

# **Essays on Corporate Tax Avoidance, Sustainability, and Tax Transparency**

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# Vorwort

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# **Chapter 1**

## Introduction

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## 1.1 Motivation and Object of Research

Taxation is pivotal in securing an economy's sustainable development.<sup>1</sup> Tax revenues finance public goods and services in the present and future and are necessary to achieve sustainability goals, such as those set out in the Paris Agreement and the Sustainable Development Goals of the United Nations [UN] (Avi-Yonah, 2006; Gunnarsson & Mumford, 2019; UN, 2021). Taxpayers, however, often view taxes as an undesirable expense (Listokin & Schizer, 2013). For large profitable companies in particular, corporate taxes represent a significant cost (Sikka, 2010). However, globalization and digitalization have paved the way to various forms of tax avoidance that multinational enterprises [MNEs] exploit to decrease tax payments (Dillon, 2017; Schäuble, 2014). For instance, MNEs artificially allocate profits to low-tax jurisdictions—even though they have benefitted from the higher-taxed nation's resources, such as its infrastructure and educated workforce. Hence, tax avoidance activities contravene the values of reciprocity and solidarity, and firms that engage in them free-ride at the expense of other members of society (Gribnau & Jallai, 2017, 2019). The deliberate reduction of tax payments hinders sustainable development because it impairs a state's ability to provide relevant collective goods and services in the future (Bird & Davis-Nozemack, 2018).

In the last decade, multiple tax avoidance scandals have revealed the seriousness and extent of this sort of activity. Prominent examples are the disparities between profits and taxes paid by Amazon, Apple, Google, and Starbucks. In addition, numerous leaks of sensitive tax documents have provided evidence that MNEs have minimized their tax burdens through elaborate mechanisms or tax planning structures.<sup>2</sup> Against the background of states' straitened situations in the aftermath of the financial crisis of 2007 to 2009, the pernicious effects of tax avoidance depriving them of resources became particularly obvious. As a result, the behavior

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<sup>1</sup> Sustainable development is defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987).

<sup>2</sup> Specifically, the International Consortium of Investigative Journalists [ICIJ] exposed the tax avoidance means employed by individuals and companies in the Luxembourg Leaks (ICIJ, 2014), Panama Papers (ICIJ, 2016), Paradise Papers (ICIJ, 2017) and, most recently, Pandora Papers (ICIJ, 2021).



of MNEs has been condemned as immoral and unethical (Barford & Holt, 2013). Since then, the public debate has revolved around the unfairness of the reduction of corporate taxes. The demands that firms pay their ‘fair share of tax’ have been reinforced by the intensive media coverage (Lee, 2015),<sup>3</sup> non-governmental organizations’ reports (ActionAid, 2013; Oxfam, 2016), and even political publications denouncing these activities as immoral (House of Commons Committee of Public Accounts, 2012, 2013; Organization for Economic Co-operation and Development [OECD], 2013). Thus, although tax avoidance is not new, this phenomenon and the related need for tax fairness have gained considerable attention from many stakeholders, such as the public, policymakers, and investors (Forstater & Christensen, 2017). This novel perception of tax avoidance has brought two topics to the fore in the area of tax.

First, the discussion initiated on tax fairness led to the increased consideration of taxation in terms of corporate social responsibility [CSR], socially responsible investing [SRI], and, thus, sustainability as the overall concept.<sup>4</sup> Thenceforth, corporate tax practices have been appraised based on their morality, not their legality (as tax avoidance is not necessarily illegal),<sup>5</sup> so firms have been assigned a moral responsibility to pay taxes (Gribnau & Jallai, 2017). As CSR denotes that firms accept ethical obligations toward all their stakeholders by accounting for their impacts on and voluntarily contributing to society and the environment beyond their legal duties (European Commission, 2011), taxation has increasingly been regarded as a CSR issue (see, e.g., Cerioni, 2014; Knuutinen, 2014; Panayi, 2015). Accordingly, tax avoidance is seen as incompatible with CSR (Christensen & Murphy, 2004; Sikka, 2010). Since investors engaging in SRI account for a firm’s CSR commitment, corporate taxes have also gained importance in this area (Liang & Renneboog, 2021; Sparkes & Cowton, 2004; Stephenson & Vracheva, 2015). All in all, taxes have become a sustainability issue. Firms face higher

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<sup>3</sup> Various headlines have exemplified the novel focus on morality, e.g., “Avoiding tax may be legal, but can it ever be ethical?” (Foster Back, 2013), “Starbucks, Amazon and Google accused of being ‘immoral’” (Ebrahimi, 2012).

<sup>4</sup> The usage of ‘sustainability’ as a generic term is consistent with, e.g., Fatima and Elbanna (2022).

<sup>5</sup> Although no consistent definition exists, ‘tax avoidance’ is often used as an umbrella term for any, i.e., legal and illegal, activities that reduce a firm’s taxes (Dyreng et al., 2008). Thus, this term refrains from moral judgment.

expectations and pressure from the public and investors engaging in SRI to meet their tax responsibilities and adhere to the norm change. Failure to do so might result in adverse (e.g., reputational) consequences. Hence, the new perspective on tax in a sustainability context might serve as a soft law mechanism that curbs tax avoidance (Bird & Davis-Nozemack, 2018).

Furthermore, the growing call for fair tax payments has caused tax transparency to become the most prominent and insistent demand of all interested parties (Oats & Tuck, 2019). Among others, it is deemed a possible tool to secure fair taxation by limiting tax avoidance (European Commission, 2015; Her Majesty's Revenue and Customs [HMRC], 2015; OECD, 2018). Thus, a plethora of tax transparency regulations have been implemented at the national and global levels, for example by the OECD, the US Financial Accounting Standards Board [FASB], the European Commission, and the UK tax authority HMRC (see Müller et al., 2020).

In addition, tax transparency can strengthen the role of tax as a sustainability and CSR component. Tax transparency is “a vital element in ensuring effective CSR” (European Commission, 2021) since it can serve as an accountability mechanism by enabling the public, investors, and other stakeholders to scrutinize firms to determine whether they engage in responsible tax behavior (Gribnau & Jallai, 2019). As firms striving to be perceived as socially responsible are expected to be transparent about their tax affairs, tax transparency is likely to increase their awareness of the relevance of sustainable tax activities (Dowling, 2014; Gribnau & Jallai, 2019). The convergence of sustainability and taxes due to tax transparency can also be evidenced by the rise of textual tax disclosures in sustainability reporting (Redondo Martínez & Capel, 2022). For example, the Global Reporting Initiative [GRI] asks its users to report on their approach to tax (GRI, 2022). Due to the interplay of the EU Corporate Sustainability Reporting Directive with other rules and in light of various current EU drafts, soon firms might even face a legal obligation to provide tax disclosures in sustainability reports (Morris et al., 2023). In sum, tax transparency could affect tax avoidance directly via regulations or indirectly because it promotes CSR and taxes as well as their alignment, reinforcing the CSR–tax link.

Accordingly, sustainability and tax transparency are two interrelated and emerging issues that are of particular interest in the realm of corporate taxation. Many stakeholders, such as legislators, investors, and society, are concerned about firms being fair and responsible taxpayers and demand information to evaluate and encourage sustainable tax behavior. Tax research is indispensable in providing all interested parties with the required evidence on the link between corporate tax practices and sustainability or tax transparency. However, considerable knowledge gaps still exist with regard to these matters. This thesis aims to enhance the understanding of the role and consequences of tax as a sustainability issue and the capability of tax transparency to provide information on and change corporate tax behavior. The three self-contained essays address the following issues that have not yet been sufficiently examined.

First, the relationship between sustainability and corporate taxes is complex and, thus, challenging to capture (Gribnau & Jallai, 2019; Silvola & Landau, 2021). Extending this nascent field of research by analyzing the CSR–tax link in different settings is crucial to obtain a more comprehensive overview of this topic and to reveal further disparities between claims of responsible conduct and activities that reduce taxes (Kovermann & Velte, 2021; Sikka, 2010; Stephenson & Vracheva, 2015). Extant empirical works have primarily focused on tax avoidance at the group level using consolidated data, presenting equivocal findings (e.g., Davis et al., 2016; Hoi et al., 2013). However, profit-shifting activities at the subsidiary level represent a significant and specific form of tax avoidance that could also be related to a firm’s CSR. So far, the question of whether profit shifting is determined by a firm’s perception of tax as an integral part of CSR remains largely unexplained. Prior literature on profit shifting has focused on quantifiable or directly observable firm characteristics, such as size, intangible assets, or headquarters location (see, e.g., Beer et al., 2020; Heckemeyer & Overesch, 2017). Identifying other determinants is of high importance as it enhances legislators’ knowledge of the conditions fostering profit shifting and, thus, is a relevant starting point to combat it subsequently. In addition, previous studies on the CSR–tax link have often concentrated on the US and employed

an aggregate CSR measure. Research covering and comparing other geographic regions or analyzing the distinct dimensions of CSR can yield new insights (Stephenson & Vranceva, 2015). Examining these additional aspects can provide novel evidence of whether firms deem taxes and CSR to be complements or substitutes.

Second, investigations of the relationship between sustainability and corporate tax practices have focused on the firm's perspective. A more profound understanding necessitates other stakeholders and their views on CSR and taxes being taken into account. Shareholders constitute a significant group to consider since they can influence managerial decisions. Multiple studies suggest that institutional investors affect tax avoidance, although the results are inconsistent concerning the effect's direction (e.g., Khan et al., 2017; Khurana & Moser, 2013). For this owner type, SRI has become a prominent investment approach. Sustainable institutional investors commit to incorporating sustainability issues into their investment and ownership decisions (Silvola & Landau, 2021; Sparkes & Cowton, 2004). Thus, the recent incremental integration of tax into CSR and SRI could affect how investors of this kind shape investee firms' tax practices. However, it is unclear so far whether sustainable institutional investors view taxes as a sustainability issue so that SRI promotes responsible tax behavior in investee firms. Despite the growing prevalence of institutional investors committed to SRI, empirical tax research has not yet scrutinized this group of corporate owners. As sustainable finance regulations begin to include or contemplate tax compliance as a requirement, policymakers could also profit from insights into the effect of SRI on tax avoidance.

Third, it is necessary to investigate whether qualitative tax disclosures reflect a firm's tax behavior or mitigate tax avoidance. Legislative initiatives for qualitative tax transparency are in the early stages yet proliferating. Therefore, empirical evidence is scarce but of high interest (Müller et al., 2020; Oats & Tuck, 2019). Prior literature has mainly investigated quantitative tax disclosures (e.g., Brown et al., 2019; Henry et al., 2016; Joshi, 2020; Lisowsky et al., 2013; Overesch & Wolff, 2021), and the results are likely not to be transferrable to non-

numeric tax transparency regulations. As textual tax disclosures are more versatile, the quality of disclosures can vary significantly (e.g., Inger et al., 2018; Robinson & Schmidt, 2013). Hence, research on the attributes of such disclosures is needed to assess whether the designs of qualitative tax disclosure requirements allow firms to exert discretion and conceal their real tax practices. The results can help recipients to determine whether firms are meeting the responsibility to be transparent about their tax behavior, and legislators can ascertain whether tighter content requirements or improved enforcement are needed to hold firms accountable. Analyses of firms' responses to such novel legislation can inform policymakers on the suitability of such disclosures to tackle tax avoidance and provide guidance for potential readjustments. The insights might also be useful given the above-discussed relation between tax transparency and CSR and sustainability reporting standards that demand tax disclosures.

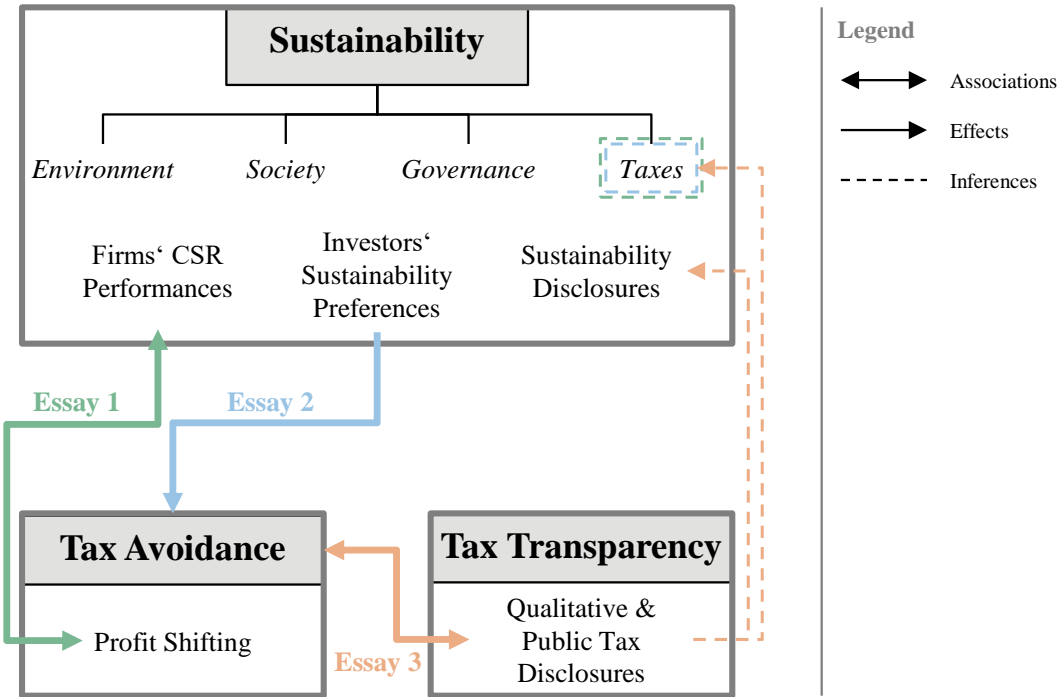
The three essays of this thesis intend to contribute to the described research gaps. The first essay, "The Relation between Corporate Social Responsibility and Profit Shifting of Multinational Enterprises", is co-authored by Michael Overesch, Chair of Business Taxation at the University of Cologne. We investigate the association between the CSR performance of European and US MNEs and the profit shifting within their subsidiaries. Our results suggest that CSR performance and profit shifting are negatively related, indicating the presence of a corporate culture in which CSR and tax payments are complements. We perform additional tests in respect of different CSR dimensions and firm characteristics to gain a more nuanced picture of the CSR–tax link. Finally, we reconcile our findings with the prior literature by examining tax avoidance at the group level. Our study expands the knowledge of profit-shifting determinants and the relation between CSR and a distinct form of tax avoidance. I contributed to this essay by conducting the data collection and empirical analyses, developing ideas for analyses, and writing the scientific paper. The paper was presented at the Doctoral Research Seminar in Cologne 2019, the 42<sup>nd</sup> European Accounting Association Annual Congress in Paphos 2019, and the Tax Administration Research Centre Seminar Series in Exeter 2021.

The second essay, entitled “Planet, People, Profit – and Paying Taxes? Sustainable Institutional Investors and Corporate Tax Avoidance”, is a single-authored paper and thus my sole responsibility. I investigate whether and how sustainable institutional investors affect the tax avoidance activities of investee firms. I hypothesize and find that institutional investors dedicated to sustainable investing reduce their investee firms’ tax avoidance. My results show that this impact has developed concurrently with the advancement of tax as a sustainability component. Additional tests document that the effect of this investor type increases with the duration of the commitment to SRI. This essay complements the first one as it considers whether investors, analogous to firms, regard taxes and sustainability as complementary and is the first to explore whether investors’ sustainability preferences affect investee firms’ tax avoidance.

The third and last essay, “Tax Transparency through Mandatory Qualitative Disclosures – Determinants and Effects of UK Tax Strategy Reports”, is co-authored by Mathias Dunker, a former doctoral research assistant at the Chair of Business Taxation at the University of Cologne. We analyze the determinants of the mandatory, public, and qualitative UK tax strategy reports and examine the disclosure regulation’s effect on tax avoidance. We show that firms that previously engaged in higher levels of tax avoidance provide lower-quality tax disclosures. Further, in the post-regulation period, we find a decrease in affected firms’ tax avoidance compared with that of their unaffected peers. Investigating the unique setting of the UK tax strategy reports provides novel evidence on the determinants and effects of qualitative tax transparency. The insights might also be valid and thus transferrable to corporate sustainability reporting, which adds to the topic of the precedent essays. My co-author and I contributed equally to the data collection and processing, empirical analyses, and writing of earlier versions of the research paper. Subsequent revisions of the text were my sole responsibility. This essay was presented at the 8<sup>th</sup> Annual Conference of the Tax Administration Research Centre in Exeter 2020, the 44<sup>th</sup> European Accounting Association Annual Congress in Bergen 2022, and the Doctoral Research Seminar in Cologne 2020 and 2022.

Overall, this thesis aspires to improve the understanding of corporate tax avoidance by yielding new knowledge on whether and how sustainability and tax transparency are related to corporate tax practices or limit tax avoidance. Figure 1.1 illustrates the content of the three studies and their relationship through the inferences that can be drawn from them. The first two papers consider the association between different aspects of sustainability and forms of tax avoidance to shed light on the role of tax as a sustainability component. The results imply that the two constructs are complements for both investors and firms. For the latter, the corporate culture seems to determine this alignment between CSR and taxes. Taken together with the findings of the third paper, which suggest that the corporate culture also aligns firms' tax disclosure choices with tax practices, tax transparency could thus play a role in the CSR–tax link. Moreover, the insights into tax transparency could be relevant in a sustainability context due to the growing importance of qualitative tax information in sustainability disclosures. The results of the last essay might be conferrable to tax disclosures in compulsory sustainability reporting regulations or provide some indications for voluntary ones, such as the GRI 207 standard, which is similar to the UK tax strategy reports analyzed.

**Figure 1.1: Content and Context of the Three Essays**



## **1.2 The Relation between Corporate Social Responsibility and Profit Shifting of Multinational Enterprises**

### **1.2.1 Research Question and Design**

The first essay, “The Relation between Corporate Social Responsibility and Profit Shifting of Multinational Enterprises”, investigates whether and how the CSR performance of MNEs is related to profit shifting as a specific and substantial form of tax avoidance. CSR is traditionally understood to encompass environmental, social, and governance [ESG] issues. Recently, however, responsible tax behavior has incrementally been regarded as part of a firm’s responsibility. Nonetheless, the relationship between an MNE’s CSR performance and its tax management behavior is uncertain. Risk management theory implies that CSR and taxes act as substitutes because firms use CSR to hedge against the potential risks of profit shifting (Godfrey, 2005). In contrast, corporate culture theory postulates that all the actions of a firm comply with an underlying belief in the ‘right’ behavior (Hermalin, 2001; Kreps, 1990), so extensive profit shifting would be in line with the corporate culture of a socially irresponsible firm. Given this theoretical ambiguity, empirical works have increasingly examined the association between CSR and tax avoidance, yet the findings are mixed and document either a positive (e.g., Davis et al., 2016) or a negative (e.g., Hoi et al., 2013) relation.

We estimate intrafirm profit shifting following the approach by Hines and Rice (1994) and Huizinga and Laeven (2008), using unconsolidated firm-level financial data and ownership structures from the Amadeus database by Bureau van Dijk. To study the CSR performance of the parent firms, we rely on the Refinitiv ESG scores. Our profit-shifting regression analyses cover the years 2010 to 2018 and comprise 24,409 and 12,489 European subsidiaries of 980 EU and 956 US MNEs, respectively.

We start by analyzing the profit-shifting behavior of European MNEs. First, we focus on the relationship between measures for the overall CSR performance and profit shifting before examining distinct dimensions of CSR (i.e., environment, society, and governance). In



the next step, we employ the same approach for US MNEs. Moreover, we compare the association between CSR and profit shifting for EU and US multinational groups using an unmatched sample as well as a matched sample of comparable EU and US MNEs based on propensity score matching [PSM]. As heterogeneity in certain firm characteristics could cause differences in the relationship between CSR and profit shifting, we additionally test whether a firm's reputational concerns or market power affect the association. Last, we reconcile our findings with the previous literature by scrutinizing tax avoidance at the group level. To this end, we retrieve consolidated accounting data from Compustat Global and North America and measure tax avoidance using cash effective tax rates [ETRs].

### **1.2.2 Results and Contribution to the Literature**

Our results suggest that CSR is negatively related to the profit-shifting activities of MNEs. We document that less profit shifting prevails in multinational groups with parent firms that show a greater overall CSR performance. In contrast, socially irresponsible behaviors are related to higher degrees of profit shifting. This result is in line with corporate culture theory. Firms prioritizing CSR due to their corporate culture are also less likely to minimize their tax burdens by shifting profits, whereas profit shifting is compatible with a corporate culture that does not attach any or attaches low importance to CSR. Therefore, CSR and tax payments seem to act as complements. While the comparison of EU and US MNEs first suggests that the relationship and, hence, the relevance of the corporate culture is stronger for US MNEs, these differences cannot be confirmed based on the sample of matched, similar multinational groups.

The results of our investigations of separate CSR dimensions provide evidence that less profit shifting occurs in multinational groups that show high performance in the social or corporate governance dimensions. With regard to the environmental dimension, we find a positive, albeit weak, association with the profit shifting of European MNEs, indicating that their corporate culture seems to substitute rather than align environmental commitment and tax payments. However, the latter finding cannot be confirmed for US MNEs. Further, our results

document that US MNEs' CSR performance is adversely related to profit shifting, particularly if the firm faces fewer reputational concerns or competitive threats. Our supplemental analyses of tax avoidance at the group level using consolidated accounts support our prior findings.

Our paper contributes to the literature on profit-shifting determinants (see, e.g., Beer et al., 2020; Heckemeyer & Overesch, 2017). We provide evidence that a firm's relations with and attitude toward society and other stakeholders are associated with its profit-shifting behavior. Our results suggest that firms view CSR and tax payments as complements. Hence, taxes are a sustainability component for firms with corporate cultures that consider CSR. By focusing on a specific and essential tax avoidance strategy, we also add to prior ambiguous research that has used consolidated data to establish whether CSR is related to corporate tax avoidance (e.g., Davis et al., 2016; Hoi et al., 2013). We further give new insights into the relevance of different CSR dimensions, heterogeneity in firm characteristics, and the linkage of CSR and corporate tax behavior in a European setting. Our comparison of EU and US MNEs indicates whether the CSR–tax link differs among distinct regions, which complements cross-country studies (Fatima & Elbanna, 2022). In addition, our findings expand the knowledge of the conditions under which the relocation of pre-tax profits might be more likely, which is of interest to legislators. Our results imply that measures that promote CSR could involve additional benefits as they might be related to lower levels of profit shifting.

### **1.3 Planet, People, Profit – and Paying Taxes? Sustainable Institutional Investors and Corporate Tax Avoidance**

#### **1.3.1 Research Question and Design**

The second essay, “Planet, People, Profit – and Paying Taxes? Sustainable Institutional Investors and Corporate Tax Avoidance”, analyzes the impact of sustainable institutional investors on investee firms' tax avoidance. This incrementally important group of corporate owners incorporates ESG issues into investment and ownership decisions (Sparkes & Cowton,

2004). However, it is unclear whether sustainable institutional investors regard corporate tax responsibility as part of their commitment to sustainability. Recent years have seen an increased framing of tax as a CSR issue, the promotion of tax responsibility by the largest network for investors engaging in SRI, the UN Principles for Responsible Investment [PRI], and advancing sustainable finance regulations that include tax. Hence, I hypothesize that such investors alleviate investee firms' tax avoidance and that this influence has developed over the last years.

I obtain information on firms' investors from the Refinitiv Eikon database and compute the percentage of equity owned by sustainable institutional investors. Consistent with the prior literature (e.g., Dyck et al., 2019; Kordsachia et al., 2022), I categorize investors as sustainable if they are signatories of the UN PRI. For this purpose, I identify these investors based on the official list of PRI signatories' names and signing dates. Financial data are retrieved from the Refinitiv Eikon and Compustat Global and North America databases. The final sample considers the period 2011 to 2021 and consists of 2,968 US and European investee firms.

To assess the effect of institutional investors that are committed to SRI on tax avoidance, I perform regression analyses with lagged ownership variables. For more detailed insights into sustainable institutional investors' impact and its potential determinants, I explore these investors' heterogeneity and the relevance of ownership concentration in cross-sectional tests. Further, I perform two-stage least squares [2SLS] regressions using instrumental variables [IVs] and other additional tests to alleviate potentially remaining endogeneity concerns owing to reverse causality and omitted variables. Last, I perform several robustness checks.

### **1.3.2 Results and Contribution to the Literature**

My results suggest that sustainable institutional investors reduce investee firms' tax avoidance, contrary to non-sustainable institutional investors. Consistent with the assumption that this investor type's attention has been drawn to the topic of taxation over the last few years, I show that the impact has developed over time. Additional analyses indicate that sustainable institutional investors' investment horizons do not drive the results. Rather, familiarity with

sustainability principles due to a longer PRI membership time intensifies the impact. I also find that especially domestic and US sustainable institutional investors diminish the magnitude of tax avoidance and that the negative effect of investors that are committed to SRI on tax practices is more pronounced in US than in EU investee firms. Last, less tax avoidance seems to prevail in firms owned to a greater extent by independent sustainable institutions. Tests of ownership concentration suggest that collective action enables the reduction of tax avoidance by investors engaging in SRI. The IV approaches using 2SLS regressions, the other analyses to address endogeneity and the robustness tests confirm the finding of a decrease in tax avoidance, which lends credence to the assertion that sustainable institutional ownership impacts tax avoidance.

This study contributes to the literature in multiple ways. First, to my knowledge, it is the first study to examine sustainable institutional investors' impact on tax avoidance, which is an economically relevant issue in light of the significant growth of this investor type. Prior empirical works have analyzed the relationship between institutional investors and corporate tax practices, yet they present mixed results (e.g., Khan et al., 2017; Khurana & Moser, 2013) and do not account for the variety of this group of corporate owners. My results suggest that institutional investors that are committed to sustainability influence tax policies in another way. Hence, I add to the tax research on the role of ownership structures and further link it to the literature on sustainability. Second, I extend the general literature on CSR and tax avoidance. While prior studies have examined this link at the firm level (e.g., the first essay of this thesis; Davis et al., 2016; Hoi et al., 2013), I investigate institutional investors with sustainability preferences and find that they view tax payments as complements to sustainability. Third, my paper contributes to the emerging research field of sustainable institutional investors' impact on investee firms' corporate practices, which mainly analyzes their effects on environmental and social performance (e.g., Dyck et al., 2019; Kordsachia et al., 2022). Last, my results are of interest to regulators or SRI initiatives as they indicate that the incremental integration of tax into SRI achieves more responsible tax behavior among investee firms.

## **1.4 Tax Transparency through Mandatory Qualitative Disclosures – Determinants and Effects of UK Tax Strategy Reports**

### **1.4.1 Research Question and Design**

The final essay, “Tax Transparency through Mandatory Qualitative Disclosures – Determinants and Effects of UK Tax Strategy Reports”, provides empirical evidence regarding the determinants and effects of non-numeric and obligatory tax disclosures based on the UK tax strategy disclosure regulation. In light of the ongoing global efforts to understand and change corporate tax avoidance behavior, qualitative tax disclosures are gaining relevance as an alternative form of tax transparency. However, whether such disclosures effectively achieve their objectives of increasing tax transparency and mitigating tax avoidance is largely unknown (Müller et al., 2020; Oats & Tuck, 2019). The UK tax strategy legislation represents a unique research setting in which to scrutinize these aspects. For fiscal years starting after September 15, 2016, UK firms and MNEs with a UK presence that exceed certain thresholds have to publish textual information on their tax strategy covering at least four prescribed categories.

First, our study investigates whether these qualitative tax disclosures reflect a firm’s tax behavior. We manually collect and preprocess over 2,000 tax strategy reports before performing text-mining steps. Then, we run cross-sectional regressions to ascertain whether tax avoidance and other firm characteristics from the pre-regulation period determine the disclosure characteristics of a tax strategy report or its separate categories. Concretely, we consider compliance with the law by including all categories and textual attributes (length, uncertainty words, and similarity).

Second, we explore whether the tax transparency regulation restricts tax avoidance. To this end, we estimate difference-in-differences [DiD] models to quantify the impact of the regulation’s implementation on affected UK firms’ tax avoidance (proxied by ETRs) relative to unaffected firms. We also employ approaches that improve the comparability of treatment and control firms, such as PSM, and conduct several robustness tests.

#### **1.4.2 Results and Contribution to the Literature**

Our findings suggest that disclosure characteristics are related to the level of prior tax avoidance. Firms with lower long-term ETRs before the implementation of the regulation tend to be less compliant because they omit some obligatory categories. In addition, they publish shorter voluntary disclosures or less information on tax planning and use more uncertainty words. Overall, we document that firms that previously engaged in higher levels of tax avoidance provide lower-quality tax disclosures and, consequently, are less transparent.

Regarding the tax strategy regulation's effectiveness in extenuating tax avoidance, we show that affected UK firms' tax avoidance activities decrease in the post-regulation period compared with those of unaffected firms. Several additional tests reinforce this result. Besides employing alternative matching algorithms and reweighting techniques, we mitigate concerns that other factors that only apply to the treatment firms or UK-specific economic developments cause the effect by using varying control groups and a pseudo-treatment group.

Our study contributes to the research on the determinants and quality of tax disclosures. The investigations of UK tax strategy reports allow us to draw clearer inferences about the link between disclosure characteristics and tax avoidance than documents like annual reports (e.g., Beuselinck et al., 2018; Inger et al., 2018) because the reports are entirely tax-related. We are the first to perform detailed empirical analyses of firms' tax avoidance and the attributes of their textual disclosures based on an extensive sample of tax strategy reports. Our finding that tax-avoiding firms strategically exploit the latitude in formulating textual disclosures and reduce the level of transparency can be helpful for recipients considering this association. Furthermore, we add to the literature on the effects of tax transparency on tax avoidance. Prior studies have mostly explored quantitative disclosure regulations (e.g., Joshi, 2020; Overesch & Wolff, 2021). We shed light on the potential of qualitative and public tax transparency to alter firms' tax behavior. Our results might be of interest to policymakers who are considering imposing similar tax transparency rules or sustainability reports that demand qualitative tax information.

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## **Chapter 2**

### **The Relation between Corporate Social Responsibility and Profit Shifting of Multinational Enterprises**

# The Relation between Corporate Social Responsibility and Profit Shifting of Multinational Enterprises

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## **Abstract:**

We examine the relation between corporate social responsibility [CSR] and international profit shifting. We find consistent evidence that CSR is adversely related to profit shifting within European and US multinational firms. Additional results document that less profit shifting occurs in European multinational firms that show high performance in the social or corporate governance dimensions. For US multinational firms, we find that the CSR performance is negatively related to profit shifting, particularly if a multinational firm faces fewer reputational concerns or competitive threats. Moreover, we can also confirm a negative relation between high commitment to CSR and tax avoidance by investigating effective tax rates taken from consolidated financial accounts. Our evidence suggests the existence of a corporate culture in which CSR and tax payments act as complements.

**Keywords:** Profit Shifting, Corporate Social Responsibility, Tax Avoidance, Corporate Governance

**JEL Classifications:** H25, H26, M14

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## 2.1 Introduction

Evidence of the extensive profit-shifting activities of large multinational enterprises [MNEs] has raised the public awareness of this phenomenon in recent years. While not illegal, tax avoidance through profit shifting has increasingly been condemned as unethical and immoral (Barford & Holt, 2013; Organization for Economic Co-operation and Development [OECD], 2013). The negative perception of profit shifting became particularly evident when disparities between profits and taxes paid by well-known firms such as Starbucks, Google, Apple and Amazon were revealed. These events caused an unprecedented level of public outrage and fueled demands that companies should pay their ‘fair share’ of tax (Bennett & Murphy, 2017; Gribnau & Jallai, 2017). Moreover, MNEs nowadays face certain expectations from society and consumers (Panayi, 2015). Corporate social responsibility [CSR] advocates that businesses address the interests of all stakeholders rather than merely concentrating on their own interests, such as profit maximization (Cerioni, 2014). We therefore investigate the relation between CSR and tax avoidance through intrafirm profit shifting.

Responsible tax behavior can be considered part of a firm’s responsibility to the communities in which it operates (Beloe et al., 2006; Christensen & Murphy, 2004; Knuutinen, 2014). Consequently, avoiding taxes while claiming to be a responsible citizen could be perceived as hypocrisy (Davis et al., 2016; Sikka, 2010). For example, the Irish Times states that “[t]he inescapable truth is that people [...] get really annoyed when they hear that companies making billions don’t pay tax. You can publish all the glossy CSR reports you want, you can buy as much green energy as you can find [...], but if you don’t pay tax it’s very hard to argue these days that you are a good corporate citizen” (McManus, 2013).

However, it is uncertain how the tax management behavior and CSR performance of MNEs are related. Conflicting empirical evidence suggests that CSR performance and tax payments are either aligned and hence complements (e.g., Hoi et al., 2013), or are substitutes (e.g., Davis et al., 2016). Competing theories exist which explain the link between CSR and

profit shifting. According to risk management theory, a firm is not inherently motivated to engage in CSR for the sake of all stakeholders, as its decisions are entirely based on economic considerations. Nonetheless, a firm engages in CSR to build up an ‘insurance-like’ protection to mitigate potential reputational risks that increase with the extent of its profit-shifting activities (Godfrey, 2005). Consequently, the two constructs should be positively related, so that taxes and CSR act as substitutes. By contrast, corporate culture theory makes the opposite prediction and assumes that all decisions of a firm reflect a shared belief about the ‘right’ corporate behavior that takes all stakeholders into account (Hermalin, 2001; Kreps, 1990). If socially irresponsible behavior prevails in a firm, extensive profit shifting and tax avoidance are in line with this corporate culture.

The aim of our study is to investigate the link between CSR and intrafirm profit shifting as an important means of tax avoidance. We employ unconsolidated firm-level data from the Amadeus database for subsidiaries domiciled in Europe. Moreover, we consider the CSR performance of the parent companies by relying on the Refinitiv Environmental, Social and Governance [ESG] scores (formerly Thomson Reuters ASSET4).

We begin by using a well-known approach to estimate profit shifting (Huizinga & Laeven, 2008) and explore if the CSR performance of European MNEs is linked to different magnitudes of profit shifting. Our results show that the scope of profit shifting and CSR performance are adversely related. Thus, our findings suggest that profit shifting is more pronounced for European firms with a lower overall CSR performance. This is in accordance with corporate culture theory. Tax payments and CSR activities are hence complements.

Moreover, we subsequently examine different CSR dimensions. In particular, we find that a European parent firm’s commitment to society and more refined corporate governance are negatively associated with profit shifting. Higher performance in these dimensions is hence related to less profit-shifting activities. Society and corporate governance are considered complements to tax payments in a firm’s corporate culture. However, a firm’s corporate culture



does seem to substitute rather than align environmental commitment and tax payments, as we find weak evidence of a positive relationship between environmental performance and profit shifting.

We also analyze the profit shifting of US MNEs within their European subsidiaries. Using a matched sample of similar MNEs, we show that the overall CSR performance of US MNEs is also negatively associated with profit-shifting activities. Nonetheless, the association between CSR dimensions and profit shifting differs, at least in the environmental dimension. Unlike for European MNEs, we do not find evidence that US MNEs substitute environmental commitment with tax payments or vice versa.

Further, we assess if the relationship between profit shifting and CSR performance is influenced by reputational concerns or a firm's market power. We find that US MNEs that are less exposed to reputational concerns or competitive threats engage in more profit shifting, but establish a more pronounced corporate culture which aligns tax payments and CSR.

Finally, we find consistent results when using consolidated accounting data to investigate tax avoidance, which reconciles our findings with prior literature (e.g., Hoi et al., 2013). A multinational group's overall CSR performance is positively related to its effective tax rate [ETR]. This lends additional credence to the idea that a corporate culture exists in MNEs that considers CSR and taxes to be complements.

Our study makes several contributions to the existing literature. Most importantly, we show that CSR behavior is related to profit shifting. Profit shifting has been investigated abundantly in academic works (see, e.g., Beer et al., 2020; Heckemeyer & Overesch, 2017). While prior empirical research attempts to find evidence for the occurrence and magnitude of profit shifting, a more recent stream of literature tries to identify profit-shifting determinants. These studies focus on firm characteristics, certain profit-shifting channels or restrictions imposed by anti-tax avoidance regulations. We investigate the relationship between profit shifting and multinational groups' attitudes toward responsibilities for the environment, society

and other stakeholders. A contemporaneous working paper by Hasan et al. (2023) finds a positive association between CSR and profit shifting for a worldwide sample, using the estimation method developed by Dharmapala and Riedel (2013).<sup>6</sup> However, this approach mainly captures debt shifting (Riedel, 2018), while we employ the well-known approach by Huizinga and Laeven (2008) and utilize pre-tax profits to consider all profit-shifting channels.

Second, we contribute to the emerging research field of CSR and tax avoidance. Prior studies that investigate the link between CSR and tax rely on consolidated accounting data to evaluate tax avoidance (generally measured by the ETR or similar measures). The results are inconclusive. While some establish a negative relation between CSR and tax aggressiveness (e.g., Hoi et al., 2013), others affirm that CSR and tax payments are substitutes (e.g., Davis et al., 2016). Our paper adds to the ambiguous literature on the CSR–tax link by investigating profit shifting as a specific and important form of tax avoidance. Moreover, in contrast to some previous empirical works, we do not solely analyze the overall CSR performance, but also perform a deeper investigation of the different CSR dimensions. From these separate analyses we can also draw inferences about the relation between corporate governance as a part of CSR and profit shifting. The governance dimension of CSR has often been excluded from prior research or treated as a control variable rather than as an integral part of CSR (e.g., Davis et al., 2016; Hoi et al., 2013). Yet considering corporate governance as a component of CSR is crucial, because a corporation’s tax planning decision will likely depend on the tradeoff between the benefits and costs of tax avoidance behavior and its responsibilities to both external (including society) and internal stakeholders.

Third, we consider both European and US multinational groups and examine if CSR is linked differently to profit shifting. Comparing distinct regions provides additional insights and hence complements cross-country studies on CSR (Fatima & Elbanna, 2022). Thus, our work

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<sup>6</sup> The diverging sample composition might explain the contrary result, as the attitude toward CSR as well as CSR performances vary among geographic regions (e.g., Ho et al., 2012; Thanetsunthorn, 2015).

also sheds light on the linkage between CSR and tax avoidance in a European setting. Existing evidence on this association is mostly based on US firms. CSR might not be valued similarly by society, managers and other stakeholders from different countries. In addition, the corporate governance culture in Europe could diverge from the US. A global analysis of corporate social performance by Ho et al. (2012) indicates that European countries generally outperform North American companies. Conferring existing results to European companies may therefore not be appropriate, which highlights the need to investigate the CSR–tax link in a European setting. Our analyses suggest that the relationship between CSR and profit shifting is indeed not entirely uniform across all CSR dimensions.

Overall, our study is also of practical relevance as it can be useful for policymakers interested in the conditions under which the relocation of pre-tax profits might be more likely. Our finding of a negative relation between CSR and profit shifting further suggests that measures promoting CSR (or curbing profit shifting) might be even more advantageous as they might additionally be related to lower profit shifting (or higher CSR engagement). This insight is particularly useful given that regulators and standards organizations plan and continue to expand ESG reporting regulations or frameworks (e.g., European Commission, 2021; Global Reporting Initiative [GRI], 2021; International Financial Reporting Standards [IFRS], 2021; Securities and Exchange Commission [SEC], 2021). Furthermore, the results are also interesting for responsible investors and consumers because they suggest that, for most firms, a higher CSR performance is associated with less aggressive tax behavior.

The remainder of this paper proceeds as follows. Section 2.2 develops hypotheses based on theoretical backgrounds. Section 2.3 describes the data and our methodology. The empirical results are presented in Section 2.4. In addition, we outline the results for US MNEs and perform an in-depth comparison with European MNEs. We further analyze the influence of reputational concerns and market power. In Section 2.5, we reconcile our findings with prior literature on CSR and tax avoidance. Section 2.6 concludes this study.

## 2.2 Background and Hypotheses Development

### 2.2.1 CSR and Corporate Tax Behavior

Despite the importance that CSR has gained, no universal definition describing the concept exists. The European Commission defines CSR as “the responsibility of enterprises for their impacts on society” and states that CSR “concerns actions by companies over and above their legal obligations toward society and the environment” (European Commission, 2011). Irrespective of the definition employed, CSR depends on a voluntary commitment. The extent of a firm’s CSR activities can thus be chosen deliberately and varies depending on the responsibilities the firm is willing to take and its attitude toward the different issues of CSR. We assume that an MNE’s CSR strategy is centralized at the parent firm and hence applies to subsidiaries, as Epstein and Roy (2007) have shown is the case for environmental strategies.

A growing number of empirical works examines if CSR is associated with corporate tax avoidance, using consolidated accounting data. However, the results are inconclusive. Some studies document that CSR and tax avoidance are *negatively* related. Lanis and Richardson (2012) find an adverse relation between tax avoidance and the level of CSR disclosures in the annual reports of Australian firms. They conclude that more socially responsible firms are less tax aggressive. This finding is confirmed when the authors investigate the relation between US firms’ CSR engagement and the level of tax disputes as a direct measure of tax avoidance (Lanis & Richardson, 2015). Hoi et al. (2013) examine irresponsible CSR activities and conclude that tax avoidance is more likely to occur in firms with excessive irresponsible CSR activities. In a more recent paper, D. Lee (2020) examines tax havens as the most criticized form of tax avoidance and ascertains that firms with headquarters in tax havens exhibit a lower level of CSR activities than otherwise comparable firms located in the US. Lanis and Richardson (2018) provide evidence that the adverse relation between CSR and tax avoidance is magnified by the presence of outside directors.

However, other studies suggest that firms claiming to be socially responsible are indeed *more* tax aggressive. Besides qualitative research (Preuss, 2010; Sikka, 2010), Davis et al. (2016) provide empirical evidence that CSR and tax avoidance are positively related. They hence draw the conclusion that CSR and taxes act as substitutes rather than complements.

Most of the literature on CSR and corporate tax behavior primarily uses US data. Evidence for European companies is scarce and sometimes limited to one country. For example, Laguir et al. (2015) explore CSR and tax avoidance in publicly listed French firms and find that the nature of the relation depends on the CSR dimensions. The economic dimension is positively associated with tax avoidance, while the relation is negative for the social one. The latter result is confirmed for firms in coordinated market economies in a study by Kieseewetter and Manthey (2017) that investigates European companies based on aggregate firm data. They further show that the corporate governance dimension is positively related to tax avoidance.

Given the ambiguous results, some empirical studies consider separate CSR dimensions. Huseynov and Klamm (2012) find that firms with strong governance or diversity have a lower ETR but nonetheless support the community. Landry et al. (2013) examine Canadian firms and provide evidence that high scores regarding community and customer commitment are related to more tax aggressiveness, whereas firms with high corporate governance and employee commitment avoid less taxes.

### **2.2.2 Tax-Motivated Profit Shifting**

Taking into account the aforementioned mixed evidence on the relationship between CSR and the aggregated tax position of a firm, we focus on profit shifting as a specific tax avoidance strategy. MNEs use profit shifting to reduce their worldwide tax expenses. Each subsidiary of a multinational firm is subject to corporate tax in its host country. The taxable profits of each subsidiary are computed according to the separate accounting principles. Because corporate tax rates vary significantly across countries, a multinational firm has incentives to manipulate the reported taxable profits. At locations with a higher tax rate,

reported profits might be reduced by means of intercompany debt financing or higher prices for intrafirm trade, while profitability in low-tax locations is increased.

Comprehensive empirical evidence has already confirmed the profit shifting of MNEs (OECD, 2015; Riedel, 2018).<sup>7</sup> Most empirical studies refer to a framework established by Hines and Rice (1994). Following their well-known approach, the total pre-tax profit of a subsidiary is composed of two types of income: income earned by real economic activities and income that has been shifted either into or out of the respective subsidiary. Huizinga and Laeven (2008) are the first to modify the model and to employ firm-level data.

More recent research acknowledges the heterogeneity in profit shifting and considers the various determinants, such as research and development [R&D] intensity (Grubert, 2003), transfer mispricing (Bernard et al., 2008), patent allocation (Karkinsky & Riedel, 2012), intangible assets (Beer & Loeprick, 2015; Dischinger & Riedel, 2011; Grubert, 2003), internal debt (Büttner & Wamser, 2013), or group structure complexity (Beer & Loeprick, 2015). The effectiveness of anti-tax avoidance regulations has also been analyzed (e.g., thin-capitalization rules, Büttner et al., 2012; Overesch & Wamser, 2010).

We argue that MNEs are also inhomogeneous with respect to their relations with and attitude toward society and other stakeholders. Consequently, different CSR levels could also affect their profit-shifting behavior. Therefore, we investigate the association between a parent firm's CSR activities and the extent of profit shifting within the multinational group.

### **2.2.3 Hypothesis Development**

The mixed evidence on the relationship between CSR and tax avoidance is supported by distinct theories. According to the shareholder theory, which is based on assumptions of the traditional agency theory, a corporation's sole responsibility is to maximize its profits within

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<sup>7</sup> The estimated magnitude of profit shifting varies among studies. A meta-analysis by Heckemeyer and Overesch (2017) finds a consensus semi-elasticity of -0.8, indicating that a 10 percent point increase in the tax variable reduces the pre-tax profits reported in financial statements by 8%. Beer et al. (2020) find that the semi-elasticity has increased over time and equals -1.5 for the most recent years.

the limits of the law (Friedman, 1962). Managers will only engage in CSR activities if they expect a positive payoff. The risk management theory, however, implies that CSR also generates economic value by building up ‘moral capital’. This moral capital mitigates the risks related to negative corporate events as external stakeholders are more lenient toward firms with a positive CSR reputation (Godfrey, 2005). Godfrey et al. (2009) find that negative events have a lower impact on firms that engage in CSR. Socially responsible behavior might be used strategically to serve as an insurance against risks arising from corporate actions. The minimization of tax payments can impose risks on firms as it might result in sanctions or reputational damages. Anecdotal evidence implies that adverse reputational effects can arise from tax avoidance, e.g., due to negative media coverage.<sup>8</sup> Survey evidence suggests that reputational concerns are an important factor for tax executives deciding on tax planning (Graham et al., 2014). C. R. Austin and Wilson (2017) provide empirical evidence that tax avoidance is less prevalent in firms with valuable consumer brands, probably because of these firms’ greater exposure to reputational damage. Consequently, the risk management theory suggests that more profit shifting occurs in MNEs with extensive CSR activities, as CSR is used to hedge against risks associated with profit shifting (Hoi et al., 2013).<sup>9</sup>

However, it is not only arguments based on the economic perspective of shareholder or risk management theory that militate in favor of a positive relation between CSR and profit shifting. Firms and managers might feel responsible for societal conditions, but do not consider tax payments to be an appropriate way of contributing to society (Davis et al., 2016). Huseynov and Klamm (2012) find that firms committed to diversity and community avoid more taxes and conclude that these firms lower their tax expenses because the higher profits are used for the

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<sup>8</sup> For example, the reputation score for Starbucks provided by the polling firm YouGov dropped significantly after the revelation of their reduced tax payments (Sadgrove, 2015).

<sup>9</sup> However, the reputational costs arising from the minimization of tax payments are disputed. Gallemore et al. (2014) do not find evidence of reputational costs caused by tax shelter involvement for firms or their executives. In contrast, Hanlon and Slemrod (2009) find that firms’ stock prices decline after the release of press articles about aggressive tax planning, indicating that investors judge tax avoidance negatively. See, e.g., Krieger and Li (2021) for an extensive review of the literature on the reputational costs of tax avoidance.

benefit of society, e.g., for charitable giving. Taken together, the aforementioned arguments suggest a positive relation between CSR and profit shifting, so that tax payments and CSR act as substitutes. We formulate the following hypothesis:

*H1a: Corporate social responsibility and the profit-shifting behavior of MNEs are positively related.*

The economic perspective has progressively been challenged by scholars advocating that ethics and values are an integral part of corporate actions, so that companies and managers have responsibilities not only to shareholders, but also to other stakeholders.<sup>10</sup> Stakeholder theory therefore argues that a firm should incorporate all stakeholders, such as society, customers, employees and the government, in its decisions in order to generate value for all of these parties (Freeman, 1984, 1994; Freeman & Reed, 1983). Similarly, corporate culture theory asserts that corporations might feel responsible for all stakeholders. The concept of corporate culture implies that all the decisions—including those on CSR and tax avoidance—of a corporation will reflect a set of shared values and beliefs regarding the ‘right’ corporate behavior (Deshpande & Webster, 1989; Hermalin, 2001; Hoi et al., 2013; Kreps, 1990). If a company feels committed to all stakeholders, this commitment will shape its corporate culture and no activities potentially harmful to those parties will be undertaken. Instead, CSR will be an important part of its corporate culture, since the engagement in CSR activities benefits society, employees, customers, the government and other stakeholders, whereas profit shifting will be inconsistent with such a corporate culture (Col & Patel, 2019; Hoi et al., 2013). Conversely, if the corporate culture of a firm does not incorporate stakeholders’ interests, CSR will not be viewed as a necessary activity and profit shifting will not be deemed improper. In

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<sup>10</sup> However, shareholder and stakeholder theory are not necessarily oppositional, as maximizing stakeholder value will also benefit the shareholders (Freeman et al., 2004). If external stakeholders withdrew their resources, a company’s success would be impacted on a large scale (Freeman & Reed, 1983).



sum, the preceding arguments imply that CSR and the profit shifting of MNEs are negatively related, so that CSR and tax payments are complements:

*H1b: Corporate social responsibility and the profit-shifting behavior of MNEs are adversely related.*

## **2.3 Data and Research Methodology**

### **2.3.1 Data**

We obtain data from two sources for our study. Firm-level accounting data are retrieved from the Amadeus database by Bureau van Dijk. Amadeus provides subsidiary-level and firm-level financial data as well as ownership information for a large number of European and US companies.<sup>11</sup> For our analyses, we use samples comprising subsidiary firms in EU and European Economic Area [EEA] countries.

Information on CSR is retrieved from the Refinitiv ESG score database (formerly denoted as Thomson Reuters ASSET4).<sup>12</sup> ESG scores are commonly used by different stakeholders or academic literature to measure a firm's CSR performance (Ioannou & Serafeim, 2012; Yoon et al., 2021). Hence, in the following, the terms ESG and CSR are used interchangeably.

Refinitiv offers comprehensive ESG scores for over 10,000 global public companies. Trained content research analysts collect data from publicly available information sources, e.g., company or non-governmental organization websites, CSR reports, stock exchange filings or

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<sup>11</sup> We combine multiple versions of the database (from 2020, 2018, 2015 and 2013) to mitigate the survivorship bias of Amadeus arising due to the deletion of companies that have not reported in the last five years (Kalemli-Özcan et al., 2022). Another drawback of using this database is that ownership data are solely available for the last reported date, which is 2018 for the majority of the firms in our sample. However, in accordance with previous studies that have acknowledged this caveat (e.g., Dharmapala & Riedel, 2013; Dischinger et al., 2014), we are not overly concerned about the issue of potential misclassifications since, if anything, it is expected to lead to a bias against finding significant results (Budd et al., 2005).

<sup>12</sup> ESG scores evaluate a firm's environmental, social and corporate governance activities. CSR refers to a firm's activities toward being more socially responsible (Gillan et al., 2021). Generally, a firm's responsibility is considered to comprise environmental, social and (indirectly) governance issues (e.g., Elkington, 1997; Gillan et al., 2021; Knuutinen & Pietiläinen, 2017).

news sources.<sup>13</sup> The data then undergo algorithmic as well as human quality assurance processes in which they are standardized to guarantee comparability. The company-level information is aggregated into several measures which are employed to generate various ESG scores, ranging from 0 to 100 (with 100 representing the best performance). Figure A2.1 in the Appendix illustrates the different ESG scores. We examine two types of ESG scores.

First, we consider scores that capture the overall ESG performance of a firm. The *ESG score* measures a firm's overall relative ESG performance, effectiveness and commitment. It is a percentile rank score constructed by aggregating 10 category scores.<sup>14</sup> In additional analyses, we consider two other ESG measures. The *ESG controversies score* captures scandals that have been discussed in the media and materially impact the firm (Refinitiv, 2022). A lower score represents a higher number of controversies. The *ESG combined score* evaluates a firm's overall ESG performance as well as its conduct by combining the ESG score and the ESG controversies scores. The second type of ESG measures included in our analyses are ESG pillar scores that measure the performance in the following three dimensions: (i) environmental, (ii) social and (iii) corporate governance.<sup>15</sup>

Given the aforementioned advantages and a transparent methodology, Refinitiv ESG (or its predecessor ASSET4) scores have been employed in numerous empirical studies (e.g., Cheng et al., 2014; Hawn & Ioannou, 2016; Sassen et al., 2016). They are considered one of the most reliable and diligent sources of CSR data (Stellner et al., 2015). Moreover, we chose

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<sup>13</sup> We are aware of the issue common to all CSR databases relying on public disclosures that information might not fully reflect the actual CSR activities undertaken by a firm. The CSR disclosures of corporations might be deliberately biased, e.g., to cover up tax avoidance (Moser & Martin, 2012; Sikka, 2010). However, the inclusion of third-party sources which most likely cannot be influenced by the firm itself should mitigate this problem (Cheng et al., 2014). Moreover, rating shopping is less likely, because Thomson Reuters is funded by the investors accessing the data rather than by the rated companies (Barko et al., 2022).

<sup>14</sup> The different category scores (such as emissions, human rights, etc.) are weighted according to a magnitude matrix which considers the importance of the single ESG themes to different industries. For a detailed definition, see Refinitiv (2022).

<sup>15</sup> The 10 category scores are used to calculate the ESG pillar scores. See Table A2.2 in the Appendix for a definition of the category scores and the composition of the corresponding ESG pillars.

this database because, compared to other providers, Refinitiv's database has a better long-term coverage of European companies.<sup>16</sup>

We retrieve the different ESG scores described above and merge the data to ownership information retrieved from Amadeus based on the ISINs of the parent firms. Thereafter, all subsidiaries of parent firms without available CSR information are dropped. In addition, we limit our analyses to the years 2010 to 2018.<sup>17</sup>

To capture international profit shifting, we next identify subsidiaries that are part of a multinational group by using the ownership structure provided by Amadeus. A subsidiary is defined as being part of an MNE if more than 50% of its shares are owned by an independent global ultimate owner that has at least one subsidiary in another country (for a similar approach see, e.g., Barrios & d'Andria, 2020; Huizinga & Laeven, 2008; Maffini & Mokkas, 2011). Subsidiaries without a global ultimate owner or that are not part of an MNE are excluded. The dataset including ownership and CSR information is then merged with subsidiary-level financial data taken from Amadeus. We remove unconsolidated data for the parent firm and all consolidated accounts because we are interested in the taxation of each individual subsidiary. We further delete observations of firms with a fiscal year that differs from 12 months to obtain a uniform accounting period in the sample and assign observations with a year-end date before June 1 to the previous financial year. Following earlier studies, we eliminate observations with negative total, fixed, tangible or intangible assets and a negative cost of employees or turnover (Barrios & d'Andria, 2020; Beer & Loeprick, 2015) and limit our analysis to affiliates with positive pre-tax income (Dharmapala & Riedel, 2013; Huizinga & Laeven, 2008).

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<sup>16</sup> For example, the widely-used MSCI ESG (formerly KLD) database has only included European companies in recent years (Sassen et al., 2016). Moreover, we consider it more appropriate to employ Refinitiv's ESG database due to the different methodology. While Refinitiv provides a score for the overall CSR performance, MSCI differentiates between CSR concerns and strengths in each of its categories. Thus, most studies relying on MSCI data analyze the effect of CSR separately for CSR concerns and strengths. However, some CSR concerns might occur involuntarily. Even if a company tries to compensate for such negative events through other social actions (strengths), the link to the high concerns will not be considered due to the separate analysis.

<sup>17</sup> The availability of CSR data is limited for earlier years. In addition, by choosing this sample period, we do not include the years of the financial crisis in which both the CSR and profit-shifting behavior of MNEs might have been different.

The observational unit in our analysis is the subsidiary of an MNE. Our sample of European MNEs consists of 167,002 observations from 24,409 subsidiary firms in 27 EU and EEA countries and 980 parent firms in 21 countries over the years 2010 to 2018. Table 2.1 presents an overview of the composition of the European sample. In addition, we consider a sample of 61,405 observations from 12,489 European subsidiary firms of 956 US parent firms in Section 2.4.2.

**Table 2.1: Country Distribution of the European Sample**

<b>Country</b>	<b>Subsidiaries</b>		<b>Parent Firms</b>	
	Observations	Unique Firms	Observations	Unique Firms
Austria	2,648	534	2,013	18
Belgium	7,826	1,418	2,820	23
Bulgaria	1,034	188		
Croatia	680	133		
Czech Republic	3,934	690	522	1
Denmark	2,682	557	1,833	28
Estonia	520	94		
Finland	2,322	516	3,761	34
France	18,623	4,075	24,377	84
Germany	9,014	1,896	15,239	96
Greece			107	11
Hungary	2,265	426	537	4
Iceland	56	16		
Ireland	1,542	363	6,190	35
Italy	10,188	1,966	5,746	41
Latvia	66	11		
Luxembourg	1,005	285	1,210	16
Malta	76	28	57	4
Netherlands	968	324	5,397	58
Norway	3,412	714	2,728	30
Poland	4,876	1,027	933	22
Portugal	2,918	530	469	5
Romania	2,496	495	4	1
Slovakia	1,831	335		
Slovenia	586	100		
Spain	12,576	2,380	6,635	47
Sweden	3,911	1,038	8,524	104
United Kingdom	18,647	4,270	27,600	318
<b>Total</b>	<b>116,702</b>	<b>24,409</b>	<b>116,702</b>	<b>980</b>

Notes: Table 2.1 depicts the country distribution of the European sample which comprises subsidiaries and parent firms from EU and EEA countries.

### 2.3.2 Research Methodology

To analyze the profit shifting of a multinational group and its relation to the parent firm's CSR, we employ the identification strategy of Hines and Rice (1994) and Huizinga and Laeven (2008) (see Section 2.2.2). We estimate the following regression equation:

$$\begin{aligned} PBT_{it} = & \beta_0 + \beta_1 STR_{it} + \beta_2 CSR_{jt} \times STR_{it} + \beta_3 CSR_{jt} + \beta_4 X_{it} + Year_t \\ & + Industry_i + Parent_j FE + u_{it} \end{aligned} \quad (2.1)$$

The dependent variable  $PBT_{it}$  is the log of reported profit before tax of subsidiary  $i$  in year  $t$ . We consider  $PBT$  because it accounts for both transfer pricing manipulation and financial shifting mechanisms.<sup>18</sup> The statutory tax rate of the country where the subsidiary resides ( $STR_{it}$ ) is employed to capture the tax incentive to shift profits. Statutory tax rates are collected from the worldwide corporate tax summaries of PricewaterhouseCoopers [PwC], KPMG and Ernst & Young [EY]. We expect a negative sign for  $\beta_1$ , as a higher statutory tax rate is likely to result in profits being shifted to other locations. Due to the log-level specification,  $\beta_1$  directly reports the point semi-elasticity of pre-tax profit.

As a CSR measure ( $CSR_{jt}$ ), we consider variables retrieved from the Refinitiv database that capture the overall CSR performance as well as the performance in separate CSR dimensions (environmental, social and governance) of parent  $j$  of the respective subsidiaries. The coefficient of interest for our research question is  $\beta_2$ , the coefficient of the interaction term between the CSR variable and tax variable ( $CSR_{jt} \times STR_{it}$ ) which estimates the relation between a parent firm's CSR and profit-shifting behavior.

$X_{it}$  is a vector of subsidiary- or country-level control variables which affect the profit of a subsidiary as shown in prior studies (e.g., Beer & Loeprick, 2015; Huizinga & Laeven, 2008). To estimate the 'true' income of an affiliate, measures of capital and labor inputs are included

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<sup>18</sup> Heckemeyer and Overesch (2017) find that transfer pricing and licensing are the main channels of profit shifting. Thus, we conduct robustness tests using earnings before interests and taxes ( $EBIT$ ) to exclude debt shifting.

in the analysis. Fixed assets and costs of employees serve as proxy for capital (*CAPITAL*) and labor (*LABOR*), respectively. In addition, the share of intangible assets over total assets (*INTAN*) controls for the value of intangibles of a subsidiary. On the country level, gross domestic product (*GDP*), gross domestic product per capita (*GDPC*) and the unemployment rate (*UNEMPLOY*) are included to control for economic conditions of a subsidiary's host country. Moreover, we add an indicator for the control of corruption (*CORRUPT*). Table 2.2 provides descriptive statistics of the variables included in our regressions. Definitions of the employed variables can be found in Panel A of Table A2.1 in the Appendix.

**Table 2.2: Descriptive Statistics**

VARIABLES	Obs.	Mean	Std. Dev.	Q1	Median	Q3
<b>Panel A: European Sample – EU and EEA Subsidiaries of European MNEs</b>						
<i>PBT</i>	116,702	14.210	2.181	12.824	14.157	15.564
<i>EBIT</i>	115,497	15.903	0.858	15.402	15.574	16.052
<i>STR</i>	116,702	0.268	0.066	0.210	0.279	0.314
<i>TAXDIFF</i>	116,702	0.002	0.060	-0.036	0.006	0.044
<i>ESG</i>	116,702	63.511	18.794	51.227	67.032	78.281
<i>ESGCOMB</i>	116,702	58.795	17.619	46.516	60.356	73.140
<i>ESGCONTROV</i>	116,702	82.614	28.972	75.000	100.000	100.000
<i>ENV</i>	116,702	62.818	25.724	45.990	69.938	83.409
<i>SOC</i>	116,702	66.445	22.045	53.049	70.755	84.317
<i>GOV</i>	116,702	58.736	21.589	42.642	61.074	76.344
<i>CAPITAL</i>	116,702	14.688	3.083	12.666	14.670	16.736
<i>LABOR</i>	116,702	14.969	1.967	13.838	14.956	16.203
<i>INTAN</i>	116,702	0.037	0.107	0.000	0.001	0.015
<i>GDP</i>	116,702	27.438	1.172	26.650	27.787	28.425
<i>GDPC</i>	116,702	10.273	0.478	10.097	10.385	10.540
<i>CORRUPT</i>	116,702	1.240	0.700	0.614	1.456	1.814
<b>Panel B: US Sample – EU and EEA Subsidiaries of US MNEs</b>						
<i>PBT</i>	61,405	14.240	1.961	12.963	14.224	15.488
<i>EBIT</i>	60,775	15.220	1.002	14.506	14.900	15.642
<i>STR</i>	61,405	0.262	0.067	0.200	0.260	0.314
<i>TAXDIFF</i>	61,405	0.007	0.065	-0.042	0.007	0.055
<i>ESG</i>	61,405	52.991	20.934	36.564	53.737	70.166
<i>ESGCOMB</i>	61,405	47.512	18.225	34.358	46.945	61.341
<i>ESGCONTROV</i>	61,405	77.346	33.684	57.813	100.000	100.000
<i>ENV</i>	61,405	43.586	28.921	18.324	44.497	69.772
<i>SOC</i>	61,405	54.287	22.783	36.420	53.804	73.311
<i>GOV</i>	61,405	58.825	22.001	43.811	62.639	76.185
<i>CAPITAL</i>	61,405	14.334	3.022	12.283	14.406	16.464
<i>LABOR</i>	61,405	15.215	1.687	14.135	15.236	16.314
<i>INTAN</i>	61,405	0.031	0.092	0.000	0.000	0.010
<i>GDP</i>	61,405	27.540	1.147	26.659	28.154	28.483
<i>GDPC</i>	61,405	10.322	0.451	10.204	10.424	10.570
<i>CORRUPT</i>	61,405	1.320	0.691	0.670	1.549	1.838
<i>UNEMPLOY</i>	61,405	2.024	0.453	1.668	2.052	2.308

Notes: Table 2.2 presents descriptive statistics for our sample firms, requiring non-missing values for all variables. Panel A is based on our sample of EU and EEA subsidiaries of European MNEs. Panel B is based on a sample of EU and EEA subsidiaries of US MNEs as presented in Section 2.4.2. For a detailed description of variables employed, see Table A2.1 in the Appendix.

We add a parent-specific effect to control for heterogeneity across the different parent companies. We do not include subsidiary or country fixed effects to avoid an estimation that is only based on within-country variation, as our estimation of profit shifting is based on tax differences between countries. Including such fixed effects would capture a part of profit

shifting and can lead to underestimation (Clausing, 2006; Heckemeyer & Overesch, 2017). Therefore, estimations require between-country variation. At the subsidiary level, however, we use industry dummies at the two-digit NACE code level to control for unobservable heterogeneity, as business models and opportunities for profit shifting vary among industries (e.g., Barrios & d'Andria, 2020). Moreover, as common economic developments may influence subsidiary profitability and can be correlated with the profit-shifting incentive, we add year dummies. Our statistical inferences are based on robust standard errors clustered at the country-year level as some tax variables solely vary over the country-year dimension.

## **2.4 Empirical Results**

### **2.4.1 Regression Results for European MNEs**

We begin with an analysis of the subsidiary data for European MNEs. The regression results are depicted in Table 2.3. In Column (1), we estimate a standard profit-shifting model without any CSR variables. The negative and significant coefficient of *STR* across all specifications indicates that the MNEs in our sample engage in profit shifting. The coefficient of -1.42 suggests that on average, a one percentage point increase in the host country's statutory tax rate leads to a 1.42% smaller reported pre-tax profit of a subsidiary.<sup>19</sup> The coefficients of capital and labor are positively related to pre-tax profit, which is consistent with prior literature. The coefficient of the ratio of intangibles over total assets is significant and negative. This finding as well as the magnitude are in line with Beer and Loeprick (2015). The coefficients of country-level controls are also plausible and coincide with previous findings. The positive coefficients of *GDP* and *GDPC* suggest that affiliates operating in larger and more productive markets generate higher pre-tax profits. Moreover, a higher control of corruption exercises a positive influence on pre-tax profits. Subsidiaries operating in countries with less unemployment are more profitable.

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<sup>19</sup> This estimate is close to the consensus estimate of -1.5 for recent years (Beer et al., 2020).



In Columns (2) to (4), we consider the ESG scores that measure a parent firm's overall CSR performance. The coefficients for the tax rate *STR* are again negative and describe the semi-elasticity of reported pre-tax profits for a hypothetical firm with the CSR variable being zero, i.e., for an extremely socially irresponsible firm. In Column (2), we find a positive coefficient of the interaction term between the overall ESG score and the tax rate. This finding suggests that profit shifting decreases with the overall ESG score, hence with the extent a parent firm engages in CSR. Conversely, profit shifting is more pronounced in MNEs whose overall CSR activities are low. Evaluated at the sample mean of the ESG score, the tax elasticity of reported profits equals -1.43.<sup>20</sup> This magnitude is nearly identical to the extent of profit shifting as depicted in Column (1). However, if we consider a more socially responsible MNE with an ESG score that is one standard deviation higher (increased by 20), our point estimate suggests that the semi-elasticity decreases by 0.18 in absolute values to -1.25, reducing the observed extent of profit shifting by 13% compared to the sample mean.

The same adverse relation between overall CSR performance and profit shifting is found for the ESG combined score (*ESGCOMB*, Column (3)) which adjusts the ESG score if ESG controversies have occurred. We moreover investigate the robustness of our result for the ESG combined score by separately examining the relationship between each of the two components, the ESG score and the ESG controversies score (*ESGCONTROV*), and the statutory tax rate in Column (4). The result suggests that the extent to which a parent firm has been subject to controversies during a fiscal year is not significantly related to the tax elasticity of reported profits. Controversies which occur in the short term are not necessarily in line with the overall, long-term CSR performance and are thus not associated with profit-shifting

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<sup>20</sup> The semi-elasticity is calculated as the sum of the coefficient of *STR* (-2.006) and the coefficient of  $STR \times ESG$  (0.009) multiplied with the ESG score. At the sample mean of the ESG score, which is equal to 63.5, the semi-elasticity is hence calculated as  $-2.006 + 0.009 \times 63.5 = -1.43$ .

behavior.<sup>21</sup> However, the negative and significant relation between overall ESG performance and profit shifting is still confirmed in Column (4).

For our sample of subsidiaries of European MNEs, our findings thus confirm an adverse relationship between the overall CSR performance and profit shifting. The negative association supports hypothesis H1b, which is based on corporate culture theory. Companies which do not attach any or attach a very low importance to CSR in their corporate culture are also more likely to minimize their tax burdens by shifting profits, whereas profit shifting is not reconcilable with a corporate culture that promotes higher CSR. This result is also consistent with one strand of prior literature, e.g., Hoi et al. (2013) who find that firms with excessive irresponsible CSR activities engage in more tax avoidance.

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<sup>21</sup> Indeed, the correlation between the ESG controversies score and overall ESG score in our sample (-0.33) indicates that firms with a higher ESG score tend to have a lower controversies score, i.e., have more controversies. Dorfleitner et al. (2020) suggest that firms with higher ESG scores are affected more strongly by controversies, in line with the saying ‘the higher you fly, the harder you fall’.

**Table 2.3: Overall CSR Performance and Profit Shifting of European MNEs**

	(1)	(2)	(3)	(4)
VARIABLES	Without CSR Variable	ESG Score	ESG Combined Score	ESG Controversies and ESG Score
<i>STR</i>	-1.424*** (0.000)	-2.006*** (0.000)	-1.909*** (0.000)	-1.792*** (0.000)
<i>STR</i> × <i>ESG</i>		0.009** (0.020)		0.008** (0.039)
<i>STR</i> × <i>ESGCOMB</i>			0.008** (0.036)	
<i>STR</i> × <i>ESGCONTROV</i>				-0.002 (0.389)
<i>ESG</i>		-0.001 (0.492)		-0.001 (0.626)
<i>ESGCOMB</i>			-0.002* (0.090)	
<i>ESGCONTROV</i>				0.000 (0.427)
<i>CAPITAL</i>	0.346*** (0.000)	0.346*** (0.000)	0.346*** (0.000)	0.346*** (0.000)
<i>LABOR</i>	0.349*** (0.000)	0.349*** (0.000)	0.349*** (0.000)	0.349*** (0.000)
<i>INTAN</i>	-1.501*** (0.000)	-1.501*** (0.000)	-1.502*** (0.000)	-1.501*** (0.000)
<i>GDP</i>	0.053*** (0.000)	0.052*** (0.000)	0.053*** (0.000)	0.052*** (0.000)
<i>GDP</i> × <i>C</i>	0.183*** (0.000)	0.182*** (0.000)	0.182*** (0.000)	0.182*** (0.000)
<i>CORRUPT</i>	0.049*** (0.005)	0.049*** (0.005)	0.049*** (0.005)	0.049*** (0.005)
<i>UNEMPLOY</i>	-0.108*** (0.000)	-0.110*** (0.000)	-0.109*** (0.000)	-0.109*** (0.000)
Year Dummies	✓	✓	✓	✓
Industry Dummies	✓	✓	✓	✓
Parent FE	✓	✓	✓	✓
Observations	116,702	116,702	116,702	116,702
R <sup>2</sup>	0.590	0.590	0.590	0.590

Notes: Table 2.3 provides the regression results for estimating Equation (2.1) with different CSR variables that measure a parent firm's overall CSR performance. In all columns, the dependent variable is the natural logarithm of profit before tax (*PBT*). Column (1) estimates the semi-elasticity of reported pre-tax profits with respect to a subsidiary's statutory tax rate *STR*. Column (2) tests the relation between the parent firm's overall CSR performance (*ESG*) and this elasticity. In Column (3), the ESG score adjusted based on ESG controversies (*ESGCOMB*) is employed as the CSR variable. Column (4) tests the relation between ESG controversies (*ESGCONTROV*) and the overall ESG score (*ESG*) and the semi-elasticity of reported pre-tax profits. Year dummies, two-digit NACE (Rev. 2) industry dummies at the subsidiary level and parent firm fixed effects [FE] are included in the regressions, but not reported. All estimation results are based on robust standard errors clustered at the country-year level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

With a further analysis, we investigate whether distinct dimensions of CSR are related differently to profit shifting. In Table 2.4, we consider the three CSR dimensions (environmental, social, and governance) of the overall ESG score. We first investigate the

dimensions separately in Columns (1) to (3). Column (4) shows the regression results when all dimensions are considered.

The coefficient of the interaction term between the score for the social dimension and the tax rate is positive and significant in Columns (2) and (4). This finding suggests that a higher social commitment of an MNE is related to less profit shifting at the subsidiary level, again supporting H1b. If a firm's corporate culture considers the interests of society, the firm on average engages in less profit shifting.

Moreover, when the governance characteristics of a parent firm are strongly developed, the tax elasticity of pre-tax profits is smaller in absolute values. As is consistent with Landry et al. (2013), our findings of a positive and significant interaction term  $STR \times GOV$  in Columns (3) and (4) show that stronger corporate governance mechanisms are associated with a smaller magnitude of profit-shifting activities. The score for the corporate governance dimension measures a company's processes and systems that ensure that its executives and board members act in the best interests of long-term shareholders. Hence, the short-term benefits of profit shifting seem to be perceived as detrimental to long-term shareholders' interests in parent firms with highly developed corporate governance activities, perhaps because of potential long-term reputational or financial losses.

For the environmental dimension, however, we observe the opposite association when analyzing all CSR dimensions in Column (4). The coefficient of  $STR \times ENV$  is negative and significant, suggesting that higher environmental performance is related to a greater extent of profit shifting in European MNEs. For this dimension, our result confirms H1a. Higher engagement in environmental protection and tax expenses are substitutes.

In sum, the results indicate that the overall negative relation between CSR and profit shifting is not uniform among the different CSR dimensions. Instead, the relation is driven in particular by the social and governance dimensions.

**Table 2.4: CSR Dimensions and Profit Shifting of European MNEs**

VARIABLES	(1) Environmental Dimension	(2) Social Dimension	(3) Governance Dimension	(4) All ESG Dimensions
<i>STR</i>	-1.429*** (0.000)	-1.862*** (0.000)	-2.158*** (0.000)	-2.263*** (0.000)
<i>STR</i> × <i>ENV</i>	0.000 (0.983)			-0.011** (0.022)
<i>STR</i> × <i>SOC</i>		0.006* (0.056)		0.011** (0.029)
<i>STR</i> × <i>GOV</i>			0.012*** (0.001)	0.013*** (0.002)
<i>ENV</i>	0.000 (0.981)			0.002* (0.081)
<i>SOC</i>		-0.000 (0.730)		-0.002 (0.313)
<i>GOV</i>			-0.003*** (0.008)	-0.003*** (0.010)
Controls	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓
Industry Dummies	✓	✓	✓	✓
Parent FE	✓	✓	✓	✓
Observations	116,702	116,702	116,702	116,702
R <sup>2</sup>	0.591	0.591	0.591	0.591

Notes: Table 2.4 provides the regression results for estimating Equation (2.1) with the separate ESG dimensions. The dependent variable is the natural logarithm of profit before tax (*PBT*). Columns (1), (2) and (3) test the relation to profit shifting separately for the environmental (*ENV*), social (*SOC*) and governance (*GOV*) dimensions, respectively. Column (4) tests the relation between all the different dimensions and the semi-elasticity of reported pre-tax profits with respect to a subsidiary's statutory tax rate *STR* simultaneously. All regressions include the subsidiary-level and country-level controls described in Section 2.3.2. Year dummies, two-digit NACE (Rev. 2) industry dummies at the subsidiary level and parent firm fixed effects are included in the regressions, but not reported. All estimation results are based on robust standard errors clustered at the country-year level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

We perform several additional analyses to confirm the robustness of our findings. To test whether the relation between CSR and profit shifting also exists when debt shifting is disregarded, we use *EBIT* as the dependent variable.<sup>22</sup> Moreover, we employ an alternative tax variable which takes the worldwide group structure into account and captures profit-shifting

<sup>22</sup> To avoid losing subsidiaries with negative *EBIT*, we follow Dharmapala and Riedel (2013) and add a constant to the variable that corresponds to the first percentile of the sample distribution before calculating the natural logarithm.

incentives between all subsidiaries.<sup>23</sup> The untabulated results are mostly consistent with prior findings.<sup>24</sup>

## 2.4.2 Comparison with US MNEs

The previous analyses have focused solely on a European setting as we only consider European parent firms and their subsidiaries. However, prior research suggests that European firms outperform other countries in terms of CSR performance (Ho et al., 2012). Consequently, we examine whether the relationship between CSR and profit shifting is different if parent firms are located in other countries. More precisely, we analyze European subsidiaries that are part of US MNEs. The regression results are depicted in Table 2.5. In Column (1), we first investigate the semi-elasticity of reported pre-tax profits without including CSR measures. The point estimate of the host country's tax rate equals -1.38 and is again highly significant. Thus, the semi-elasticity of reported profits is almost identical to findings from our European sample.

Our investigation of the relation between CSR and profit shifting follows the same approach as our analyses of European MNEs. We first analyze the relationship between overall CSR performance and profit shifting. Thereafter, we consider the separate CSR dimensions—the environmental, social, and corporate governance dimension.<sup>25</sup>

Analogously to our findings for EU MNEs, we find an adverse effect of the host country's tax rate on reported profits, whereas the coefficient of the interaction term between the tax rate and the ESG score is significant and positive (Column (2)). Hypothesis H1b is therefore also confirmed for US MNEs, but the negative association between the overall CSR performance of a parent firm and profit shifting seems to be stronger for US MNEs.

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<sup>23</sup> We compute a tax rate differential (*TAXDIFF*) between the statutory tax rate of the host country where a certain subsidiary is domiciled and the average of the statutory tax rates across all locations of the multinational firm (for a similar approach, see, e.g., Beer & Loeprick, 2015; Dischinger et al., 2014; Dischinger & Riedel, 2011; Karkinsky & Riedel, 2012).

<sup>24</sup> Only the positive association between environmental performance and profit shifting is not confirmed when using *EBIT* as dependent variable, so that financial profit-shifting mechanisms are disregarded.

<sup>25</sup> Additionally, we perform the same robustness tests as in Section 2.4.1. The untabulated results are similar to our findings presented in Table 2.5.

The results for the ESG combined score are presented in Column (3). Column (4) investigates the ESG controversies score and ESG score. The direction and significance of the coefficients for the interaction terms between the respective CSR variables and *STR* are similar to our analyses of EU MNEs.

Our regression results including the different CSR dimensions, i.e., environmental, social and corporate governance, in Column (5) deviate from the sample of European MNEs since no link between profit shifting and either the governance or social dimensions of CSR can be confirmed. Instead, the relation between CSR and profit shifting is based on environmental performance, as the coefficient of  $STR \times ENV$  is positive and significant. US firms that are strongly committed to the environment engage in less profit shifting.

**Table 2.5: CSR and Profit Shifting of US MNEs**

	(1) Without CSR Variable	(2) ESG Score	(3) ESG Combined Score	(4) ESG Controversies and ESG Score	(5) ESG Dimensions
<b>VARIABLES</b>					
<i>STR</i>	-1.386*** (0.000)	-2.670*** (0.000)	-2.502*** (0.000)	-2.803*** (0.000)	-2.399*** (0.000)
<i>STR</i> × <i>ESG</i>		0.024*** (0.000)		0.025*** (0.000)	
<i>STR</i> × <i>ESGCOMB</i>			0.023*** (0.000)		
<i>STR</i> × <i>ESGCONTROV</i>				0.001 (0.666)	
<i>STR</i> × <i>ENV</i>					0.010* (0.057)
<i>STR</i> × <i>SOC</i>					0.008 (0.217)
<i>STR</i> × <i>GOV</i>					0.002 (0.667)
<i>ESG</i>		-0.005*** (0.001)		-0.005*** (0.001)	
<i>ESGCOMB</i>			-0.006*** (0.000)		
<i>ESGCONTROV</i>				-0.000 (0.745)	
<i>ENV</i>					-0.002 (0.124)
<i>SOC</i>					-0.002 (0.365)
<i>GOV</i>					0.000 (0.973)
Controls	✓	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓	✓
Industry Dummies	✓	✓	✓	✓	✓
Parent FE	✓	✓	✓	✓	✓
Observations	61,405	61,405	61,405	61,405	61,405
R <sup>2</sup>	0.582	0.582	0.582	0.582	0.582

Notes: Table 2.5 provides the regression results for estimating Equation (2.1) for an alternative sample of European subsidiaries of US MNEs. In all columns, the dependent variable is the natural logarithm of profit before tax (*PBT*). Column (1) estimates the semi-elasticity of reported pre-tax profits with respect to a subsidiary's statutory tax rate *STR*. Column (2) tests the relation between the parent firm's overall CSR performance (*ESG*) and this elasticity. In Column (3), the ESG score adjusted based on ESG controversies (*ESGCOMB*) is employed as the CSR variable. Column (4) tests the relation between ESG controversies (*ESGCONTROV*) and the overall ESG score (*ESG*) and the semi-elasticity of reported pre-tax profits. Column (5) depicts the relation between the different ESG dimensions environment (*ENV*), social (*SOC*) and governance (*GOV*) and profit shifting. All regressions include the subsidiary-level and country-level controls described in Section 2.3.2. Year dummies, two-digit NACE (Rev. 2) industry dummies at the subsidiary level and parent firm fixed effects are included in the regressions, but not reported. All estimation results are based on robust standard errors clustered at the country-year level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.



To compare the two samples more directly, we combine the two datasets of the subsidiaries of European and US MNEs. In Table 2.6, Columns (1) to (3) show the regression results for the sample comprising subsidiaries of EU and US MNEs. We add a dummy variable  $US_j$  which indicates whether the observation is a subsidiary of a US parent firm.

For both variables measuring the overall CSR performance ( $ESG$  and  $ESGCOMB$ ) we find a significant and negative relation between CSR and profit shifting (Columns (1) and (2)). The coefficients of the triple interaction terms between the tax rate, the CSR measure and the US dummy suggest that the relation is indeed significantly stronger for US MNEs. Evaluated at the average ESG score for the combined sample (equal to around 60), the combined tax elasticity for subsidiaries of EU MNEs is equal to -1.51 and to -1.23 for US MNEs. An increase in the ESG score by one standard deviation (equal to 20) reduces the semi-elasticity in absolute values by 0.18 for EU MNEs. The reduction is larger for US MNEs (0.44).

Regarding the CSR dimensions, our results in Column (3) confirm an adverse association between the social and governance dimensions and the profit shifting of EU MNEs. The coefficient of the environmental dimension, however, is negative and significant. The opposite result is found for US MNEs, as the coefficient of  $STR \times ENV \times US$  is significant and exhibits a positive sign. We also find a difference between both samples for the governance dimension, as the coefficient  $STR \times GOV \times US$  is significant at the 10% level. Nonetheless, for activities regarding society, our direct comparison does not provide evidence in favor of a diverging relation for US MNEs, as the coefficient of the triple interaction term is insignificant.

However, the samples of EU and US MNEs' subsidiaries might not necessarily be comparable if they belong to MNEs that are systematically different. Certain firm characteristics such as the size of a multinational group or industry membership might influence the relation between CSR and profit shifting. In untabulated  $t$ -tests, we observe significant differences in several firm characteristics between the European and US parent firms. To mitigate concerns that these differences impact our findings, we employ propensity score

matching [PSM] to identify EU and US MNEs which are similar in terms of firm characteristics and belong to the same industry.

For the matching, we consider consolidated financial data for all MNEs in our samples taken from the Compustat Global and North America database. We perform a one-to-one nearest neighbor matching and match on a large set of firm characteristics, including size (*SIZE*), intangible assets (*INT\_ASSETS*), leverage (*LEV*), return on assets (*ROA*), market-to-book ratio (*MTB*), R&D (*RD*) and ESG score (*ESG*).<sup>26</sup> We require that only firms within the same industry are matched. For brevity, we describe the matching approach in more detail in Appendix A2.1. Our matched sample includes 132 EU parent firms and 132 comparable US MNEs.<sup>27</sup> We use the combined dataset of unconsolidated financial data for EU and EEA subsidiaries of both European and US MNEs and keep only those subsidiaries that are part of the matched MNE pairs. We then estimate Equation (2.1) including a dummy variable *US*<sub>*j*</sub>.

Columns (4) to (6) of Table 2.6 show the regression results for the subsidiaries of matched parent firms. The findings for the interactions of CSR variables and the tax rate remain qualitatively unchanged. However, unlike for the unmatched sample, the coefficients of  $STR \times ESG \times US$  and  $STR \times ESGCOMB \times US$  are statistically insignificant (Columns (4) and (5)). For US MNEs which are comparable in terms of firm characteristics, industry and ESG score, the magnitude of the relation between overall CSR performance and profit shifting hence does not differ from the matched European MNEs.

In Column (6), we again consider the different CSR dimensions. For the EU and US MNEs in our sample, both the social dimension and responsible tax behavior are part of their corporate culture. We find an almost significant ( $p$ -value = 0.105) difference between European and US firms regarding the governance dimension of CSR. Thus, corporate governance is aligned with the tax payments of EU MNEs, but not necessarily those of US MNEs. For EU

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<sup>26</sup> Definitions of the variables are presented in Panel B of Table A2.1 in the Appendix.

<sup>27</sup> The matching quality is presented in Table A2.4 in the Appendix. The mean bias is reduced from 21.8 to 3.1, so that the PSM removes most of the bias in the considered firm characteristics.

MNEs, we find that higher (lower) environmental performance is related to higher (lower) profit shifting. Nonetheless, we still cannot confirm that the same relation between environmental commitment and profit shifting exists for US MNEs.

**Table 2.6: Comparison of EU and US MNEs**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Unmatched Sample			Matched Sample		
	ESG Score	ESG Combined Score	ESG Dimensions	ESG Score	ESG Combined Score	ESG Dimensions
<i>STR</i>	-2.051*** (0.000)	-1.955*** (0.000)	-2.334*** (0.000)	-2.598*** (0.000)	-2.819*** (0.000)	-3.087*** (0.000)
<i>STR</i> × <i>ESG</i>	0.009** (0.027)			0.018** (0.016)		
<i>STR</i> × <i>ESG</i> × <i>US<sub>j</sub></i>	0.013** (0.012)			0.007 (0.613)		
<i>STR</i> × <i>ESGCOMB</i>		0.008** (0.045)			0.023*** (0.004)	
<i>STR</i> × <i>ESGCOMB</i> × <i>US<sub>j</sub></i>		0.013** (0.022)			0.001 (0.939)	
<i>STR</i> × <i>ENV</i>			-0.014*** (0.005)			-0.021** (0.035)
<i>STR</i> × <i>ENV</i> × <i>US<sub>j</sub></i>			0.026*** (0.000)			0.034*** (0.003)
<i>STR</i> × <i>SOC</i>			0.013*** (0.009)			0.021* (0.053)
<i>STR</i> × <i>SOC</i> × <i>US<sub>j</sub></i>			-0.007 (0.391)			-0.015 (0.323)
<i>STR</i> × <i>GOV</i>			0.014*** (0.002)			0.023*** (0.001)
<i>STR</i> × <i>GOV</i> × <i>US<sub>j</sub></i>			-0.014* (0.076)			-0.018 (0.105)
CSR Variables	✓	✓	✓	✓	✓	✓
Further Interaction Terms	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓	✓	✓
Industry Dummies	✓	✓	✓	✓	✓	✓
Parent FE	✓	✓	✓	✓	✓	✓
Observations	178,107	178,107	178,107	45,346	45,346	45,346
R <sup>2</sup>	0.585	0.585	0.585	0.587	0.587	0.587

*Table continued on the next page.*

**Table 2.6 (continued)**

Notes: Table 2.6 presents estimation results for estimating Equation (2.1) with a dummy  $US_j$ , using the full sample of EU and EEA subsidiaries of both EU and US MNEs in Columns (1) to (3) (unmatched sample) and a sample comprising the subsidiaries of 132 matched pairs of EU and US MNEs based on PSM (Columns (4) to (6)).  $US_j$  is a dummy variable set to one if the MNE parent firm  $j$  is located in the US and zero if it is located in the EU. The interaction term of the different CSR variables and the profit-shifting incentive ( $STR \times CSR$ ) measures the relation between CSR and profit shifting for EU MNEs, whereas the triple interaction term  $STR \times CSR \times US_j$  measures the difference in this relation for US MNEs compared to EU MNEs. Columns (1) and (4) depict the regression results when the overall ESG score ( $ESG$ ) is included in the regression as the CSR variable to estimate the relation between overall CSR performance and profit shifting. Columns (2) and (5) show results for the ESG combined score ( $ESGCOMB$ ). Columns (3) and (6) display the relation between the different ESG dimensions environment ( $ENV$ ), social ( $SOC$ ) and governance ( $GOV$ ) and profit shifting. All regressions include the subsidiary-level and country-level controls described in Section 2.3.2 and the interaction terms between  $STR$ , CSR variables and  $US_j$ . We further include the CSR variable as a stand-alone variable.  $US_j$  is not included as a stand-alone variable due to the parent fixed effects. Year dummies, two-digit NACE (Rev. 2) industry dummies at the subsidiary level and parent firm fixed effects are included in the regressions, but not reported. All estimation results are based on robust standard errors clustered at the country-year level.  $p$ -values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

### **2.4.3 Influence of Reputational Concerns and Market Power**

The relationship between CSR and profit shifting might differ for distinct kinds of firms. The results for our comparison of European and US MNEs in Table 2.6 also suggest that the CSR–profit-shifting link might vary for different firm types rather than because of cultural factors. In supplemental tests, we investigate whether variation in the association between CSR and profit shifting exists with respect to a firm’s reputational concerns or market power.

Reputational concerns might be one mechanism which explains firm-level heterogeneity regarding the CSR–tax link. Both CSR and corporate tax behavior can be crucial to a firm’s reputation (e.g., Graham et al., 2014; Jeffrey et al., 2019). A firm’s sensitivity to reputational risks presumably depends on the consumer orientation of its business model. Consumers are an important stakeholder group that are likely to take into account a firm’s reputation with regard to CSR issues (Kim, 2019) and tax avoidance. Reputational damages from tax avoidance are found to be higher for firms with valuable consumer brands (C. R. Austin & Wilson, 2017). Experimental studies document that consumers’ CSR perceptions and consumer reactions are related to tax avoidance (e.g., Antonetti & Anesa, 2017; Hardeck & Hertl, 2014). Hence, firms that operate in more consumer-oriented industries might be more inclined to consider both CSR and tax payments part of their corporate culture to avoid reputational damages than firms focused on business customers.

Columns (1) and (2) of Table 2.7 show results for a distinction between business-to-consumer [B2C] and business-to-business [B2B] multinational groups, for the European and US MNEs of the unmatched sample, respectively. In Column (1), we do not find a difference between European B2B and B2C multinational groups. For US MNEs, Column (2) suggests that firms operating in the B2C segment engage in significantly less profit shifting than B2B firms. Profit shifting is negatively related to CSR performance for B2B firms, yet unrelated to CSR for B2C firms. This finding suggests that the extent of profit shifting of B2C firms is mainly influenced by the consumer orientation of the business model. US MNEs that are more sensitive to reputational concerns decrease their profit shifting to avoid tax-related reputational damages and do not necessarily align their CSR behavior despite the potential reputational benefits. However, US MNEs less affected by reputational costs are more inclined to shift profits, but incorporate both tax payments and CSR into their corporate cultures.

Product market competition (or market power) might be an external governance mechanism that impacts a firm's engagement in CSR and profit shifting. On the one hand, CSR might be considered an expense to be avoided for the sake of liquidity when the business environment is highly competitive (J. H. Lee et al., 2018). Similarly, high competition might induce firms to reduce their tax payments to improve their competitive position. In line with this notion, empirical evidence suggests that greater competition is associated with higher tax avoidance (Atawnah et al., 2021; Wang, 2019). On the other hand, competition can motivate firms to strategically engage in more CSR activities (Fernández-Kranz & Santaló, 2010; Leong & Yang, 2020). Firms facing high competition might avoid less taxes as they are presumably more affected by negative outcomes than firms facing low competition, disabling higher risk-taking (Peress, 2010). A study by Kubick et al. (2015) documents that firms with greater market power and thus weaker competition have greater opportunities for tax avoidance.

Columns (3) to (6) of Table 2.7 investigate product market competition using two different variables. Following Kubick et al. (2015), we use consolidated data for the

multinational group and calculate a weighted price-cost margin [PCM] to measure market power and generate a dummy *LEADER* which equals one for MNEs in the top tercile of PCM by industry and year, indicating high market power. For robustness, we also employ a dummy *HIGH\_PCM* which is set to one if a multinational group's PCM is above the median for the industry and year. We do not find evidence that competition impacts CSR, profit shifting or the relation between the two constructs in EU MNEs. For US MNEs, Columns (4) and (6) suggest that less competition (more market power) is related to more extensive profit-shifting activities, which is in line with Kubick et al. (2015). Nonetheless, the coefficients of  $STR \times ESG \times LEADER$  and  $STR \times ESG \times HIGH_PCM$  are positive and significant. US firms which face less competitive threats lower their tax payments more strongly, but strive harder to establish a culture that promotes both CSR and tax responsibility than firms having many competitors. Overall, the results for US MNEs suggest that a negative relation between CSR and profit shifting mostly exists and is more pronounced for firms that are less exposed to reputational risks or less restricted in their risk-taking due to their competitive position.

**Table 2.7: Influence of Reputational Concerns and Market Power**

Firm Characteristic Variable	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Reputational Concerns</b>		<b>Market Power</b>			
	<i>B2C</i>		<i>LEADER</i>		<i>HIGH_PCM</i>	
Sample	EU	US	EU	US	EU	US
<i>STR</i>	-2.163*** (0.000)	-3.015*** (0.000)	-2.081*** (0.000)	-2.345*** (0.000)	-2.195*** (0.000)	-1.942*** (0.000)
<i>STR</i> × <i>ESG</i>	0.012*** (0.004)	0.032*** (0.000)	0.007 (0.187)	0.019*** (0.000)	0.009 (0.123)	0.008 (0.255)
<i>STR</i> × <i>B2C</i>	0.573 (0.412)	1.870*** (0.003)				
<i>ESG</i> × <i>B2C</i>	0.001 (0.812)	0.014*** (0.000)				
<i>STR</i> × <i>ESG</i> × <i>B2C</i>	-0.012 (0.208)	-0.040*** (0.000)				
<i>STR</i> × <i>LEADER</i>			0.247 (0.670)	-1.297** (0.020)		
<i>ESG</i> × <i>LEADER</i>			-0.001 (0.832)	-0.003 (0.300)		
<i>STR</i> × <i>ESG</i> × <i>LEADER</i>			0.004 (0.673)	0.016* (0.079)		
<i>STR</i> × <i>HIGH_PCM</i>					0.328 (0.540)	-1.276** (0.042)
<i>ESG</i> × <i>HIGH_PCM</i>					-0.000 (0.985)	-0.004 (0.216)
<i>STR</i> × <i>ESG</i> × <i>HIGH_PCM</i>					-0.001 (0.937)	0.026** (0.010)
<i>ESG</i>	-0.001 (0.406)	-0.008*** (0.000)	-0.000 (0.860)	-0.004** (0.037)	-0.001 (0.739)	-0.002 (0.359)
<i>LEADER</i>			-0.076 (0.656)	0.295* (0.067)		
<i>HIGH_PCM</i>					-0.049 (0.756)	0.194 (0.274)
Controls	✓	✓	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓	✓	✓
Industry Dummies	✓	✓	✓	✓	✓	✓
Parent FE	✓	✓	✓	✓	✓	✓
Observations	116,702	61,404	99,002	54,758	99,002	54,758
R <sup>2</sup>	0.590	0.582	0.590	0.583	0.590	0.583

Notes: Table 2.7 depicts the regression results for performing cross-sectional analyses to investigate whether the link between overall CSR performance (*ESG*) and profit shifting differs across firms. We perform separate analyses of the EU (Columns (1), (3), (5)) and US MNEs (Columns (2), (4), (6)) of our unmatched sample. The dependent variable in all regressions is pre-tax profit (*PBT*). Columns (1) and (2) investigate whether the link between CSR and profit shifting is different for MNEs operating in business-to-consumer (*B2C*) industries than for business-to-business MNEs. The classification is based on the SIC code of the MNE, following Srinivasan et al. (2011). Because year dummies are included, we do not include *B2C* as a stand-alone variable. Columns (3) to (6) distinguish between MNEs with high market power and MNEs with low market power (product market competition). To identify MNEs with high market power (low competition), we use a dummy variable *LEADER* in Columns (3) and (4). Following Kubick et al. (2015), we set *LEADER* to one for multinational groups whose weighted PCM is in the highest tercile for a given industry-year. In Columns (5) and (6), we employ a dummy *HIGH\_PCM* to define high market power. *HIGH\_PCM* is equal to one for MNEs with a PCM above the median by industry and year. All regressions include the subsidiary-level and country-level controls described in Section 2.3.2, although the estimates are not presented. Year dummies, two-digit NACE (Rev. 2) industry dummies at the subsidiary level and parent firm fixed effects are included in the regressions, but not reported. All estimation results are based on robust standard errors clustered at the country-year level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## 2.5 Reconciliation with Prior Literature on CSR and Tax Avoidance

To reconcile our findings with previous studies, we further investigate the link between CSR and tax avoidance based on *consolidated* data for the multinational groups included in our sample. We therefore use financial data retrieved from the Compustat database and estimate the following OLS regression equation:

$$\begin{aligned} ETR_{jt} = & \alpha_0 + \alpha_1 ESG_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 INT\_ASSETS_{jt} + \alpha_4 LEV_{jt} \\ & + \alpha_5 ROA_{jt} + \alpha_6 MTB_{jt} + \alpha_7 PPE_{jt} + \alpha_8 RD_{jt} + \alpha_9 \Delta SALES_{jt} \\ & + \alpha_{10} CASH_{jt} + Year_t + Country_j + Industry FE + u_{jt} \end{aligned} \quad (2.2)$$

The dependent variable  $ETR_{jt}$  represents different measures for tax avoidance of the multinational group headed by parent  $j$ . We employ the cash ETR ( $CETR$ ), calculated as cash taxes paid divided by pre-tax income, and a long-run five-year cash ETR ( $CETR5$ ) as proxies for tax avoidance.<sup>28</sup> Hereby, we can relate our findings to prior empirical studies (e.g., Davis et al., 2016; Hoi et al., 2013).

Since previous works have considered the overall CSR performance, we focus on the ESG score ( $ESG$ ). The coefficient of interest is  $\alpha_1$  which reflects the relation between a parent firm's overall CSR performance and tax avoidance. We include several variables to control for firm characteristics that prior literature has identified as determinants of tax avoidance and that are included in the CSR studies mentioned above. We control for firm size ( $SIZE$ ), intangible assets ( $INT\_ASSETS$ ), leverage ( $LEV$ ), return on assets ( $ROA$ ), market-to-book ratio ( $MTB$ ), property, plant and equipment ( $PPE$ ), R&D ( $RD$ ), sales growth ( $\Delta SALES$ ) and cash ( $CASH$ ). For detailed variable descriptions, see Panel B of Table A2.1 in the Appendix. Country dummies are included, except in the regressions that only include US MNEs. In all regressions, we include year dummies and industry fixed effects based on the two-digit SIC code. Standard errors are clustered at the firm level.

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<sup>28</sup> For easier interpretation, the ETR measures are scaled in the same way as  $ESG$ , i.e., ranging from 1 to 100.



Our regression results are presented in Table 2.8. In all columns, the coefficient of *ESG* is significant and positive. For the European MNEs, Columns (1) and (2) suggest that the average *CETR* (*CETR5*) of 27.01% (25.36%) increases by 1.42% (1.1%) to 28.43% (26.46%) if the *ESG* score increases by 20. Tax avoidance is hence less pronounced when the *CSR* performance is higher. For US multinational groups, the coefficient of *ESG* is significant at the 10% level (*CETR*) and 5% level (*CETR5*) and positive for both *ETR* measures, but smaller than for the EU firms.<sup>29</sup> However, when comparing EU and US MNEs in Columns (5) and (6), we do not find evidence that the relation between *CSR* and tax avoidance differs for US MNEs, as the coefficient of *ESG* × *US* is statistically insignificant.

Overall, the results suggest that *CSR* and tax payments are complements, which is in line with corporate culture theory. A multinational group whose parent firm engages in less *CSR* activities pursues more intensive tax avoidance practices, while groups whose parent firms are more socially responsible avoid less taxes. Although the economic magnitude of the association is modest, our finding indicates that a negative relation between *CSR* and tax avoidance behavior also prevails when considering corporate tax behavior at an aggregate level.

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<sup>29</sup> In untabulated regressions, we exclude the year 2018 since the Tax Cuts and Jobs Act might affect US firms' *ETRs*. The coefficient of *ESG* remains positive and significant at the 5% (*CETR*) and 10% level (*CETR5*).

**Table 2.8: CSR and ETRs of European and US MNEs**

Dependent Var.	(1) EU MNEs		(3) US MNEs		(5) EU and US MNEs	
	<i>CETR</i>	<i>CETR5</i>	<i>CETR</i>	<i>CETR5</i>	<i>CETR</i>	<i>CETR5</i>
<i>ESG</i>	0.071** (0.041)	0.055** (0.025)	0.051* (0.051)	0.040** (0.047)	0.079*** (0.007)	0.063*** (0.004)
<i>ESG</i> × <i>US</i>					-0.046 (0.159)	-0.033 (0.197)
<i>SIZE</i>	-1.374** (0.017)	-0.595 (0.119)	-2.185*** (0.000)	-1.467*** (0.000)	-1.738*** (0.000)	-1.068*** (0.000)
<i>INT_ASSETS</i>	5.466*** (0.001)	0.941 (0.303)	5.766*** (0.000)	2.840*** (0.008)	5.454*** (0.000)	1.846*** (0.009)
<i>LEV</i>	4.486* (0.099)	2.996 (0.108)	1.697 (0.444)	-2.259 (0.100)	3.060* (0.064)	-0.078 (0.945)
<i>ROA</i>	-72.599*** (0.000)	-21.007*** (0.000)	-36.856*** (0.000)	-0.351 (0.920)	-47.454*** (0.000)	-6.489** (0.026)
<i>MTB</i>	0.014* (0.063)	0.010* (0.096)	-0.003 (0.189)	-0.002 (0.201)	0.000 (0.978)	-0.001 (0.783)
<i>PPE</i>	-2.491 (0.403)	-5.749*** (0.002)	0.587 (0.856)	-3.952 (0.129)	-0.866 (0.678)	-4.092*** (0.008)
<i>RD</i>	23.613 (0.121)	-0.542 (0.962)	-14.475 (0.221)	-39.513*** (0.000)	-6.955 (0.466)	-30.193*** (0.000)
<i>SALES</i>	-1.925 (0.496)	-1.217 (0.162)	-7.108*** (0.008)	-5.163*** (0.002)	-4.332* (0.067)	-2.657*** (0.001)
<i>CASH</i>	12.086** (0.046)	1.816 (0.678)	7.888** (0.045)	-0.103 (0.970)	9.509*** (0.004)	0.531 (0.824)
Year Dummies	✓	✓	✓	✓	✓	✓
Country Dummies	✓	✓			✓	✓
Industry FE	✓	✓	✓	✓	✓	✓
Observations	2,561	2,561	3,340	3,340	5,901	5,901
R <sup>2</sup>	0.199	0.279	0.119	0.204	0.129	0.185

Notes: Table 2.8 provides the regression results for estimating Equation (2.2) to investigate the relation between tax avoidance and the overall CSR performance (*ESG*) in the multinational groups of our profit-shifting samples. Tax avoidance is measured by the cash ETR (*CETR*) in Columns (1), (3) and (5) and a long-run five-year cash ETR (*CETR5*) in Columns (2), (4) and (6). Columns (1) and (2) depict results for the European multinational groups. Columns (3) and (4) use the sample of US multinational groups. Columns (5) and (6) directly compare EU and US MNEs. Year dummies, country dummies (for the EU sample and combined sample) and industry fixed effects are included in the regressions, but not reported. Because of the year and country dummies, we do not include *US* as a stand-alone variable in Columns (5) and (6). Robust standard errors are clustered by firm and year. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## 2.6 Conclusion

We investigate the relationship between CSR of European and US multinational parent firms and the profit shifting of their subsidiaries as one specific form of tax avoidance. First, we examine the association between overall CSR performance and profit shifting. Second, we

assess which CSR dimensions (environmental, social or corporate governance) are particularly related to the semi-elasticity of pre-tax profits.

Our findings suggest a negative relation between CSR performance and profit shifting. Thus, we find that a lower overall CSR performance of multinational parent firms is associated with a greater degree of profit shifting. In contrast, socially responsible firms are less likely to shift profits. When investigating which CSR dimensions are especially related to profit shifting, our results demonstrate that less profit shifting occurs for affiliates whose parent firms show high performance in the social or corporate governance dimensions. However, the relation between the environmental dimension and profit-shifting activities differs for US MNEs. This result is robust when we use PSM to compare pairs of EU and US MNEs that are similar with respect to certain firm characteristics and industry. With regard to CSR dimensions, the association between CSR and taxes hence varies depending on CSR and cultural environments. Further, we find that reputational concerns and market power are mechanisms which influence the CSR–tax link for MNEs located in the US. Our results suggest the existence of a negative relation between overall CSR performance and profit shifting for US multinational groups that are less exposed to reputational risks or less restricted in their risk-taking due to their competitive position. Future research could investigate the causes for the different nature of the link between profit shifting and CSR for US MNEs as compared to European MNEs.

Overall, our findings cannot confirm the argument of ‘corporate hypocrisy’ as we do not find evidence that firms promoting higher levels of CSR activities engage in more extensive profit-shifting activities. Instead, the negative relation fosters the belief that CSR can be considered an issue of corporate culture which is related to multinationals’ profit shifting. CSR and responsible tax behavior seem to be complements for average MNEs.

Our results are consistent across different types of analyses and financial accounts. Our analyses at the subsidiary level capture intra-group borrowing, a way of minimizing tax payments not reflected in consolidated accounts, as well as the heterogeneity of single group

entities. However, for robustness and to reconcile our study with prior literature, we also use consolidated accounting data. We find a negative relation between CSR and tax avoidance. This mitigates concerns that our results based on European subsidiaries are not conferrable to the CSR–tax relation that prevails among the EU and US groups in their entirety. In addition, this finding supports our assumption that a parent firm’s CSR policy and corresponding tax behavior is implemented at lower levels of the organization because of the group’s corporate culture.

## Appendix

### Appendix A2.1: Propensity Score Matching Approach

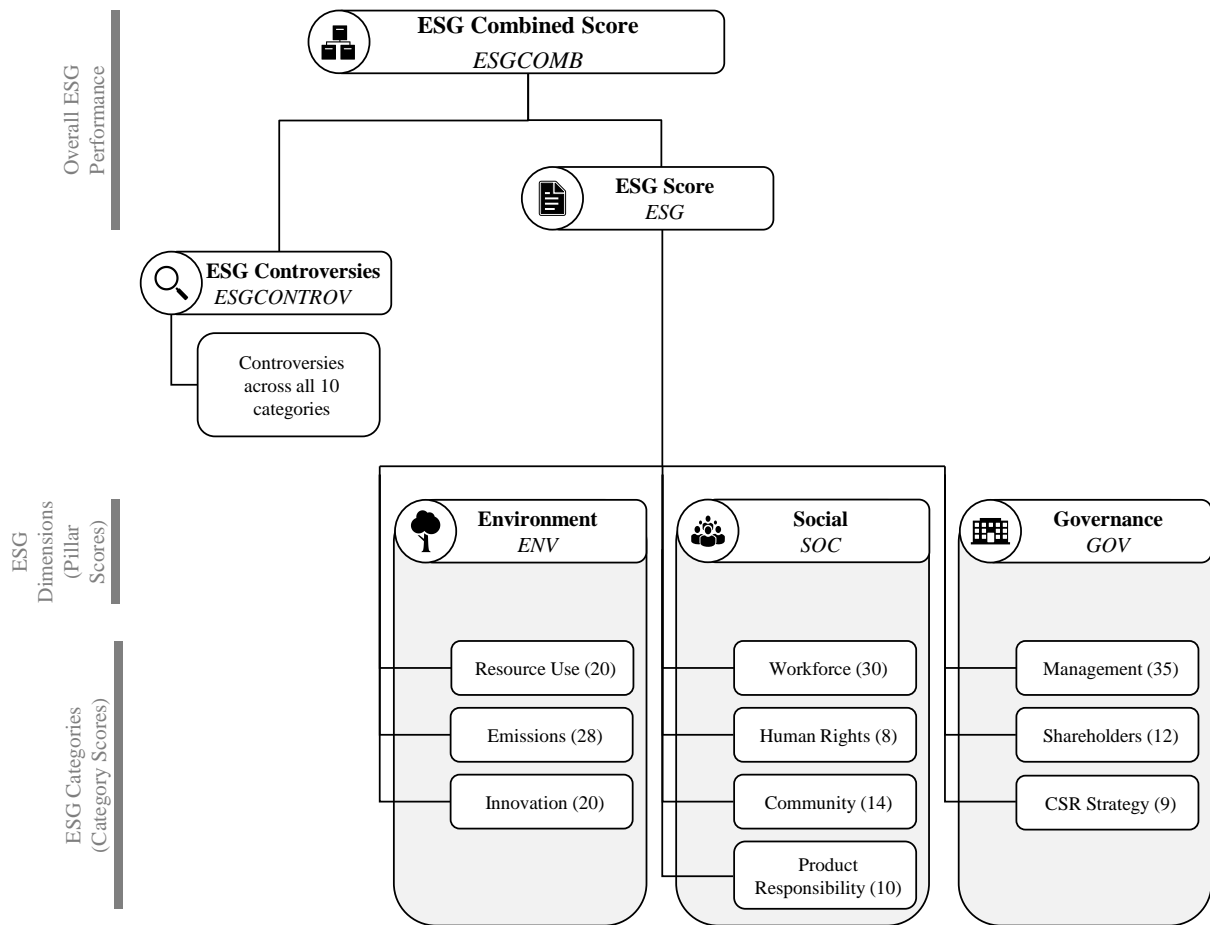
To identify comparable US and European multinational groups in Section 2.4.2, we retrieve consolidated financial data for all MNEs in our samples from the Compustat Global and North America database. Then, we perform the PSM in two steps, following Rosenbaum and Rubin (1983). First, we estimate the probability that the multinational group's parent firm  $j$  is based in the EU using the following probit regression:

$$EU_{j2010} = \delta_1 X_{j2010} + u_{j2010} \quad (2.3)$$

$EU_{j2010}$  is a time-invariant dummy variable equal to one if the parent firm is located in the EU and zero if it is based in the US.  $X_{j2010}$  denotes a vector of different firm characteristics that are found to determine tax expenses (e.g., Chen et al., 2010; Grubert, 2003; Rego, 2003). We include size ( $SIZE$ ), intangible assets ( $INT\_ASSETS$ ), leverage ( $LEV$ ), return on assets ( $ROA$ ), market-to-book ratio ( $MTB$ ) and R&D ( $RD$ ). Definitions of the variables are presented in Panel B of Table A2.1 in the Appendix. We also include the overall ESG score ( $ESG$ ) to address concerns that the relation between CSR and profit shifting is impacted by the level of CSR. As indicated by the index, the matching is performed in 2010, the first year of our analysis. Based on the probit regression, propensity scores are predicted for EU and US MNEs, respectively. The estimation results are presented in Table A2.3 in the Appendix.

In a second step, we use the propensity scores to perform a one-to-one nearest neighbor matching in which an EU-based MNE is matched to the most similar US MNE that further is required to operate in the same industry. We refer to the Fama and French 17 classification to find comparable firms. In line with prior literature, we set the caliper, the maximum deviation between EU and US MNEs, to 0.03 (P. C. Austin, 2011).

**Figure A2.1: ESG Scores**



Notes: Figure A2.1 demonstrates the relation between the different Refinitiv ESG scores (as described in Refinitiv, 2022). Numbers in parentheses report the amount of ESG measures included in the respective scores. Terms in italic demonstrate the corresponding variable names used in our regressions. Refinitiv provides scores for a firm’s overall ESG performance, as well as its performance in ESG dimensions and in different categories. The ESG combined score and the ESG score both measure a firm’s overall CSR performance. The ESG combined score adjusts the ESG score if ESG controversies have occurred which impact the firm. The ESG score measures a firm’s commitment and performance in the 10 ESG categories (resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders and CSR strategy) based on reported information. The 10 ESG categories belong to three ESG dimensions: the environmental, social and governance dimension. The performance in the three dimensions is represented by the respective pillar scores. For a description of the pillar scores and definition of the different categories incorporated in the ESG score and pillar scores, please refer to Table A2.2 in the Appendix.

**Table A2.1: Variable Definitions**

<b>Variable</b>	<b>Definition</b>	<b>Source</b>
<b>Panel A: Profit Shifting and CSR</b>		
<b>Dependent Variable</b>		
<i>PBT</i>	= Natural logarithm of profit before tax.	Amadeus
<b>Profit-Shifting Incentive Variable</b>		
<i>STR</i>	= Statutory corporate tax rate of a subsidiary's jurisdiction.	Worldwide corporate tax summaries of PwC, KPMG, and EY
<b>CSR Variables</b>		
<i>ESG</i>	= ESG score measuring a parent firm's overall CSR performance.	Refinitiv
<i>ESGCOMB</i>	= ESG combined score measuring a parent firm's overall CSR performance ( <i>ESG</i> ) discounted based on ESG controversies ( <i>ESGCONTROV</i> ).	Refinitiv
<i>ESGCONTROV</i>	= ESG controversies score measuring the extent of negative media stories on a parent firm. The lower the ESG controversies score, the greater the number of controversies that have occurred.	Refinitiv
<i>ENV</i>	= Environmental pillar score measuring a parent firm's performance in the environmental dimension.	Refinitiv
<i>SOC</i>	= Social pillar score measuring a parent firm's performance in the social dimension.	Refinitiv
<i>GOV</i>	= Corporate governance pillar score measuring a parent firm's performance in the governance dimension.	Refinitiv
<b>Subsidiary-Level Controls</b>		
<i>CAPITAL</i>	= Natural logarithm of fixed assets.	Amadeus
<i>LABOR</i>	= Natural logarithm of labor compensation.	Amadeus
<i>INTAN</i>	= Ratio of intangible assets over total assets.	Amadeus
<b>Country-Level Controls</b>		
<i>GDP</i>	= Natural logarithm of gross domestic product.	World Bank Development Indicators
<i>GDPC</i>	= Natural logarithm of gross domestic product per capita.	World Bank Development Indicators
<i>UNEMPLOY</i>	= Natural logarithm of unemployment rate.	World Bank Development Indicators
<i>CORRUPT</i>	= Corruption index.	Worldwide Governance Indicators

**Table A2.1: Variable Definitions (continued)**

<b>Panel B: Tax Avoidance and CSR</b>		
<i>CETR</i>	= Cash ETR, calculated as cash taxes paid (txpd) divided by pre-tax income (pi).	Compustat Global & North America
<i>CETR5</i>	= Long-run cash ETR, calculated as five-year sum of cash taxes paid (txpd) over years $t-4$ to $t$ divided by the five-year sum of pre-tax income (pi) over years $t-4$ to $t$ .	Compustat Global & North America
<i>SIZE</i>	= Natural logarithm of total assets (at).	Compustat Global & North America
<i>INT_ASSETS</i>	= Intangible assets (intan) divided by lagged total assets (at).	Compustat Global & North America
<i>LEV</i>	= Long-term debt (dltt) divided by lagged total assets (at).	Compustat Global & North America
<i>ROA</i>	= Return on assets, calculated as pre-tax income less ordinary items (pi - xi) divided by lagged total assets (at).	Compustat Global & North America
<i>MTB</i>	= Price per share (prcc_f) times total common shares outstanding (csho) over book value of equity (ceq). In case that the variables are missing, the variable is calculated based on the Compustat Global Security Daily file as adjusted price close (prccd/ajexdi) times shares outstanding (cshoc) divided by the book value of equity (ceq).	Compustat Global - Security Daily & Compustat North America
<i>PPE</i>	= Property, plant and equipment (ppent) divided by lagged total assets (at).	Compustat Global & North America
<i>RD</i>	= R&D expenses (rd) divided by lagged total assets (at). The variable rd is set to zero if it is missing.	Compustat Global & North America
<i>ΔSALES</i>	= Changes in sales (sale) divided by lagged sales.	Compustat Global & North America
<i>CASH</i>	= Cash (ch) divided by lagged total assets (at).	Compustat Global & North America

Notes: Table A2.1 presents definitions for the variables employed in our analyses. All financial data are converted into euro. Panel A shows definitions for the variables employed in our analyses of profit shifting (Section 2.4). Panel B defines variables that are used to reconcile our findings with prior literature in Section 2.5 by using consolidated financial data for the multinational parent firm.



**Table A2.2: Composition of ESG Pillar Scores**

<b>Pillar</b>	<b>Category Score</b>	<b>Definition</b>
<b>Environmental</b> ( <i>ENV</i> )	Resource Use	The resource use score reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
	Emissions	The emission reduction score measures a company's commitment and effectiveness toward reducing environmental emissions in its production and operational processes.
	Innovation	The innovation score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.
<b>Social</b> ( <i>SOC</i> )	Workforce	The workforce score measures a company's effectiveness in terms of providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities and development opportunities for its workforce.
	Human Rights	The human rights score measures a company's effectiveness in terms of respecting fundamental human rights conventions.
	Community	The community score measures the company's commitment to being a good citizen, protecting public health and respecting business ethics.
	Product Responsibility	The product responsibility score reflects a company's capacity to produce quality goods and services, integrating the customer's health and safety, integrity and data privacy.
<b>Governance</b> ( <i>GOV</i> )	Management	The management score measures a company's commitment and effectiveness toward following best practice corporate governance principles.
	Shareholder	The shareholders score measures a company's effectiveness toward equal treatment of shareholders and the use of anti-takeover devices.
	CSR Strategy	The CSR strategy score reflects a company's practices to communicate that it integrates economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

Notes: Table A2.2 describes the composition of the ESG pillar scores (environmental, social and governance) by presenting definitions of the underlying category scores as provided by Refinitiv (2022). The ESG pillar scores measure a firm's performance in the respective ESG dimension. Terms in italic demonstrate the corresponding variable names used in our regressions. The environmental pillar score consists of the resource use, emissions and innovation category. The social pillar score is an aggregation of the workforce, human rights, community and product responsibility category score. The governance pillar score is calculated based on the management, shareholder and CSR strategy category score. For the environmental and social pillar, the weights of the single categories vary by industry, whereas the weights for the categories incorporated in the governance pillar score are independent of the industry.

**Table A2.3: Probit Regression for PSM**

(1)	
VARIABLES	EU MNE
<i>SIZE</i>	-0.447*** (0.000)
<i>INT_ASSETS</i>	-0.109 (0.603)
<i>LEV</i>	-0.428 (0.116)
<i>ROA</i>	-4.028*** (0.000)
<i>MTB</i>	0.001 (0.528)
<i>RD</i>	-10.226*** (0.000)
<i>ESG</i>	0.023*** (0.000)
Observations	633
Pseudo R <sup>2</sup>	0.1630

Notes: Table A2.3 presents the probit regression result used for the prediction of the propensity scores for PSM, based on Equation (2.3). The dependent variable is an indicator variable which is set to one for EU MNEs and zero for US MNEs. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table A2.4: One-to-One Nearest Neighbor Matching Quality**

Nearest Neighbor 1:1		Bias					
		Mean		Bias (in %)	Reduction (in %)	<i>t</i> -test	
		Treated	Control			<i>t</i>	<i>p</i> > <i>t</i>
<i>SIZE</i>	Unmatched	8.2011	8.7176	-33.2		-4.13	0.000
	Matched	8.4086	8.3856	1.5	95.5	0.12	0.905
<i>INT_ASSETS</i>	Unmatched	0.2956	0.3166	-7.7		-0.95	0.341
	Matched	0.3500	0.3128	13.7	-77.3	1.21	0.229
<i>LEV</i>	Unmatched	0.2047	0.2171	-6.1		-0.77	0.444
	Matched	0.2088	0.2116	-1.4	77.5	-0.11	0.916
<i>ROA</i>	Unmatched	0.1095	0.1395	-31.9		-3.95	0.000
	Matched	0.1255	0.1272	-1.8	94.3	-0.15	0.882
<i>MTB</i>	Unmatched	15.7040	3.0408	10.8		1.40	0.163
	Matched	2.2683	3.2040	-0.8	92.6	-0.66	0.511
<i>RD</i>	Unmatched	0.0135	0.0315	-47.0		-5.71	0.000
	Matched	0.0185	0.0184	0.3	99.4	0.03	0.977
<i>ESG</i>	Unmatched	48.9910	45.6800	15.9		1.98	0.048
	Matched	46.1620	46.5570	-1.9	88.1	-0.15	0.879

Notes: Table A2.4 shows the matching quality by presenting and comparing the relevant matching characteristics between EU and US MNEs before and after the matching. MNEs are matched based on consolidated financial data from Compustat and the ESG score for the year 2010. Results are formed on a one-to-one nearest neighbor matching requiring a difference in propensity scores (caliper) of less than 0.03.

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## **Chapter 3**

Planet, People, Profit – and Paying Taxes? Sustainable Institutional  
Investors and Corporate Tax Avoidance

# **Planet, People, Profit – and Paying Taxes?**

## **Sustainable Institutional Investors and Corporate Tax Avoidance**

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### **Abstract:**

I investigate whether sustainable institutional investors influence their investee firms' corporate tax avoidance. My results suggest that higher sustainable institutional ownership mitigates the tax avoidance of investee firms. In contrast, the level of ownership by non-sustainable institutional investors is positively associated with tax avoidance. Further analyses reveal that the effect of sustainable institutional ownership on investees' tax behavior has developed over time, concurrently with recent developments that have promoted tax as an environmental, social, and governance (and thus sustainability) component. Cross-sectional tests examine the heterogeneity in different characteristics of this investor type and the relevance of ownership concentration. My findings suggest that sustainable institutional investors are a distinct group of corporate owners that plays a role in curbing firms' tax avoidance and that efforts that support the integration of tax responsibility into sustainable finance can foster this impact.

**Keywords:** Sustainability, Sustainable Investing, Sustainable Finance, Tax Avoidance, Investors, Institutional Investors, ESG, CSR

**JEL Classifications:** G23, G30, H26, M14, Q56

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### 3.1 Introduction

Socially responsible investing [SRI] has been on the rise in recent years and might be regarded as this century's most popular and rapidly growing investment strategy (Fonseca, 2020). The amount of sustainable assets under management increased from \$22.8 trillion in 2016 to \$35.3 trillion in 2020, representing 35.9% of all global investments (Global Sustainable Investment Alliance, 2021). In the same period, the number of institutional investors that have publicly committed to SRI by signing the most significant initiative for this investment type, the United Nations [UN] Principles for Responsible Investment [PRI], has doubled (PRI, 2022b). Hence, more institutional investors than ever are taking corporate sustainability into account. Sustainability is mostly understood as having three dimensions, based on the triple bottom line concept coined by Elkington (1997): environment, society, and governance [ESG]—or “people, planet, profit” (Elkington, 2004). While the exact definition of SRI varies,<sup>30</sup> it generally describes an investment approach that integrates these ESG dimensions into investment and ownership decisions (Sparkes & Cowton, 2004).

In this study, I investigate whether sustainable institutional investors regard corporate tax responsibility as a sustainability component and impact the corporate tax avoidance of their investee firms. Prior research has shown that institutional investors in their entirety influence tax avoidance, albeit with mixed results on the direction of the relationship (e.g., Khan et al., 2017; Khurana & Moser, 2013). However, heterogeneous preferences within this class of investors regarding non-financial investment objectives like ESG have not yet been considered in a tax context. Dyck et al. (2019) document, for instance, that the effect of UN PRI signatories that are dedicated to sustainability on firms' environmental and social performance is more than twice as strong as the average impact of institutional investors. Thus, sustainable institutional

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<sup>30</sup> Likewise, the terminology used to describe this investment style differs. Alternative terms are, for example, 'ESG', 'sustainable', 'impact', 'ethical' or 'green' investing (Daugaard, 2020; Höchstädter & Scheck, 2015; Sandberg et al., 2009; Sparkes & Cowton, 2004). Despite the variances in the meaning, I generally use 'SRI' in the following to describe the extensive range of this sort of investment activities. Moreover, the terms 'socially responsible' and 'sustainable' institutional investors are used interchangeably in this paper.

investors might also affect tax avoidance differently from other investors, so that they should be investigated as a distinct group of corporate owners. I postulate that institutional investors that are committed to sustainability attenuate the tax avoidance of their investees as they are likely to view tax as an ESG criterion and that this effect has increased over the last few years. My assumptions are based on recent developments that promote tax as part of sustainability.

Lately, taxation has increasingly been considered as an ESG or corporate social responsibility [CSR] issue, among others by institutional investors (European Commission, 2021a, 2021b; Full & Lorek, 2022; Platform on Tax Good Governance, 2021; Silvola & Landau, 2021). In line with this development, the PRI has been promoting the integration of tax into responsible investing since 2015 and rates it as a key ESG issue for future years (PRI, 2015, 2021a). The impact of this movement can be evidenced by the example of Amazon. Based on the PRI's identification of Amazon as one of eight unresponsive firms in a collaborative engagement on tax transparency, two investors filed an as yet uncommon resolution for the publication of tax disclosures to scrutinize its tax conduct, which gained support from other investors via the PRI collaboration platform (PRI, 2020, 2022a, 2022c; Sarfo, 2022b). Amazon's request to exclude the proposal was denied by the US Securities and Exchange Commission [SEC]. The granting of a shareholder request on tax affairs by the SEC is considered a landmark decision (Agyemang, 2022). Even though Amazon's shareholders rejected the proposal at the annual meeting, it is a model case showing how investors could enforce tax transparency (with reference to the SEC's decision) for greater tax compliance. Since then, more resolutions of this kind have been filed, for instance at Microsoft and Cisco, and more can be expected (PRI, 2022d; Sarfo, 2022b, 2022a). Last, tax compliance continues to gain importance as a component of sustainable investing due to EU regulations, such as the Sustainable Finance Disclosure Regulation [SFDR].

I perform empirical analyses to investigate whether institutional investors engaging in SRI reduce their investee firms' tax avoidance. I use the Refinitiv Eikon database for

information on firms' investors and calculate the percentage of equity owned by sustainable institutional investors. In line with prior studies (e.g., Dyck et al., 2019; Kordsachia et al., 2022), I classify an investor as sustainable if it is a signatory of the UN PRI. Financial data on the firm are retrieved from the Refinitiv Eikon and Compustat Global and North America databases. My final sample comprises 14,915 firm-year observations from 2,968 firms (1,890 US and 1,078 EU firms) and includes the years 2011 to 2021. Next, I perform different regression analyses to determine whether and how a higher level of ownership by sustainable institutional investors impacts investee firms' tax avoidance using a proxy based on the cash effective tax rate [ETR] (Atwood et al., 2012). I employ lagged ownership variables in all estimations to allay possible endogeneity concerns.

My results suggest that sustainable institutional investors reduce the corporate tax avoidance of their investee firms. In contrast, a higher level of ownership by institutional investors that are not committed to SRI results in more tax avoidance activities. These findings highlight the importance of considering institutional investors as a diverse group and indicate that the commitment to sustainability affects how these investors act as corporate owners. Moreover, I document that the impact of sustainable institutional investors has developed over time, implying that the incremental framing of tax as an ESG component has successfully drawn these investors' attention to the tax practices of their investees.

In cross-sectional analyses, I explore whether the effect of sustainable institutional investors on investees' tax behavior is instead or also based on other heterogeneous investor characteristics. I show that these investors' investment horizons do not cause the results but that their impact increases with their time as PRI members. Therefore, the impact of ownership by PRI signatories on tax avoidance is driven by this investor type's attitude toward sustainability and the awareness of tax as an ESG issue rather than by the permanence of the ownership structure. Further, I find that domestic sustainable institutional investors are particularly inclined to constrain the tax planning strategies of their investee firms. However, the group of

domestic investors is primarily composed of US investors. Hence, I cannot clearly ascertain whether the effect is due to sustainable institutions prioritizing the contribution to their own economy through tax payments or whether US investors that are committed to SRI are particularly eager to promote tax responsibility. Separating US and EU sustainable institutional investors confirms a mitigating impact of these US investors on tax avoidance behavior. No significant effect is found for EU investors, although a moderating influence could have been expected in view of the prior evidence and the regulatory environment. Distinguishing between the US and the EU at the level of investee firms, I document that sustainable institutional investors exert a greater influence on US than on EU investee firms. Moreover, I assess whether investor types with varying monitoring incentives affect tax avoidance differently. I find weak evidence that independent sustainable institutional investors (following the classification by Ferreira & Matos, 2008) are more active owners and hence prohibit tax avoidance more strongly. Analyses of ownership concentration imply that collective action causes the effects.

I ensure the robustness of my main analysis by conducting several supplemental tests using alternative tax avoidance measures, fixed effects, and standard error clustering. Furthermore, I consider the past ownership structure and subgroups of investors engaging in SRI to perform two-stage least squares [2SLS] regressions using instrumental variables [IVs] and additional analyses to address potential endogeneity concerns. The results corroborate the assertion that sustainable institutional investors extenuate corporate tax avoidance.

My study contributes to multiple strands of literature. First, I add to the line of research that examines the role of ownership structure in corporate tax avoidance. Prior empirical works that have analyzed the relationship between institutional investors and tax avoidance practices find contradictory results. Some studies demonstrate that institutional ownership is negatively related to firms' tax avoidance behavior, indicating that such investors lower their investee firms' engagement in tax avoidance (e.g., Hasan et al., 2022; Khurana & Moser, 2013; Ying et al., 2017). In contrast, other research results suggest a positive relationship (e.g., S. Chen et al.,



2019; Khan et al., 2017). Given the ambiguous findings, further investigations are necessary. Previous studies mostly regard institutional investors as a uniform group with homogeneous preferences and investment objectives.<sup>31</sup>

I am the first to investigate whether sustainable institutional investors affect investee firms' tax avoidance activities. An analysis of this ownership type is absent from the literature. Due to their content-driven investment focus, sustainable institutional investors have different, non-pecuniary investment objectives and motivations. My findings suggest that their influence on corporate tax planning differs from that of other investors and that they reduce tax avoidance. I perform cross-sectional analyses to present an even more nuanced picture of the relationship between sustainable institutional ownership and tax avoidance. As sustainable institutional investors are an incrementally important shareholder group, assessing the effect of this distinct investor type on investee firms' tax avoidance is also economically relevant. By providing insights into these socially responsible corporate owners, I further link the research on ownership structure and tax behavior to the literature on CSR.

Second, I contribute to the general literature on CSR and tax avoidance. Prior studies have analyzed this association at the firm level and find that firms consider CSR and tax payments either as substitutes or as complements (e.g., A. K. Davis et al., 2016; Hoi et al., 2013). This study is the first to investigate whether investors' ESG preferences act as a corporate governance mechanism that affects invested firms' tax avoidance. Thereby, I address the research gap regarding the influence of corporate owners on the CSR–tax link.

Third, I add to the emerging literature on the effects of sustainable institutional investors on the corporate practices of investee firms. Previous empirical works have not explored this aspect but have mainly investigated the impact of sustainable investors (PRI signatories) on environmental and social performance (e.g., Alda, 2019; Dyck et al., 2019; Groot et al., 2021;

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<sup>31</sup> Some empirical works have taken the investment horizon or foreign and domestic ownership into account (Hasan et al., 2022; Khurana & Moser, 2013; Klein et al., 2022).

Kim et al., 2019; Kordsachia et al., 2022). To broaden the understanding of the effects of SRI, my paper provides new insights into sustainable investing from a tax perspective.

Last, my findings help to evaluate the outcomes of the incremental integration of tax aspects into regulations or frameworks that target sustainable institutional investors (like the UN PRI's promotion of tax responsibility). My results indicate that such efforts can be useful to promote more responsible tax behaviors among investees because investors' ESG preferences mitigate corporate tax avoidance.

The remainder of this paper proceeds as follows. Section 3.2 develops hypotheses based on the theoretical background, while Section 3.3 describes the data and methodology. I present the empirical results in Section 3.4. Section 3.5 concludes this study.

## **3.2 Theoretical Background and Hypotheses Development**

### **3.2.1 Institutional Ownership and Corporate Tax Avoidance**

Institutional investors, broadly defined as legal entities (financial institutions) that manage and invest on behalf of their clients or members (Çelik & Isaksson, 2014; E. P. Davis & Stein, 2004), are crucial suppliers of capital in financial markets and an important shareholder group. The portion of equity owned by institutional investors worldwide has grown significantly in the last decades.<sup>32</sup> This rise in institutional ownership has resulted in a greater ownership concentration since these investors pool the financial resources of their clients and members, which enables them to invest larger amounts (Bebchuk et al., 2017; Organisation for Economic Co-operation and Development [OECD], 2021).

Institutional investors' ownership behavior and opportunities are assumed to differ from those of other, smaller owners, as are their decisions on corporate practices like tax avoidance. Due to the large shareholding portions of institutional investors, the incentives for and the benefits of monitoring are higher. The greater ownership shares mitigate the free-riding

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<sup>32</sup> In the US, for example, the majority of the equity market (68%) is held by institutional investors (OECD, 2021).

problem that occurs in the case of diffused ownership, meaning that other shareholders benefit from monitoring activities without bearing the costs (Grossman & Hart, 1980; Shleifer & Vishny, 1986). Further, the monitoring of investee firms is presumably more efficient (Bushee, 1998). Another expected advantage of the higher ownership concentration is the attenuation of the collective action problem that occurs when the ownership is distributed among a vast number of shareholders with different interests and without controlling shares in the stock (Becht et al., 2003; Black, 1990; Khan et al., 2017). Consequently, institutional shareholders potentially influence managerial decisions on tax avoidance more effectively and align them with their interests. In addition, these shareholders are particularly well suited to performing corporate governance functions due to their specialization and knowledge of control and investments (Gillan & Starks, 2003). Empirical studies show that institutional investors affect corporate governance in firms (e.g., Gillan & Starks, 2000; Hartzell & Starks, 2003).

Taken together, institutional investors can play a crucial role in monitoring and influencing managers. However, oppositional assumptions can be made with regard to how institutional investors seize the opportunities at their disposal to affect tax avoidance practices. The decision on promoting or suppressing corporate tax avoidance will depend on the trade-off between its costs and its benefits as well as the agency costs (K.-P. Chen & Chu, 2005; Crocker & Slemrod, 2005; Desai & Dharmapala, 2009b; Slemrod, 2004).<sup>33</sup>

On the one hand, institutional investors might be particularly inclined to encourage tax avoidance. According to the traditional view (Desai & Dharmapala, 2009b),<sup>34</sup> the reduction of tax payments increases shareholder value, which, together with higher after-tax profits, benefits institutional shareholders more than minority shareholders (Khurana & Moser, 2013; Shleifer & Vishny, 1986, 1997). Thus, institutional investors have stronger incentives to advance firms'

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<sup>33</sup> Arguably, institutional investors might not influence tax avoidance directly as they might not exert their ownership rights actively due to regulatory limitations or a lack of interest (Gillan & Starks, 2003). Alternatively, it is possible that institutional investors merely focus on a firm's overall performance without specifying a concrete tax planning strategy because their portfolio comprises many firms (Cheng et al., 2012).

<sup>34</sup> Nonetheless, empirical evidence on the traditional view is mixed, as noted by Khurana and Moser (2013).

tax avoidance activities using enhanced monitoring (Wang et al., 2020) and to make these more efficient by using their tax planning knowledge (Jiang et al., 2021). Moreover, the agency costs are reduced due to these owners' abilities to improve corporate governance and because agency problems decrease when ownership is more concentrated (Bebchuk et al., 2017; Gillan & Starks, 2003; Jiang et al., 2021; Shleifer & Vishny, 1997).

On the other hand, tax avoidance practices might diminish with higher institutional ownership. Tax avoidance involves different risks, which, in the long run can lead to (e.g., regulatory or reputational) costs if the behavior is revealed. Institutional investors will disapprove of taking these risks if they focus on investment strategies with long-term value rather than short-term earnings goals (Dobrzynski, 1993; Khurana & Moser, 2013; Wang et al., 2020). Therefore, they will intervene if managers try to generate short-term profits by lowering tax expenses. Anecdotal evidence suggests that these investors consider risks incrementally when assessing tax avoidance (Hawker, 2021; Torneros, 2020). Managers from institutions might refrain from promoting tax avoidance because the emergence of 'tax shaming' has induced increased awareness of the reputational risks that could harm them individually (Jiang et al., 2021). From an agency cost perspective, greater tax avoidance might be undesired by investors since it is usually accompanied by an opaque organizational structure that impedes the assessment of managers' performance. Managerial opportunism and rent extraction at the expense of the shareholders can be the consequences (Desai & Dharmapala, 2009a).

As the theoretical background shows, institutional investors' influence on tax avoidance is ultimately an empirical question. Prior research has addressed this question across different settings, with ambiguous results. Some studies document that institutional ownership is negatively related to the tax avoidance of investee firms. Khurana and Moser (2013) find that less tax avoidance prevails in US firms owned by long-term institutional shareholders. Ying et al. (2017) show a negative relation between tax aggressiveness and institutional ownership for listed Chinese firms. Analyzing foreign institutional investors in an international setting, Hasan

et al. (2022) present evidence that these investors curb the investee firms' tax avoidance. In contrast, other empirical works suggest a positive association between institutional investors and tax avoidance practices. S. Chen et al. (2019) and Khan et al. (2017) investigate US firms by using the Russell index. Both papers provide evidence that institutional ownership is positively related to tax avoidance. Jiang et al. (2021) examine Chinese listed firms and document that greater institutional ownership leads to more tax avoidance activities, in particular when the ownership concentration is low.

### **3.2.2 Tax as an ESG Criterion in Socially Responsible Investing**

Research on institutional investors and tax avoidance has begun to acknowledge the importance of considering the heterogeneity of this large and multifaceted group. Distinctions have been made regarding institutional investors' investment horizon or foreign and domestic ownership (Hasan et al., 2022; Khurana & Moser, 2013; Klein et al., 2022). However, the relationship between the sustainability commitment of institutional investors and investees' tax avoidance constitutes an "almost unexplored area of research" (Knuutinen & Pietiläinen, 2017), which has not yet been investigated empirically. In light of the growing amount of assets under management by sustainable institutional investors, it is economically relevant to analyze the effect of this distinct group of investors on the tax avoidance of investee firms.

Investors that are committed to SRI presumably have different, non-pecuniary investment objectives and motivations. Thus, their influence on corporate decision-making (such as tax planning) is likely not to be comparable to that of other institutional investors. Evidence suggests that the willingness to sacrifice financial goals for the sake of society and the trade-off between short-term and long-term performance vary among institutional investors (e.g., Atallah et al., 2022; Hong & Kacperczyk, 2009; Hong & Kostovetsky, 2012; Kim et al., 2019). Several arguments underpin the assumption that sustainable institutional investors might incorporate tax when engaging as corporate owners.

Taxation is increasingly considered as a CSR or ESG issue (Full & Lorek, 2022; Krieg & Li, 2021; Silvola & Landau, 2021). Although the empirical evidence is ambiguous, some studies suggest that firms with higher CSR performance engage in less tax avoidance (e.g., Hoi et al., 2013; Lanis & Richardson, 2015). Similarly, institutional investors might progressively frame tax payments as part of sustainability. Corresponding evidence is presented in a discussion paper of the EU that notes that institutional investors want to ensure that their investees engage in responsible tax behavior (European Commission, 2021a, 2021b; Platform on Tax Good Governance, 2021). Therefore, sustainable institutional investors that are explicitly committed to considering ESG factors are particularly likely to integrate tax responsibility into their investment decisions and active engagement with their investees. A survey by Knuutinen and Pietiläinen (2017) presents findings consistent with this assumption. The researchers performed nine interviews with representatives of Finnish PRI signatories in 2016. Their answers suggest that taxes are on the ESG agenda of sustainable institutional investors and that compliance with tax law is regarded as the minimum requirement. Some of these investors stated that they monitor the ETR of firms. Taha (2021) provides similar evidence based on an interview with one institutional investor that is committed to SRI.

The integration of tax into responsible investing has further been supported by the efforts of the PRI. The PRI has been working with signatories on corporate tax responsibility and transparency since 2015, when it issued engagement guidance on the subject (PRI, 2015). Further advances were made from 2017 to 2019 when the PRI coordinated collaborative investor engagement on the theme (PRI, 2020). In addition, enabling investors to reshape governance systems to ensure tax fairness is a priority ESG issue in the PRI's strategic plan for 2021–2024 (PRI, 2021a). The PRI has subsequently provided supplemental resources for this matter and issued additional guidelines on investor engagement with firms on tax responsibility.

Moreover, the emergence of sustainable institutional investors' awareness of tax is fueled by EU regulations. The SFDR (the main provisions of which began to apply on

March 10, 2021) contains disclosure requirements for products targeting sustainable investments (Article 9). Sustainable investments are defined in Article 2 Point (17) and, among others, require that investee companies follow good governance practices, including tax compliance. Hence, firms that want to offer investments under the sustainability label have to demonstrate that they do indeed invest sustainably by disclosing information on tax (European Securities and Market Authority [ESMA], 2022; Full & Lorek, 2022). Further, ensuring the fulfillment of the criteria requires enforced supervision of investees. In addition, the introduction of a social taxonomy is currently being discussed to help recognize socially sustainable investments. The final report recommends strengthening corporate governance aspects that affect sustainability, such as non-aggressive and transparent tax planning. It further proposes the introduction of a reporting requirement for these aspects (Platform on Sustainable Finance, 2022). Hence, the importance of tax compliance in sustainable investing might continue to proliferate.

In light of these arguments, I assume that corporate taxes have become a crucial component of sustainable institutional investors' ESG considerations. These investors are likely to implement this view in investee firms. Investors that have committed to SRI by signing the PRI follow the principle to "be active owners and incorporate ESG issues into [...] ownership policies and practices" (PRI, 2021a). Therefore, I expect that sustainable institutional investors mitigate irresponsible tax behavior.

Nonetheless, the incremental promotion of tax as a sustainability issue by the public, the PRI, and the regulations might not (yet) have been effective in putting taxes on sustainable institutional investors' agenda. Alternatively, they might claim to pursue tax responsibility in their investee firms without acting accordingly. In both cases, sustainable institutional investors are unlikely to differ from other institutional investors.<sup>35</sup> In addition, institutional investors that

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<sup>35</sup> Consequently, their impact on investee firms' tax avoidance could be either positive or negative for the reasons elaborated in Section 3.2.1.

are committed to SRI need to generate returns while meeting ESG objectives. This task can be challenging as achieving these objectives is associated with costs.<sup>36</sup> Likewise, taxes represent a significant cost factor that reduces after-tax earnings and shareholder value. Therefore, sustainable institutional investors might be willing to accept tax avoidance as its short-term benefits facilitate the pursuit of their primary aims.

To summarize the above discussion, while contradictory arguments exist, it is reasonable to expect a negative relation between the magnitude of sustainable institutional ownership and tax avoidance due to the recent developments. However, I presume that the role of corporate taxes in sustainable investing has not been uniform over time. Instead, the integration of investees' tax policies into ownership deliberations is likely to have evolved over the years, caused by the above-described advancements. I formulate the following hypotheses:

*H1: The ownership of sustainable institutional investors reduces the tax avoidance of investee firms.*

*H2: The impact of sustainable institutional investors on the tax avoidance of investee firms has increased over time.*

### **3.3 Data and Research Methodology**

#### **3.3.1 Data**

I use different data sources to construct my sample. I obtain investor data from the Refinitiv Eikon database.<sup>37</sup> Refinitiv Eikon provides comprehensive and global ownership information collected from numerous sources, such as stock exchanges, regulators (e.g., US SEC filings), institutions, and financial statements (Refinitiv, n.d.).

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<sup>36</sup> For example, BlackRock has recently been subject to the largest divestment by a state opposed to its ESG policies due to concerns that returns are not adequately prioritized in comparison with its ESG objectives (Kerber, 2022).

<sup>37</sup> Following Kordsachia et al. (2022), I collect information on the largest 100 shareholders per firm. Further, I only retrieve information for firms with an available ESG score as the subsequent analyses require this variable.



Next, I retrieve a list of PRI signatories and the corresponding signature date from the PRI's official website.<sup>38</sup> By performing fuzzy name matching with investor names from Refinitiv Eikon and a thorough manual comparison based on the signatory's name and headquarter country, I identify the PermIDs of the signatories. I then match the list of PRI signatories to the investor data using the PermID and signature date.

Financial data are taken from Refinitiv Eikon and Compustat Global and North America. For consistency, I convert all currencies into US dollars and assign observations with a year-end date before June 1 to the previous financial year. In line with the prior literature, I exclude firms with negative pre-tax income, since loss firms are less inclined to engage in tax avoidance (e.g., McGuire et al., 2012; Rego, 2003), as well as firms from the financial industry in virtue of different regulations and tax incentives (e.g., Cheng et al., 2012). Implausible observations with negative total assets, intangible assets, or sales are deleted.

My sample covers the years 2011 to 2021 to avoid the potential distortive effects of the financial crisis. Further, I limit my analysis to investee firms located in the EU or the US. After merging with the investor data and requiring non-missing values for all the variables used in the main regressions, the sample comprises 14,915 observations of 2,968 distinct firms.

### **3.3.2 Measures of Sustainable Institutional Ownership and Tax Avoidance**

I employ the merged dataset including investor data and PRI signatory information to identify all the investors that engage in SRI. Following prior studies (e.g., Dyck et al., 2019; Kordsachia et al., 2022), I classify an investor as socially responsible if it is a signatory of the UN PRI. Launched in 2005, the UN PRI is the largest global network for responsible institutional investors. It aims to help its signatories to understand and implement ESG factors in their ownership and investment decisions based on six principles. Signatories are obliged to provide a detailed annual report on their responsible investment activities so that their alignment

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<sup>38</sup> The version employed in this study contains 4,987 firms that signed the PRI prior to May 2022.

with the principles is publicly available (PRI, 2021b). Moreover, minimum membership requirements were introduced in 2018 to strengthen accountability.<sup>39</sup> Failure to meet these criteria results in delisting (PRI, 2018). Because of these uniform implementation processes, PRI signatories are likely to apply comparable and effective responsible investing strategies. Consequently, investors that voluntarily commit to these SRI principles are assumed to share similar ethical values and eco-social preferences (e.g., Gond & Piani, 2013; Kordsachia et al., 2022),<sup>40</sup> which presumably determine their attitude toward tax avoidance. To measure the impact of sustainable institutional investors on an investee firm's tax avoidance, I calculate the percentage of equity owned by PRI signatories per firm (*PRI\_IO*) by aggregating the ownership shares from investors identified as PRI signatories at the year-end.

Furthermore, I compute the percentage of equity held by institutional investors (*IO*). The investor type provided by Refinitiv Eikon is employed to classify an investor as an institution.<sup>41</sup> Further, *NonPRI\_IO* captures the aggregate ownership percentage of institutional investors that have not signed the PRI and hence are not dedicated to SRI.

I follow the prior literature and define tax avoidance broadly as any activities that deplete a firm's explicit taxes (Dyreng et al., 2008; Hanlon & Heitzman, 2010). The tax avoidance of the investee firm is proxied based on the measure developed by Atwood et al. (2012), which is the difference between the amount of tax on pre-tax income computed at the statutory tax rate and the cash taxes paid, scaled by the pre-tax income (*TA\_CETR*). Conceptually, *TA\_CETR* corresponds to an annual cash ETR following Dyreng et al. (2008). However, it takes into account the fact that tax rates vary across countries and over time, making tax avoidance more comparable. Accordingly, this measure is particularly suited to cross-

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<sup>39</sup> Concretely, existing and potential signatories are required to have (1) a formalized policy on the approach to SRI that covers more than 50% of the assets under management, (2) senior-level oversight of the policy and accountability mechanisms that ensure the implementation of SRI, and (3) an explicit appointment of internal or external staff responsible for the SRI implementation (PRI, 2018).

<sup>40</sup> Nevertheless, I account for potential heterogeneity concerning several characteristics of these investors in the cross-sectional analyses in Section 3.4.3 to provide a more detailed picture of this ownership type.

<sup>41</sup> The investor type is classified as an institutional investor following Ferreira and Matos (2008) and the PRI (n.d.).

country studies (Atwood & Lewellen, 2019; Eberhartinger et al., 2021; Hasan et al., 2022; Q. Li et al., 2022). As my sample covers various countries, I therefore use this proxy as my primary measure of tax avoidance.<sup>42</sup> Higher values of *TA\_CETR* indicate more extensive tax avoidance.

### 3.3.3 Research Design

I conduct regression analyses to test my hypotheses. I estimate the following equation:

$$TA\_CETR_{it} = \beta_0 + \beta_1 Inst\_Ownership_{it-1} + \beta_2 X_{it} + Year_t + Country_i + Industry\ FE + u_{it} \quad (3.1)$$

The dependent variable, *TA\_CETR<sub>it</sub>*, is the tax avoidance measure defined in the previous section for investee firm *i* in period *t*. As the variable of interest, *Inst\_Ownership<sub>it-1</sub>*, I consider the shares of equity held by distinct institutional owner types (see Section 3.3.2). I examine institutional (*IO*), non-sustainable (*NonPRI\_IO*), and, in particular, sustainable institutional ownership (*PRI\_IO*) in the regressions. Notably, all the ownership variables are lagged by one year since the ownership structure at the beginning of the year, rather than at year-end, is relevant for the tax avoidance of the investee firm in the current period.

My models include a vector of firm-level control variables, *X<sub>it</sub>*. I employ variables that can affect corporate tax avoidance in accordance with the prior literature (e.g., Badertscher et al., 2019; Dyreng et al., 2008; Gupta & Newberry, 1997; Manzon & Plesko, 2002; Rego, 2003; Stickney & McGee, 1982; Zimmerman, 1983). I control for firm size (*Size*), leverage (*Leverage*), intangible assets (*Intangibles*), market-to-book ratio (*MBRatio*), change in sales (*Ch\_sales*), return on equity (*RoE*), property, plant, and equipment (*PPE*), and cash (*Cash*). All the financial variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. I further control for the ESG score as provided by Refinitiv Eikon (*ESGScore*) since prior studies document a relationship between a firm's ESG performance and tax avoidance (e.g., A. K. Davis et al., 2016; Hoi et al., 2013). A detailed description of the variables is provided in Table A3.1 in the Appendix.

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<sup>42</sup> To ensure robustness, I employ alternative tax avoidance measures in Section 3.4.5.

Moreover, I include year and country dummies as tax avoidance can vary due to macroeconomic or country-specific effects. Further, I employ industry fixed effects [FE] based on the two-digit SIC code to control for industry-specific unobservable characteristics.<sup>43</sup> All the regressions are estimated with heteroscedasticity-robust standard errors that are clustered at the firm level.

### **3.4 Empirical Results**

#### **3.4.1 Descriptive Statistics and Correlation Analysis**

Table 3.1 presents the country distribution of the firms included in my study and descriptive statistics for the tax avoidance measure and sustainable institutional ownership. My sample comprises 1,078 investee firms from 21 EU countries and 1,890 US firms. The greatest magnitude of tax avoidance prevails in firms located in Malta, followed by the US.<sup>44</sup> Sustainable institutional investors are found to invest particularly in firms headquartered in the US, Ireland, and Sweden, where 25.33%, 23.17%, and 20.59% of firms are owned by sustainable institutional investors, respectively.

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<sup>43</sup> The empirical model is consistent with prior research on ownership and tax avoidance (e.g., Khan et al., 2017; Khurana & Moser, 2013). I employ alternative fixed effects in the robustness checks in Section 3.4.5.

<sup>44</sup> Q. Li et al. (2022) document a relatively similar level for the tax avoidance measure of US firms, with a median of 14.95% compared to 13.05% in my sample. Slight differences might occur because the periods are not identical.

**Table 3.1: Sample Composition and Descriptive Statistics**

Country	Unique Firms	Obs.	Mean	
			<i>TA_CETR</i>	<i>PRI_IO</i>
Austria	27	140	5.256	9.238
Belgium	32	195	10.289	9.468
Cyprus	6	18	2.996	6.614
Czech Republic	3	22	0.920	3.555
Denmark	50	257	3.740	12.784
Finland	70	309	3.404	17.596
France	137	799	9.248	12.785
Germany	196	905	7.816	14.150
Greece	18	84	6.637	4.405
Hungary	5	29	5.176	7.872
Ireland	44	283	2.138	23.165
Italy	99	361	6.698	8.971
Luxembourg	26	103	9.441	14.524
Malta	5	10	23.029	13.900
Netherlands	60	340	7.324	16.153
Poland	30	167	4.069	4.607
Portugal	15	77	11.212	8.475
Romania	1	2	2.898	0.651
Slovenia	1	5	4.927	1.348
Spain	59	336	8.260	8.562
Sweden	194	777	4.443	20.586
United States	1,890	9,696	15.313	25.325
<b>Total</b>	<b>2,968</b>	<b>14,915</b>	<b>12.269</b>	<b>21.352</b>
Total EU	1,078	5,219	6.614	13.969
Total US	1,890	9,696	15.313	25.325

Notes: Table 3.1 presents the country distribution and summary statistics for tax avoidance (*TA\_CETR*) and sustainable institutional ownership (*PRI\_IO*) of the sample used in the main analyses.

Table 3.2 shows descriptive statistics of the variables employed in the main empirical analyses. The mean (median) value of the tax avoidance measure equals 12.27% (9.16%),<sup>45</sup> and 60.76% of the average investee firm is under institutional ownership. On average, sustainable institutional investors hold 21.35% of investee firms' equity outstanding, with a median value of 19.83%. Non-sustainable institutional investors are generally the larger group as the mean of their ownership percentage equals 39.72%.

<sup>45</sup> The values are similar to those obtained by Q. Li et al. (2022) who document a mean (median) of 9.1% (9.7%).

**Table 3.2: Descriptive Statistics**

VARIABLES	Obs.	Mean	Std. Dev.	Q1	Median	Q3
<i>TA_CETR</i>	14,915	12.269	12.786	0.965	9.163	19.575
<i>PRI_IO</i>	14,915	21.352	13.710	9.790	19.828	31.213
<i>IO</i>	14,915	60.758	28.242	36.918	66.998	84.733
<i>NonPRI_IO</i>	14,915	39.716	22.241	20.561	40.408	56.145
<i>Size</i>	14,915	8.270	1.624	7.206	8.221	9.307
<i>Leverage</i>	14,915	0.236	0.170	0.106	0.220	0.337
<i>Intangibles</i>	14,915	0.257	0.212	0.066	0.217	0.408
<i>ESGScore</i>	14,915	47.843	20.674	31.028	47.172	64.339
<i>MBRatio</i>	14,915	3.903	4.435	1.567	2.601	4.459
<i>Ch_Sales</i>	14,915	7.497	17.305	-1.408	5.145	13.319
<i>RoE</i>	14,915	0.234	0.245	0.108	0.181	0.289
<i>PPE</i>	14,915	0.260	0.220	0.090	0.189	0.371
<i>Cash</i>	14,915	0.107	0.101	0.035	0.079	0.146

Notes: Table 3.2 presents the descriptive statistics, requiring non-missing values for all the variables used in the main analyses with *TA\_CETR* as the dependent variable. All variables are defined in Table A3.1 in the Appendix.

Table 3.3 reports the Pearson correlation coefficients for all the variables employed in the main analyses. I find that institutional ownership (*IO*) and non-sustainable institutional ownership (*NonPRI\_IO*) are positively correlated with investee firms' tax avoidance. In contrast, ownership by sustainable institutional investors (*PRI\_IO*) is negatively correlated with firms' tax avoidance behavior. The significant correlation coefficients range from -0.517 to 0.884. I find the strongest correlation between the variables *NonPRI\_IO* and *IO*, which are not simultaneously included in the regression analyses. In general, there are no highly correlated variables in the model. To account for potential multicollinearity between the explanatory variables, I further calculate the variance inflation factors [VIFs] in untabulated analyses. The VIFs do not exceed the widely accepted threshold of 10 (see, e.g., Atwood et al., 2012) for any of the independent variables, so multicollinearity does not seem to be a concern in my model.

**Table 3.3: Correlation Matrix**

VARIABLES	(1) <i>TA_CETR</i>	(2) <i>PRI_IO</i>	(3) <i>IO</i>	(4) <i>NonPRI_IO</i>	(5) <i>Size</i>	(6) <i>Leverage</i>	(7) <i>Intangibles</i>	(8) <i>ESGScore</i>	(9) <i>MBRatio</i>	(10) <i>Ch_Sales</i>	(11) <i>RoE</i>	(12) <i>PPE</i>	(13) <i>Cash</i>
(1) <i>TA_CETR</i>	1.000												
(2) <i>PRI_IO</i>	-0.019	1.000											
(3) <i>IO</i>	0.193*	0.658*	1.000										
(4) <i>NonPRI_IO</i>	0.262*	0.235*	0.884*	1.000									
(5) <i>Size</i>	0.050*	-0.080*	-0.100*	-0.084*	1.000								
(6) <i>Leverage</i>	0.100*	0.136*	0.166*	0.133*	0.226*	1.000							
(7) <i>Intangibles</i>	-0.098*	0.150*	0.124*	0.065*	0.077*	0.218*	1.000						
(8) <i>ESGScore</i>	-0.152*	0.010	-0.218*	-0.291*	0.571*	0.038*	0.046*	1.000					
(9) <i>MBRatio</i>	-0.043*	0.116*	0.073*	0.022*	-0.082*	0.020	0.024*	0.009	1.000				
(10) <i>Ch_Sales</i>	0.066*	0.019	0.042*	0.044*	-0.087*	-0.031*	0.062*	-0.131*	0.137*	1.000			
(11) <i>RoE</i>	-0.066*	-0.020	0.008	0.022*	0.031*	0.038*	-0.041*	0.044*	0.711*	0.083*	1.000		
(12) <i>PPE</i>	0.176*	-0.091*	-0.078*	-0.042*	0.160*	0.198*	-0.517*	0.022*	-0.154*	-0.077*	-0.073*	1.000	
(13) <i>Cash</i>	-0.030*	0.015	0.012	0.008	-0.294*	-0.271*	-0.214*	-0.101*	0.180*	0.052*	0.083*	-0.300*	1.000

Notes: Table 3.3 shows the Pearson correlation coefficients for the variables used in the main analyses. All variables are defined in Table A3.1 in the Appendix. \* indicates statistical significance at the 1% level.

### 3.4.2 Main Results

I begin my analysis by investigating the effect of total institutional ownership (*IO*) on tax avoidance. Table 3.4, Column (1), shows the regression results. The coefficient of *IO* is positive, albeit statistically insignificant ( $p$ -value 0.927). Hence, a relationship between ownership by institutional investors and tax avoidance cannot be confirmed.

Next, I differentiate between sustainable institutional investors (*PRI\_IO*) and institutional investors that have not committed themselves to sustainable investing by signing the PRI (*NonPRI\_IO*). The results are presented in Column (2). The coefficient of *NonPRI\_IO* is positive and statistically significant, indicating that institutional investors that are not dedicated to SRI increase the investees' tax avoidance. However, the coefficient of *PRI\_IO* is negative and statistically significant at the 1% level. This finding suggests that tax avoidance decreases with the incremental presence of sustainable institutional investors. Concretely, the coefficient estimate of -0.078 implies that the extent of tax avoidance declines by 1.07% if sustainable institutional ownership increases by one standard deviation (equal to 13.71%). Evaluated at the sample mean of tax avoidance, this represents a reduction in tax avoidance of 8.72%. This finding is in line with Hypothesis H1. In particular, it indicates that such investors exert a distinct influence on their investee firms from institutional investors that are not committed to SRI, which confirms my assumption that institutional investors with varying preferences regarding sustainability affect corporate decision-making differently.

In Column (3), I only include *PRI\_IO* as the ownership variable. I again document that tax avoidance is mitigated when sustainable institutional investors own a higher percentage of the firm. The coefficient estimate is similar to that in Column (2).



**Table 3.4: Sustainable Institutional Ownership and Tax Avoidance**

	(1)	(2)	(3)
	<b>Institutional Ownership</b>	<b>Sustainable and Non- Sustainable Institutional Ownership</b>	<b>Sustainable Institutional Ownership</b>
<i>IO</i>	0.001 (0.927)		
<i>PRI_IO</i>		-0.078*** (0.000)	-0.069*** (0.000)
<i>NonPRI_IO</i>		0.045*** (0.000)	
<i>Size</i>	0.172 (0.186)	0.266** (0.041)	0.184 (0.154)
<i>Leverage</i>	3.923*** (0.000)	3.545*** (0.001)	4.079*** (0.000)
<i>Intangibles</i>	-4.195*** (0.000)	-3.811*** (0.000)	-3.586*** (0.001)
<i>ESGScore</i>	-0.035*** (0.000)	-0.030*** (0.002)	-0.030*** (0.002)
<i>MBRatio</i>	0.082* (0.054)	0.102** (0.017)	0.094** (0.027)
<i>Ch_Sales</i>	0.051*** (0.000)	0.048*** (0.000)	0.049*** (0.000)
<i>RoE</i>	-4.416*** (0.000)	-4.663*** (0.000)	-4.682*** (0.000)
<i>PPE</i>	5.298*** (0.000)	5.554*** (0.000)	5.455*** (0.000)
<i>Cash</i>	0.854 (0.617)	1.040 (0.543)	1.061 (0.535)
Year Dummies	✓	✓	✓
Country Dummies	✓	✓	✓
Industry FE	✓	✓	✓
Observations	14,915	14,915	14,915
R <sup>2</sup>	0.254	0.259	0.257

Notes: Table 3.4 provides the regression results of estimating Equation (3.1) to investigate the impact of (sustainable) institutional investors on the tax avoidance of investee firms. The dependent variable is *TA\_CETR*. Column (1) examines the effect of total institutional ownership (*IO*) on tax avoidance. Column (2) tests the influence of both sustainable institutional ownership (*PRI\_IO*) and non-sustainable institutional ownership (*NonPRI\_IO*) on tax avoidance. Column (3) analyzes the effect of sustainable institutional ownership on tax avoidance. All variables are defined in Table A3.1 in the Appendix. Year dummies, country dummies, and industry fixed effects [FE] are included in the regressions but not reported. All estimation results are based on robust standard errors clustered at the firm level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

To test Hypothesis H2, that is, whether the impact of sustainable institutional investors on tax avoidance has evolved over time, I first run regressions including a dummy *Post*, which is equal to one for the years from 2016 onward and equal to zero for the years 2011 to 2015

(given that the PRI started to address tax responsibility in 2015). The results in Table 3.5, Column (1), show that a higher percentage of ownership by sustainable institutional investors is associated with greater tax avoidance for the years before 2016 as the coefficient of *PRI\_IO* is equal to 0.068 and significant at the 5 % level. The coefficient of *PRI\_IO* × *Post* is equal to -0.159 and statistically significant (*p*-value 0.000), indicating that investors that are committed to SRI have begun to reduce tax avoidance in these later years.

Then, I interact the year dummies included in Equation (3.1) with *PRI\_IO*. Column (2) shows the regression results. Neither for the year 2011 (which, as the reference group, is captured by *PRI\_IO*) nor for the years 2012 to 2017 (interaction terms *PRI\_IO* × 2012 to *PRI\_IO* × 2017) can a relationship between ownership by sustainable institutional investors and corporate tax avoidance be confirmed. However, for the years 2018 onward, the coefficients of the interaction terms are negative and statistically significant, suggesting that the impact started during the time the PRI intensified its work on tax responsibility by means of the coordination of a collaborative investor engagement in the years 2017 to 2019.

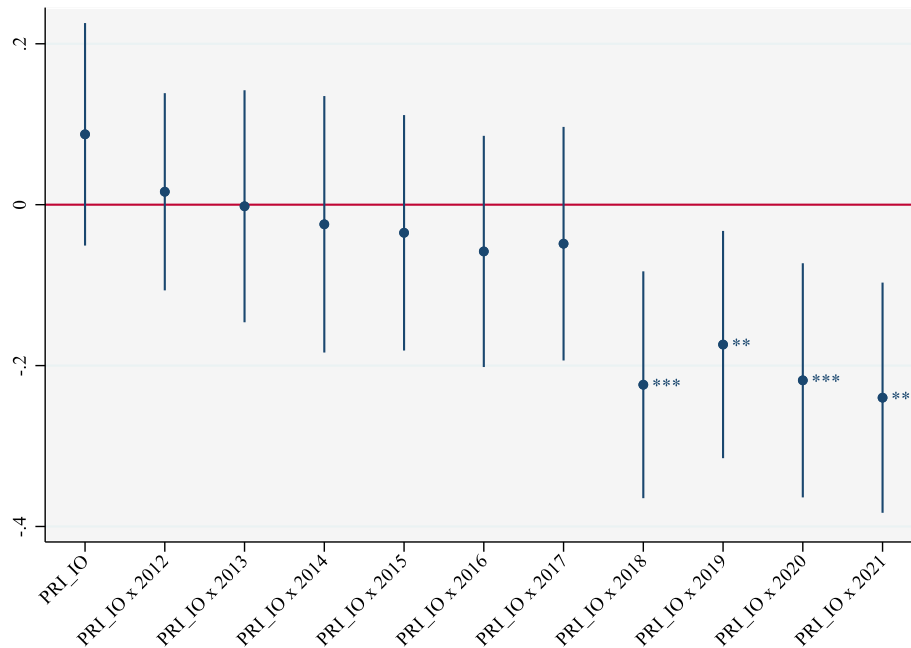
**Table 3.5: Influence of Sustainable Institutional Investors over Time**

	(1)	(2)
	Years before and after 2016	Year Interactions
<i>PRI_IO</i>	0.068** (0.019)	0.087 (0.215)
<i>PRI_IO</i> × <i>Post</i>	-0.159*** (0.000)	
<i>PRI_IO</i> × 2012. <i>year</i>		0.016 (0.797)
<i>PRI_IO</i> × 2013. <i>year</i>		-0.002 (0.979)
<i>PRI_IO</i> × 2014. <i>year</i>		-0.024 (0.764)
<i>PRI_IO</i> × 2015. <i>year</i>		-0.035 (0.640)
<i>PRI_IO</i> × 2016. <i>year</i>		-0.058 (0.428)
<i>PRI_IO</i> × 2017. <i>year</i>		-0.049 (0.512)
<i>PRI_IO</i> × 2018. <i>year</i>		-0.224*** (0.002)
<i>PRI_IO</i> × 2019. <i>year</i>		-0.174** (0.016)
<i>PRI_IO</i> × 2020. <i>year</i>		-0.218*** (0.003)
<i>PRI_IO</i> × 2021. <i>year</i>		-0.240*** (0.001)
Controls	✓	✓
Year Dummies	✓	✓
Country Dummies	✓	✓
Industry FE	✓	✓
Observations	14,915	14,915
R <sup>2</sup>	0.259	0.263

Notes: Table 3.5 examines the impact of sustainable institutional investors on investee firms' tax avoidance over time. The dependent variable is *TA\_CETR*. In Column (1), a dummy variable *Post* is employed, which is equal to one for the years from 2016 onward and zero for the years 2011 to 2015. Because year dummies are included, *Post* is not added as a stand-alone variable. In Column (2), the year dummies are interacted with sustainable institutional ownership measured in the previous year (*PRI\_IO*). All regressions include the control variables described in Section 3.3.3. Definitions of all variables are provided in Table A3.1 in the Appendix. Year dummies, country dummies, and industry fixed effects are included in the regressions but not reported. All estimation results are based on robust standard errors clustered at the firm level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Figure 3.1 provides a graphical visualization of the time trend of sustainable institutional investors' influence on tax avoidance. The figure reveals a clear pattern of an incremental mitigating impact of these investors on this part of investee firms' corporate policy.

**Figure 3.1: Sustainable Institutional Investors' Impact on Tax Avoidance over Time**



Notes: Figure 3.1 presents point estimates and confidence intervals for the effect of sustainable institutional ownership on investee firms' tax avoidance in different years. The regression specification as shown in Table 3.5, Column (1), is employed. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Taken together, the results are in line with Hypothesis H2. The integration of tax into the ownership decisions of sustainable institutional investors has developed over recent years, possibly because of the incremental framing of taxes as an ESG issue and the PRI's ongoing efforts to promote tax responsibility.

### 3.4.3 Cross-Sectional Tests

To obtain a more nuanced picture of the impact of sustainable institutional investors on tax avoidance, I perform cross-sectional tests. I account for other characteristics of this investor type that might determine the effect on the tax planning activities of investee firms. As noted by Velte (2023), very little is known so far regarding the heterogeneity of sustainable institutional investors. I also explore whether ownership concentration is relevant to the effect.

I begin by considering whether sustainable institutional investors' investment horizon determines the relationship between these investors' ownership and tax avoidance (Panel A,

Table 3.6). Prior studies have found that long-term institutional investors exert a greater moderating influence on investee firms' tax planning decisions (Khurana & Moser, 2013). Therefore, I construct a measure that captures the time aspect of sustainable institutional ownership (similar to Kordsachia et al., 2022). For each investor-year observation, I calculate the elapsed time since the initial investment. I then compute the equity-weighted average of the years since the first holding date for all the PRI investors of the investee firm per year (*Inv\_Horizon*). *Inv\_Horizon* is then interacted with *PRI\_IO*. Column (1) contains the regression results. The coefficient of  $PRI\_IO \times Inv\_Horizon$  is insignificant, while the coefficient of *PRI\_IO* remains negative and statistically significant. Thus, I conclude that my findings are not caused by the considered investors having longer investment horizons. The result also implies that the long-term nature with which investors that are dedicated to SRI have a stake in the firm (i.e., the permanence of their ownership) does not affect their influence on tax practices.

Given the preceding analysis, I assume that sustainable institutional investors' influence on tax avoidance is instead driven by their attitude toward sustainability and awareness of tax as an ESG issue. Hence, the longer the commitment to the PRI, the greater the familiarity with the sustainability principles and the stronger the impact on investee firms' tax behavior. To test this conjecture, I calculate a variable, *Signatory\_Time*, analogously to the investment horizon but using the time since the investors signed the PRI instead of the time since the initial investment. As shown in Column (2), *PRI\_IO* exhibits a negative coefficient that is statistically insignificant. For an investee firm with equity that is owned by investors that have just signed the PRI in the considered year, I do not document that these investors curb tax avoidance. The coefficient of  $PRI\_IO \times Signatory\_Time$  is, however, negative and statistically significant, suggesting that the moderating influence of sustainable institutional investors on tax avoidance increases with the length of the PRI membership.

Besides heterogeneity regarding time aspects, sustainable institutional investors differ because they are located and invest in different countries. Prior empirical research documents

that foreign institutional investors decrease tax avoidance, whereas domestic institutional ownership increases tax avoidance (Hasan et al., 2022). For sustainable institutional investors, this relationship could be different. Domestic investors that engage in SRI might have even stronger incentives to curb the tax avoidance of local investee firms. If evading tax payments is viewed as detrimental to society (e.g., because it deprives the public system of financial resources), sustainable institutional investors will prioritize the initiation of a change in the tax behavior of firms located in their own country. I split *PRI\_IO* into domestic and foreign investors and compute the aggregated ownership percentages. As expected, the coefficient of *PRI\_IO\_Domestic* is negative and significant, while that of *PRI\_IO\_Foreign* is positive yet insignificant (Column (3)). Domestic sustainable institutional investors seem to be a driving force behind this investor type's effect on tax avoidance.

Nonetheless, this result has to be interpreted with caution. Most firms in my sample are US investee firms that are largely owned by US investors. Thus, *PRI\_IO\_Domestic* could mainly capture the influence of US investors,<sup>46</sup> which could deviate from EU investors' impact. From a theoretical viewpoint, though, US sustainable institutional investors are presumably less inclined to improve their investees' tax responsibility. Evidence suggests that SRI is practiced more effectively and broadly in the EU (Dyck et al., 2019; Liang & Renneboog, 2017), while US PRI signatories do not improve their portfolio ESG performance after joining the PRI (Brandon et al., 2022). Hence, although the number of PRI members is in large part increasing because of US investors, questions have been raised as to whether these same investors act according to the principles. In addition, ethical reasons are considered more strongly by European investors engaging in SRI than by US ones (Amel-Zadeh & Serafeim, 2018). As a contribution to society, taxes might thus increasingly be accounted for and promoted by EU

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<sup>46</sup> The correlation between *PRI\_IO\_Domestic* and *PRI\_IO* equals 0.936 for investee firms located in the US.

sustainable institutional investors. Prospectively, the different regulatory environments could lead to even more significant differences in the sustainable investing of EU and US investors.<sup>47</sup>

Therefore, I differentiate between US and EU sustainable institutional investors in the next step. The results in Column (4) show that higher ownership percentages by US sustainable institutional investors (*PRI\_IO\_US*) reduce tax avoidance. For EU investors, the coefficient of *PRI\_IO\_EU* is insignificant and positive. The results are interesting as they contradict the expectation that US investors engaging in SRI are less likely to reduce investee firms' tax avoidance than EU investors. Nevertheless, I recognize that the coefficient of *PRI\_IO\_US* is similar to the coefficient of *PRI\_IO\_Domestic* in Column (3). I acknowledge that I cannot clearly ascertain which of the characteristics (the fact of being domestic or being located in the US) of sustainable institutional investors is specifically related to the impact on tax avoidance.

I then assess whether sustainable institutional owners' influence on tax avoidance varies between US and EU investee firms. I generate a dummy *EU* that is equal to one for all investee firms located in the European Union and zero for US firms. The results in Column (5) suggest that tax avoidance is more strongly reduced in US investee firms than in EU firms.

Last, I account for the varying abilities or incentives to monitor investee firms' tax avoidance actively among different types of sustainable institutional investors. Ferreira and Matos (2008) find that 'grey' ('pressure-sensitive') institutions are less likely to monitor investee firms actively than 'independent' ('pressure-resistant') institutions because they have stronger business ties with firms and are hence more loyal to the management. Independent institutions are investment advisers, mutual funds, and independent research firms, whereas banks and trusts, insurance companies, endowment funds, and pension funds are considered grey institutions (Ataullah et al., 2022; Ferreira & Matos, 2008). Column (6) presents the regression results for the effect of independent (*PRI\_IO\_Indep*) and grey sustainable

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<sup>47</sup> From 2021 onward, EU institutional investors have to disclose information on the impact of their ESG investments, while comparable regulations have not yet been introduced in the US (Fonseca, 2020).

institutional investors (*PRI\_IO\_Grey*). Although the coefficient of *PRI\_IO\_Grey* is positive, it is insignificant. Therefore, I cannot establish that this investor type influences the investee firms' tax avoidance. *PRI\_IO\_Indep*, however, is negative and weakly significant ( $p$ -value 0.063), providing some evidence that less tax avoidance might prevail in investee firms owned to a greater extent by independent institutions that are active monitors (Ferreira & Matos, 2008).

Apart from investors' characteristics, ownership concentration could determine the effect of sustainable institutional ownership on tax avoidance. Theoretically, institutional investors having larger equity stakes could face higher incentives to monitor managers (Shleifer & Vishny, 1986) and reduce the ability of other investors to influence managerial behavior. This futility of monitoring and the collective action problem usually result in rational apathy and shareholder passivity in the case of dispersed ownership (Black, 1990; Gillan & Starks, 2003). Hence, the influence of sustainable institutional investors could instead result from the largest shareholders' attitude toward tax avoidance. However, it can also be argued that the collective action problem is less likely to affect investors dedicated to SRI. Due to the commitment to sustainability issues, this investor type could be motivated to engage in active monitoring and more prone to collaborate due to joint principles and shared aims. The PRI even encourages its signatories to cooperate, for example via the collaboration platform used in the example of Amazon as described in Section 3.1. It thus acts as an "enabling organization" (Gond & Piani, 2013) that enhances collective action.

To empirically examine these conflicting arguments, I replace *PRI\_IO* with the percentage of equity held by the largest investor committed to SRI per investee firm (*largest\_PRI\_IO*) in Column (1) and the 10 largest (*largest10\_PRI\_IO*) in Column (2) of Table 3.6, Panel B. The coefficient of *largest\_PRI\_IO* is insignificant, suggesting no effect on tax avoidance. However, a larger aggregate share held by the 10 largest investors results in less tax avoidance, indicating the effectiveness of collaboration among sustainable institutional investors. When adding the percentage of equity owned by SRI owners that are not the largest



*(notlargest\_PRI\_IO)* or among the 10 largest *(notlargest10\_PRI\_IO)* in Columns (3) and (4), I find that a higher total percentage owned by these investors is negatively associated with tax avoidance, whereas both coefficients of the variables for the largest investors are insignificant. The evidence suggests that the decrease in tax avoidance is not merely due to blockholders, but rather results from the equity stake owned collectively by sustainable institutional investors. Therefore, the findings confirm a collaborative engagement of sustainable institutional investors and justify the use of these investors' aggregated ownership share in my analyses.

**Table 3.6: Cross-Sectional Tests**

<b>Panel A: Characteristics of Sustainable Institutional Investors</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
	<b>Time Aspects</b>		<b>Country Aspects</b>			<b>Investor Type</b>
	<b>Investment Horizon</b>	<b>Time since Committing to SRI</b>	<b>Domestic and Foreign Investors</b>	<b>US and EU Investors</b>	<b>US and EU Investee Firms</b>	<b>Independent and Grey Institutions</b>
<i>PRI_IO</i>	-0.046** (0.012)	-0.009 (0.774)			-0.102*** (0.000)	
<i>Inv_Horizon</i>	0.014 (0.832)					
<i>PRI_IO</i> × <i>Inv_Horizon</i>	-0.004 (0.117)					
<i>Signatory_Time</i>		0.143 (0.330)				
<i>PRI_IO</i> × <i>Signatory_Time</i>		-0.011** (0.030)				
<i>PRI_IO_Domestic</i>			-0.098*** (0.000)			
<i>PRI_IO_Foreign</i>			0.010 (0.609)			
<i>PRI_IO_US</i>				-0.089*** (0.000)		
<i>PRI_IO_EU</i>				0.031 (0.331)		
<i>PRI_IO</i> × <i>EU</i>					0.142*** (0.000)	
<i>PRI_IO_Indep</i>						-0.015* (0.063)
<i>PRI_IO_Grey</i>						0.048 (0.198)
Controls	✓	✓	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓	✓	✓
Country Dummies	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓
Observations	14,837	14,837	14,915	14,915	14,915	14,915
R <sup>2</sup>	0.260	0.260	0.259	0.258	0.260	0.255
<b>Panel B: Impact of Ownership Concentration</b>						
	(1)	(2)	(3)	(4)		
	<b>Largest Investor</b>	<b>10 Largest Investors</b>	<b>Largest Investor and Others</b>	<b>10 Largest Investors and Others</b>		
<i>largest_PRI_IO</i>	-0.053 (0.121)		0.034 (0.354)			
<i>largest10_PRI_IO</i>		-0.053*** (0.001)		0.020 (0.232)		
<i>notlargest_PRI_IO</i>			-0.101*** (0.000)			
<i>notlargest10_PRI_IO</i>				-0.446*** (0.000)		

Table continued on the next page.

**Table 3.6 (continued)**

Controls	✓	✓	✓	✓
Year Dummies	✓	✓	✓	✓
Country Dummies	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓
Observations	14,835	14,835	14,835	14,835
R <sup>2</sup>	0.257	0.258	0.260	0.264

Notes: Table 3.6 provides the results of exploring heterogeneity in different characteristics of sustainable institutional investors in Panel A and ownership concentration in Panel B. The dependent variable is *TA\_CETR*. Column (1) of Panel A considers the investment horizon of sustainable institutional investors. *Inv\_Horizon* is the equity-weighted average of elapsed years since sustainable institutional investors' initial investments in the investee firm. The relevance of the time since committing to SRI is analyzed in Panel A, Column (2). *Signatory\_Time* captures the equity-weighted average of years since the sustainable institutional investors that have invested in the firm signed the PRI. Column (3) of Panel A employs subsamples of domestic (*PRI\_IO\_Domestic*) and foreign sustainable institutional investors (*PRI\_IO\_Foreign*), and Column (4) of Panel A subsamples of US (*PRI\_IO\_US*) and EU sustainable institutional investors (*PRI\_IO\_EU*). Column (5) of Panel A investigates whether the impact of sustainable institutional investors differs between EU investee firms and US investee firms. *EU* is a dummy variable equal to one if the investee firm is located in the EU and zero otherwise. Because country dummies are included, *EU* is not added as a stand-alone variable. Column (6) of Panel A differentiates between investor types with different monitoring incentives. *PRI\_IO\_Indep* (*PRI\_IO\_Grey*) is the aggregate ownership percentage of sustainable institutional investors classified as independent (grey) (following Atallah et al., 2022; Ferreira & Matos, 2008). In Panel B, I investigate the relevance of ownership concentration among sustainable institutional investors. I consider the percentage of equity held by the largest investor (*largest\_PRI\_IO*) in Column (1) and that of the 10 largest (*largest10\_PRI\_IO*) in Column (2) of Panel B. In Columns (3) and (4) of Panel B, I include the ownership percentage of all other sustainable institutional investors that are not the largest investor (*notlargest\_PRI\_IO*) or among the 10 largest investors (*notlargest10\_PRI\_IO*). All regressions include the control variables described in Section 3.3.3. Definitions of all variables are provided in Table A3.1 in the Appendix. Year dummies, country dummies, and industry fixed effects are included in the regressions but not reported. All estimation results are based on robust standard errors clustered at the firm level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

### 3.4.4 Addressing Endogeneity Concerns

One concern in my study is that sustainable institutional investors considering tax to be part and parcel of sustainability could invest in firms with tax behavior that is consistent with their eco-social preferences. As a result, they might invest more in tax-compliant firms and less in tax-avoiding firms, so a decrease in tax avoidance might lead to a greater level of sustainable institutional ownership. To account for this issue of reverse causality, Equation (3.1) uses the ownership structure at the beginning of a fiscal year. Information that allows investors to assess firms' tax positions in the current year (such as the content of annual reports) is not available until several months after the end of the financial year. Thus, it is unlikely that this year's tax avoidance affects ownership by sustainable institutional investors at the beginning of the year. Moreover, decisions on the corporate tax policy are made in the current year, whereas a firm's ownership structure is often relatively stable, and adjustments in tax behavior due to ownership

changes are presumably slow. Given this time structure, I suppose that the use of lagged ownership variables is adequate.

However, arguably, some reverse causality concerns could persist (Bellemare et al., 2017). In addition, omitted variables could be a problem as factors that are not included in the regression could be related to sustainable institutional ownership and tax avoidance. To address the remaining endogeneity concerns, I implement IV approaches using 2SLS regression analyses and perform additional estimations in which I analyze subgroups of sustainable institutional investors. To that end, I employ ownership variables that are less likely to be subject to endogeneity as they build on characteristics of the ownership structure to identify those investors engaging in SRI that are unlikely to invest in the firm due to its tax behavior.

I use the lag of my main independent variable (thus measured in  $t-2$ ), denoted as *lag\_PRI\_IO*, as IV since the ownership structure in this period should not directly affect the tax policy decisions made in the current year. As many sustainable institutional investors have a stake in a firm for several years,<sup>48</sup> the individual investors captured by the aggregate sustainable institutional ownership variable are presumably not changing strongly from this year to the next. Further, the investors that had a stake in the investee firm in  $t-2$  are unlikely to have based their investment decisions on the tax behavior in following years which mitigates endogeneity concerns.<sup>49</sup>

Moreover, I compute the aggregate ownership percentage of a specific subgroup of the PRI signatories that probably suffers less from endogeneity. The variable *old\_PRI\_IO* is the lag of the sum of all equity shares held by investors that have (1) already been an investor in the considered investee firm in 2010 and (2) had a stake in the firm throughout but (3) only signed the PRI after 2010. For investors that were not committed to SRI at the time of the investment

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<sup>48</sup> The mean variable for these investors' investment horizon, *Inv\_Horizon*, is equal to 5.5 years.

<sup>49</sup> I am aware that, despite their wide usage in the literature, the use of lagged explanatory variables as instruments is partly disputed (see, e.g., Roberts & Whited, 2013). Therefore, I also rely on other approaches, although I consider the IV as appropriate for the reasons outlined in this section.

decision, it is likely not to have been based on the firm's tax practice—in particular as taxes were largely not seen as part of sustainable investing in or before 2010. In addition, this IV only captures the described 'old' investors from their PRI signing year onward. These investors' decisions to sign the PRI should not have been driven by an investee firm's future tax behavior. For the IV approach, I employ the lag of this variable ( $t-2$ ), *lag\_old\_PRI\_IO*.<sup>50</sup>

The estimation of industry fixed effects takes different periods into account and further does not control for industry-specific shocks that could affect firms' tax avoidance decisions and might partly be captured by sustainable institutional ownership as well. Thus, I employ industry-year fixed effects in the following analyses that use ownership variables from a prior period as IVs and analyze subgroups of sustainable institutional investors based on an assumed temporal structure.<sup>51</sup> Before, I test and find that my main regression result using *PRI\_IO* is robust to using industry-year fixed effects (Column (1), Table 3.7).

The results of the 2SLS regressions are provided in Table 3.7. Columns (2) and (4) present the results for the first-stage regressions. As expected, the coefficients of *lag\_PRI\_IO* and *lag\_old\_PRI\_IO* are positive and statistically significant. This indicates that sustainable institutional ownership is higher for firms with equity that has been owned to a greater extent by sustainable institutional investors or the subgroup of old, long-term investors in the prior period. To ensure that the relevance condition of the IVs is met, I consider different test statistics. The under-identification tests based on the Kleibergen and Paap (2006) rk LM statistic show that the equations are not under-identified. The *F*-statistic of both IVs exceeds the

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<sup>50</sup> In my setting, a valid IV has to be correlated with *PRI\_IO*, the endogenous explanatory variable (relevance condition), without being directly correlated with tax avoidance as the outcome variable (exclusion condition). Rather, the IV should only affect tax avoidance through its impact on sustainable institutional ownership in  $t-1$ . I expect that the two IVs fulfill both conditions. Greater ownership by sustainable institutional investors or the subgroup of old investors in the preceding period is presumably correlated with a higher level of sustainable institutional ownership in the next year, so that the relevance condition is met. While the exclusion restriction of an IV is inherently not testable (Luong et al., 2017), a direct relation between the variables and tax avoidance in the current year cannot be expected, analogously (but even more so) due to the aforementioned reasons for using lagged ownership variables and tax avoidance decisions being made in the current year.

<sup>51</sup> While the industry fixed effects estimator uses the mean of all observations of a given industry, averaged across all periods and firms, industry-year fixed effects employ the mean of all observations of a given group (industry and time) in one period (Verbeek, 2021). Thus, they control for the average tax avoidance in an industry-year.

conventional threshold of 10 (Staiger & Stock, 1997), which suggests that the IVs are not weak. In addition, both the Cragg–Donald Wald  $F$ -statistic and the Kleibergen–Paap Wald rk  $F$ -statistic are above the 10% critical value of the weak-identification test by Stock and Yogo (2005).<sup>52</sup> The null hypothesis that the estimators are weakly identified is hence rejected.

The results of the OLS second-stage regressions are presented in Columns (3) and (5). The coefficient of *PRI\_IO* remains statistically significant and negative. The 2SLS analyses hence confirm my prior finding of a reduction in investee firms’ tax avoidance due to larger ownership by sustainable institutional investors. They further corroborate that the effect is directed from sustainable institutional ownership to tax avoidance.<sup>53</sup>

The generated variable for the old long-term investors (the investment decisions of which should, by definition, not depend on tax avoidance) further enables me to refine my previous analyses. First, I analyze the impact of these investors for which endogeneity is unlikely to be an issue. Column (6) shows the corresponding results when *old\_PRI\_IO* (measured in  $t-1$ ) is employed in Equation (3.1). The negative and significant coefficient suggests that this subgroup of investors engaging in sustainable investing reduces the tax avoidance of investee firms.<sup>54</sup> Second, by subtracting the values of this variable from the total percentage of equity held by all sustainable institutional investors (*PRI\_IO* less *old\_PRI\_IO*), I obtain the aggregated share of equity held by sustainable institutional investors that were particularly ‘attracted’ by a firm’s tax behavior if reverse causality existed, denoted as *new\_PRI\_IO*. In an untabulated analysis, I regress tax avoidance on this variable in  $t+1$  to test

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<sup>52</sup> I take both  $F$ -statistics into account, as the Cragg–Donald statistic assumes homoscedastic (i.i.d.) errors, whereas the Kleibergen–Paap rk statistic is valid in the absence of i.i.d. errors and more suitable in the presence of clustering (see, e.g., Baum et al., 2007).

<sup>53</sup> Even though the tests indicate no problems with the instruments used, I also use each IV for reduced form estimations, which yields consistent results. For brevity, I do not show the results.

<sup>54</sup> In an untabulated test, I use less stringent assumptions to create a subgroup of sustainable institutional investors that may be less affected by endogeneity. Instead of requiring a continuous ownership stake in the investee firm since 2010, I consider investors that had a stake in the firm three years before the year under consideration, so that current tax avoidance is unlikely to have been the reason for the investment. The coefficient of the variable capturing the sum of these investors’ ownership percentages is negative and significant. Thus, my result is robust to using a different definition for *old\_PRI\_IO*.

whether tax avoidance induces this subgroup to invest in a firm. I do not find evidence that investee firms' tax avoidance is related to the subsequent years' ownership by these investors that could have integrated tax into their investment choices. Next, I analyze whether this subgroup of sustainable institutional investors affects investees' tax avoidance by estimating Equation (3.1) using *new\_PRI\_IO* (measured in  $t-1$ ). While the coefficient is negative, it is insignificant (Column (7)), indicating that this subgroup does not drive my previous results. Last, in Column (8), I consider both the old sustainable institutional investors and the newer ones. I again document a negative, significant coefficient for *old\_PRI\_IO* and a negative, although insignificant one for *new\_PRI\_IO*. Consequently, I conjecture that the effect of my main analysis is not based on the ownership percentage held by sustainable institutional investors that could be more affected by a potential endogeneity problem.

Overall, the results confirm my prior findings. These analyses lend additional credence to the assumption that the documented effect is not caused by sustainable institutional investors targeting investee firms with responsible tax practices.

**Table 3.7: Addressing Endogeneity Concerns**

Approach	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Industry-Year FE	2SLS			Analyses of Subgroups of Sustainable Institutional Investors			
IV		<i>lag_PRI_IO</i>		<i>lag_old_PRI_IO</i>				
Dependent Var.	<i>TA_CETR</i>	<i>PRI_IO</i>	<i>TA_CETR</i>	<i>PRI_IO</i>	<i>TA_CETR</i>	<i>TA_CETR</i>	<i>TA_CETR</i>	<i>TA_CETR</i>
<i>lag_PRI_IO</i>		0.882*** (0.000)						
<i>lag_old_PRI_IO</i>				0.718*** (0.000)				
<i>PRI_IO</i>	-0.067*** (0.000)		-0.075*** (0.000)		-0.241*** (0.000)			
<i>old_PRI_IO</i>						-0.174*** (0.000)		-0.179*** (0.000)
<i>new_PRI_IO</i>							-0.002 (0.903)	-0.022 (0.131)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Country Dummies	✓	✓	✓	✓	✓	✓	✓	✓
Industry-Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	14,870	12,851	12,851	12,851	12,851	14,870	14,870	14,870
Adjusted R <sup>2</sup>	0.261	0.867	0.265	0.585	0.244	0.265	0.258	0.265

Notes: Table 3.7 reports the results of addressing endogeneity concerns. In Column (1), I reestimate Equation (3.1) with *PRI\_IO* using industry-year fixed effects. Results of the 2SLS estimations are shown in Columns (2) to (5). Columns (2) and (4) show the first-stage results. Columns (3) and (5) present the results from the second-stage estimation. In Columns (2) and (3), I use the lag of *PRI\_IO*, *lag\_PRI\_IO*, as the IV, i.e., the percentage of total equity owned by sustainable institutional investors that are PRI signatories in *t-2*. Columns (4) and (5) are based on a 2SLS approach using *lag\_old\_PRI\_IO* as the IV. This variable is the lag (*t-2*) of *old\_PRI\_IO*, i.e., the sum of all the shares of equity held by investors in *t-1* that, by definition, could not have invested in the investee firm due to their sustainability preferences with regard to tax. These investors have already had stakes in the considered investee firm in 2010 and have held the stake throughout but only signed the PRI after 2010. Column (6) shows the estimates when employing *old\_PRI\_IO* (*t-1*) in Equation (3.1). In Column (7), I regress *new\_PRI\_IO* (*t-1*) on tax avoidance. This variable is calculated as *PRI\_IO* less the investors falling under the definition of *old\_PRI\_IO*, hence capturing investors that have invested in the investee firm more recently and could have been attracted by its tax practice. I consider the effect of both *new\_PRI\_IO* and *old\_PRI\_IO* on tax avoidance in Column (8). Definitions of all variables are provided in Table A3.1 in the Appendix. The regressions include the control variables described in Section 3.3.3. Country dummies and industry-year fixed effects are included in all regressions but not reported. All estimation results are based on robust standard errors clustered at the firm level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.



### 3.4.5 Robustness Tests

To assess the robustness of my main results on the impact of sustainable institutional investors on corporate tax avoidance, I conduct additional tests. Table 3.8 shows the results.<sup>55</sup>

First, I present the results for different tax avoidance measures. Besides ETRs, book-tax differences are often used in tax research to estimate a firm's tax avoidance. Therefore, I use the total book-tax differences (*TBTD*) as the dependent variable in Column (1). This variable captures both temporary and permanent book-tax differences and has been employed to measure a firm's overall tax avoidance activities in the prior literature (e.g., Chung et al., 2019; B. Li et al., 2021). Higher values of *TBTD* indicate stronger engagement in tax planning by the investee firm. I use another alternative tax avoidance measure in Column (2) to account for the fact that my primary proxy, *TA\_CETR*, might not be consistent across countries and over time if changes in tax or accounting regulations have occurred. I follow Hasan et al. (2022) and generate an indicator variable for tax avoidance, *Dummy\_TA\_CETR*, which is less affected by such variations. The dummy variable is equal to one if a firm's tax avoidance is in the highest tercile for the country-year and zero otherwise. I run a logit regression when estimating Equation (3.1) with this dependent variable.

Second, I perform regressions with several alternative fixed effects in Columns (3) to (5). Column (3) presents the regression results when relying on an alternative industry classification scheme (Fama-French 48) for the industry fixed effects. Firm fixed effects instead of industry fixed effects are used in Column (4). By this means, I control for unobserved, time-invariant firm attributes that might affect a firm's tax behavior (e.g., managerial characteristics) and potentially drive the effect of sustainable institutional ownership on tax avoidance. In Column (5), I additionally employ industry-year fixed effects (see, e.g., Dyreng et al., 2022) to

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<sup>55</sup> For brevity, I do not present the results of supplemental tests in which I ensure that my results are not dependent on the choice of standard error clustering. My results remain unchanged when using standard errors clustered by industry or two-way clustered standard errors by country and year.

control for industry shocks or changes in industry-specific tax avoidance opportunities, e.g., due to tax audit intensity or frequency varying by industry (Bird et al., 2018).

Throughout all the specifications presented in Table 3.8, the coefficient of *PRI\_IO* is negative and statistically significant. Overall, the robustness tests corroborate my finding that sustainable institutional investors reduce the extent of corporate tax avoidance of investee firms.

**Table 3.8: Robustness Tests**

Dependent Var.	(1) Alternative Tax Avoidance Measures		(3) Alternative Fixed Effects		
	<i>TBTD</i>	<i>Dummy_</i> <i>TA_CETR</i>	Fama- French 48 FE	Firm FE	Firm and Industry- Year FE
			<i>TA_CETR</i>	<i>TA_CETR</i>	<i>TA_CETR</i>
<i>PRI_IO</i>	-0.004* (0.064)	-0.011*** (0.000)	-0.072*** (0.000)	-0.114*** (0.000)	-0.114*** (0.000)
<i>Size</i>	-0.049** (0.016)	-0.004 (0.884)	0.121 (0.356)	-1.099** (0.044)	-0.974* (0.083)
<i>Leverage</i>	-0.202 (0.309)	0.800*** (0.000)	4.913*** (0.000)	0.885 (0.520)	0.451 (0.753)
<i>Intangibles</i>	-0.740*** (0.000)	-1.225*** (0.000)	-3.437*** (0.001)	-5.064** (0.028)	-4.974** (0.028)
<i>ESGScore</i>	0.000 (0.730)	-0.006*** (0.006)	-0.031*** (0.001)	-0.001 (0.939)	-0.002 (0.862)
<i>MBRatio</i>	-0.044*** (0.000)	0.013 (0.160)	0.105** (0.012)	-0.033 (0.528)	-0.024 (0.657)
<i>Ch_Sales</i>	0.009*** (0.000)	0.011*** (0.000)	0.051*** (0.000)	0.026*** (0.000)	0.027*** (0.000)
<i>RoE</i>	1.575*** (0.000)	-1.048*** (0.000)	-5.065*** (0.000)	-0.660 (0.469)	-0.286 (0.759)
<i>PPE</i>	0.009 (0.963)	0.812*** (0.002)	6.344*** (0.000)	-0.560 (0.849)	-1.927 (0.522)
<i>Cash</i>	1.471*** (0.000)	0.226 (0.538)	1.059 (0.533)	0.248 (0.915)	-0.844 (0.719)
Year Dummies	✓	✓	✓	✓	
Country Dummies	✓	✓	✓		
Industry FE	✓	✓	✓		
Firm FE				✓	✓
Industry-Year FE					✓
Observations	13,804	14,887	14,800	14,501	14,451
R <sup>2</sup>	0.178		0.258	0.603	0.632
Pseudo R <sup>2</sup>		0.099			

Table continued on the next page.

### Table 3.8 (continued)

Notes: Table 3.8 reports the results of estimating Equation (3.1) with alternative tax avoidance measures and fixed effects. Column (1) shows the results when *TBTD* (total book-tax differences) is the dependent variable. In Column (2), a logit model is estimated with *Dummy\_TA\_CETR* as the dependent variable. This variable is equal to one if a firm's tax avoidance (*TA\_CETR*) is in the highest tercile for the country-year and zero otherwise. Columns (3) to (5) contain the results of varying fixed effects with *TA\_CETR* as the dependent variable. In Column (3), the industry fixed effects are constructed based on a different industry classification scheme, the Fama-French 48 classification. I employ firm fixed effects in Column (4). Column (5) presents the results of using firm fixed effects and industry-year fixed effects. Definitions of all variables are provided in Table A3.1 in the Appendix. Year dummies and country dummies are included in the regressions as indicated in the respective columns. The industry fixed effects in Columns (1) and (2) and industry-year fixed effects in Column (5) are based on two-digit SIC codes. All estimation results are based on robust standard errors clustered at the firm level. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## 3.5 Conclusion

Sustainable institutional investors are an incrementally significant group of shareholders that claim to incorporate ESG issues into their investment choices and ownership decisions. While their impact on investee firms' environmental and social performance has been examined by prior studies (e.g., Dyck et al., 2019; Kordsachia et al., 2022), it is unclear whether these investors consider corporate tax responsibility as part of their commitment to sustainability.

In this study, I investigate whether and in what manner sustainable institutional investors influence the corporate tax avoidance of investee firms, using a sample of US and EU firms over the period 2011 to 2021. I hypothesize and provide robust evidence that sustainable institutional investors mitigate investee firms' tax avoidance activities. For non-sustainable institutional investors, I document the opposite effect. In addition, I show that this impact has evolved over time, which is in line with the emerging promotion of tax responsibility as an ESG issue in recent years.

In cross-sectional analyses, I examine several characteristics of sustainable institutional investors that could also affect how these investors shape investees' tax behavior. I do not find evidence that the investment horizon of sustainable institutional investors is relevant. Rather, my results suggest that the familiarity with the sustainability principles due to a longer membership time as a PRI signatory intensifies the impact. I further document that domestic and US sustainable institutional investors decrease the magnitude of tax avoidance by investee

firms. In addition, the negative effect of investors that are committed to SRI on corporate tax planning is stronger in US than in EU investee firms. Last, I find some evidence that less tax avoidance prevails in firms with a higher ownership percentage held by independent sustainable institutions that are active monitors. Tests of ownership concentration suggest that the collective action of sustainable institutional investors enables the reduction of tax avoidance.

To alleviate endogeneity concerns and provide evidence supporting the effect of sustainable institutional ownership on tax avoidance, I use lagged ownership variables in all the regressions, run 2SLS regressions using IVs and perform additional estimations to analyze specific subgroups of institutional investors engaging in SRI. My results are also robust to the employment of alternative tax avoidance measures, fixed effects, and standard error clustering.

The consideration of taxes by sustainable institutional investors is presumably continuing to increase because the regulations promoting tax in sustainable finance are advancing. Future research could reassess and compare the relationship between EU investors engaging in SRI and corporate tax avoidance for the years before and after the implementation of the SFDR in 2021 to evaluate the regulation's effect. In addition, future investigations could assess the difference between US and EU investors in more detail. In the case of a larger sample, propensity score matching could be performed to analyze investee firms that are comparable regarding certain characteristics and, in particular, the ownership shares of US and EU sustainable institutional investors, respectively. Moreover, I cannot unambiguously determine whether US investors mitigate corporate tax avoidance or whether the owner type of domestic investors drives my results. A worldwide sample of investee firms with greater variation in the domestic ownership variable might allow for more insights. Last, a detailed examination of sustainable institutional investors' monitoring incentives and mechanisms is an outstanding empirical task. For example, researchers could employ voting data to establish whether and how institutional investors use the 'voice' option (e.g., concerning tax issues) differently after signing the PRI.

## Appendix

**Table A3.1: Variable Definitions**

Variable	Definition	Source
<b>Dependent Variables (Tax Avoidance Measures)</b>		
<i>TA_CETR</i>	= Modified cash ETR computed as $\frac{(PTE \times STR) - TXPD}{PTE}$ , where <i>PTE</i> : pre-tax earnings (pi) less special items (spi), <i>STR</i> : headquarter country's statutory tax rate, and <i>TXPD</i> : current-year cash taxes paid (txpd).	Compustat Global & North America; corporate tax summaries of Ernst & Young [EY], KPMG, and Pricewaterhouse-Coopers [PwC]
<i>TBTD</i>	= Total book-tax differences computed as $\frac{TXDI + (STR - ETR) \times PI}{L_{AT}}$ , where <i>TXDI</i> : deferred tax expense (txdi), <i>STR</i> : headquarter country's statutory tax rate, <i>ETR</i> : GAAP ETR equal to income tax expense (txt) divided by pre-tax income (pi), <i>PI</i> : pre-tax income (pi), <i>L<sub>AT</sub></i> : lagged total assets (at).	Compustat Global & North America
<i>Dummy_TA_CETR</i>	= Dummy variable equal to one if the firm is in the top tercile when ranking tax avoidance ( <i>TA_CETR</i> ) by country and year and zero otherwise.	Compustat Global & North America; corporate tax summaries of EY, KPMG, and PwC
<b>Ownership and Ownership Characteristics Variables</b>		
<i>PRI_IO</i>	= Percentage of total equity owned by sustainable institutional investors that are PRI signatories in <i>t-1</i> .	Refinitiv Eikon
<i>IO</i>	= Percentage of total equity owned by institutional investors in <i>t-1</i> .	Refinitiv Eikon
<i>NonPRI_IO</i>	= Percentage of total equity owned by institutional investors that are not PRI signatories in <i>t-1</i> .	Refinitiv Eikon
<i>Inv_Horizon</i>	= Equity-weighted average of the years since PRI signatories' first investments in the investee firm in <i>t-1</i> .	Refinitiv Eikon
<i>Signatory_Time</i>	= Equity-weighted average of the years since the PRI signatories that have invested in the firm signed the PRI in <i>t-1</i> .	Refinitiv Eikon
<i>PRI_IO_Domestic</i>	= Percentage of total equity owned by domestic sustainable institutional investors, i.e., investors that are PRI signatories in <i>t-1</i> and located in the same country as the investee firm.	Refinitiv Eikon
<i>PRI_IO_Foreign</i>	= Percentage of total equity owned by foreign sustainable institutional investors, i.e., investors that are PRI signatories in <i>t-1</i> and not located in the same country as the investee firm.	Refinitiv Eikon
<i>PRI_IO_US</i>	= Percentage of total equity owned by sustainable institutional investors that are PRI signatories in <i>t-1</i> and located in the US.	Refinitiv Eikon
<i>PRI_IO_EU</i>	= Percentage of total equity owned by sustainable institutional investors that are PRI signatories in <i>t-1</i> and located in the EU.	Refinitiv Eikon
<i>PRI_IO_Indep</i>	= Percentage of total equity owned by sustainable institutional investors in <i>t-1</i> that are classified as independent institutions, i.e., investment advisers, mutual funds, and independent research firms (Ataullah et al., 2022; Ferreira & Matos, 2008).	Refinitiv Eikon

**Table A3.1: Variable Definitions (continued)**

<i>PRI_IO_Grey</i>	= Percentage of total equity owned by sustainable institutional investors in <i>t-1</i> that are classified as grey institutions, i.e., banks and trusts, insurance companies, endowment funds, and pension funds (Ataullah et al., 2022; Ferreira & Matos, 2008).	Refinitiv Eikon
<i>largest_PRI_IO</i>	= Percentage of total equity owned by the largest sustainable institutional investor in <i>t-1</i> .	Refinitiv Eikon
<i>largest10_PRI_IO</i>	= Percentage of total equity owned by the 10 largest sustainable institutional investors in <i>t-1</i> .	Refinitiv Eikon
<i>notlargest_PRI_IO</i>	= Percentage of total equity owned by sustainable institutional investors in <i>t-1</i> that are not the largest.	Refinitiv Eikon
<i>notlargest10_PRI_IO</i>	= Percentage of total equity owned by sustainable institutional investors in <i>t-1</i> that are not the 10 largest.	Refinitiv Eikon
<i>old_PRI_IO</i>	= Percentage of total equity owned by sustainable institutional investors in <i>t-1</i> that have already been an investor of the considered investee firm in 2010 and had a stake in the firm throughout but only signed the PRI after 2010.	Refinitiv Eikon
<i>new_PRI_IO</i>	= Percentage of total equity owned by sustainable institutional investors that do not fall under the definition of <i>old_PRI_IO</i> in <i>t-1</i> , calculated as <i>PRI_IO</i> less <i>old_PRI_IO</i> .	Refinitiv Eikon
<b>Control Variables</b>		
<i>Size</i>	= Natural logarithm of total assets (at).	Compustat Global & North America
<i>Leverage</i>	= Long-term debt (dltt) scaled by total assets (at).	Compustat Global & North America
<i>Intangibles</i>	= Intangible assets (intan) scaled by total assets (at). Missing values of intangibles are set to zero.	Compustat Global & North America
<i>ESGScore</i>	= ESG score measuring a firm's overall CSR performance, effectiveness, and commitment.	Refinitiv Eikon
<i>MBRatio</i>	= Market-to-book ratio, calculated as the market value of equity (total shares outstanding multiplied by close price) to the book value of equity.	Refinitiv Eikon
<i>Ch_Sales</i>	= Change in sales (sale) from year <i>t-1</i> to year <i>t</i> , scaled by year <i>t-1</i> sales.	Compustat Global & North America
<i>RoE</i>	= Return on equity, calculated as pre-tax income (pi) less extraordinary items (xi) scaled by equity (ceq).	Compustat Global & North America
<i>PPE</i>	= Property, plant, and equipment (ppent) scaled by total assets (at).	Compustat Global & North America
<i>Cash</i>	= Cash (ch) scaled by total assets (at).	Compustat Global & North America

Notes: Table A3.1 presents definitions of the variables employed in my analyses. All financial data are converted into US dollars. The prefix '*lag\_*' describes that a variable is measured in the previous period (*t-2* for ownership variables).

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## **Chapter 4**

### **Tax Transparency through Mandatory Qualitative Disclosures – Determinants and Effects of UK Tax Strategy Reports**

# **Tax Transparency through Mandatory Qualitative Disclosures – Determinants and Effects of UK Tax Strategy Reports**

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## **Abstract:**

This paper examines the determinants and effects of qualitative and public tax disclosures. It is largely unknown whether mandatory non-numeric tax disclosures as an alternative form of tax transparency can achieve desired objectives. The UK tax strategy disclosure regulation, enacted in the UK Finance Act 2016, mandates large firms to publicly disclose information on their tax strategy. The regulation is intended to improve transparency around a firm's approach to tax and to limit tax avoidance. We investigate the disclosure characteristics of a sample of hand-collected tax strategy reports and find that firms previously engaged in higher levels of tax avoidance provide poorer disclosures. Our results suggest that tax-avoiding firms exploit the legal leeway and strategically reduce the level of transparency in their reports. Moreover, we document increasing effective tax rates for affected UK firms after the regulation came into effect. Our findings indicate that qualitative tax disclosures are effective in curbing tax avoidance. In light of an ongoing call for more corporate tax transparency, our results should be of interest to policymakers worldwide when designing tax transparency regulations.

**Keywords:** Tax Transparency, Tax Strategy, Tax Avoidance, Disclosure

**JEL Classifications:** F23, H25, H26, M41, M48

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## 4.1 Introduction

In recent years, various disclosure initiatives have been introduced on a national and global scale to enhance corporate tax transparency, which is considered a possible corrective to corporate tax avoidance. However, the efficacy of tax transparency in mitigating aggressive tax planning is unclear. Prior studies on this subject mainly examine quantitative or private tax disclosures and either find a decrease in tax avoidance (Dyreng et al., 2016; Gupta et al., 2014; Henry et al., 2016; Joshi, 2020; Overesch & Wolff, 2021) or no or only minor effects (Honaker & Sharma, 2017; Hoopes et al., 2018). In this study, we examine the determinants and effects of specific qualitative and public tax disclosures, namely the UK tax strategy reports. In light of the ongoing efforts to understand and change corporate tax avoidance behavior, non-numeric tax disclosures as an alternative form of tax transparency are becoming increasingly relevant. In this regard, insights on this type of disclosure are of particular interest (Müller et al., 2020).

The UK tax strategy disclosure regulation is a unique disclosure initiative that mandates large firms to publicly disclose qualitative information in an entirely tax-related document (UK tax strategy). The regulation, enacted in the UK Finance Act [FA] 2016, is effective for financial years starting after September 15, 2016, and applies to ‘qualifying’ UK companies and groups with a turnover exceeding £200 million and/or a balance sheet total above £2 billion and to multinational enterprises [MNEs] with a UK presence. The legislation stipulates that the tax strategy has to be published online on an annual basis and that information on UK taxation has to be disclosed in four separate categories: (1) approach to risk management and governance arrangements, (2) attitude toward tax planning, (3) level of accepted risk and (4) approach toward dealings with the UK tax authority, Her Majesty’s Revenue and Customs [HMRC]. Additional disclosures on tax can be provided voluntarily.

The purpose of the tax strategy regulation is twofold. First, it aims to improve transparency around a firm’s tax behavior toward HMRC, consumers and other stakeholders. Second, the regulation is expected to curb tax avoidance (HMRC, 2015c). Accordingly, our

study is divided into two parts. First, we investigate if prior tax avoidance and other firm characteristics determine certain disclosure characteristics of a tax strategy report. Second, we analyze if the regulation is useful for restricting tax avoidance.

The tax strategy regulation provides an ideal setting to analyze if and how firms formulate public tax disclosures strategically, as firms can decide on the length and the usage of boilerplate (similar) language or of a specific tone. Based on survey evidence, HMRC argues that the level of codification and content of a tax strategy are clear indicators for tax avoidance (HMRC, 2015a). Similarly, prior literature shows that firms reduce the quality of their disclosures in an attempt to mask their engagement in tax avoidance (Akamah et al., 2018; Dyreng et al., 2020; Hope et al., 2013) and that a firm's tax behavior is associated with textual characteristics of corporate disclosures (Beuselinck et al., 2018; Inger et al., 2018; Law & Mills, 2015). We conduct an empirical analysis of the relationship between a firm's tax avoidance and its degree of compliance with the tax strategy regulation, as well as the report's textual characteristics, as it is theoretically ambiguous. According to corporate culture theory, all decisions of a firm reflect a shared belief about the 'right' corporate behavior (Hermalin, 2001; Kreps, 1990). If a firm's culture does not incorporate society and hence considers tax avoidance legitimate, the tax strategy report as a means of public transparency is likely to be shorter and of lower quality. By contrast, building on legitimacy theory that assumes the existence of a 'social contract' between a firm and society (Mathews, 1997; Shocker & Sethi, 1973), tax-avoiding firms are presumably disclosing longer and qualitatively superior (more transparent) reports to change external perception and mitigate the adverse consequences of their behavior, which is likely perceived as a breach of this contract (Deegan, 2002).

To obtain our sample of tax strategy reports, we identify all firms subject to the disclosure regulation and manually collect their tax strategy reports using a specific search algorithm, which results in a sample of 2,012 initial reports. If possible, we divide each report into the four mandatory categories and the voluntary category. We then perform several text

mining steps to generate variables that capture the reports' disclosure characteristics. Next, we estimate cross-sectional regressions using firm-level data from the pre-regulation period to avoid potential confounding effects of the regulation on firm characteristics and tax avoidance and alleviate concerns of endogeneity. Prior tax avoidance is proxied by a long-run Generally Accepted Accounting Principles [GAAP] effective tax rate [ETR] (Dyreng et al., 2008) over the years from 2011 to 2015.

Our results suggest that disclosure characteristics of a tax strategy report are determined by the level of prior tax avoidance. Prior tax avoidance is negatively associated with corporate transparency, which is consistent with corporate culture theory. Concretely, we find that firms with lower ETRs tend to be not fully compliant with the regulation because they omit certain prescribed categories. Moreover, they provide less extensive information on the 'attitude toward tax planning' category, make shorter voluntary disclosures and use more uncertainty words in their reports. Taken together, firms provide less transparent tax strategy reports and are less likely to fully comply with the regulation if prior tax avoidance is high.

In the second part of our study, we test if the disclosure regulation is effective in reducing tax avoidance. HMRC expects the regulation to improve corporate tax behavior via public scrutiny and an obligatory approval of a firm's tax strategy by its executive board. The effectiveness of both mechanisms is disputed. First, while some surveys and empirical studies document an effect of public scrutiny and the related reputational costs on tax avoidance (e.g., Graham et al., 2014; Hanlon & Slemrod, 2009), others do not find evidence for this effect (e.g., Gallemore et al., 2014; Hasegawa et al., 2013). In addition, it is uncertain if reputational costs can result from qualitative disclosures. For that to happen, a firm pursuing tax avoidance must risk having its behavior discovered because of its tax strategy. According to signaling theory, a separating equilibrium occurs in which such a firm does indeed send signals in its tax strategy report that are different to those of a firm not avoiding taxes (Bergh et al., 2014; Spence, 1974). However, if the reports do not signal firms' actual tax behavior, a pooling equilibrium will

occur in which all firms send the same signal (Middleton & Muttonen, 2020). Second, the responsibility of the board for the tax strategy can either discourage tax avoidance (HMRC, 2015a) or encourage it if the board is tempted to maximize profits (Freedman et al., 2009). Ex ante, it is thus unclear if the tax strategy regulation can limit tax avoidance.

Conducting ordinary least squares [OLS] regression analyses using a difference-in-differences [DiD] methodology and various matching and reweighting techniques, we find that UK firms subject to the disclosure regulation report higher ETRs in the post-regulation period. First, we use an unmatched sample of 50 firms above the legal turnover threshold as treatment firms and 50 firms below the turnover threshold as control firms. In additional regressions, we employ propensity score matching [PSM], a commonly used matching technique to alleviate concerns regarding a self-selection bias and to improve covariate balance. Our finding is supported by a series of robustness tests. In sum, our results suggest that the tax strategy disclosure regulation can limit corporate tax avoidance.

Our study contributes to two strands of literature on tax transparency. First, we add to the research on the determinants of tax disclosures. Empirical studies suggest a direct link between firms' engagement in tax avoidance and the quality of disclosures. Robinson and Schmidt (2013) document that tax-aggressive firms provide less complete and less clear disclosures on Uncertain Tax Benefits [UTBs] that are prescribed by the US FIN 48 regulation. Kubick et al. (2016) show that firms engaging in tax avoidance are more likely to receive a tax-related comment letter by the US SEC, indicating that tax disclosures in these firms' financial statements are of lower quality. Moreover, tax-aggressive firms are found to have less readable financial statements (Beuselinck et al., 2018) and provide more complex tax footnotes in financial statements (Inger et al., 2018). However, problems of aggregation and attribution may arise when using multifaceted documents like annual reports to draw inferences about tax avoidance (Holland et al., 2016). The entirely tax-related disclosures of the UK FA 2016 allow to overcome these problems. Using a large sample of tax strategy reports, we are the first to

perform a sound empirical analysis of the determinants of mandatory and qualitative public tax disclosures. We show that tax-avoiding firms use the leeway when preparing the reports and strategically reduce the level of transparency. The reports can thus be incrementally useful for recipients considering this association. Our findings can enhance the understanding of how a firm's disclosure choices and information environment are related to tax avoidance.

Second, we contribute to the stream of literature on the effects of disclosure regulations on corporate tax avoidance. Prior studies on tax transparency primarily examine the effects of *quantitative* disclosure regulations on firms' tax behavior or investor reactions or investigate economic consequences (Dyreg et al., 2016; Henry et al., 2016; Joshi, 2020; Overesch & Wolff, 2021). Empirical evidence on the potential of *qualitative* disclosure requirements to alter firms' tax behavior is so far scarce. Mandating public and non-numeric tax disclosures, the UK regulation represents a unique research setting and, thus, allows us to expand the understanding of the effects in light of a novel tax transparency requirement.

Contemporaneous research on the tax strategy regulation provides only limited evidence regarding the determinants of tax strategy reports (Belnap, 2019; Bilicka et al., 2022; Xia, 2020).<sup>56</sup> Similar to our study, the effects of the UK regulation are analyzed by Xia (2020) and Bilicka et al. (2022). Both papers find no change in affected firms' ETRs. Requiring a rather high minimum threshold for control firms and performing PSM and reweighting techniques, we find robust evidence of a decrease in affected firms' tax avoidance in the post-regulation period relative to similar unaffected firms.<sup>57</sup> These approaches ensure the comparability of treatment and control firms and reduce selection bias (St. Clair & Cook, 2015). Further, we do not solely base our classification of the treatment and control group on the legal thresholds. For

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<sup>56</sup> The scope of the tax strategy samples also differs. Belnap (2019) investigates the tax strategies of US firms and Xia (2020) of 219 FTSE 350 firms. Bilicka et al. (2022) consider 56 UK-based MNEs and focus on tax strategy disclosures in annual reports. Using a worldwide sample of about 2,000 stand-alone tax strategy reports allows us to assess determinants of the reports on a large scale and to investigate additional determinants, such as geographic distance to the UK.

<sup>57</sup> Following a similar empirical approach as Xia (2020) and Bilicka et al. (2022), we also do not find an effect of the regulation on tax avoidance.

an unequivocal identification we verify whether firms subject to the regulation have actually published a report and non-affected firms have not.

Lastly, our paper has policy implications. Given that tax transparency is high on the global agenda, policymakers might consider imposing similar disclosure regulations. Recently, the issuer of the most widely adopted global standards for corporate sustainability reports [CSR], the Global Reporting Initiative [GRI], introduced the GRI 207 standard for public reporting on tax, which is similar to the UK tax strategy reports. Based on our results on the determinants of tax strategies, enhanced enforcement mechanisms to improve compliance seem advisable, as well as more narrowly prescribed contents to restrict the exploitation of the discretion inherent in textual disclosures by tax-avoiding firms. Additionally, our finding on the regulation's effectiveness in tackling tax avoidance suggests that qualitative tax disclosures are a useful tax enforcement tool.

The paper proceeds as follows. Section 4.2 describes the institutional background. Section 4.3 develops our hypotheses. In Section 4.4, we discuss our data and sample selection process. The empirical design and results on the determinants of tax strategy reports and the effects of the regulation are presented in Section 4.5 and Section 4.6, respectively. Section 4.7 concludes the study.

## **4.2 Institutional Background**

The insistent demand for tax transparency of MNEs, once initiated by tax activists and non-governmental organizations, has developed into a political movement on a global level. Revelations of mismatches between profits and taxes paid by well-known MNEs such as Starbucks, Google, Apple, and Amazon caused dissatisfaction because the public and other stakeholders deemed that large firms do not pay their 'fair share of taxes' (Gribnau & Jallai, 2017). Hence, these disparities have been widely criticized by society as unethical (Barford & Holt, 2013) and gave rise to the call for increased tax transparency as it is considered a possible corrective to tax avoidance (Christians, 2013; Oats & Tuck, 2019). The subject has thus moved

into the focus of policymakers worldwide who are intending to gain and provide additional information on firms' tax behavior in order to limit tax avoidance. For example, the European Commission stated in 2015 that it gives "high priority to improving tax transparency" since it is crucial for securing fairer taxation and can improve tax compliance, thereby tackling aggressive tax planning (European Commission, 2015).

Tax disclosure initiatives differ with respect to the nature of the content (quantitative vs. qualitative disclosures), the level of confidentiality (non-public vs. public disclosures) and the level of obligation (voluntary vs. mandatory disclosures). *Quantitative* disclosure initiatives have been the most prevalent so far. Initially, these initiatives targeted firms from specific industries (such as the extractive or finance industry) to disclose their tax payments and other financials to governments. In recent years, however, mandatory tax transparency regulations have emerged that are not limited to certain industries. While some of these disclosure requirements such as the US Foreign Account Tax Compliance Act [FATCA] or the Organization for Economic Co-operation and Development's [OECD] Country-by-Country Reporting [CbCR] demand confidential information to be released to authorities, there is a trend toward public disclosures (PricewaterhouseCoopers [PwC], 2015). In line with this development, the long advocated public CbCR has been approved as EU Directive (EU) 2011/251/EU in November 2011. In some countries (e.g., Australia, Denmark, Finland, Norway and Sweden), certain quantitative corporate tax information is already available to the public (PwC, 2016).

Although tax transparency initiatives continue to proliferate, requirements mandating firms to disclose *qualitative* information on tax are so far scarce. Existing qualitative disclosure regulations are either non-public or voluntary. Non-public tax disclosure requirements comprise, for instance, Schedule UTP in the US (disclosure of concise descriptions of uncertain tax positions), the EU Directive 2011/16/EU (disclosure of cross-border arrangements), or the UK Disclosure of Tax Avoidance Schemes regulation (disclosure of the nature and design of

tax avoidance activities). A public and voluntary tax transparency regulation was introduced in the Australian federal budget for 2016/2017.

In contrast to the aforementioned requirements, the UK tax strategy disclosure regulation stands out due to its qualitative content, obligatory nature and publicly accessible information. The objective of the new regulation is to ameliorate corporate tax transparency toward various stakeholders such as HMRC, shareholders and consumers by obliging firms to publish information on their approach to tax (HMRC, 2015c). In addition, the disclosures are supposed to alter corporate tax behavior and to improve tax compliance.

The UK tax strategy disclosure regulation, codified in Schedule 19 of the UK FA 2016, was initially announced in HMRC's Summer Budget 2015. First details of the regulation including the operative date were published in December 2015 (HMRC, 2015c). For financial years starting after September 15, 2016, the regulation mandates large firms with operations in the UK to publicly disclose a tax strategy report on an annual basis. The disclosure requirement applies to so-called 'qualifying companies' and 'qualifying groups', including UK companies, (sub-)groups and partnerships with a turnover exceeding £200 million and/or a balance sheet total above £2 billion in the previous financial year.<sup>58</sup> MNEs with a UK presence and more than €750 million global turnover are also affected.<sup>59</sup> According to Para. 17 (1) of Schedule 19, a tax strategy must include information presented in the following four categories: (1) approach to risk management and governance arrangements, (2) attitude toward tax planning, (3) level of accepted risk and (4) approach toward dealings with HMRC. Firms are free to integrate supplementary disclosures relating to taxation.<sup>60</sup> A tax strategy report has to be approved by the firm's executive board and published on the corporate website before the end of the current

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<sup>58</sup> For groups and sub-groups, consolidated turnovers or balance sheet totals of all relevant entities are taken into account. For details on the scope of regulation, please consult Schedule 19 of the UK FA 2016, Paras. 2-15.

<sup>59</sup> 'MNE' has the same meaning as under the OECD's CbCR Implementation Package from 2014. For MNEs, no de minimis threshold exists. A minor UK subsidiary or branch already qualifies an MNE as 'qualifying company'.

<sup>60</sup> We consider these voluntary disclosures as a fifth category. See Table A4.3 in the Appendix for examples of tax strategy reports.



financial year. To ensure compliance, the regulation sets out a penalty of £7,500 if a firm does not publish a tax strategy, or if the report lacks a mandatory category or does not remain available free of charge. However, no penalties exist if the presented tax strategy is actually not applied by the firm.

### **4.3 Hypotheses Development**

#### **4.3.1 Determinants of Tax Strategy Reports**

The UK tax strategy disclosure regulation does not prescribe a minimum disclosure quality or length, so that including the required categories is mostly the sole prerequisite to comply with the law. Given this considerable latitude in formulating the reports, we analyze whether the reports are heterogeneous and, if so, what determines a report's disclosure characteristics. Specifically, we scrutinize the relation between a report's disclosure characteristics and a firm's prior engagement in tax avoidance. This relation is unclear *ex ante*.

The corporate culture theory posits that a firm's culture influences its actions. All decisions of a firm reflect a set of shared values and beliefs in the 'right' corporate behavior (Hermalin, 2001; Kreps, 1990). Firms whose culture dismisses the interests of non-financial stakeholders engage in tax avoidance but not in activities for the sake of the public. This notion is in line with empirical studies indicating that corporate culture systematically affects corporate policies (e.g., Hoi et al., 2013, and Lee, 2020, document a negative relation between tax avoidance and CSR). Providing high-quality information in public disclosures is no integral part of the corporate culture of a tax-avoiding firm which focuses on profit maximization. The relevance of corporate culture for tax strategy reports is stressed by HMRC. Based on the results of a survey, HMRC states that “[c]ulture was seen to be hugely influential for tax strateg[ies]” (HMRC, 2015a) and that the content and characteristics of a tax strategy report are clear indicators for tax avoidance. More detailed reports are published by lower risk-appetite and

more compliance-focused firms, whereas firms engaging in risky tax planning keep their tax strategies more implicit and less detailed (HMRC, 2015a).<sup>61</sup>

Moreover, the public disclosure of tax-related information can be costly for firms. Firms pursuing tax avoidance strategies could be exposed to considerable reputational risks if they disclose information on their tax risks or tax planning which is likely to be perceived as unethical by the public. If the tax strategy report of such a firm falsely signals a responsible tax behavior, reputational costs can occur if the report's claims are revealed as unsubstantiated (Middleton & Muttonen, 2020). Furthermore, tax disclosures can involve different proprietary costs. Disclosures might implicitly reveal information that may attract competitors or induce suppliers or customers to renegotiate their contracts (Evers et al., 2016).<sup>62</sup> In addition, increased regulatory scrutiny and adverse political actions can result from disclosures that provide new information to tax authorities and regulators (Leuz & Wysocki, 2016).

Consequently, based on corporate culture theory and the potential costs related to tax disclosures, tax-avoiding firms are incentivized to withhold information and to provide more opaque tax disclosures. We assume that this relation is reflected in different disclosure characteristics of tax strategy reports. First, the degree of compliance with the law might be related to tax avoidance. It could be more advantageous for tax-avoiding firms not to include certain of the four prescribed categories in their report, in particular the one on tax planning. The financial penalty for non-compliance due to a missing category is negligible. Our explorative analysis shows that some reports do not cover all mandatory categories (Section 4.5.2). Second, the textual characteristics of a tax strategy report are assumed to be determined by a firm's tax behavior. Previous studies show that tax avoidance is related to textual information conveyed by the firm (Beuselinck et al., 2018; Inger et al., 2018), whereas others

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<sup>61</sup> Due to the small number of interviewed participants (35 decision-makers), HMRC's survey does not necessarily provide a convincing base for a new legislative requirement (Freedman & Vella, 2016).

<sup>62</sup> Explicit information on commercially sensitive information, however, does not have to be disclosed according to HMRC's guidance on the regulation (HMRC, 2016).

find that text-based measures even predict corporate tax avoidance (Law & Mills, 2015). While qualifying companies are obliged to publish a tax strategy that includes the prescribed categories, they have considerable discretion as to how and what to disclose. As a result, firms might limit their report to just a few words, use boilerplate, i.e., similar, language or a certain tone to shape the way the information is perceived. Thus, we expect firms to decide deliberately on their report's textual characteristics like *length*, *similarity* to other reports and *tone*.<sup>63</sup>

Taken together, the aforementioned arguments imply a negative relation between tax avoidance and the level of transparency in tax strategy reports. Firms with low prior ETRs might omit certain categories within their reports. Moreover, these firms might formulate less detailed and more similar tax strategy reports and include more uncertainty words. We state the following hypothesis:

*H1a: Tax-avoiding firms provide poorer (less transparent) tax strategy reports.*

However, the opposite relation between tax avoidance and tax transparency is possible. According to the legitimacy theory, a social contract exists between a firm and society (Mathews, 1997; Shocker & Sethi, 1973). For the firm, adverse consequences may occur if the public perceives the social contract as being violated, e.g., due to tax avoidance (Christensen & Murphy, 2004). As a result, firms engaging in tax avoidance might use corporate disclosures strategically in order to change external perception and improve or regain legitimacy (Deegan, 2002).

Some empirical studies document a positive relation between tax transparency and tax avoidance. For example, Balakrishnan et al. (2019) show that managers of tax-aggressive firms attempt to mitigate agency conflicts evolving from financial complexity by increasing various tax-related disclosures, and Kao and Liao (2021) find that tax avoidance is positively associated

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<sup>63</sup> While negative or positive words are most frequently used to measure a document's *tone*, we focus on uncertainty words. Analyzing linguistic uncertainty is more appropriate in the context of tax strategy reports (HMRC, 2015a). In particular, the usage of uncertainty words might facilitate the obfuscation of the actual tax behavior. For a description of the textual characteristics employed in our study, please refer to Section 4.4.

with voluntary tax disclosures in UK firms' CSR reports. Consistent with legitimacy theory, tax-avoiding firms might exploit the legal leeway in order to legitimize their behavior. Tax strategy reports of these firms are supposed to be longer and less similar, and to contain fewer uncertainty words. In particular, we expect this association to be more pronounced for the category on tax planning because this category is likely the most effective in shaping societal perception for legitimacy. In addition, tax-avoiding firms are more likely to include all categories within their reports. Hence, we state the opposite hypothesis to H1a:

*H1b: Tax-avoiding firms provide superior (more transparent) tax strategy reports.*

#### **4.3.2 Effects on Tax Avoidance**

The UK tax strategy disclosure regulation also aims at mitigating tax avoidance. HMRC expects the regulation to reduce tax avoidance via two mechanisms. The first of these is that scrutiny of a firm's approach toward tax planning and tax compliance by the public and HMRC is assumed to affect corporate tax behavior (HMRC, 2015b). Falling under public scrutiny can be costly for firms if it leads to reputational damages. Besides anecdotal evidence of consumer boycotts of Starbucks and Amazon in the UK caused by their low tax payments, the effects of public scrutiny and reputational costs on tax avoidance have been documented by survey evidence and empirical studies (C. R. Austin & Wilson, 2017; Dyreng et al., 2016; Graham et al., 2014; Hanlon & Slemrod, 2009; Hoopes et al., 2018).

For the regulation to lead to effective public scrutiny, the tax strategy report must provide stakeholders with meaningful information about a firm's tax behavior. Signaling theory suggests that a separating equilibrium occurs in which tax avoiders and tax-compliant firms send different signals (Bergh et al., 2014; Spence, 1974). If a tax avoider presents itself as a responsible taxpayer in its tax strategy report, this false signal will likely be refuted by other sources of information (e.g., annual reports or media reports) and the firm will face negative consequences. Accordingly, only firms not avoiding taxes will signal a responsible tax

behavior. Tax-avoiding firms are more likely to be identified so that the risk of adverse reputational effects increases. In the UK in particular, the risk of reputational costs is presumably high, as British society generally condemns tax avoidance (Fair Tax Mark, 2020). Thus, anticipated public scrutiny of tax strategies might induce firms to reduce tax avoidance.

Nonetheless, a tax strategy might not always signal if a firm is tax-aggressive or tax-compliant. Due to the binding nature of the disclosure regulation, a pooling equilibrium might occur in which all firms send the same signal (Middleton & Muttonen, 2020). If tax strategy reports are formulated in a boilerplate language irrespective of the firms' approaches to tax, they cannot be used to distinguish between tax-aggressive and tax-compliant firms. Firms will not feel restrained in their tax avoidance behavior (Freedman & Vella, 2016). In addition, the effectiveness of reputational costs in curbing tax avoidance has been questioned by empirical studies (Chen et al., 2019; Gallemore et al., 2014; Hasegawa et al., 2013).

Scrutiny by tax authorities can equally impact disclosure costs and influence corporate tax behavior. HMRC explicitly points out that material inconsistencies between published tax strategies and tax returns will be accounted for in the regular risk review (HMRC, 2015b). Accordingly, firms try to avoid having a 'red flag' raised in order to maintain advantages of being classified as low-risk. All else being equal, additional costs associated with a higher risk rating due to HMRC's scrutiny of the reports could incentivize firms to alter their tax behavior.

The second mechanism is based on a more pronounced discussion and a mandatory approval of the tax strategy by a firm's executive board (HMRC, 2015c). Aggressive tax planning might actively be discouraged if the board takes responsibility for the tax strategy (HMRC, 2015a). In light of the report's publication, the board might increasingly become aware of the potential reputational harm related to tax avoidance (Freedman & Vella, 2016). On the contrary, although the board might be concerned about the firm's reputation, maximizing profits by tax avoidance activities could have a higher priority for the board than for the tax

department (Freedman et al., 2009). Ultimately, the board's attitude will be impacted by investors' preferences of either stability and low reputational risks or cost minimization.

Taking the contradictory theories and prior empirical results into account, we cannot predict unambiguously if the UK tax strategy disclosure regulation can reduce tax avoidance. Nonetheless, we state that the regulation is capable to reduce tax avoidance:

*H2: Firms that are affected by the UK tax strategy disclosure regulation experience an increase in their ETRs relative to unaffected firms.*

#### **4.4 Data and Sample Selection**

We start our sample selection process by identifying all firms that are subject to the UK tax strategy disclosure regulation. We use the ownership structure of Bureau van Dijk's Amadeus database to determine all affected UK (sub-)groups and stand-alone companies.<sup>64</sup> We merge the ownership file with financial statement data from Amadeus to test if the relevant turnover and/or the balance sheet threshold is exceeded. Using the Compustat Global and North America databases, we identify MNE groups and merge them to the Amadeus ownership data to test for a UK presence. We include MNEs with at least one subsidiary in the UK.<sup>65</sup>

Based on our thorough list of affected firms and groups, we perform a manual search by entering a predetermined sequence of search terms per firm on Google in order to obtain the tax strategy report.<sup>66</sup> If the search is unsuccessful, we manually check the firm's website, in particular by screening investor relations and corporate governance documents. We end up with

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<sup>64</sup> The term 'UK group' means a group of firms whose parent firm is incorporated in the UK. A 'sub-group' consists of two or more firms based in the UK that are members of a larger group headed by a firm outside the UK. The regulation considers a firm to be a member of a group or sub-group if it is a 51% subsidiary of another firm. Correspondingly, we require an ownership link of 51% or more between a member of a group and its subsidiary.

<sup>65</sup> We acknowledge that the regulation also covers permanent establishments of foreign groups and UK partnerships that exceed the thresholds. Due to missing financial data, these groups and firms are not included in our sample.

<sup>66</sup> For each firm or group in our list, we perform a search combining the firm/group name with the following five terms on Google: (1) UK tax strategy, (2) UK tax statement, (3) UK approach to tax, (4) UK tax policy, (5) UK tax schedule 19 finance act 2016.

a dataset of 2,498 UK tax strategy reports. For our analyses, we examine each firm's initial report, leading to 2,012 tax strategy reports.<sup>67</sup>

Next, we conduct text preprocessing steps to obtain the mere content of each report. We start by converting the documents into text files and perform manual quality checks. We remove parts of the documents that do not per se relate to the tax strategy report such as addresses, hyperlinks, table of contents, page numbers, unrelated footnotes, etc. If possible, we then divide each report into the five categories as defined by the law.<sup>68</sup>

Using Python, we conduct several parsing and text mining steps to finally transform the raw qualitative content into quantitative measures. We perform cleaning steps, such as tokenizing and removing punctuation and so-called stopwords, before generating text mining variables that are commonly used in textual analysis (e.g., Loughran & McDonald, 2011; Tetlock, 2007). To obtain a measure for length (*Word Count*), we count the words in the report and in each category using NLTK, a prepackaged solution for parsing words. Furthermore, we are interested in the degree of boilerplate language between different reports. Firms might be encouraged to adopt text passages from other reports. We measure the highest percentage of similarity of a report to all other tax strategy reports in our sample (*Similarity*) or of different reports' categories by using the open-source software WCopyFind, following Belnap (2019). Lastly, we create a variable that reflects the degree of uncertainty word usage in a report or its categories (*Uncertainty*). This variable is based on a list of uncertainty words from Loughran and McDonald (2011) which aims to capture imprecision. As proposed by the authors, we perform minor adjustments to assure that the word list is adequate for our setting.<sup>69</sup>

Lastly, we obtain firm- and country-level data from various databases. Consolidated financial data are retrieved from Compustat Global and North America. We merge in capital

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<sup>67</sup> This number is in line with predictions that about 2,000 firms are subject to the legislation (Seely, 2021).

<sup>68</sup> Because there is no distinct denotation of each category header, we do not perform machine learning steps to divide the text passages of each report. In contrast, we perform a manual breakdown of each report by headlines or, in the case that those are missing, by content. Moreover, the classification was double-checked.

<sup>69</sup> Please refer to Table A4.1 in the Appendix for a detailed description of all variables.

market data from Refinitiv’s Eikon database. Using ownership and unconsolidated financial data from Amadeus, we identify the firms’ total number of UK subsidiaries and tax haven subsidiaries and generate a variable for UK intensity. We require non-missing data for each variable, which leaves us with 1,122 tax strategy reports. Table 4.1 depicts the sample selection.

**Table 4.1: Sample Selection**

Description	Observations
Retrieved tax strategy reports	2,498
Keeping only the initial tax strategy report per firm	(486)
Subtotal	2,012
Not included in Compustat	(69)
Subtotal	1,943
Observations with missing variables	(821)
Final Sample	1,122

Notes: Table 4.1 describes the process for obtaining the final sample of tax strategy reports.

## 4.5 Determinants of Tax Strategy Reports

### 4.5.1 Research Methodology

In accordance with our hypotheses H1a and H1b, we test the relation between disclosure characteristics of a tax strategy and prior tax avoidance. We estimate the following equation:

$$\begin{aligned}
 Disclosure\ Measure_i = & \beta_0 + \beta_1 ETR5_i + \beta_2 Tax\ Haven_i + \beta_3 Size_i + \beta_4 Leverage_i \\
 & + \beta_5 MtB_i + \beta_6 RoA_i + \beta_7 B2C_i + \beta_8 Big4_i + \beta_9 UK\ Distance_i \\
 & + \beta_{10} UK\ Intensity_i + Industry\ FE + u_i
 \end{aligned} \tag{4.1}$$

We use several variables that measure the disclosure of categories and textual characteristics of a tax strategy report as the dependent variable *Disclosure Measure*. To begin, we examine the association between the disclosure of categories in the reports and prior engagement in tax avoidance. Therefore, we first estimate a poisson regression model with *No. of Categories* as the dependent variable, counting the number of separate categories in a report running from one to five. Additionally, we estimate probit regression models with different indicators as the dependent variable. We use an indicator (*All Categories*) that equals one if a



firm reports on all five categories.<sup>70</sup> We also employ three indicators for the inclusion of specific categories in the report that equal one if a firm explicitly discloses a *Tax Planning* category, *Level of Risk* category, or a *Voluntary Disclosure* category, respectively.<sup>71</sup> Second, we test if a report's textual characteristics are related to tax avoidance using an OLS regression model. As described in Section 4.4, we utilize three separate measures (*Word Count*, *Similarity* and *Uncertainty*) to capture the textual characteristics of a report and its categories.

The independent variable of interest is *ETR5*, measuring a firm's prior engagement in tax avoidance using a five-year GAAP ETR. We average the ETR over the period from 2011 to 2015 to rule out year-to-year variation in the ETR. Thereby, we likewise avoid confounding effects of the regulation on the ETR and alleviate concerns of endogeneity. Moreover, we use the variable *Tax Haven*, which represents the percentage of a firm's total subsidiaries that are incorporated in countries classified as tax havens by Dyreng and Lindsey (2009).

In all regressions, we control for several firm characteristics that prior literature has shown to be associated with corporate disclosures (Campbell et al., 2014; Inger et al., 2018; Li, 2008). We use firm-level data from the year 2015, the last year before the implementation of the UK FA 2016, since the estimates might be biased if firm characteristics changed in anticipation of the law. The variables *Size*, *Leverage* and *RoA* are based on financial data from Compustat. We include *MtB* (market-to-book ratio) and *Big4*, an indicator equal to one if a firm is audited by a Big Four firm, both based on data from Refinitiv's Eikon database. We use the indicator *B2C* (business-to-consumer) that equals one if a firm belongs to the business-to-consumer sector as defined by Srinivasan et al. (2011). We employ two variables that refer to a firm's geographic and economic relation to the UK (*UK Distance* and *UK Intensity*). All specifications include industry fixed effects based on two-digit NAICS codes to account for

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<sup>70</sup> This indicator variable intends to identify the firms that are most transparent, irrespective of whether a category is obligatory or not. Therefore, we also consider the voluntary disclosure category.

<sup>71</sup> We do not consider the *Risk Management* and *Approach toward HMRC* categories because almost all firms include these two categories in their reports.

assumed industry-specific variation. By analyzing firms' initial tax strategy reports, we perform a cross-sectional analysis. Thus, we do not include year fixed effects or firm fixed effects in Equation (4.1). All financial variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. Definitions of the employed variables can be found in Table A4.1 in the Appendix.

#### **4.5.2 Descriptive Statistics and Explorative Analyses**

In this section, we provide descriptive statistics and explorative analyses for the different dependent variables used when estimating Equation (4.1). Panel A of Table 4.2 shows the descriptive statistics for the analysis of determinants of tax strategy reports. On average, firms include four (mean value of 4.2) out of five possible categories in their reports (*No. of Categories*), suggesting a rather high overall level of compliance. However, only 35.9% of the firms include all possible five categories (*All Categories*). Summary statistics regarding textual characteristics are largely consistent with prior literature. An average report in our sample exhibits a *Word Count* (logarithmized number of words) of 5.96, equal to 427 words. A firm's highest *Similarity* score with another report is on average 33.57%, which coincides with findings of Belnap (2019). Lastly, the variable *Uncertainty* shows that on average 1.2 out of 100 words can be categorized as uncertainty words.

**Table 4.2: Descriptive Statistics**

VARIABLES	Obs.	Mean	Std. Dev.	Q1	Median	Q3
<b>Panel A: Determinants of Tax Strategy Reports</b>						
<i>No. of Categories</i>	1,122	4.238	0.657	4.000	4.000	5.000
<i>All Categories</i>	1,122	0.359	0.480	0.000	0.000	1.000
<i>Tax Planning</i>	1,122	0.951	0.216	1.000	1.000	1.000
<i>Level of Risk</i>	1,122	0.676	0.468	0.000	1.000	1.000
<i>Voluntary Disclosure</i>	1,122	0.634	0.482	0.000	1.000	1.000
<i>Word Count</i>	1,122	5.962	0.427	5.680	5.958	6.234
<i>Similarity</i>	1,122	33.571	24.327	15.000	24.500	47.000
<i>Uncertainty</i>	1,122	1.200	0.736	0.687	1.099	1.619
<i>ETR5</i>	1,122	0.279	0.094	0.223	0.280	0.334
<i>Tax Haven</i>	1,122	0.077	0.108	0.000	0.045	0.111
<i>Size</i>	1,122	9.077	1.783	7.832	8.831	10.164
<i>Leverage</i>	1,122	0.184	0.141	0.074	0.166	0.274
<i>MtB</i>	1,122	0.901	0.825	0.297	0.884	1.404
<i>RoA</i>	1,122	0.086	0.067	0.042	0.071	0.111
<i>B2C</i>	1,122	0.237	0.425	0.000	0.000	0.000
<i>Big4</i>	1,122	0.562	0.496	0.000	1.000	1.000
<i>UK Distance</i>	1,122	6.593	3.969	6.205	8.625	8.813
<i>UK Intensity</i>	1,122	0.277	0.381	0.021	0.065	0.388
<b>Panel B: Effects on Tax Avoidance</b>						
<i>ETR</i>	494	0.239	0.144	0.182	0.212	0.260
<i>Size</i>	494	5.531	0.989	4.803	5.387	6.309
<i>RoA</i>	494	0.114	0.080	0.055	0.099	0.157
<i>Leverage</i>	494	0.093	0.112	0.000	0.042	0.158
<i>Capital Intensity</i>	494	0.208	0.215	0.040	0.140	0.299
<i>R&amp;D</i>	494	0.017	0.033	0.000	0.000	0.019
<i>Sales Growth</i>	494	0.094	0.213	-0.012	0.068	0.167
<i>Intangibles</i>	494	0.244	0.238	0.034	0.175	0.437

Notes: Table 4.2 presents descriptive statistics for our sample firms, requiring non-missing values for all variables employed in the regression analyses. Panel A reports the summary statistics for the sample used in our analysis of the determinants of tax strategy reports as described in Section 4.5. Panel B gives an overview of distributional characteristics for the matched sample used to investigate the effects on tax avoidance as presented in Section 4.6. For a detailed description of the variables employed, see Table A4.1 in the Appendix.

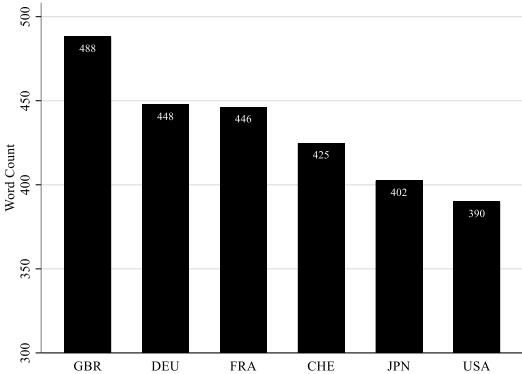
We also examine if the textual characteristics are country- and industry-specific. Panels A and B of Figure 4.1 illustrate the overall *Word Count* and *Similarity* per country.<sup>72</sup> The figure clearly suggests that the reports' *Word Count* and *Similarity* are country-specific, which is in line with studies providing evidence of variations in tax reporting across countries (e.g., Kvaal & Nobes, 2013). The variation reflects differences in firms' perceived relevance of the UK regulation. Explicitly, there is some kind of 'home-bias', considering that UK-based firms have

<sup>72</sup> For the sake of brevity, we do not plot *Uncertainty* per country and industry.

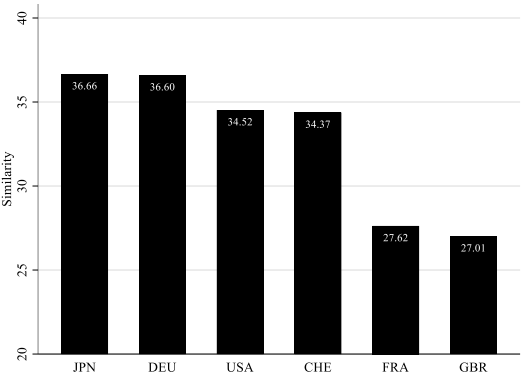
significantly longer and more individual reports. Our data also suggest that tax strategy reports clearly differ across industries (Panels C and D). Specifically, reports of firms in the extractive and finance industry are more individual. In addition, firms in the finance industry provide the longest reports. Therefore, firms in highly transparent industries<sup>73</sup> seem to have superior internal governance structures and reporting guidelines, leading to more tax transparency.

**Figure 4.1: Bar Charts on Word Count and Similarity per Country and Industry**

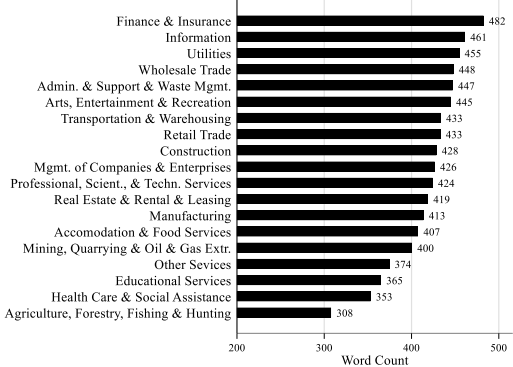
Panel A: Word Count per Country



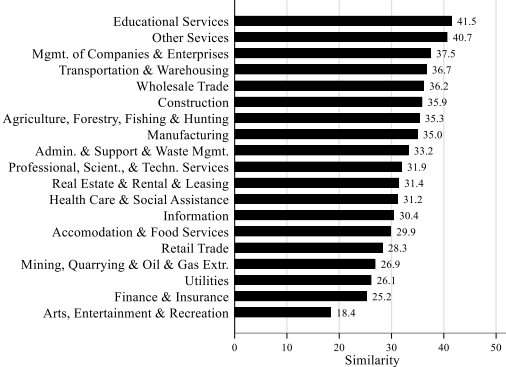
Panel B: Similarity per Country



Panel C: Word Count per Industry



Panel D: Similarity per Industry



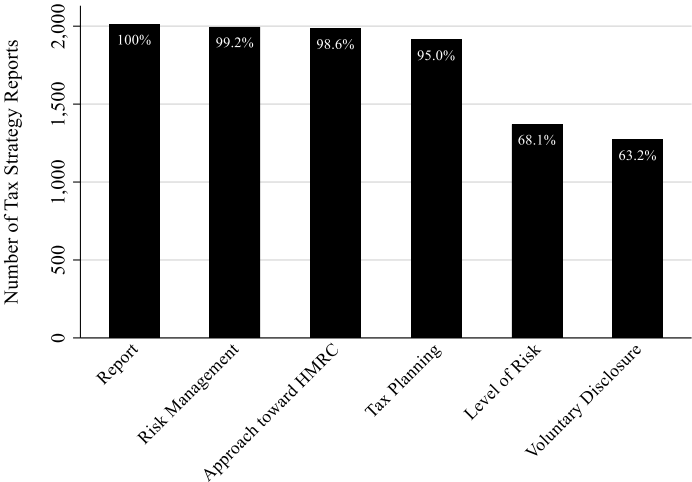
Notes: Panels A and B of Figure 4.1 show the average *Word Count* and *Similarity* for those countries that are represented most frequently in our sample in descending order. Panels C and D show the average *Word Count* and *Similarity* per industry in descending order. The industry classification is based on 19 different industries using the NAICS sector codes. Note that Figure 4.1 represents the full sample of 2,012 tax strategy reports without requiring non-missing values for all variables used in the regression analyses.

In the following, we provide explorative insights on the level of compliance with the law. In Figure 4.2, we examine if firms are compliant by providing all categories in their reports.

<sup>73</sup> We consider an industry as transparent if additional transparency requirements like the EU Directive 2013/36/EU for financial institutions or mandatory regulations for the extractive industries are imposed upon it (see Section 4.2).

The category *Tax Planning* is discussed in 95.0% of the reports. However, only 68.1% of the sample firms include a *Level of Risk* and 63.2% a *Voluntary Disclosure* category, indicating a reluctance to disclose these categories. These findings are in accordance with results of Xia (2020) and suggest that some firms do not adhere to the law, although the effort necessary for compliance seems to be rather low (Forstater, 2016). Even a few words on the topic of each category are sufficient to meet the legal requirements.

**Figure 4.2: Disclosure of Categories in Tax Strategy Reports**



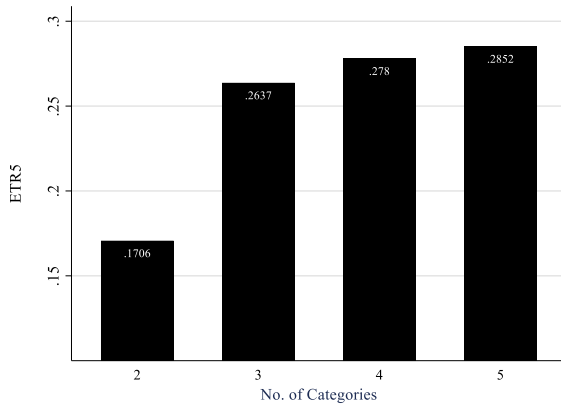
Notes: Figure 4.2 illustrates the total number of each category in all tax strategy reports from our sample. The number inside a bar depicts the relative frequency of the respective category in the full sample of tax strategy reports. Note that Figure 4.2 represents the full sample of 2,012 tax strategy reports without requiring non-missing values for all variables used in the regression analyses.

In Figure 4.3, we investigate the univariate relationship between a firm’s prior engagement in tax avoidance and some disclosure characteristics of a tax strategy report. Panel A illustrates a positive association between the *No. of Categories* and *ETR5*. Compared to the overall sample mean of 27.9%, firms that only disclose information in two or three categories have a lower *ETR5* of 17.1% or 26.4%, respectively. Panel B presents similar results. Firms that abstain from reporting on all five categories (*All Categories* = 0) have an *ETR5* which is 1.04 percentage points lower than the *ETR5* of firms that include all categories. Furthermore, we find that firms not reporting on *Tax Planning* show an exceptionally low *ETR5* of 24.1%. This result still holds for the *Level of Risk* and *Voluntary Disclosure* category, albeit to a lesser

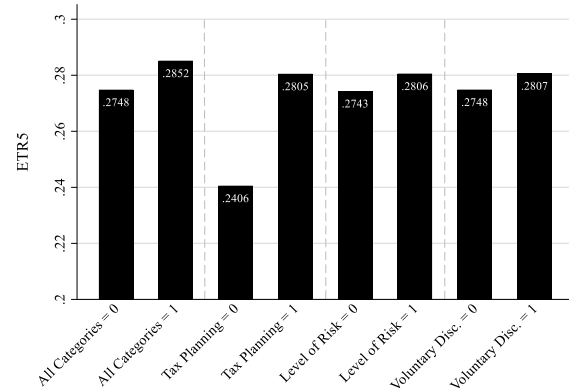
degree. In sum, the findings indicate that firms engaging in tax avoidance do not fully comply with the disclosure requirement as they omit certain categories in their reports.

**Figure 4.3: Tax Avoidance and Disclosure of Categories in Tax Strategy Reports**

Panel A: ETR5 over No. of Categories



Panel B: ETR5 over Category Disclosures



Notes: Panel A of Figure 4.3 shows the average *ETR5* per *No. of Categories* of all tax strategy reports. Panel B presents the average *ETR5* regarding four different dummy variables describing the presence (dummy variable = 1) or lack (dummy variable = 0) of categories in the tax strategy reports. The two bars on the very left side of Panel B represent the variable *All Categories*, the bars on the middle left side the variable *Tax Planning*, the bars on the middle right side the variable *Level of Risk* and the bars on the very right side the variable *Voluntary Disclosure*. Note that Figure 4.3 is based on the full sample requiring non-missing values for all variables used in the regression analyses. This leads to a sample comprising 1,122 tax strategy reports.

### 4.5.3 Empirical Results

Table 4.3 and Table 4.4 present results for estimating Equation (4.1) to analyze the association between a firm’s prior tax avoidance and several disclosure measures. Table 4.3 contains the results regarding the disclosure of categories within the reports using poisson (Column (1)) or probit regression models (Columns (2) to (5)). In the first column, we use the *No. of Categories* as the dependent variable. The coefficient  $\beta_1$  is positive and statistically significant, suggesting that firms include more categories when their level of prior tax avoidance is low. In a similar vein, in Column (2), we find that the *ETR5* is significantly higher for firms that report on all five categories (*All Categories*). Additionally, this finding is reinforced when we separately consider different categories of the reports. In particular, firms exhibiting a higher prior *ETR5* are more likely to include a *Tax Planning* (Column (3)) or a *Voluntary Disclosure* category (Column (5)) in their reports. The coefficient of the *Level of Risk* category is also positive, yet insignificant (Column (4)). Overall, these results are

consistent with H1a. Firms priorly engaged in tax avoidance provide poorer tax strategy reports because they abstain from disclosing information on specific categories. In all columns, the coefficient of *Tax Haven* is statistically insignificant, showing no link between firms' tax haven usage and the reports' categories.

**Table 4.3: Determinants of Category Disclosures**

VARIABLES	(1) <i>No. of Categories</i>	(2) <i>All Categories</i>	(3) <i>Tax Planning</i>	(4) <i>Level of Risk</i>	(5) <i>Voluntary Disclosure</i>
<i>ETR5</i>	0.14** (0.01)	1.04** (0.02)	2.26*** (0.01)	0.22 (0.62)	0.80* (0.06)
<i>Tax Haven</i>	0.00 (1.00)	0.45 (0.24)	0.38 (0.54)	-0.09 (0.81)	0.00 (1.00)
<i>Size</i>	-0.00 (0.14)	-0.03 (0.34)	-0.07 (0.11)	-0.02 (0.39)	-0.01 (0.71)
<i>Leverage</i>	0.02 (0.58)	0.09 (0.78)	0.36 (0.52)	0.13 (0.68)	0.06 (0.84)
<i>MtB</i>	-0.02** (0.02)	-0.12* (0.06)	-0.21** (0.03)	0.00 (1.00)	-0.10 (0.12)
<i>RoA</i>	0.24*** (0.01)	1.76** (0.03)	1.97 (0.15)	1.19 (0.15)	0.59 (0.47)
<i>B2C</i>	0.01 (0.29)	0.08 (0.48)	-0.07 (0.70)	0.00 (0.98)	0.16 (0.15)
<i>Big4</i>	-0.00 (0.75)	-0.02 (0.80)	-0.11 (0.44)	-0.05 (0.56)	-0.01 (0.89)
<i>UK Distance</i>	-0.00 (0.95)	-0.02 (0.11)	0.02 (0.31)	0.03** (0.01)	-0.04*** (0.00)
<i>UK Intensity</i>	0.01 (0.44)	-0.07 (0.56)	0.40* (0.07)	0.03 (0.81)	-0.00 (1.00)
Industry FE	✓	✓	✓	✓	✓
Observations	1,122	1,119	1,073	1,119	1,119
Pseudo R <sup>2</sup>	0.02	0.03	0.07	0.02	0.02

Notes: Table 4.3 provides the regression results for estimating Equation (4.1) with different dependent variables regarding the categories of tax strategy reports as displayed at the top of each column. In Column (1), we estimate a poisson regression using a count variable as the dependent variable (*No. of Categories*) that counts the number of categories running from one to five. Column (2) presents the probit regression results using a dummy variable (*All Categories*) that is equal to one if a firm reports information on each of the five categories in its tax strategy report. In Columns (3) to (5), we utilize three different dummy variables as dependent variables that are equal to one if a firm discloses information on *Tax Planning*, *Level of Risk* and *Voluntary Disclosure*, respectively, again estimating probit regressions. For the independent variable of interest, *ETR5*, we compute a long-run GAAP ETR using a five-year period. In all regressions, we employ industry fixed effects [FE]. All estimation results are based on robust standard errors. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4.4 depicts multivariate regression results for the determinants of the reports' textual characteristics. The first four columns show regression results when the dependent variable is the *Word Count* of the overall report (Column (1)) or the *Tax Planning*, *Level of Risk*

and *Voluntary Disclosure* category (Columns (2) to (4)). In Columns (1) and (3), the coefficient  $\beta_1$  is positive, but statistically insignificant. In particular, we do not find that prior tax avoidance is associated with the length of the overall report. However, as illustrated in Columns (2) and (4), firms formerly engaged in tax avoidance provide significantly less detailed disclosures on the categories *Tax Planning* and *Voluntary Disclosure*. This result is in line with H1a. For tax-aggressive firms, tax transparency does not seem to be an integral part of their corporate culture.

Columns (5) to (8) of Table 4.4 depict regression results for *Similarity* as the dependent variable. The coefficients of *ETR5* provide only mixed evidence. Firms' prior tax avoidance is not significantly related to similarity scores of the overall report (Column (5)) or the *Tax Planning* category (Column (6)). Solely for the *Level of Risk* category, we find a positive and statistically significant coefficient, whereas we find the opposite relation for *Voluntary Disclosure*. Overall, no conclusive evidence for H1a or H1b can be found regarding *Similarity*.

Furthermore, the tone variable *Uncertainty* is used as dependent variable in Columns (9) to (12). For the overall report and the *Tax Planning* category, we find a negative association between the ETR measure and *Uncertainty*. Again, this result is in line with H1a. By using linguistic uncertainty in the reports, tax avoiders attempt to stay more flexible regarding their tax behavior. Across the textual characteristic variables, H1a can largely be confirmed.

Finally, some other interesting relations between firm characteristics and the reports' textual characteristics occur. The length of the overall tax strategy report increases with firm size, while the reports' similarity decreases with firm size (Columns (1) and (5)). This is consistent with prior studies identifying a positive relation between firm size and the level of compliance with mandatory tax disclosure requirements (Belnap, 2019; Robinson & Schmidt, 2013). In addition, firms audited by a Big Four firm exhibit less detailed reports (Column (1)). Lastly, the coefficients of *UK Distance* suggest that firms located more closely to the UK provide more detailed and less similar reports, in line with our explorative findings indicating a 'home-bias'.



**Table 4.4: Determinants of Word Count, Similarity and Uncertainty**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	<i>Word Count</i>				<i>Similarity</i>				<i>Uncertainty</i>			
	<i>Report</i>	<i>Tax Planning</i>	<i>Level of Risk</i>	<i>Voluntary Disclosure</i>	<i>Report</i>	<i>Tax Planning</i>	<i>Level of Risk</i>	<i>Voluntary Disclosure</i>	<i>Report</i>	<i>Tax Planning</i>	<i>Level of Risk</i>	<i>Voluntary Disclosure</i>
<i>ETR5</i>	0.04 (0.80)	1.24** (0.03)	0.31 (0.76)	2.29** (0.03)	-4.59 (0.58)	4.20 (0.67)	24.83** (0.05)	-24.31** (0.04)	-0.52** (0.05)	-1.96*** (0.00)	0.37 (0.73)	-0.34 (0.31)
<i>Tax Haven</i>	0.07 (0.54)	0.17 (0.66)	-0.45 (0.58)	0.28 (0.78)	-6.72 (0.26)	-0.57 (0.94)	15.32* (0.07)	-21.09* (0.05)	0.05 (0.80)	-0.25 (0.64)	1.42* (0.09)	0.44 (0.38)
<i>Size</i>	0.03*** (0.00)	-0.03 (0.45)	-0.05 (0.43)	0.02 (0.76)	-2.05*** (0.00)	-1.72*** (0.00)	-1.61** (0.03)	-2.99*** (0.00)	0.01 (0.68)	0.05 (0.20)	0.08 (0.21)	0.02 (0.58)
<i>Leverage</i>	0.01 (0.89)	0.27 (0.50)	0.23 (0.75)	0.17 (0.84)	-7.24 (0.22)	-10.08 (0.14)	-19.08** (0.02)	-0.21 (0.98)	0.27 (0.11)	0.57 (0.18)	0.67 (0.33)	0.21 (0.56)
<i>MtB</i>	0.02 (0.45)	-0.13* (0.07)	0.05 (0.77)	-0.19 (0.26)	-2.01 (0.14)	-1.91 (0.22)	-2.44 (0.20)	-3.95** (0.04)	-0.00 (0.94)	0.04 (0.66)	-0.04 (0.78)	0.03 (0.68)
<i>RoA</i>	0.17 (0.54)	1.26 (0.16)	2.43 (0.18)	1.75 (0.39)	2.72 (0.86)	8.70 (0.64)	-18.50 (0.39)	18.61 (0.43)	0.21 (0.64)	1.37 (0.20)	0.18 (0.92)	0.21 (0.77)
<i>B2C</i>	0.03 (0.47)	-0.06 (0.63)	-0.08 (0.77)	0.37 (0.17)	-1.35 (0.53)	-4.25* (0.09)	1.23 (0.70)	-2.74 (0.40)	-0.03 (0.62)	-0.09 (0.57)	-0.02 (0.94)	0.03 (0.74)
<i>Big4</i>	-0.06** (0.02)	-0.07 (0.45)	-0.21 (0.28)	-0.07 (0.73)	-1.42 (0.35)	-2.50 (0.17)	1.13 (0.62)	1.06 (0.67)	-0.03 (0.56)	-0.05 (0.67)	0.04 (0.82)	-0.06 (0.48)
<i>UK Distance</i>	-0.02*** (0.00)	0.01 (0.67)	0.06** (0.03)	-0.13*** (0.00)	0.72*** (0.00)	0.59** (0.03)	0.46 (0.17)	1.18*** (0.00)	-0.01 (0.13)	0.01 (0.53)	-0.04 (0.17)	-0.03** (0.01)
<i>UK Intensity</i>	0.05 (0.26)	0.30** (0.02)	0.10 (0.72)	-0.03 (0.93)	0.35 (0.87)	-0.91 (0.73)	3.75 (0.21)	-2.31 (0.50)	-0.07 (0.26)	-0.15 (0.34)	-0.30 (0.28)	-0.05 (0.69)
Industry FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1,122	1,122	1,122	1,122	1,122	1,067	758	711	1,122	1,067	758	711
R <sup>2</sup>	0.06	0.03	0.03	0.04	0.08	0.06	0.09	0.10	0.03	0.04	0.03	0.03

Notes: Table 4.4 presents the OLS regression results for estimating Equation (4.1) with different textual characteristics (*Word Count*, *Similarity* and *Uncertainty*) as the dependent variable. Textual characteristics of a firm's overall tax strategy report and the *Tax Planning*, *Level of Risk* and *Voluntary Disclosure* category are examined separately, as displayed at the top of each column. If a firm does not report information regarding a specific category, *Word Count* is set to zero. *Similarity* depicts the highest level of percentage point similarity between a firm's report to another report in our sample, generated by using the open-source software WCopyFind. *Uncertainty* is computed as the ratio of uncertainty words over the total number of words per report. Our list of uncertainty words is based on the list of Loughran and McDonald (2011), although slightly modified with respect to our setting. In all regressions, we employ industry fixed effects. All estimation results are based on robust standard errors. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## 4.6 Effects on Tax Avoidance

### 4.6.1 Research Methodology

In accordance with H2, we investigate whether the UK tax strategy disclosure regulation is useful in curbing tax avoidance. Using a DiD design, we examine the relative change in the ETRs of UK firms subject to the disclosure regulation as compared to several unaffected control groups over time to assess the effect of the implementation of the UK FA 2016. We deploy the following OLS regression model:

$$\begin{aligned} ETR_{it} = & \alpha_0 + \alpha_1 Treated_i \times Post_t + \alpha_2 Size_{it} + \alpha_3 RoA_{it} + \alpha_4 Leverage_{it} \\ & + \alpha_5 Capital Intensity_{it} + \alpha_6 R\&D_{it} + \alpha_7 Sales Growth_{it} \\ & + \alpha_8 Intangibles_{it} + Year FE + Firm FE + u_{it} \end{aligned} \quad (4.2)$$

The dependent variable is the one-year GAAP ETR of firm  $i$  in year  $t$ . In this setup, we do not average the ETR over a five-year period because we perform a DiD approach across a pre- and post-implementation period using panel data. The variable *Treated* is an indicator which is set to one for UK firms whose turnover and/or balance sheet total are above the legal thresholds.<sup>74</sup> We exclude firms that are subject to the CbCR requirement which was also introduced in the UK in 2016, i.e., we limit our sample to firms with a global turnover of less than €750 million. Depending on the specification, *Treated* is set to zero for firms that are not subject to the disclosure regulation, i.e., UK firms that are below the legal thresholds.

In order to investigate the disclosure regulation's effect, the identification of a treatment (control) group which is definitely affected (unaffected) by the regulation is of primary importance (Leuz & Wysocki, 2016). In all our tests, we ensure that treatment firms have published a tax strategy report and that firms in the control group have not voluntarily published a report. Another crucial requirement for the validity of a DiD is the construction of a

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<sup>74</sup> In this analysis, we limit the sample to UK-based firms only because we expect no or only minor effects on tax avoidance for non-UK-based firms.

comparable control group (Leuz & Wysocki, 2016; St. Clair & Cook, 2015). To find suitable counterfactuals, our control group consists of firms with at least £50 million in total assets.<sup>75</sup> We then rank the firms with respect to their turnover in the year 2015, the last year that is unaffected by the UK FA 2016, and keep 50 firms that are directly below the legal threshold as the control group. Correspondingly, we construct our treatment group, i.e., those 50 UK firms that are directly above the turnover threshold.

The variable *Post* is an indicator equal to one for years after the implementation of the UK FA 2016, i.e., from 2017 to 2019, and equal to zero for the years 2011 to 2015. By choosing this sample period, we avoid the distortive effects caused by the financial crisis and the global coronavirus pandemic. Because it is unclear whether the year 2016 has to be assigned to the pre- or to the post-period, we exclude this year from our analysis. The coefficient of interest is  $\alpha_1$ , measuring the relative change in disclosing firms' ETRs as compared to the change in the ETRs of unaffected firms over the implementation of the UK FA 2016. It thus shows the effect of the regulation on affected firms' ETRs. Based on H2, we expect the coefficient to be positive.

In all our regressions, we include year fixed effects in order to control for annual trends in tax avoidance and business cycle effects. Consequently, we do not include *Post* as a separate variable in our regression model. In most of our specifications, we also include firm fixed effects to eliminate time-invariant heterogeneity between the firms. *Treated* is not used as a separate regressor in these specifications.<sup>76</sup> Finally, we control for several firm characteristics that have been shown to be associated with corporate tax avoidance (Gupta & Newberry, 1997; Plesko, 2003; Rego, 2003). All financial variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles. The employed variables are defined in Table A4.1 in the Appendix.

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<sup>75</sup> In contrast to the studies of Xia (2020) and Bilicka et al. (2022), we require a rather high minimum threshold to ensure that control firms are large enough to serve as comparable counterfactuals. We further exclude funds and trusts in virtue of different taxation.

<sup>76</sup> Note that we use industry and pair fixed effects instead of firm fixed effects in some of our specifications. In these, we include the variable *Treated* in the regression model.

In order to address concerns that treatment and control firms are systematically different, we perform several matching and reweighting techniques in most of our specifications. We apply PSM approaches to identify adequate matching partners for disclosing UK firms. The underlying idea behind PSM is to take into account confounding factors that explain systematic differences between disclosing firms and control firms and to cope with a potential self-selection bias (Caliendo & Kopeinig, 2008; Rosenbaum & Rubin, 1983; Shipman et al., 2017). Matching on a rich set of firm characteristics, we seek treatment and control firms that are as similar as possible.

PSM requires a two-step approach (Rosenbaum & Rubin, 1983): In the first step, we estimate a probit model including a vector of relevant firm characteristics to predict the propensity score (Table 4.5).<sup>77</sup> The score denotes the probability of becoming a tax strategy-disclosing firm. The PSM is performed in the year 2015, one year prior to the enactment of the UK FA 2016.

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<sup>77</sup> In the probit model, we include the financial variables of Equation (4.2) except *Size* because, by definition, treatment and control firms structurally differ in size.

**Table 4.5: Probit Regression for PSM – Indicators of a Tax Strategy-Disclosing Firm**

(1)	
VARIABLES	Tax Strategy-Disclosing Firm
<i>RoA</i>	1.511*** (0.000)
<i>Leverage</i>	1.260*** (0.000)
<i>Capital Intensity</i>	-0.597*** (0.000)
<i>R&amp;D</i>	-4.072*** (0.001)
<i>Sales Growth</i>	-0.540*** (0.000)
<i>Intangibles</i>	-0.376** (0.024)
Observations	1,561
Pseudo R <sup>2</sup>	0.043

Notes: Table 4.5 presents the probit regression result used for the prediction of the propensity scores for PSM. The dependent variable is an indicator variable which is equal to one for UK firms that are subject to the disclosure regulation and have published a tax strategy report and equal to zero for firms that do not exceed the regulatory thresholds and have not voluntarily published a report. *p*-values are shown in parentheses. \*\*\*, \*\*, and \* show statistical significance at the 1%, 5%, and 10% levels, respectively.

In the second step, we perform a one-to-one nearest neighbor [NN] matching. Using the propensity scores derived from the first step, we attempt to match each tax strategy-disclosing firm to one unaffected firm of the same industry. We set the caliper, the maximum deviation between the propensity scores of treated and matched control firms, to 0.03 (P. C. Austin, 2011; Lunt, 2014). The matching process significantly reduces the overall mean bias.<sup>78</sup> Out of 63 treatment firms, we can match 41 firms to corresponding control firms.

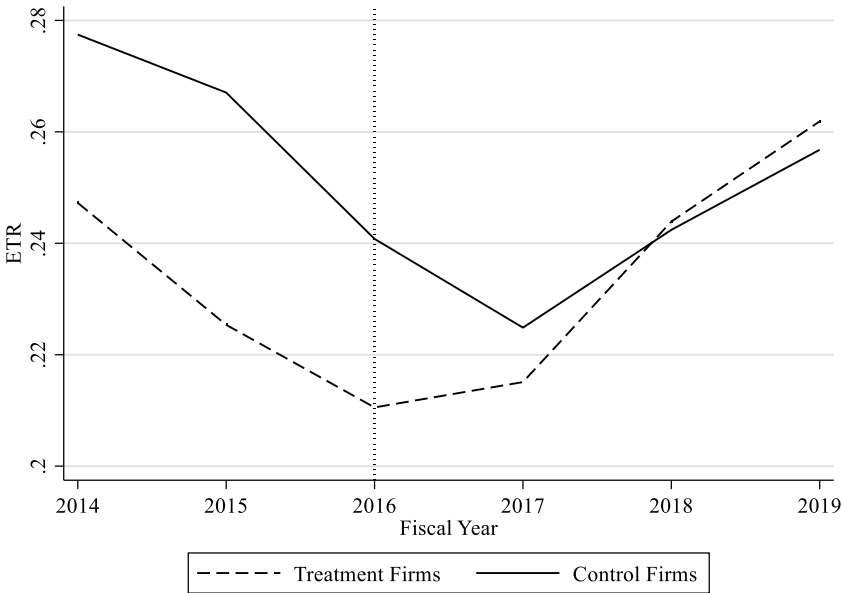
#### 4.6.2 Empirical Results

In this section, we present the results regarding the effectiveness of the UK tax strategy disclosure regulation in reducing tax avoidance. First, we verify the parallel trends assumption of the DiD model. Thus, we examine if the treatment and control group exhibit a parallel trend in their level of tax avoidance prior to the year the disclosure regulation entered into force by

<sup>78</sup> The matching quality is presented in Table A4.2 in the Appendix. The overall standardized mean bias is reduced from 15.2% before the matching to 2.8% after the matching. Panel B of Table 4.2 shows the descriptive statistics for the matched UK sample.

comparing the ETRs of both groups over time in Figure 4.4. Although the two lines show systematic differences between treatment firms’ and control firms’ level of ETRs, the trend is parallel prior to the regulation. On average, disclosing firms have an ETR that is three to four percentage points lower relative to control firms in the pre-regulation period. This notable systematic disparity diminishes after the regulation has come into effect. For the years from 2018 onwards, treatment firms even exhibit higher ETRs relative to their unaffected peers.

**Figure 4.4: Parallel Trend of ETRs of Tax Strategy-Disclosing Firms and Control Firms**



Notes: Figure 4.4 shows the development of ETRs of treatment firms (UK-based firms that are subject to the regulation and have published a UK tax strategy report) and control firms (UK-based firms that are below the prescribed thresholds and have not voluntarily published a report) over a period from 2014 to 2019. The vertical dotted line represents the implementation of the UK FA 2016.

In untabulated tests, we use the full sample of treatment and control firms. We do not find statistically significant evidence for a decrease in tax avoidance, which is in line with contemporaneous studies (Bilicka et al., 2022; Xia, 2020). To mitigate systematic differences between the treatment and control group, we then use the approaches described in Section 4.6.1 to estimate Equation (4.2). Results are presented in Table 4.6. Column (1) shows results for the unmatched sample approach in which the comparability of both groups is improved by using 50 tax strategy-disclosing firms directly ranked above the legal turnover threshold and 50 control firms directly ranked below the threshold. Columns (2) to (4) correspond to the one-to-

one nearest neighbor PSM with alternating fixed effects. For reasons of robustness, we also test an alternative matching prerequisite by setting the caliper to 0.02 (Columns (5) to (7)).

Throughout all specifications, the coefficient of the interaction term *Treated*  $\times$  *Post* is positive and significant. The point estimates suggest that UK firms subject to the disclosure regulation experienced a significant increase in their ETRs of 3.5 to 6.0 percentage points relative to unaffected firms after the implementation of the UK FA 2016.<sup>79</sup> The results confirm H2 and show that the UK tax strategy disclosure regulation curbs corporate tax avoidance.

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<sup>79</sup> With regard to the economic magnitude, we acknowledge that the point estimates are fairly high and should be interpreted with caution.

**Table 4.6: Effects of the Tax Strategy Disclosure Regulation on Tax Avoidance**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>ETR</i>						
VARIABLES	Un-matched sample	1:1 NN Matching					
		Caliper: 0.03		Caliper: 0.02			
<i>Treated</i>			0.002 (0.935)	-0.010 (0.630)		0.005 (0.826)	-0.003 (0.861)
<i>Treated</i> × <i>Post</i>	0.060** (0.022)	0.056** (0.015)	0.049** (0.039)	0.047** (0.031)	0.039* (0.075)	0.041* (0.090)	0.035* (0.098)
<i>Size</i>	-0.049** (0.035)	-0.030* (0.062)	-0.020** (0.041)	-0.018* (0.073)	-0.038** (0.023)	-0.018* (0.061)	-0.019* (0.065)
<i>RoA</i>	-0.852*** (0.000)	-0.826*** (0.000)	-0.437*** (0.000)	-0.488*** (0.000)	-0.753*** (0.000)	-0.376*** (0.000)	-0.459*** (0.000)
<i>Leverage</i>	-0.004 (0.965)	-0.188 (0.104)	-0.003 (0.976)	-0.128 (0.200)	-0.161 (0.175)	0.009 (0.927)	-0.133 (0.210)
<i>Capital Intensity</i>	0.058 (0.657)	-0.012 (0.931)	-0.030 (0.571)	0.077 (0.223)	0.014 (0.924)	-0.045 (0.395)	0.072 (0.271)
<i>R&amp;D</i>	0.663** (0.011)	0.313 (0.122)	-0.338* (0.055)	0.053 (0.791)	0.258 (0.208)	-0.471** (0.014)	0.032 (0.881)
<i>Sales Growth</i>	-0.093*** (0.000)	-0.049 (0.318)	-0.072 (0.121)	-0.075* (0.095)	-0.095** (0.035)	-0.106** (0.037)	-0.115*** (0.009)
<i>Intangibles</i>	0.191** (0.035)	0.073 (0.355)	0.018 (0.683)	-0.009 (0.866)	0.104 (0.256)	0.009 (0.857)	0.005 (0.932)
Year FE	✓	✓	✓	✓	✓	✓	✓
Firm FE	✓	✓			✓		
Industry FE			✓			✓	
Pair FE				✓			✓
Observations	589	494	494	494	458	458	458
R <sup>2</sup>	0.526	0.458	0.146	0.345	0.482	0.157	0.372

Notes: Table 4.6 presents the OLS regression results for estimating Equation (4.2). In all columns, the dependent variable is *ETR*. *Treated* is an indicator equal to one if a UK firm is subject to the UK tax strategy disclosure regulation and has published a tax strategy report, and zero if a UK firm is below the prescribed thresholds and has not voluntarily published a report. *Post* is an indicator equal to one for years after the implementation of the UK FA 2016, i.e., from 2017 to 2019, and equal to zero for years prior to the implementation, i.e., from 2011 to 2015. In Column (1), we keep 50 treatment firms that have a turnover directly above the legal threshold and 50 control firms that have a turnover directly below the legal threshold. In Columns (2) to (4), we perform a one-to-one nearest neighbor PSM with a maximum difference in propensity score between a treatment and a control firm of 0.03 (caliper). In Columns (5) to (7), we set the caliper to 0.02. All estimation results are based on robust standard errors. *p*-values are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

### 4.6.3 Robustness Tests

To alleviate concerns that the employed matching technique is a key driver for the results presented in Table 4.6, we use alternative matching algorithms. Columns (1) and (2) of Table 4.7 show regression results based on a one-to-three nearest neighbor matched sample, meaning that up to three control firms are matched to each disclosing firm. In Columns (3) and



(4), we perform a one-to-five nearest neighbor matching. The coefficients of the interaction term are positive and significant and thus, statistically unchanged relative to those in Table 4.6.

Moreover, we employ two multivariate reweighting techniques which improve the covariate balance between the treatment and control group. In Column (5) of Table 4.7, we use an entropy-balanced sample. All observations are balanced based on the employed firm characteristics in the pre-regulation year 2015. The balancing constraint is set to the second moment so that the overall mean and variance of the reweighted control group match the treatment group (Hainmueller, 2012). Lastly, in Column (6), we present estimation results when inverse probability weights [IPWs] are used. The IPWs are calculated following the weighting strategy by Stuart et al. (2014).<sup>80</sup> Both reweighting techniques yield similar results. The coefficients of  $Treated \times Post$  are positive and statistically significant. Overall, the results found in Section 4.6.2 are not driven by the deployed matching algorithm.

**Table 4.7: Alternative Matching Algorithms and Multivariate Reweighting Techniques**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	<i>ETR</i>					
	1:3 NN Matching		1:5 NN Matching		Entropy Bal.	IPWs
<i>Treated</i>		-0.003 (0.895)		-0.006 (0.757)		
<i>Treated</i> × <i>Post</i>	0.060** (0.013)	0.051** (0.032)	0.062*** (0.007)	0.052** (0.023)	0.048** (0.045)	0.038* (0.079)
Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Firm FE	✓		✓		✓	✓
Industry FE		✓		✓		
Observations	673	673	734	734	1,177	1,456
R <sup>2</sup>	0.395	0.127	0.388	0.127	0.597	0.715

Notes: Table 4.7 presents the OLS regression results for estimating Equation (4.2) with alternative matching algorithms and reweighting techniques. In all columns, the dependent variable is *ETR*. *Treated* is an indicator equal to one if a UK firm is subject to the UK tax strategy disclosure regulation and has published a tax strategy report, and zero if a UK firm is below the prescribed thresholds and has not voluntarily published a report. *Post* is an indicator equal to one for years after the implementation of the UK FA 2016, i.e., from 2017 to 2019, and equal to zero for years prior to the implementation, i.e., from 2011 to 2015. Columns (1) and (2) are based on a one-to-three nearest neighbor PSM and Columns (3) and (4) are based on a one-to-five nearest neighbor PSM. The PSM is performed with a maximum difference in propensity score of 0.03 (caliper). In Columns (5) and (6), we deploy entropy balancing and inverse probability weights to improve the covariate balance between the treatment and control group. All estimation results are based on robust standard errors. *p*-values are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

<sup>80</sup> The weights are generated in a way that each of the four groups (pre-treatment, post-treatment, pre-control, post-control) is similar to the treatment group in the pre-period with respect to the employed firm characteristics. The weights are truncated at the 1<sup>st</sup> and 99<sup>th</sup> percentiles to mitigate the problem of very large weights increasing the variability of the treatment effect (Cole & Hernán, 2008).

Furthermore, we acknowledge that the change in the ETRs of the treatment firms could be caused by factors other than the disclosure regulation that may not equally apply to the matched UK firms below the regulation's thresholds, e.g., anti-tax avoidance measures, such as the OECD's Base Erosion and Profit Shifting [BEPS] action plan. Therefore, we generate a control group of matched European firms exceeding the disclosure thresholds by again applying PSM.<sup>81</sup> We then compare ETRs of UK firms subject to the disclosure regulation with the matched European firms. Table 4.8 contains the corresponding results. In Columns (1) to (3), the regressions are based a one-to-one nearest neighbor matching as described in Section 4.6.1. For confounding factors in the probit regression, we utilize the financial variables of Equation (4.2) including *Size* because the treatment firms (disclosing UK firms) and the European control firms are of comparable size. Notably, the results remain economically and statistically unchanged relative to the previous findings.

To rule out that other UK-specific economic developments such as the Brexit cause the increase in ETRs for treated UK firms relative to European peers, we perform a European pseudo-treatment analysis. If UK-specific developments other than the disclosure regulation explain the increase in UK firms' ETRs, we would expect a similar effect when we compare UK firms *below* the tax strategy disclosure threshold with comparable European firms. Therefore, in the following specification, *Treated* is an indicator equal to one if a UK firm has a balance sheet total and turnover below the prescribed legal thresholds and has not voluntarily disclosed a report (pseudo-treated firm). We match the pseudo-treatment firms to comparable European firms. The coefficients of the interaction term are statistically insignificant (Columns (4) to (6)). This non-finding provides additional credence to our evidence that only UK firms

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<sup>81</sup> For the matched control group, we use the Compustat Global database and identify European firms that have a turnover exceeding £200 million and/or a balance sheet total above £2 billion and have not published a UK tax strategy report. Moreover, we exclude firms with global turnover of more than €750 million (CbCR firms). We restrict the matched control group to firms based in countries most frequently represented in the European sample (France, Germany, Italy, Norway, Poland, Sweden and Switzerland).

being subject to the disclosure regulation exhibit higher ETRs in the post-regulation period. In summary, our robustness tests support the findings from our prior analyses.

**Table 4.8: European Sample Approach**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	<i>ETR</i>					
	Treatment Sample			Pseudo-Treatment Sample		
<i>Treated</i>		-0.077*** (0.000)	-0.071*** (0.000)		-0.011 (0.385)	-0.010 (0.464)
<i>Treated</i> × <i>Post</i>	0.060*** (0.005)	0.065*** (0.009)	0.065*** (0.006)	0.002 (0.920)	0.016 (0.417)	0.008 (0.658)
Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Firm FE	✓			✓		
Industry FE		✓			✓	
Pair FE			✓			✓
Observations	564	564	564	1,243	1,243	1,243
R <sup>2</sup>	0.514	0.172	0.343	0.513	0.150	0.329

Notes: Table 4.8 presents the OLS regression results for estimating Equation (4.2) with a European sample. In all columns, the dependent variable is *ETR*. In Columns (1) to (3), *Treated* is an indicator equal to one if a UK firm is subject to the UK tax strategy disclosure regulation and has published a tax strategy report, and zero for matched European firms that have not published a report. Columns (4) to (6) report the regression results for a pseudo-treatment analysis. In this specification, *Treated* is an indicator that is equal to one if a UK firm is below the prescribed thresholds and has not voluntarily published a report, and zero for matched European firms that are also below the thresholds and have not published a report. *Post* is an indicator equal to one for years after the implementation of the UK FA 2016, i.e., from 2017 to 2019, and equal to zero for years prior to the implementation, i.e., from 2011 to 2015. In all columns, we perform a one-to-one nearest neighbor PSM. The matching is based on the probit regression as presented in Table 4.5, however, including the variable *Size* as well. All estimation results are based on robust standard errors. *p*-values are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## 4.7 Conclusion

For financial years starting after September 15, 2016, large UK-based firms and MNEs with economic presence in the UK have to publish a report concerning their tax strategy. The report presents qualitative information with regard to specific tax-related categories. The UK regulation aims at improving transparency toward HMRC, consumers and other stakeholders, as well as at curbing tax avoidance.

In this study, we analyze the determinants and effects of the UK tax strategy reports. First, we find that firms formerly engaged in tax avoidance tend to omit certain categories within their reports. Additionally, these firms provide less information with regard to tax planning and voluntary disclosures and use more uncertainty words. In summary, firms with higher levels of prior tax avoidance publish poorer (less transparent) tax strategy reports. In the

second part of our study, we employ DiD approaches and matching and reweighting techniques. We find evidence of a significant increase in ETRs for firms subject to the regulation in the post-implementation period. A series of additional tests ensures the robustness of our findings.

Our results could be of interest for policymakers worldwide who are considering introducing tax transparency initiatives. We demonstrate that certain textual characteristics of a tax strategy report and the degree of compliance with the law allow for inferences on a firm's tax behavior and are thus useful for recipients. Moreover, our finding on the effects of the disclosure regulation suggests that qualitative tax disclosures are an adequate instrument for curbing corporate tax avoidance. We are the first to demonstrate that the regulation has a real economic effect by limiting tax avoidance.

Our study is subject to some limitations. First, textual measures like length, similarity and linguistic uncertainty do not necessarily capture the explicit content of a report and its categories. We acknowledge that more content-related insights could be useful to further examine the informativeness of tax strategy reports. Second, we are unable to clearly ascertain how tax transparency impacts corporate tax avoidance. While we find a significant decline in affected firms' tax avoidance, we cannot disentangle the mechanisms that could drive our findings. Lastly, we primarily focus on a change of firms' tax avoidance behavior. Further aspects and spill-over effects of the disclosure regulation are not analyzed in this paper. Other net benefits or costs that the regulation imposes on affected firms are worth investigating in future research.

## Appendix

**Table A4.1: Variable Definitions**

<b>Variable</b>	<b>Definition</b>
<b>Disclosure Characteristics</b>	
<i>No. of Categories</i>	= Count variable that counts the number of categories in a tax strategy report, ranging from one to five.
<i>All Categories</i>	= Indicator variable which is set to one if a firm includes all four required categories and the voluntary category in its tax strategy report, and zero otherwise.
<i>Tax Planning</i>	= Indicator variable which is set to one if a firm reports on its attitude toward tax planning in its tax strategy, and zero otherwise.
<i>Level of Risk</i>	= Indicator variable which is set to one if a firm reports on its level of accepted risk in its tax strategy, and zero otherwise.
<i>Voluntary Disclosure</i>	= Indicator variable which is set to one if a firm has integrated a voluntary category in its tax strategy report, and zero otherwise.
<i>Word Count</i>	= Natural logarithm of total number of words in a tax strategy report cleaned by tokenizing and removing punctuation and stopwords.
<i>Similarity</i>	= Highest percentage point similarity of the same sequence of words of a firm's tax strategy report to another report in the sample. This variable is computed by using the open-source software WCopyFind (available at: <a href="https://plagiarism.bloomfieldmedia.com/software/wcopyfind/">https://plagiarism.bloomfieldmedia.com/software/wcopyfind/</a> ). We use the highest overall score generated with the following settings, following Belnap (2019): Shortest Phrase to Match: 6, Most Imperfections to Allow: 6, Minimum % of Matching Words: 60.
<i>Uncertainty</i>	= Number of uncertainty words divided by total number of words in a report that are included in the Master Dictionary file. Our list of uncertainty words and the Master Dictionary file are based on Loughran and McDonald (2011) and can be retrieved on McDonald's website ( <a href="https://sraf.nd.edu">https://sraf.nd.edu</a> ). Examples for uncertainty words are 'assume', 'doubt', 'perhaps', and 'uncertain'. We modify the list with respect to our specific setting, i.e., we delete the words 'intangible' and 'risk' and add 'expect', 'expectation', 'expected', 'expects', 'likeliness', 'likely', 'occasional', 'potential', 'potentially', 'soon', 'unsure', 'whenever' and 'whether'.
<b>Firm Characteristics</b>	
<i>ETR</i>	= Total income tax expense (txt) divided by pre-tax income (pi).
<i>ETR5</i>	= Five-year sum of total income tax expense (txt) over years $t-4$ to $t$ divided by the five-year sum of pre-tax income (pi) over years $t-4$ to $t$ . We average the ETR over the period from 2011 to 2015.
<i>Tax Haven</i>	= Number of a firm's subsidiaries incorporated in a tax haven country scaled by the firm's total number of subsidiaries using the ownership database of Bureau van Dijk's Amadeus database. Tax haven countries are categorized following Dyreng and Lindsey (2009). A list of all tax haven countries can be found on Dyreng's website ( <a href="https://sites.google.com/site/scottdyreng/Home/data-and-code/EX21-Dataset">https://sites.google.com/site/scottdyreng/Home/data-and-code/EX21-Dataset</a> ).

**Table A4.1: Variable Definitions (continued)**

<i>Size</i>	= Natural logarithm of total assets (at).
<i>Leverage</i>	= Long-term debt (dltt) scaled by total assets (at).
<i>MtB</i>	= Market-to-book ratio, calculated as the natural logarithm of market value of equity to book value of equity. The data are retrieved from Refinitiv's Eikon database.
<i>RoA</i>	= Return on assets, calculated as pre-tax income (pi) divided by total assets (at).
<i>B2C</i>	= Indicator variable which is set to one if a firm operates in a business-to-consumer sector following Srinivasan et al. (2011), and zero otherwise.
<i>Big4</i>	= Indicator variable which is set to one if a firm is audited by a Big Four firm (Deloitte, Ernst & Young, KPMG or PwC) in a given year, and zero otherwise. The data are retrieved from Refinitiv's Eikon database.
<i>UK Distance</i>	= Natural logarithm of the geographic distance (in kilometers) of a firm's headquarter country to the UK. Geographic data are retrieved from The World Bank's World Development Indicators database.
<i>UK Intensity</i>	= The ratio of a firm's aggregated sales of all UK-based subsidiaries to the worldwide consolidated sales. Sales of UK-based subsidiaries are retrieved from Bureau van Dijk's Amadeus financials database.
<i>Capital Intensity</i>	= Property, plant, and equipment (ppent) scaled by total assets (at).
<i>R&amp;D</i>	= Research and development expense (xrd) scaled by total assets (at).
<i>Sales Growth</i>	= Sales (sale) growth from year $t-1$ to year $t$ , scaled by year $t-1$ sales.
<i>Intangibles</i>	= Intangible assets (intan) divided by total assets (at).

**Table A4.2: One-to-One Nearest Neighbor Matching Quality**

Nearest Neighbor 1:1		Bias					
		Mean		Bias	Reduction	$t$ -test	
		Treated	Control	(in %)	(in %)	$t$	$p>t$
<i>RoA</i>	Unmatched	0.1131	0.0931	21.5		1.44	0.152
	Matched	0.1080	0.1050	3.2	85.2	0.16	0.871
<i>Leverage</i>	Unmatched	0.1506	0.1218	16.0		1.09	0.278
	Matched	0.0868	0.0914	-2.6	84.0	-0.19	0.853
<i>Capital Intensity</i>	Unmatched	0.2233	0.2529	-12.1		-0.76	0.447
	Matched	0.2214	0.2122	3.8	69.0	0.18	0.857
<i>R&amp;D</i>	Unmatched	0.0091	0.0136	-18.8		-1.19	0.237
	Matched	0.0136	0.0140	-1.7	91.2	-0.07	0.946
<i>Sales Growth</i>	Unmatched	0.0243	0.1097	-22.7		-1.31	0.193
	Matched	0.0352	0.0380	-0.8	96.7	-0.09	0.925
<i>Intangibles</i>	Unmatched	0.2656	0.2658	-0.1		-0.01	0.994
	Matched	0.2572	0.2444	5.0	-4,316.5	0.23	0.82

Notes: Table A4.2 shows the matching quality in terms of relevant matching characteristics between treatment firms (tax strategy-disclosing firms) and control firms (firms below the prescribed thresholds) before and after the matching. The matched control group is determined by the propensity score in 2015, the last year unaffected by the UK FA 2016. Moreover, we require a matching partner from the same industry. Results are formed on a one-to-one nearest neighbor matching requiring a difference in propensity scores of less than 0.03 (caliper). Variables are defined in Table A4.1.

## Table A4.3: Examples of Tax Strategy Reports

### Example 1

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#### Marshall's plc, November 2017 – FTSE 250 constituent

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##### Tax Policy Statement

Marshall's aims to pay its fair share of tax and to do so within the spirit of the law. Marshall's believes it is fair to mitigate the company's tax in a fair way using generally available reliefs, but without using aggressive tax avoidance schemes.

The Board of Marshall's has set out that Marshall's;

- will pay the right amount of tax in accordance with relevant statute and case law.
- will pay tax and make all returns on a timely basis, across all taxes.
- aims to have a good working relationship with HMRC and will liaise with the Group's CRM (Customer Relationship Manager) when relevant.
- will not use aggressive tax planning or enter into complicated tax avoidance schemes.
- will not use *Tax Havens* or inappropriately shift profits between tax jurisdictions.

The Board will review this policy annually to ensure that it is complied with.

Jack Clarke

Group Finance Director

3 November 2017

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### Example 2

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#### Hays plc, June 2018 – FTSE 250 constituent

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Hays plc – Our Approach to Tax – Year Ended 30 June 2018

This document, and our UK Tax Strategy described below, has been approved and adopted by the Hays plc Board. Our Tax Strategy will be kept under review and revised as appropriate from time to time.

Our UK business (Hays UK) matches thousands of the right candidates to the right jobs in around 20 different industry sectors (specialisms).

Hays UK operates across commercial, public service, not-for-profit, executive and international channels. Our expert recruitment teams in the UK are ably supported by finance, human resources, information technology, marketing, legal and compliance functions.

For a full list of UK registered Hays plc subsidiaries, please refer to the latest Hays plc Annual Report & Financial Statements, which is freely available on the Hays plc website.

#### **Risk Management and Governance in Relation to Taxation**

The Group Chief Financial Officer ('CFO') is responsible for oversight of the Hays plc group's tax risk, which includes Hays UK, and reports to the Hays plc Board on tax and finance issues throughout the financial year. The Group Head of Tax & Treasury is responsible for the day-to-day activities of the Hays in-house tax team and reports to the Group CFO. Hays UK has a multifaceted risk profile due to the size and complexity of this business, the recent increase in relevant changes to UK tax legislation that directly or indirectly affects the recruitment sector, and geographical aspects due to its ownership of or relationship with other Hays' subsidiary companies around the world.

#### **Business Size**

Due to the size of the business operating in the UK, the volume and frequency of transactions entered into during the course of the year represent an inherent risk through 'process failure' or incorrect interpretation of relevant legislation.

To mitigate the risk of process failure, Hays' strong internal IT infrastructure allows for the deployment of our own internal training across both front office and back office employees. The internal training programmes are robust, yet flexible enough to ensure swift deployment of any changes deemed necessary by the business.

The Hays plc Board and senior management within the business encourage 'Whistleblowing', using an independently operated and confidential call facility, which serves as an effective means of minimising any activities that might be in breach of any laws or Hays policies.

To mitigate the risk of the incorrect interpretation of relevant legislation, we employ an in-house tax team based in the UK, who utilise industry leading tax compliance and training software, which are automatically updated to comply with any changes in legislation. Where there is any uncertainty of the correct tax treatment over changes in either the legislation or the Government's interpretation of such legislation, external tax or legal advice is usually sought. In addition, where the complexity or nature of the transaction under review represents a significant risk to the business, external advice is also usually sought.

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### **Table A4.3: Examples of Tax Strategy Reports (continued)**

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#### **Changes in UK Tax Legislation**

Through interactions with HM Revenue & Customs ('HMRC') and maintaining up-to-date knowledge on changes to tax rules, Hays is able to ensure that HMRC's interpretation of both the letter of the law and the intention of the law is understood throughout the Hays UK business.

Where there remains any doubt because of high levels of complexity, the Hays UK business will seek clarity from HMRC in a real time exchange.

#### **Geographical Influence**

The taxation of cross-border, intercompany transactions has been a recent focus of various governmental and international organisations. Hays undertakes its intercompany transactions on an arm's length basis in compliance with UK legislation and OECD principles.

In addition, Hays uses robust transfer pricing documentation covering all of the Group's material intercompany transactions in line with the OECD's transfer pricing documentation requirements that undergo external review and analysis to ensure that the tax risks are mitigated.

#### **Approach to Tax Planning**

Hays plc operates as a commercial business and will pursue the best possible economic return for our shareholders. However, in making economic decisions, Hays plc operates a set of Business Principles that have regard to the impact of these decisions on other stakeholders, including both the wider society and the environment in which we operate.

Hays plc recognises that success flows from the trust it enjoys with its stakeholders, including governmental and regulatory bodies and the communities in which we operate. Hays plc's Business Principles, which can be found on our website, extend beyond our legal obligations and establish our relationship with society and are integral to building our reputation both in the UK and across the world as a responsible and trusted business partner.

The Hays UK business therefore manages its tax strategy in such a manner as to ensure the payment of the correct amount of tax in the appropriate tax jurisdiction and at the right time. This involves claiming all the appropriate reliefs and incentives where available. As mentioned, where there is a degree of uncertainty over the interpretation or application of a particular aspect of tax law, Hays UK will usually seek external advice from leading third party providers.

Hays UK does not pursue aggressive tax planning arrangements, which we define as arrangements that are not driven by a valid commercial outcome or transactions that lack material economic substance. However, we intend to remain competitive by seeking to mitigate tax costs by reviewing commercially motivated activities, whilst having full regard to our reputation in the market and to our wider corporate responsibilities.

#### **The level of Tax Risk that the Hays UK business is prepared to accept**

From time to time issues may arise that could potentially expose Hays UK to tax risk. Where this occurs, these issues will be managed on a case by case basis. The Hays plc Board's attitude to tax risk is primarily determined through discussions with the Group CFO, the Non-Executive Directors and understanding accepted market practices contained in advice received from leading external advisors.

For completeness, the Hays plc Board is not influenced to any degree by any external stakeholders over its tax strategy and is under no pressure to deviate from this strategy.

#### **Approach to dealing with HMRC**

Hays plc adopts a proactive and transparent approach when dealing with HMRC and aims to meet all filing and correspondence deadlines. The business maintains a constant dialogue with its HMRC Customer Relationship Manager and voluntarily reports all significant issues that impact the tax payable by the business. Where possible the business will seek to secure agreement with the relevant tax authorities over the appropriate tax treatment.

Where HMRC have interpreted the legislation in a different manner to that of the Hays UK business and its external advisors, the business works with HMRC to reach a timely agreement on the particular issue.

#### **Group Tax Strategy**

Hays plc is firm in its belief that tax matters. As a business we understand that tax helps to fund vital public services and infrastructure, and when paid fairly it ensures a level playing field for businesses, whether large or small.

Whilst this document has been prepared to meet Hays plc's UK obligations under the Finance Act 2016, Schedule 19 in respect of all the UK companies within the Hays plc group, the Hays plc Board adopts the same approach to tax across the whole of the Hays plc group.

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# **Chapter 5**

## Concluding Remarks

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This thesis strives to broaden the understanding and knowledge of corporate tax avoidance by analyzing this corporate practice in the context of sustainability issues and the related topic of tax transparency. The three essays shed light on the role and consequences of corporate tax as a sustainability component and the ability of qualitative tax disclosures to reflect and alter a firm's tax behavior. Thus, the results allow for inferences about the merits of advancing the integration of tax in the area of sustainability (for instance, through sustainability disclosures or sustainable investing regulations) or implementing tax transparency regulations, which could be of interest to legislators and regulators who aspire to curb tax avoidance.

Chapter 2 addresses the research question of whether multinational enterprises [MNEs] consider corporate taxes to be part and parcel of corporate social responsibility [CSR]. While prior studies have mostly focused on tax avoidance at the group level, we provide empirical evidence on the relationship between CSR and profit shifting as a specific and important form of tax avoidance. To this end, we employ unconsolidated financial data of subsidiaries of EU and US MNEs. Our findings suggest that profit shifting and CSR are negatively related. Additional analyses show that higher performance in the social or governance dimension is associated with fewer profit-shifting activities. For US MNEs, we find that the negative relationship between CSR and profit shifting is especially pronounced if the group is less exposed to reputational risks or competitive threats. Collectively, our findings are in line with corporate culture theory. A firm that takes responsibility for CSR issues considers taxes to be complementary, so profit shifting is incompatible with such a firm's corporate culture. Thus, we conjecture that measures fostering CSR bring the additional benefit of reduced profit-shifting activities.

Chapter 3 extends the preceding chapter by considering the linkage between corporate tax and CSR and, thus, sustainability from the investor perspective. The study examines the influence of institutional investors committed to sustainable investing on the tax avoidance of

investee firms. Corporate taxes have been increasingly discussed in the domain of sustainable finance and sustainable investing. I find that institutional investors that have signed the United Nations [UN] Principles for Responsible Investment [PRI] reduce investee firms' tax avoidance, in contrast to non-sustainable institutional investors. The results suggest that this impact has evolved concurrently with efforts promoting taxes in the context of sustainable investing. Supplemental tests show, among other results, that familiarity with sustainability principles due to a longer PRI membership time enhances the effect of sustainable institutional ownership on tax avoidance. Overall, sustainable institutional investors view taxes and sustainability as complements, analogous to firms, as shown in Chapter 2. The findings imply that further measures supporting the integration of tax responsibility into sustainable finance can foster the reduction of tax avoidance exerted by the considered investor type.

Chapter 4 examines the effectiveness of qualitative and public tax disclosures in reflecting firms' tax behavior and curbing tax avoidance. We investigate the unique UK tax strategy disclosure regulation that mandates large UK firms and MNEs with a UK presence to publish information on their tax strategy for financial years starting after September 15, 2016. Using a large sample of hand-collected reports, we find that firms that previously engaged in higher levels of tax avoidance deliberately provide lower-quality tax disclosures by omitting prescribed information on tax planning, providing less information on some matters, and using uncertain language. Moreover, we find robust evidence of a decrease in affected UK firms' tax avoidance in the post-regulation period relative to unaffected peers. Overall, the findings suggest that qualitative tax transparency regulations can be a suitable instrument to alleviate corporate tax avoidance. However, legislators or standard setters should acknowledge that tax-avoiding firms seem to exploit the leeway in formulating textual tax disclosures.

In conclusion, the three essays of this dissertation address contemporary topics that are of particular interest in the area of corporate taxation. Currently, states worldwide have to cope with the socioeconomic consequences of the COVID-19 pandemic, inflation, and climate



change. Hence, tax revenues are required urgently to address these crises and ensure economies' sustainable development. Nevertheless, corporate tax avoidance persists despite myriad initiatives implemented at the national and global scales to clamp down on such behavior. Therefore, the debate about taxes as a constituent part of sustainability and the need for information on firms' tax behavior to ensure 'fair taxation' are likely to increase. In addition, the topics of taxation and sustainability continue to converge in light of progressing tax transparency in sustainability reporting regulations.

The results of my thesis suggest that continuing to approach and promote corporate tax as an integral part of sustainability could be worthwhile as raising firms' and investors' awareness thereof is related to greater corporate tax responsibility. Further, improved tax transparency via tax disclosure or sustainability reporting regulations could be a promising tool to limit tax avoidance. However, in the case of textual information, the findings of this thesis indicate a necessity for more narrowly prescribed contents to give less scope to firms formulating such disclosures and more vigorous enforcement in cases of non-compliance or insufficient disclosure quality. Such stricter requirements could constrain more meaningful statements from tax-avoiding firms, hence revealing their tax practices. True to the saying 'knowledge is power', insightful information is crucial to enable legislators to make well-grounded policy decisions that can further advance the collection of public revenues by hindering tax avoidance.