	206	206	206	99	99	102	102	102
Firm FE	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X	X	X	X
Clustering	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm

Note: The table summarizes the results on the effect of the reform on tax planning using both an unmatched and a matched sample. The dependent variable is displayed at the top of each column, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes a dummy equal 1 for all periods from 2016. In all columns we control for lagged: Size, Leverage, Age (dropped because of multicollinearity with time fixed effects), Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following, Return Volatility, Media Attention, Tax and Accounting Board Members. In the matched sample analysis, we use a kernel matching and we match on pre-treatment total assets (over two pre-treatment years 2014 and 2015). All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

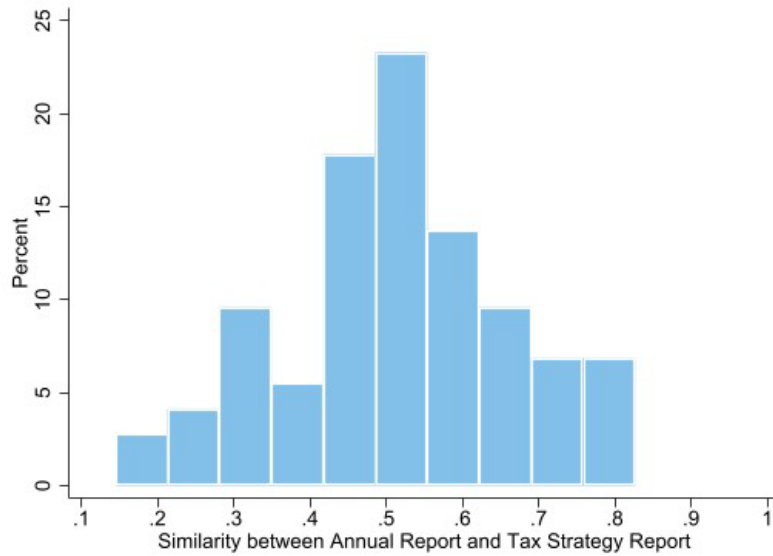
Table 8: The Effect of Mandatory Qualitative Tax Strategy Disclosure Regulation on Firm Attention.

VARIABLES	(1) Media Attention	(2) Media Attention High -Attention Pre- Reform	(3) Media Attention Low Attention Pre- Reform
Treated × Post	13.54*** (2.675)	19.53*** (3.885)	5.088*** (1.699)
<i>P-Value Diff across Samples</i>			0.001***
Observations	1,176	543	513
R-squared	0.717	0.645	0.605
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Clustering	firm	firm	firm
Number of Firms	206	87	80

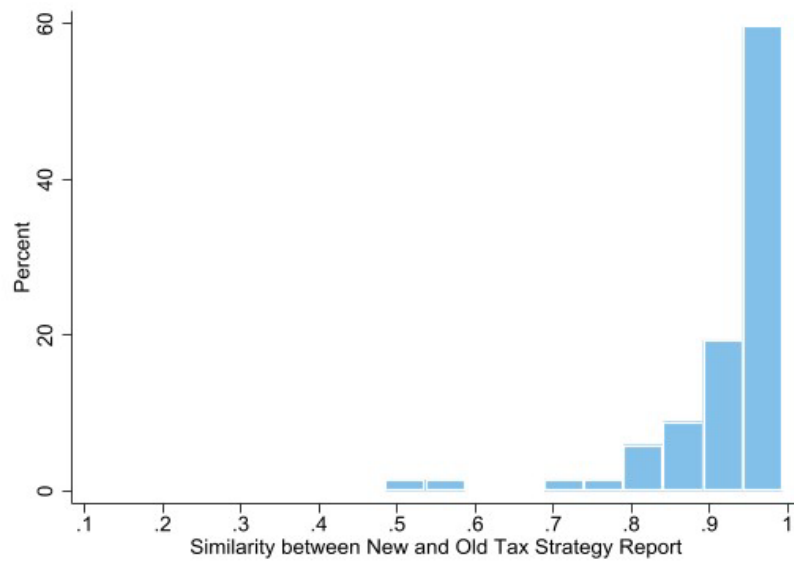
Note: The table shows the results on the effect of the reform on public attention. The dependent variable is displayed at the top of each column. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes a dummy equal 1 for all periods from 2016. In all columns we control for lagged: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following, Return Volatility, Tax and Accounting Board Members. To test for the difference in statistical significance of the interaction coefficients on treated times post dummies between the two sub-samples, we estimate a triple difference-in-differences regression, as follows: $ReformOutcomes_{it} = \alpha + \beta_1 Post_t \times TaxStrategyReport_i \times Split_i + \beta_2 Post_t \times TaxStrategyReport_i + BX_{it} + BX_{it} \times Split_i + \gamma_i Split_i + \delta_t + \varepsilon_{it}$, where $Split_i$ is a dummy equal to 1 for high media attention firms. We report the p-value of the coefficient β_1 on the triple-difference to evaluate the significance of the difference between the interaction coefficients in the split sample analysis. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure 1: Similarity between TR and AR Tax Strategy Disclosure

Panel A: Histogram of Similarities between Annual Reports and Tax Strategy Reports.

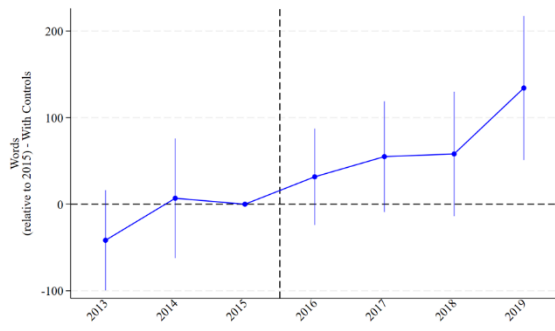


Panel B: Histogram of Similarities between Old and New Tax Strategy Reports.

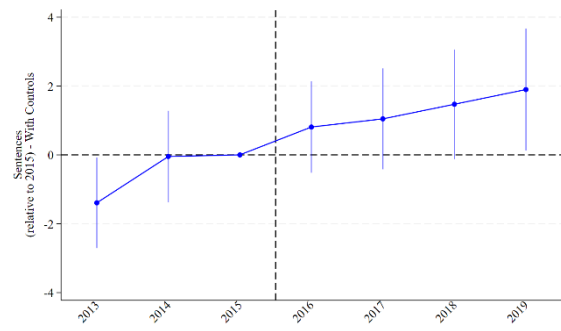


Note: This Figure provides descriptive statistics on the similarity between the annual reports and the separate tax strategy reports in Panel A and on the similarity between standalone tax strategy reports retrieved in 2019 and the standalone tax strategy reports retrieved in 2023 for the same sample of firms in Panel B. Both panels show the histogram of the distribution of cosine-similarities between the two set of reports. Panel B excludes the one treated firm with integrated tax strategy disclosure in the annual report, i.e., that does not have a standalone tax strategy report. All variables are defined in Appendix A.

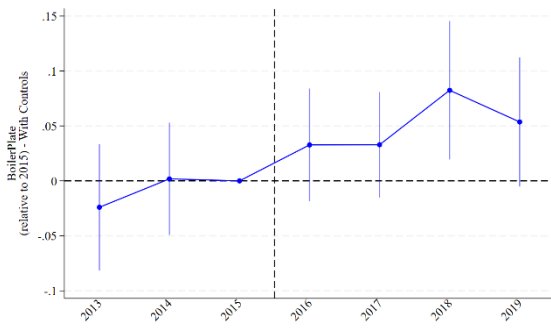
Figure 2: Dynamic Effects of the Reform on Disclosure and Tax Planning - Event Studies.



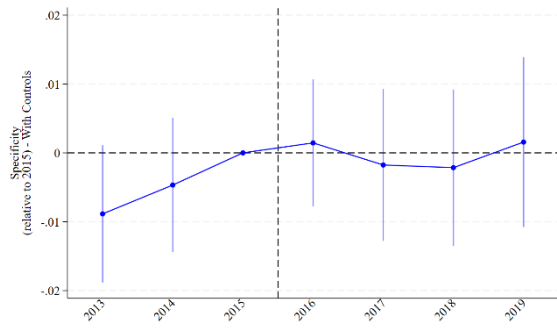
(a) Tax Strategy Words



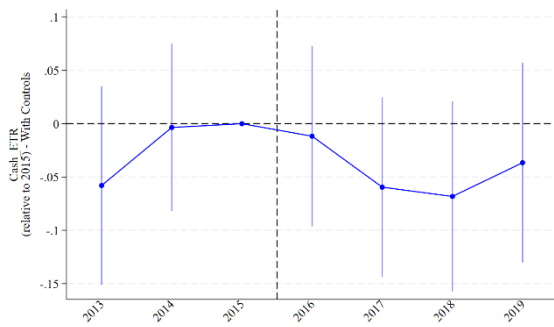
(b) Tax Strategy Sentences



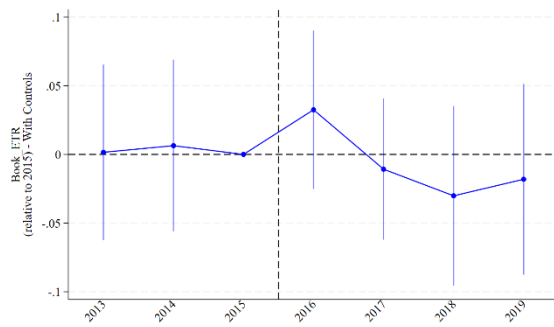
(c) Boilerplate



(d) Specificity

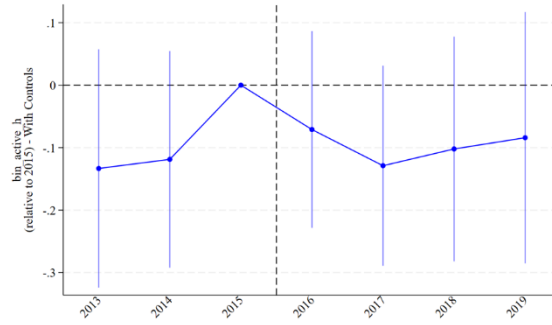


(e) Cash ETR



(f) Book ETR

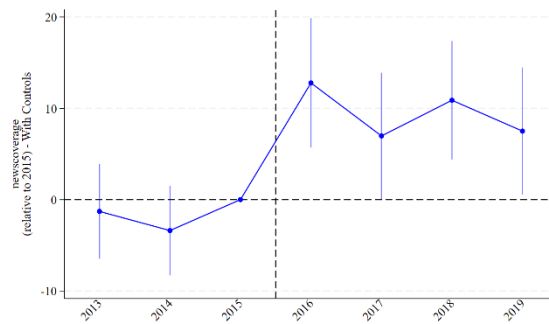
Figure 2 (continued on next page)



(g) Law/Mills Tax Haven Activity

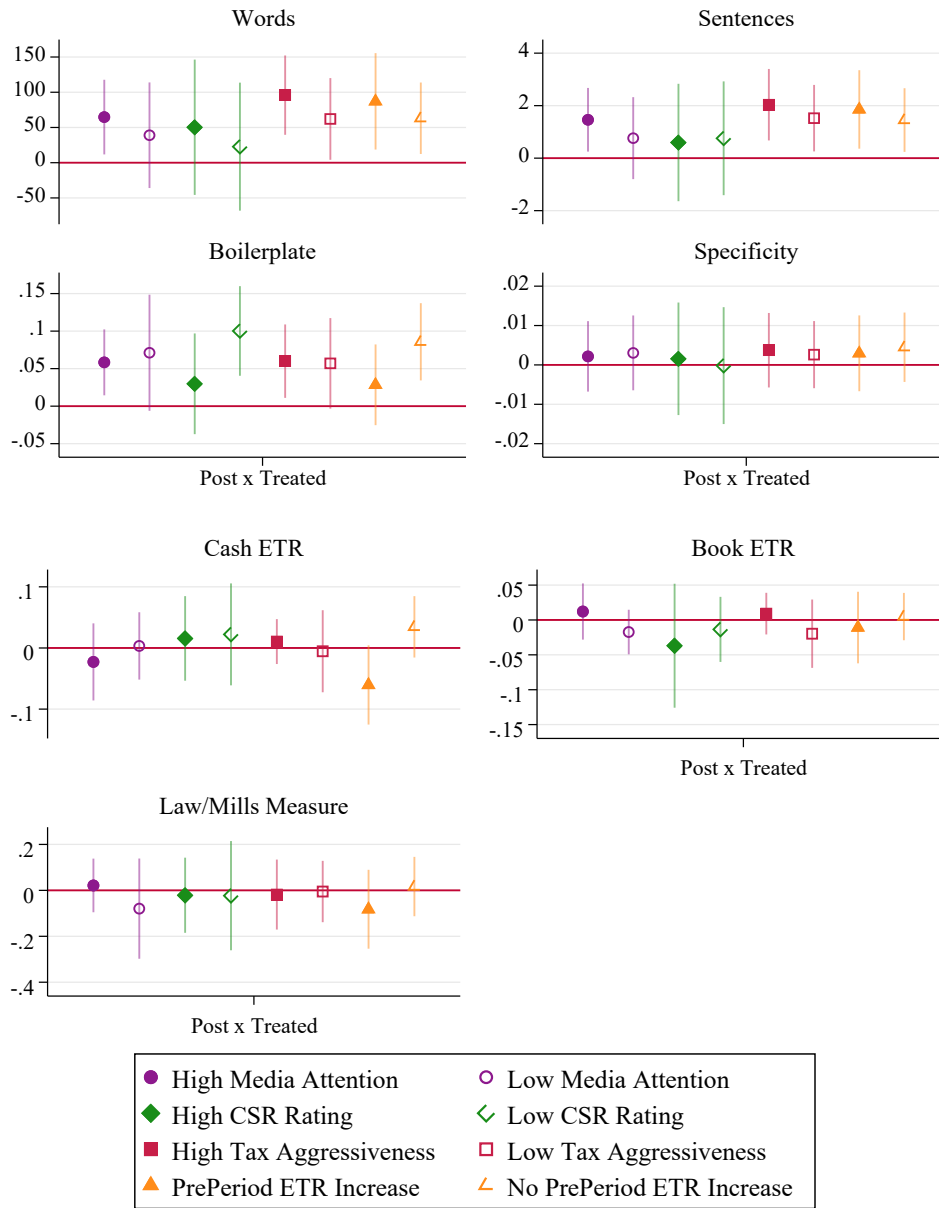
Note: This figure plots the event study regression coefficients. Each dot represents the difference between the outcome variable in each year relative to the baseline year, 2015. All variables are defined in Appendix A. The vertical lines represent the 95% confidence intervals.

Figure 3: Dynamic Effects of the Reform on Media Attention - Event Studies.



Note: This figure plots the event study regression coefficients. Each dot represents the difference between the outcome variable Media Attention in each year relative to the baseline year, 2015. All variables are defined in Appendix A. The vertical lines represent the 95% confidence intervals.

Figure 4: The Effect of Mandatory Qualitative Tax Disclosure Regulation by Pre-Reform Media Attention, CSR Performance, Tax Aggressiveness, Pre-Period ETR Adj



Note: This Figure summarizes the regression results on the effect of the reform on volume and quality of tax disclosure and tax avoidance by sub-samples, the coefficients on Post x Treated. The sample is restricted to firms with (a) *above (below) median pre-treatment* news coverage as measure of Media Attention (purple hollow/filled circles), or (b) *above (below) median pre-treatment* CSR rating adjusted for CSR controversies as a measure of CSR performance (green hollow/filled diamonds), or (c) *above (below) median pre-treatment* Cash ETR as measure of tax aggressiveness (red hollow/filled squares), or (d) *above (below) median pre-period* ETR increase (orange hollow/filled triangles). The dependent variable is displayed at the top of each sub-figure, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016 In all regressions we control for firm and year fixed effects and lagged: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following, Return Volatility, Media Attention, Tax and Accounting Board Members. All variables are defined in Appendix A. Standard errors are clustered at firm level. The figure shows confidence intervals at the 10 percent level of significance. The corresponding Tables are reported in the appendix (G1-G4).

APPENDIX

A. Variable Definitions

Variable	Description
Tax Strategy Words	The number of words in the annual report that describe the tax strategy. Tax strategy disclosure in the annual report is identified by the naïve Bayes algorithm at the sentence level.
Tax Strategy Sentences	The number of sentences in the annual report that describe the tax strategy. Tax strategy disclosure in the annual report is identified by the naïve Bayes algorithm at the sentence level.
Boilerplate	The portion of trigrams in a firm’s tax strategy sentences that is found in at least 5% of all firms’ tax strategy disclosures in a given fiscal year.
Specificity	The number of specific words in the annual report that appear in sentences which describe the tax strategy scaled by total number of tax strategy words. Tax strategy disclosure in the annual report is identified by the naïve Bayes algorithm at the sentence level. Following Hope et al. [2016] specific words are defined as: entity names, including names of persons, locations, and organizations; quantitative values in percentages; money values; times; and dates as captured by the Stanford Named Entity Recognition (NER) tool.
Words TSR	The number of words in the dedicated tax strategy report (TSR). This is usually a standalone report in our sample. In one case the dedicated tax strategy report was integrated in the annual report and the firm did not publish a standalone report. In all other cases the standalone report is used.
Sentences TSR	The number of sentences in the dedicated tax strategy report (TSR). This is usually a standalone report in our sample. In one case the dedicated tax strategy report was integrated in the annual report and the firm did not publish a standalone report. In all other cases the standalone report is used.
Boilerplate TSR	The portion of trigrams in a firm’s tax strategy report that is found in at least 5% of all firms’ tax strategy reports in a given fiscal year. The TSR is usually a standalone report in our sample. In one case the dedicated tax strategy report was integrated in the annual report and the firm did not publish a standalone report. In all other cases the standalone report is used.
Specificity TSR	The number of specific words by total number of tax strategy words in the dedicated tax strategy report (TSR). Following Hope et al. (2016) specific words are defined as: entity names, including names of persons, locations, and organizations; quantitative values in percentages; money values; times; and dates as captured by the Stanford Named Entity Recognition (NER) tool. The TSR is usually a standalone report in our sample. In one case the dedicated tax strategy report was integrated in the annual report and the firm did not publish a standalone report. In all other cases the standalone report is used.
Impossible Disclosure GPCR	From Bailey et al. [2022]. An indicator variable equal to one if the sign of the median pay gap conflicts with the sign implied by same employer year quartile gender balance statistics.
Cash ETR	The ratio of tax paid over pre-tax income, set to one if above 1 or if tax paid is positive and pre-tax income negative and set to zero if tax paid is negative. Set to missing in loss years.
Book ETR	The ratio of tax expense over pre-tax income, set to one if above 1 or if tax paid is positive and pre-tax income negative and set to missing if tax paid is negative. Set to missing in loss years.

Law/Mills Tax Haven Activity	An indicator variable equal to one if a tax haven country and a key offshore input/output word appear within 25 words of each other in the firm's annual report of a given year. The Tax havens list is taken from Law and Mills [2022] and the offshore input/output terms are from Hoberg Moon [2017; 2019].
Law/Mills Dot Haven Activity	An indicator variable equal to one if a tax haven country and a key offshore input/output word appear within 25 words of each other in the firm's annual report of a given year. The Tax havens list is limited to Dot havens from Dyreng et al. [2020] and the offshore input/output terms are from Hoberg Moon [2017; 2019].
Law/Mills Big7 Haven Activity	An indicator variable equal to one if a tax haven country and a key offshore input/output word appear within 25 words of each other in the firm's annual report of a given year. The Tax havens list is limited to Big7 havens from Dyreng et al. [2020] and the offshore input/output terms are from Hoberg Moon [2017; 2019].
Size	The natural logarithm of market value of equity.
Leverage	The ratio of long-term debt over total assets.
Loss	A dummy equal to one if the firm has negative profit/loss before taxes for the majority of the selected period.
Age	The natural logarithm of the number of years the firm has been listed on Datastream.
Geographic Complexity	The sum of squares of each geographical segment's sales as a percentage of the total firm sales.
Mkt to Book Ratio	The ratio of the market value of assets to the book value of assets.
Sales Volatility	The standard deviation of annual sales computed over the previous five years (or less than five years, if less than five previous years are available).
Analyst Following	The log of the number of analysts following the firm.
Return Volatility	The log of the standard deviation of returns computed over three years.
Media Attention	News coverage in a firm-year computed as the maximum counts of distinct news events about a firm in a 91 days window as stated in Ravenpack.
Tax/Accounting Board Members	Binary variable equal to one if a firm has at least a board member with a tax/accounting background.
Controversy Adj. CSR Score	This is the ESG C Score. From Refinitiv definition " <i>the main objective of this score is to discount the ESG performance score based on negative media stories. It does this by incorporating the impact of significant, material ESG controversies in the overall ESGC score</i> ".
Appendix Only Variables	
Leverage Intensity	Five-year average of the ratio of long-term debt to total assets
R&D Intensity	R&D expenses over total assets
Intangible Intensity	Intangible assets over total assets
Industry-Size Adjusted Cash (Book) Tax Aggressiveness (TA)	The difference between the 3-year Cash (Book) ETR and the median Cash (Book) ETR of the industry-size cohort to which the firm belongs to (where the median is a within 3-year median), taken from Balakrishnan et al. (2019). Industry is measured based on the Fama French 48 industry classification.

B. Institutional Details of the UK Strategy Mandate

The UK Tax Strategy Mandate was passed in Parliament on September 15, 2016. The information required covers four topics, including a description how firms manage their UK tax risk, their attitude to tax planning, their tax risk appetite, and their relationship with HMRC. In this section, we offer a detailed overview of the topics covered by the UK reform with respect to the mandated tax strategy report and we display examples from companies of such disclosure.

First, firms must discuss how their UK tax risk is managed, resulting in such statements as the following: “The CFO and Head of Tax oversee tax risk management, which is undertaken by the Group’s tax team. The tax team consists of the Head of Tax, who leads the team, two Tax Managers and a Tax Accountant,” or “Overall responsibility for ensuring that tax risk is managed effectively across the Group lies with the Board. The Audit Committee reviews the effectiveness of the risk management process on behalf of the Board.”³³

Second, firms should describe their attitude to tax planning resulting in such sentences as “Cairn undertakes tax planning that supports our business and reflects commercial and economic activity. The Group’s policy is not to enter into any artificial tax avoidance schemes” or “Cairn will base its views on the relevant tax laws in force at the time and seeks to minimize disputes.”³⁴

Third, firms should offer insights into their tax risk appetite, which leads to such disclosures as “It is the aim of RM to minimize the level of risk taken in relation to both UK and overseas taxation matters wherever possible. Given the size and diversity of the business, taken with the complexities of taxation legislation in multiple tax jurisdictions, it is inevitable that an element of tax risk will arise” or “Where complete mitigation of a risk is not possible, reduction to a minimum level is sought.”³⁵

Fourth, firms should explain their relationship with HMRC, which was done in such sentences as “The Group is committed to the principles of integrity, transparency and openness and seeks to apply these in its dealings with the UK tax authorities” or “Where possible we seek constructive and early discussions on

³³ The sentences are taken from SEGRO’s tax strategy.

³⁴ The sentences are taken from Cairn’s tax strategy.

³⁵ The sentences are taken from RM’s tax strategy.

any new tax matter to obtain certainty. We engage positively when discussing any differences in legal interpretation between ourselves and HMRC.”³⁶

If firms do not publish a discussion of such topics or the provided disclosure is incomplete, a moderate monetary penalty is imposed.³⁷ Yet, compliance was expected to be achieved mainly via public pressure. The consultation documents related to the regulation noted that the law entailed “a legislative requirement for all large businesses to publish their tax strategy, enabling shareholder, investor, and public scrutiny of their approach towards tax planning and tax compliance” (HMRC [2015a]).³⁸

C. Naïve Bayes Classifier - Statistics and Outcomes

In this Appendix, we describe in detail how we construct the volume of tax strategy disclosure in the annual report. We start by selecting a sub-sample of 450 annual reports from firms listed in the FTSE100 for the period 2010-2016 as our training set. We explicitly select annual reports from this group of firms to maximize the volume of detected tax strategy sentences. Partitioning the annual reports into sentences leads to 1,116,411 million sentences from which we exclude all sentences not containing the three letters “tax” when appearing sequentially. This enables us to preserve sentences containing the word “tax” as well as sentences containing the word “taxation”. We then eliminate sentences in which the only time the three letters “tax” appear is for the words “pre-tax”, “net of tax”, “before income tax”, “after tax”, “before tax”, “tax free”. We end up with 41,683 tax sentences.³⁹ Out of this set of sentences, we then manually select tax strategy sentences and remove duplicates to obtain a final sample of 2,534 tax strategy sentences.

Next, we chose sentences in which the firm does not discuss its tax strategy, but which have a high degree of semantic similarity to the tax strategy sentences. For this purpose, we perform a cosine similarity analysis between all sentences in the training set, which contain the word tax and the manually selected

³⁶ The sentences are taken from Clipper Logistics’ tax strategy.

³⁷ There is a penalty for not publishing a tax strategy report: a noncompliant firm faces a monetary punishment of GBP 7,500 for being caught without a tax strategy report and another GBP 7,500 if the report is not published six months after it should have been, plus GBP 7,500 for each following month until the firm becomes compliant.

³⁸ A chief executive at the HMRC also stated: “If they [large businesses] have to explain to people what their tax strategy is, it does have an effect on their behavior” (The Financial Times [2016]).

³⁹ This enables us to minimize the risk of false positives (Type I Error), by restricting our analysis to a subset of sentences where tax strategy sentences are most likely to appear. The drawback of our filtering approach is the increase in the risk of false negative (or Type II Error) since we might not capture sentences in which a firm discusses its tax strategy without explicitly using words “tax”.

tax strategy sentences.⁴⁰ This is a crucial step to ensure that once we proceed with the machine learning approach, we can train the algorithm on non-tax strategy sentences for which the risk of misclassification is the highest. Our final sample is a balanced sample of 2,534 tax strategy sentences (sentences discussing a firm's approach to tax or tax governance) and 2,534 non-tax strategy sentences (sentences not discussing a firm's approach to tax or tax governance, but semantically similar to the sentences discussing a firm's approach to tax or tax governance).

We use this sample of sentences to train the naïve Bayes algorithm, which is a supervised machine learning methodology. We use naïve Bayes to classify all sentences in our complete sample of annual reports that contain the word "tax".⁴¹ This approach relies on a prediction model, where the input variables are the words in the document and the predicted value is the probability of a certain category. In the context of our study, the sentence categories are sentences containing information on a firm's tax strategy and sentences not containing information on a firm's tax strategy. The conditional probabilities of a word occurrence given a sentence category are learned based on the set of manually labeled sentences on which a machine learning model is trained. Since naïve Bayes is machine-based, it facilitates the analysis of a large corpus and avoids possible biases induced by the researcher's subjectivity.⁴² Overall, naïve Bayes represents a fairly straightforward approach, which delivers consistently good classification accuracy, and thus it is the single most used classifier in the finance and accounting literature (El-Haj et al. [2019]).

Our final sample of annual reports is made of 1,875,696 sentences of which 57,076 contain the three letters "tax" when written sequentially after excluding those sentences in which the only time the three letters "tax" appear is for words "pre-tax", "net of tax", "before income tax", "after tax", "before tax", "tax free". We classify them into 6,863 tax strategy sentences and 50,213 non-tax strategy sentences using the trained naïve Bayes classifier. Our naïve Bayes approach achieves a classification accuracy of 91 percent in the in-sample validation test, which is in line with the related literature (Huang et al. [2014]).⁴³

Below, we present the key statistics on the performance of our naïve Bayes classifier based on the average of 50 naïve Bayes models (iterations). We first present the result of the confusion matrix, which

⁴⁰ For the cosine similarity exercise, we use tf-idf (term frequency-inverse document frequency) as weighting scheme.

⁴¹ Also, for the naïve Bayes, we use tf-idf (term frequency-inverse document frequency) as weighting scheme.

⁴² For the formal derivation of naïve Bayes, see Antweiler and Frank [2004].

⁴³ We manually inspected a sample of randomly selected tax-strategy and non-tax strategy sentences to check the validity of our out-of-sample results.

is built using our training set (Tables A1 and A2). These tables show how many sentences are predicted to be tax strategy sentences (true) and are actually tax strategy sentences and the same for non-tax strategy sentences (false). Precision indicates the fraction of true tax strategy sentences over the total Tax Strategy Sentences classified as tax strategy sentences (that is the sum of true tax strategy sentences and false tax strategy sentences). Thus, it is the ability of our classifier to avoid classifying a sentence as a tax strategy sentence when in reality it is a non-tax strategy sentence. Recall indicates the fraction of true tax strategy sentences over the total number of correctly classified sentences. Thus, it is the ability of our classifier to find all true tax strategy sentences. F1-score is the average between precision and recall. Support is the total number of considered sentences. Our accuracy score is 91.56 percent which is the average between the F1 score of the tax strategy sentences and non-tax strategy sentences.

We also compared the accuracy of our model to the one we would obtain using alternative approaches. We use two alternative supervised machine learning classifiers, SVM and the random forest, which are also used in the finance and accounting literature. Using either, we achieve similar accuracy levels as with naïve Bayes, but slightly lower in the case of SVM (90%). Second, we offer a representative set of examples of sentences captured under the category “Tax Strategy Sentences” versus the one captured under the category “Non-Tax Strategy Sentences”.

Overall, since some tax strategy sentences can be hard to identify clearly, we construct a rather conservative measure of tax strategy disclosure in annual reports to avoid false positives. Specifically, we do not count sentences as tax strategy sentences as soon as the classified probability of being a tax strategy sentence vs. a non-tax strategy sentence lies just above 50%, instead we chose a cut-off value of 99%.

Table A1: Confusion Matrix

actual \ predicted	FALSE	TRUE
FALSE	426.28	24.62
TRUE	47	351.1

Table A2: Naïve Bayes (10 iterations for each model)

Model	Class	Precision	Recall	F1-score	Support
4009*2	FALSE	0.9	0.95	0.92	450.9
	TRUE	0.93	0.88	0.91	398.1

Examples of Tax Strategy Sentences

tax planning is always aligned with our commercial and economic activity.

taxation: the audit committee reviewed the group tax risk policy which sets out compliance with relevant jurisdictional legislation, identifying areas of tax risk for appropriate focus and managing the overall group tax risk.

where appropriate, the group enters into consultation with tax authorities to help shape proposed legislation and future tax policy.

we also used our own tax specialists to critically assess the appropriateness of the future tax planning strategies.

our board continues to work toward being assessed as 'low risk' by hmrc and ensures that the group adheres to the revised tax policy adopted in 2014 of not undertaking tax planning or making use of tax havens.

an open dialogue is maintained with HMRC involving regular meetings to review tax issues and brief them on business issues.

the group takes a responsible approach to the management and control of its tax affairs and is cooperative in its dealings with the tax authorities.

our principal activities are UK-based and we have regular meetings with hm revenue and customs to discuss tax matters and business developments.

we will pay the right and fair amount of tax in each territory we trade from in accordance with the letter and spirit of local laws and regimes.

the board is regularly updated on tax matters, and any tax implications of commercial activities are highlighted to the board with the use of a risk matrix to assess the appropriateness of a proposal.

Examples of Non-Tax Strategy Sentences

these shares may be withdrawn at any point during years four and five, but income tax and national insurance would then be payable on any amounts withdrawn.

deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income taxes and liabilities relate to income taxes levied by the same taxation authority on either the taxable entity or different taxable entities when there is an intention to settle the balance on a net basis.

these discount rates are derived from the group's post-tax weighted average cost of capital as adjusted for the specific risks relating to each geographical region.

retail sales and delivery receipts are recorded net of returns, relevant vouchers, and value added tax and recognised upon dispatch from the warehouse at which point title and risk passes to the customer.

the group provides for potential tax liabilities that may arise on the basis of the amounts expected to be paid to the tax authorities.

the carrying amount of deferred tax assets is reviewed at each statement of financial position date and reduced to the extent that it is no longer probable that sufficient taxable income will be available to allow all or part of the asset to be recovered.

this revenue growth reflected the strength of tax and accounting's product offerings and demand in the global tax and accounting market.

the discount rates used reflect the post-tax yields to maturity that can be obtained on government bonds with similar maturity dates and currencies to those of the deferred tax assets or liabilities.

there is no time restriction over the utilisation of tax losses.

impairment of assets the carrying amounts of the group's non-financial assets, other than inventories (see accounting policy 'inventories') and deferred tax balances (see accounting policy 'deferred taxation'), are reviewed at each balance sheet date to determine whether there is an indication of impairment.

D. Illustrative Examples – Quality of Tax Strategy Disclosure

Boilerplate - The bold words in the following sentences extracted from annual reports of treated firms in our sample identify common phrases that are captured by our boilerplate measure.

we always aim to pay the right amount of tax in all the territories in which we operate and we believe in maintaining a transparent and professional working relationship with hm revenue customs hmrc and other tax authorities
we maintain an open and cooperative relationship with the uk tax authorities and pay the correct amount of tax as it falls due
we follow the laws of the relevant country and our group tax strategy so that we pay the correct and appropriate amount of tax at the right time
we also have a responsibility to shareholders to ensure we pay the right amount of tax and ensure compliance with the tax rules in each country in which we operate

Specificity - The bold words in the following sentences extracted from annual reports of treated firms in our sample identify specific words that are captured by our specificity measure.

as described in note 13 to the consolidated financial statements, we are facing a number of tax investigations at subsidiary level, including a disputed tax assessment in poland relating to pre-ipo intellectual property restructuring and deductibility of certain management re-charges
tax and treasury committee meets twice a year - chaired by wendy pallot
the group operates in a complex multinational tax environment in relation to direct and indirect taxes and there are a number of open tax matters with tax authorities, especially in the uk, us and canada
deploying our us tax specialists, we evaluated the key judgements, assumptions and interpretations used by management to assess the impact of us tax reform

E. Anecdotal Evidence of Tax Strategy Report Changes Over Time

For our main analysis, we collect the tax strategy reports for the treated companies in our sample in 2019. We made the same search in 2023 and collect the tax strategy reports for the same list of companies. Not all companies still have a tax strategy report in 2023. Of the 75-tax strategy reports we had for 2019, we are able to find 68 tax strategy reports. For the 7 companies, we are currently missing the tax strategy report either because they are now below the thresholds of UK operations (5 of them) or have been acquired by another company (2 of them).

We manually review cases where we detected changes in the content of the tax strategy reports across years. We find three main reasons that determine differences in the content of the tax strategy reports:

- **Changes in the title** of the unit or person responsible for the tax strategy report.

- **Added context** (typically as in the example below, to make sure that the statement is not misunderstood as aggressive tax planning). One interesting case is where the company changed from stating that it is acting in the interest of shareholders to stating that it is acting in the interest of stakeholders including shareholders, clients, employees, and tax authorities.
- Few cases provide **less specific information** on 1. the person's name who signs the report (see example below, it used to be a signature and then it disappears) 2. Entity name, the list of subsidiaries or entities covered in the report (see example below – still not numerical disclosure but entity name).

GB0004270301 HILL & SMITH PLC

Old

Our focus on costs includes consideration of tax costs. As such, we seek to conduct our business efficiently from a tax perspective which may include:

- responding to government tax incentives (both in the UK and internationally); and
- structuring arrangements in a tax efficient manner.

New

- "Our focus on costs includes consideration of tax costs. As such, we seek to conduct our business efficiently from a tax perspective, which may include responding to government tax incentives (both in the UK and internationally) and structuring arrangements in a tax efficient manner. **However, we commit not to transfer value created to low tax jurisdictions, not to use tax structures intended for tax avoidance and not to use secrecy jurisdictions or so-called 'tax havens'.**"

GB00B1VZ0M25 - Hargreaves

Old

“The Group has an obligation to act in the interest of its **shareholders** and will maximise any legitimate tax planning opportunities to the extent to which the legislation intends.”

New

“The Group has an obligation to act in the interest of all **stakeholders, including shareholders, clients, employees, and tax authorities**, and will maximise any legitimate tax planning opportunities to the extent to which the legislation intends.”

GB00BYYW3C20 Forterra

Old

List of entities covered by this Tax Strategy at publication:

- Forterra plc
- Forterra Holdings Limited
- Forterra Building Products Limited
- Red Bank Limited*
- London Brick Company Limited*
- Cradley Special Brick Company Limited*
- Butterley Brick Limited*
- Formpave Limited*
- Bison Precast Limited*

*Dormant company

New

It used to have the list of entities covered by the tax strategy report and no longer has it.

GB0002668464 - U & I

Old

Signed at the end as

“Marcus Shepherd, Chief Financial Office, 7 July 2020”

New

There is no signature.

F. Investigating Change in Tax Planning Strategies.

Table F1: Changes in Investment and Financing Strategies Related to Tax Planning.

Dep.Var.	(1) PPE Intensive	(2) Intangible Intensive	(3) RnD Intensity	(4) Leverage
Treated * Post	0.000254 (0.00990)	0.00504 (0.0112)	-0.00501 (0.00401)	-0.00280 (0.00982)
Observations	1,101	1,105	444	1,089
R-squared	0.969	0.949	0.935	0.944
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Clustering	firm	firm	firm	firm
Number of Firms	211	211	87	209

Note: This Table summarizes the effect of the reform on investment choices and financing strategies relevant to tax planning. The dependent variable is displayed at the top of each column, respectively. Note that many firms do not report RnD expenses for which reasons the number of observations is much lower in column (3). Treated denotes a dummy equal 1 for firms that are required by the UK reform to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. In all columns we control for lagged: Size, Leverage (not in Column 4, where Leverage is the dependent variable), Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following, Return Volatility, Media Attention, and Tax and Accounting Board Members. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table F2: Measuring Tax Planning by Region and Country Tax Rates in Unconsolidated Accounts

	(1)	(2)	(3)	(4)	(5)	(6)
Dep.Var.	All	UK	Non-UK	Non-UK High Tax	Non-UK Low Tax	Non-UK Tax Haven
Panel A: Outcome: Cash ETR						
Treated × Post	-0.012 (0.009)	-0.006 (0.010)	-0.029 (0.018)	0.002 (0.021)	- 0.119*** (0.041)	- 0.019 (0.045)
R-squared	0.31	0.25	0.40	0.37	0.45	0.57
Observations	27,419	19,316	8,103	4,683	1,965	1,270
N. of Subsidiaries	3,567	2,483	1,084	631	355	264
Panel B: Outcome: Book ETR						
Treated × Post	0.005 (0.008)	0.011 (0.010)	-0.015 (0.016)	0.000 (0.025)	-0.022 (0.020)	-0.058 (0.037)
R-squared	0.42	0.36	0.47	0.47	0.48	0.44
Observations	28,984	16,147	12,837	6,750	5,940	1,667
N. of Subsidiaries	4,541	2,346	2,195	1,267	1,126	299
Firm FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Clustering	subsidiary	subsidiary	subsidiary	subsidiary	subsidiary	subsidiary

Note: This Table summarizes the effect of the reform on cash and book ETRs in Panels A and B, respectively. The unit of observation here is a subsidiary of the MNE. Treated denotes a dummy equal 1 for subsidiaries that belong to firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. We do not include any control variables. All variables are defined in Appendix A. Standard errors are clustered at subsidiary level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

G. Mechanism tests

Table G1: The Effect of Mandatory Qualitative Tax Disclosure Regulation by Pre-Reform Media Attention

<i>Dep.Var.</i>	(1)	(2)	(3)	(4)	(5)	(7)	(8)
	Tax Strategy Words	Tax Strategy Sentences	Boilerplate	Specificity	Cash ETR	Book ETR	Law/Mills Measure
Panel A: Pre-Reform High Media Attention							
Treated × Post	74.612** (33.480)	1.679** (0.769)	0.057** (0.027)	0.004 (0.005)	-0.011 (0.038)	0.016 (0.024)	-0.000 (0.068)
R-squared	0.789	0.847	0.738	0.528	0.504	0.587	0.497
Observations	550	550	500	500	503	503	550
N. of Firms	87	87	84	84	93	93	87
Outcome Pre-Reform Mean	228.444	5.582	0.171	0.042	0.247	0.227	0.306
Panel A: Pre-Reform Low Media Attention							
Treated × Post	40.022 (46.872)	0.822 (0.975)	0.076* (0.045)	0.003 (0.006)	0.004 (0.033)	-0.017 (0.019)	-0.080 (0.132)
R-squared	0.754	0.802	0.708	0.553	0.461	0.432	0.437
Observations	513	513	451	451	483	483	513
N. of Firms	80	80	76	76	80	80	80
Outcome Pre-Reform Mean	137.218	3.318	0.239	0.040	0.212	0.202	0.286
Diff Coeff. P-Value	0.540	0.474	0.747	0.934	0.846	0.220	0.633
Firm FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X
Clustering	firm	firm	firm	firm	firm	firm	firm

Note: This Table summarizes the results on the effect of the reform on volume and quality of tax disclosure and on tax planning. In panel A (B) the sample is restricted to firms with above (below) median pre-treatment media attention. The dependent variable is displayed at the top of each column, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. In all columns we control for: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following and Return Volatility. Columns (3)-(4) have fewer observations than columns (1)-(2) because zero tax strategy sentences lead to missing observations for the Boilerplate and Specificity measures. To test for the difference in statistical significance of the interaction coefficients on treated times post dummies between the two sub-samples, we estimate a triple difference-in-differences regression, as follows: $ReformOutcomes_{it} = \alpha + \beta_1 Post_t \times TaxStrategyReport_{it} \times Split_{it} + \beta_2 Post_t \times TaxStrategyReport_{it} + BX_{it} + BX_{it} \times Split_{it} + \gamma_i Split_{it} + \delta_t + \varepsilon_{it}$, where $Split_{it}$ is a dummy equal to 1 for high media attention firms. We report the p-value of the coefficient β_1 on the triple-difference to evaluate the significance of the difference between the interaction coefficients in the split sample analysis. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table G2: The Effect of Mandatory Qualitative Tax Disclosure Regulation by Pre-Reform controversy-adjusted CSR Rating

<i>Dep.Var.</i>	(1) Tax Strategy Words	(2) Tax Strategy Sentences	(3) Boilerplate	(4) Specificity	(5) Cash ETR	(7) Book ETR	(8) Law/Mills Measure
Panel A: Pre-Reform High CSR Rating (controversy adjusted)							
Treated × Post	50.316 (56.979)	0.596 (1.327)	0.030 (0.040)	0.002 (0.008)	0.016 (0.041)	-0.037 (0.053)	-0.021 (0.097)
R-squared	0.767	0.818	0.763	0.336	0.663	0.670	0.560
Observations	241	241	235	235	233	233	241
N. of Firms	40	40	40	40	40	40	40
Outcome Pre-Reform Mean	326.710	8.097	0.105	0.043	0.249	0.226	0.301
Panel A: Pre-Reform Low CSR Rating (controversy adjusted)							
Treated × Post	22.785 (54.118)	0.756 (1.291)	0.100*** (0.036)	-0.000 (0.009)	0.022 (0.050)	-0.013 (0.028)	-0.023 (0.142)
R-squared	0.855	0.884	0.782	0.681	0.531	0.480	0.505
Observations	250	250	238	238	236	236	250
N. of Firms	47	47	47	47	47	47	47
Outcome Pre-Reform Mean	195.362	5.108	0.181	0.041	0.234	0.193	0.349
Diff Coeff. P-Value	0.725	0.931	0.188	0.888	0.918	0.690	0.991
Firm FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X
Clustering	firm	firm	firm	firm	firm	firm	firm

Note: This Table summarizes the results on the effect of the reform on volume and quality of tax disclosure and on tax planning. In panel A (B) the sample is restricted to firms with above (below) median pre-treatment CSR rating. The dependent variable is displayed at the top of each column, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. In all columns we control for: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following and Return Volatility. Columns (3)-(4) have fewer observations than columns (1)-(2) because zero tax strategy sentences lead to missing observations for the Boilerplate and Specificity measures. To test for the difference in statistical significance of the interaction coefficients on treated times post dummies between the two sub-samples, we estimate a triple difference-in-differences regression, as follows: $ReformOutcomes_{it} = \alpha + \beta_1 Post_t \times TaxStrategyReport_t \times Split_i + \beta_2 Post_t \times TaxStrategyReport_t + BX_{it} + BX_{it} \times Split_i + \gamma_i Split_i + \delta_i + \varepsilon_{it}$, where $Split_i$ is a dummy equal to 1 for high media attention firms. We report the p-value of the coefficient β_1 on the triple-difference to evaluate the significance of the difference between the interaction coefficients in the split sample analysis. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table G3: The Effect of Mandatory Qualitative Tax Disclosure Regulation by Pre-Reform Tax Aggressiveness

<i>Dep.Var.</i>	(1) Tax Strategy Words	(2) Tax Strategy Sentences	(3) Boilerplate	(4) Specificity	(5) Cash ETR	(7) Book ETR	(8) Law/Mills Measure
Panel A: Pre-Reform Low Tax Aggressiveness							
Treated × Post	62.100* (35.000)	1.523** (0.764)	0.057 (0.036)	0.003 (0.005)	-0.005 (0.040)	-0.020 (0.030)	-0.005 (0.081)
R-squared	0.787	0.843	0.730	0.625	0.421	0.547	0.483
Observations	673	673	611	611	616	617	673
N. of Firms	125	125	119	119	127	127	125
Outcome Pre-Reform Mean	176.539	4.470	0.223	0.041	0.358	0.268	0.325
Panel A: Pre-Reform High Tax Aggressiveness							
Treated × Post	95.912*** (33.828)	2.036** (0.818)	0.060** (0.029)	0.004 (0.006)	0.010 (0.022)	0.009 (0.018)	-0.018 (0.092)
R-squared	0.816	0.854	0.709	0.402	0.430	0.416	0.489
Observations	510	510	452	452	489	490	510
N. of Firms	81	81	78	78	85	85	81
Outcome Pre-Reform Mean	192.096	4.491	0.181	0.040	0.099	0.160	0.266
Diff Coeff. P-Value	0.487	0.646	0.950	0.883	0.732	0.406	0.913
Firm FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X
Clustering	firm	firm	firm	firm	firm	firm	firm

Note: This Table summarizes the results on the effect of the reform on volume and quality of tax disclosure and on tax planning. In panel A (B) the sample is restricted to firms with above (below) median pre-treatment Cash ETR. The dependent variable is displayed at the top of each column, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. In all columns we control for: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following and Return Volatility. Columns (3)-(4) have fewer observations than columns (1)-(2) because zero tax strategy sentences lead to missing observations for the Boilerplate and Specificity measures. To test for the difference in statistical significance of the interaction coefficients on treated times post dummies between the two sub-samples, we estimate a triple difference-in-differences regression, as follows: $ReformOutcomes_{it} = \alpha + \beta_1 Post_{it} \times TaxStrategyReport_{it} \times Split_{it} + \beta_2 Post_{it} \times TaxStrategyReport_{it} + BX_{it} + BX_{it} \times Split_{it} + \gamma_i Split_{it} + \delta_i + \varepsilon_{it}$, where $Split_{it}$ is a dummy equal to 1 for high media attention firms. We report the p-value of the coefficient β_1 on the triple-difference to evaluate the significance of the difference between the interaction coefficients in the split sample analysis. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table G4: The Effect of Mandatory Qualitative Tax Disclosure Regulation by Firms With/Without Pre-Reform ETR Increase

<i>Dep.Var.</i>	(1) Tax Strategy Words	(2) Tax Strategy Sentences	(3) Boilerplate	(4) Specificity	(5) Cash ETR	(7) Book ETR	(8) Law/Mills Measure
Panel A: Pre-Reform ETR Increase							
Treated × Post	87.09** (41.15)	1.856** (0.899)	0.028 (0.032)	0.003 (0.006)	-0.061 (0.0390)	-0.011 (0.031)	-0.082 (0.103)
R-squared	0.766	0.809	0.663	0.507	0.519	0.560	0.522
Observations	507	507	457	457	435	436	507
N. of Firms	87	87	84	84	86	86	87
Outcome Pre-Reform Mean	153.572	3.701	0.185	0.036	0.287	0.259	0.313
Panel A: No Pre-Reform ETR Increase							
Treated × Post	63.11** (30.58)	1.452** (0.731)	0.086*** (0.031)	0.004 (0.005)	0.035 (0.030)	0.005 (0.021)	0.0166 (0.0780)
R-squared	0.816	0.870	0.760	0.568	0.473	0.473	0.466
Observations	676	676	606	606	670	671	676
N. of Firms	119	119	113	113	126	126	119
Outcome Pre-Reform Mean	208.438	5.071	0.228	0.046	0.196	0.188	0.279
Diff Coeff. P-Value	0.639	0.727	0.201	0.844	0.055	0.670	0.444
Firm FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X
Clustering	firm	firm	firm	firm	firm	firm	firm

Note: This Table summarizes the results on the effect of the reform on volume and quality of tax disclosure and on tax planning. In panel A (B) the sample is restricted to firms with (no) pre-treatment increase in the Cash ETR. The Cash ETR increase is calculated based on the difference in the two-year mean Cash ETR in the last two years pre-reform (2014-2015) and the 2010-2011 mean Cash ETR, which denote the years around the first public shaming campaigns of UK companies. The dependent variable is displayed at the top of each column, respectively. Treated denotes a dummy equal 1 for firms that are required by Schedule 2019 of the Finance Act 2016 to publish a tax strategy report. Post denotes dummy equal 1 for all periods from 2016. In all columns we control for: Size, Leverage, Age, Geographic Complexity, Loss, Market-to-Book Ratio, Standard Deviation of Sales, Analyst Following and Return Volatility. Columns (3)-(4) have fewer observations than columns (1)-(2) because zero tax strategy sentences lead to missing observations for the Boilerplate and Specificity measures. To test for the difference in statistical significance of the interaction coefficients on treated times post dummies between the two sub-samples, we estimate a triple difference-in-differences regression, as follows: $ReformOutcomes_{it} = \alpha + \beta_1 Post_t \times TaxStrategyReport_t \times Split_i + \beta_2 Post_t \times TaxStrategyReport_t + BX_{it} + BX_{it} \times Split_i + \gamma_i Split_i + \delta_i + \varepsilon_{it}$, where $Split_i$ is a dummy equal to 1 for high media attention firms. We report the p-value of the coefficient β_1 on the triple-difference to evaluate the significance of the difference between the interaction coefficients in the split sample analysis. All variables are defined in Appendix A. Standard errors are clustered at firm level and are reported in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table H1: Firm characteristics: comparing the quality of disclosure in annual reports and tax strategy reports,

Panel A: Specificity differences

	Low Specificity Difference	High Specificity Difference	Difference
Cash ETR	0.281	.282	-0.002
Size	13.518	13.058	0.461***
Leverage	0.156	.195	-0.038*
Age	2.924	3.156	-0.233***
GEO Complexity	0.629	18.069	-17.441
Loss Firm	0.090	.09	0
MTB Ratio	1.800	1.756	0.044
Sales Volatility	10.577	10.356	.221***
Analyst Following	1.929	1.8	0.129**
Media Attention	37.733	29.416	8.318***
Board Tax/Acc	0.234	.27	-0.036***
CSR Rating	0.470	.401	0.069***
B2C Industry	0.798	.914	-0.116***
Words (TSR)	771.940	838.816	-66.876
Sentences (TSR)	41.300	44.279	-2.978
Boilerplate (TSR)	0.254	.275	-0.021***
Specificity (TSR)	0.073	.12	-0.046***
Words (AR)	436.618	294.133	142.485***
Sentences (AR)	10.927	7.262	3.665***
Boilerplate (AR)	0.142	.151	-0.01
Specificity (AR)	0.049	.035	0.014***

Panel B: Boilerplate differences

	Low Boilerplate Difference	High Boilerplate Difference	Difference
Cash ETR	0.287	.276	0.011
Size	13.372	13.206	0.166
Leverage	0.171	.179	-0.009
Age	3.026	3.054	-0.028
GEO Complexity	17.680	1.018	16.663
Loss Firm	0.099	.082	0.017
MTB Ratio	1.695	1.863	-0.169
Sales Volatility	10.496	10.438	0.058
Analyst Following	1.906	1.826	0.081
Media Attention	37.150	29.963	7.188**
Board Tax/Acc	0.237	.266	-0.029**
CSR Rating	0.440	.434	0.005
B2C Industry	0.880	.833	0.047
Words (TSR)	803.859	806.897	-3.038
Sentences (TSR)	44.773	40.807	3.966
Boilerplate (TSR)	0.240	.289	-0.05***
Specificity (TSR)	0.092	.102	-0.009***
Words (AR)	416.524	314.228	102.296***
Sentences (AR)	10.635	7.554	3.082***
Boilerplate (AR)	0.151	.142	0.01
Specificity (AR)	0.043	.041	0.002

Note: This Table describes the firm-level characteristics of treated firms. Here, we compare firm characteristics for all of the 75 treated firms with tax strategy reports of which 69 are included in the final regression sample. Panel A, provides descriptive characteristics for firms with low and high differences in specificity between disclosure in tax strategy reports and annual reports. Panel B, provides descriptive characteristics for firms with low and high differences in boilerplate between disclosure in tax strategy reports and annual reports. We measure firm characteristics and disclosure characteristics in the annual report (AR) over the period 2013-2019. We measure disclosure characteristics for the tax strategy report (TSR) in 2019. High (low) specificity/boilerplate difference means above (below) median level specificity/boilerplate difference. *** p<0.01, ** p<0.05, * p<0.1. All variables are defined in Appendix A.



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