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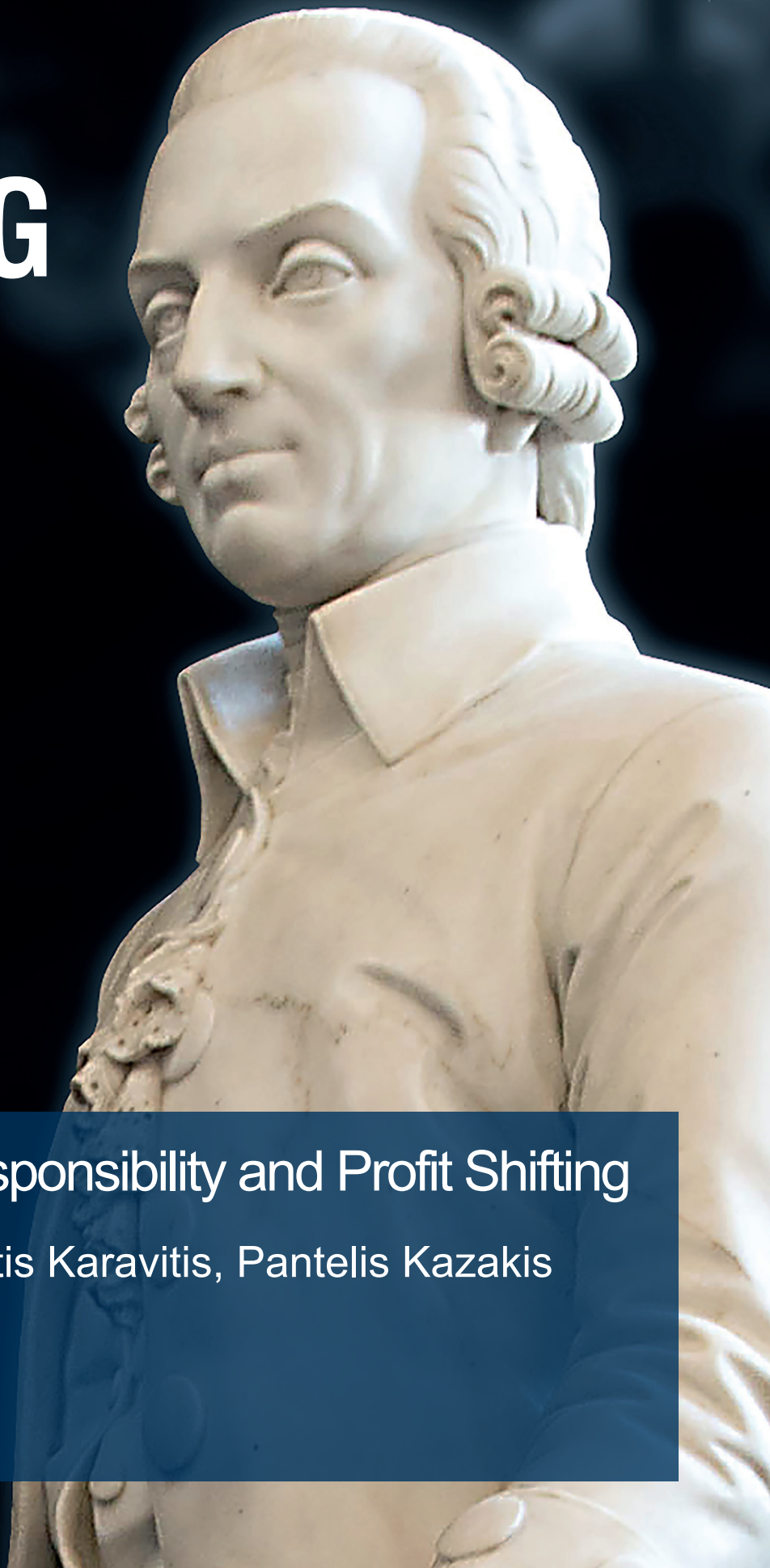

Corporate Social Responsibility and Profit Shifting

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Corporate Social Responsibility and Profit Shifting

Abstract

This paper studies the relationship between corporate social responsibility (CSR) and profit shifting. Using a profit-shifting measure derived from worldwide data for parent firms and their foreign subsidiaries, we find that corporate social responsibility is positively and significantly associated with profit shifting, consistent with the legitimacy theory and a risk-management strategy. Our findings are robust to a battery of sensitivity and endogeneity tests. Overall, our evidence suggests that multinational firms with higher CSR scores shift larger amounts of profits to their low-tax foreign subsidiaries, potentially indicating strategic planning in the choice of CSR investments by multinational enterprises.

Keywords: Corporate social responsibility; Legitimacy theory; Risk management; Profit shifting; Corporate tax systems; Agency problems.

JEL codes: F23, G30, G32, H25, H26, L10, L21, M14.

1 Introduction

> *"Big multinationals are paying significantly lower tax rates than before the 2008 financial crisis, according to Financial Times analysis showing that a decade of government efforts to cut deficits and reform taxes has left the corporate world largely unscathed."* (Toplensky, 2018).

Given the pivotal role of corporate taxation in financing fiscal spending, government consumption, and economic growth, a growing body of literature has devoted extensive effort to examining the economic determinants and implications of tax avoidance.[1] While existing studies have furthered our understanding of tax avoidance, the majority of them focus only on a single country (e.g., U.S. firms), and, hence, the precise mechanism(s) by which tax savings are achieved is yet to be adequately explored and elicited.

One of the most popular strategies for firms to avoid taxes is to shift income onto subsidiaries who enjoy favorable tax treatment, such as those operating in tax-haven states or countries with lower tax rates. Anecdotal evidence suggests that multinationals have been increasingly aggressive in shifting income to low-tax subsidiaries and are now paying fewer taxes than a decade ago (Toplensky, 2018). Since profit-shifting practices hurt tax revenue, erode the tax base for economies, and distort competition in the local markets, governments and regulators call for increased tax-policy regulation and reforms to limit the scope of multinational enterprises (MNEs) in moving profits abroad.[2] Nevertheless, not all firms shift profits equally — the degree of their responsiveness to profit-shifting opportunities is shown to vary considerably in the cross-

[1] For instance, prior studies examine how tax avoidance is shaped by firms' internal and external factors, such as culture (Hoi et al., 2013), regulatory scrutiny (Kubick, et al., 2016), activism from hedge-fund investors (Cheng et al., 2012), and governance structures (McGuire et al., 2014; Armstrong et al., 2015).

[2] See Escritt (2018) for a discussion regarding the relevant statements from the German minister of finance, Olaf Scholz.

section (e.g., see Klassen, Lisowsky, Mescall, 2016). While factors external to the firm are shown to be important, a considerable portion of the variation in the firm's propensity to shift profits remains unexplained. Our paper adds to this line of inquiry by focusing instead on the intra-firm decision process and analyzing an important factor internal to the firm, namely corporate social responsibility.

Parallel to growing tax-avoidance research, corporate social responsibility (CSR) has gained significant popularity as a research topic over the past few decades. Driven by demand from stakeholders and the public, firms around the globe have increasingly invested in socially responsible and ethical activities. These investments in CSR, however, do not necessarily increase firm cash flows (Friedman and Heinle, 2016). Since tax avoidance and CSR are both important strategic decisions that capture shared beliefs of the firm and likely affect the efficacy of each other, researchers and commentators have called for more investigation into their potential linkage (see, e.g., Hanlon and Heitzman 2010; Sikka 2010).

The existing literature has been somewhat mixed. Hoi et al. (2013) argue that a firm's irresponsible activities to its stakeholders, as captured by its negative CSR ratings, represent a shared belief among its employees and are shown to positively associate with tax avoidance (i.e., a negative relation between CSR and tax avoidance). On the contrary, Davis et al. (2016) show that CSR and tax avoidance are positively related, indicating that CSR and taxes are substitutes instead of complements. Likewise, Lanis and Richardson (2012) find a positive and significant association between corporate tax aggressiveness and CSR disclosure, consistent with firms seeking legitimacy. Furthermore, Watson (2015) argues that the CSR-tax-avoidance relation also depends on the firm's current and future earnings performance.

A common characteristic of the previous literature is that the studies therein utilize single country data, thus rendering them unable to explore cross-country variations. It is rational, however, to assume that country-level characteristics influence a firm's volume of tax avoidance. For example, if a society is more likely to "punish" unethical behavior, firms from that society might be less prone to avoid taxes. Here, we argue that across country variations might play a role in an MNE's incentives to avoid taxes via their subsidiaries (i.e., profit shifting). Ignoring such a rich source of information might lead to biased estimates and provide a less transparent view of the economic mechanisms that drive profit shifting.

To further motivate our research, we point to some anecdotal evidence. For example, Starbucks is one of the fastest-growing coffee companies around the world. As Campbell and Helleloid (2016) state: "…the tax avoidance practices Starbucks used were common among multinational companies. Starbucks had been very public in its commitment to being socially responsible and a good citizen of the communities in which it operates." The example with Starbucks fits our content since it combines tax avoidance practices with CSR engagement. More precisely, Starbucks uses several profit shifting channels of tax avoidance, such as international royalty payments, transfer pricing, and intragroup of debt. Other large MNEs follow similar practices (e.g., Google, Facebook, and Apple—see EU IP/16/2923), *inter alia*. Concurrently, these multinationals actively engage in CSR activities (see Valet, 2018).[3] Considering the somewhat mixed evidence regarding the relationship between CSR and tax avoidance, we contribute to this line of inquiry by analyzing a specific form of tax avoidance, the international tax-motivated profit shifting, on a large sample of MNEs.

[3] For more details see the article, published in Forbes on line on the 11/10/2018 by Vicky Valet: https://www.forbes.com/sites/vickyvalet/2018/10/11/the-worlds-most-reputable-companies-for-corporate-responsibility-2018/#6a255bef3371.

From a theoretical standpoint, the relation between CSR and profit shifting is ambiguous. On the one hand, to the extent that managers believe that making a fair amount of tax payments is ethical and socially responsible, one would expect to find CSR and profit shifting to be negatively related. This view is consistent with societal and stakeholder management theories (Carroll, 1979; Garriga and Melé, 2004) that firms should not only maximize shareholder wealth but should also cater to the welfare of its stakeholders, including employees, taxing authorities, and the public. One could also envisage that CSR is a product of shared belief among the firm's employees (Hoi et al., 2013). Since overly aggressive tax planning reduces societal welfare and is viewed as unethical behavior by the public and firm stakeholders, firms with high CSR, whose employees uphold certain ethical standards, would refrain from engaging in profit shifting. These views suggest a negative link between CSR and profit shifting.

On the other hand, CSR and profit shifting may be positively related according to legitimacy theory or a risk-management strategy. For example, Chakravarthy et al. (2014) argue that firms could repair their reputation after a serious accounting restatement by being more proactive towards CSR activities. Specifically, firms have strategic incentives to disclose information (e.g., in annual reports) to the media to alleviate any public concerns regarding the firm's commitment to the enhancement of societal welfare, thereby signaling that they care not only about shareholders but also their stakeholders. Having built this "moral capital" within the corporate world and in society at large, firms participating in unethical activities such as profit shifting in our case, might be "punished" less severely by stakeholders, such as consumers and government, in the future when such activities are revealed.[4] In other words, the ex-ante costs of

[4] Bertrand et al. (2018) provide evidence that firms increase their CSR activities to avail themselves through tax exemptions. Recent literature also corroborates this view as firms with higher CSR scores are less likely to be audited (Kim et al., 2012) and face fewer penalties (e.g., Janney and Gove, 2011; Hong and Liskovich, 2016).

tax avoidance are mitigated by firms' engagement in CSR, and, hence, profit shifting and CSR are *complementary*.

Empirically measuring the extent of profit shifting by MNEs is challenging. To address this problem, we follow the procedures proposed by Dharmapala and Riedel (2013) and apply a difference-in-differences (DiD) approach that utilizes plausibly exogenous industry shocks for comparable parent firms for identification purposes.[5] Based on a large panel of international parent-subsidiary MNEs from Orbis over the period from 2009 to 2016, our estimation confirms significant profit shifting in our MNE sample consistent with our expectations.

After obtaining consistent estimates of profit shifting, for *each parent firm* in the sample, we construct a firm-level CSR index from the MSCI ASSET4 database and test its relation with profit shifting on a final sample consisting of over 500 parent firms from 21 countries and over 6000 subsidiary firms from 63 countries. Consistent with the legitimacy theory and CSR as a risk-management strategy, our results reveal a positive and significant relation between CSR and profit shifting, controlling for a wide range of parent and subsidiary firm characteristics, and parent, country-year, and industry-year fixed effects. In terms of economic magnitude, an interquartile increase in CSR is associated with a 1.6% increase in profit shifting (relative to the sample mean). Our finding is robust to alternative adjustments to the profit-shifting estimations in the first stage, controlling for the error-in-variable bias using bootstrapped robust standard errors, and the inclusion of subsidiary fixed effects. Further, to deal with potential endogeneity concerns, we perform lead-lag tests, instrumental-variable estimation, and endogenous treatment-regression model estimations, all of which show that endogeneity is unlikely to fully drive our results.

[5] We follow Bertrand et al. (2002) and set comparable parent firms to be those in the same industry and country.

To offer further evidence in support of the legitimacy and risk-management theories, we explore the cross-country heterogeneity in the CSR/profit-shifting relation according to country-level measures of social awareness—consumer activism and freedom of media. We argue that the costs of engaging in tax-avoidance strategies would be higher in countries where social awareness and consumer activism are high, as well as in countries with higher freedom of media (e.g., see Hanlon and Slemrod, 2009; Graham et al., 2014; Dyreng et al., 2016; Blankerspoor et al., 2018).

The above implies that consumer activism might affect the relative cost of tax avoidance of a multinational firm within its country of origin and across countries. Specifically, in countries where consumer activism is higher, the need to build "moral capital" to hedge against reputation damage is more pronounced. It is in these countries where we expect investment in CSR to be higher. At the same time, as scrutiny increases, multinational companies have higher incentives to shift income in their subsidiaries, as the relative cost of tax avoidance abroad is relatively smaller now. Thus, we argue that the relationship between CSR and profit shifting will be stronger for parent firms located in countries with a higher social awareness (proxied, in our case, by consumer activism [i.e., frequency of product boycotts] and freedom of media). Our results show that this conjecture holds.

Our paper contributes to the literature in various ways. First, we develop a new profit-shifting measure, utilizing the estimation method of Dharmapala and Riedel (2013). Our new measure is constructed using industry shocks by peer companies. Developing such a new measure will help current and future researchers to explore determinants of the unobservable multinationals' profit shifting and its impact on the real economy.

Second, we extend the significant contributions made by Hoi et al. (2013) and Davis et al. (2016). Using granular parent-subsidiary MNE data at the global level, we examine the CSR and

tax avoidance relationship from the angle of profit-shifting.[6] Our analysis provides new evidence on the ongoing debate, suggesting that MNEs strategically engage in CSR activities to mitigate potential future adverse reputational damage due to profit shifting.

Third, apart from investigating the relationship between CSR and profit shifting, our unique dataset allows us to extend the scope of our research by exploring cross-country heterogeneities. This was not feasible in prior studies, where authors have typically used datasets restricted to only one country. Our international database overcomes this hurdle. In line with economic theory, our cross-country tests show that the positive relationship between CSR and profit shifting is stronger in countries with more consumer activism and countries with greater media freedom. These findings highlight the importance of the multi-country setting in studying the relationship between CSR and tax avoidance.

Finally, we employ instrumental variables to determine the direction of causality. Using average industry peer CSR scores (e.g., Ferrell et al., 2016), negative reciprocity (Falk et al., 2016, 2018), and governmental political orientation (e.g.., Hoi et al., 2013) as exclusion restriction variables directly suggested by the relevant literature, the paper finds a strong positive relationship between CSR and profit shifting. Although we do not claim causality in our findings, all tests performed in this work point towards this direction.

The remainder of this paper is organized as follows: In section 2, we review the relevant literature and develop our testable hypotheses. Section 3 discusses our research design along with the steps required to measure profit shifting. In section 4, we discuss the main findings of this study, while in section 5 we analyze the process we follow to deal with endogeneity and selectivity. Finally, we conclude in section 6.

[6] For a thorough literature review regarding the relationship between Corporate Social Responsibility and Tax Avoidance see Stephenson and Vracheva (2015).

2 Literature review and hypotheses development

2.1 Literature review

2.1.1 Profit shifting

One of the most influential studies regarding profit-shifting activities is that of Hines and Rice (1994). First, by developing the tax differential approach, they find that a large portion of U.S. firms move their foreign profits to tax havens. In a similar manner, Collins et al. (1998) argue that U.S. MNEs prefer to shift their profits back home when foreign corporate taxation increases. A number of efforts have been made to advance the empirical methods of Hines and Rice (1994) to identify profit shifting. Based on their tax differential approach, Huizinga and Laeven (2008) devised a new method to identify profit shifting among subsidiaries by constructing an index that incorporates weighted tax differences among all the affiliates of an MNE and find that European countries are severely affected. More recently, Dharmapala and Riedel (2013) moved one step further. Using exogenous industry shocks, they identify profit shifting via a difference-in-differences (DiD) method.[7]

A steadily growing stream of literature studies the determinants of profit shifting. Klassen and Laplante (2012a), using a U.S. sample, documented that higher regulatory costs decrease profit shifting. Dyreng and Markle (2016) analyzed the role of financial constraints and find that financially constrained MNEs are less likely to shift income from the U.S. to other countries compared to their unconstrained peers. Likewise, Markle (2016) studies the effect of different tax

[7] For a review regarding taxes and corporate finance activities see Maydew (2001), Shackelford and Shevlin (2001), Graham (2003), and Hanlon and Heitzman (2010).

systems (i.e., worldwide vs. territorial) in firms' decisions to shift income to other countries. He finds that MNEs under the territorial tax system shift more income.

Two main components are required for a firm to participate in profit-shifting activities. Firms must first have an international network of affiliates and, secondly, must thoroughly understand the laws concerning the reduction of taxes in the country of origin. These include, *inter alia*, court penalties, and administration, transaction, and opportunity costs (Dyreng et al., 2016; Dyreng et al., 2019). Hence, not all firms will be able to participate in profit-shifting activities. Moreover, we expect a considerable level of heterogeneity even among firms with profit-shifting abilities, possibly due to agency problems or differences in managerial skills and governance, among other factors. There is also considerable complexity regarding the types of assets that a firm may choose when shifting profits.

2.1.2 Corporate social responsibility

Corporate finance tradition states that corporations exist to maximize shareholder value (Berle and Means, 1932). While one would thus expect that corporate social responsibility actions benefit the firm, the impact of CSR on the firm is far from obvious. As Ferrell et al (2016) state, there are two main views regarding CSR. The first is the *good governance view*, whereby socially responsible firms can follow value-maximizing practices (e.g., Edmans, 2011; Deng et al., 2013). The second is the *agency view*, which implies that the desire of some firms to participate in CSR activities is an indicator of agency problems (e.g., Bénabou and Tirole, 2010; Masulis and Reza, 2015).

Past research documents that disclosure practices (among them CSR) exert a positive effect on firm valuation (Durnev and Kim, 2005). Corporate social responsibility has thus emerged as an important parameter for the modern firm because CSR activities could be perceived as optimal

firm choices or strategies against competition. In a recent paper, Cao et al. (2019) find that peer firms increase their CSR activities when an opponent has done so. More importantly, they find that laggard firms (those who do not invest in CRS activities) experience lower stock returns. In addition, firms' participation in CSR activities acts as a signaling tool for product differentiation (Albuquerque et al., 2019), indicating that the products of firms with higher CSR scores are considered to be of higher quality.

A country's level of economic development might potentially affect a firm's choices. A country's governmental and financial institutions and the strength of its legal system are important factors regarding the effect of disclosure practices. For example, Durnev and Kim (2005) find that the positive relationship between disclosure practices and firm valuation is stronger in less-investor-friendly countries because disclosure practices are scarcer there. Ioannou and Serafeim (2012) argue that a country's political, labor, education, and cultural systems seem to affect corporate social performance since people make more demands as societies become wealthier.

Agency costs are important parameters of firm performance (Jensen and Meckling, 1976; McGuire et al., 1988; Hermalin and Weisbach, 1991; Agrawal and Knoeber, 1996). Higher agency costs can jeopardize a firm's access to financing sources. In a recent paper, Cheng et al. (2014) document that firms with higher CSR scores are more likely to have access to financial intermediaries, indicating a potential decrease in agency costs when participating in CSR activities. The importance of CSR is more pronounced in periods of economic distress. For example, Lins et al. (2017) document that firms with higher CSR scores had higher returns and experienced higher profitability and growth compared to firms with low CSR scores during the financial crisis of 2008-2009. Likewise, El Ghoul et al. (2011) find that firms with better CSR scores face lower cost of equity. In the same spirit, Goss and Roberts (2011) argue that more responsible firms pay

up to 18 base points less to bank loans compared to firms with social social-responsibility concerns. Furthermore, Flammer (2015) and Hasan et al. (2018) document that the adoption of CSR practices increases firm value through increased labor productivity. Finally, in a time series analysis, Nelling and Webb (2009) find the relationship between CSR and firm performance to be weaker, while McWilliams and Siegel (2000) find that CSR has a neutral effect on a firm financial performance when accounting for R&D investments.[8]

2.2 Hypothesis development

2.2.1 CSR and MNE profit shifting

As stated above, social responsibility has become a crucial component for the modern firm, so much so that major corporations spend vast amounts of money on CSR, although such actions are not legally required (McWilliams and Siegel, 2000), nor do they necessarily increase firm cash flows (Friedman and Heinle, 2016). The main reason for CSR activities is the belief that such "good actions" promote the status of the firm and strengthen its ties with citizens. To that end, CSR activities are strategies firms use to advertise goodwill and can be perceived as acts of buying respect from stakeholders. Hence, these altruistic activities act as signals that benefit the firm by spreading "good" information about it to society at large, thus reducing search and evaluation costs (Kennet, 1980).

According to the legitimacy theory of social disclosure (see Gray et al., 1995; Lindblom, 1994; Milne and Patten, 2002; Cho and Patten, 2007 among many others), companies facing greater exposure, as the most tax aggressive firms are assumed to do, would be expected to provide

[8] For a review regarding the relationship between CSR and firm performance see Cochran and Wood (1984), Chatterji and Toffel (2010), and more recently Krüger (2015).

a higher level of CSR disclosure in an attempt to address the increased threats to their legitimacy (e.g., see Chakravarthy et al., 2014).

Paying taxes and investing in CSR activities can be seen as a diversion of resources from shareholders towards stakeholders. Past research has distinguished two main channels regarding the relationship between CSR and tax aggressiveness. The first channel draws on the idea that, taking all stakeholders into consideration, firms should participate in activities that increase the common good, that is, actions that do not necessarily maximize profits (Mackey et al., 2007). On such occasions, the relationship between CSR and tax aggressiveness is expected to be negative. The second channel documents a positive relationship between CSR and tax aggressiveness. Firms strategically participate in CSR activities—thus, increasing their CSR scores—in order to suffer fewer losses in cases where corporate scandals erupt. Based on these arguments, we conclude that we do not have *a priori* a mechanism that dominates the other, as both outcomes are equally possible. For this study, however, we formalize our first hypothesis as follows:

> *Hypothesis 1*: Firms with higher corporate socially responsibility (CSR) scores exhibit more aggressive profit shifting.

If Hypothesis 1 holds, then this would support legitimacy theory, which states that a firm's management would disclose information about the company (e.g., through annual reports) when its goals differ from those of society to alleviate further concerns the public might have about its actions (Hurst, 1970; Gray et al., 1995; Lanis and Richardson, 2012). As argued in Godfrey et al. (2009), participation in CSR activities shows that a firm cares about its stakeholders. When a firm succeeds in transmitting such signals to its stakeholders and they accept them, a firm builds "moral capital" within society that may have positive effects on the firm (Simon, 1995). For example, Janney and Gove (2011) find that firms with a higher reputation due to CSR activities are affected

less in the event of corporate scandals. In the same spirit, Hong and Liskovich (2016) find similar results, while Kim et al. (2012) find that firms with higher CSR scores are less likely to be audited by tax authorities. Hence, in this situation firms, acting rationally, use a CSR façade to soothe potential negative effects, such as fraud or scandals (e.g., Fombrun et al., 2000; Godfrey at al., 2009).

2.2.2 Country-level heterogeneity

An implication of the mechanism described above is that multinational companies potentially utilize CSR to enhance their reputation and legitimacy in their local society. By enhancing their local reputation, they expect to be less affected by corporate scandals, such as the case of profit-shifting allegations. Recent evidence suggests that MNEs affected by cross-country differences change their reporting strategies (Beuselinck et al., 2019).

We argue that countries differ in the way they scrutinize their MNEs regarding taxes. If an MNE faces higher scrutiny in the country of its headquarters, then the relative cost of tax avoidance in the headquarters is higher compared to that in its subsidiaries. When this happens, MNEs will optimally decide to substitute domestic with across countries tax avoidance (i.e., profit shifting).[9] Ceteris paribus, we argue that when MNEs are under more scrutiny, they will increase CSR (for legitimacy purposes), and at the same time, they will increase profit shifting towards low-subsidiary countries. When the above holds, the relationship between CSR and profit shifting will

[9] Several recent studies examine the substitutability of various tax-planning strategies (e.g., Hopland et al., 2018; Nicolay et al., 2016; Saunders-Scott, 2015; Delis et al., 2020). According to this literature, when a cost increase affects an MNE's tax-planning strategy (e.g., stricter than capitalization rules), the MNE replaces a relatively high-cost income-shifting strategy with a relatively low-cost one. In our case, factors like country product boycott or the level of media freedom in the parent country could affect scrutiny and thus change the relative cost between domestic and across country tax avoidance.

be stronger. Thus, our next task is to utilize country heterogeneities for parent firms and document how these could potentially affect the magnitude of CSR on profit shifting.

We start by examining the relationship between CSR and profit shifting under different levels of consumer activism (i.e., product boycotts) in countries where a parent company is located. On this matter, Dyreng et al. (2016) find that public scrutiny sufficiently influences the costs and benefits of tax avoidance. Specifically, they find that tax expenses are higher for firms under scrutiny. Moreover, other effects of public scrutiny due to tax avoidance include political and reputational costs, shareholder penalties, tax-enforcement actions, reputational damage, customer boycotts, and political backlash (e.g., see Hanlon and Slemrod, 2009; and Graham et al., 2014). Based on these arguments, first, one would expect parent firms headquartered in countries where the threat of product boycott is higher to be more willing to tax avoid not in their country but their subsidiaries' countries through profit shifting. Second, these MNE will be willing to increase the magnitude of their CSR activities before engaging in profit shifting for fear of consumer retaliation. Thus, we formulate the following hypothesis:

> *Hypothesis 2:* The relationship between CSR and profit shifting should be stronger for parent companies located in countries with a higher level of consumer product boycott activity.

We employ several additional country heterogeneities to further utilize the worldwide coverage of our dataset. In a similar manner to the previous argument, we expect the relationship between CSR and profit shifting to be stronger for parent companies located in countries where media freedom is greater. Second, in countries where citizens believe that government can implement laws that promote the development of the private sector and property rights are protected, we expect unethical behavior on the part of firms to be more limited. In this case, we

anticipate the relationship between CSR and profit shifting to be weaker in countries with stronger regulatory quality and a higher level of property rights. Finally, we examine the influence of CSR on profit shifting by taking into consideration different tax systems. Specifically, since countries under the territorial tax system exempt income earned overseas, and since the incentives for profit shifting are higher for multinationals under the territorial tax scheme (see e.g., Markle, 2016), we should expect the effect of CSR on profit shifting for these firms to be greater.

3 Data and methodology

3.1 Data

We construct our dataset using various sources. First, to estimate the profit-shifting measures, we download accounting information for multinational corporations (both parents and subsidiaries) from Orbis. Second, we collect CSR data for the international firms from the Thomson Reuters ASSET4 database. Our sample selection includes all publicly listed parent firms that can be matched with the ASSET4 database and their subsidiaries. After excluding parent and subsidiary firms that operate in the financial industries (SIC code: 6000-6999), our final sample consists of 26,752 observations over the period from 2009 to 2016. In total, we have 509 unique parent companies originating from 20 countries (including many OECD countries and China) and 6,103 unique subsidiary companies from 63 countries.

We also download country-level data from the following sources. Product-boycott data are drawn from the European Social Survey.[10] Information regarding media freedom comes from

[10] These data can be found here: https://www.europeansocialsurvey.org/. The variable of interest is "bctprd" that asks consumers the following question: "During the last 12 months, have you done any of the following: Have you boycotted certain products?" Based on that question, we aggregate the results at the country level using the respective survey weight.

Freedom House,[11] while governance indicators are from the World Bank.[12] We provide definitions of the variables used in our analysis along with their sources in Table 1.

[Insert Table 1 about here]

Table 2 reports summary statistics. Note that the number of observations reported in Table 2 does not directly match that of the tables of our main specifications because all available information from Orbis is used to estimate profit shifting and some observations were lost after merging with ASSET4. Further examination of Table 2 indicates that about 61% of observations originate from a country with a territorial tax system, while about 73% of subsidiaries are based in countries with lower corporate taxation, as opposed to that of parent companies. Parent companies tend to be large with mean pretax profits of about $1.10 billion and mean total assets of around $19.8 billion. However, parent profits and total assets present a wide range of values spanning from $3.8 million to $57 billion for profits and $623 million to almost $500 billion for assets. Subsidiary companies are smaller and have an average pretax profit and assets of about $14 million and $38 million, respectively.

[Insert Table 2 about here]

3.2 First-stage: Estimation of profit shifting

We use a difference-in-differences (DiD) approach to estimate tax-motivated profit shifting as in Dharmapala and Riedel (2013). This identification method lies on utilizing the impact of exogenous shocks to a parent's pretax and pre-shifting profit, $\tilde{\pi}_{pt}$ on subsidiaries in low-tax countries. For the purposes of this approach, subsidiaries in low-tax countries belong to the

[11] Freedom House link: https://freedomhouse.org/report-types/freedom-press
[12] For more information regarding these data see Kaufmann et al. (2011).

treatment group, while subsidiaries in high-tax countries comprise the control-group. We assume that an increase in the pre-tax and pre-shifting profits of a parent company would increase the pretax profits of a subsidiary firm located in a country with lower taxes, but not those in countries where taxation is higher.

In mathematical terms, our model has the following form:

$$\log \pi_{it} = \mu_i + \beta_1 \log a_{it} + \beta_2 \log \tilde{\pi}_{pt} + \beta_3 \left(d_{it} \cdot \log \tilde{\pi}_{pt}\right) + \beta_4 d_{it} + \beta_5 lever_{it} + \rho_{it} + \epsilon_{it}. \quad (1)$$

In the above equation, π_{it} is the earnings before tax (EBT) of the subsidiary i at time t, d_{it} is an indicator variable taking a value of one for subsidiaries located in countries with lower taxation rates than those of parent firms. Additional controls include a subsidiary's size, a_{it}, and debt exposure, $lever_{it}$. Likewise, ρ_{it} is a set of fixed effects, such as subsidiary, year, industry-year, and country-year fixed effects. Finally, e_{it} is the error term.[13]

The process of constructing $\tilde{\pi}_{pt}$ is based on the insights of Bertrand et al. (2002). Specifically, we set the following system of equations:

$$\tilde{\pi}_{pt} = \widetilde{ROA}_{pt} \times a_{pt}, \quad (2)$$

$$\widetilde{ROA}_{pt} = \sum_j \frac{a_{jt}}{\sum_j a_{jt}} \times ROA_{jt}, \ p \neq j, \ \forall\, t \in \{1, \ldots, T\}. \quad (3)$$

In the above equations, a_{pt} denotes the total assets of the parent company p affiliated with a subsidiary firm i. Noting that subscript j denotes comparable parent firms, we set $ROA_{jt} = \frac{\pi_{jt}}{a_{jt}}$ to be the ratio of pretax profit over total assets for the comparable firm. Importantly, the instrument we use, $\tilde{\pi}_{pt}$, is the product of the average industry profitability ratio, $\widetilde{ROA}_{pt}$, and the total assets of the parent company (a_{pt}). For parent firms, we have consolidated data and we avoid double-

[13] For the estimation of profit shifting, we also incorporate information about the subsidiary country's population and GDP per capita, as these are important indicators that take into account many dimensions of a country's economy.

counting the assets of subsidiary i in the parent's consolidated statement by subtracting each subsidiary's total assets from the consolidated total assets. To this end, by estimating equation (1) we obtain profit-shifting estimates at the subsidiary-year level. Bear in mind, however, that although we have information about actual parent earnings, to ensure shock exogeneity we need to use $\tilde{\pi}_{pt}$ that provides us with industry earnings shocks. Another important point is that we employ shocks from comparable firms (instead of parent companies) to deal with reverse causality.

Based on parent firm p, we characterize (other) firms to be comparable when they belong to the same industry (i.e., have the same four-digit NACE codes) and country. Next, we take from Orbis all national and multinational firms for which we have available information about profits and total assets. Regarding the sample construction, and in order to increase accuracy in the statistical analysis that follows, we impose two restrictions. First, we require only subsidiary-year combinations when the set of comparable firms is at least 20 firms. Second, subsidiaries and parent companies differ at four-digit NACE codes, so that industry shocks do not drive subsidiaries' pretax profits. Both restrictions are in line with Dharmapala and Riedel (2013).

According to our research design, if tax-motivated profit shifting exists, then we expect a positive sign for $\hat{\beta}_3$. That is, when a positive income shock occurs in the parent company, we expect profit to shift from a parent company located in a country with higher corporate taxation to a subsidiary located in a country with lower corporate taxation, *ceteris paribus*.

3.3 First-stage results

Results on the estimation of profit shifting are found in Table 3. Columns in Table 3 differ in the way they incorporate fixed effects. Column (4), for example, is the most restrictive case in terms of the number of fixed effects included. The coefficient of interest is that of the interaction term,

Low (x) Parent profits. In all specifications this term is positive and statistically significant with a value around 0.03. This indicates that a 10% increase in parent's earnings is followed by 0.3% higher EBT for low-tax subsidiaries.

[Insert Table 3 about here]

3.4 Profit shifting proxy

So far, in our analysis we have followed the profit shifting method of Dharmapala and Riedel (2013) to estimate the coefficient of *Low (x) Parent profits*, $\hat{\beta}_3$. The estimations of the first stage (shown in Table 3) provide evidence for profit shifting in our sample, replicating the findings of Dharmapala and Riedel (2013). According to the approach of Dharmapala and Riedel, the higher is the coefficient $\hat{\beta}_3$, the higher is the firm's profit shifting. In turn, to construct our proxy of profit shifting, after the first stage estimation, we calculate the partial fitted values by subsidiary-year: $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$. These values, which we denote as *ps*, constitute the proxy we utilize for profit shifting. The idea is that having taken into consideration the rest of the control variables that may affect the *EBT* of a subsidiary, $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$ is the part of the reported *EBT* that is directly linked to tax purposes. It is the additional part of the parent earnings' shock that ends up in the low tax subsidiary (treatment group) compared to a high tax subsidiary (control group).

The proxy we construct for profit shifting is relatively simple. More precisely, it takes the value zero for the case of high tax subsidiaries (i.e., when d_{it} equals zero), and it takes positive values for the case of low tax subsidiaries (i.e., when d_{it} equals one)—this is when tax incentives for income shifting exist. Its magnitude depends on the parent industry earnings shocks that we introduce using the average industry profitability ratio, $\widetilde{ROA}_{pt}$, as well as on the parent total assets, a_{pt}. To avoid double-counting in the measure of α_{pt}, we have deducted the subsidiary's total

assets in each subsidiary-year observation of our sample. Practically, this gives us a subsidiary level measure.

Intuitively, profit shifting, *ps*, towards low tax subsidiaries, will be higher when the earnings shock is higher and when the parent firm is larger. Both scenarios for our proxy are plausible and realistic. On average, a parent firm with higher profits has, *ceteris paribus*, higher incentive to shift income towards low tax subsidiaries, compared with a parent firm with negligible earnings. Likewise, someone would expect that for firms with a similar tax incentive to shift income, a larger MNE would have more tools to support international income shifting than a smaller one. (By its sheer size, a larger company will have more subsidiaries in low tax countries.)

As every proxy, our profit shifting measure, *ps*, comes with advantages and some limitations. The major advantage, and therefore our motivation, of this new profit shifting proxy is that it is based on the average profitability ratio of the parent company's industry, $\widetilde{ROA}_{pt}$. Thus, the earnings shocks we introduce are out of the control of the parent firm, providing exogeneity in our proxy.[14] The latter is crucial, especially in studies with well documented reverse causality issues like ours (i.e., CSR or in studies that explore corporate governance issues). Moreover, as we mentioned above, we make use of the consolidated parent total assets, a_{pt}, reduced by the subsidiary total assets, a_{it}. On the one hand, this allows retaining in our sample parent firms whose separate financial statements are not publicly available, such as the U.S. parents. On the other hand, given the missing data in the coverage of all the subsidiaries for an MNE in Orbis, taking into consideration the consolidated size of a group, helps to mitigate the loss of information.

[14] Huizinga and Laeven (2008) also develop a profit shifting proxy that exploits tax difference and not earnings shocks like ours, however this approach introduces endogeneity issues (see Hines and Rice, 1994; Huizinga and Laeven, 2008).

A limitation of this measure is that this proxy captures profit shifting only between a parent firm and a subsidiary. It cannot capture the total profit-shifting occurring within a multinational group, and more precisely among the various subsidiaries. Even so, this limitation is not expected to have an influence on our content. Our focus in this study is not to measure total profit shifting with precision, but to rather examine the relationship between CSR and MNEs' profit shifting. We expect that, if anything, our results are stronger if our profit-shifting measure is more inclusive.

Building on this body of literature, and introducing a new proxy for profit shifting, it is vital to validate it. Although Dharmapala and Riedel (2013) provide several such tests, we further examine the behavior of this proxy with established outcomes from the relevant literature. Based on prior research, we expect to find that firms shift more income (i) under a territorial tax system (see Markle, 2016), (ii) if the parent firm is located in a country under the worldwide tax system and has no financial constraints (see Dyreng and Markle, 2016) and (iii) if firms owe a larger amount of intangible assets (see Dischinger and Riedel, 2011; Karkinsky and Riedel, 2012). The results of these tests are shown in rows 1-3 of Table A1 and are in line with the findings of the relevant literature. To further strengthen our results and provide an evaluation of our proxy of profit shifting, we run an additional robustness test. Here, we check the sensitivity of our findings utilizing true pre-tax parent earnings. In practice, we re-estimate profit shifting using equations 1-3, but this time we use the true parent earnings as they are proxied by parent Earnings Before Tax, π_{pt}, instead of $\tilde{\pi}_{pt}$. In this way, we calculate a version profit shifting as $\hat{\beta}_3(d_{it} \cdot \pi_{pt})$ instead of $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$. In untabulated results (available upon request), we find results qualitatively similar to those of Table 3. Also, both versions of the profit-shifting measure are positively correlated.

3.5 Second-stage: The effect of CSR on profit shifting

To study the relationship between CSR and profit shifting, we use the following regression equation, as in Davis et al. (2016):

$$ps_{i,p,t} = \gamma_0 + \gamma_1 CSR_{p,t-1} + \gamma_2 h_{p,t-1} + \gamma_2 k_{i,t-1} + \xi + u_{i,p,t} \quad (4)$$

In equation (4), ps denotes profit-shifting values for a specific subsidiary i of parent company p in a specific year, t.[15] CSR is the parent's composite index of corporate social responsibility. A vector with parent-year control variables is denoted by h, a vector with subsidiary-year control variables is denoted by k, while ξ represents several different fixed effects. Finally, u is the error term.

We include several control variables that the prior literature has shown to affect tax aggressiveness, such as total assets, leverage, return on assets, the ratio of fixed assets to total assets, and R&D expenditures over total assets for both parent and subsidiary companies. Our specifications include a rich set of fixed effects and their interactions that help us capture various unobserved heterogeneities in firm, industry, and time dimensions. Finally, we provide specifications with clustering at the subsidiary level and specifications with clustering at the parent level to test the sensitivity of our findings.

We collect firm-level CSR data from the Thomson Reuters ASSET4 database. Prior to being acquired by Thomson Reuters in 2009, ASSET4 was a Swiss company specializing in gathering objective and quantifiable company ESG data from publicly available information sources. For each firm, a specially trained team of experts manually collects more than 900 data points relating to its environmental, social, governance, and economic performance. These data points are then used as inputs to construct 250 key performance indicators, further organized into

[15] We use three different measures of profit shifting in our analysis. See Table 1 for more information.

18 categories, and more broadly, into four pillars: (1) Environmental Scores; (2) Social Scores; (3) Governance Scores; and (4) Economic Scores. For each of the four dimensions, a firm's pillar score in a given year is a standardized z-score and thus captures its relative performance against all other firms in the universe of ASSET4. Following Cheng et al. (2014), a firm's CSR performance is measured as the average of Environmental, Social, and Governance Scores. Since it is unclear a priori as to what the relative weights should be, we follow the convention in the prior literature (e.g., Waddock and Graves (1997), Hillman and Keim (2001), Waldman et al. (2006), and Cheng et al., 2014) and assign equal importance to the three pillars.

4 Results

4.1 The impact of CSR on profit shifting

We start with a graphical representation of the relationship between corporate social responsibility and profit shifting in Figure 1. The average values (at the parent-country level) of the CSR index and the profit-shifting measure demonstrate a positive relationship. Firms from countries with higher CSR scores appear to have higher levels of profit shifting.

[Insert Figure 1 about here]

Results of our baseline model are found in Table 4. We start with a simple specification where we include only our main independent control variable (CSR) and multiple fixed effects. Specifically, parent, parent industry-year, parent country-year, subsidiary industry-year, and subsidiary country-year fixed effects. By doing so, we obtain a quite high R^2 of 74.2%. We then start progressively adding controls for parent and subsidiary firms.[16]

[16] We repeat this analysis in Appendix Table A1 where, instead of having our dependent variable and lagged (by one year) control variables, we use changes. The results (found in row 10) are similar.

The results for the CSR measure indicate a positive and statistically significant relationship, which, in turn, means that parent firms with higher CSR scores exhibit higher profit shifting. For example, based on the last model presented in column 4, we find a coefficient of 0.024. This outcome indicates that a one-unit increase in the CSR measure increases profit shifting by 2.4 percentage points or, alternatively, by moving from the 25th to the 75th percentile of CSR we obtain an increase in profit shifting of equal to 0.5 percentage points.[17] Hence, the results support our first hypothesis, i.e., that firms care about their image and, because potential revelations of profit shifting might hurt their value in multiple ways, they have already strategically increased CSR in order to face less severe punishment.[18] Most importantly, our results are conceptually in line with those of Davis et al. (2016), although we examine a very specific tax-planning activity, profit shifting.[19]

[Insert Table 4 about here]

Approximately 48% of parent companies in our sample are based in the United States. For this reason, and as a robustness exercise to ensure that our results are not driven by the activities of U.S. firms, we test the same baseline specification without including U.S. parent companies. The results are in row 4 of Appendix Table A1 and are qualitatively very similar. Perhaps more importantly, however, the CSR coefficient we obtain now is larger in all specifications.[20] We return to this finding with additional details below when we discuss the effect of different tax systems in profit-shifting incentives.

[17] The 75th and 25th percentile values for CSR are 0.886 and 0.672. Hence, the outcome for the interquartile difference is the result of the following calculation: $(0.886 - 0.672) \times 0.024 = 0.005$.
[18] For empirical evidence regarding this mechanism see Hong and Liskovich (2016).
[19] The measure of profit shifting we construct is bounded to zero from below. Hence, to deal with any problems of censoring, we perform a Tobit regression. The results, found in row 8 of Appendix Table A1, remain almost identical.
[20] In row 5 of Appendix Table A1 we show the same estimation for only the U.S. parent firms of our sample.

Next, we run several sensitivity tests to corroborate our main findings. Results of these tests are given in Table 5. Specifically, columns (1) and (2) include two different proxies of profit shifting obtained from specifications (2) and (3) of Table 3: the first accounts for subsidiary and year fixed effects, while the second accounts for subsidiary and industry-year fixed effects. In column (3) we cluster standard errors at the parent level instead of the subsidiary level to deal with this specific form of heteroscedasticity, which could perhaps drive our results and provide incorrect inferences. Importantly, in order to address potential bias due to the profit-shifting measure carrying potential errors from the first stage, we perform a bootstrap estimation with 500 replications. In all these sensitivity tests, our control for corporate social responsibility is relatively unaffected. Finally, the last specification of Table 5 adds subsidiary fixed effects. The inclusion of subsidiary fixed effects considerably increases the explanatory power of the model, as R^2 reaches almost 94.4%. It is important to notice here that our main variable of interest, CSR, is still statistically significant, although the coefficient is somewhat smaller.

[Insert Table 5 about here]

Our analysis so far relies on the fact that MNEs engaging in profit-shifting activities use CSR strategically. That is, they increase their CSR scores in order to improve their reputation and legitimacy. In this way they are punished less severely in cases where they are "caught with their hand in the cookie jar." In turn we proceed with a placebo test. If the mechanism explained above regarding the relationship between CSR and profit shifting holds, then it is to be expected that a much smaller (or even zero) impact of CSR would be found when examining MNEs that exhibit low profit-shifting activities. To this end we restrict our dataset to MNEs in the bottom quartile of our profit-shifting measure and run the same baseline specifications. We present our results in

Table 6. As expected, the impact of CSR on profit shifting across all specifications is practically zero for MNEs that do not engage in profit-shifting activities.[21]

[Insert Table 6 about here]

4.2 Country-level heterogeneity

In this subsection, we exploit the global nature of our dataset and explore the cross-country heterogeneity regarding the impact of CSR on profit shifting. Such cross-country tests have not been feasible in the prior literature (e.g., Hoi et al., 2013; Watson, 2015; Davis et al., 2016), as these studies relied solely on U.S. data.

In line with Hanlon and Slemrod (2009), Graham et al. (2014) and Dyreng et al. (2016), we expect that parent companies engaging in profit shifting and located in countries where consumer product-boycott rates are higher will utilize CSR strategies more intensively. Table 7 shows the results for this test. First, we split the sample into high- vs. low-product-boycott countries. Second, in the pooled sample, we include the $CSR \times High\ boycott$ interaction term, which allows us to explore the cross-country variation in CSR's potency regarding profit shifting. The results we obtain are in accordance with Hypothesis 2. Specifically, we find that higher CSR scores have a stronger effect on firms from countries where the numbers of consumer product boycotts are higher.[22]

[Insert Table 7 about here]

[21] To further corroborate this finding, we also experiment with the top quartile of the profit-shifting distribution. Row 6 of Table A1 presents these results. Importantly, the impact of CSR on profit shifting in this group of MNEs that exhibit very aggressive profit shifting is positive and significant, as was expected.

[22] In additional robustness exercises, we repeat the analysis for the top quartile regarding the product boycott measure. Specifically, in results presented in row 7 of Appendix Table A1, we restrict our sample to parent firms located in countries under the territorial tax system (where the incentives for profit shifting are expected to be more pronounced) and re-examine the impact of CSR on profit shifting for high- vs. low-boycott countries. Our findings are very similar to those of Table 7. That is, the CSR impact is more pronounced for firms located in countries with higher consumer product-boycott rates.

In Table 8, we present additional results where we further utilize country heterogeneities. Here we find that all our hypotheses are proven to be valid. Specifically, the interaction effect of CSR and media freedom enters with a positive and statistically significant coefficient. This indicates that in parent countries where media freedom is greater, the relationship between CSR and profit shifting is stronger. Furthermore, we conjecture that MNEs in countries where property rights are stronger, and the private sector is protected by a strong legal system would engage in less profit shifting. Our findings point in that direction, as the interaction terms of CSR and regulatory quality, along with the interaction term of CSR and the rule of law enter with a negative and statistically significant coefficient. Finally, following the insights of Scholes et al. (2015), Kohlhase and Pierk (2016), and Markle (2016), we expect that parent firms located in countries under the territorial tax scheme will be more tax aggressive, i.e., will shift more profit. We find that higher CSR scores have a stronger effect on firms from countries under the territorial tax system.[23]

[Insert Table 8 about here]

5 Dealing with endogeneity and potential selectivity bias

Two important issues that emerge when studying corporate decisions are endogeneity and selectivity, i.e., the result of a firm's choices. Endogeneity can be a consequence of reverse causality, omitted variables, and measurement errors. Selectivity, in this setting, originates from firms choosing specific paths that might not be randomly selected; for example, firms that participate more actively in CSR activities might differ from others in a specific pattern. In the following subsections, we propose several potential solutions to deal with these issues.

[23] Notice here that in column 4 of Table 8, the territorial dummy is absorbed by parent country fixed effects.

5.1 Reverse causality

First, we run several tests to show that the effect we obtain is more likely to run from CSR to profit shifting than otherwise. In our first test, we estimate models where CSR is a dependent variable and the profit-shifting measure is an explanatory variable. Should we find that the effect of profit shifting is insignificant, then the possibilities of reverse causality will be limited.

Table 9 reports the results. All models include the same controls used in our baseline analysis plus the profit-shifting variable. From the table we can deduce that profit shifting has no effect on CSR scores, since the coefficients in all specifications not only are statistically insignificant but their values are close to zero. These results are not surprising, because the profit-shifting measure is constructed based on exogenous shocks to the industry (peer companies) where a firm operates, rather than on its actual parent firm's earnings.[24]

[Insert Table 9 about here]

Thus far, we have relied on industry profitability ratios of peer companies to create our firm-specific measure of profit shifting (see equations 1-3). A key strength of our measure is that it is based on a difference-in-differences approach that dramatically reduces the concern that our results are driven by reverse causality, i.e., a firm's profit-shifting strategy leads to its CSR strategy. This approach makes our measure particularly beneficial for studies that examine firm factors that potentially influence profit shifting.

To further strengthen our results and provide an evaluation of our measure of profit shifting, we run one additional robustness test. In doing so, we re-run our main econometric model,

[24] We repeat this analysis using variable changes instead of levels. The results reported in row 11 of Appendix Table A1 are very similar.

i.e., the effect of CSR on profit shifting (i.e., eq. 4) but using the profit shifting measure with the true parent earnings $\hat{\beta}_3(d_{it} \cdot \pi_{pt})$ instead of our baseline one $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$. The results are given in row 9 of Table A1 and are qualitatively similar to our baseline specification found in Table 4. A common pattern we observe in our findings is that the coefficients are quantitatively larger when we use the true pre-tax earnings of the parent company (π_{pt} instead of $\tilde{\pi}_{pt}$), because the coefficients are "inflated" due to endogeneity issues from reverse causality. In our main analysis, the use of $\tilde{\pi}_{pt}$, constructed by industry-profitability ratios, significantly mitigates these endogeneity concerns, since it is not a choice variable for the parent firm. Nevertheless, this is not the case when we use the true pre-tax earnings of the parent company.

5.2 Omitted variable bias and selection bias

Having found that reverse causality is less likely to be an issue in our econometric analysis, we next employ an instrumental variables approach (IV) to deal with endogeneity due to omitted variables and a Heckman selection model to deal with potential selection bias.

To deal with potential selection bias, we employ an endogenous treatment-regression model (Heckman selection).[25] The latter is modelled along the following lines:

$$High\ CSR_{it} = 1 \text{ if } \quad \mu_0 + \mu_1 IV + \mu_2 h_{it} + \xi + \zeta > 0, \qquad \text{with } \zeta \sim (0, \sigma^2) \tag{5}$$

$$ps_{it} = \eta_0 + \eta_1 High\ CSR_{it} + \eta_2 h_{it} + \xi + \lambda + \omega_{it} \tag{6}$$

Equation 5 is our selection or treatment equation, and constitutes the first stage of the selection model, while equation 6 is the main equation. $High\ CSR$ takes a value of one for all firms that belong to the highest CSR quartile. Variable h is a vector of subsidiary-year and parent-year

[25] For the case of the Heckman treatment model, high CSR is a dummy variable taking a value of one when a firm's CSR belongs to highest quartile.

control variables, ξ represents various fixed effects, while λ is the inverse Mill's ratio taken from the first stage and is the component that mitigates selection bias, while ω_{it} is the error term.

Lacking any policy shock or quasi-experiment at the global level that could have potentially solved our identification issue, we rely on a number of different instrumental variables. To this end, following past literature (Laeven and Levine, 2009; Lin et al., 2011; Ferrell et al., 2016), our first instrument is peer average CSR scores in an industry. To achieve this, we take averages by country, industry, and year. Academic research on this topic points to this direction. For example, Cao et al. (2019) argue that CSR adaptation can be perceived as a strategic response by firms in a specific sector. Specifically, if peers in a specific sector invest more in CSR activities, there is a credible threat that some firms may be left behind (laggards) and as such they may be punished in the market.[26]

The results presented in Table 10 point in this direction. Using the industry-peer CSR as our exclusion restriction, we run our baseline models and find a positive and statistically significant relationship between CSR and profit shifting. The magnitude of the coefficient is close to that found in the baseline specification (see Table 4), while the coefficient obtained in the IV model is around 6%.

[Insert Table 10 about here]

Although prior studies have used peer average CSR scores as potential instruments for a firm's CSR, we understand that such a measure might not be strictly exogenous for our purpose. To strengthen our work, we employ additional instruments, discussed below.

First, we proceed with a variable that belongs to the family of "deep-root" determinants that shape economic preferences, specifically *negative reciprocity*. We utilize newer and more

[26] In fact, this is what Cao et al. (2019) find. In an RDD design, they document that peers having difficulty catching up experience lower stock returns.

accurate data regarding the variation of economic preferences around the world compiled by Falk et al. (2016, 2018); these are data from the Global Preference Survey (GPS). From an evolutionary anthropological point of view, humans cooperate with each other within a society when there is altruistic punishment (even if it is costly). Fehr and Gächter (2002) argue that the reason for this is negative emotion toward defectors in public-good or reputation games. We incorporate the above logic into our framework and view CSR as a result of a social contract, as in Sacconi (2007). According to Sacconi, firms seek to participate in CSR activities not because they are forced to do so, but because they desire to increase their reputation in society. The mechanism works along the following lines. In a society where stakeholders have a strong conformist orientation, meaning that they are willing to support a cause as long as the other players are willing to do so (high reciprocity), a firm will not be opportunistic but rather will adopt full compliance with the societal code of ethics.[27]

[Insert Table 11 about here]

The negative reciprocity variable captures prosocial punishment. That is, countries where the value of negative reciprocity is higher are more likely to follow societal norms. Economic agents in such countries are more willing to take revenge and punish unfair behavior. Hence, as the literature from evolutionary anthropology stresses, long-lasting cooperation among many participants is more likely to be sustained through negative reciprocity (e.g., Boyd et al., 2003; Henrich et al., 2006). Our results in columns 1 and 2 of Table 11 point exactly in that direction. Specifically, we find that countries with higher negative reciprocity document higher CSR scores. Importantly for our main model, CSR enters with a positive and highly significant coefficient, which supports our hypothesis.

[27] Sacconi (2007) proves this in an infinitely repeated reputation game.

Furthermore, as in Hoi et al. (2013), we use a government's political orientation as a potential instrument. Our conjecture is that firms located in countries with less conservative governments will favor CSR activities. Here we follow the insights of Rubin (2008), who finds that firms located in "red" U.S. states have lower CSR scores. Using the Database of Political Institutions (DPI) developed by Cruz et al. (2018), our findings corroborate that argument. Our dummy for right-wing government enters with a negative coefficient in the first stage, indicating that firms under such governments are less likely to invest in CSR.[28] Importantly, our main model (column 3) shows a positive coefficient for CSR, which is in line with our main hypothesis.[29]

Throughout our analysis regarding the endogeneity of the CSR variable, our instrumental variable approach shows strong support for our main hypothesis. With our strategy, we are able to study one direction of causality, that from CSR to profit shifting. While more granular data are needed to strengthen the argument of causality, nonetheless, we have provided statistical inferences with a variety of econometric techniques, all of which confirm our main hypothesis. We view this as an important addition to the literature that studies the relationship between CSR and tax aggressiveness and hope our work will set the foundation for further developments in the field.

[28] Note that we use a lag of three years for the type of political parties in power. This is because our lag variable should be able to explain CSR at t-1 and that laws require time for implementation. Using a lagged value of the type of political party at t-1, might risk not capturing the effect of the laws passed in previous years that have now taken effect.
[29] In untabulated results we have also utilized two additional instrumental variables. Namely, the environmental performance index (EPI) and, following Liang and Renneboog (2017), natural disasters. The results are once again similar. Results are available upon request.

6 Conclusion

Heretofore, the disciplines of accounting, finance and economics have ignored the relationship between corporate social responsibility and MNEs' profit shifting (i.e., cross-country tax avoidance). CSR is potentially beneficial for firms, as it can increase a firm's value by attracting higher quality employees, reducing risk management, and increasing customer loyalty. Concurrently, CSR can also be beneficial for society through responsible firm practices that are generally advantageous to stakeholders. Moreover, it is possible that firms with higher CSR face reduced scrutiny by both the government and the public regarding their (possibly questionable) practices. Therefore, they might be punished less severely in cases involving unethical corporate actions.

Profit shifting, which is a very specific form of tax planning activity, is such a questionable action. There has been vocal criticism in many countries concerning the dubious behavior of some MNEs and discussions between politicians and regulators regarding this matter are on the rise. Such discussions gravitate around the fairness of the tax system and potential mechanisms that could curtail profit shifting, but also focus on allowing firms to expand, innovate, and add more jobs in the economy. We strongly believe that profit shifting will be central to the political agenda in the future, especially in large economies such as the European Union and the United States.

This is the first work to study thoroughly the relationship between corporate social responsibility and profit shifting. To accomplish the goals of this study, we use firm data from a worldwide sample: 509 unique parent firms from 19 OECD countries and China and their respective subsidiaries, 6,103 unique subsidiary companies from 63 countries. Our empirical work consists of two stages. First, we obtain exogenous profit-shifting measures using a difference-in-differences (DiD) method. Next, we explicitly study the relationship between corporate social

responsibility and profit shifting. This is not only the first work that studies the relationship between CSR and cross-country tax avoidance (profit shifting) but also, based on legitimacy and reputation theories, it provides evidence of a specific direction of causality: that from CSR to profit shifting. Even though we do not strictly claim causality in our paper, all our tests point towards this direction. More precisely, we find that CSR and profit shifting have a positive and statistically significant relationship. This outcome is strong and survives a battery of robustness tests, including specifications for endogeneity and selectivity bias. We also find that the relationship between CSR and profit shifting is stronger for parent firms in countries with high levels of consumer activism and freedom of media. This outcome holds for two main reasons. First, higher levels of consumer activism and freedom of media increase the relative cost for domestic versus across countries tax avoidance. This is a result of increased scrutiny enforcing firms to substitute the "expensive" domestic tax avoidance with the relatively cheaper across-countries tax avoidance, i.e., profit shifting. Second, firms which have engaged in aggressive tax avoidance through profit shifting, are under higher pressure to retain their reputation in countries where consumer activism is more ubiquitous, and media are free. Under such circumstances, the evidence suggests that higher CSR is required for firms in such countries to maintain, or even increase, their level of profit shifting.

The findings of this study will be useful for both policy makers and taxing authorities. Our work shows that firms with higher CSR scores are more likely to document higher profit shifting. Prior research has found that more socially responsible firms are treated with leniency whenever corporate scandals erupt. However, this treatment could lead to socially dubious incentives. Specifically, some firms may strategically increase their CSR scores to avoid scrutiny and receive lower punishment for their wrongdoing to society (including profit-shifting activities). Therefore,

policy makers should devise mechanisms that would lead firms to optimally choose socially beneficial alternatives without creating any negative externalities.

This work opens a window for future research. Because the concept of CSR is expanding in the developed world and is also expected to spread to other economies as they become wealthier, more detailed corporate social responsibility data will become available. It will therefore be possible for future scholars to explicitly study the paths of causality using firm level instruments that are much more fine-tuned than the time-invariant country-level variables that are currently available. This will further refine the estimates regarding the relationship between CSR and profit shifting, although clear causality can only be optimally achieved by (quasi) natural experiments or randomized control trials. Other avenues for future research are the development of more advanced methods to estimate profit shifting and the compilation of longer and richer time-series CSR data.

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Table 1: Description of variables

Variable	Definition	Source
EBT	Natural logarithm of subsidiary's pre-tax profits.	Orbis
Low	A dummy that equals one when the subsidiary's tax rate is below that of their parent, and zero otherwise.	Own calculation
Parent profits	This denotes the parent's pre-tax and pre-shifting profit. To construct it, multiply the asset weighted average profitability of firms in the same industry (based on 4-digit NACE codes) and country with the parent's total asset stock. Specifically, parent profits are defined as: $\tilde{\pi}_{it} = \tilde{p}_{jt} a_{it}$.	Orbis
Subsidiary total assets	Natural logarithm of subsidiary's total assets.	Orbis
Subsidiary leverage	Total debt to total assets for the subsidiary firm.	Orbis
Subsidiary population	Natural logarithm of the total population of the subsidiary's country.	World Bank
Subsidiary GDP capita	Natural logarithm of GDP per capita of the subsidiary's country.	World Bank
Profit shifting	The profit shifting measure calculated based on the method of Dharmapala and Riedel (2013).	Own calculation
Profit shifting 2	*Idem*, augmented with subsidiary and year fixed effects.	Own calculation
Profit shifting 3	*Idem*, augmented by controlling for subsidiary, and industry-year fixed effects.	Own calculation
Parent liquidity	Parent cash flow to operating revenue. Higher parent liquidity is an index for less financially constrained parent firms.	Orbis
Parent intangible assets	Parent company intangible assets (in logs)	Orbis
CSR	Parent's composite index of corporate social responsibility. CSR is the equal weighted average of three pillar scores (environmental, social, and governance performance) from Thomson Reuters ASSET4 database. The pillar scores are aggregated from a number of individual indicators and ratings collected by ASSET4 on firm performance in relation to their wellbeing to the environment, society, and other stakeholders.	Thomson Reuters ASSET4
Parent total assets	Natural logarithm of parents' total assets.	Orbis
Parent leverage	Total debt to total assets for the parent firm.	Orbis
Parent ROA	Parent firm's returns on assets, defined as earnings before tax divided by total assets.	Orbis
Parent Fixed assets/TA	Parent firm's asset tangibility, defined as total fixed assets to total assets.	Orbis
Parent R&D/TA	Parent firm's R&D intensity, defined as the amount of R&D expenditure divided by total assets. Missing R&D is assumed to be zero.	Orbis
Subsidiary ROA	Subsidiary's returns on assets, defined as earnings before tax divided by total assets.	Orbis
Subsidiary Fixed assets/TA	Subsidiary's asset tangibility, defined as total fixed assets to total assets.	Orbis
Subsidiary R&D/TA	Subsidiary's R&D intensity, defined as the amount of R&D expenditure divided by total assets. Missing R&D is assumed to be zero.	Orbis
Territorial dummy	A dummy variable that equals one for parent firms whose countries are under a territorial tax system, and zero otherwise.	Own calculation
High boycott	A dummy that equals one for parent firms in countries where product boycott frequency is above the median and zero otherwise.	Own calculations

Negative reciprocity	A variable that captures prosocial punishment in societies. Countries where the value of negative reciprocity is higher are more likely to follow societal norms.	Global Preference Survey
Right-left government	A dummy taking value for right-wing governments.	Database of Political Institutions
Press freedom	It takes values from 0 to 100; higher values indicate more press freedom.	Own calculations based on Freedom House data
RQ	This variable denotes regulatory quality. It captures perceptions of the efficiency of the government to implement policies and regulations that help private sector thrive. Higher values indicate better outcomes.	Worldwide Governance Indicators
RL	This variable denotes rule of law. It captures the quality of contract enforcement, property rights, the judicial system, and the likelihood of misbehavior within the society (e.g., crimes). Higher values indicate better outcomes.	Worldwide Governance Indicators

Table 2: Summary statistics

Notes: This table reports summary statistics of the variables used in the analysis. The definition of variables is in Table 1. The values for EBT and parent's profits are in thousands of U.S. dollars, while the values for parent's and subsidiary's total assets are in millions of U.S. dollars.

Variable	Obs.	Mean	Std. dev.	Min	p25	p50	p75	Max
EBT	26,679	14,122.430	152,288	-1,554,860	267.9	1,930	7,037	14,200,000
Low	26,752	0.728	0.445	0.000	0.000	1.000	1.000	1.000
Parent profits	26,752	1,087,074	4.726	3.728	379,269	1,209,842	3,066,355	57,024,981
Profit shifting	26,752	0.305	0.190	0.000	0.000	0.399	0.438	0.528
Profit shifting 2	26,752	0.277	0.173	0.000	0.000	0.362	0.398	0.480
Profit shifting 3	26,752	0.333	0.207	0.000	0.000	0.435	0.478	0.576
Parent liquidity	26,709	13.83	9.173	-90.27	7.984	11.85	17.84	88.52
Parent intangible assets (in th. USD)	26,752	14,700,000	19,600,000	0.000	1,837,686	7,035,907	20,500,000	225,000,000
CSR	26,752	0.748	0.187	0.064	0.672	0.810	0.886	0.956
Parent total assets	26,752	19,732	4.384	623.283	6,229.18	24,173.20	65,447.27	492,869.60
Parent leverage	26,752	0.923	0.229	0.360	0.771	0.929	1.088	1.529
Parent ROA	26,752	0.076	0.063	-0.084	0.039	0.065	0.106	0.302
Parent Fixed assets/TA	26,752	0.597	0.147	0.191	0.512	0.606	0.695	0.889
Parent R&D/TA	26,752	0.027	0.033	0.000	0.001	0.017	0.039	0.158
Subsidiary total assets	26,752	37.788	4.811	0.995	12.975	3.534	34.261	2,861.21
Subsidiary leverage	26,752	0.980	0.467	0.147	0.633	0.940	1.286	2.267
Subsidiary ROA	26,752	0.082	0.152	-0.431	0.013	0.070	0.150	0.575
Subsidiary Fixed assets/TA	26,752	0.262	0.245	0.000	0.059	0.183	0.409	0.913
Subsidiary R&D/TA	26,752	0.001	0.009	0.000	0.000	0.000	0.000	0.078
Territorial dummy	26,752	0.609	0.488	0.000	0.000	1.000	1.000	1.000

Table 3: Profit shifting estimation

This table reports estimates of profit shifting based on the method developed by Dharmapala and Riedel (2013). The dependent variable is *EBT*, the natural logarithm of subsidiary's pre-tax profits. *Low* is a dummy that takes value one when the subsidiary's tax rate is below from that of the parent company and zero otherwise. *Parent profits* denotes the parent's pre-tax and pre-shifting profits. *Subsidiary total assets* is the natural logarithm of subsidiary's total assets, *Subsidiary leverage* is the ratio of total debt to total assets for the subsidiary firm, *Subsidiary population* is the natural logarithm of the total population of the subsidiary's country, and *Subsidiary GDP per capita* is the natural logarithm of GDP per capita of the subsidiary's country. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

	(1)	(2)	(3)	(4)
Low (x) Parent profits	0.027***	0.027***	0.032***	0.030***
	(2.958)	(2.944)	(3.455)	(3.073)
Low	-0.263**	-0.278**	-0.337***	-0.366***
	(-2.231)	(-2.350)	(-2.793)	(-2.951)
Parent profits	0.008	0.011	0.002	0.003
	(0.896)	(1.189)	(0.261)	(0.325)
Subsidiary total assets	0.763***	0.776***	0.770***	0.766***
	(49.434)	(49.397)	(48.373)	(47.302)
Subsidiary leverage	-0.392***	-0.401***	-0.400***	-0.398***
	(-16.549)	(-16.880)	(-16.740)	(-16.439)
Subsidiary population	-1.456***	-0.708*	-0.889**	
	(-4.672)	(-1.884)	(-2.281)	
Subsidiary GDP per capita	0.073*	0.102**	0.055	
	(1.792)	(2.045)	(1.075)	
Observations	42,712	42,712	42,503	42,473
Adjusted R-squared	0.819	0.820	0.822	0.822
Subsidiary effects	Yes	Yes	Yes	Yes
Year effects	No	Yes	No	No
Industry-year effects	No	No	Yes	Yes
Country-year effects	No	No	No	Yes

Table 4: Baseline specification

The dependent variable is profit shifting and it is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). *CSR* is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). We include the following controls for both parent and subsidiary companies: *Total assets*— the natural logarithm of total assets, *leverage*— the ratio of total debt to total assets for the firm, *ROA*—a firm's returns on assets, defined as earnings before tax divided by total assets, *Fixed assets/TA*—a firm's asset tangibility, and *R&D/TA*—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

	(1)	(2)	(3)	(4)
CSR t-1	0.030***	0.024**	0.030***	0.024**
	(3.158)	(2.488)	(3.089)	(2.437)
Parent ln(Total assets) t-1		0.014***		0.014***
		(3.975)		(3.856)
Parent Leverage t-1		-0.009		-0.009
		(-1.189)		(-1.208)
Parent ROA t-1		0.010		0.012
		(0.626)		(0.741)
Parent Fixed assets/TA t-1		-0.030***		-0.029***
		(-2.746)		(-2.681)
Parent R&D/TA t-1		0.118*		0.109
		(1.691)		(1.554)
Subsidiary ln(Total assets) t-1			0.002*	0.002*
			(1.732)	(1.706)
Subsidiary Leverage t-1			0.000	0.000
			(0.004)	(0.019)
Subsidiary ROA t-1			-0.011	-0.011
			(-1.479)	(-1.490)
Subsidiary Fixed assets/TA t-1			-0.009	-0.009
			(-1.477)	(-1.470)
Subsidiary R&D/TA t-1			-0.240*	-0.238*
			(-1.808)	(-1.796)
Observations	26,752	26,752	26,752	26,752
Adjusted R-squared	0.742	0.742	0.742	0.742
Parent FE	Yes	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes	Yes

Table 5: Sensitivity tests

The dependent variables are various forms of profit shifting. *CSR* is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). We include the following controls for both parent and subsidiary companies: *Total assets*— the natural logarithm of total assets, *leverage*— the ratio of total debt to total assets for the firm, *ROA*—a firm's returns on assets, defined as earnings before tax divided by total assets, *Fixed assets/TA*—a firm's asset tangibility, and *R&D/TA*—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

Estimation method	OLS			Bootstrap (500)	OLS
	Profit shifting 2	Profit shifting 3	Profit shifting	Profit shifting	Profit shifting
	(1)	(2)	(3)	(4)	(5)
CSR t-1	0.026**	0.022**	0.024**	0.024*	0.016**
	(2.437)	(2.437)	(2.296)	(1.901)	(2.119)
Parent ln(Total assets) t-1	0.015***	0.012***	0.014***	0.014***	0.015***
	(3.856)	(3.856)	(2.827)	(3.139)	(5.998)
Parent Leverage t-1	-0.010	-0.008	-0.009	-0.009	-0.010
	(-1.208)	(-1.208)	(-1.095)	(-0.895)	(-1.565)
Parent ROA t-1	0.013	0.011	0.012	0.012	0.011
	(0.741)	(0.741)	(0.658)	(0.503)	(0.893)
Parent Fixed assets/TA t-1	-0.032***	-0.026***	-0.029*	-0.029*	-0.044***
	(-2.681)	(-2.681)	(-1.698)	(-1.907)	(-5.223)
Parent R&D/TA t-1	0.119	0.099	0.109	0.109	0.092*
	(1.554)	(1.554)	(1.241)	(1.098)	(1.877)
Subsidiary ln(Total assets) t-1	0.002*	0.002*	0.002	0.002***	-0.001
	(1.706)	(1.706)	(1.523)	(3.465)	(-0.656)
Subsidiary Leverage t-1	0.000	0.000	0.000	0.000	-0.003
	(0.019)	(0.019)	(0.015)	(0.035)	(-1.440)
Subsidiary ROA t-1	-0.012	-0.010	-0.011	-0.011**	-0.003
	(-1.490)	(-1.490)	(-1.116)	(-2.405)	(-0.836)
Subsidiary Fixed assets/TA t-1	-0.010	-0.008	-0.009	-0.009***	-0.001
	(-1.470)	(-1.470)	(-1.258)	(-2.998)	(-0.330)
Subsidiary R&D/TA t-1	-0.260*	-0.216*	-0.238	-0.238***	0.028
	(-1.796)	(-1.796)	(-1.530)	(-3.410)	(0.252)
Observations	26,752	26,752	26,752	26,752	26,752
Adjusted R-squared	0.742	0.742	0.741	0.742	0.944
Standard errors clustered at:	Subsidiary	Subsidiary	Parent	Subsidiary	Subsidiary
Parent FE	Yes	Yes	Yes	Yes	Yes
Subsidiary FE	No	No	No	No	Yes
Parent Industry*Year FE	Yes	Yes	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes	Yes	Yes

Table 6: The effect of CSR on profit shifting for firms in the lowest quartile of profit shifting (placebo test)

The dependent variable is profit shifting and it is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). CSR is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). We include the following controls for both parent and subsidiary companies: Total assets— the natural logarithm of total assets, leverage— the ratio of total debt to total assets for the firm, ROA—a firm's returns on assets, defined as earnings before tax divided by total assets, Fixed assets/TA—a firm's asset tangibility, and R&D/TA—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

	(1)	(2)	(3)	(4)
CSR t-1	-0.002	0.000	-0.002	0.000
	(-0.256)	(0.067)	(-0.255)	(0.068)
Parent ln(Total assets) t-1		-0.003**		-0.003**
		(-2.187)		(-2.187)
Parent Leverage t-1		0.002		0.002
		(0.518)		(0.532)
Parent ROA t-1		-0.003		-0.003
		(-0.615)		(-0.607)
Parent Fixed assets/TA t-1		-0.014***		-0.014***
		(-2.715)		(-2.732)
Parent R&D/TA t-1		-0.008		-0.009
		(-0.313)		(-0.340)
Subsidiary ln(Total assets) t-1			0.000	0.000
			(0.759)	(0.781)
Subsidiary Leverage t-1			0.000	0.000
			(0.245)	(0.176)
Subsidiary ROA t-1			-0.002	-0.002
			(-1.480)	(-1.534)
Subsidiary Fixed assets/TA t-1			-0.000	-0.000
			(-0.048)	(-0.077)
Subsidiary R&D/TA t-1			-0.004	-0.004
			(-0.394)	(-0.322)
Observations	7,337	7,337	7,337	7,337
Adjusted R-squared	0.831	0.832	0.831	0.832
Parent FE	Yes	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes	Yes

Table 7: High vs. low boycott countries and CSR

The dependent variable is profit shifting and it is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). *CSR* is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). We include the following controls for both parent and subsidiary companies: *High boycott* —a dummy that equals one for countries the willingness for product boycott lies above the median , and zero otherwise, *Total assets*— the natural logarithm of total assets, *leverage*— the ratio of total debt to total assets for the firm, *ROA*—a firm's returns on assets, defined as earnings before tax divided by total assets, *Fixed assets/TA*—a firm's asset tangibility, and *R&D/TA*—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

	High boycott	Low boycott	Pooled Sample
	(1)	(2)	(3)
CSR t-1	0.045***	0.005	0.007
	(4.015)	(0.192)	(0.539)
CSR t-1 × High boycott			0.043***
			(3.432)
High boycott			-0.023**
			(-2.225)
Parent ln(Total assets) t-1	0.020***	0.025**	0.012***
	(4.615)	(2.230)	(3.268)
Parent Leverage t-1	-0.007	-0.059***	-0.007
	(-0.882)	(-2.722)	(-0.866)
Parent ROA t-1	0.023	0.009	0.034**
	(1.418)	(0.212)	(2.125)
Parent Fixed assets/TA t-1	-0.002	-0.040	-0.023**
	(-0.198)	(-0.922)	(-2.102)
Parent R&D/TA t-1	-0.023	0.446**	0.022
	(-0.296)	(2.062)	(0.315)
Subsidiary ln(Total assets) t-1	0.001	0.001	0.002*
	(0.817)	(0.771)	(1.753)
Subsidiary Leverage t-1	0.002	-0.005	-0.000
	(0.824)	(-1.337)	(-0.102)
Subsidiary ROA t-1	-0.002	-0.009	-0.012
	(-0.227)	(-0.936)	(-1.637)
Subsidiary Fixed assets/TA t-1	-0.003	-0.013*	-0.009
	(-0.508)	(-1.779)	(-1.546)
Subsidiary R&D/TA t-1	-0.264***	0.054	-0.242*
	(-2.886)	(0.150)	(-1.828)
Observations	17,553	9,199	26,752
Adjusted R-squared	0.673	0.844	0.739
Parent FE	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes
Parent Country FE	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes

Table 8: Heterogeneous effects of CSR on profit shifting on the basis of country-level differences

The dependent variable is profit shifting and it is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). CSR is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). *Press freedom* is a variable that takes values from 0 to 100; higher values indicate more press freedom. World Bank Governance Indicators are from Kaufmann et al., (2011). Specifically, *RQ* denotes regulatory quality and *RL* denotes rule of law. For the World Governance Indicators, higher values indicate better outcomes. *Territorial* is a dummy that equals one for countries with a territorial tax system, and zero for countries under a worldwide tax system. Each observation is a subsidiary firm tied to a foreign parent firm. Industry-year fixed effects are based on 2-digit NACE codes. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10% respectively. The t-statistics, with robust standard errors clustered at the subsidiary level, are reported in parentheses.

	(1)	(2)	(3)	(4)
CSR t-1	0.092***	0.285***	0.369***	0.000
	(2.897)	(5.405)	(4.176)	(0.017)
Press freedom t-1	-0.001			
	(-0.869)			
CSR t-1 × Press freedom t-1	0.003**			
	(1.963)			
RQ t-1		0.068**		
		(2.296)		
CSR t-1 × RQ t-1		-0.178***		
		(-4.943)		
RL t-1			0.089**	
			(2.078)	
CSR t-1 × RL t-1			-0.210***	
			(-3.882)	
CSR t-1 × Territorial				0.040**
				(0.230)
Controls	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes	Yes
Parent Country FE	Yes	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes	Yes
Observations	26,752	26,752	26,752	26,752
Adjusted R-squared	0.739	0.739	0.739	0.742

Table 9: Causality running from profit shifting to CSR

The dependent variable is CSR_t, a parent company's corporate social responsibility index measured as the equal weight of three pillar scores (environmental, social, and governance performance). *Profit shifting* is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). We include the following controls for both parent and subsidiary companies: *Total assets*— the natural logarithm of total assets, *leverage*— the ratio of total debt to total assets for the firm, *ROA*—a firm's returns on assets, defined as earnings before tax divided by total assets, *Fixed assets/TA*—a firm's asset tangibility, and *R&D/TA*—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Industry-year fixed effects are based on 2-digit NACE level. Country-year fixed effects are fixed effects for the subsidiary's country. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

	(1)	(2)	(3)	(4)	(5)
Profit shifting t-1	-0.000	-0.003	-0.000	-0.003	-0.007
	(-0.194)	(-1.319)	(-0.169)	(-1.321)	(-0.961)
Parent ln(Total assets) t-1		0.079***		0.079***	0.075***
		(13.433)		(13.429)	(11.600)
Parent Leverage t-1		0.068***		0.068***	0.066***
		(7.525)		(7.535)	(6.948)
Parent ROA t-1		0.165***		0.165***	0.153***
		(9.338)		(9.337)	(8.242)
Parent Fixed assets/TA t-1		-0.003		-0.002	-0.008
		(-0.180)		(-0.177)	(-0.528)
Parent R&D/TA t-1		0.581***		0.581***	0.577***
		(6.521)		(6.521)	(5.955)
Subsidiary ln(Total assets) t-1			0.000	0.000	0.001
			(1.466)	(0.537)	(0.484)
Subsidiary Leverage t-1			-0.001	-0.001	-0.002
			(-1.284)	(-1.407)	(-0.959)
Subsidiary ROA t-1			0.001	0.000	-0.002
			(0.437)	(0.069)	(-0.511)
Subsidiary Fixed assets/TA t-1			-0.001	-0.001	0.000
			(-0.540)	(-0.609)	(0.086)
Subsidiary R&D/TA t-1			0.006	0.008	-0.042
			(0.237)	(0.369)	(-0.481)
Observations	22,690	22,690	22,690	22,690	22,690
Adjusted R-squared	0.941	0.945	0.941	0.945	0.933
Parent FE	Yes	Yes	Yes	Yes	Yes
Subsidiary FE	No	No	No	No	Yes
Parent Industry*Year FE	Yes	Yes	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes	Yes	Yes

Table 10: Endogeneity and selectivity using industry-peer CSR as exclusion restriction

This table shows the relationship between CSR and profit shifting when accounting for endogeneity and selectivity. *Profit shifting* is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). *CSR* is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). *High CSR* is a dummy variable that takes value 1 for firms with CSR scores at the highest quartile. Other controls, for both parent and subsidiary companies, include: *Total assets*—the natural logarithm of total assets, *leverage*— the ratio of total debt to total assets for the firm, *ROA*—a firm's returns on assets, defined as earnings before tax divided by total assets, *Fixed assets/TA*—a firm's asset tangibility, and *R&D/TA*—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The t-statistics, based on robust standard errors clustered at the subsidiary level, are reported in parentheses. A complete description of variables along with their sources is in Table 1.

Method	IV		Heckman Selection	
Dependent variable	*Profit shifting t*	*CSR t-1*	*Profit shifting t*	*High CSR (top 25%)*
	(1)	(2)	(3)	(4)
CSR t-1 (fitted)	0.059**			
	(2.459)			
High CSR (top 25%) t-1			0.027*	
			(1.890)	
Industry-Peer CSR t-1		0.624***		2.969***
		(26.117)		(36.549)
Parent ln(Total assets) t-1	0.010***	0.064***	0.015***	0.457***
	(2.792)	(15.187)	(2.994)	(54.930)
Parent Leverage t-1	-0.004	0.019**	0.007	0.508***
	(-0.537)	(2.516)	(0.581)	(10.439)
Parent ROA t-1	-0.001	0.185***	0.015	3.897***
	(-0.044)	(12.397)	(0.526)	(20.980)
Parent Fixed assets/TA t-1	-0.033***	0.010	-0.020	0.694***
	(-3.220)	(0.904)	(-1.061)	(8.536)
Parent R&D/TA t-1	0.029	0.656***	-0.183	9.636***
	(0.460)	(8.787)	(-1.416)	(28.479)
Subsidiary ln(Total assets) t-1	0.002*	0.0003*	-0.009***	0.001
	(1.769)	(1.725)	(-14.575)	(0.081)
Subsidiary Leverage t-1	-0.000	-0.001	-0.014***	0.033
	(-0.080)	(-1.159)	(-7.373)	(1.544)
Subsidiary ROA t-1	-0.012	-0.003	0.010	0.162**
	(-1.621)	(-1.342)	(1.638)	(2.376)
Subsidiary Fixed assets/TA t-1	-0.010	-0.001	0.008**	-0.016
	(-1.572)	(-0.555)	(2.080)	(-0.372)
Subsidiary R&D/TA t-1	-0.244*	0.055*	0.188**	0.092
	(-1.850)	(1.681)	(1.970)	(0.088)
Hazard lambda			-0.016*	
			(-1.828)	
Observation	26,752	26,752	26,752	26,752
Adjusted R-squared	0.742	0.937		
Kleibergen-Paap LM statistic		298.485***		
Cragg-Donald Wald F statistic		4591.700***		
Stock Yogo Critical values 10%		16.38		
F-statistics		682.110***		

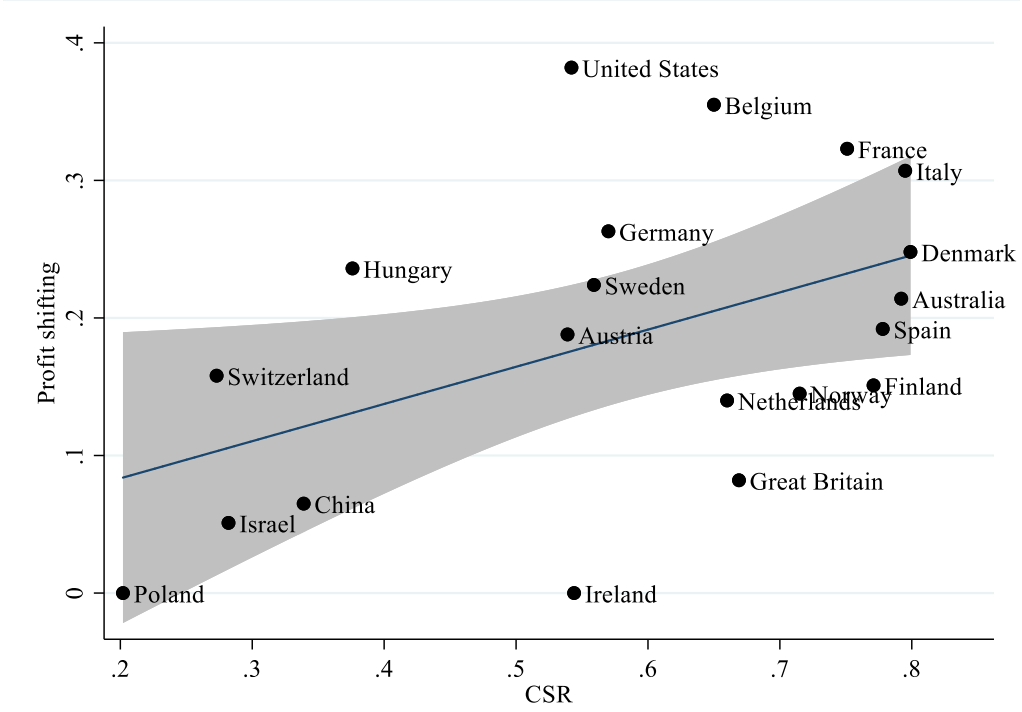
Table 11: Alternative instrumental variables

This table shows the relationship between CSR and profit shifting when accounting for endogeneity. $Profit\ shifting$ is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). CSR is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance). The instrumental variables for the models in columns (1), and (3) are: negative reciprocity, and whether a government belongs to the right wing. Other controls, for both parent and subsidiary companies, include: $Total\ assets$—the natural logarithm of total assets, $leverage$—the ratio of total debt to total assets for the firm, ROA—a firm's returns on assets, defined as earnings before tax divided by total assets, $Fixed\ assets/TA$—a firm's asset tangibility, and $R\&D/TA$—a firm's R&D intensity. Each observation is a subsidiary firm tied to a foreign parent firm. Different types of fixed effects are utilized in each regression. Stars, ***, **, *, indicate significance levels at the 1%, 5%, and 10%, respectively. We report t-statistics, based on robust standard errors clustered at the subsidiary level, in parentheses. A complete description of variables along with their sources is in Table 1.

	Negative reciprocity		Left-right government	
	Main	First-stage	Main	First-stage
	(1)	(2)	(3)	(4)
CSR t-1 (fitted)	0.186***		4.469***	
	(4.005)		(3.175)	
Negative reciprocity		0.224***		
		(25.149)		
Right government t-3				-0.014***
				(-3.263)
Parent ln(Total assets) t-1	0.037***	0.063***	-0.224***	0.061***
	(10.152)	(31.602)	(-2.583)	(29.739)
Parent Leverage t-1	-0.113***	0.125***	-0.531***	0.099***
	(-7.783)	(9.346)	(-3.526)	(7.421)
Parent ROA t-1	0.046	0.379***	-1.212***	0.277***
	(1.181)	(9.772)	(-2.703)	(7.025)
Parent Fixed assets/TA t-1	-0.020	-0.042**	0.069	-0.021
	(-0.975)	(-2.164)	(0.739)	(-1.117)
Parent R&D/TA t-1	0.283***	0.703***	-2.390**	0.601***
	(2.951)	(6.791)	(-2.395)	(5.838)
Subsidiary ln(Total assets) t-1	-0.001	0.004***	-0.011	0.002*
	(-0.481)	(3.202)	(-1.549)	(1.852)
Subsidiary Leverage t-1	-0.007	-0.005	0.002	-0.001
	(-1.609)	(-1.250)	(0.085)	(-0.285)
Subsidiary ROA t-1	-0.024**	-0.010	-0.018	-0.000
	(-2.167)	(-1.012)	(-0.371)	(-0.019)
Subsidiary Fixed assets/TA t-1	-0.030***	0.012	-0.053	0.007
	(-3.291)	(1.498)	(-1.360)	(0.925)
Subsidiary R&D/TA t-1	-0.160	-0.322	1.088	-0.292
	(-0.816)	(-1.355)	(0.926)	(-1.243)
Observations	26,119	26,119	26,752	26,752
Adjusted R-squared	0.491	0.567	-9.493	0.501
Kleibergen-Paap rk LM statistic		455.252***		11.132***
Cragg-Donald Wald F statistic		2353.940***		32.920***
Stock-Yogo critical values 10%		16.380		16.380
F-statistic		632.450***		10.650***

Figure 1: Corporate social responsibility and profit shifting

This figure shows the relationship between corporate social responsibility (CSR) and profit shifting. This graph utilizes average values of CSR and profit shifting for countries of the parent companies for the years 2009-2016. *Profit shifting* and it is calculated according to the method of Dharmapala and Riedel (2013) shown in equation (1). *CSR* is a parent company's corporate social responsibility index and it is measured as the equal weight of three pillar scores (environmental, social, and governance performance).



Appendix

Table A1: Additional robustness tests

This table presents several robustness tests in a succinct manner. For brevity, we only report the estimated coefficients of interest. Specifically, rows (1) to (3) provide validation tests for the profit shifting measure. Row (4) shows results of our baseline specification excluding U.S. firms. Row (5) shows results for the U.S. sample only. Row (6) follows our baseline model but includes only firms in the highest quartile of profit shifting. Row (7) shows the effect of CSR on profit shifting in countries under the territorial tax system where the willingness for product boycott lies above the median. Row (8) shows our baseline specification under a Tobit model instead of an OLS. Row (9) shows results where instead of using our measure of profit shifting based on the Dharmapala and Riedel (2013) method, we use the true pre-tax earnings. Row (10) shows results of our baseline specification, but instead of using levels, we use changes. Finally, row (11) shows results for the opposite channel, whereby we test whether changes in profit shifting affect changes in CSR. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. The results are based on robust standard errors clustered at the subsidiary level. Full results of these tests are available by the authors upon request.

		$\widehat{\beta}_{low\times\bar{\pi}\times Inter}$	$\widehat{\beta}_{CSR_{t-1}}$	$\widehat{\beta}_{CSR_{t-1}\times Inter}$	Obs.	Controls & FEs	Adj-R^2
	Panel A: Validation checks with respect to literature's findings						
(1)	Replication A: profit shifting under Territorial Vs Worldwide (Low (x) Parent profits (x) Territorial dummy)	0.145***			40,378	Yes	0.68
(2)	Replication B: Financially constraint firms under Worldwide (Low (x) Parent profits (x) Parent Liquidity)	0.015***			12,555	Yes	0.68
(3)	Replication C: Intangible assets (Low (x) Parent profits (x) Parent intangible assets)	0.004*			42,234	Yes	0.67
	Panel B: dependent variable is profit shifting (PS)						
(4)	Excluding U.S parent firms		0.037**		17,491	Yes	0.78
(5)	U.S. firms only		0.005**		9,261	Yes	0.98
(6)	Firms in the highest quartile of profit shifting		0.030***		8,558	Yes	0.96
(7)	CSR * High boycott under territorial tax system		0.041***	0.042**	17,302	Yes	0.77
(8)	Tobit		0.023***		26,752	Yes	
(9)	Profit shifting measured with true pre-tax earnings.		0.037***		25,376	Yes	0.74
			$\widehat{\beta}_{\Delta(CSR)_{(t-2)\to(t-1)}}$				
	Panel C: dependent variable is change in profit shifting from (t-1) to t						
(10)	Changes in profit shifting vs. changes in CSR		0.020***		19,844	Yes	0.02
			$\widehat{\beta}_{\Delta(PS)_{(t-2)\to(t-1)}}$				
	Panel D: dependent variable is change in CSR from t-1 to t.						
(11)	Changes in CSR vs. changes in profit shifting		-0.007		16,965	Yes	0.11