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How do investors value the publication of tax information? Evidence from the European public country-by-country reporting

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Abstract

We examine the costs associated with public disclosure, as opposed to confidential reporting, of tax country-by-country reporting (CbCR) information. Our study addresses a critical knowledge gap, considering the growing adoption of public tax transparency measures. We aim to illuminate this matter by examining the expected costs for firms of making previously confidential CbCR information publicly available. The fact that the information was previously confidentially reported to the tax authorities allows us to assess the cost of publication in isolation. Employing an event study methodology, we provide early evidence on the capital market reaction to this new requirement on a sample of European firms falling within its scope. We document a significantly negative cumulative average abnormal return of EUR 47 billion to 64 billion for up to 3 days following the announcement. Additional cross-sectional results suggest that concerns about the reputational costs arising from public scrutiny and the proprietary costs from disclosing sensitive business information outweigh the potential benefits of an extended information environment from an investor perspective. Our findings highlight that the public disclosure of tax information imposes significant—and likely unintended—costs from a firm perspective. This aspect should be carefully considered when developing tax transparency measures.

KEYWORDS
country-by-country reporting, event study, tax avoidance, tax disclosure, tax transparency

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Comment les investisseurs évaluent-ils la publication des informations fiscales? Données issues des déclarations publiques pays par pays en Europe

Résumé

Les auteurs analysent les couts associés à la publication des déclarations fiscales pays par pays, par rapport à celles restant confidentielles. Cette étude vise à combler une lacune majeure en matière de connaissances, compte tenu de l'adoption croissante de mesures publiques de transparence fiscale. Les auteurs cherchent à éclairer sur la question en analysant les couts anticipés par les entreprises liés aux informations, auparavant confidentielles, sur les déclarations publiques pays par pays. Le fait que les informations aient été communiquées précédemment de façon confidentielle à l'administration fiscale permet d'évaluer le cout de la publication de manière isolée. En utilisant une approche évènementielle, ils fournissent des données préliminaires sur la réaction des marchés financiers à cette nouvelle exigence pour un échantillon d'entreprises européennes concernées. Ils constatent un rendement anormal moyen cumulé considérablement négatif allant de 47 à 64 milliards d'euros jusqu'à trois jours après l'annonce. D'autres résultats transversaux suggèrent que les préoccupations concernant la réputation due au contrôle public et les couts exclusifs liés à la divulgation d'informations commerciales confidentielles l'emportent sur les avantages potentiels d'un environnement informationnel plus global du point de vue de l'investisseur. Les conclusions des auteurs soulignent que la publication des informations fiscales entraine des couts importants – et probablement involontaires – pour les entreprises. Cet aspect devrait être pris en compte de manière attentive lors de l'élaboration de mesures de transparence fiscale.

MOTS-CLÉS

communication d'informations fiscales, déclaration pays par pays, étude de cas, évasion fiscale, transparence fiscale

1 | INTRODUCTION

Over the last decade, the revelation of so-called aggressive tax planning strategies of multinational enterprises (MNEs) has created considerable pressure for politicians to prevent harmful tax practices. The OECD has identified the lack of information about sophisticated tax arrangements as a major impediment to tax enforcement (OECD, 2015). It has also proposed measures in its final action plan on base erosion and profit shifting (BEPS) that aim to increase corporate tax transparency. Increasing tax transparency has thus gained momentum worldwide, with an accelerating number of newly introduced tax transparency measures over recent years. This momentum is strongly driven by the perception

that firms should be held accountable for paying their fair share of taxes where they operate.

The individual design elements of tax transparency measures are manifold, encompassing the reported content, the issuer of the information, and, most fundamentally, the disclosure format (i.e., confidential reporting to authorities or public disclosure). As Müller et al. (2020) conclude, each of these elements has costs and benefits. Understanding their effects is therefore of outstanding importance. Yet empirical evidence on the individual elements of tax transparency remains sparse. This study fills that void, exploiting a unique setting that allows us to disentangle the cost of the publication of information from potentially confounding cost factors. Our study thus provides novel and early insights into the costs and benefits for firms resulting from the most fundamental design element: *public* tax transparency. Our main results indicate that mandatory public tax disclosure imposes substantial costs on firms.

To examine these costs, we exploit the European Union's (EU) surprising announcement of a provisional agreement to turn a currently prevailing confidential reporting scheme—so-called country-by-country reporting (CbCR)—into a public disclosure scheme. We analyze the capital market reaction to this announcement and assess changes in stock prices, as they reflect investors' aggregated assessment of the change's effects on affected firms. The advantage of our setting is that the content of the public reports was already available to national tax authorities.[1] This implies that investor reactions are unlikely attributable to increased scrutiny by tax authorities[2] or compliance costs—that is, costs of preparing the reports. Thus, our setting enables the isolation of the effect of publicizing previously confidential reports. The main concerns related to public CbCR are reputational and proprietary costs.[3] Reputational costs may arise from public discussions of firms' tax planning behavior (Brühne & Schanz, 2022; Graham et al., 2014), potentially prompting adjustments to those arrangements (Dyreng et al., 2016). Public CbCR could thus dampen the future cash flows of affected firms. Proprietary costs may arise from revealing commercially sensitive information to competitors and business partners. Thus, our study aims to assess whether and to what extent investors expect reputational and proprietary costs for affected firms in the context of public CbCR.

To identify a capital market reaction to the agreement on EU-wide public CbCR, we conduct a short-term event study. Based on a sample of 687 firms subject to the scheme, we find a significant negative capital market reaction. The corresponding cumulative average abnormal returns (CAARs) range between −0.476% and −0.648% for up to 3 days following the announcement. This translates into an aggregated value decline of EUR 47.009–63.676 billion. Our results are robust to using alternative specifications and identification strategies. We conclude that investors expect reputational costs arising from public scrutiny and proprietary costs from the disclosure of sensitive business information to outweigh the potential benefits of an improved information environment.

We then disentangle the drivers of the observed overall negative investor reaction. First, we assess the impact of reputational costs by conducting cross-sectional analyses. Our findings reveal that firms more susceptible to public scrutiny see stronger market value declines, suggesting a deterrence effect. Investors anticipate that these firms will curtail their tax avoidance to protect their reputations, leading to reduced tax savings and lower after-tax cash flows. Interestingly, our findings indicate that investors share the concern over consumer backlash, despite prior literature suggesting that such a backlash is unlikely (Asay et al., 2024). Second,

[1]The affected MNEs must provide information that is even more detailed to tax authorities under the OECD's confidential CbCR (De Simone & Olbert, 2022; Joshi et al., 2020).

[2]We acknowledge that public tax disclosure may also prompt legislators to take further actions, which might result in tighter regulation or stronger enforcement by tax authorities. Still, such political costs would arise indirectly if public pressure on politicians is sufficiently high, that is, only if reputational costs materialize.

[3]In a public consultation by the OECD, the lobby group Business at OECD (2020), for example, emphasizes that "many members remain strongly opposed to any attempt to make CbC report information public, for a number of reasons, including that the reports contain commercially sensitive data."

we examine the role of proprietary costs by exploiting differences in the level of competition for our sample firms. We find significantly stronger market value declines for highly profitable firms and firms with less detailed geographic segment disclosure prior to the announcement, suggesting that investors factor in proprietary costs resulting from the public disclosure scheme. Lastly, we examine the relative importance of the two cost channels. In a combined analysis, we document that proxies for both reputational and proprietary costs remain statistically significant. This indicates that, from an investor perspective, both channels matter, without one dominating the other.

Our analyses contribute to the literature that uses capital market reactions as bellwethers for the effects of tax reforms in general (Gómez-Cram & Olbert, 2023; Klein et al., 2022) and tax transparency measures in particular (Dutt, Ludwig, et al., 2019; Johannesen & Larsen, 2016). Studies examining the investor reaction to public CbCR were based on regimes that were originally introduced as public CbCR regimes. Hence, the reaction also reflected cost channels besides those related to the mere publication of tax information. These other channels include (1) potential direct compliance costs resulting from the introduction of a new obligation, (2) higher tax payments resulting from more targeted audits through better-informed tax authorities, and (3) a potential threat of double taxation. Previous studies therefore do not isolate the effect of the particular design element *public* tax transparency. By contrast, the public CbCR scheme subject to analysis in this study requires the publication of previously confidential information. Therefore, our setting offers a rare opportunity to mitigate concerns about confounding additional costs affecting the capital market reaction.

We add to an emerging stream of literature on the discussion about public tax disclosure as a component of sustainability reporting. Our results underscore the nuanced manner in which investors assess the ramifications of increased corporate social responsibility (CSR) disclosures. Grewal et al. (2019) examine investor reactions to the passage of the EU directive on disclosure of nonfinancial information and find positive abnormal returns for firms with strong pre-regulation environmental, social, and governmental (ESG) disclosures and performance, but even stronger negative abnormal returns for firms with low pre-regulation ESG disclosure and performance. Andreicovici et al. (2022) examine an SEC disclosure rule, which requires oil and gas firms to publish details about their payments to host governments, and find a negative investor reaction that is pronounced for firms with greater reputational risks. Both studies focus on ESG reporting in general, but do not provide evidence for its individual components. In this context, our study adds more granular evidence on the role of tax transparency, which is an increasingly relevant component of ESG reporting.

Our setting ensures high external validity, making our implications relevant to similar measures under discussion by legislators and standard setters. Notably, a draft bill called the Disclosure of Tax Havens and Offshoring Act is being considered in the US Senate. Australia's Treasury has also explored tax transparency measures, including a proposal for public CbCR (Treasury, 2023). At the same time, tax transparency is a concern for standard setters, with the FASB in the United States initiating a project to enhance the usefulness of income tax disclosures (FASB, 2022). As part of this project, the FASB is contemplating a requirement for a country-by-country (CbC) breakdown of tax expenses. In addition, the most widely applied framework globally for the nonfinancial (sustainability) reporting, Global Reporting Initiative (GRI), has been augmented with a standard on taxation (GRI 207: Tax) providing for public CbCR disclosure. Given these developments, our findings provide a timely contribution for policy-making. In particular, the public reporting mandate could prompt firms to be less tax aggressive, due to potential reputational costs, thereby aligning with its objective. However, public attention might also lead to unjustified accusations stemming from low effective tax rates (ETRs), possibly resulting from legitimate factors, like loss carryforwards. Additionally, affected firms might face competitive disadvantages if competitors or business

partners are exempt from disclosure. Thus, our results imply that decision-makers should consider that affected firms may incur substantial unintended costs.[4]

The remainder of this paper is organized as follows. In Section 2, we describe the legislative process that led to the political agreement, contextualize our study against the extant literature, and develop our hypotheses. Section 3 describes our research design. In Section 4, we present, discuss, and interpret the results from our main analyses. In Section 5, we present a series of additional analyses to test the robustness of our results. Section 6 concludes.

2 | INSTITUTIONAL BACKGROUND

2.1 | Timeline of events

In its final report on Action 13, the OECD emphasized that its CbCR standard was developed to facilitate high-level risk assessments by tax authorities and that the reports should remain confidential (OECD, 2015). Despite the OECD's clear guideline, the European Commission published a first draft proposal in 2016 for the public disclosure of income tax information to complement the confidential CbCR scheme. The European Parliament supported this initiative, arguing that additional tax transparency would allow for better public monitoring of MNEs. Yet negotiations in the Council of the EU faced substantial disagreement among member states. The Finnish Council Presidency attempted to resolve the disagreement and released a compromise draft in November 2019. However, the negotiations reached a deadlock because the majority of countries disapproved.

The topic was politically revived by the Portuguese Council Presidency, which published a new compromise draft on January 13, 2021. The draft was discussed in various committees and working groups, but it was questionable whether Portugal could secure the required majority vote. The Portuguese Council Presidency invited the member states to exchange their views on the draft during an informal video conference on February 25. Although not legally binding, the outcome of this informal meeting encouraged the council to enter into inter-institutional ("trilogue") negotiations with the European Parliament and the European Commission. These formal negotiations usually take several months and may fail if the institutions do not strike a compromise. The early breakthrough after the third trilogue meeting was therefore a surprise. On June 1, 2021, the European Parliament announced a provisional agreement on the draft. This agreement constitutes our main event, since it resolved investors' longstanding uncertainty on the likelihood of a public CbCR introduction along the legislative process. Figure 1 provides a timeline of the key events leading to the announcement on June 1, 2021.

To support our main event choice, we use the Dow Jones Factiva database to measure international media attention during the legislative process (Borghesi et al., 2014; Chen et al., 2019). Figure 2 shows particularly strong media attention between June 1 and June 4, confirming our expectation. The cumulative media coverage during this period accounts for 43.1% of the overall measured coverage. The unexpected trilogue agreement was communicated on June 1, at around 9:15 p.m. (CET). Given that the major stock exchanges were closed or about to close at that time, we expect a capital market reaction to occur on June 2 at the earliest. Therefore, we identify June 2 as the event date for our analysis. Additionally, there was above-average media attention around the informal meeting on February 25 (13.5% of overall coverage), leading us to consider February 25 as an alternative event date.

[4]This study focuses on potential unintended costs for firms that must publish their reports. While there might be benefits for other stakeholders, such as increased tax revenues for governments, it is beyond the scope of this paper to assess the overall benefit of the public CbCR.

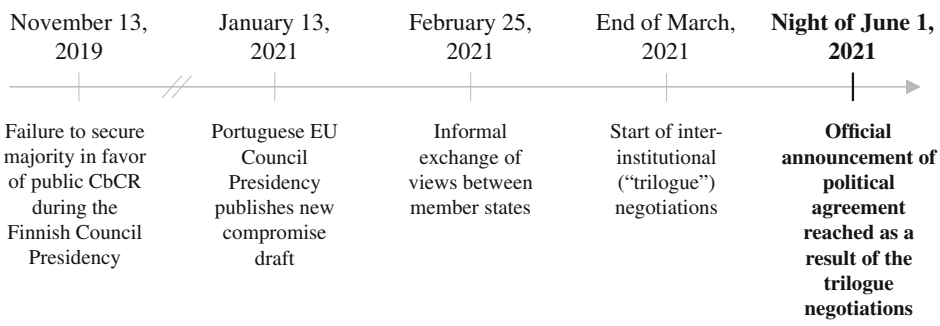

FIGURE 1 Timeline of events. The figure illustrates the timeline of key legislative events leading to the official announcement of the political agreement on public CbCR in the late evening of June 1, 2021. We briefly summarize the information for each of the events.

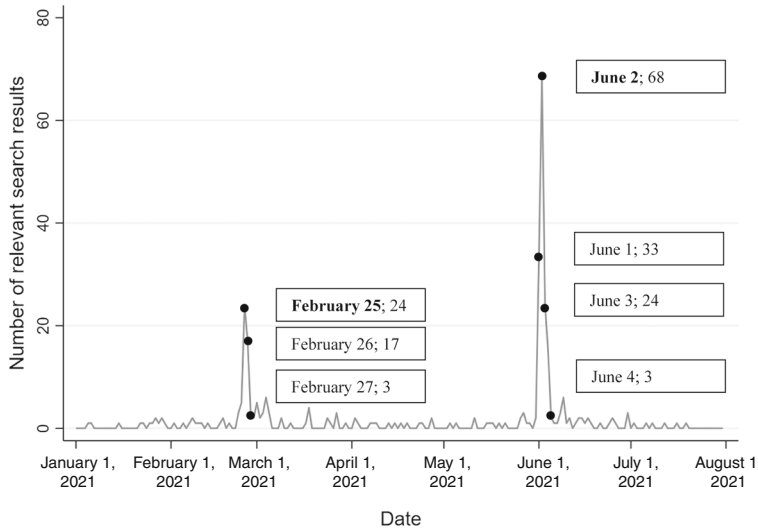

FIGURE 2 Media coverage analysis. The figure shows search results in the Dow Jones Factiva database for the term "country by country reporting" from January 1, 2021, to July 31, 2021. The initial query yielded 912 publications, of which 301 were identified as duplicates in Factiva and subsequently excluded, leaving 611 unique publications. After manual inspection of these 611 publications, 325 were related to the EU's public CbCR proposal. The graph displays two extraordinary spikes on February 25 and June 2. We note that the spike in June starts building up on June 1. However, given that the major stock exchanges were either already closed or about to close after the announcement on June 1, the graph confirms our expectation that June 2 represents a suitable event date.

2.2 | EU draft of public CbCR directive

The draft applies to large MNEs headquartered in the EU with consolidated revenues above EUR 750 million in each of the last 2 preceding financial years. Affected MNEs must disclose information on their geographic operations alongside financial items aggregated on a by-country level.[5] The requirements resemble those of the confidential CbCR scheme but with less detail. First, the geographic coverage is limited to activities in EU member states and several other jurisdictions that are blacklisted as non-cooperative jurisdictions for tax purposes

[5]The reporting obligation also applies to EU subsidiaries of non-EU multinationals if consolidated group revenues exceed the threshold.

(so-called tax havens).[6] Second, in terms of financial items, firms need not split revenues into related- and third-party revenues. Stated capital and tangible assets are not required in the public version either. The reports must be made available to the public free of charge on the firm's website or public registers within 12 months after the financial year-end. Deferrals are possible for commercially sensitive items for up to 5 years, but information on tax havens may never be omitted. In sum, the proposed reporting requirement is less comprehensive than the confidential CbCR regime. The level of detail of the public CbCR is also more limited than the voluntary sustainability reporting standard on taxation, GRI 207, which proposes a public CbCR for worldwide activities and additional financial items (Global Sustainability Standards Board [GSSB], 2019a).

The EU draft proposal significantly intensifies the tax transparency requirements and surpasses the level of detail mandated by segment reporting standard IFRS 8. In particular, public CbCR diverges from segment reporting in three main ways. First, while the EU draft proposal requires a geographic disclosure, firms can choose their segmentation approach under IFRS 8. In addition to geographic segmentation, firms may choose to segment according to business lines and product groups. If a firm opts for a nongeographic segmentation approach, it need only separately report on its country of domicile and all foreign countries in total and only in case the information can be collected at reasonable cost. Secondly, the EU draft requires country-level reporting for EU member states and tax havens, whereas IFRS 8 typically results in aggregated, regional reporting for up to 10 segments. The higher level of aggregation can be used to hide tax haven activities. Third, the two standards require different disclosure items. IFRS 8 requires only three (i.e., revenues, profit or loss, and income tax expense) of seven items required under the EU draft proposal. If a firm follows a nongeographic segment reporting approach, the common items are reduced to revenues. In summary, the EU draft proposal provides the first mandatory and cross-industry CbCR standard that requires firms to publicly disclose financial information in unprecedented detail.

2.3 | Related literature and hypotheses development

The capital market reaction to the EU's announcement depends on investors' expectations about the impact of tax transparency on the cash flows of affected firms. The reports provide novel insights on international business structures to investors and other stakeholders, including analysts, business partners, competitors, NGOs, the media, and customers. Rational investors will consider the reactions of all stakeholders when assessing the consequences of the new measure.

In principle, investors may appreciate the additional disclosure, as it helps them evaluate firm fundamentals and future cash flows (Bratten et al., 2017; Hanlon et al., 2005). Public CbCR makes available detailed information about profitability and tax payments in foreign markets. As demonstrated by Dutt, Nicolay, et al. (2019), public CbCR of banks reveal substantial worldwide profits and real activities that were largely unknown. Hence, it may enable investors to better evaluate managers' tax avoidance strategies (Frischmann et al., 2008). Tax planning can increase corporate profits and thus is in the interest of shareholders (Blaufus et al., 2019; Huesecken et al., 2018). While tax planning per se benefits investors, it might also give rise to agency conflicts if managers set up complex structures to divert private rents (Desai & Dharmapala, 2006). The agency perspective helps explain positive market reactions to increased tax enforcement (Desai et al., 2007). Similarly, public CbCR could reduce information asymmetries between shareholders and managers and allow for better monitoring of firm insiders.

[6]By the time of the announcement, the blacklist included mostly small Pacific islands, but more prominent countries, like Turkey and Australia, were under review; see Council of the European Union (2021).

Several NGOs and investors supported the inclusion of a public CbCR in the new GRI reporting standard on taxation, highlighting that CbCR can provide valuable information for evaluating firms' sustainability performance and its implications for the firm value (GSSB, 2019b). While the comments may not be fully representative, they reflect the growing demand for nonfinancial disclosure among risk-averse and image-conscious investors (Jones, 2021). Notably, in early 2022, institutional investors pressed Amazon to enhance tax transparency, urging public CbCR in accordance with the GRI standard (Shibu, 2022), which is more extensive than the EU draft proposal. Similar efforts were seen with Cisco and Microsoft, signaling a potential trend among institutional investors (White, 2022). As Baker et al. (2022) document, investors are willing to pay higher prices for and accept lower returns from ESG-oriented equity instruments. Consequently, higher (imposed) tax transparency may please investors and render affected firms more attractive investment targets.

Yet, even if all investors appreciate the additional information, they might conclude that the disclosure will be costly for affected firms. Friedman's (1970) shareholder theory posits that managers act as agents of shareholders, suggesting that firms would voluntarily disclose CbCR if doing so increased firm value. However, evidence from EU sustainability reporting shows that firms hesitate to voluntarily disclose public CbCR (Kopetzki et al., 2023). Grewal et al. (2019) examine the passage of the nonfinancial reporting directive in the EU and show that stock prices decline significantly, suggesting that the disclosure mandate will result in net costs for affected firms.[7] Taken together, we therefore expect that investors perceive the additional disclosure as (net) costly, and hypothesize as follows:

> **Hypothesis 1 (H1).** The capital market responds negatively to the political agreement on public CbCR for large European MNEs.

The empirical results of Grewal et al. (2019) imply that the negative reaction is mainly attributable to proprietary and reputational costs. Their findings are corroborated by recent survey evidence from Brühne and Schanz (2022), who document that reputational risks are among the most important tax risk factors for tax practitioners. Hence, both cost channels might also be relevant in the context of public CbCR.

Reputational risks and public pressure help determine corporate tax strategies (Austin & Wilson, 2017; Graham et al., 2014). Dyreng et al. (2016) find that UK firms reduce the level of tax avoidance following public scrutiny of their disclosures led by an activist group. Such adjustments decrease after-tax profits and shareholder wealth if alternative schemes cannot sustain the tax savings. Under public CbCR, activists or the media could use the tax information in the reports to pressure firms to pay their "fair share." In fact, holding firms publicly accountable for their tax payments has been an explicit goal of the measure (European Parliament, 2019). If investors predict that public CbCR will increase the probability of public pressure and cause firms to adjust their tax planning strategies, we should observe a negative reaction around the event. At the same time, a common criticism regarding public CbCR is that the public cannot interpret the data. Experimental evidence by Diernyck et al. (2022) supports this notion, suggesting that public CbCR does not significantly improve the ability of retail investors to judge the disclosers' tax aggressiveness. Misinterpretations, in turn, may lead to unjustified reputational costs (D'Avino, 2016; Forstater, 2017; Fuest et al., 2013). Investors' considerations of potential consumer reactions also align with the theoretical framework proposed by Hanlon and Slemrod (2009). Potential consumer backlash is among the five factors identified by them as influencing investor reactions to news about tax sheltering. While being subject to the EU draft proposal does not inherently imply engagement in tax sheltering, the

[7]However, Grewal et al. (2019) document positive investor reactions for firms that had good CSR performance and a voluntary reporting scheme prior to the directive.

announcement of public CbCR increases the probability of heightened public scrutiny. Consequently, we expect investors to consider the reputational cost of affected firms, and hypothesize as follows:

> **Hypothesis 1a (H1a).** The capital market responds more negatively to firms with higher reputational risks.

The risk of proprietary costs arises from the disclosure of commercially sensitive information in CbC reports. Non-EU competitors may learn about the geographic exposure and profitability of their rivals. Similarly, suppliers and clients benefit from insights into the international value chains of their partners. In the case of public CbCR, the discussion revolved around the question of whether the disclosures could reveal legally protected trade secrets and thus lead to competitive distortions if only a selected group of firms had to disclose (Cockfield & MacArthur, 2015; D'Avino, 2016; Dutt et al., 2021; Evers et al., 2014; Forstater, 2017). Direct evidence on proprietary costs is scant, but recent studies suggest that proprietary costs are responsible for reduced voluntary corporate disclosure in competitive markets (Ellis et al., 2012; Huang et al., 2017). In the context of geographic segment reporting, empirical evidence suggests that growing firms are less likely to provide voluntary segment disclosures (Prencipe, 2004) and that firms aggregate financial items for growing and profitable regions (Leung & Verriest, 2019). These findings confirm the importance of proprietary costs in limiting the incentive for firms to provide geographically disaggregated information to the capital market. Correspondingly, we expect investors to consider the proprietary cost of affected firms, and hypothesize as follows:

> **Hypothesis 1b (H1b).** The capital market responds more negatively to firms with higher proprietary risks.

Two related studies analyze capital market reactions to the introduction of industry-specific CbCR initiatives in the EU. Johannesen and Larsen (2016) examine firms' stock prices in extractive and logging industries. They document strong decreases in firm value, but do not test for potential drivers of the overall effect. In contrast, Dutt, Nicolay, et al. (2019) find no significant market response to the introduction of a public CbCR for banks. Both studies suggest that increased tax transparency reduces tax avoidance opportunities, supported by evidence of reduced profit shifting by banks following the introduction of public CbCR (Eberhartinger et al., 2021; Joshi et al., 2020; Overesch & Wolff, 2021).

The main difference between our setting and the two industry-specific CbCR regimes is that tax authorities had no information about foreign activities and tax payments prior to the publication of the industry-specific reports. The results above imply that the authorities may have used the reports for unilateral transfer pricing adjustments. However, in our setting, the disclosed reports should not reveal any additional information to tax authorities. Therefore, we argue that investors should not anticipate reductions in future cash flows because of better-informed tax authorities or material direct costs from preparing the reports. Thus, absent this mechanism, we analyze whether the costs of a publication of CbC reports (i.e., reputational or proprietary costs) still outweigh the benefits of reduced information asymmetry, from an investor perspective.

In that sense, our analysis also relates to the setting of Hoopes et al. (2018), who examine a tax disclosure rule that mandated the Australian Taxation Office (ATO) to disclose taxable income and taxes payable for large public Australian and foreign-owned firms. Their analysis shows that stock prices of affected firms significantly decline around the enactment of the law for firms with presumably the highest public scrutiny. Building on these insights, Kays (2022) shows that firms are more likely to issue preemptive and supplemental information when managers believe that the information disclosed by the ATO will result in reputational costs. Both studies imply managers and investors anticipate reputational costs from ATO disclosure, akin to potential considerations

for public CbCR. Nevertheless, public CbCR's broader scope, requiring the disclosure of various metrics on economic activities and profitability on a CbC basis, could make the reports informative to competitors and clients, creating additional costs for affected firms.

3 | RESEARCH DESIGN

3.1 | Baseline analysis

To analyze the capital market reaction to the EU announcement, we examine the stock returns of affected firms. We identify our sample firms based on the scope of the EU draft proposal, using Bureau van Dijk's (BvD) Orbis database. Specifically, we require sample firms to exceed the turnover threshold of EUR 750 million in their last two available reporting periods. We also require them to be active and publicly listed. To ensure timely data, we exclude firms whose last available reporting year is prior to 2019. Furthermore, we require firms to be headquartered within the EU to ensure that they are within the scope of the draft proposal. We exclude firms that operate either in the extractive and logging industries or in banking, as they are already subject to industry-specific public CbCR regimes. We merge the resulting 731 firms with the Thomson Reuters EIKON database to obtain accounting data from Worldscope and stock market information from Datastream. We lose 34 firms whose stock returns were not available in Datastream throughout the entire sample period.[8] We retrieve return information for our treatment firms and the benchmark portfolio from Datastream for the period starting January 1, 2020, and ending June 17, 2021, resulting in stock return information on 382 trading days for each firm. We use Datastream's Total Return Index (RI),[9] which represents a theoretical value growth by assuming that dividends are reinvested. Due to the international scope of our sample, we consider the MSCI World to be the most suitable available proxy for the market portfolio. The MSCI World is a global stock index that tracks the performance of more than 1,600 firms from 23 countries. The firms in our sample account for 10.8% of the MSCI World by value, mitigating concerns that treatment firms considerably affect the return of the benchmark portfolio.

Figure 2 shows that the high media attention for the main event lasts until June 4, before reverting to the average level. Therefore, we expect a reaction to occur within 3 days—that is, our event day, June 2, and 2 subsequent days, at most. Given that the event study methodology is more powerful for short-term event windows,[10] we apply a 2-day (0, 1) and a 3-day (0, 2) event window for our analyses. We thus allow capital markets to impound the reactions into firms' stock prices (Grewal et al., 2019). For the estimation period, we follow Johannesen and Larsen (2016) and Dutt, Ludwig, et al. (2019) and use a 1-year period ending 6 days before the respective events.[11] We only keep firms with at least 70% nonzero returns in our estimation and event period to ensure that sample firms are actively traded to mitigate difficulties during the estimation of the market model (Dutt, Ludwig, et al., 2019). Lastly, we exclude firms that made an earnings announcement within a (−2, 2) window around the event date to account for potential confounding news reflected in the stock price reaction. Our procedure yields a final sample of 687 treatment firms. Table 1, Panel A, provides a detailed overview of our selection process. Panel B provides a breakdown by country.

[8]This results from either a change in a firm's International Securities Identification Number (e.g., due to stock splits or stock conversions) or the occurrence of an initial public offering during the sample period.

[9]The index value RI is calculated using a method in which the discrete quantity of dividend paid is added to the price on the ex-dividend date; that is, $RI_t = RI_{t-1} \times (p_t/(p_{t-1}))$, where p_t equals the price on date t and p_{t-1} equals the price on the previous date. If t equals the ex-date of dividend payment D_t, the method adjusts as follows: $RI_t = RI_{t-1} \times ((p_t + D_t)/(p_{t-1}))$.

[10]The strength of a short-term event study is that it allows isolation of the capital market reaction. The risk of picking up confounding news in the stock prices increases for longer windows; see Kothari and Warner (2007).

[11]To test the robustness of our results, we also employ a short-term estimation period of 3 months in Section 5 and find that our results are robust to alternative estimation period specifications.

To identify the overall capital market reaction (H1), we use the event study design of Thompson (1985) and Eckbo (2007), assuming the Sharpe-Lintner Capital Asset Pricing Model to be the applicable return-generating process. In particular, we follow the approach described by Doidge and Dyck (2015) and estimate the magnitude of abnormal returns based on the stock price development of a suitable benchmark (i.e., market) portfolio. This approach is well established and continuously applied in the recent literature (Kajüter et al., 2019). Hence, we use the following regression model to estimate the abnormal returns of affected firms:

$$r_{it} = \alpha + \beta r_{mt} + \gamma Event_t + \varepsilon_{it}, \quad (1)$$

where r_{it} is the realized return of firm i on trading day t, r_{mt} is the realized return of the benchmark portfolio (i.e., in our main analysis the MSCI World), and $Event_t$ is a dummy variable indicating trading days within the event period. ε_{it} is the error term and captures all effects that are not included in the model. The constant α represents an estimate for the alpha of an equally weighted portfolio of our treatment firms, and β is an estimate for the portfolio's market beta. γ represents an estimate for the average abnormal return during the event window and is therefore our coefficient of interest. To compute the CAAR, we multiply γ by the number of days in our event window (Doidge & Dyck, 2015; Klein et al., 2022).

3.2 | Heterogeneity analysis on cost channels

To explore the role of reputational (H1a) and proprietary costs (H1b) as potential drivers of the overall capital market reaction, we adjust our model as follows:

$$r_{it} = \alpha + \beta r_{mt} + \gamma Event_t + \varphi \boldsymbol{I}_i + \delta \boldsymbol{I}_i \times Event_t + \varepsilon_{it}, \quad (2)$$

where $\boldsymbol{I}_i$ is the vector of firm-specific indicator variables. $\boldsymbol{I}_i \times Event_t$ is the interaction term of the indicator vector $\boldsymbol{I}_i$ and the dummy variable that indicates trading days within the event window. All other variables are as explained in Equation (1). The new coefficient of interest is the coefficient of the interaction vector δ. The indicator variables denote different levels (i.e., high vs. low) of reputational and proprietary costs. Our choice of measures is based on the extant literature, as we explain in the following section. The Appendix provides details on the computation of the individual measures and the respective data sources.

3.2.1 | Identification of reputational costs

The most common proxy for the displayed level of corporate tax avoidance is the ETR of a firm (Hanlon & Heitzman, 2010). We assume that investors consider firms with lower ETRs as potentially more tax aggressive and therefore more likely to face greater public scrutiny. Furthermore, several empirical studies document a tax-driven allocation of intangible assets within a multinational corporation (Dischinger & Riedel, 2011; Griffith et al., 2014; Heckemeyer et al., 2014; Karkinsky & Riedel, 2012). Thus, we argue that a higher intangible-to-total-asset ratio indicates more sophisticated tax planning potential (as opposed to the displayed level of tax avoidance). Beyond these two measures, we argue that firms with higher salience to consumers receive more public attention than other firms. Consumer salience refers to the degree to which a firm's products or services are recognizable and accessible to end consumers in the marketplace. Therefore, in line with Dutt, Ludwig, et al. (2019), we examine the difference in the effect size along the consumer proximity of firms. Based on their primary SIC classification, we define *B2C* as a dummy variable that assumes the value of one for firms operating in

TABLE 1 Sample selection and geographical composition.

Panel A: Sample selection process	
Search step	**Search result**
All active firms in Orbis	288,485,396
Require firms to be publicly listed	(288,397,152)
Require firms to exceed EUR 750 million in turnover in their last 2 available years	(81,710)
Require firms to have financial data available until at least 2019	(19)
Exclude non-EU-based firms	(5,685)
Exclude firms in the extractive and logging industry	(16)
Exclude firms in the banking sector	(83)
Exclude firms whose stock returns were not available throughout the whole sample period	(34)
Require at least 30% of nonzero returns in the sample period	(6)
Exclude firms with earnings announcements within (−2, 2) window around the event	(4)
Final treatment sample	687

Panel B: Geographical sample composition		
Country	**Frequency**	**Percent of total**
Austria	20	2.91
Belgium	26	3.78
Cyprus	6	0.87
Czech Republic	2	0.29
Germany	129	18.78
Denmark	26	3.78
Spain	44	6.40
Finland	37	5.39
France	128	18.63
Greece	7	1.02
Croatia	2	0.29
Hungary	3	0.44
Ireland	34	4.95
Italy	53	7.71
Luxembourg	23	3.35
Malta	1	0.15
The Netherlands	51	7.42
Poland	27	3.93
Portugal	9	1.31
Romania	2	0.29
Sweden	54	7.86
Slovenia	3	0.44
Total	687	100.00

Note: The table details the selection and composition of our sample of affected firms. Panel A describes the sample selection process. The EU draft proposal affects firms exceeding a turnover threshold of EUR 750 million in 2 consecutive years. The term "turnover" in the table refers to the Orbis variable "Operating Revenue (Turnover)." Firms without data in reporting years 2019–2021 are excluded to ensure temporal relevance. Non-EU-based firms are excluded, as they are only subject to a reduced disclosure obligation under the draft proposal (i.e., they are only required to disclose their business activities within, but not outside of the EU on a CbC basis). Extractive and logging firms (NACE 0110–0322 and 0510–0990), as well as banks (NACE 6411–6499 and 6611–6630), are excluded as they are subject to an industry-specific EU CbCR regime. To mitigate difficulties resulting from the estimation of the market model with a high zero-return ratio, we require at least 30% of nonzero return days (Dutt, Ludwig, et al., 2019). Firms with earnings announcements within a (−2, 2) window around the event date are excluded to mitigate the impact of potential confounding events. Panel B shows a breakdown of sample firms by headquarter locations.

industries with higher salience to consumers (e.g., motor vehicle manufacturing; SIC code 3711) and zero for firms operating in less salient industries (e.g., aluminum sheet, plate, and foil manufacturing; SIC code 3353). Finally, we acknowledge that investors perceive a firm's tax strategy as a material part of its overall sustainability performance. We posit that firms with a weak pre-regulation ESG performance might receive more public scrutiny, as their additional CbCR disclosure is more informative about their commitment to responsible tax behavior. Thus, investors might expect higher reputational costs for weak ESG firms (Grewal et al., 2019). We obtain Refinitiv's ESG scores from Datastream and focus on the governance pillar score, as taxes and CbCR are most likely attributed to this category.[12] The governance pillar score reflects the weighted average rating of a firm based on the reported governance information and ranges from 0 to 100. We drop firms with negative pretax income, as the cash ETR is otherwise difficult to interpret (Bilicka et al., 2022; Dyreng et al., 2017; Robinson et al., 2010). To reduce the impact of outliers, we winsorize the ETR and the intangible-to-total-assets ratio at zero and one (Chyz et al., 2019; Joshi, 2020; Joshi et al., 2020). Except for the hand-allocated *B2C* classification, we assign our sample firms into terciles with regard to the remaining three variables. We then define a dummy variable that assumes the value of one for firms in the first tercile (*ETR* and *ESG Score*) and in the third tercile (*Intangibles*). Following our argumentation, we assert that these firms are more prone to reputational costs.[13]

3.2.2 | Identification of proprietary costs

For our first set of proprietary cost measures, we argue that the cost of disclosing proprietary information is highest for firms facing high levels of competition. One of the most established (static) metrics to measure the level of competition is the Herfindahl–Hirschman Index (HHI) (Borenstein et al., 1999; Francis et al., 2013). The HHI measures industry concentration by incorporating the relative market shares of all firms. Higher values indicate a higher concentration of market shares within a given industry and thus less competition. The second (dynamic) competition measure is derived from Porter's Five Forces Model, in which the threat of entry determines the rivalry within an industry (Porter, 1980). Our approach resembles that of Buijink et al. (1998) but accounts both for market entries and exits. More precisely, we calculate the growth rate in the number of competitors for each industry. Industries with high growth rates are considered more competitive. In the absence of characteristics to delineate product markets, it is important to note that our competition proxies rely on industry classifications, which are broader than product markets. Besides the competitive environment, the prevailing level of transparency is crucial. Firms with detailed geographic segment disclosures are likely to face lower proprietary costs under the new disclosure requirement, as the additional insights are limited. We proxy the level of detail of the geographical segment reporting by the number of data points in the geographic segment report, multiplying the number of items by the number of geographical segments. Our last indicator for proprietary costs is medium-term profitability. The rationale is that profitable firms have a competitive advantage that allows them to generate excess rents over a long period. We posit that the new disclosure requirement is more harmful for highly profitable firms, as they must reveal their organizational structure and sources of profitability in foreign markets. To proxy for profitability, we use their 5-year average return on assets ratios.

[12]Kopetzki et al. (2023) find, for a sample of large listed EU firms, that the vast majority included taxes under the governance pillar in their 2020 and 2021 sustainability reports. The coefficient maintains its negative sign even when we substitute the Governmental Pillar Score with the total ESG score.

[13]Considering the model of Hanlon and Slemrod (2009), we acknowledge that *ESG Score* plays a dual role. A negative investor reaction for poorly governed firms indicates that potential reputational costs outweigh the prevention of rent diversion, whereas a positive investor reaction indicates the opposite.

For our heterogeneity analyses, we require firms to have complete information for all indicator variables of the two cost channels available, resulting in a subsample of 399 firms. Consistent with our procedure for the reputational cost variables, we allocate our sample firms into the respective tercile with regard to the four proprietary cost proxies. The respective dummy variable assumes the value of one for firms in the first tercile (*HHI*, *Geo Seg*) and, respectively, in the third tercile (*Competitor Growth*, *ROA5*).[14] We estimate Equation (2) using the parameter values from our baseline analysis. Table 2, Panel A, provides summary statistics for our sample firms. The average daily stock return is 0.17%, slightly above the average daily return of the MSCI World (0.10%). The minimum turnover of EUR 750 million implies at least one firm near the reporting threshold. The median firm accounts for a turnover of EUR 2.75 billion, along with a profitability of 5.44% and an ETR of 23.74%.

4 | RESULTS

4.1 | Main findings

Table 3, Panel A, presents our main results. In both specifications, we use the 1-year period estimation window (−266, −6) and cluster standard errors on both firm level and trading day level. Column 1 depicts the results of our baseline analysis. For the 2-day event window (0, 1), we find that the average sample firm experiences an abnormal return of −0.476%, statistically significant at the 1% level. Our regression results further indicate a market beta of 0.672 and a portfolio alpha of 0.107.

Column 2 shows our regression results using a 3-day event window (0, 2). We find that the average firm has an abnormal return of −0.648%. Estimates for the market beta and portfolio alpha are unaffected by this change, both in terms of magnitude and statistical significance. Taken together, these results confirm H1, as we find a negative capital market response to the political agreement on a public CbCR for large European firms.

Next, we analyze the alternative event on February 25, 2021. As in our analysis of the main event, we use (0, 1) and (0, 2) as event windows. The results are depicted in Table 3, Panel B. We find positive CAARs for both event windows, amounting to 0.820% and 0.522%, respectively. In both cases, however, the estimates are statistically insignificant. After manually inspecting the articles from the media attention analysis, the insignificant result appears plausible. First, the agreement in February was only preliminary and unofficial, which is also reflected in the media reports. Second, smaller and local media, with limited target audiences, tended to pick up the agreement in February. Except for *The Guardian*, we could not identify any outlets with international target audiences around the alternative event in February. In contrast, the main event in June is also covered by outlets like *The Financial Times* and *Shanghai Daily*. Moreover, the European Parliament published a press release on June 1.

In sum, we find a negative average investor reaction to the EU's announcement of a public CbCR regime in our main analysis. From an investor's perspective, the associated costs seem to exceed the benefits. Our findings are consistent with the notion that the *public* disclosure of the previously confidential CbCR will be a net cost for EU MNEs. These findings comport with the results of Johannesen and Larsen (2016), who document a negative investor response for the introduction of public CbCR in the extractive sector. The smaller effect size of our estimations is likely due to the differences in the CbCR regimes. The regime for the extractive sector was

[14]Table 2, Panel B, provides a correlation matrix. Within the group of reputational cost indicator variables, the strongest correlation is between *Governance Pillar Score* and *Effective Tax Rate*, with a weak correlation of −0.110. Within the group of proprietary cost indicator variables, the strongest correlation is between *Geo Seg Detail* and *Competitor Growth Rate*, with a weak correlation of −0.099. This strengthens our confidence that we do not capture the same dimensions of reputational and proprietary costs with multiple indicators.

TABLE 2 Descriptive statistics.

Panel A: Summary statistics

Variable	*N*	Mean	SD	P25	Median	P75	Min	Max
Stock Return	180,681	0.17	2.49	−0.96	0	1.17	−66.67	184.44
MSCI World Return	263	0.10	0.91	−0.34	0.10	0.59	−5.21	2.82
S&P Global 1200 Return	263	0.10	0.93	−0.42	0.13	0.63	−5.41	2.87
Turnover in Last Available Year	687	8.69	17.20	1.45	2.75	7.94	0.75	231
Effective Tax Rate	399	31.46	26.15	15.67	23.74	37.61	0	100
Intangible-to-Total-Assets Ratio	399	24.65	19.52	6.34	20.95	38.53	0	88.58
B2C	399	0.43	0.50	0	0	1	0	1
Governance Pillar Score	399	59.04	21.99	43.18	60.36	77.41	2.86	98.64
Industry Concentration	399	0.04	0.05	0.01	0.02	0.04	0.00	0.40
Geo Seg Detail	399	10.71	7.83	5	9	14	0	50
Competitor Growth Rate	399	4.25	15.75	−0.11	0.72	4.04	−0.78	198.98
5-Year Average ROA	399	6.21	4.76	3.32	5.44	7.79	−6.32	37.06

Panel B: Correlation matrix

Variable		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	*Stock Return*	1											
(2)	*MSCI World Return*	0.401	1										
(3)	*S&P Global 1200 Return*	0.402	0.997	1									
(4)	*Turnover in Last Available Year*	0.000	0.000	−0.000	1								
(5)	*Effective Tax Rate*	−0.006	0.000	0.000	−0.001	1							
(6)	*Intangible-to-Total-Assets Ratio*	−0.003	−0.000	0.000	−0.047	0.051	1						
(7)	*B2C*	−0.003	−0.000	0.000	0.141	0.048	−0.093	1					
(8)	*Governance Pillar Score*	−0.002	0.000	−0.000	0.213	−0.110	0.087	0.010	1				
(9)	*Industry Concentration*	−0.000	−0.000	0.000	0.038	0.008	−0.020	−0.031	0.068	1			
(10)	*Geo Seg Detail*	−0.001	−0.000	−0.000	0.101	−0.021	−0.042	−0.102	0.051	−0.014	1		
(11)	*Competitor Growth Rate*	0.001	0.000	−0.000	−0.048	0.011	−0.053	−0.047	−0.046	−0.092	−0.099	1	
(12)	*5-Year Average ROA*	0.002	−0.000	−0.000	−0.145	−0.208	0.014	−0.070	0.028	0.033	−0.002	−0.003	1

Note: The table provides descriptive statistics for the sample of affected firms. Variables are defined in the Appendix. *Turnover in Last Available Year* is stated in billion EUR. *Governance Pillar Score* assumes values between [0, 100]. *B2C* is a dummy variable. *Geo Seg Detail* is the number of data points in a firm's geographic segment report. *Industry Concentration* is the HHI after multiplying the percent market shares by 100. All other variables are stated in percent. *Effective Tax Rate* and *Intangible-to-Total-Assets Ratio* are restricted to [0, 100] to limit the influence of outliers (Joshi, 2020; Joshi et al., 2020).

TABLE 3 Main regression results.

Panel A: Main event (June 2)		
	(1) **(0, 1) Event window**	**(2)** **(0, 2) Event window**
Constant	0.107** (2.415)	0.107** (2.415)
Market Return	0.672*** (10.780)	0.672*** (10.780)
Event	−0.476*** (−3.850)	−0.648*** (−3.759)
Observations	180,681	181,368
Standard errors clustered on firm level	Yes	Yes
Standard errors clustered on trading days	Yes	Yes
Firms	687	687
Adj. R^2	0.06	0.06
Value effect	−47.009	−63.676
Panel B: Alternative event (February 25)		
	(1) **(0, 1) Event window**	**(2)** **(0, 2) Event window**
Constant	0.040 (0.647)	0.040 (0.649)
Market Return	0.716*** (10.690)	0.714*** (10.760)
Event	0.820 (0.477)	0.522 (0.290)
Observations	148,368	148,930
Standard errors clustered on firm level	Yes	Yes
Standard errors clustered on trading days	Yes	Yes
Firms	562	562
Adj. R^2	0.16	0.16

Note: The table presents the estimation results of Equation (1) for the main event (June 2, Panel A) and the alternative event (February 25, Panel B). Column 1 shows the regression results using a 2-day event window starting on the respective event date. Column 2 shows the regression results using a 3-day event window starting on the respective event date. The difference in the number of sample firms results from the exclusion of firms with earnings announcements around the main or alternative event dates. Variables are defined in the Appendix. The *Event* coefficient is multiplied by the number of days in the respective event window and therefore represents the CAARs. The value effect translates the CAARs into an aggregated monetary value by multiplying the firm CAARs with their respective market capitalization on June 1. The value effect is stated in billion EUR. Robust *t*-statistics are in parentheses.
** and *** represent statistical significance of 0.05 and 0.01, respectively.

developed primarily to combat criminal business practices, such as corruption in developing countries. The public CbCR studied in this paper, on the other hand, was designed to reveal tax avoidance resulting from mostly legal practices that exploit tax loopholes.

4.2 | Economic interpretation

Next, we assess the economic magnitude of the overall negative capital market reaction. We calculate the absolute firm value decline by multiplying the individual firm cumulative abnormal returns with their market capitalization as of June 1, 2021, the day preceding our main

event window. Table 3, Panel A, presents the results. For the 2-day (3-day) event window, the aggregated firm value declined by EUR 47.009 billion (EUR 63.676 billion). This corresponds to approximately 14.48% of the EU's corporate income taxes in 2020 and 6.27% of the NextGenerationEU Recovery Fund established to mitigate the economic harms of the coronavirus pandemic. Notably, our estimate represents rather the lower limit of the actual aggregated value reduction, as some investors might have adjusted their expectations before the event, despite the prevailing uncertainty. This anticipation could have caused price drops not accounted for in our estimates.

The aggregate reduction in firm value can be economically interpreted in two ways. Assuming that the reduction is exclusively attributable to reputational costs, the reduced returns are likely caused by higher tax payments by the affected firms. To avert reputational harm, firms adopt less aggressive tax strategies and thus pay more taxes. Their higher tax payments lead to reduced after-tax profits and lower returns for investors. The higher tax payments would therefore result in a transfer of wealth[15] from the firm to society. This transfer represents the desired effect of public CbCR. However, note that this conclusion requires that the aggressively tax-avoiding firms be clearly identifiable, and it is difficult to distinguish between tax aggressive firms and those with legitimate low ETRs without additional information beyond that disclosed in the proposed public CbC reports. To the extent that the declines are exclusively attributable to proprietary costs, the reduced returns would be considered to result from market distortions and an expected loss of market share and profitability of affected firms. In this case, there would be a transfer of wealth from affected to unaffected firms. We explore the role of the two channels in the following subsection.

4.3 | Heterogeneous effects for different levels of reputational costs

Table 4 depicts our cross-sectional results for reputational costs. We repeat our baseline analysis to ensure the consistency of our results for the subsample of firms meeting the inclusion criteria for the cross-sectional analyses. Column 1 depicts the results from estimating Equation (1). The coefficient of interest remains statistically significant and comparable in magnitude to the baseline coefficient (−0.548 vs. −0.476).

Moving on to the actual cross-sectional analyses, Column 2 shows the results for the *ETR* analysis. As expected, the capital market reaction is notably stronger for firms with lower ETRs. On average, high-ETR firms experience an abnormal stock price reaction of −0.438%. Low-ETR firms, on average, encounter a −0.328 percentage points lower 2-day CAAR. The coefficient of the interaction is statistically significant at the 1% level. Column 3 depicts the results for the intangible assets analysis. The corresponding coefficient of interest is negative with a considerable effect size of −0.346 percentage points, statistically significant at the 1% level. These findings suggest that investors anticipate firms' adoption of more conservative tax planning strategies to avoid public scrutiny, leading to foregone tax savings and lower cash flows. Column 4 displays the results for *B2C*. The coefficient of interest amounts to −0.092, suggesting that firms with higher consumer salience are more likely to suffer from reputational costs following the publication of the CbC reports. The last column shows the results for sustainability performance. The coefficient of interest is negative and statistically significant. Firms with weak ESG ratings face a −0.234 percentage points lower 2-day CAAR compared to those with better sustainability performance, on average. Based on the Hanlon and Slemrod (2009) model, we conclude that investors weigh the potential prevention of rent diversion through

[15]Our methodology is not suited to assess the actual welfare impact of the event, as factors like deadweight loss remain uncertain. These explanations primarily aim to offer an economic interpretation of the firm value declines.

TABLE 4 Cross-sectional results: reputational cost.

	(1) *Baseline*	(2) *ETR*	(3) *Intangibles*	(4) *B2C*	(5) *ESG Score*
Constant	0.099**	0.094**	0.107**	0.103**	0.095**
	(2.437)	(2.247)	(2.577)	(2.374)	(2.220)
Market Return	0.654***	0.654***	0.654***	0.654***	0.654***
	(11.640)	(11.640)	(11.640)	(11.640)	(11.640)
Event	−0.548***	−0.438***	−0.432***	−0.508***	−0.470**
	(−2.994)	(−2.852)	(−2.797)	(−2.810)	(−2.511)
ETR × *Event*		−0.328***			
		(−3.029)			
ETR		0.0164			
		(1.059)			
Intangibles × *Event*			−0.346***		
			(−3.223)		
Intangibles			−0.025		
			(−1.642)		
B2C × *Event*				−0.092*	
				(−1.825)	
B2C				−0.008	
				(−0.452)	
ESG Score × *Event*					−0.234***
					(−6.753)
ESG Score					0.012
					(0.730)
Observations	104,937	104,937	104,937	104,937	104,937
Standard errors clustered on firm level	Yes	Yes	Yes	Yes	Yes
Standard errors clustered on trading days	Yes	Yes	Yes	Yes	Yes
Firms	399	399	399	399	399
Adj. R^2	0.08	0.08	0.08	0.08	0.08

Note: The table presents the regression results for a series of cross-sectional tests on the reputation cost channel, using the market model in Equation (2). Column 1 repeats our main analysis to show that the baseline effect holds for the subsample of firms with the required information available. Columns 2–5 show the results using the respective indicator variable (*ETR*, *Intangibles*, *B2C*, and *ESG Score*) to conduct the sample splits. Variables are defined in the Appendix. Robust *t*-statistics are in parentheses.
*, **, and *** represent statistical significance of 0.10, 0.05, and 0.01, respectively.

increased disclosure less significantly than the possible reputational risk arising from consumer backlash.

In sum, our findings imply that the capital market factors in the reputational costs associated with the disclosure requirement, confirming H1a. This finding is intriguing, given recent studies indicating that a consumer backlash is unlikely (Asay et al., 2024). That is, although corporate decision-makers and investors share concerns about public scrutiny,[16] these concerns may not be justified.

4.4 | Heterogeneous effects for different levels of proprietary costs

Next, we explore the potential role of proprietary costs as a driver of the overall capital market reaction. Table 5 presents the results. Column 1 shows the results for the HHI. The coefficient of interest is negative but statistically insignificant. We then turn to the industry growth variable, which measures the dynamic development of our sample firms' industries (Column 2). Similarly, our estimates suggest a more pronounced negative investor reaction for firms facing higher levels of competition, represented by higher competitor growth rates. The coefficient is again not significant at conventional levels. Column 3 presents the results for geographic segment reporting, indicating that firms with less detailed geographic segment reporting face a statistically significant −0.126 percentage-point stronger investor reaction as compared to firms with more detailed disclosure, on average. Lastly, we turn to our alternative measure for proprietary costs, medium-term profitability. The coefficient in Column 4 is negative and statistically significant at the 1% level, suggesting that investors expect that firms with sustained high profitability ratios might incur proprietary costs upon disclosure of their CbC reports compared to less profitable competitors.

Taken together, we document that firms without (detailed) geographic segment reporting before the announcement, as well as highly profitable firms, are more affected by the regulation, confirming H1b. Furthermore, we observe more negative, albeit statistically insignificant, investor reactions based on the HHI as a static competition measure and competitor growth rates as dynamic competition measures. One possible explanation for the lack of statistical significance in these two observations is our reliance on industry classifications to identify competitors, given the absence of observable characteristics for delineating (narrower) product markets.

4.5 | Relative importance of cost channels

Finally, we evaluate the relative importance of the two cost channels using an integrated analysis based on Equation (2), incorporating the four reputational cost indicators (*ETR*, *Intangibles*, *B2C*, and *ESG Score*) and the four proprietary cost indicators (*HHI*, *Competitor Growth*, *Geo Seg*, and *ROA5*). The estimates of the corresponding interaction term coefficients are depicted in Table 6. All proxies for reputational risks, except for *B2C*, yield negative and statistically significant coefficients. For the proprietary cost channel, the coefficient of *ROA5* remains significantly negative. The remaining coefficients are negative but not significant at conventional levels. Overall, the combined analysis suggests that the disclosure of geographically disaggregated financial information simultaneously impacts firm values through both reputational and proprietary costs. This implies that neither channel dominates. Economically, this finding suggests that the public disclosure mandate does not solely result in a wealth transfer to society in the form of higher tax revenues. Instead, it also appears to involve a wealth transfer to firms

[16]One of the tax consultants interviewed by Brühne and Schanz (2022) calls this concern "Wall Street Journal Risk," meaning that corporate tax decision-makers are afraid to appear in *The Wall Street Journal* due to their tax practices.

TABLE 5 Cross-sectional results: Proprietary cost.

	(1) *HHI*	(2) *Competitor Growth*	(3) *Geo Seg*	(4) *ROA5*
Constant	0.097**	0.098**	0.101**	0.100**
	(2.331)	(2.350)	(2.430)	(2.332)
Market Return	0.654***	0.654***	0.654***	0.654***
	(11.640)	(11.640)	(11.640)	(11.640)
Event	−0.484***	−0.450***	−0.498***	−0.490***
	(−5.221)	(−3.876)	(−2.669)	(−2.875)
HHI × *Event*	−0.185			
	(−0.527)			
HHI	0.007			
	(0.436)			
Competitor Growth × *Event*		−0.294		
		(−1.196)		
Competitor Growth		0.003		
		(0.201)		
Geo Seg × *Event*			−0.126***	
			(−3.674)	
Geo Seg			−0.004	
			(−0.292)	
ROA5 × *Event*				−0.174***
				(−2.670)
ROA5				−0.003
				(−0.178)
Observations	104,937	104,937	104,937	104,937
Standard errors clustered on firm level	Yes	Yes	Yes	Yes
Standard errors clustered on trading days	Yes	Yes	Yes	Yes
Firms	399	399	399	399
Adj. R^2	0.08	0.08	0.08	0.08

Note: The table presents the regression results for a series of cross-sectional tests on the proprietary cost channel, using the market model in Equation (2). Variables are defined in the Appendix. Columns 1–4 show the results using the respective indicator variable (*HHI*, *Competitor Growth*, *Geo Seg*, and *ROA5*) to conduct the sample splits. Robust *t*-statistics are in parentheses.
** and *** represent statistical significance of 0.05 and 0.01, respectively.

TABLE 6 Cross-sectional results: Relative importance of cost channels.

	(1) (0, 1) Event window
Constant	0.104** (2.017)
Market Return	0.654*** (11.640)
Event	−0.033 (0.309)
ETR × *Event*	−0.328*** (−3.520)
Intangibles × *Event*	−0.378*** (−3.049)
B2C × *Event*	−0.077 (−0.992)
ESG Score × *Event*	−0.230*** (−3.807)
HHI × *Event*	−0.105 (−0.327)
Competitor Growth × *Event*	−0.222 (−1.210)
Geo Seg × *Event*	−0.017 (−0.194)
ROA5 × *Event*	−0.161* (−1.685)
Observations	104,937
Standard errors clustered on firm level	Yes
Standard errors clustered on trading days	Yes
Firms	399
Adj. R^2	0.08

Note: The table presents the regression results for a cross-sectional test using all indicator variables from Tables 4 and 5, using the market model in Equation (2). Variables are defined in the Appendix. For a clearer presentation of the results, base effect estimates (i.e., coefficient estimates of $\boldsymbol{I}_i$) are not displayed. Robust *t*-statistics are in parentheses.
*, **, and *** represent statistical significance of 0.10, 0.05, and 0.01, respectively.

outside the scope of the disclosure regime. This finding suggests an unintended consequence of public CbCR.

5 | ROBUSTNESS TESTS

5.1 | Potential confounding events

The essential identifying assumptions of our empirical strategy are the absence of potential confounding events and the use of a suitable specification for the event study. To corroborate our results from Section 4, we assess the validity of these assumptions. In a first step, we start with a discussion of potential confounding events.

Immediately after our 3-day event window, on June 5, the G7 finance ministers announced their support for a global minimum tax. Their goal was to reduce the incentive for tax aggressiveness by imposing a minimum level of taxation on a per-country basis. If the information was anticipated by investors precisely in our event window, the G7 announcement might

represent a potential confounding factor. We address these concerns empirically, employing a difference-in-differences (DiD) regression design.

We identify two suitable control groups. For the first group, we leverage that the global minimum tax would affect all firms exceeding EUR 750 million in global turnover. In contrast, public CbCR only applies to EU firms above this threshold.[17] If investors anticipated the global minimum tax news, the returns of large EU firms should not differ from those of large non-EU firms. We identify 4,544 firms that meet the turnover threshold but are headquartered outside of the EU. These firms share similar size characteristics but should not be directly affected by the reporting obligation. The second group comprises a global sample of 723 firms meeting the turnover threshold but operating in the banking or the extractive and logging sectors. These firms are already subject to industry-specific public CbCR schemes and are therefore unaffected by the draft proposal.

To assess the parallel trends assumption, we focus on the last calendar month of our estimation period and group firms' daily stock market returns into 12 equal-sized bins.[18] We then estimate the average abnormal returns of treatment firms relative to control firms. Figure 3 depicts the corresponding results. The coefficients are relative to the coefficient of the first bin in the pre-event period. The graph shows that the returns of the treated EU

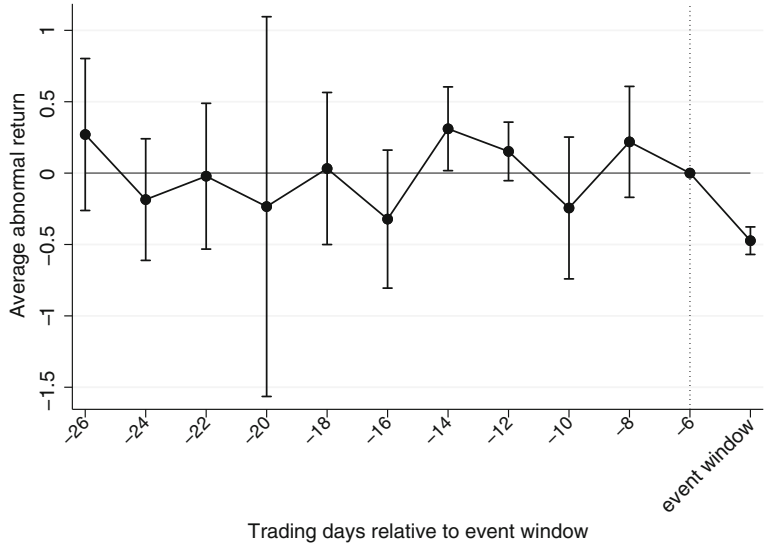

FIGURE 3 Comparison of treated and control firms. The figure depicts the results of testing the identifying assumption of parallel trends over the last calendar month in the pre-event period. The results are based on estimating the basic regression model from Equation (3). For the analysis, we group the stock market returns into 12 equal-sized bins covering 2 trading days. In other words, we rerun the regression with 11 additional dummies and interaction terms to measure the dynamic effects for alternative event days in the pre-period. The plotted coefficients depict the average abnormal return of large European firms relative to control firms over 1 calendar month. The treatment group comprises 687 firms that are EU-headquartered and whose consolidated turnover exceeds EUR 750 million in the 2 preceding financial years. The control group comprises 5,267 firms that are unaffected by the public CbCR scheme, either because they are operating in industries that were already affected by industry-specific CbCR schemes before or because they are headquartered outside of the EU. The vertical lines represent the 95% confidence intervals. All coefficients are relative to the first bin (−6), which contains the trading days from −7 to −6 before the event. To ensure comparability with our main analysis, we exclude the 5 trading days immediately preceding the EU's announcement.

[17]The draft proposal envisions that only the EU subsidiary of a non-EU headquartered firm would have to report on its EU operations. Large non-EU firms should—if at all—be substantially less affected by the disclosure requirement.
[18]That is, each bin covers 2 trading days, like our event window in the main specification.

TABLE 7 Robustness tests: Main analysis.

Panel A: Robustness tests using alternative DiD design

	(1) All	(2) Non-EU	(3) Excluded industries
Constant	0.080***	0.076**	0.106***
	(2.663)	(2.566)	(2.663)
Market Return	0.665***	0.655***	0.708***
	(16.550)	(16.690)	(12.870)
Treatment × *Event*	−0.774***	−0.762***	−0.854***
	(−8.178)	(−7.132)	(−9.807)
Treatment	0.028	0.033	−0.003
	(0.693)	(0.780)	(−0.082)
Event	0.302*	0.292*	0.364***
	(1.955)	(1.768)	(3.417)
Observations	1,565,902	1,375,753	370,830
Standard errors clustered on firm level	Yes	Yes	Yes
Standard errors clustered on trading days	Yes	Yes	Yes
Firms	5,954	5,231	1,410
Adj. R^2	0.05	0.05	0.06

Panel B: Robustness tests using the original regression design

	(1) S&P Global 1200	(2) Winsorize	(3) Announcements	(4) Winsorize and announcements
Constant	0.108**	0.085*	0.107**	0.084*
	(2.452)	(1.962)	(2.416)	(1.962)
Market Return	0.662***	0.654***	0.671***	0.653***
	(10.660)	(9.968)	(10.790)	(9.971)
Event	−0.514***	−0.428***	−0.484***	−0.436***
	(−3.656)	(−3.692)	(−3.742)	(3.579)
Observations	180,681	180,681	181,733	181,733
Standard errors clustered on firm level	Yes	Yes	Yes	Yes
Standard errors clustered on trading days	Yes	Yes	Yes	Yes
Firms	687	687	691	691
Adj. R^2	0.06	0.07	0.06	0.07

Note: The table presents the results of various robustness tests. Panel A presents DiD regression results, using Equation (3). We use non–EU headquartered firms (Column 2) and firms operating in unaffected industries separately (Column 3) and combined (Column 1) as a control group. Panel B shows the robustness of our main results (Table 1, Panel B, Column 1). In Column 1, we employ the S&P Global 1200 as an alternative market portfolio. Column 2 shows the results with firm and market returns winsorized at the 1st and 99th percentiles to mitigate outlier effects. Column 3 reincludes firms with earnings announcements within a (−2, 2) window around the event date. In Column 4, we combine the alterations from Columns 2 and 3. Robust *t*-statistics are in parentheses.
*, **, and *** represent statistical significance of 0.10, 0.05, and 0.01, respectively.

firms do not significantly differ from those of the control group before the event. We therefore continue with our analysis, using the following DiD regression:

$$r_{it} = \alpha + \beta r_{mt} + \gamma Treatment_i \times Event_t + \delta Treatment_i + \varphi Event_t + \varepsilon_{it}, \quad (3)$$

where $Treatment_i$ indicates whether the firm is affected by the EU announcement. The remaining variables and indices are defined as in Equation (1). Table 7, Panel A, presents the results. Affected firms show statistically significant average abnormal returns of −0.774% relative to the full set of

TABLE 8 Robustness tests: Cross-sectional analyses.

	(1) *ETR5*	(2) *ROA5*	(3) *Non-Geo Seg*	(4) *No Voluntary CbCR*
Constant	0.108**	0.114**	0.098**	0.100**
	(2.369)	(2.322)	(2.482)	(2.467)
Market Return	0.673***	0.673***	0.654***	0.654***
	(10.770)	(10.770)	(11.640)	(11.640)
Event	−0.388***	−0.430***	−0.420***	−0.296
	(−3.621)	(−3.265)	(−2.137)	(−0.483)
ETR5 × Event	−0.250***			
	(−3.568)			
ETR5	−0.002			
	(−0.151)			
ROA5 × Event		−0.127**		
		(−2.334)		
ROA5		−0.002		
		(−0.725)		
Non-Geo Seg × Event			−0.506***	
			(−5.771)	
Non-Geo Seg			0.005	
			(0.286)	
No Voluntary CbCR × Event				−0.258
				(−0.535)
No Voluntary CbCR				−0.049*
				(−1.933)
Observations	176,210	176,210	104,937	104,937
Standard errors clustered on firm level	Yes	Yes	Yes	Yes
Standard errors clustered on trading days	Yes	Yes	Yes	Yes
Firms	670	670	399	399
Adj. R^2	0.06	0.06	0.08	0.08

Note: The table presents the regression results for a series of robustness checks, using the market model in Equation (2). Variables are defined in the Appendix. Column 1 presents the results using the 5-year average cash ETR, maintaining loss-making firms and firms that fail to meet the data requirements for the remaining cross-sectional tests. Similarly, Column 2 replicates the *ROA5* analysis from Table 5, Column 4. Column 3 shows the result for an alternative proxy for the level of detail in our sample firms' geographic segment reporting, separating firms that either disclose only revenues or no items on a geographic level and are thus likely to adopt a nongeographic segment approach for the segment reporting. In Column 4, we test for different effect sizes for firms that voluntarily disclose public CbCR. Robust *t*-statistics are in parentheses.
*, **, and *** represent statistical significance of 0.10, 0.05, and 0.01, respectively.

control firms (Column 1). When analyzing both subsamples separately (Columns 2 and 3), the negative and statistically significant coefficient of interest persists for both control groups, supporting our assumption that the observed effect is not confounded by the G7's agreement on a global minimum tax, but driven by the announcement of a public CbCR in the EU.

5.2 | Robustness of the model

In a second step, we run a series of tests in which we alter the assumptions and parameters of our baseline analysis. Table 7, Panel B, shows the corresponding results for the (0, 1) event window. In Column 1, we follow prior literature and employ the S&P Global 1200 as an alternative market proxy (Dutt, Ludwig, et al., 2019; Johannesen & Larsen, 2016). This leads to a slight increase of the coefficient of interest by 0.038 percentage points. In Column 2, we mitigate the

impact of outliers by winsorizing firm and market returns within the estimation and event periods at the 1st and 99th percentile, causing a decrease in effect size by 0.048 percentage points to −0.428%. In Column 3, we reinclude firms with earnings announcements within a (−2, 2) window around the event date. Given the small number of affected sample firms, their exclusion has a minimal impact on the coefficient of interest. In Column 4, we combine the winsorization and inclusion of firms with earnings announcements tests. The CAAR drops to −0.436%. Across all specifications, the coefficient of interest remains statistically significant at the 1% level.[19] Taken together, these analyses show that our main results are robust to changes in assumptions or parameters of our estimation approach, reaffirming the validity of our main results. In a next step, we conduct various tests to enhance the robustness of our cross-sectional findings.

To validate our ETR test and support the findings on reputational costs, we address concerns about potential truncation bias from the exclusion of loss-making firms, as documented by Henry and Sansing (2018). To mitigate these concerns, we use a 5-year average cash ETR measure (*ETR5*) and reinclude loss-making firms as well as firms dropped due to data requirements for other cross-sectional variables. The results hold and are tabulated in Table 8, Column 1.[20]

Regarding our findings for proprietary costs, we acknowledge that, like the *ETR* measure, the *ROA5* measure may be subject to the truncation bias documented by Henry and Sansing (2018). Therefore, we reinclude loss-making firms as well as firms dropped due to data requirements for other cross-sectional variables and repeat the analysis for the *ROA5* measure. As indicated in Column 2, the results remain robust to this alteration. Next, we use an alternative geographic segment disclosure measure, focusing on firms adopting a nongeographic segment reporting approach. As displayed in Column 3, the results reaffirm the validity of our results regarding sample firms' pre-announcement disclosure levels, indicating a statistically significant −0.506 percentage point stronger reaction relative to firms with higher disclosure levels. Furthermore, we investigate whether there is a more negative reaction for firms that do not voluntarily disclose public CbCR prior to the announcement of the EU. The corresponding results in Column 4 indicate a more pronounced negative investor reaction for those firms. However, this effect is statistically insignificant at conventional levels, likely due to a lack of statistical power.[21]

6 | CONCLUSION

We investigate the capital market reaction to the EU's announcement of a public CbCR scheme. The scheme requires large EU MNEs to publicly disclose previously confidential financials on a CbC basis. Using an event study methodology, we observe negative CAARs for up to 3 days post-announcement, resulting in an aggregated firm value decline of EUR 47–64 billion. These results persist across different specifications and under consideration of potential confounding events. Additional cross-sectional results indicate that these declines arise not only from anticipated changes in tax planning but also from investors' expectations of proprietary costs related to the disclosure of sensitive business information. These findings have

[19]In untabulated analyses, we conduct two additional sets of robustness tests. In the first set, we repeat our robustness tests for the (0, 2) event window. In the second set of tests, we alter the estimation period to a short-term 3-month window and replicate the baseline analysis and the robustness tests. For both sets of tests, the estimates are very similar to our baseline analyses, suggesting that the results hold for different event and estimation windows.

[20]In untabulated tests, we find that these results also hold when using the 5-year average book ETR. Furthermore, we use alternative ETR measures, considering both the effective and statutory tax rates of the firms' home country, following previous studies (Edwards et al., 2024; Joshi et al., 2020). Again, results remain robust.

[21]Only 10 firms (about 2.5%) in our cross-sectional sample voluntarily provide public CbCR. When we exclude them from our main analysis, we find that the average CAAR increases to −0.479%.

implications for legislators and standard setters. While public CbCR may prompt firms to be less tax aggressive to avoid reputational harm, one should consider potential competitive disadvantages faced by disclosing firms. These risks could be mitigated through a harmonized approach across countries with confidential CbCR in place via the Inclusive Framework at the OECD. Given these considerations and the risk of misinterpretations, decision-makers should carefully weigh potential benefits for governments or other stakeholders against the material costs for affected firms when evaluating tax transparency measures.

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DATA AVAILABILITY STATEMENT

Part of the employed data is proprietary and available from Bureau van Dijk and Thomson Reuters. The non-proprietary data are available upon request from the authors.

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APPENDIX: DESCRIPTION OF VARIABLES

Variable	Description	Data source
5-Year Average ROA	Firms' ROA ratio averaged over a 5-year period	Worldscope
B2C	Dummy variable indicating observations from firms with a higher (value = 1), respectively, lower (value = 0) salience to consumers, based on their SIC primary industry classification	SIC codes are retrieved from Orbis. Own classification
Competitor Growth	Dummy variable indicating observations in the third tercile in terms of their 10-year *Competitor Growth Rate*	See *Competitor Growth Rate*
Competitor Growth Rate	10-year competitor growth rate, which is computed as follows: (Number of identified industry peers in 2019/Number of identified industry peers in 2009) – 1	Industry classification and industry peer information are retrieved from Orbis
Effective Tax Rate	Firms' cash effective tax rate, which is computed as follows: Income taxes paid as stated in the cash flow statement/pretax income × 100	Worldscope
ESG Score	Dummy variable indicating observations in the first tercile in terms of *Governance Pillar Score*	See *Governance Pillar Score*
ETR	Dummy variable indicating observations in the first tercile in terms of *Effective Tax Rate*	See *Effective Tax Rate*
ETR5	Dummy variable indicating observations in the first tercile in terms of their 5-year average cash effective tax rate, which is computed as follows: $\sum$Income taxes paid as stated in the cash flow statement/ $\sum$Pretax income × 100	Income taxes paid and pretax income are retrieved from Worldscope
Event	Dummy variable indicating observations that fall into the respective event window	—
Geo Seg	Dummy variable indicating observations in the first tercile in terms of *Geo Seg Detail*	See *Geo Seg Detail*
Geo Seg Detail	Number of data points in a firm's geographic segment disclosure. The number of data points is computed as the product of the number of geographic segments and the number of items per segment, to proxy for the level of detail of a firm's geographic segment reporting	Geographic segment reporting data is retrieved from Worldscope
Governance Pillar Score	Refinitiv's Governance Pillar Score. The Governance Pillar Score is computed as the weighted average rating of a firm based on the reported governance information	Datastream
HHI	Dummy variable indicating observations in the first tercile in terms of *Industry Concentration*	See *Industry Concentration*

APPENDIX (Continued)

Variable	Description	Data source
Industry Concentration	Herfindahl–Hirschman Index, which is computed as follows: $HHI = 10{,}000 \times \sum_{i=1}^{N} a_i^2$, where a_i represents the individual market share of industry peer i	Turnover, industry classification, and industry peer information are retrieved from Orbis
Intangible-to-Total-Assets Ratio	Ratio of intangible assets to total assets, computed as follows: Intangible assets/Total assets × 100	Worldscope
Intangibles	Dummy variable indicating observations in the third tercile in terms of *Intangible-to-Total-Assets Ratio*	See *Intangible-to-Total-Assets Ratio*
Market Return	Daily stock return stated in percent, based on the *Total Return Index* (*RI*). Contingent on the specification, the market return either depicts the return of the MSCI World or the S&P Global 1200	Datastream
MSCI World Return	Daily stock return of the MSCI World stated in percent, based on the *Total Return Index* (*RI*)	Datastream
Non-Geo Seg	Dummy variable indicating firms with (1) only sales or (2) no item reported on a geographic level in the segment report—that is, firms likely to assume a nongeographic segmentation approach for their segment reporting	Geographic segment reporting data is retrieved from Worldscope
No Voluntary CbCR	Dummy variable indicating firms that do not provide public CbCR on a voluntary basis for the financial year 2020. We define voluntary CbCR as a CbC report that does not omit or aggregate countries and provides (1) an income tax expense item, (2) a profit or loss item and (3) at least one other item that allows for a meaningful relation with any of the previous figures (e.g., employees, assets, or revenues)	Hand-collected
ROA5	Dummy variable indicating observations in the third tercile in terms of their *5-Year Average ROA*	See *5-Year Average ROA*
S&P Global 1200 Return	Daily stock return of the S&P Global 1200 stated in percent, based on the *Total Return Index* (*RI*)	Datastream
Stock Return	Daily stock return of our sample firms stated in percent, based on the *Total Return Index* (*RI*)	Datastream

(Continues)

APPENDIX (Continued)

Variable	Description	Data source
Total Return Index (*RI*)	*Total Return Index* (*RI*) represents a theoretical value growth by assuming that dividends are reinvested to purchase additional units of the respective stock. It is calculated using a method in which the discrete quantity of dividend paid is added to the price on the ex-dividend date. That is, RI is computed as follows: $RI_t = RI_{t-1} \times \frac{p_t}{p_{t-1}}$, where p_t equals the price on date t, and p_{t-1} equals the price on the previous date. If t equals the ex-date of dividend payment D_t, the method adjusts as follows: $RI_t = RI_{t-1} \times \frac{p_t + D_t}{p_{t-1}}$	Datastream
Treatment	Dummy variable indicating firms that are affected by the public CbCR scheme (i.e., firms that are headquartered in the EU and whose consolidated turnover exceeded EUR 750 million in the preceding 2 financial years)	Turnover and headquarter location data are retrieved from Orbis
Turnover in Last Available Year	"Operating revenue (turnover)" as provided by BvD in Orbis for last available financial year (i.e., 2019, or later due to the imposed data requirements outlined in Section 3)	Orbis

Note: The table lists all variables used for analyses in this paper, including a brief description and the respective data sources.