Corporate Responses to the Threat of Public Shaming: Evidence from the European Union

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Abstract

Offshore wealth is estimated to equal 10% of global GDP. To reclaim these funds for domestic taxation, policymakers have adopted tax transparency reforms to pressure corporations engaged in tax avoidance. We analyze the impact of the EU's Directive on Public Country-by-Country Reporting, which mandates that large multinational corporations disclose corporate tax payment data starting in 2026. Employing difference in differences designs, we find evidence that reputation-sensitive (ie., higher media scrutiny, ESG scores) firms headquartered in the EU are increasing their effective tax rates in anticipation of the public reveal of their data. In contrast, we find that corporations exempt from the Directive, specifically banks, are decreasing their tax rates by more than 8 percentage points. We observe weaker effects for consumer-facing banks, suggesting that banks continue to hedge against the risk of public shaming. Collectively, our results imply that tax transparency initiatives can have both intended and unintended consequences.

Keywords: Taxation; transparency; public shaming; corporate governance; regulation

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1 Introduction

In the wake of the 2008 Financial Crisis, governments have become increasingly pro-active on tackling global tax avoidance by multinational enterprises (MNEs). Recent estimates suggest that firms shift approximately $850 billion in profits to tax havens each year (Garcia-Bernardo and Janskỳ; 2024), with the total amount of offshore wealth held by individuals and firms amounting to 10% of global GDP (Alstadsæter et al.; 2018; Zucman; 2013). One of the main vehicles through which MNEs avoid paying taxes is transfer pricing (Clausing; 2003; Cristea and Nguyen; 2016; Davies et al.; 2018). This is where intra-firm transactions are charged at a manipulated price in order to shift profits from high to low-tax jurisdictions. Tax authorities generally rely on the arm's length principle, which requires the transaction be comparable to market price, to guide transfer pricing. In practice, the arm's length rule is difficult to apply as comparable transactions do not always exist and complicated corporate structures increase the costs of audit for tax authorities (Avi-Yonah; 1995). Despite global efforts to strengthen the legal framework against tax avoidance, including the adoption of general anti-avoidance rules, recent studies suggest that profit shifting nevertheless persists. This is all in the wider context of higher taxes on labor, ballooning deficits, and governments facing difficult decisions on cutting public services (Avi-Yonah; 2001).

In an effort to recapture funds for domestic taxation, policymakers have turned to transparency and "name and shame" initiatives to add public scrutiny to firms that shift taxes offshore (Hoopes et al.; 2024). The European Union, one of the "prime losers" of global profit shifting as compared to the US and developing countries, is leading efforts on this front (Tørsløv et al.; 2023). By the end of 2026, some 6,000 multinational firms with a presence in Europe will be compelled to publicly release previously private data on their tax affairs under the EU Directive on Public Country-by-Country Reporting (PCbCR). The Directive targets large multinationals with revenues exceeding €750 million; recent estimates suggest that firms of this size account for approximately 95% of profits shifted to tax havens (Clifford et al.; 2025). The only industry exempt from the reform is the banking sector, which was subject to a more limited form of public reporting after the Financial Crisis. Since the Directive's announcement in 2021, the Big Four have prepared extensive documents for their affected clients, advising them on how to navigate this "new era in tax transparency" and "avoid reputational damage" (EY; 2024; KPMG; 2024; PwC UK; 2024). In the meantime, prominent non-government organizations such

as Tax Justice Network and the Fair Tax Foundation have created transparency rankings and trackers on PCbCR. Attention on the banking sector, by comparison, has almost completely disappeared. For example, Transparency International's website tracking the tax affairs of Europe's largest banks now instead links to a gaming platform (see www.taxtracker.eu). Thus, as civil society gears up for what will be the single largest release of corporate tax data in history, many MNEs will suddenly be exposed to a high risk of public shaming, while those in exempt sectors stand to benefit from reduced media and public attention.

2021 marked a "new era" of international tax reform in more ways than one. A couple of days after the EU's announcement on PCbCR, the finance ministers of the G7 agreed to global minimum tax (GMT) of 15%, with over 130 jurisdictions signing onto the agreement by the year end. The EU subsequently instructed its Member States via a Directive to implement the GMT from 2025 onward. Importantly, this reform applied the same revenue threshold as the EU's Directive on public reporting. Both EU Directives have the potential to reduce the incentives for large MNEs to engage in tax avoidance practices such as profit shifting for the following reasons. On one hand, public reporting increases the risk of public shaming, especially for reputation-sensitive firms. On the other hand, the GMT reduces the incentive for corporations to engage in profit shifting and other forms of aggressive tax planning (Johannesen; 2022). In this paper, we study how the announcement of the EU Directive on PCbCR affected corporate tax avoidance behavior. To do so, we separate out the effect of public disclosure from the minimum tax in a number of ways. For firms subject to PCbCR, we study heterogeneity across industries in exposure to public shaming, as measured by media and NGO scrutiny, as well as firm-level variation in reputational vulnerability. With regards to the banking sector, we are able to fully able to isolate effects associated with public reporting as banks are only exempt from PCbCR, not the GMT.

Using firm-level data from S&P Capital IQ Pro and Moody's Orbis databases for all publicly listed firms headquartered in Europe and a difference-in-differences estimation strategy in which large firms subject to PCbCR are considered treated while firms under the threshold are not, we find little evidence, on the aggregate, of anticipatory behavior. Our primary outcome of interest is the cash effective tax rate (worldwide cash taxes over pre-tax income), a ratio commonly used in the accounting literature to measure for corporate tax avoidance. However, when we analyze industries separately, we find evidence that firms in the energy & utilities and—to an extent—real estate industries started shifting their effective tax rates after 2021, with these effects

concentrated among reputation-sensitive firms. The intuition behind this finding is that firms worried about the threat of public shaming may be paying more in taxes now, so that when the data is released in 2026, their baseline effective tax rate looks better. Next, we analyze the banking sector, which was made exempt from PCbCR. We find that large banks started decreasing their effective tax rates after 2021 by more than 8 percentage points. This suggests that banks may be taking advantage of reduced civil society scrutiny on their tax affairs because a) they do not have to release more comprehensive breakdowns on their tax payments and b) the public release of the PCbCR data for all other industries crowds out NGO resources to cover the banking sector. Across specifications, the effects are strongest for banks above the €750 million revenue threshold (and not thresholds that are lower or higher), suggesting we are indeed capturing spillover effects associated with PCbCR. Financial markets also reflect this pattern – banks over the €750 million threshold experienced a statistically significant increase in their stock prices around the announcement of the Directive's exemption.

We explore the mechanisms behind these responses. Reputation-sensitivity is captured by levels in media scrutiny, the reporting "environmental, social and governance" (ESG) scores, or whether a firm is consumer-facing. Around the announcement of PCbCR, media scrutiny on the energy & utilities, real estate, and pharmaceutical industries was particularly high which, in turn, contributed to higher levels of ex ante exposure to public shaming. We later observe large increases in effective tax rates for these three industries, although only the movements in the energy & utilities and real estate sectors correspond with actual changes in cash tax payments (rather than profitability). Within energy & utilities and real estate, we find large and statistically significant increases in effective tax rates for firms with ESG scores, capturing an additional dimension to reputational sensitivity. For banks, we observe that business-to-consumer banks appear to attenuate their response to the public country-by-country reporting exemption, recording smaller decreases in their cash tax payments than banks that are less consumer facing. This suggests that reputation-sensitive banks continue to hedge against the risk of public shaming. In addition, we exploit variation in firm tax avoidance behavior before the announcement of PCbCR.[1] Consistent with the idea that multinational corporations with high tax avoidance activity are more likely to respond to changing global incentives on profit shifting, we find that effects are strongest for firms (exempt or not) with high *ex ante* levels

[1]Simone and Olbert (2022) exploit variation in ex ante tax avoidance to identify firms more exposed to tax enforcement risks under private country-by-country reporting. We adopt a similar strategy, but instead focus on public shaming risk under public CbCR.

of profitability across industries. We similarly observe large effects for energy & utilities firms with subsidiaries in tax havens.

Our results are robust to multiple specifications, firm types, and control groups. We lower bound our control group of small firms to those with at least €50 million in revenue, but find that our results hold with or without the bounding. We look across various subsets of firms, from those headquartered in the EU to those based in the wider European area. We also test robustness to different control groups, from (1) European firms under the threshold to account for geography-specific shocks; to (2) a broader set of United States-based firms to account for firm-size-specific dynamics or shocks related to the global minimum tax. Across control groups, we find the same pattern of large European energy & utilities and real estate firms reporting increases in effective tax rates after 2021 while banks exempt from public country-by-country reporting see decreases in effective tax rates. One limitation of our study is that we focus exclusively on publicly listed firms, even though PCbCR also applies to private firms. However, this restriction allows for more accurate and complete data coverage, particularly with respect to ESG scores. We do not expect the effects observed for public firms to generalize to private firms, as publicly listed firms are typically more exposed to media scrutiny and public pressure.

This study makes several contributions. First, it provides evidence of anticipatory effects associated with tax transparency initiatives targeted at firms. We show that these effects are concentrated in "controversial" industries and among reputation-sensitive firms, suggesting that the threat of public shaming is an important mechanism motivating companies to proactively adjust their tax avoidance behavior. Additionally, our results suggest that tax transparency initiatives can have spillover effects for firms in exempt industries. Our study builds on the literature examining how firms respond to the threat of public shaming, which has been shown to improve compliance with regulations—for example, in health and safety (Johnson; 2020) and in reducing tax delinquency (Dwenger and Treber; 2022). On tax avoidance specifically, scholars have also found firms to respond to public criticism. A public pressure campaign in the U.K. compelling companies to disclose subsidiary information led affected firms to increase their effective tax rates by about 2.7 percentage points (Dyreng et al.; 2016). Firms in "sin" or public-facing industries have been found to be more conscious of their tax avoidance behavior and responsive to tax transparency reforms (Akamah et al.; 2018; Wang et al.; 2022). Investors, too, are sensitive to reputational and financial risks associated with tax avoidance (Rusina; 2020), especially for consumer-facing firms (Hanlon and Slemrod; 2009).

Second, we contribute to the emerging literature on corporate tax disclosures (Hoopes et al.; 2024), with a particular focus on country-by-country reporting. Private CbCR disclosures for large multinational corporations have been in place since 2016.[2] Recent work has found that these disclosures to tax authorities changed firm behavior in terms of tax avoidance activity and investment decisions (Joshi; 2020; Simone and Olbert; 2022). Importantly, as private disclosures applied the same revenue threshold as public country-by-country reporting, our results do not capture effects associated with increased enforcement risk as tax authorities are already perfectly informed. On public reporting, scholars have investigated the impact of an earlier and more limited form of public country-by-country reporting for banks,[3] finding a positive effect on effective tax rates (Overesch and Wolff; 2021) and the delisting of tax haven affiliates (Eberhartinger et al.; 2024).[4] Specific to the EU Directive on public country-by-country reporting, Müller et al. (2024) documents a negative market response around the announcement of the Directive but does not break the analysis down by industry. There are also a number of studies tracking early releases of public country-by-country reports (EU Tax Observatory; 2021; Fair Tax; 2025b). Critically, disclosure in of itself does not constitute public shaming. The effectiveness of tax transparency reforms largely depends on civil society involvement, notably to collect, interpret, and present data in ways that make it accessible to the public, often in the form of rankings. The public shaming dimension of tax transparency reforms, therefore, does not arise from the initial release of data but from the its wider dissemination by activists, the media, and NGOs.

Finally, this study holds important implications for public policy. While statutory tax rate changes are typically regarded as the primary policy lever affecting corporate tax payments, we find that transparency reforms can also induce large changes in effective tax rates for EU-headquartered public companies, although these effects are limited to reputation-sensitive firms. Higher overall tax burdens may also affect firm real economic behavior, for example in location and investment decisions and capital allocation, although this moves beyond the scope of our paper (Becker and Riedel; 2012; Devereux and Griffith; 1998; Fatica; 2013; Grubert and Slemrod; 1998; Jacob; 2021; Simone and Olbert; 2022; Suárez Serrato; 2018). Public policymakers that are interested in minimizing tax avoidance practices across the board may want to keep in mind

[2]Under Action 13 of the OECD's Base Erosion Profit Shifting (BEPS) initiative.

[3]Under the 2013 Capital Requirements Directive (CRD IV).

[4]Joshi et al. (2020) report more mixed results for European banks: while PCbCR appears to deter tax-motivated income shifting, there is limited evidence that the reform reduced overall tax avoidance.

how disparities in public and media attention can distort responsiveness. Moreover, our results suggest that tax transparency initiatives can have unintended consequences if applied unequally across industries, with exempt firms more incentivized to engage in tax avoidance behavior.

The next section provides an overview of the EU regulatory landscape including the move to public country-by-country reporting as well as a global minimum tax for large multinational corporations. Section 3 summarizes the data and sample selection while Section 4 presents our estimation strategies. Section 5 presents and discuss our empirical results.

2 Context

The European Union introduced two major Directives on international tax reform in 2021: (1) public country-by-country reporting (PCbCR), and (2) a global minimum corporate tax (GMT). Both apply a revenue threshold in which only firms with revenue above €750m are subject to the reforms. As our paper focuses on the anticipatory effects associated with PCbCR, we work to separate out its effect from GMT in several ways. One approach we take is to exploit heterogeneity in reputation-sensitivity by industry and at the firm-level. Since the effect of the GMT is largely mechanical, it is unlikely to disproportionately affect reputation-sensitive firms. This contrasts to large-scale tax disclosures which leave such firms particularly exposed. We can also fully isolate the effects of PCbCR from GMT in the banking sector, where some banks were exempt from PCbCR but remain subject to GMT.

Several European states applied digital service taxes to large digital companies in 2019, with some countries such as France and Italy also setting the same €750m revenue threshold for the digital service tax. However, digital service taxes were rolled back in 2021 as part of wider efforts to unify international tax rules (Tax Foundation; 2025). We subsequently exclude firms in the technology and media industry from our analysis below to avoid capturing effects associated with digital service tax roll backs.

2.1 Public country by country reporting

Since 2016, all large MNEs located in the EU or with operations in the EU have been required to report country-by-country breakdowns of key financial data to tax authorities. These reports include information such as revenue, profit before income tax, income tax paid and accrued,

and number of employees for every tax jurisdiction the corporation does business in.[5] The Commission presented a proposal for the public release of the country-by-country data but the measure saw "substantial disagreement among member states" and negotiations remained deadlocked for half a decade. A "surprise" breakthrough came in 2021 with new leadership under the Portuguese Presidency of the Council (Müller et al.; 2024, p. 1897). Firms became aware that public country-by-country tax reporting might become a reality in February, when a Council consensus emerged, and had their suspicions confirmed in June, when the provisional political agreement with the Parliament was announced. Figure 1 shows that media coverage in Europe of public country-by-country reporting peaks in 2016 and 2021, with most 2021 articles concentrated in February and June, consistent with the timeline described above.

Under PCbCR, multinational corporations with global revenues exceeding €750 million are required to publicly publish country-by-country tax data for each Member State, as well as for jurisdictions either deemed "non-cooperative" for tax purposes or that have been on the EU's "grey list" of tax havens for at least two years[6] Some 6,000 multinationals active in the EU are expected to start publicly disclosing tax-related information starting in 2026.[7] The Directive has received significant attention, with global accounting firms referring to PCbCR as "a new era of tax transparency" (PwC UK; 2024). Civil society groups are also gearing up for what will amount to be one of the biggest corporate data reveals in history (Fair Tax; 2025c; Tax Justice Network; 2024b), with NGOs referring to the PCbCR Directive as the new "hottest topic in

[5]County-by-Country Report includes information on "every tax jurisdiction in which the MNE group does business" notably the amount of revenue, the profit before income tax, the income tax paid and accrued, the number of employees, the stated capital, the retained earnings and the tangible assets (European Commission; 2016)

[6]Formally, in-scope PCbCR multinationals include those with consolidated revenues over €750m and operations in multiple EU member states. MNEs can be both large EU-parented groups or large non-EU parented groups. Data needs to be disclosed for all medium to large sized subsidiaries and branches in the EU, as well as a specified number of jurisdictions outside of the EU. A subsidiary or branch is medium sized if it satisfies two or more of the following criteria: (1) Total assets: EUR 5 million; (2) Net turnover: 10 million; and (3) Average number of employees: 50. If a branch meets the revenue threshold, the MNE automatically falls under scope. (Council Directive 2021/2101/EU; Deloitte (2025))

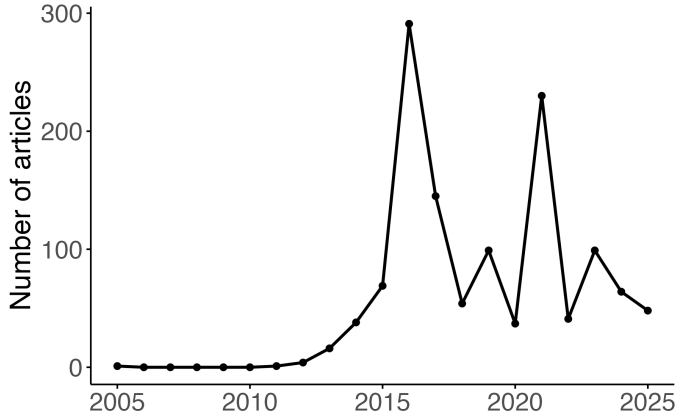
Companies in the oil, gas, mining or logging sectors have specific country-by-country reporting requirements where the following must be disclosed: production entitlements; taxes on income; production or profits; royalties; dividends; signature, discovery and production bonuses; license fees, rental fees, entry fees and other considerations for licences and/or concessions; and payments for infrastructure improvements (European Commission; n.d.). While extractive and logging industries were subject to reporting requirements under Chapter 10 of the EU Accounting Directive (extractive industry), the EU PCbCR does not apply an exemption to these firms as the earlier reporting requirements were "different and less extensive" (KPMG; 2025).

[7]In contrast to other member states, Romania opted to impose PCbCR from FY2024 onwards. Specifically, multinational corporations with significant presence in Romania but headquartered outside of the EU started reporting in 2025. Some 75 firms have already published their reports publicly (Fair Tax; 2025b).

financial reporting."[8] (Fair Tax; 2025c)

Banks headquartered in the EU are exempt from PCbCR due to pre-existing requirements to report country-by-country breakdowns of economic activities, profits and tax payments (Directive 2013/36/EU).[9] The data release from these banking reporting requirements in 2015 saw activists, NGOs and research institutions publish firm rankings and extensive analysis on the effect of the tax transparency reform on corporate tax avoidance (Tax Research; 2015). For example, Aliprandi et al. (2021) find that the effective tax rate of exposed banks increased by approximately 3.6 percentage points in the years following mandatory CbCR.

Figure 1: PCbCR Media Coverage in Europe



Note: Figure 1 plots the number of articles mentioning either "public country by country" or "public country-by-country" over time. Notable peaks corresponding with the initial PCbCR proposal (2016) and the break in negotiations' deadlock (2021) can be observed. Articles are sourced from the Nexis Uni database and cover all major media outlets in Europe. Monthly figures for 2021 are presented in Table C1.

2.2 Global minimum tax

In October 2021, more than 135 countries reached an agreement on a global minimum corporate tax rate of 15% (known as "Pillar 2"). The EU formalized this agreement for their Member States through the EU Minimum Tax Directive. Under the GMT, firms pay a top-up tax if one or more of their entities fails to meet the minimum rate of 15% on profits for a given

[8]The CRD IV reporting requirements are considered limited in detail and leave "many points open to different interpretations" (PwC; 2014). PCbCR is generally considered to be more comprehensive in its demands of multinational firms. For example, whereas the CRD IV reporting requirements are summarized in just five paragraphs, the EU Public CbCR extends over 14 pages.

[9]Under the EU Capital Requirements Directive IV (Directive 2013/36/EU), multinational credit institutions and investment firms headquartered in the EU (plus Iceland, Liechtenstein, and Norway) with at least one foreign subsidiary must publish breakdowns of their economic activities, profits and tax payments. Banks headquartered outside the EU report breakdowns only for their European subsidiaries.

jurisdiction.[10] This will lead to a "mechanically increase in tax payments from firms that pay lower tax rates in certain jurisdictions" (Johannesen; 2022).[11] While global implementation of Pillar 2 has slowed following President Trump's decision to withdraw the United States from the agreement, many jurisdictions began adopting the reform in FY2024. Consequently, the "vast majority" of large U.S. multinationals remain exposed to the GMT through their operations in foreign jurisdictions (Fair Tax; 2025a).

There is no immediate reason why EU-headquartered firms that are reputation-sensitive would be more or less exposed to the GMT. Any heterogeneity on this dimension, therefore, is likely attributed to PCbCR. Furthermore, while the GMT applies the same revenue threshold as PCbCR, there are no industry exemptions (unlike PCbCR) and the GMT is applied globally. Later, we exploit this distinction by focusing on the tax avoidance behavior of the banking sector after receiving its exemption from PCbCR.

3 Data and sample selection

We obtain firm-level data from S&P Capital IQ Pro and Moody's Orbis databases for all publicly listed firms globally from financial years 2019 to 2023.[12] We rely on publicly listed firm data because the availability and quality of data is higher for public firms when compared to private firm data, and collect the following firm-level covariates: revenue, cash taxes paid, earnings before interest and taxation, interest payments, industry, and subsidiary information (names and ISOs).[13] Only firms with complete revenue entries for the pre-period FY2019-2021 are kept to avoid capturing newly listed public firms. We also collect stock market data from S&P Capital IQ Pro for publicly listed firms headquartered in Europe, specifically the daily closing prices around the PCbCR announcement date.

For our primary outcome variable, we calculate each firm's cash effective tax rate in a given year, where ETRs are considered an "ex post measure of tax avoidance" (Overesch and

[10] Member States are obliged to transpose the Directive's provisions into national law by 31 December 2023, with the tax rules applying for Financial Years starting 2024. For example, Hellenic Bank in Cyprus reported a EUR 6.4 million top-up tax payment for FY2024 Q4 (Ekathimerini Newsroom; 2025)

[11] More completely, (Johannesen; 2022) finds that a minimum corporate tax rate may also have the following three effects in countries "adversely affected by profit shifting": (1) mechanically increase in tax payments from firms that pay lower tax rates in certain jurisdictions; (2) reduce the incentives to engage in profit shifting; and (3) address the "race to the bottom" problem in international tax law competition.

[12] Variable names and descriptions are provided in Table A7

[13] The financial variables are sourced from S&P Capital IQ Pro while information on subsidiaries is from Moody's Orbis. We successfully match 91% of all firms in the S&P dataset to their corresponding entries in Orbis.

Wolff; 2021). Low (high) ETRs are generally associated with more (less) tax avoidance. More formally, cash ETR is defined as cash taxes paid over earnings income before taxation (EBT)[14] and captures the current tax expense of firms:

$$\text{Cash ETR} = \frac{\text{Cash Taxes}}{\text{EBT}}_{15}$$

ETRs can be measured in several ways, with the Generally Accepted Accounting Principles approach including both current and deferred tax expenses. Cash ETR is our preferred measure as it is regularly used by tax scholars to measure tax behavior of corporations, especially in corporate social responsibility research.[16] We take two steps—both standard practice in the accounting scholarship studying similar trends in ETR (Overesch and Wolff; 2021, see p.1622)—to address potential outliers and non-plausible ETR value concerns in our firm-year dataset. First, before calculating the ETR, we delete all firm-year observations with negative EBT values.[17] Second, we truncate ETRs outside of the 0–100 per cent range. Table A1 shows descriptive statistics by industry for the cash ETR variable.[18] Among all industries, European real estate firms record the lowest mean ETR, at approximately 14 per cent, which is at least six percentage points below that of any other sector.

We exclude two industries from our main analysis. First, we drop firms in the technology and media industry given the wider context of digital service tax roll backs. Second, we exclude firms in the "Consumer" industry which was severely disrupted by the Covid-19 pandemic. Predominantly in hospitality, tourism, and retail, these firms experienced sharp declines in revenue and profitability (Ozdemir et al.; 2021), and governments responded with targeted tax relief and credits for these hard-hit sectors (Italy MEF; 2020; UK Gov; 2020). Table 1 presents the sample selection step-by-step and associated number of firms and firm-year observations.

We run our analysis on multiple subsets of public firms. First, in order to focus on large firms, we subset to firms with revenue over €50 million. As our empirical strategy relies on a revenue threshold (over €750 million in revenue) to define treatment, this lower bound ensures

[14]Items of non-recurring nature before provision for income tax are excluded from EBT measure

[15]We rely on S&P's EBT variable which excludes "all items of non-recurring nature before provision for income tax."

[16]See Dyreng et al. (2008) and Dyreng et al. (2017) for research on tax behavior of corporations and Huseynov and Klamm (2012), Zeng (2016), and Binhadab (2025) for research on corporate social responsibility.

[17]We delete all firm-year observations with negative EBT values as to avoid negative values on the denominator of the ETR. Replacing negative EBT values avoids the following two scenarios: (1) a negative ETR is entered even though income taxes were positive; or (2) a positive ETR is entered because both income taxes and EBT are negative. This sampling decision also mirrors Overesch and Wolff (2021)'s approach.

[18]Table A6 shows industry and subindustry classifications as published by S&P Global.

Table 1: Sample-Selection Procedure

Selection Procedure	Firm-years	Unique Firms
European public firms covered in S&P Global, FY2019–2023	48,450	9,708
Delete:		
Exclude Consumer and Technology industries	31,005	
Incomplete revenue coverage for FY2019-2021	19,750	
Exclude firm-years with non-positive EBT	13,708	
Exclude ETR % values below 0 or above 100	9,704	
Final Sample	9,704	2,598

that our control group does not contain incomparable small and medium enterprises.[19] Second, we further restrict the sample to firms with complete Cash ETR coverage for FY2019–2023. This balanced-panel subset captures firms with consistent reporting and accounting behavior which, by extension, may imply greater control over tax planning.[20] Third, we examine the following regional subgroups of publicly listed firms: (1) those headquartered in the EU; (2) those headquartered in the EU or the UK; (3) those headquartered in the EU or Switzerland; and (4) those headquartered in the broader European region, including the Balkans, Eastern Europe, and Turkey. We assume that EU-headquartered firms with revenues above €750 million are almost certainly subject to PCbCR. Moreover, because the PCbCR Directive applies to all large MNEs operating in the EU—regardless of their headquarter location—we also expect large UK, Swiss, and other proximate European firms to be effectively covered. We therefore include these additional firms to increase sample size and improve the precision of our estimates. Table A2 reports the jurisdictions classified under EU and Europe, while Table A3 provides the number of firms in each subgroup dataset by industry. In our largest European sample we have a total of 790 firms defined as "treated."[21] The number of treated firms in our analysis is lower than the roughly 6,000 firms (public and private) expected to be subject to PCbCR because we restrict attention to firms headquartered in Europe. While economic presence alone can also trigger applicability, this restriction ensures that we almost certainly capture firms subject to the Directive.

[19]The European Commission defines firms with a turnover under €50 million as small and medium enterprises (European Commission; 2024).

[20]For robustness, we also re-run our analyses without this restriction.

[21]Table A5 shows descriptive statistics for the firm-level difference-in-difference samples across treatment and control in FY2021. We focus on profitability and leverage ratios rather than raw variables such as total assets and total debt which are naturally correlated with total revenue. We find leverage ratios are mostly balanced across treatment and control firms, while profitability is generally lower. This is consistent with the literature that smaller firms have a higher profit rate (Dhawan; 2001).

Next, we classify how sensitive firms are to their public reputation using two different metrics: (1) ESG scores; and (2) and whether firms are consumer facing. ESG scores are sourced from S&P Global.[22] Roughly 13,000 publicly listed companies worldwide have ESG Scores calculated by S&P.[23] These companies are selected based on their market relevance and collectively make up nearly 99 per cent of global market capitalization.[24] Thus, if a firm has an S&P Global ESG Score, this can be seen as a proxy for market and reputation sensitivity. We define a binary variable equal to 1 if a firm has an ESG score, and 0 otherwise. Next, to classify firms as either business-to-business (B2B) or business-to-consumer (B2C), we utilized a locally run Meta Llama 3 70B large language model (LLM). Firm business descriptions from S&P were supplied to the model along with clear task instructions and example classifications (i.e., few-shot prompting). The model then returned categorical labels ("B2B" or "B2C") for each firm. This procedure allowed us to classify firms consistently at scale.[25] As an additional step, we identify industries more exposed to public shaming risk, as proxied by media attention over time. This involves examining changes in media coverage on crises, scandals, regulation, and tax avoidance across industries. We source media data covering all major media outlets in Europe from the Nexis Uni.[26]

Finally, we subset firms by characteristics associated with tax avoidance: tax haven status; and pre-treatment profitability measures. Multinational firms with foreign subsidiaries in tax havens are associated with tax avoidance. We rely on the Tax Justice Network's Corporate Tax Haven Index to classify subsidiaries in tax havens. Countries are considered "tax havens" if they are in the top 15 entries of the Index.[27] We create a binary variable equal to 1 if a firm has one or more subsidiaries located in a tax haven, and 0 otherwise. One limitation of this measure is that tax haven status—particularly in the banking sector—is itself associated with

[22] S&P Global ESG Scores measure "companies' exposure to and performance on key ESG risks and opportunities, the quality and completeness of their public disclosures, and their awareness of emerging but under-reported ESG issues" and are measured on a $0 - 100$ scale.

[23] S&P Global calculates ESG Scores as part of the S&P Global Corporate Sustainability Assessment ("CSA"). Some 13,000 publicly listed companies are part of the CSA "research universe" which covers approximately 18% of all publicly listed firms in the S&P Capital IQ Pro dataset. Companies are invited to voluntarily participate in the CSA. As of March 2022, more than 2,250 companies voluntarily participated in the CSA. If a company does not engage, their ESG Scores are calculated based on publicly available data and by a team of experts at S&P Global. Non-invited but interested companies are also permitted to take part in the CSA.

[24] S&P Global typically selects companies that form part of S&P Dow Jones Indices benchmark indices and the Dow Jones Best-in Class Indices. S&P Global Market Index and market capitalization are also referenced.

[25] Additional details—including the full text of the classification prompt—are provided in Table C2.

[26] Nexis Uni includes full coverage of national, regional and international news across 17,000 sources including newswires.

[27] The Tax Justice Network's Corporate Tax Haven Index is based on two components: the Haven Score, which assesses how a country's laws and regulations enable corporate tax avoidance; and the Global Scale Weight, which reflects the volume of financial activity flowing through the country (Tax Justice Network; 2024a).

heightened reputational risk and potential exposure to public shaming (Eberhartinger et al.; 2024). Profitability provides an alternative and arguably cleaner proxy for firms' incentives to engage in profit-shifting activities (Dunbar et al.; 2010). We construct an indicator variable for profitability based on Return on Assets (ROA): firms are coded as ROA=1 if their ROA is above the sample median by industry, and ROA=0 if it is at or below the median, for FY2021.[28] Subsetting firms by tax haven status or pre-treatment profitability allows us to separate out firms more or less likely to be affected by PCbCR or GMT. More specifically, we hypothesize that firms with tax haven presence or higher *ex ante* profitability will be more likely to respond to changing incentives on global tax avoidance.

4 Estimation Strategy

Multinational corporations with revenues exceeding €750 million for two consecutive financial years will have to publicly report their country-by-country tax data from FY2025 and may be subject to the GMT from FY2024. We consider a firm to be at risk of being subject to PCbCR (or the GMT) if they fall above the revenue threshold. To avoid capturing direct effects associated with the GMT's implementation, we exclude FY2024 from our analysis. More formally, we define a firm as "treated" if their reported revenue exceeds €750 million at least once between FY2019 and FY2021, and control otherwise. With PCbCR announced in 2021, we consider FY2019, FY2020 and FY2021 as the pre-treatment period, and FY2022 and FY2023 as the post-treatment "anticipatory" period.

To investigate the impact of the EU Directive on PCbCR on firm tax behavior, we employ a differences-in-differences (DiD) estimation strategy. We compare publicly listed firms that are likely to fall under the EU Directive to those unlikely to fall under the mandate. We estimate

$$ETR_{it} = \beta_0 + \beta_1 RevenueThreshold_i \times Post2021_t + Year_t + Firm_i + \epsilon_{it} \quad (1)$$

where i indexes the firm and t the financial year. The outcome ETR_{it} is effective tax rate, that is, cash taxes over EBT, and is a percentage value bounded between 0 and 100 percent.

In the 2024 Index, the top 15 corporate tax havens are: British Virgin Islands, Cayman Islands, Bermuda, Switzerland, Singapore, Hong Kong, Netherlands, Jersey, Ireland, Luxembourg, The Bahamas, Isle of Man, Guernsey, Cyprus, and Mauritius. We stop at the Top 15, as the Tax Justice Network's rankings beyond that point begin to include major G20 economies—such as China (ranked 16th), the United Kingdom, France, and others.

[28] Researchers generally default to using ROA when measuring the effect of profitability on tax avoidance (e.g., Hendayana et al. (2024); Kartikaningdyah (2019/12))

$RevenueThreshold_i$ is a binary variable where firms with revenue exceeding €750 million between FY2019 and FY2021 are "treated" (coded as "1"), and "control" (coded as "0") otherwise. $Post2021_t$ is a binary variable for the period before (coded as "0") and after (coded as "1") the announcement of the EU Directive on PCbCR, where the post period includes FY2022 and FY2023. β_1 measures the relative change in ETRs of the firms likely to be subject to the EU Directive relative to the change in ETRs of the firms not affected by the reform. Additionally, large multinational banks headquartered in the EU are exempt from PCbCR. If those large banks exempt from the Directive are moving their ETRs after 2021 relative to smaller banks, this would be evidence that the PCbCR exemption is changing firm tax behavior.

We conduct our analysis separately for industries with high and low exposure to public shaming. Specifically, we separately analyze energy and utilities, real estate, pharmaceuticals, and banking as sectors with high exposure to shaming. As observed in the next section, the energy and utilities and real estate sectors have been subject to increased scrutiny from the mass media and NGOs in recent years, while scrutiny surrounding banks has subsided. We identify additional firm characteristics that proxy for exposure to public shaming and for differential exposure to reforms targeting tax avoidance. To capture reputation-sensitivity, we subset firms by ESG score availability and by business-to-consumer status. We also subset firms by tax haven status and by ex ante profitability to examine whether pre-announcement tax avoidance behavior predicts subsequent changes in ETRs. We re-run the above DiD estimation strategy by these subsets. In some cases, limited within-industry variation prevents us from reporting results across all sectors. For example, we are only able to run the ESG heterogeneity analysis for the energy & utilities and real estate sectors, and the business-to-consumer analysis for the banking sector.

Next, we estimate cumulative abnormal returns surrounding the PCbCR announcement for firms headquartered in Europe. We rely on a market-model event study approach, which measures the stock valuation effects of a corporate event at the time of the event (i.e. a local average treatment effect). This is an interrupted time series model

$$R_{it} = \alpha_i + \delta_i R_{Mt} + \epsilon_{it}$$

where R_{it} captures the returns to firm i at time t, R_{Mt} is the return on the market portfolio (here the MSCI world index) at time t, and ϵ_{it} captures returns to firm i at time t that can

be considered "abnormal" (above and beyond changes in the market porfolio R_{Mt}). α_i is a firm-specific intercept term. The key quantities of interests are therefore the cumulated ϵ_{it} time series, conventionally referred to as "cumulative abnormal returns" (CARs), and specifically the CAR on the day of the Directive announcement. Abnormal returns are then cumulated over an event window of either 5 or 7 days, and aggregated across firms to produce average CARs by sector.

Finally, we examine the relationship between a firms receiving a positive or negative shock to their share price around the announcement of PCbCR and changes in their ETRs in later financial years (relative to FY2019-2021). While the set-up we employ is similar to a difference-in-difference strategy, we do not consider changes in share price to define "treatment" or our estimates to be causal. On one hand, a positive or negative stock price movements can inform firms about their exposure to the EU Directive and subsequently affect management decisions on tax governance (Roy et al.; 2024). On the other hand, stock price movements also capture investor awareness on how the reform will differentially affect firms. Specifically, we estimate for example,

$$ETR_{it} = \gamma_0 + \gamma_1 StockUp_i \times Post2021_t + Year_t + Firm_i + \epsilon_{it} \tag{2}$$

where i indexes the firm and t the financial year. $StockUp$ is a binary variable defined as 1 if a firm-level CAR is positive around a five day event window of the announcement date of PCbCR, and 0 otherwise.[29] γ_1 measures the relative change in ETRs of the firms that received a positive shock to their share price around the announcement of PCbCR relative to firms that did not see a positive increase in their share price.

All of our DiD estimates are derived from the fixed effect counterfactual estimator (FEct) which accommodates heterogeneous treatment effects and accounts for negative weighting issues highlighted in recent literature (Borusyak et al.; 2024; de Chaisemartin and d'Haultfoeuille; 2020; Goodman-Bacon; 2021; Liu et al.; 2024).

[29] More precisely, we estimate firm-level CARs as CAR $= \sum_{t=t_0-5}^{t_0+5} r_t$ where the event window is $[-5, +5]$ around the announcement. The variance of abnormal returns is estimated from the pre-event window $[-30, -6]$.

5 Results

In the following section, we document (1) which industries were most subject to negative media spotlight over the period of our analysis as a measure of threat of public shaming, as well as decreasing NGO scrutiny on the banking sector. We report our estimates of changes in effective tax rates for (2) firms subject to PCbCR; and (3) firms exempt from PCbCR following the announcement of the Directive. And finally, we analyse (4) the market response surrounding the announcement of the PCbCR and its relationship with firm-level tax avoidance behavior, according to the estimation strategies outlined above.

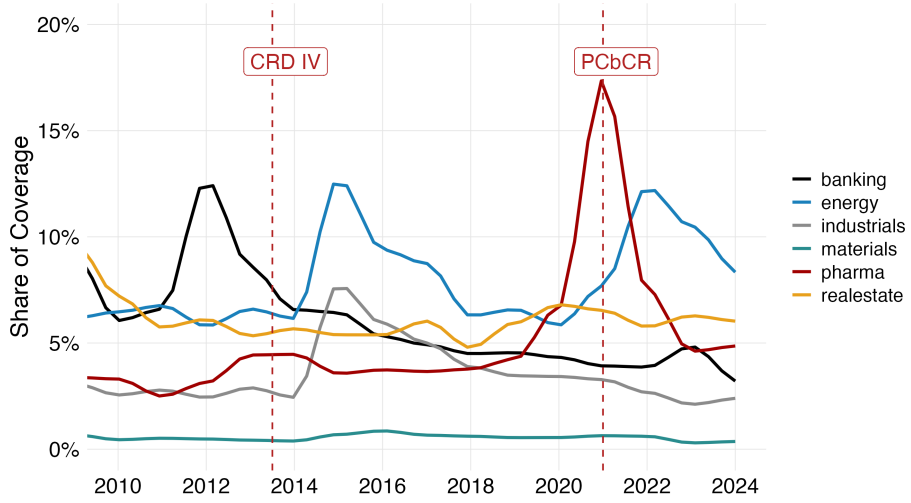
5.1 Media Spotlight

Not all industries are sensitive to public shaming. For public shaming to alter firm behavior, firms must (a) believe that there is a high likelihood their behavior will become public information, and (b) believe that public shaming will materially impact their business. The media spotlight is one way to trace the reputation of industries over time, and the likelihood that a firm in a given industry will be exposed to public criticism. Figure 2 shows how media coverage on scandals across key industries has changed over time, with the y-axis measuring each industry's share of total scandal-related articles in a given year.[30] We observe how coverage on scandals has been particularly high for the energy & utilities, real estate, and pharmaceutical industries in recent years, likely driven by the energy and housing crises and the Covid-19 pandemic. These industries, therefore, had higher ex ante exposure to the threat of public shaming around the announcement of PCbCR. By contrast, the banking sector has seen coverage on scandals steadily decrease since its post-Financial Crisis peak in 2012. It's worth noting that media scrutiny on banking sector was high relative to other industries around the announcement of the industry's own public reporting requirements under CRD IV. Media trends, therefore, could also help explain the effectiveness of CRD IV in changing bank tax avoidance behavior in the earlier period (Eberhartinger et al.; 2024; Overesch and Wolff; 2021).

We can also think of civil society as having a limited "carrying capacity," which constrains

[30]Media data is sourced from Nexis Uni, with data coverage spanning all major media outlets in Europe. Table C3 lists the subindustry labels under each industry classification from Figure 2. Where relevant, NexisUni attaches industry and subindustry labels to articles. We are careful to limit our scope for the banking & finance sector to credit and lending institutions, which maps closely to the coverage of CRD IV. Additionally, some industry classifications such as "Consumer Products" are so broad that they overlap significantly with other industries. For this reason, we focus on industries and subindustries with clearly defined labels. Note, classifications are not mutually exclusive: articles that mention the banking sector may also mention the energy sector etc. and can be included in multiple time series.

Figure 2: Media Coverage on Scandals by Industry, 2010-2024



Note: Figure 2 shows the share of total media coverage on scandals that references the following industries: energy & utilities, banking, pharmaceuticals and biotechnology, real estate, industrials, and materials. Media data is sourced from Nexis Uni, with data coverage spanning all major media outlets in Europe. We identify relevant articles by searching for those containing the words "scandal," "outrage," "uproar," or "controversy," and then use NexisUni's industry and subindustry tags to determine sector classifications (see Table C3 for more information). The dashed red line at 2021 marks the announcement of EU Directive on PCbCR.

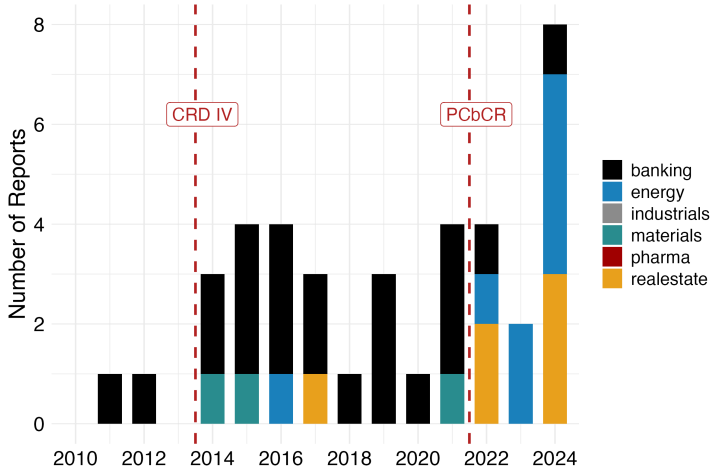
the amount of attention that can be allocated across issue areas and, in our case, industries (Hilgartner and Bosk; 1988). If one set of industries receives a significant increase in attention, this can "crowd out" coverage on other industries. Thus, the public reveal of corporate tax data under PCbCR may generate positive spillovers for exempt industries. In fact, we can observe this crowding-out effect already. Figure 3 reports the number of industry-specific reports on international tax reform published over time by key civil society groups.[31] In the years following CRD IV and prior to 2022, the vast majority of reports focused on the banking sector. This composition changed significantly once PCbCR was announced, with civil society's attention turning to the energy and real estate sectors. In addition, all of the reports specific to banking after 2021 are published by the EU Tax Observatory which was itself only founded and started publishing in 2021.

While positive spillovers are observed for exempt industries, we do not expect positive spillovers to occur for smaller firms falling below the €750 million threshold for several reasons.

[31]Specifically, we collect and code reports published by the following six organizations: Eurodad, EU Tax Observatory, Fair Tax Foundation, Financial Transparency Coalition, Oxfam, and Tax Justice Network. We consider reports to be industry-specific when a single industry is the main object of study, either directly or as a mechanism. In one instance where a report included equal substantive attention to two sectors, we code it as having two industries of focus. For banking, we include reports on financial secrecy reform where the sector is the main focus. For energy, we include reports on energy transition, fossil-fuel financing, climate finance, or ecological impacts directly tied to the energy sector. For real estate, we include reports on ownership transparency and investment related to real estate.

First, smaller firms generally avoid media and wider civil society attention by virtue of their size. Larger firms, considered "institutions in their own right", attract the bulk of attention and are the likely beneficiaries of any diversion of attention away from their industry (Fombrun and Shanley; 1990). Second, research suggests that firms above the threshold account for approximately 95% of profits shifted to tax havens (Clifford et al.; 2025). Even if smaller firms benefited from reduced scrutiny relative to larger firms, they are likely to be much less responsive to changes in incentives to engage in profit shifting.

Figure 3: Research Reports by Industry, 2010-2024



Note: Figure 3 presents the number of industry-specific research reports on international tax reform over time, as well as reports on PCbCR more broadly. The reports are sourced from six leading civil society organizations active in tax transparency reform in Europe: Eurodad, the EU Tax Observatory, the Fair Tax Foundation, the Financial Transparency Coalition, Oxfam; and the Tax Justice Network. Prior to 2021, almost all industry-specific reports included in our sample concerned the banking sector. After the announcement of PCbCR in 2021, NGO focus has shifted away from the banking sector and now increasingly focuses on energy & utilities and real estate markets.

5.2 Subject to PCbCR

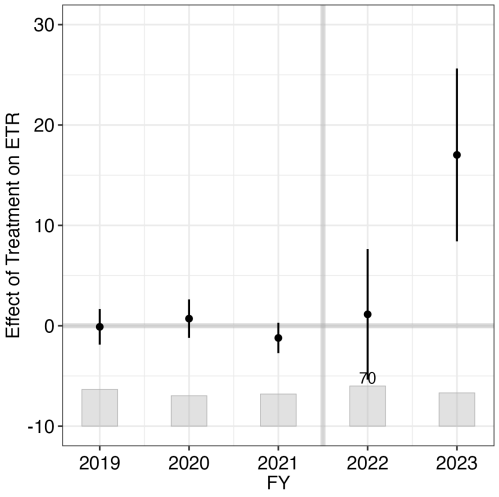
When aggregating across all industries, we find little evidence that firms likely to fall under PCbCR experienced changes in their ETRs following the announcement of the Directive. Table 2 reports DiD estimates aggregated across industries for multiple subsets of firms by location and with bounding on revenue, and shows that while DiD estimates are weakly positive, they are insignificant across specifications.

Significant heterogeneity in the observed changes in ETR begin to emerge when subsetting by industry. Overall, we find large DiD estimates for industries with heavy amounts of media and civil society scrutiny around 2021, while those industries with relatively lower coverage, such as industrials and materials, see null effects across the board. Specifically, Table 2 reports

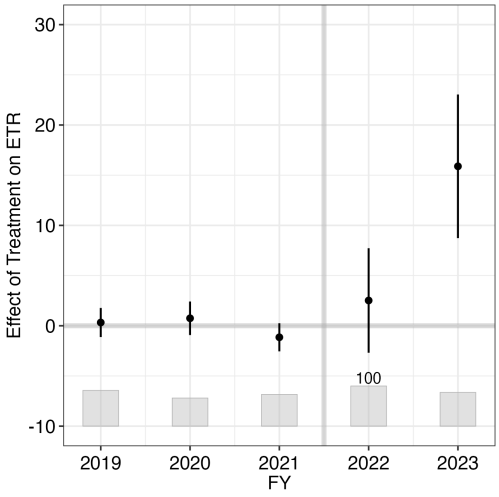
DiD estimates for firms subject to PCbCR by industry, across different subsets of firms by headquarter location. Both Table 2 and Figure 4 show that energy & utilities firms under the EU Directive saw an average increase in ETR of 8.4 percentage points relative to energy & utilities firms not subject to the reform. We observe positive DiD estimates for the real estate industry too, averaging 5.4 percentage points. If we subset on complete panel coverage (ie., complete ETR entries from FY2019-23), which captures firms with stable accounting and financial performance, we find that the real estate point estimates are as large as the energy & utilities estimates (see Table B2). However, the real estate estimates are less precise as they depend on a small number of treated firms (ranging from 9 to 19) and are therefore only suggestive. For the pharmaceutical sub-sector, we also observe large DiD effects but only for firms headquartered in the EU and Switzerland. By contrast, we observe null effects across other industries such as materials and industrials, and finance firms that fall outside of the exemption for banks.

Figure 4: Estimated ATT Event Study

(a) Energy & Utilities: EU HQ



(b) Energy & Utilities: Europe HQ



Note: Figure 4a and Figure 4b plot two-way fixed effects counterfactual (FEct) dynamic ATT estimates of changes in effective tax rates (ETR) for publicly listed energy & utilities firms headquartered in the EU or Europe from Table 2. Confidence intervals are based on non-parametric bootstrap standard errors. Bar plots indicate the number of "treated" firms (i.e., exceeding €750 million revenue threshold) in each financial year.

Next, we check whether Table 2's results for the energy & utilities, real estate, and pharmaceutical sectors are associated with increases in cash tax payments (the numerator of the ETR ratio) or decreases EBT (the denominator). This helps determine whether the observed variation in the ETR reflects genuine changes in tax liabilities or instead arises from movements

Table 2: Subject to PCbCR - Revenue Threshold and Effective Tax Rate, FY2019–2023

	Dependent Variable: Effective Tax Rate (ETR)			
	European HQ (≥€50M)			
	EU (1)	+ CH (2)	+ UK (3)	Europe (4)
Revenue ≥€750M × Post2021				
All Industries	0.46	0.66	0.22	0.24
	(0.96)	(0.89)	(0.82)	(0.76)
Energy & Utilities	8.34***	7.60**	8.82***	8.62***
	(3.09)	(2.99)	(2.58)	(2.58)
Real Estate	5.63	5.33	5.43	5.15*
	(3.82)	(3.50)	(3.42)	(3.01)
Health	4.08	3.91*	0.62	1.61
	(2.49)	(2.35)	(2.74)	(2.63)
Health (Pharma only)	8.63***	8.35***	-0.08	0.64
	(3.06)	(2.57)	(4.61)	(4.05)
Industrials	-0.79	-0.33	-0.22	0.02
	(1.52)	(1.39)	(1.30)	(1.19)
Materials	0.43	0.07	0.33	-2.32
	(3.03)	(2.91)	(2.78)	(2.53)
Other Finance	2.43	3.84	0.19	0.86
	(3.13)	(2.86)	(2.61)	(2.18)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table 2 reports counterfactual estimates of the treatment effect on the effective tax rate (ETR), obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Samples are split by industry. Each entry is a separate regression. For concerns surrounding multiple hypothesis testing, we report Romano–Wolf adjusted p-values in Table B1. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. All samples impose a lower revenue bound of €50 million, with number of firms presented in Table A3. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

in accounted profit. Table B3 and Table B4 present DiD estimates with log cash taxes and log EBT as dependent variables, respectively. For energy & utilities and real estate sectors, the increases in ETRs as reported in Table 2 correspond with real changes in tax payments which are statistically significant at the 0.1 level for most specifications. Both industries see similar increases (in percentage terms), corresponding to, on average, a 24-32 per cent increase in tax payments relative to pre-2022 period. We do not, however, find that the increases in ETRs for the pharmaceutical sector correspond with increases in cash tax payments but decreases in EBT instead. This, coupled with the additional observation that Table 2's pharmaceutical results are null once the UK is included (despite many large UK firms being subject to PCbCR), suggests that shifts in pharmaceutical ETR may be associated with broader macro trends, such

as a return to normal profit levels for large pharmaceuticals after the peak of the Covid-19 pandemic. For these reasons, our subsequent analysis of anticipatory effects associated with PCbCR focuses on the energy & utilities and real estate sectors.

As discussed earlier in the paper, both PCbCR and the GMT apply the same revenue threshold. While the energy & utilities and real estate sectors have higher levels of ex ante media scrutiny, they may also have lower baseline ETRs (relative to other industries). This, in turn, could imply that these industries are more exposed to the global minimum tax of 15%. Figure 5 plots the average treated and counterfactual outcomes for large EU-headquartered firms over time. We find that the energy & utilities industry has a high baseline ETR of about 27 per cent prior to the announcement of PCbCR, while the baseline ETR for the real estate sector sits much lower at 12 per cent. While real estate's lower baseline might imply higher exposure to the GMT, it also likely increases the industry's exposure to tax shaming upon public disclosure.

To further investigate the role played by PCbCR, we exploit heterogeneity in firm-level sensitivity to public shaming within the energy & utilities, and real estate industries. We run this heterogeneity analysis on our largest samples of firms with no revenue lower bound to preserve sample size. Specifically, we present DiD estimates separately for firms with and without ESG scores, as MNEs most exposed to market and reputational pressures are also the ones most likely to receive ESG scores. Table 3 shows that for both the energy & utilities and real estate industries, those firms that are reporting ESG scores have consistently positive, larger, and statistically significant DiD estimates than firms that do not report ESG scores. These results suggest that large, market-sensitive firms are contributing to the observed increase of ETRs between FY2022 and FY2023 in Table 2. When aggregating across all industries, we do not observe this stark difference in ETR estimates by ESG status, suggesting there is an important interactive effect between industry and firm-level exposure to public shaming.

Table 3: Revenue Threshold and Effective Tax Rate by ESG Score, FY2019–2023

	Dependent Variable: Effective Tax Rate (ETR)			
	EU + UK Headquartered		Europe Headquartered	
	ESG Score (1)	No ESG Score (2)	ESG Score (3)	No ESG Score (4)
*Revenue ≥€750M * Post2021*				
All industries	-0.37	2.20	0.73	2.12
	(1.21)	(1.79)	(1.06)	(1.65)
Energy & Utilities	7.48**	3.58	9.00**	3.44
	(3.65)	(5.19)	(3.88)	(4.88)
Real Estate	7.71**†	3.25†	6.63*	3.37†
	(3.74)	(4.83)	(3.43)	(4.81)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Table 3 reports counterfactual estimates of the treatment effect on the effective tax rate (ETR), obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Samples are split by ESG Score status, coded as 1 if a firm has ever had its ESG Score reported by S&P Global (and 0 otherwise). Samples consist of publicly listed firms headquartered in (1) EU or UK; or (2) Europe. We do not lower bound our samples to preserve sample size. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed using bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. † marks average ATT estimates where number of treated (or control) units are below 10 firms.

5.3 Exempt from PCbCR

When examining estimates separately for the banking sector, we find that large banks started decreasing their ETRs after 2021 (see Table 4 and Figure 6), consistent with the idea that banks may be taking advantage of public attention and reporting requirements shifting away from their industry. We support our argument that we are capturing effects associated with PCbCR by varying the revenue threshold from €250 million to €5 billion. The estimates based on the €750 million revenue threshold are largest and most precise, suggesting we are indeed capturing effects specific to the PCbCR exemption. Across specifications for banks exempt from the Directive, the coefficient of interest is negative (ranging from 6.8 to 9 pp) and statistically significant at the 1% level. These estimates are predominantly driven by a decline in cash tax payments of approximately 18 per cent, on average (see Table B3 and Table B4). Conducting back of the envelope calculations,[32] we find that the percentage decreases correspond with at least a €3.9 to €6.9 billion annual reduction in cash tax payments. This suggests that the EU has incurred an unintended but substantial tax revenue loss as a consequence of the PCbCR

[32]We apply point estimates from Table B3 to the baseline (pre-2021) average cash taxes for large banks for each respective specification. We suspect our estimates are likely to be conservative as we capture only a subset of the total number of the banks exempt from PCbCR.

exemption for the banking sector.

Table 4: Exempt from PCbCR - Revenue Threshold and Effective Tax Rate, FY2019–2023

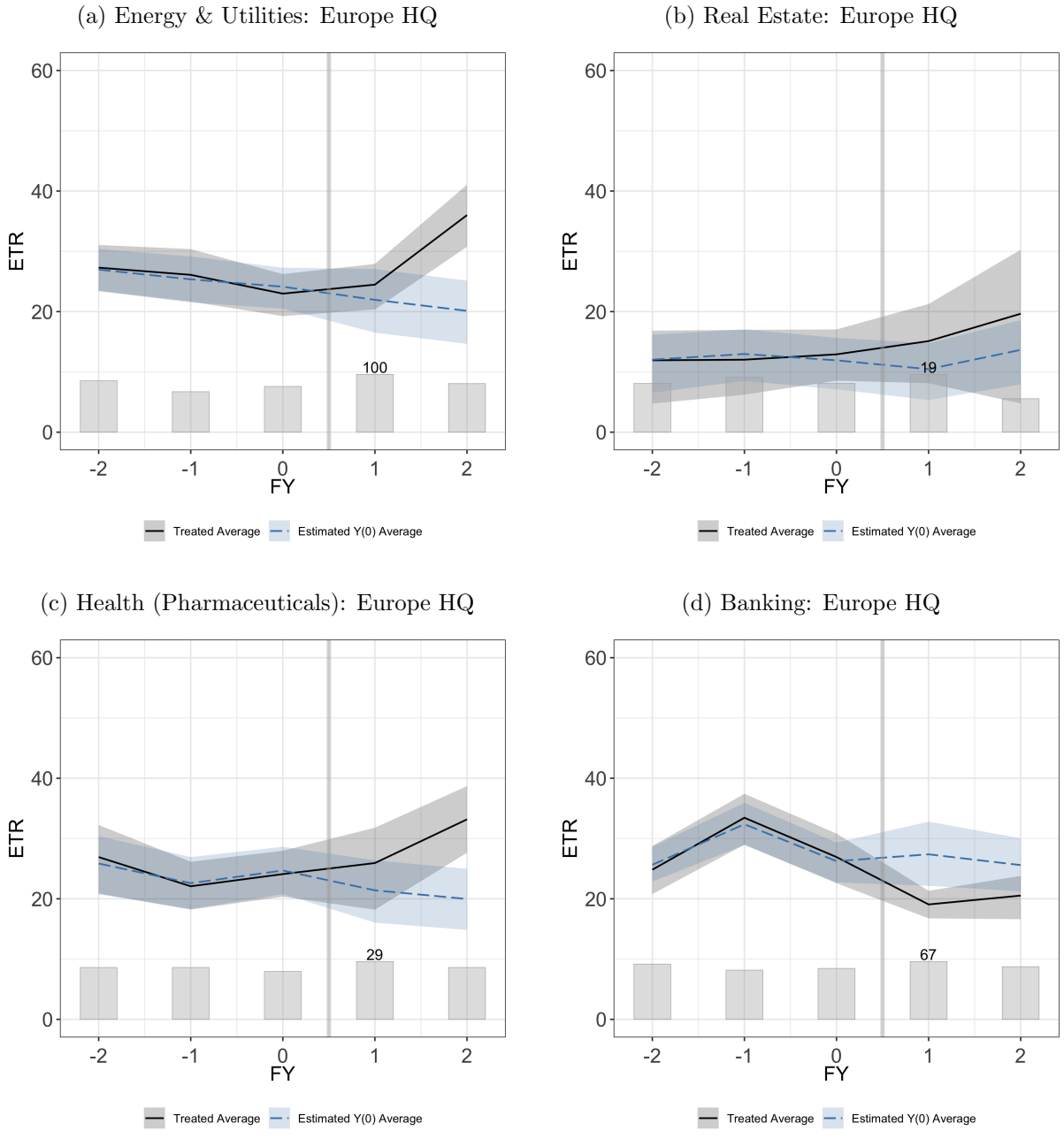
	Dependent Variable: Effective Tax Rate (ETR)			
	European HQ (≥€50M)			
	EU (1)	+ CH (2)	+ UK (3)	Europe (4)
Banking Sector				
Revenue ≥€250M × Post2021	-3.74	-3.58	-4.74*	-1.43
	(3.28)	(3.39)	(2.83)	(3.06)
Revenue ≥€750M × Post2021	-8.80***	-8.68***	-8.99***	-6.76***
	(2.62)	(2.67)	(2.37)	(2.47)
Revenue ≥€1B × Post2021	-6.91***	-6.92***	-7.90***	-5.99**
	(2.58)	(2.61)	(2.34)	(2.41)
Revenue ≥€5B × Post2021	-4.23	-4.37	-4.98**	-4.93**
	(2.90)	(2.93)	(2.43)	(2.41)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table 4 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the revenue threshold and the post-2021 indicator. Each entry is a separate regression and each line corresponds with a different revenue threshold ranging from €250 million to €5 billion. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. All samples impose a lower revenue bound of €50 million, with number of firms presented in Table A4. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

We capture firm sensitivity to public shaming for the banking sector by separately examining consumer-facing and business-facing banks. Table B5 presents separate DiD estimates for the banking sector for B2B and B2C firms. Across specifications, B2C banks have negative DiD estimates that are consistently smaller in magnitude than banks that are B2B. In other words, B2B banks have decreased their ETRs more than B2C banks. Since public facing banks continue to have ex ante exposure to the risk of public shaming, our results suggest that these banks hedge their response to changing incentives under the PCbCR exemption. We are unable to conduct an ESG score analysis for the banking sector as almost all large banks have ESG scores.[33]

[33]We also lack sufficient variation in B2B and B2C status for a heterogeneity analysis of the energy & utilities firms, and have too few observations for the real estate industry.

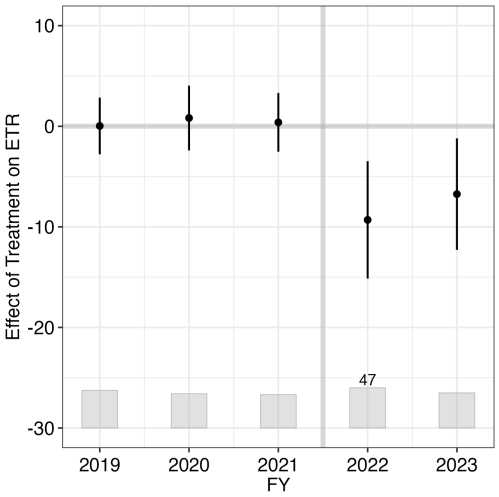
Figure 5: Treated and Counterfactual Outcomes



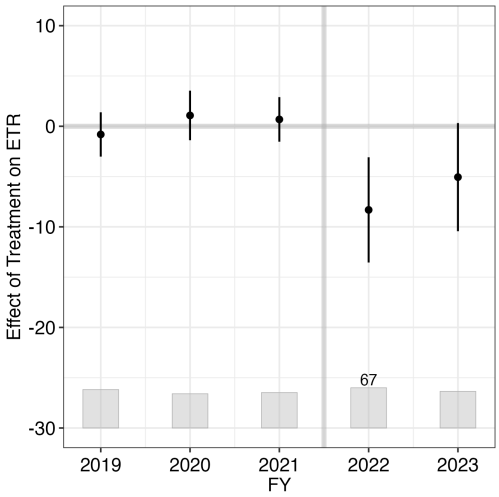
Note: Figure 5 plots the period-wise average treated and counterfactual outcomes for specifications reported in Table 2 and Table 4 for Europe-headquartered firms over the €750 million revenue threshold in the energy & utilities, real estate, pharmaceutical, and banking sectors. The y-axis corresponds with the effective tax rate (ETR) and the x-axis are financial years. The black solid line is the average outcome of the treated firms while the blue dashed line is the average predicted outcome of the firms in the absence of the treatment. Bar plots indicate the number of treated firms in each year.

Figure 6: Estimated ATT Event Study

(a) Banks: EU HQ



(b) Banks: Europe HQ



Note: Figure 6a and Figure 6b plot two-way fixed effects counterfactual (FEct) dynamic ATT estimates of changes in effective tax rates (ETR) for publicly listed banks headquartered in the EU or Europe from Table 4. Confidence intervals are based on non-parametric bootstrap standard errors. Bar plots indicate the number of "treated" firms (i.e., exceeding €750 million revenue threshold) in each year.

5.4 Stock Market Event Study

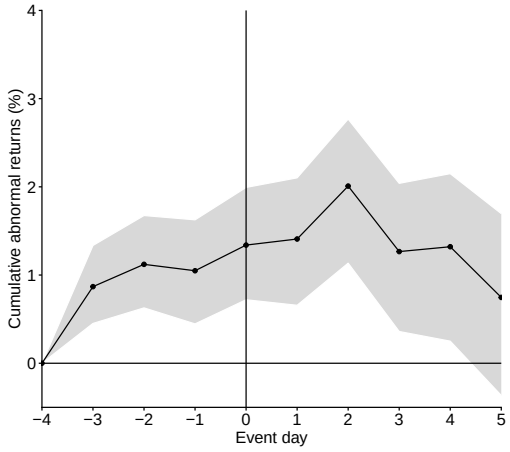
We estimate cumulative abnormal returns surrounding the PCbCR announcement on June 1st 2021 for publicly listed firms headquartered in Europe. Across specifications, we find that large banks headquartered in Europe experienced positive and statistically significant increases in their share prices around the announcement of the exemption (see Figure 7). There is also evidence of information leakage in the 2-3 days preceding the announcement. The positive CARs suggest that investors did not perceive PCbCR as damaging to banks' future profitability; rather, investors responded positively to the announcement, likely due to the exemption granted to banks. We do not find any reactions in the market for energy & utilities and real estate firms subject to PCbCR, as presented in Figure B1. One likely reason for this is that the likelihood of a Directive had been discussed from February 2021 onward, making it difficult to pinpoint an exact date that firms became aware that the new reporting requirements. This contrasts to the exemption for the banking sector, which was only formally confirmed on June 1st. We do, however, find evidence of negative cumulative abnormal returns for energy and utilities and real estate firms overall, suggesting that investors in smaller firms—who, up until June 1, may have been less informed about PCbCR—updated their expectations regarding the broader

reputational exposure these industries face under public disclosure.

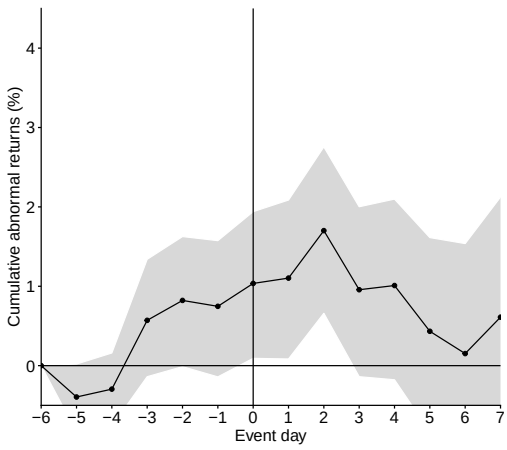
Next, we examine the relationship between an increase in share price around the announcement of PCbCR and movements in ETRs after 2021 for the banking sector. Table B6 reports coefficients on the interaction between an increase in stock price and the post 2021 period. We find across specifications that estimates are large (approximately 4 pp) and negative and statistically significant at the 0.01 level for the FY2023 period. In other words, those banks that experienced positive stock price shocks at the time of the PCbCR announcement later record decreases in their ETRs. Figure 8 plots the results for EU and Europe-headquartered firms over time, showing a similar post-2021 trend in ETRs for the banking sector as in our causal estimates presented in Table 4. Importantly, the estimates from the stock analysis cannot be considered as causal. Rather than firms learning about their exposure to the reform, it is likely that investors anticipated which firms would benefit from the exemption (e.g., larger firms). Consistent with this interpretation, we find a positive correlation of approximately 0.26 between banks experiencing a positive share price shock and those over the PCbCR revenue threshold. We re-run the above analysis but just for banks that are B2B, and find that the estimates double in size, further supporting the earlier finding in Subsection 5.3 that less public facing banks appear to be more likely to take advantage of decreasing attention by the media and NGOs on their sector.

Figure 7: PCbCR Announcement and Cumulative Abnormal Returns

(a) Banks: 5-day window



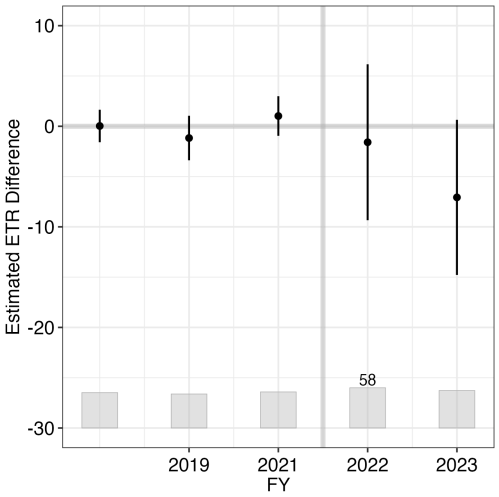
(b) Banks: 7-day window



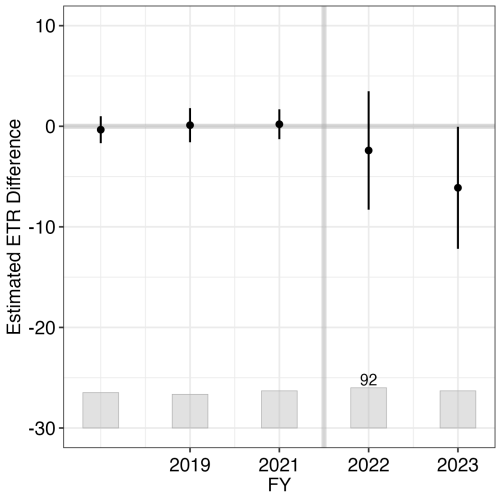
Note: Figure B1 reports estimates of cumulative abnormal returns surrounding the announcement on June 1st 2021 of an agreement on public country-by-country reporting by EU bodies. Reported estimates are specific to large banks headquartered in Europe, which were informed about their exemption from PCbCR on the same date. Estimates are based on market-model event study approach, which measures the stock valuation effects of a corporate event at the time of the event (i.e. a local average treatment effect) above and beyond changes in the MSCI Europe Index. Figure 7a and Figure 7b are based on event study windows of 5 and 7 days, respectively. 95% confidence intervals are calculated using bootstrap.

Figure 8: Stock Price Increase and ETR

(a) Banks: EU HQ



(b) Banks: Europe HQ



Note: Figure 8b and Figure 8a plot estimates of the association between a positive share price shock around the announcement of PCbCR and subsequent changes in effective tax rates (see Table B6, Columns (1) and (4)). Note, these effects are not causal. Confidence intervals are based on non-parametric bootstrap standard errors. Bar plots indicate the number of banks that received a positive share price shock around PCbCR announcement.

5.5 Robustness

To investigate the plausibility of the parallel trends assumption holding for our key energy & utilities and banking estimates, Figure B2 presents results for a leave-one-out pre-trend test based on DiD ETR estimates reported in Table 2 and Table 4. The estimates for the placebo years prior to 2021 are smaller in magnitude and statistically insignificant at conventional levels across key specifications for the energy & utilities and banking sectors. Reported F-test p-values are generally large and equivalence test p-values small, suggesting a lack of evidence of pre-trends.

We present adjusted p-values for Table 2 results by industry, specific to firms subject to PCbCR, in Table B1 to account for multiple hypothesis testing. We rely on the Romano–Wolf correction which asymptotically controls the familywise error rate and is considered more powerful than alternatives as it resamples from the original data to account for dependence across test statistics. We find that our headline results for the energy & utilities industry remain statistically significant, while we lose precision on the real estate estimates in Columns (3)-(4). As discussed earlier, our real estate estimates rely on a small number of treated firms, and must therefore only be interpreted as suggestive.

Additionally, we run various robustness checks for Table 2 and Table 4 related to selected

subsamples and chosen estimators. Table B7 presents estimates for our energy & utilities, real estate, and banking sectors with no lower bound, or with full panel coverage and no lower bound. Across industries, we find similar point estimates and levels of precision. We also re-run Table 2 and Table 4's specifications using a standard linear TWFE model. Again, we find point estimates and levels of precision that are approximate to our main estimates (see Table B8).

Table B9 expands the control group of firms to include large U.S. firms, which, up until President Trump's decision to pull out of the agreement, believed themselves subject to GMT, as well as smaller American firms. Critically, we exclude large American firms with any subsidiary presence in the EU to avoid capturing American multinationals that are also subject to PCbCR. We focus our attention on our primary definition of treatment: firms headquartered in EU that exceed the revenue threshold. Table B9 continues to show large, positive and statistically significant estimates for the energy & utilities firms, although the magnitude of the effect falls suggesting that the GMT may be contributing to some of the observed variation in Table 2. We find similarly large and positive results for the real estate across specifications. Finally, our results for the banking sector only strengthen in precision when we widen the control group.

Next, we consider the relationship between *ex ante* tax avoidance behavior and our key industry results. Table B10 shows that there is a positive and statistically significant relationship between tax haven status (a measure of *ex ante* tax avoidance behavior), revenue threshold, and post-2021 period for energy & utilities firms, while we find null effects for energy & utility firms with no tax havens. This suggests that our energy & utilities estimates from Table 2 are likely capturing effects associated with changing incentives on tax avoidance. Regarding the banking sector, we find negative estimates of larger magnitude for banks with no tax havens, although these estimates rely on a small number of treated firms and should be interpreted with caution. Our results for the banking sector are also more nuanced because on one hand, banks with tax havens are more likely to respond to changing incentives to tax avoid under the PCbCR exemption, while on the other hand, they've also more exposed to the threat of public shaming (Eberhartinger et al.; 2024). To more clearly identify *ex ante* tax avoidance behavior, we instead exploit variation in firm profitability before the announcement of the EU Directives. Table B11 presents ETR estimates separated by *ex ante* profitability, notably whether firms had a high or low ROA in FY2021 (relative to their industry medium in FY2021). Across all specifications, the results indicate that highly profitable firms are contributing more to the observed increases in ETR in the energy & utilities and real estate industries, and the observed

decreases in ETR in the banking sector. Collectively, our results suggest that the movements in ETR and cash tax payments captured after 2021 are likely attributed to global changes in incentives to tax avoid.

On the energy & utilities result, we also consider the importance of the introduction of European windfall taxes on energy providers in 2022. These taxes targeted excess profits in the wake of the Covid-19 pandemic and Russia's invasion of Ukraine. The schemes varied significantly by their tax type and rate, scope and exemptions, base, and date of implementation. Recent research also found that large firm stock prices had a stronger negative market reaction to the announcement of windfall taxes in the U.K. (Allee et al.; 2024). Consequently, we recognize that Table 2's results for the energy & utilities industry may capture a combination of changes in international tax law and energy taxes, which collectively create a "perfect storm" for changes in tax avoidance behavior. For example, ERG S.p.A discussed energy levies alongside changes in international tax reform in its FY2023 annual report. Table 2 estimates for FY2023 are also large and correspond with the timing of the EU-wide "solidarity contribution" imposed that year. As an extreme robustness check, we drop all energy & utilities firms that we identify as directly subject to windfall taxes from our analysis (see Table B12).[34] We find that our headline results of large positive estimates hold across all specifications, although precision is lost for some of the smaller samples under full panel coverage. In short, Table B12 provides supportive evidence that our results are not solely explained by firms that had windfall tax exposure. However, due to the complexity of the tax environment in FY2022 and FY2023, it remains difficult to fully separate the effects of international tax reform from energy levies.

On the banking result, we might be concerned that our DiD estimates are capturing effects associated with the Covid-19 pandemic which had a significant effect on the sector's profitability in FY2020 (European Banking Federation; 2024). This disruption is evident in Figure 5's counterfactual plots, which saw lower EBT levels drive up cash ETRs for both small and large banks in FY2020. However, we find that even when we drop FY2020 from our sample, our DiD estimates remain large and negative, and highly statistically significant as evidenced in Table B13

Finally, we check if statutory corporate tax rates changed over the period of interest. Figure C1a and Figure C1b plot the combined statutory corporate income tax rates in the five

[34]We searched for the following terms across all firm reports, transcripts, and other documents in the S&P database: "levy" OR "windfall" OR "solidarity contribution" OR "levies" OR "supplementary charge". If we identified a firm as having paid any windfall tax for FY2022-FY2023, we drop them from the analysis.

largest European economies and tax havens, respectively. Statutory tax rates remained unchanged in years 2022 and 2023, except for the United Kingdom which increased its statutory rate in 2023 by 6 percentage points. For the Europe sample (but not EU sample which excludes the UK), this statutory rate change could explain part of the increase in ETRs observed for the energy & utilities and real estate firms in FY2023, but not FY2022. There is also a robust literature on how large multinational corporations are less bound by domestic corporate tax rates in major European economies (Bratta et al.; 2024; Dowd et al.; 2017). Rather, MNEs are more sensitive to statutory tax rate changes in tax havens, which has seen little to no movement over the past 5 years. We therefore find little evidence that changes in domestic corporate tax rates might explain the changes in firm level ETRs after 2021.

6 Concluding remarks

By 2026, some 6,000 multinational firms with a presence in Europe will be compelled to publicly release previously private data on their tax affairs. As civil society gears up for what will be the single largest release of corporate tax data in history, many firms will suddenly be exposed to a high risk of public shaming, while others exempt from the Directive are likely to benefit from reduced media and public attention.

In this paper, we have studied anticipatory effects associated with PCbCR, documenting substantial heterogeneity across industries. Large firms in the energy and real estate sectors record substantially higher effective tax rates after the announcement of the EU Directives, and these effects are particularly strong for reputation-sensitive firms. We observe how these industries have been increasingly under the media spotlight in recent years, leaving them particularly exposed to the threat of public shaming. In contrast, we find that banks exempt from PCbCR are reporting significantly lower effective tax rates. These effects are weaker for banks that are consumer-facing, suggesting that these banks are more cautious in taking advantage of positive spillovers associated with the reporting exemption.

Our study strikes a cautionary tone about the effectiveness of public transparency initiatives for multinational corporations. While the threat of public shaming alone can motivate behavioral change, this effect appears conditional on a firm's prior exposure to public and media scrutiny. At the same time, when transparency reforms are not applied uniformly across industries, they risk generating unintended spillover effects for exempt firms. In particular, the

PCbCR exemption appears to have incentivized tax avoidance in the banking sector. Transparency may therefore drive intended change mainly in image-conscious firms subject to reporting requirements, while others act counter to policy goals as scrutiny shifts away. As a result, the net effect of public reporting on tax revenue remains ambiguous.

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Part I
Supporting Information

A Summary Statistics

Table A1: Summary Statistics for Cash ETR by Industry

		Cash ETR						
Sample	Observations	Mean	Median	SD	Min	1st Qu.	3rd Qu.	Max
All Industries								
EU HQ (≥€50M)	4,755	24.8	22.2	17.7	0.0	12.7	32.5	99.7
EU HQ (full panel)	3,735	23.8	21.9	15.7	0.0	13.4	31.0	98.6
Europe HQ (≥€50M)	7,107	24.3	21.7	17.5	0.0	12.7	31.5	99.7
Europe HQ (full panel)	5,585	23.7	21.7	15.2	0.0	14.0	30.3	99.0
Banking (CRD IV)								
EU HQ (≥€50M)	423	21.8	18.6	15.5	0.2	10.8	29.3	94.5
EU HQ (full panel)	350	21.9	18.4	14.8	0.3	12.0	29.0	94.5
Europe HQ (≥€50M)	651	22.8	19.9	15.7	0.1	12.3	29.5	94.5
Europe HQ (full panel)	570	22.9	19.9	14.3	0.3	14.0	28.6	94.5
Other Finance								
EU HQ (≥€50M)	468	24.2	21.6	17.9	0.0	12.4	31.6	99.6
EU HQ (full panel)	385	21.9	20.0	14.1	0.0	12.6	29.2	77.9
Europe HQ (≥€50M)	873	23.5	21.2	16.4	0.0	13.2	30.8	99.6
Europe HQ (full panel)	830	22.0	20.5	12.8	0.0	13.6	28.3	87.7
Energy & Utilities								
EU HQ (≥€50M)	472	25.9	20.7	19.3	0.0	13.1	36.3	97.7
EU HQ (full panel)	335	25.7	21.0	17.0	0.4	15.2	33.6	97.7
Europe HQ (≥€50M)	700	25.2	20.1	20.5	0.0	9.9	35.8	99.7
Europe HQ (full panel)	420	24.1	19.9	17.1	0.1	12.9	32.3	97.7
Health								
EU HQ (≥€50M)	521	26.1	23.9	16.1	0.0	15.2	33.4	94.6
EU HQ (full panel)	465	26.0	23.5	14.6	0.0	16.4	33.4	87.3
Europe HQ (≥€50M)	696	25.4	22.7	16.4	0.0	14.4	32.5	99.7
Europe HQ (full panel)	600	25.5	22.7	14.6	0.0	15.7	32.2	99.0
Health - Pharma								
EU HQ (≥€50M)	222	23.3	21.5	14.2	0.0	13.3	31.1	86.4
EU HQ (full panel)	195	24.0	22.0	13.0	1.2	14.8	30.3	70.5
Europe HQ (≥€50M)	308	23.1	21.1	14.7	0.0	13.4	30.2	99.0
Europe HQ (full panel)	265	23.4	21.3	13.2	0.9	14.5	29.3	99.0
Industrials								
EU HQ (≥€50M)	1,922	27.6	25.2	17.4	0.0	16.3	34.3	99.7
EU HQ (full panel)	1,380	26.8	24.9	15.3	0.0	17.2	32.9	98.6
Europe HQ (≥€50M)	2,750	26.4	24.1	17.0	0.0	15.7	33.0	99.7
Europe HQ (full panel)	2,005	25.8	24.1	14.9	0.0	16.9	31.8	98.6
Materials								
EU HQ (≥€50M)	501	24.9	22.3	17.0	0.0	13.8	31.2	98.0
EU HQ (full panel)	345	24.4	23.0	14.7	0.1	14.8	30.6	94.6
Europe HQ (≥€50M)	847	25.3	22.0	17.7	0.0	13.9	31.8	99.3
Europe HQ (full panel)	585	25.4	23.2	15.4	0.1	15.6	31.3	94.6
Real Estate								
EU HQ (≥€50M)	448	13.6	8.1	16.9	0.0	2.7	17.5	98.3
EU HQ (full panel)	475	14.6	9.8	15.9	0.0	3.3	20.1	98.3
Europe HQ (≥€50M)	590	13.5	8.4	16.0	0.0	2.6	19.2	98.3
Europe HQ (full panel)	575	15.3	11.2	15.8	0.0	3.6	21.6	98.3

Note: Table A1 reports summary statistics for the cash effective tax rate (ETR), defined as current tax expense divided by pre-tax income. Summary statistics include the number of firm-year observations, mean ETR, median ETR, standard deviation, and quartile range variables for ETR, calculated over FY2019-23.

Table A2: EU and Europe Country Classifications

EU: Member States as of 2025	**Europe (wider Europe)**
Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Serbia, Moldova, Belarus, Ukraine, Armenia, Azerbaijan, Georgia, United Kingdom, Switzerland, Liechtenstein, Norway, Iceland, Turkey.

Note: Table A2's left column lists current EU-27 Member States (as of 2025). The right column lists countries and territories associated with wider continental Europe.

Table A3: Number of Firms by Location and Industry

	Headquartered							
	EU		EU + UK		EU + CH		Europe	
	Total	≥€750M	Total	≥€750M	Total	≥€750M	Total	≥€750M
All firms								
All Industries	1,802	544	2,165	666	1,916	608	2,650	790
Banks	125	47	149	56	129	48	194	68
Other Finance	206	48	271	67	225	60	353	83
Energy & Utilities	152	74	189	90	156	76	240	105
Health	183	62	208	70	203	72	242	81
Industrials	640	212	768	262	676	235	904	305
Materials	155	57	187	70	166	67	270	91
Real Estate	267	15	307	18	277	16	346	19
Pharma	74	29	86	33	84	34	101	38
€50M lower bound								
All Industries	1,295	544	1,587	666	1,401	608	1,938	790
Banks	100	47	119	56	103	48	151	68
Other Finance	128	48	178	67	145	60	227	83
Energy & Utilities	120	74	154	90	123	76	194	105
Health	134	62	152	70	154	72	181	81
Industrials	492	212	603	262	527	235	708	305
Materials	127	57	155	70	138	67	218	91
Real Estate	134	15	157	18	141	16	177	19
Pharma	60	29	69	33	70	34	82	38
Full panel								
All Industries	786	346	967	419	865	400	1,170	504
Banks	70	31	87	39	72	32	114	49
Other Finance	77	31	111	42	92	42	166	57
Energy & Utilities	67	44	75	49	71	46	84	54
Health	93	45	106	49	105	53	120	57
Industrials	276	136	347	167	302	155	401	197
Materials	69	30	89	40	76	37	117	51
Real Estate	95	7	106	8	101	8	115	9
Pharma	39	22	46	25	46	27	53	30

Note: Table A3 reports the number of firms and number of treated firms underlying key specifications in Table 2. The ≥€750M columns report the number of firms treated under the revenue threshold condition.

Table A4: Banks: Number of Firms by Location and Threshold

	Headquartered							
	EU		EU + UK		EU + CH		Europe	
	Total	≥€750M	Total	≥€750M	Total	≥€750M	Total	≥€750M
€50M lower bound								
Banks	100	47	119	56	103	48	151	68
		≥€250M		≥€250M		≥€250M		≥€250M
		74		87		77		111
		≥€1B		≥€1B		≥€1B		≥€1B
		43		50		43		61
		≥€5B		≥€5B		≥€5B		≥€5B
		17		22		17		26

Note: Table A4 reports the number of banks and number of "treated" banks underlying key specifications in Table 4. The revenue threshold columns report the number of firms defined under treatment.

Table A5: Ratio Summary Statistics by Treatment Status

Variable	All	Control	Treated
Profitability Ratios			
Return on average assets (ROAA)	5.89	6.18	5.38
	(6.03)	(6.43)	(5.26)
EBITDA Margin	0.34	0.41	0.24
	(1.99)	(2.50)	(0.39)
Basic Earning Power (BEP)	0.09	0.09	0.08
	(0.09)	(0.09)	(0.07)
Leverage Ratios			
Debt-to-EBITDA	5.51	6.36	4.12
	(38.38)	(48.38)	(6.84)
Debt-to-Equity	0.97	0.89	1.10
	(2.12)	(2.45)	(1.41)
Debt-to-Asset	0.24	0.23	0.26
	(0.19)	(0.20)	(0.16)

Note: Table A5 reports the mean and standard deviation (in parentheses on the row below) of firm profitability and leverage ratios in FY2021. Results are shown separately for European headquartered firms in control (under €750M threshold) versus treatment (over €750M threshold). Profitability is generally lower in the pre-treatment period for treated firms, while leverage is more balanced.

Table A6: S&P Global Industry and Subindustry Classification

Industry	**Subindustry**
Financials	Banking; Insurance; Mortgage Banks and Brokers; Specialty Finance; Investment and Business Development Companies; Mortgage REIT; Asset Management; Investment Banks, Brokers and Capital Markets; Financial Exchanges; Credit Rating and Reporting; Financial Technology; Payments; Holding Companies, Patent Owners, and Trusts or Estates
Real Estate	Equity REIT; Real Estate Management and Development
Energy & Utilities	Oil, Gas and Coal; Utilities; Independent Power Producers and Energy Traders; Renewable Electricity
Materials	Chemicals; Metals and Mining; Construction Materials; Containers and Packaging: Metal, Glass, and Plastic; Packaging and Materials: Paper and Plastic; Forest Products; Paper Products
Health Care	Health Care Equipment; Health Care Supplies; Health Care Providers and Services; Health Care Technology; Pharmaceuticals, Biotechnology and Life Sciences
Health Care - Pharma	Pharmaceuticals, Biotechnology; Life sciences firms
Industrials	Capital Goods; Commercial and Professional Services; Transportation
Consumer	Retail; Producers; Hotels, Restaurants and Leisure; Education Services; Specialized Consumer Services
Tech/Media/Tele	Information Technology; Media and Entertainment; Telecommunication Services
Unclassified	—

Note: Table A6 displays industry and subindustry classifications as labeled by S&P Global.

Table A7: Financial Variable Definitions

Variable Name	**Acronym**	**Definition**
Total Assets	–	Universal assets owned by the company as of the date indicated, as carried on the balance sheet and defined under the indicated accounting principles
Total Equity	–	Universal equity as defined under the indicated accounting principles. Includes par value, paid in capital, retained earnings, and other adjustments to equity.
Total Debt	–	Universal aggregate unpaid principal balance owed under financial obligations to other parties, required to be paid by a specified date or on demand
Total Revenue	–	Universal revenue attributable to the ongoing operations
Cash Taxes	–	Cash flows towards income tax payments or refunds received by the company
Interest Expense	–	Universal interest on debt and other borrowings, on an incurred basis. Includes the amortization of discount or premiums and interest on capital leases.
EBT	–	Earnings of the company excluding all items of non-recurring nature before provision for income tax
Net Income	–	Universal net income after taxes, minority interest, and extraordinary and other after-tax items
Ratio Name		
Cash effective tax rate*	ETR	A firm's cash taxes divided by EBT
Return on average assets	ROAA	Return on average assets; net income as a percent of average assets. Profitability ratio that shows the ability of a firm's assets to generate net income
Return on average equity	ROAE	Return on average equity; net income as a percent of average equity. Profitability ratio that shows the ability of the firm's equity to generate net income
EBITDA Margin*	–	EBITDA divided by revenue. Measures how much operating profit a firm generates for every euro of revenue
Basic Earning Power*	BEP	A firm's EBIT divided by its total assets. Measures firm's operating profitability
Debt-to-EBITDA*	–	Measures a firm's ability to service its debt with EBITDA. The ratio reveals how many years of earnings it would take the firm to repay its debt
Debt-to-Equity	D/E	All debt, senior and subordinated, as a multiple of equity. Measures the proportion of debt a firm is using to finance its assets relative to the value of total shareholders' equity
Debt-to-Asset*	D/A	Measures the percentage of a firm's assets financed by debt

Note: Table A7 lists variable names, associated acronyms and definitions. Variables (and definitions) are pulled directly from S&P Global except for those marked with asterisck (*) which are constructed using S&P Global variables but not provided directly.

B Estimates and Robustness

Table B1: Subject to PCbCR - Revenue Threshold and Effective Tax Rate, FY2019–2023 (Romano-Wolf adjusted)

	Dependent Variable: Effective Tax Rate (ETR)			
	European HQ (≥€50M)			
	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)
Revenue ≥€750M × Post2021				
All Industries	0.46	0.66	0.22	0.24
	(0.91)	(0.91)	(0.87)	(0.76)
By industry (RW adjusted *)				
Energy & Utilities	8.34**	7.60*	8.82**	8.62**
	(3.10)	(3.03)	(2.60)	(2.52)
Real Estate	5.63	5.33	5.43	5.15
	(3.73)	(3.43)	(3.28)	(2.96)
Health	4.08	3.91	0.62	1.61
	(2.49)	(2.24)	(2.75)	(2.57)
Health (Pharma)	8.63**	8.35**	-0.08	0.64
	(2.97)	(2.54)	(4.62)	(4.29)
Industrials	-0.79	-0.33	-0.22	0.02
	(1.45)	(1.44)	(1.30)	(1.23)
Materials	0.43	0.07	0.33	-2.32
	(3.22)	(2.94)	(2.74)	(2.62)
Other Finance	2.43	3.84	0.19	0.86
	(3.28)	(2.92)	(2.68)	(2.14)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table B1 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Each entry is a separate regression. To address concerns surrounding multiple hypothesis testing, Table B1 presents Romano-Wolf-adjusted p-values. As compared to Table 2, we find that key estimates for the energy & utilities and pharmaceutical industries remain significant, while we lose precision for the real estate estimates. Underlying samples across Columns (1)-(4) consist of publicly listed firms headquartered in (1) European Union; (2) European Union or Switzerland; (3) European Union or the United Kingdom; or (4) Europe more broadly. All samples have a lower revenue bound of €50 million. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed using bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B2: Subject to PCbCR - Revenue Threshold and Effective Tax Rate, FY2019–2023 (Full Panel Coverage)

	Dependent Variable: Effective Tax Rate (ETR)			
	European HQ (complete panel and ≥€50M)			
	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)
Revenue ≥€750M × Post2021				
Energy & Utilities	7.62***	6.57**	6.49**	6.04**
	(2.95)	(2.88)	(2.61)	(2.50)
Real Estate	8.81*†	7.90†	9.19*†	8.26*†
	(5.30)	(4.91)	(4.72)	(4.24)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table B2 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. When compared to Table 2, Table B2 presents results only for firms with complete coverage of ETRs over FY2019-FY2023 period. Each entry is a separate regression. The underlying samples across Columns (1)-(4) consist of publicly listed firms headquartered in (1) European Union; (2) European Union or Switzerland; (3) European Union or the United Kingdom; or (4) Europe more broadly. All samples have a lower revenue bound of €50 million. Standard errors in parentheses, clustered at the firm level, computed using bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. † marks average ATT estimates where number of treated (or control) units are below 10 firms.

Table B3: Revenue Threshold and Log Cash Taxes, FY2019–2023

	Dependent Variable: Log Cash Taxes							
	European HQ (≥€50M)				European HQ (complete panel and ≥€50M)			
	EU (1)	+ CH (2)	+ UK (3)	Europe (4)	EU (5)	+ CH (6)	+ UK (7)	Europe (8)
Revenue (≥€750M) × Post2021								
PANEL A: SUBJECT TO PCBCR								
Energy & Utilities	0.39*	0.26	0.35*	0.23	0.22	0.08	0.14	0.05
	(0.22)	(0.20)	(0.21)	(0.19)	(0.22)	(0.21)	(0.21)	(0.20)
Real Estate	0.43*	0.36*	0.43*	0.34*	0.16	0.18	0.16	0.18
	(0.23)	(0.21)	(0.22)	(0.19)	(0.28)	(0.25)	(0.25)	(0.22)
Pharma	0.01	-0.05	0.09	0.02	-0.11	-0.12	-0.03	-0.05
	(0.16)	(0.14)	(0.17)	(0.14)	(0.18)	(0.15)	(0.18)	(0.15)
PANEL B: EXEMPT FROM PCBCR								
Banks	-0.19	-0.26*	-0.22	-0.14	-0.32**	-0.35***	-0.32**	-0.21
	(0.15)	(0.15)	(0.15)	(0.15)	(0.13)	(0.13)	(0.13)	(0.13)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	No	No	No	No	No	No	No	No

Note: Table B3 reports linear two-way fixed effects (fixest) estimates of the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator on logged cash taxes. We do not rely on the FEct estimator for log-transformed outcomes due to concerns about interpretability and structural assumptions imposed. The underlying samples across columns consist of publicly listed firms headquartered in European Union; European Union or Switzerland; European Union or the United Kingdom; or Europe more broadly. Columns (1)-(4) are lower bounded at €50 million in revenue and Columns (5)-(8) further filter by firms with complete panel coverage (ie, complete ETR entries). Period covered is FY2019-FY2023. Standard errors are clustered at the firm level. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B4: Revenue Threshold and Log EBT, FY2019–2023

	Dependent Variable: Log EBT							
	European HQ (≥€50M)				European HQ (complete panel and ≥€50M)			
	EU	+ CH	+ UK	Europe	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revenue (≥€750M) × Post2021								
PANEL A: SUBJECT TO PCBCR								
Energy & Utilities	0.01	-0.10	0.02	-0.12	-0.02	-0.00	-0.05	-0.15
	(0.14)	(0.15)	(0.13)	(0.14)	(0.14)	(0.14)	(0.13)	(0.15)
Real Estate	0.09	0.04	0.06	0.02	-0.20	-0.22	-0.21	-0.21
	(0.12)	(0.11)	(0.11)	(0.10)	(0.16)	(0.14)	(0.15)	(0.13)
Pharma	-0.34**	-0.13	-0.33**	-0.14	-0.30**	-0.14	-0.29**	-0.14
	(0.17)	(0.17)	(0.15)	(0.16)	(0.12)	(0.13)	(0.11)	(0.13)
PANEL B: EXEMPT FROM PCBCR								
Banks	0.12	0.10	0.10	0.15*	0.04	0.02	0.03	0.12
	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	No	No	No	No	No	No	No	No

Note: Table B4 reports linear two-way fixed effects (fixest) estimates of the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator on logged earnings before taxation (EBT). We do not rely on the FEct estimator for log-transformed outcomes due to concerns about interpretability and structural assumptions imposed. The underlying samples across columns consist of publicly listed firms headquartered in European Union; European Union or Switzerland; European Union or the United Kingdom; or Europe more broadly. Standard errors are clustered at the firm level. Columns (1)-(4) are lower bounded at €50 million in revenue and Columns (5)-(8) further filter by firms with complete panel coverage (ie, complete ETR entries). Period covered is FY2019-FY2023. Standard errors are clustered at the firm level. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B5: Revenue Threshold and Effective Tax Rate by B2B/B2C, FY2019–2023

	Dependent Variable: Effective Tax Rate (ETR)			
	EU + UK Headquartered		Europe Headquartered	
	B2B	B2C	B2B	B2C
	(1)	(2)	(3)	(4)
*Revenue (≥€750M) * Post2021*				
Banks	-14.73***	-7.10***	-13.78***	-4.40*
	(4.53)	(2.56)	(3.95)	(2.48)
Other finance	0.15	2.23	0.55	2.51
	(2.33)	(4.09)	(2.14)	(2.92)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

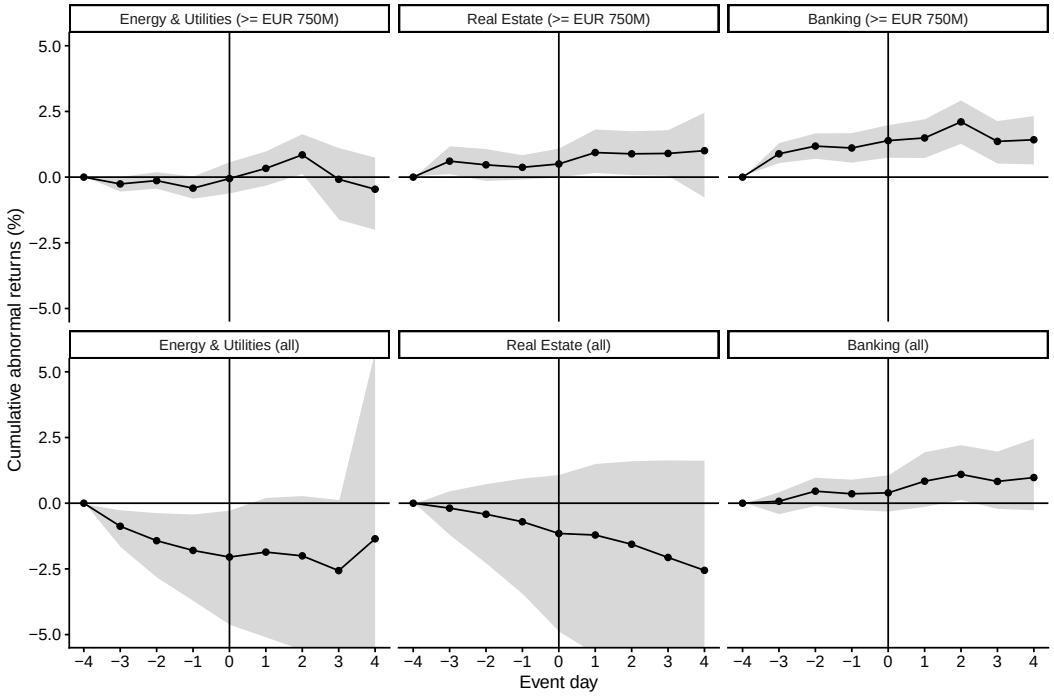
Note: Table B5 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification Liu et al. (2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Samples are split by B2B/B2C classification. The underlying sample for Columns (1)-(2) and Columns (3)-(4) consist of publicly listed firms headquartered in European Union and Europe, respectively. We do not lower bound our samples to preserve sample size. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed using bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B6: PCbCR Announcement, Stock Price Increase and Effective Tax Rates, FY2019-2023

	Dependent Variable: Effective Tax Rate (ETR)			
	European HQ			
	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)
Stock Increase × *Post2021*				
PANEL A				
Banking Sector				
Avg Estimate	-4.23	-4.30	-4.27	-4.19
	(3.42)	(3.19)	(2.96)	(2.67)
FY2022	-1.59	-1.83	-2.03	-2.40
	(3.96)	(3.70)	(3.41)	(3.00)
FY2023	-7.07*	-7.04*	-6.64*	-6.12**
	(3.93)	(3.62)	(3.40)	(3.09)
PANEL B				
Banking Sector (B2B only)				
Avg Estimate	-9.39	-8.31	-8.08	-8.66*
	(7.73)	(6.99)	(6.26)	(4.93)
FY2022	-1.81	-2.29	-0.93	-5.22
	(7.34)	(6.79)	(5.57)	(5.24)
FY2023	-16.97	-15.32	-15.23*	-12.59*
	(10.93)	(10.03)	(9.03)	(6.81)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Fect Estimator	Yes	Yes	Yes	Yes

Note: Table B6 reports average and period-specific "treatment" effects on ETR of a positive stock price reaction around a 5-day window of the EU Public Country-by-Country Reporting announcement. Samples are specific to the banking sector overall for Panel A and business-to-business banks for Panel B. We rely on the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported point estimates correspond to the coefficients on the interaction between a positive stock price increase and the post-2021 indicator. Each entry is a separate regression. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. Period covered is FY2019-FY2023. Standard errors clustered at the firm level and obtained via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

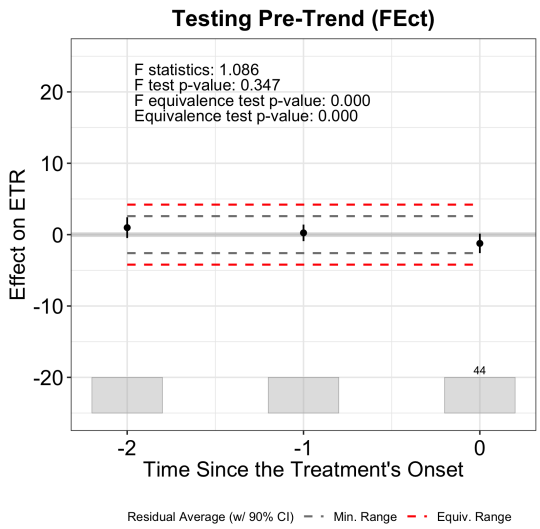
Figure B1: PCbCR Event Study - Stock Movements by Revenue Threshold and Industry



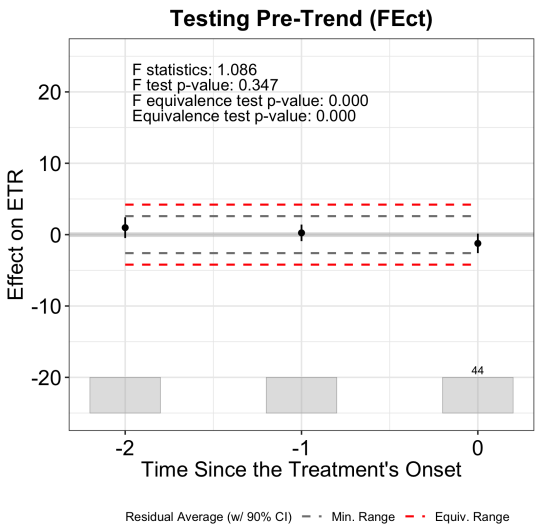
Note: Figure B1 reports estimates of cumulative abnormal returns surrounding the PCbCR announcement for publicly listed firms headquartered in Europe. Estimates are based on market-model event study approach, which measures the stock valuation effects of a corporate event at the time of the event (i.e. a local average treatment effect) above and beyond changes in the MSCI Europe Index. The first row reports industry estimates for firms over €750 million in revenue and the second row reports industry estimates for all firms regardless of threshold. Estimates are based on an event study window of 5 days and 95% confidence intervals are calculated using bootstrap.

Figure B2: Leave-one-out Pre-Trend Test by Industry (Full Panel)

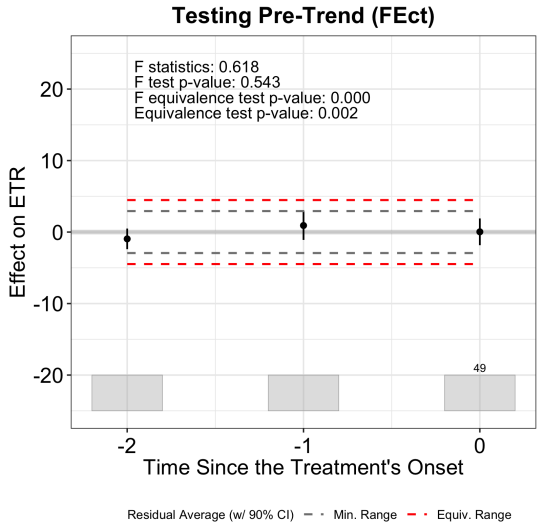
(a) Energy & Utilities (EU HQ)



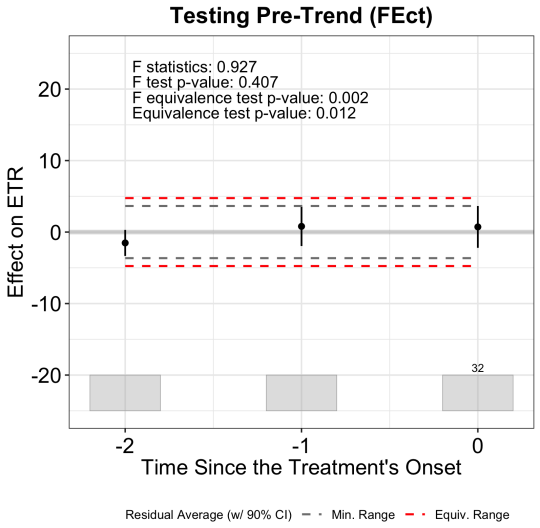
(b) Energy & Utilities (Europe HQ)



(c) Banking (EU HQ)



(d) Banking (Europe HQ)



Note: Figure B2a, Figure B2b, Figure B2c and Figure B2d present results from Liu, Wang and Xu (2024)'s leave-one-out pre-trend test for the Energy & Utilities and Banking specifications. The F test reports a goodness-of-fit test where a larger p-value suggests a better pre-trend fitting. The equivalence test checks whether the 90% confidence intervals for estimated ATTs in the pretreatment periods exceed an equivalence range (0.36 times the standard deviation of the outcome variable — ETR – after "two-way fixed effects are partialed out"). The smaller the equivalence p-value, the better the pre-trend fitting. All plots report a large F-test p-value and small equivalence test p-value suggesting a lack of evidence of pre-trends.

Table B7: Alternative Specifications: Revenue Threshold and Effective Tax Rate, FY2019–2023

	Dependent Variable: Effective Tax Rate (ETR)							
	European HQ (no lower bound)				European HQ (complete panel and no lower bound)			
	EU	+ CH	+ UK	Europe	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revenue (≥€750M) × Post2021								
PANEL A: SUBJECT TO PCbCR								
Energy & Utilities	6.56**	5.90**	6.93***	6.94***	7.22**	6.14**	6.37**	7.18**
	(2.82)	(2.80)	(2.57)	(2.51)	(3.22)	(3.04)	(2.72)	(2.99)
Real Estate	4.89	4.58	5.03	4.86*	8.79*†	7.87*†	9.62**†	8.71**†
	(3.46)	(3.20)	(3.07)	(2.85)	(5.07)	(4.48)	(4.26)	(3.99)
Health – Pharma	6.81**	6.61**	0.52	1.00	6.13*	6.00**	0.23	0.68
	(3.18)	(2.84)	(3.88)	(3.41)	(3.58)	(2.92)	(4.27)	(3.79)
PANEL B: EXEMPT FROM PCbCR								
Banks	-8.31***	-8.01***	-8.15***	-6.97***	-7.96***	-7.82***	-8.24***	-6.36***
	(2.44)	(2.37)	(2.13)	(2.17)	(2.72)	(2.81)	(2.47)	(2.47)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Table B7 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Panel A is for key industries subject to PCbCR and Panel B is for industries exempt from the Directive, specifically banks. Each entry is a separate regression. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. Columns (1)-(4) are on the full sample of firms and Columns (5)-(8) are on firms with full panel coverage (i.e., complete ETR entries) but with no lower bound. Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B8: Linear TWFE: Revenue Threshold and Effective Tax Rate, FY2019–2023

	Dependent Variable: Effective Tax Rate (ETR)							
	European HQ (≥€50M)				European HQ (complete panel and ≥€50M)			
	EU	+ CH	+ UK	Europe	EU	+ CH	+ UK	Europe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revenue (≥€750M) × Post2021								
PANEL A: SUBJECT TO PCbCR								
Energy & Utilities	8.36***	7.60**	8.42***	8.19***	7.23**	6.15**	6.37**	7.18**
	(3.04)	(2.96)	(2.62)	(2.49)	(3.19)	(3.05)	(2.90)	(2.99)
Real Estate	5.61	5.31	5.33*	5.05*	8.79*	7.87*	9.62**	8.71**
	(3.66)	(3.43)	(3.19)	(2.98)	(5.01)	(4.50)	(4.43)	(4.03)
Health – Pharma	8.16***	7.97***	-0.31	0.45	6.13	6.00*	0.23	0.68
	(3.05)	(2.66)	(4.77)	(4.29)	(3.64)	(3.19)	(4.44)	(4.03)
PANEL B: EXEMPT FROM PCbCR								
Banks	-8.81***	-8.70***	-9.02***	-6.79***	-7.96***	-7.82***	-8.24***	-6.36**
	(2.79)	(2.69)	(2.41)	(2.44)	(2.95)	(2.87)	(2.48)	(2.44)
Firm & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	No	No	No	No	No	No	No	No

Note: Table B8 reports estimates for treatment effect on the ETR obtained using two-way fixed effects (fixest) model. The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Panel A is for key industries subject to PCbCR and Panel B is for industries exempt from the Directive, specifically banks. Each entry is a separate regression. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. Columns (1)-(4) have a lower bound on revenue of €50 million and Columns (5)-(8) also filter by full panel coverage (i.e., complete ETR entries). Period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B9: Revenue Threshold and Effective Tax Rate, FY2019-2023 – EU and United States Sample

	Dependent Variable: Effective Tax Rate (ETR)	
	European Union and United States Firms	
	≥€50M	complete panel and ≥€50M
	(1)	(2)
EU HQ × Revenue (≥€750M) × Post2021		
PANEL A: SUBJECT TO PCBCR		
Energy & Utilities	4.43**	5.60**
	(2.24)	(2.54)
Real Estate	4.79	8.67*†
	(3.55)	(4.99)
Health - Pharma	-0.32	-0.78
	(4.24)	(5.56)
PANEL B: EXEMPT FROM PCBCR		
Banks	-8.11***	-7.31***
	(1.73)	(2.00)
Firm and Year Fixed Effects	Yes	Yes
FEct Estimator	Yes	Yes

Note: Table B9 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on a three-way interaction between an EU headquarters, a revenue threshold of €750 million, and the post-2021 indicator. The underlying sample consists of all publicly listed firms in either the European Union or the United States of America, although we exclude American firms that have a subsidiary in the EU. Each entry is a separate regression. Column (1) imposes a lower revenue bound of €50 million and Column (2) further requires complete panel coverage (i.e., complete ETR entries) across full period, where the period covered is FY2019-FY2023. Standard errors in parentheses, clustered at the firm level, computed via bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B10: Revenue Threshold and ETR by Tax Havens, FY2019-2023

	Dependent Variable: Effective Tax Rate (ETR)			
	EU Headquartered		Europe Headquartered	
	Tax Haven	No Tax Haven	Tax Haven	No Tax Haven
	(1)	(2)	(3)	(4)
*Revenue (≥€750M) * Post2021*				
PANEL A: SUBJECT TO PCBCR				
Energy & Utilities	12.32**	5.44	9.63***	5.85
	(5.18)	(3.95)	(3.76)	(4.05)
PANEL B: EXEMPT FROM PCBCR				
Banks	-13.00**	-18.01***†	-11.54**	-13.81***†
	(6.00)	(3.62)	(4.86)	(3.83)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table B10 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Each entry is a separate regression. Samples are split by Tax Haven subsidiary status, coded as 1 if a firm has at least one tax haven subsidiary (0 otherwise). We rely on Tax Justice Network's Corporate Tax Haven Index to classify tax havens. Samples consist of publicly listed firms headquartered in (1) EU or (2) Europe. The broader sample consists of publicly listed firms headquartered in Europe. We do not lower bound our samples to preserve sample size. Period covered is FY2019-FY2023. Standard errors are clustered at the firm level. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. † marks average ATT estimates where number of treated (or control) units are below 10 firms.

Table B11: Revenue Threshold and Effective Tax Rate by Profitability, FY2019-2023

	Dependent Variable: Effective Tax Rate (ETR)			
	EU Headquartered		Europe Headquartered	
	ROA (High)	ROA (Low)	ROA (High)	ROA (Low)
	(1)	(2)	(3)	(4)
*Revenue (≥€750M) * Post2021*				
PANEL A: SUBJECT TO PCBCR				
Energy & Utilities	10.86**	7.64**	15.16***	4.83
	(4.54)	(3.64)	(4.15)	(2.98)
Health Care – Pharma	4.31	8.97	-1.35	5.14
	(4.48)	(5.56)	(5.22)	(4.03)
Real Estate	5.32†	4.75†	5.42	4.33†
	(4.62)	(5.10)	(3.61)	(4.86)
PANEL B: EXEMPT FROM PCBCR				
Banks	-9.08*†	-5.89**	-7.75**	-3.26
	(4.93)	(2.81)	(3.66)	(2.91)
Firm & Year Fixed Effects	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes

Note: Table B11 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Panel A is for key industries subject to PCbCR and Panel B is for industries exempt from the Directive, specifically banks. Each entry is a separate regression. Samples are split by firm ex ante profitability (above or below industry median ROA for FY2021). Estimates are presented across regional and industry-specific samples, using observations from FY2019 through FY2023. Samples consist of publicly listed firms headquartered in (1) EU or (2) Europe. We do not lower bound our samples to preserve sample size. Period covered is FY2019-FY2023. Standard errors are clustered at the firm level. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. † marks average ATT estimates where number of treated (or control) units are below 10 firms.

Table B12: Revenue Threshold and Effective Tax Rate, FY2019-2023 - Excluding Windfall Firms

	Dependent Variable: Effective Tax Rate (ETR)							
	European HQ (≥€50M)				European HQ (complete panel and ≥€50M)			
	EU (1)	+ CH (2)	+ UK (3)	Europe (4)	EU (5)	+ CH (6)	+ UK (7)	Europe (8)
Revenue (≥€750M) × Post2021								
Energy & Utilities	6.99**	6.59*	8.63***	8.41***	5.29	4.52	4.58	6.22*
	(3.52)	(3.52)	(2.93)	(3.10)	(3.86)	(3.85)	(3.52)	(3.42)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Table B12 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). We run the same estimation strategy as in Table 2 and Table B2 except the energy & utilities sample now excludes firms identified as paying a windfall tax in FY2022 and/or FY2023. Standard errors are clustered at the firm level. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table B13: Revenue Threshold and Effective Tax Rate, FY2019-2023 - Excluding FY2020

	Dependent Variable: Effective Tax Rate (ETR)							
	European HQ (≥€50M)				European HQ (complete panel)			
	EU (1)	+ CH (2)	+ UK (3)	Europe (4)	EU (5)	+ CH (6)	+ UK (7)	Europe (8)
Revenue (≥€750M) × Post2021								
Banks	-7.58***	-7.51***	-7.12***	-5.44**	-6.91**	-6.87**	-6.50**	-5.56**
	(2.80)	(2.64)	(2.38)	(2.46)	(3.03)	(2.88)	(2.57)	(2.35)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FEct Estimator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Table B13 reports counterfactual estimates of the treatment effect on the ETR, obtained using the FEct estimator with a two-way fixed-effects specification (Liu et al.; 2024). The reported average ATT estimates correspond to the coefficients on the interaction between the EU Directive Public Country-by-Country revenue threshold of €750 million and the post-2021 indicator. Each entry is a separate regression. The estimates are specific to the banking sector and drop FY2020 from the pre-period, so the observations cover FY2019, FY2021, FY2022, and FY2023. Samples consist of publicly listed firms headquartered in (1) EU; (2) EU or Switzerland; (3) EU or UK; or (4) Europe. Standard errors in parentheses, clustered at the firm level, computed using bootstrap ($n_{\text{boots}} = 1000$). Significance levels: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. † marks average ATT estimates where number of treated units are below 10 firms.

C Additional Figures

Table C1: No. Media Articles, on Public Country-by-Country Reporting, Monthly for 2021

Month (2021)	No. Articles
Jan	12
Feb	49
Mar	36
Apr	5
May	10
Jun	62
Jul	3
Aug	2
Sep	13
Oct	10
Nov	20
Dec	8

Note: Table C1 lists the number of articles mentioning either "public country by country" or "public country-by-country" by month for 2021. Articles are sourced from the Nexis Uni database and cover all major media outlets in Europe.

Table C2: Classifying business-to-business (B2B) vs. business-to-consumer (B2C)

Firm classifications into business-to-business (B2B) or business-to-consumer (B2C) were generated using the Meta Llama 3 70B model. The model was run locally on an Apple MacBook Pro (M3 Max, 96 GB RAM) and implemented in Python. Business descriptions were first obtained from S&P, cleaned to remove rows with missing descriptions, and stored in a standardized CSV file for reproducibility. Each business description was then passed to the model as part of a structured prompt that included explicit task instructions and few-shot examples of B2B and B2C classifications. The model output was constrained to short categorical labels through the use of stop sequences and token limits. Classification was executed in batches of 100 descriptions at a time, with results written to disk after each batch to allow the task to be paused and resumed without reprocessing completed rows. This setup ensured that a dataset with roughly 10,000 descriptions could be processed efficiently while maintaining transparency and reproducibility of the classification procedure. On this hardware, full classification of the approximately 10,000 firms required roughly 20 hours of computation time.

The classification prompt was as follows:

```
Classify the following companies as either B2B or B2C based on its
description.  A B2B company sells primarily to other businesses.  A
B2C company sells primarily to consumers.  If a company has any B2C
business, classify it as B2C. Here are some examples to help you
classify:
```

[Note: script then provides 24 examples of classifications randomly selected from the broader corpus of firms]

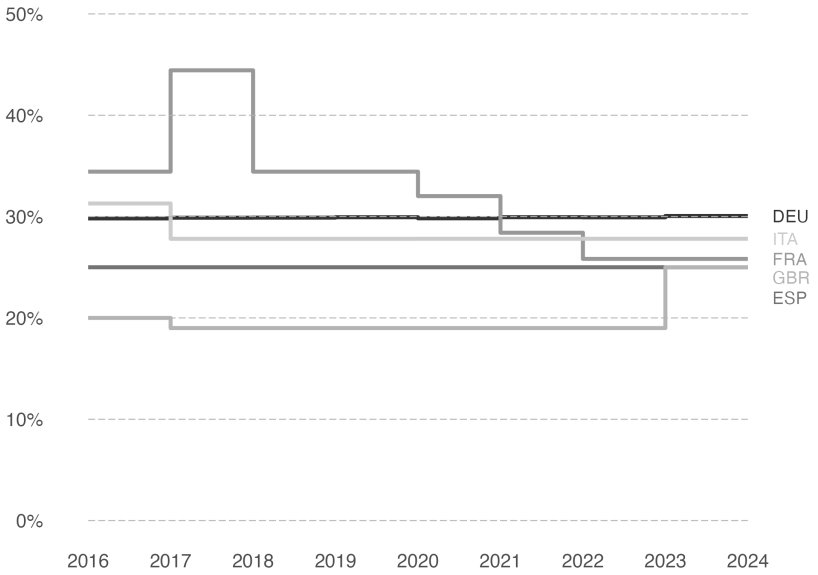
Table C3: Media Analysis: Sectors and Corresponding Subsectors

Sector	**Subsector Labels**
Banking & Finance (Banks)	Bank Deposit Insurance; Bank Failures; Banking Institutions & Systems; Banking, Lending & Credit Services.
Energy & Utilities (Energy)	Alternative & Renewable Energy; Coal Industry; Energy & Environment; Energy & Utilities Equipment; Energy & Utility Construction; Energy & Utility Regulation & Policy; Energy & Utility Sector Performance; Energy & Utility Trade; Fossil Fuels; Nuclear Energy; Offshore Energy; Oil & Gas Industry; Smart Energy; Utilities Industry.
Industrials	Construction Materials Manufacturing; Defense Manufacturing; Electrical Appliance & Equipment Manufacturing; Fabricated Metal Product Manufacturing; Industrial Robots; Iron & Steel Industry; Machine Tools; Machinery & Equipment Manufacturing; Manufacturing Facilities; Nonmetallic Mineral Product Manufacturing; Primary Metal Manufacturing; Transportation Equipment Manufacturing.
Materials	Chemicals Manufacturing; Construction Materials Manufacturing; Fabricated Metal Product Manufacturing; Iron & Steel Industry; Nonmetallic Mineral Product Manufacturing; Paper Manufacturing; Plastic & Rubber Products Manufacturing; Primary Metal Manufacturing; Wood Products Manufacturing.
Pharmaceuticals & Biotechnology (Pharma)	Bioelectronic Medicine; Biotechnology Industry; Counterfeit Drugs; Drug Safety, Efficacy & Availability; Pharmaceutical Chemistry; Pharmaceuticals & Biotechnology Patents; Pharmaceuticals & Biotechnology Regulation & Policy; Pharmaceutical Agents & Products; Pharmaceuticals Industry; Pharmacists; Polypharmacy.
Real Estate	Abandoned Real Estate; Blighted Properties; Building & Housing Inspections; Capital Improvements; Commercial & Residential Property; Foreign Owned Real Estate; High Rise Buildings; Mortgage Banking & Finance; Property Escrow & Title; Property Management; Real Estate Agents; Real Estate Appraisals; Real Estate Auctions; Real Estate Bubble; Real Estate Contracts; Real Estate Development; Real Estate Fraud; Real Estate Insurance; Real Estate Investing; Real Estate Listing Services; Real Estate Overview.

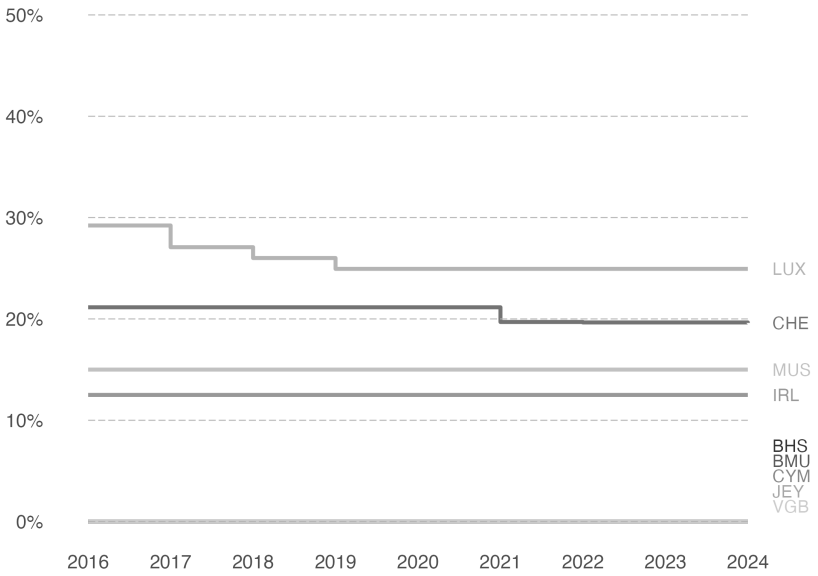
Note: Table C3 lists the industry and subindustry labels associated with the industries plotted in Figure 2. Nexis Uni attaches these labels to articles with any mention of the industry or subindustry in question.

Figure C1: Combined Statutory Corporate Tax Rates, 2016-2024

(a) Top 5 European Economies



(b) Tax Havens



Note: Figure C1 data on combined (central and sub-central government) statutory corporate income tax rates sourced from OECD Tax Database table "Corporate income tax statutory and targeted small business rates". Labels correspond with country Alpha-3 ISO code. For European Economies: France (FRA); Germany (DEU); Italy (ITA); Spain (ESP); United Kingdom (GBR). For Tax Havens: Bahamas (BHS); Bermuda (BMU); British Virgin Islands (VGB); Cayman Islands (CYM); Ireland (IRL); Jersey (JEY); Luxembourg (LUX); Mauritius (MUS); Switzerland (CHE).