Corporate Social Responsibility and Profit Shifting

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Abstract

In this work we investigate the relationship between corporate social responsibility (CSR) and profit shifting. First, we employ worldwide data for parent firms and their foreign subsidiaries to derive a profit shifting measure. Then, drawing on legitimacy theory and risk-management strategy, we find corporate social responsibility to be positively correlated with profit shifting. In addition, we find this relationship to be stronger in parent firms in countries under the territorial tax system and in countries where product boycott is more prevalent. We perform a battery of sensitivity tests and robustness checks to corroborate our findings. By and large, our results suggest 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; profit shifting; legitimacy theory; risk-management; 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).

This article in the Financial Times sparks once again the contentious debate regarding multinational enterprises' (MNEs) propensity to avoid paying taxes in their host countries. Consequently, this has put the public attention on such firms and their adopted tax planning strategies. Such a strategy is that of profit shifting—the tendency of some firms to move profits from the host country, where corporate taxes are higher, to a country with lower taxation. This phenomenon is expanding rapidly owing to accelerated globalization and tax differences across the world. To this end, some politicians have called for a minimum corporate tax rate to deter MNEs from moving their profits to tax heavens.[1] The reason for this is that profit shifting activities decrease tax revenue, erode the tax base of high tax economies, and decrease the competition in the local market. This could lead to lower government expenditures and lower consumption overall.

Corporate social responsibility (CSR) has seen a rise across the globe since the 1960's, whereby a number of firms have steadily started to increase their investments in CSR activities, either due to planned strategies or due to pressure from their shareholders. Contrary to the view of Friedman (1970), who states that the sole responsibility of firms is to increase their profits and value, other researchers claim that firms may participate in beneficial activities that increase stakeholders' welfare. The argument here is that well-governed firms are more likely to follow

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

socially responsible paths (i.e., good governance view), whereby firm value maximization takes into consideration stakeholders too (Deng et al., 2013). Hence, an interesting question one asks is why some firms choose to be socially responsible, while others choose to be solely profit maximizers (Liang and Renneboog, 2017).

MNEs have a number of different strategies at their disposal to tax avoid; some of them take place within the same country, while others between different countries—in this case we have profit-shifting.[2] In this work, we study the relationship between CSR and profit shifting, which we view as a pristine area of research for accounting, finance, and management literatures. In doing so, we follow the suggestions of Hanlon and Heitzman (2010) and Sikka (2010), who stress the need to investigate the relationship between CSR and tax avoidance. Prior work in this area of research is limited by the use of single country data that make it extremely difficult to perform causality tests (e.g., Lanis and Richardson, 2012; Hoi et al., 2013; Watson, 2015; Davis et al., 2016).

Research so far has studied tax avoidance practices of firms (local and multinational), within the narrow borders of a country (within-country). In this work, we study a very specific form of tax avoidance, profit shifting, which is only observed for MNEs with subsidiaries in countries overseas (across countries). Profit-shifting severs tax revenues for economies with high corporate taxation, and for this reason it has drawn the attention of many scholars worldwide. First, profit shifting erodes the tax base of high-tax economies—taxable income leaves the country to be taxed in other jurisdictions with lower taxation. Second, it provides an unfair competition advantage for the MNEs, which could impair competition between firms and decrease welfare in the country where the MNE is headquartered. To the best of our knowledge, our work is the first

[2] For a thorough review regarding the local (within-country) tax avoidance and international (across countries) profit shifting see Beuselinck and Pierk (2018).

large-scale international study that examines exclusively the relationship between CSR and profit shifting, a practice that occurs for MNEs with international subsidiaries. By specifically studying the relationship between CSR and profit shifting, we add to our understanding of the tax planning strategies of MNEs. We view this as the natural continuation in this area of research.

Utilizing accounting data with a worldwide coverage, we determine the level of profit shifting for MNEs using a difference-in-differences (DiD) method developed by Dharmapala and Riedel (2013). The advantage of this method is that it allows us to create an exogenous measure of profit shifting. After we calculate profit shifting for each firm, we proceed to our main analysis, which aims at disentangling the relationship between CSR and profit shifting for MNEs. To do so, we employ a battery of different econometric techniques and sensitivity tests to corroborate our findings.

The causal and qualitative relationship between CSR and profit shifting is not obvious. Thus, we need to deal with a number of issues in order to obtain unbiased estimates. The first issue is that of reverse causality. The second, and perhaps more severe, is that of omitted variables. A potential third problem in our analysis is that of selection bias. That is, a group of firms, in a non-random manner, are more willing to invest in CSR activities compared to the rest. We deal with the problem of reverse causality by estimating the profit shifting values of each firm based on exogenous industry shocks. By doing so, we obtain an exogenous measure for profit shifting. We deal with the second problem by borrowing insights from the legitimacy theory. Specifically, we conjecture that firms will want to strategically increase their legitimacy in order to avoid scrutiny (e.g., by the government and the public) and to be affected less severely in the light of corporate scandals or corporate misbehavior towards stakeholders. To this end, we study one direction of causality, that from CSR to profit shifting using two sets of instrumental variables. First, following

Liang and Renneboog (2017), we use legal origins as an instrument for CSR, as the authors have found firms from Civil Law countries to demonstrate higher CSR scores.[3] The second instrument we use is that of industry peer's average CSR scores (e.g., Laeven and Levine, 2009; Lin et al. 2011; Ferrell et al. 2016). As for the third issue, we implement an endogenous treatment-regression model where we utilize legal origins as the exclusion restriction—this scheme is similar to that of Doidge et al. (2007), although the authors' scope is different from ours.

We develop two different hypotheses. Our first hypothesis draws on legitimacy theory and risk-management strategy. Specifically, firms may disclose information (e.g., annual reports) to the press (or other media) to alleviate any concerns the public might have regarding the firm's commitment to enhance societal welfare. Hence, such corporate actions could be signaling that firms care not only about their shareholders, but also their stakeholders. Having built this "moral capital" within the corporate world and in society, firms participating in unethical activities—for our case, this is profit-shifting activities, —might be "punished" less severely by people (e.g., customers) and government alike. Recent literature points to this direction (e.g., Janney and Gove; Hong and Liskovich, 2016), as it finds that firms with higher CSR scores face fewer penalties.

For our second hypothesis, we make use of our unique and worldwide-covering database to explore cross country heterogeneities, which past studies were unable to achieve due to limited samples. First, we investigate whether the effect CSR has on profit shifting differs according to the corporate tax system (see Hypothesis 2a). Prior literature finds that multinationals under the territorial tax system shift more income compared to those under the worldwide tax scheme (e.g., Scholes et al, 2015; Kohlhase and Pierk, 2016; Markle, 2016). In our framework, we expect CSR

[3] Albuquerque et al. (forthcoming) notice also the endogeneity of the CSR variable. For example, a firm's financial resources may affect CSR decisions. Using data for the United States, they deal with this issue by instrumenting CSR using the political affiliation of the state a firm is headquartered.

to have a larger impact for parent firms that are more incentivized to participate in profit shifting activities (i.e., those under the territorial tax system).

In our second hypothesis (Hypothesis 2b), we examine whether the usage of CSR is more prevalent in countries where consumers exhibit higher social awareness and consumer activism. Prior literature shows public pressure/scrutiny influences firms' behavior. Specifically, it changes the costs and benefits of tax avoidance in a manner that tax expenses are higher for scrutinized firms (e.g., see Hanlon and Slemrod, 2009; Graham et al., 2014; Dyreng et al., 2016). In our framework, we capture social awareness and activism using product boycott frequency. We expect that the impact of CSR on profit shifting will be larger for parent firms located in countries where product boycott is more frequent.

To test these hypotheses, we utilize data from Orbis, which provides us with accounting information for parent firms originating from 20 countries and their respective subsidiaries spread in different jurisdictions (i.e., 63 countries). Specifically, we use a sample of almost 27,000 firm-year observations for the period 2009-2016 containing information for more than 500 unique parent firms and around 6,000 unique subsidiary firms. An additional advantage of using this period is the mitigation of any potential noise that would have otherwise reverberated in our data should we have included data from the financial crisis period.

Our analysis comprises two stages. In the first stage, we estimate our profit shifting measure at the subsidiary-year level following similar steps as those of Dharmapala and Riedel (2013). The advantage of this method is that it uses a difference-in-differences (DiD) approach utilizing shocks at the industry level for comparable parent firms.[4] For the purposes of our work, this is of utmost importance, since the measure of profit shifting we obtain is exogenous and free

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

from endogeneity issues. Having found a measure for profit shifting, we proceed in the second stage, whereby we focus on the relationship between CSR and profit shifting. We utilize several econometric models and we apply sensitivity and robustness tests to corroborate our findings. Our main specification indicates a positive and statistically significant relationship between CSR and profit shifting, thus being in accordance with our first hypothesis. We also find that the effect of CSR on profit shifting is larger for parent firms under the territorial tax system, thus providing evidence in favor of our second hypothesis.

We introduce a number of important contributions in the field. First, we extend the significant contributions made by Hoi et al. (2013) and Davis et al. (2016) by utilizing firm data at the global level, but most importantly, by focusing on a specific form of tax planning strategy for MNE's, that of profit shifting. Second, to the best of our knowledge, this is the first paper that explicitly studies the causal relationship of CSR and profit shifting accounting for the endogenous firm decision regarding the range of CSR investment and the selectivity issue of that choice. Using legal origins as an exclusion restriction, the paper finds a strong positive relationship between CSR and profit shifting. Third, apart from investigating the relationship between CSR and profit shifting, our unique dataset allows us to further extend the scope of our research by exploring cross-country heterogeneities. This was not feasible in past studies, where authors used datasets usually covering only one country. Our database overcomes this hurdle. In accordance with economic theory, our cross-country tests show that the effect of CSR on profit shifting is higher for parent firms headquartered in countries under the territorial tax system and in countries with higher consumer activism. These findings highlight the importance of the multi-country setting in studying tax aggressiveness.

Furthermore, we envisage this work to act as a fruitful terrain for future research. Being the first to study the relationship between CSR and profit shifting, we have utilized the most detailed databases available to us at the moment. However, we are aware that even more sophisticated data will be a certainty in the future, especially given the big data revolution. We strongly believe that detailed corporate data for more companies around the world, along with more advanced techniques to capture profit shifting, will assist scholars in understanding the mechanisms that connect CSR and profit shifting. We trust that future researchers will take advantage of the oncoming advancements and shed more light in the questions we ask here.

The remainder of this paper proceeds along the following lines. 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.

2 Literature review and hypotheses development

2.1 Literature review

2.1.1 Profit shifting

The dawn of the 21st century saw an increasing integration of foreign markets, where MNEs constitute a key player of the global economy. As documented by Dharmapala and Riedel (2013), foreign direct investments have overtaken economic growth in the last decades, indicating their crucial role in modern economies. What is important to notice, nonetheless, is that although globalization has tied economies together, there are still differences in corporate taxation across countries that incentivize firms to reallocate their profits.

One of the most influential works regarding profit shifting activities is that of Hines and Rice (1994). By firstly developing the tax differential approach, they find that a large portion of U.S. firms move their foreign profits to tax heavens. In a similar manner, Collins et al. (1998) argue that U.S. MNEs prefer to shift their profits back home, when corporate taxation increases in countries overseas. Following Hines and Rice (1994) a number of efforts have been made to advance the empirical methods to identify profit shifting. Huizinga and Laeven (2008), based on the tax differential approach of Hines and Rice (1994), devise a new method to identify profit shifting among subsidiaries. They do so by constructing an index that incorporates weighted tax differences among all the affiliates of a MNEs' group. The authors find that European countries are severely affected. More recently, Dharmapala and Riedel (2013) move on step further. Using exogenous industry shocks, they identify profit shifting through a difference-in-differences (DiD) method.[5]

Previous studies have determined the following profit-shifting spread mechanisms: (i) transfer pricing (e.g., Hines and Rice, 1994; Huizinga and Laeven, 2008), and (ii) debt shifting (e.g., Huizinga and Laeven, 2008; Dharmapala and Riedel, 2013). More recently, Dischinger and Riedel (2011) and Karkinsky and Riedel (2012) examine another channel of profit shifting, namely the relocation of intangible assets. They find that firms have incentives to locate intangible assets (e.g., patents, or brand names) to affiliates located in countries with lower corporate tax rates.

There is a steadily growing literature studying the determinants of profit shifting. Klassen and Laplante (2012), using a U.S. sample, document that higher regulatory costs decrease profit shifting. Dyreng and Markle (2016) analyze the role of financial constraints and find that financially constrained MNEs are less likely to shift income from the U.S. to other countries

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

compared to their unconstrained peers. Likewise, Markle (2016) studies the effect different tax systems (i.e., worldwide vs. territorial) have in firms' decisions to shift income in other countries. He finds that MNEs under the territorial tax system shift more income.

For a firm to participate in profit shifting activities, two main components are required. First, firms need to have an international network of affiliates. Second, firms need to understand well the laws considering the reduction of taxes in the country of origin. These include, *inter alia*, court penalties, administration costs, transaction, and opportunity costs (Dyreng et al., 2016). Hence, not all firms will be able to participate in profit shifting activities. In addition, even among these firms with profit shifting activities, we expect a considerable level of heterogeneity. This may be due to agency problems, or differences in managerial skills and governance, among others. In addition, there is complexity regarding the assets that a firm may choose to shift profits.

2.1.2 Corporate social responsibility

Corporate finance tradition states that corporations exist to maximize shareholder value (Berle and Means, 1932). To this end, one would expect that corporate social responsibility actions avail the firm. However, the impact CSR has on the firm is far from obvious. As Ferrell et al (2016) aptly put it, there are two main views regarding CSR. The first is the *good governance view*, stating that socially responsible firms can follow value-maximizing practices (e.g., Edmans, 2011; Deng et al., 2013). The second is the *agency view*, which states 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).

Corporate social responsibility is also related to board structure and CEO behavior. Specifically, McGuinness et al. (2017), using Chinese data, find that greater gender balance

increases CSR scores, while McCarthy et al. (2017) argue that higher CSR scores are related to lower CEO confidence. Likewise, Yuan et al. (2017) document that CSR increases with CEO ability. A reason for this could be that better CEOs have already peaked in their careers and are willing to undertake activities that are beneficial for the society. Importantly, the view analysts have about CSR appears to have changed in the passage of time. For example, Ioannou and Serafeim (2015) document that analysts in the 90's viewed CSR as an agency cost and for this reason they made pessimistic recommendations for those firms with high CSR scores. Nonetheless, with the passage of time, it appears that analysts—especially the high-ranked ones—changed their mind in favor of a positive opinion about CSR.

Past research documents that disclosure practices (among them CSR) exert a positive effect in firm valuation (Durnev and Kim, 2005). To this end, corporate social responsibility has emerged to be an important parameter for the modern firm. This is because CSR activities could be perceived as optimal firm choices, or strategies against competition. In a recent paper Cao et al. (forthcoming) 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., forthcoming), indicating that the products of firms with higher CSR scores are supposed to be of higher quality.

A country's development could potentially affect a firm's choices. For example, institutions and the strength of the legal regime of a country 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

the political, labor, education, and cultural system seem to affect corporate social performance. One should expect this, since societies—and people therein—demand more as they become wealthier

Agency costs are important parameters of firm performance (Jensen and Meckling, 1974; McGuire et al., 1988; Hermalin and Weisbach, 1991; Agrawal and Knoeber, 1996). Among others, higher agency costs could jeopardize a firm's access to finance. 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 during the financial crisis of 2008-2009 firms with higher CSR scores had higher returns and experienced higher profitability and growth compared to firms with low CSR scores. 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 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, Nelling and Webb (2009) in a time series analysis 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 once accounting for R&D investments.[6]

[6] 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).

2.2 Hypothesis development

2.2.1 CSR and multinationals' profit shifting

As stated above, social responsibility has become a crucial component for the modern firm, so much so that (large) corporations spend vast amounts of money on it. Nonetheless, such actions are not required by any law (McWilliams and Siegel, 2000). The main reason for this is the belief that such "good actions" promote the status of the firm and strengthen its ties with citizens. In that aspect, CSR activities are strategies firms use to advertise goodwill and they could be perceived as acts of buying respect from stakeholders. Hence, these altruistic activities act as signals that avail the firm by spreading "good" information about it to the society, thus reducing search and evaluation costs (Kennet, 1980).

Paying taxes and investing in CSR activities could be considered 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 if firms take into consideration all stakeholders, they should participate in activities that increase common good; that is, actions that do not necessarily maximize profits (Mackey et al., 2007). In 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 the above we formalize our first hypothesis in the following manner:

Hypothesis 1: Firms that intend to participate in profit shifting activities will exhibit higher corporate social responsibility (CSR) scores, in order to appease the negative effects of a

potential corporate scandal. They do so by improving their legitimacy and reducing their risk through higher CSR scores.

Hypothesis 1 is partially related to legitimacy theory, which states that when a firm's goals differ from those of the public, a firm's management would disclose information about the company (e.g., through annual reports) 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), firms' participation in CSR activities shows that the latter cares about its stakeholders. When a firm succeeds in transmitting such signals to its stakeholders and [they] accept them, then a firm builds a "moral capital" within the society that may have positive effects on the firm (Simon, 1995). For example, Janney and Gove (2011) find that firms with 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. Hence, in this situation firms acting rationally, use the 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 reputation, they are expected to be affected less in the event of corporate scandals, such as the case of profit shifting allegations. Thus, our next task is to examine the effect of CSR on MNEs' profit shifting for parent companies headquartered in countries that differ in tax system (i.e., territorial vs. worldwide) and consumer activism (i.e., product boycott).

We start by examining the magnitude CSR has on profit shifting by taking into consideration different tax systems. Specifically, countries under the worldwide tax system impose taxes to any income earned by its nationals either within the country or overseas, while countries under the territorial regime exempt income earned overseas.[7] Prior literature finds that multinationals under the territorial tax system shift more income compared to those under the worldwide tax scheme (e.g., Scholes et al, 2015; Kohlhase and Pierk, 2016; Markle, 2016). Hence, if the incentives for profit shifting are higher in multinationals under the territorial tax scheme, we should expect the effect of CSR on profit shifting for these firms to be larger. We formulate the above in the following hypothesis:

> *Hypothesis 2a*: The relationship between CSR and profit shifting should be stronger for parent companies under the territorial tax system and weaker for parent companies under the worldwide tax system.

Next, we examine the magnitude CSR has on profit shifting under different levels of consumer activism (i.e., product boycott). 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 expense is 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 the argumentation of the relevant literature above, one would expect that parent firms headquarted in countries where the threat of product boycott is higher, to utilize CSR more. This is because such firms will be more willing to increase

[7] Countries with a worldwide taxation system are: Chile, Greece, Ireland, Israel, South Korea, Mexico, Poland, and the United States.

the magnitude of their CSR activities prior to engaging in profit shifting for fear of "consumer retaliation". We formulate the above in the following hypothesis:

> *Hypothesis 2b:* The relationship between CSR and profit shifting should be stronger for parent companies located in countries with higher level of consumers' product boycott and weaker for parent companies located in countries with lower level of consumers' product boycott.

3 Data and methodology

3.1 Data

For our empirical analysis we require accounting information for multinational corporations, which we obtain from Orbis. Our final sample consists of 26,752 observations for the period 2009-2016. This includes 509 unique parent companies and 6,103 unique subsidiary companies. As shown in Appendices A1 and A2, parent companies originate from 20 countries, including many OECD countries and China, while subsidiary companies from 63. The second major component of our empirical analysis is information regarding corporate social responsibility. These data are drawn from the Thomson Reuters ASSET4 database. Finally, product boycott data are drawn from the European Social Survey.[8]

By inspecting appendix tables A1 and A2, we notice that there are quite a few differences regarding the metrics of CSR activities and profit shifting. For subsidiary companies (Table A1), we see that profit shifting spans from a minimum of zero (e.g., United States) to a maximum of 0.509 (Canada). This comes as no surprise, if we consider that corporate taxation is quite high in

[8] 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.

the United States and, thus, MNEs would not consider moving income there. Furthermore, regarding CSR scores, we see former communist countries demonstrating lower CSR scores, while Western-type societies having among the highest scores.[9] These results are in accordance with Liang and Renneboog (2017) further adding credit to our analysis. On the other hand, for the case of parent companies (Table A2), we observe that the highest levels of profit shifting occur for countries with relatively higher corporate taxation, such as the United States, Belgium, Italy, Germany, and Denmark, while for companies with their jurisdiction in countries with very low corporate taxation we see no such effect (i.e., Ireland).

We provide definitions of the variables used in our analysis along with their sources in Table 1 and correlations for the main variables used in our econometric models in appendix Table A4.

[Insert Table 1 about here]

Summary statistics are reported in Table 2. Notice that the number of observations reported in Table 2 does not directly match that of the tables of our main specifications. The reason for this is that we decided to use all available information from Orbis to estimate profit shifting and some observations were dropped when we merged data 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 rather large. The mean value of their pretax profits is about $1.10 billion, while their total assets around $19.8 billion. However, parent

[9] Appendix Table A3 indicates that average CSR scores and profit shifting have changed in time. Average CSR scores were at their lowest level in 2009, while they started increasing afterwards. One reason for such a drastic change could be the financial crisis of 2007/2008 that affected many firms around the world. A potential explanation for this is that firms might not have had the necessary funds to invest in CSR objectives. Interestingly, one might notice that our profit shifting measure is the highest in 2009, perhaps indicating firms trying to decrease as much as possible the losses they incurred during the financial crisis through profit shifting activities.

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; for example, the average subsidiary company has a mean value of pretax profits of about $14 million with assets around $38 million. Parent companies present a number of heterogeneities regarding the number of subsidiaries they have around the world. The countries where parent companies are more likely to have a subsidiary are Great Britain, France, Germany, Spain, China, Italy, and Belgium. Not surprisingly, most parent companies are from the United States, Great Britain, Germany, France, and Spain. On average, the number of subsidiaries per firm is 11.81. In absolute terms, the U.S. dominate the market of subsidiaries, as they have 2,116 firms in our sample. In the second position is France, which although it has only 35 parent companies, it enters with a total of 1,149 subsidiaries in our sample—this means 33 subsidiaries per each parent company (see Appendix tables A1 and A2).

[Insert Table 2 about here]

3.2 First-stage: Estimation of profit shifting

The aim of this work is to study the inter-relationship between corporate social responsibility and profit shifting. In doing so, we need to firstly identify profit-shifting flows for parent-subsidiary pairs. The idea behind this is that parent companies will shift income to their affiliates due to corporate tax differentials, *inter alia*. The process analyzed below closely follows the scheme implemented in Dharmapala and Riedel (2013).

We use a difference-in-differences approach (DiD) to estimate tax-motivated profit shifting. 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 treatment group, while subsidiaries in high-tax countries the control-group. The hypothesis is 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, as opposed to countries where taxation is higher.

In mathematical terms, our model has the following form:

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

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 value one for subsidiaries located in countries with lower taxation than 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 fixed effects, year fixed effects, industry-year fixed effects, and country-year fixed effects. Finally, e_{it} is the error term.[10]

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:

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

$$\tilde{p}_{pt} = \sum_j \frac{\alpha_{jt}}{\sum_j a_{jt}} \times p_{jt}, \; p \neq j, \; \forall \, t \in \{1, \ldots, T\}. \quad (3)$$

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 $p_{jt} = \frac{\pi_{jt}}{a_{jt}}$ 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 ($\tilde{p}_{pt}$) with the total assets of the parent company (a_{pt}). To this end, by estimating equation (1) we obtain profit-shifting estimates

[10] 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.

at the firm-year level. Bear in mind, however, that although we possess information about the actual parent earnings, to ensure shock exogeneity we need to utilize $\tilde{\pi}_{pt}$. 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 all national and multinational firms from Orbis for which we have available information regarding profits and total assets. For the statistical analysis that follows, we require only subsidiary-year combinations when the set of comparable firms is at least 20 firms—we do this to increase accuracy—and subsidiaries and parent companies differ at a four-digit NACE codes—so that industry shocks do not drive subsidiaries' pretax profits.

If our hypothesis about tax-motivated profit shifting is correct, 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 about 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, as it incorporates many fixed effects. The coefficient of interest is that of the interaction term, *Low (x) Parent profits*. In all specifications this 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. Given that our sample has an EBT mean of about $14.12 million, the

coefficient for the interaction term indicates that a 10% increase in parent's earnings results in an increase in profit shifting of about $42,360 (i.e., 0.3*14.12) per subsidiary. Given that in our sample the average number of subsidiaries is 12, profit shifting is on average around $508,320. For parent firms, which on average have more subsidiaries, this number increases considerably. For example, for the case of France, where the average parent company has 33 subsidiaries, the total amount of profit shifting is close to $1.4 million.

[Insert Table 3 about here]

Based on $\hat{\beta}_3$ coefficient, we calculate the partial fitted values by subsidiary-year. This is the measure of profit shifting (ps_{it}) we use in the rest of our analysis.[11]

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

In the same spirit as Davis et al. (2016), to study the relationship between CSR and profit shifting, we use the following regression equation:

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

In equation (4), ps denotes profit shifting values for a specific parent company at a specific year.[12] CSR is the parent's composite index of corporate social responsibility. A vector with subsidiary-year and parent-year control variables is denoted by h, while ξ represents a number of different fixed effects. Finally, u is the error term.

We include several control variables that past 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

[11] Partial fitted values are equal to: $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$.
[12] We use three different measures of profit shifting in our analysis. See Table 1 for more information.

specifications include a rich set of fixed effects and their interactions that help us capture various unobserved heterogeneities at the firm, industry, and time dimensions.

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 18 categories, and more broadly, into four pillars: (1) Environmental Score; (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 the Environmental Score, Social Scores, 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 Inference from univariate analysis

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

[Insert Figure 1 about here]

We proceed by documenting results from a univariate analysis. Specifically, using the median value of the CSR score, we categorize firms as high and low-CSR. The results in Table 4 show that variable differences between the two groups are statistically significant. Respectively, subsidiary firms related to parent firms with high CSR values, demonstrate higher pre-tax profits of about $1.1 million ($3.8 million vs. $2.7 million), they are more likely to have subsidiaries in countries with lower corporate taxation (76% vs. 70%), and higher profits (the difference is about $1 billion dollars). Furthermore, parent firms with higher CSR scores show higher levels of profit shifting—in our profit shifting measure 0.330 against 0.280.[13] This outcome supports what it was shown graphically in Figure 1. That is, a clear positive relationship between CSR and profit shifting. Moreover, high CSR parent companies have larger asset tangibility, compared to subsidiary companies, where the opposite holds.

[Insert Table 4 about here]

4.2 Inference from multivariate analysis

4.2.1 Baseline model

Results of our baseline model are found in Table 5. We start with a simple specification where we include only our main control variable (CSR) and a plethora of fixed effects. Specifically, parent fixed effects, parent industry-year fixed effects, parent country-year fixed effects, subsidiary industry-year fixed effects, and subsidiary country-year fixed effects. By doing so, we obtain a

[13] Companies with high CSR scores, show also larger values for the two other proxies we use for profit shifting.

quite high R^2 of 74.2%. We then start progressively adding controls for parent and subsidiary firms.[14]

The results for the CSR measure indicate a positive and statistically significant relationship. In turn, this 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 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 of profit shifting of equal to 0.5 percentage points.[15] Hence, the results we obtain support our first hypothesis. That is, 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.[16] 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.[17]

[Insert Table 5 about here]

About 48% of parent companies in our sample are from the United States. For this reason, and as a robustness exercise, we test the same baseline specification without including U.S. parent companies. We do this to ensure that our results are not driven by the activities of U.S. firms. The results are in the Appendix Table A5. The results are qualitatively very similar. However, and perhaps more importantly, we see that the CSR coefficient we obtain now is larger in all

[14] We repeat this analysis in Appendix Table A8, where instead of having our dependent variable and lagged (by one year) control variables, we use changes. The results are practically the same.
[15] 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: $(0.886 - 0.672) \times 0.024 = 0.005$.
[16] For empirical evidence regarding this mechanism see Hong and Liskovich (2016).
[17] 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 Appendix Table A10, remain almost identical.

specifications. We return to this finding with additional details when we discuss the effect of the different tax systems in profit shifting incentives.

Next, we run several sensitivity tests to corroborate our main findings. Results of the above are in Table 6. Specifically, column (1) and column (2) include two different proxies of profit shifting obtained from specifications (2) and (3) of Table 3—the first one 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 wrong inference. Importantly, in order to address potential bias due to 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 6 adds subsidiary fixed effects. The inclusion of subsidiary fixed effects increases the explanatory power of the model considerably, as R^2 reaches almost 94.4%. It is important to notice here that our main variable of interest, CSR, is still statistically significant, albeit the coefficient is somewhat smaller.

[Insert Table 6 about here]

4.2.2 Country-level heterogeneity

In this subsection, we exploit the worldwide coverage of our dataset and explore the cross-country heterogeneity regarding the impact of CSR on profit shifting. We remind the attentive reader that such cross-country tests were not feasible in past literature (e.g., Hoi et al., 2013; Watson, 2015; Davis et al., 2016), as they relied solely on U.S. data. 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, to be more tax aggressive—to shift more profit. The reason is that by doing so, they would be able to repatriate their profits without the obligation to pay any taxes to their government. Having found a positive association between CSR and profit shifting, we investigate whether the magnitude is larger for parent firms located in countries under the territorial tax regime. We test this in the following manner. First, we split the sample into worldwide vs. territorial-only countries. Second, in the pooled sample, we include the $CSR \times Territorial$ interaction term. This allows us to explore the cross-tax-system variation of CSR's potency on profit shifting. The results we obtain are in accordance with Hypothesis 2a. Specifically, we find that higher CSR scores have a larger effect on firms from countries under the territorial tax system. By inspecting Table 7, we see the effect of CSR to be much lower for firms under the worldwide tax system vs. firms under the territorial tax system (0.05 for worldwide against 0.038 for territorial). Likewise, in the pooled sample, the interaction term $CSR \times Territorial$ is positive and statistically significant with a value of 0.04.

[Insert Table 7 about here]

In a robustness exercise (see Appending Table A6) we analyze the same question, but now our sample includes only U.S. firms and those belonging to the territorial tax system. The results are practically unchanged, owing to the fact that worldwide companies in our sample are mostly populated by U.S. firms, thus confirming once more our conjecture that territorial firms have higher incentives to participate in profit shifting activities.

By and large, our results exhibit a weak association between CSR and profit shifting for parent firms located in countries under the worldwide tax system (which are expected to exhibit lower profit shifting). To this end, our findings are the first to document that in the relationship between

CSR and profit shifting (i.e., across-countries tax avoidance) one has to account the difference among different corporate tax systems.

In line with Hanlon and Slemrod (2009), Graham et al. (2014) and Dyreng et al. (2016), we expect that parent companies which are engaged in profit shifting and are located in countries where consumer product boycott rates are higher, to utilize more intensively CSR strategies. Table 8 shows the results for this test. First, we split the sample into high- vs. low-boycott-countries. Second, in the pooled sample, we include the $CSR \times High\ boycott$ interaction term. This allows us to explore the cross-country variation of CSR's potency on profit shifting. The results we obtain are in accordance with Hypothesis 2b. Specifically, we find that higher CSR scores have a larger effect on firms from countries where consumer product boycotts are higher.

[Insert Table 8 about here]

Prior literature finds higher profit shifting under a territorial tax system (e.g., Markle, 2016) and our results presented in Tables 7 and A6 point to that direction. In an additional robustness exercises (see Appendix Table A7), we restrict our sample to only the parent firms located in a country with territorial tax system and re-examine the impact that CSR has on profit shifting for high- vs. low-boycott countries. Our findings are very similar to those of Table 8. That is, the CSR impact is more pronounced for firms located in countries with higher consumer product boycott rates. In summary, our empirical findings suggest that there is significant cross-country variation regarding the relationship between CSR and profit shifting, which can be captured using detailed databases, such as ours.

5 Dealing with endogeneity and potential selectivity

One important issue that emerges when studying corporate decisions is endogeneity and selectivity–a result of a firm's choices. Endogeneity can be a consequence of reverse causality, omitted variables, and measurement error. Selectivity, in this setting, originates from firms choosing specific paths that might not be randomly selected, for example firms that more actively participate in CSR activities might differ from the rest in a specific pattern. In what follows, we exhibit several potential solutions to deal with the above issues.

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. Our first test is to 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. By carefully inspecting the table and all its econometric specifications, one deduces that profit shifting does not have any effect on CSR scores, as the coefficients in all specifications are not only statistically insignificant, but their values are close to nil. These results should not come as a surprise, because the profit shifting measure is constructed based on exogenous shocks of the industry where a firm operates, rather than its actual profit shifting activities.[18]

[Insert Table 9 about here]

[18] We repeat this analysis using variable changes instead of levels. The results reported in Appendix Table A9 are very similar.

Insofar, 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; that is, the firm's profit shifting strategy leads to CSR strategy. This makes our measure particularly beneficial in studies that examine firm factors that influence profit shifting.

To further strengthen our results and provide an evaluation of our measure of profit shifting, we run two additional robustness tests. In doing so, we check the sensitivity of our findings utilizing the true pre-tax parent earnings.[19] The results of this test are reported in Table A11 and are qualitatively similar to those of Table 3. We then proceed by re-running our main econometric model—the effect of CSR on profit shifting (i.e., eq. 4).[20] The results are in Table A12 and are qualitatively similar to our baseline specification found in Table 5. 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 $\tilde{\pi}_{pt}$). The reason for this is that 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, as it is not a choice variable for the parent firm. However, this is not the case when we use the true pre-tax earnings of the parent company.

[19] We re-estimate profit shifting using equations 1-3, but this time we use π instead of $\tilde{\pi}$.
[20] In this case, profit shifting is calculated as $\hat{\beta}_3(d_{it} \cdot \pi_{pt})$ instead of $\hat{\beta}_3(d_{it} \cdot \tilde{\pi}_{pt})$.

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 proceed by employing an instrumental variables approach (IV) to deal with endogeneity due to omitted variables and a Heckman selection model to deal with potential selection.

Regarding endogeneity, a good instrument is one which is not correlated with the outcome variable but is correlated with the variable that is instrumented. In other words, our instrument should affect profit shifting only through CSR and not directly. In mathematical terms, the model takes the following form:

$$ps_{it} = \psi_0 + \psi_1 \widehat{CSR_{it}} + \psi_2 h_{it} + \xi + \varpi_{it} \quad (5)$$

$$CSR_{it} = \kappa_o + \kappa_1 IV + \varsigma_{it} \quad (6)$$

As in our main specification, ps denotes the profit shifting measure, h is a vector of subsidiary-year and parent-year control variables, ξ represents various fixed effects, while ϖ and ς are the error terms. Contrary to the baseline analysis though, instead of using the endogenous CSR values for our main equation (eq. 5), we use the fitted values obtained from equation 6.

To deal with potential selection we employ an endogenous treatment-regression model (Heckman selection).[21] The latter is modelled along the following lines:

$$High\ CSR_{it} = 1 \text{ if } \quad \mu_0 + \mu_1 IV + \mu_2 h_{it} + \xi + \zeta > 0, \qquad \text{with } \zeta \sim (0, \sigma^2) \quad (7)$$

$$ps_{it} = \eta_0 + \eta_1 High\ CSR_{it} + \eta_2 h_{it} + \xi + \lambda + \omega \quad (8)$$

Equation 7 is our selection or treatment equation, and constitutes the first stage of the selection model, while equation 8 is the main equation. $High\ CSR$ takes value one for all firms that belong

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

to the highest CSR quartile. λ is the inverse Mill's ratio taken from the first stage and is the component that mitigates selection bias.

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 (Leaven and Levin, 2009; Lin et al., 2011; Ferrell et al., 2016), our first instrument is peer's 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. (forthcoming) argue that CSR adaptation can be perceived as a strategic response by firms in a specific sector. Precisely, 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.[22]

The results presented in Table 10 point to 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 5), albeit the coefficient obtained in the IV model is around 6% now.

[Insert Table 10 about here]

Although past literature has used peer's 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 a number of additional instruments which we discuss below.

Liang and Renneboog (2017) find firms under the French legal system have higher levels of CSR. As Glaeser and Shleifer (2002) posit, Common law favors private market outcomes and

[22] In fact, this is what Cao et al. (2018) find. In an RDD design, they document that peers having difficulties in catching up experience lower stock returns.

shareholder protection, while Civil law favors state intervention through its bright line rules and stakeholder protection. Precisely this favor of Civil law towards stakeholders is the reason corporations in countries under this legal regime, must comply with rules that protect stakeholders at a much higher degree (e.g., stricter regulations and protection laws), compared to Common law countries. Evidently, the legal regime of a country affects corporations in multiple ways, especially in their choices for transparency and better governance (Doidge et al., 2007), where higher investments in the aforesaid, might help corporations considerably in the global markets and their potential investments in foreign lands. To this end, we create an indicator variable taking value one for firms headquartered in countries under the French legal system and zero otherwise.[23]

We argue that legal origins are an appropriate instrument for CSR. First, we contend that legal origins have created "deep roots" in the society that determine general behavioral trends economic agents (i.e., individuals and firms) follow when they deal with the state and the economy. For example, when there is a dispute between firms and individuals, it is more likely that individuals will "win" the case in a Civil law country.

[Insert Table 11 about here]

We present the outcomes of this analysis in Table 11. By and large, our results follow the same pattern as before. First, for the IV case we find that the CSR still enters with a positive and statistically significant coefficient, although in this case the coefficient is larger. This could indicate that omitted variables attenuated the effect of CSR in the first place and through our IV

[23] Legal origins characterize the legal tradition of a country where a parent company is headquartered. La Porta et al. (1998) recognize the following law systems: English (E), French (F), Germanic (G), Scandinavian (Scand), and Socialist (S). Parent companies in our database are from the following countries: Austria (G), Australia (E), Belgium (F), Switzerland (G), China (S), Germany (G), Denmark (Scand), Spain (F), Finland (Scand), France(F), Great Britain (E), Hungary (S), Ireland (E), Israel (F), Italy (F), Netherlands (F), Norway (Scand), Poland (S), Sweden (Scand), United States (E).

we are able to capture an effect free of bias and measurement error.[24] In accordance with our conjecture, firms from countries where French legal origin has prevailed, have higher values of CSR. Statistics at the end of the table document that our instrument is relevant and well above the Stock and Yogo (2005) critical values.[25] Moving to the endogenous treatment model (column 3 is the main equation and 4 is the selection equation), we see that the value of the *High CSR* dummy enters with a positive and statistically significant coefficient, supporting once again our main hypothesis. In addition, by inspecting Table 11 we observe that the hazard lambda for the selection model is negative and statistically significant at the 10% level, thus indicating a potential problem of negative selection, which we try to address through the endogenous treatment-regression model.

To corroborate our findings, we propose a number of additional instruments and summarize the results in Table 12. We proceed with another variable that belongs to the family of "deep-root" determinants that shape economic preferences, specifically *negative reciprocity*. We utilize newly and more 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 anthropology point of view, humans cooperate with each other within the society when there is altruistic punishment (even if it is costly). Fehr and Gächter (2002) argue that the reason for this is negative emotions towards defectors in public good games, or reputation games. We incorporate the above logic to our frame and view CSR as a result of social contract, as Sacconi (2007). According to Sacconi, firms seek to participate in CSR activities not because they are forced to, but because they want to increase their reputation in a society and a way to do this is

[24] Another reason for such a high coefficient is weak instruments, but this is unlikely to be the case here, as the F-statistic we obtain is quite large, strongly statistically significant and far above the Stock and Yogo (2005) critical values.

[25] Stock and Yogo (2005) critical values demonstrate the strength of the identification. Hence, when the first stage F-statistic is higher than the Stock-Yogo critical values, we can infer that our identification is strong and that the estimate we obtain from the two-stage IV process is less biased compared to that of the OLS.

through CSR. The mechanism works along the following lines. In a society where its stakeholders have a strong conformist orientation—this means 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 adopt full compliance with the code of ethics.[26]

[Insert Table 12 about here]

Negative reciprocity variable captures prosocial punishment. That is, countries where the value of negative reciprocity is higher are more likely to follow society's norms. Economic agents in such countries are more willing to take revenge and punish unfair behavior. Hence, as the literature from evolutionary anthropology stresses, it is more likely to sustain long-lasting cooperation among many participants through negative reciprocity (e.g., Boyd et al., 2003; Henrich et al., 2006). Out results point exactly to that direction. Specifically, we find countries with higher negative reciprocity to document higher CSR scores. Importantly for our main model, CSR enters with a positive and highly significant coefficient, as we have hypothesized in the first place.

Further, 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. Practically, here we follow the insights of Rubin (2008), who finds that firms located in "red" states have lower CSR scores. Using the Database of Political Institutions (DPI) by Cruz et al. (2017), our findings point towards that direction. Our dummy for right-wing government enters with a negative coefficient in the first-stage, indicating that firms under such

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

governments are less likely to invest in CSR.[27] Importantly, our main model (column 1) shows a positive coefficient for CSR which is in line with our main hypothesis.[28]

Throughout our analysis regarding the endogeneity of the CSR variable, our instrumental variables approach shows a strong support for our main hypothesis. With our strategy we were able to study one direction of causality, that of CSR to profit shifting. Although we understand that more granular data are needed to strengthen the argument of causality, we have, nonetheless, provided statistical inference 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 we hope our work to set the basis for further developments in the field.

6 Conclusion

Heretofore, the disciplines of accounting and finance, have ignored the relationship between corporate social responsibility and multinationals' profit shifting (i.e., cross-country tax avoidance). CSR could be beneficial for the firm, as it could potentially increase a firm's value by attracting higher quality employees, reducing risk management, and increasing customer loyalty. Concurrently, CSR could be also beneficial for the society through responsible firm practices that generally avail stakeholders. On top of that, it is possible that firms with higher CSR face reduced

[27] Notice 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 need some time until they are implemented. That is, if we were to use a lagged value of the type of political party at t-1, we might have risked not to capture the effect of the laws of the previous years that are in force now.

[28] In untabulated results we have also utilized two additional instrumental variables. Namely, the environmental performance index (EPI) and following Liang and Renneboog (2017) the natural disasters. The results are once again similar. Results are available upon request.

scrutiny by both the government and the public regarding their practices. Therefore, in case of unethical corporate actions, they might be punished less severely.

Such an action is that of profit shifting which is a very specific form of tax aggressiveness. Voices in many countries have already called upon the maligned behavior of some MNEs and discussions between politicians and regulators regarding this matter is on the rise. The focal points of such discussions gravitate around the fairness of the tax system and potential mechanisms that could curtail profit shifting, but also allow the firms to expand, innovate, and add more jobs in the economy. We strongly believe that in the future the discussion about profit shifting will be central in the political agenda, especially in large economies such as the European Union and the United States.

This is the first work that thoroughly studies the relationship between corporate social responsibility and profit shifting. To accomplish this, 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. Not only ours is the first work that studies the relationship between CSR and cross-country tax avoidance (profit-shifting) but also, based on legitimacy and reputation theories, this paper provides evidence of a specific direction of causality: that from CSR to profit shifting. 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. We also find that the effect of CSR on profit shifting is larger for firms under the territorial tax system where the incentives for profit shifting are higher and for

parent firms in countries with high levels of consumer activism, where the necessity for better reputation is more vital. In both cases, the evidence suggests that higher CSR is required in order firms in these countries to keep the same level of profit shifting or to even increase it.

The findings of this work could be useful for policy makers and tax authorities. Our work shows that firms with higher CSR scores are more likely to document higher profit shifting. Furthermore, past research has found that more socially responsible firms are treated with leniency in case corporate scandals erupt. Unfortunately, this could lead to socially wrong incentives. Specifically, some firms may strategically increase their CSR scores to avoid scrutiny and receive lower punishment for their wrongdoing to the society (including profit shifting activities, *inter alia*). Therefore, it is in the shoulders of policy makers to devise mechanisms that will lead firms to optimally choose the socially beneficial alternatives without creating any negative externalities.

This work opens the window for further research in the future. As more detailed corporate data are expected to become available, partially because the CSR revolution is expanding in the Western World, but also because the above is expected to spread to other economies as they become wealthier. With that in mind, it will be possible for future scholars to explicitly study the paths of causality using firm level instruments that are much finer—yet unavailable now—than time invariant country level variables. This will further refine the estimates regarding the relationship between CSR and profit shifting, although a desideratum for clear causality claims is (quasi) natural experiments or randomized control trials. Other venues 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. We trust that future research will look at these ideas and improve our understanding regarding CSR and profit shifting.

References

Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, *31*(3), 377-397.

Albuquerque, R. A., Durnev, A., & Koskinen, Y. (forthcoming). Corporate social responsibility and firm risk: Theory and empirical evidence. *Management Science*.

Bénabou, R., & Tirole, J. (2010). Individual and corporate social responsibility. *Economica*, *77*(305), 1-19.

Berle, A., Means, G. (1932). The modern corporation and private property, Harcourt, Brace & World, New York, NY.

Bertrand, M., Mehta, P., & Mullainathan, S. (2002). Ferreting out tunneling: An application to Indian business groups. *Quarterly Journal of Economics*, *117*(1), 121-148.

Beuselinck, C., Pierk, J. (2018). On the tradeoff between local tax planning and income shifting in multinational corporations. Available at SSRN: https://ssrn.com/abstract=3108489 or http://dx.doi.org/10.2139/ssrn.3108489 .

Boyd, R., Gintis, H., Bowles, S., & Richerson, P. J. (2003). The evolution of altruistic punishment. *Proceedings of the National Academy of Sciences*, *100*(6), 3531-3535.

Cao, J., Liang, H., & Zhan, X. (forthcoming). Peer effects of corporate social responsibility. *Management Science*.

Chatterji, A. K., & Toffel, M. W. (2010). How firms respond to being rated. *Strategic Management Journal*, *31*(9), 917-945.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, *35*(1), 1-23.

Cochran, P. L., & Wood, R. A. (1984). Corporate social responsibility and financial performance. *Academy of Management Journal*, *27*(1), 42-56.

Collins, J., Kemsley, D., & Lang, M. (1998). Cross-jurisdictional income shifting and earnings valuation. *Journal of Accounting Research*, *36*(2), 209-229.

Cruz, C., Keefer P., and Scartascini C. (2018). Database of Political Institutions 2017 (DPI2017). https://mydata.iadb.org/Reform-Modernization-of-the-State/Database-of-Political-Institutions-2017/938i-s2bw. Inter-American Development Bank. Numbers for Development.

Davis, A. K., Guenther, D. A., Krull, L. K., & Williams, B. M. (2016). Do socially responsible firms pay more taxes?. *Accounting Review*, *91*(1), 47-68.

Deng, X., Kang, J. K., & Low, B. S. (2013). Corporate social responsibility and stakeholder value maximization: Evidence from mergers. *Journal of Financial Economics*, *110*(1), 87-109.

Dharmapala, D., & Riedel, N. (2013). Earnings shocks and tax-motivated income-shifting: Evidence from European multinationals. *Journal of Public Economics*, *97*, 95-107.

Dischinger, M., & Riedel, N. (2011). Corporate taxes and the location of intangible assets within multinational firms. *Journal of Public Economics*, *95*(7-8), 691-707.

Doidge, C., Karolyi, G. A., & Stulz, R. M. (2007). Why do countries matter so much for corporate governance?. *Journal of Financial Economics*, *86*(1), 1-39.

Durnev, A., & Kim, E. H. (2005). To steal or not to steal: Firm attributes, legal environment, and valuation. *Journal of Finance*, *60*(3), 1461-1493.

Dyreng, S. D., & Markle, K. S. (2016). The effect of financial constraints on income shifting by US multinationals. *Accounting Review*, *91*(6), 1601-1627.

Dyreng, S. D., Hoopes, J. L., & Wilde, J. H. (2016). Public pressure and corporate tax behavior. *Journal of Accounting Research*, *54*(1), 147-186.

El Ghoul, S., Guedhami, O., Kwok, C. C., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance*, *35*(9), 2388-2406.

Edmans, A. (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, *101*(3), 621-640.

Escritt, T. (2018, October 20). Germany's Scholz wants global tax floor to stop evasion, *Reuters*, Retrieved on 21 October 2018 from: https://uk.reuters.com/article/uk-germany-tax/germanys-scholz-wants-global-tax-floor-to-stop-evasion-idUKKCN1MU0YO.

Falk, A., Becker, A., Dohmen, T. J., Huffman, D., & Sunde, U. (2016). The preference survey module: A validated instrument for measuring risk, time, and social preferences. IZA Discussion Paper No. 9674.

Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., & Sunde, U. (2018). Global evidence on economic preferences. *Quarterly Journal of Economics*, *133*(4), 1645-1692.

Fehr, E., & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, *415*(6868), 137.

Ferrell, A., Liang, H., & Renneboog, L. (2016). Socially responsible firms. *Journal of Financial Economics*, *122*(3), 585-606.

Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*, *61*(11), 2549-2568.

Fombrun, C. J., Gardberg, N. A., & Barnett, M. L. (2000). Opportunity platforms and safety nets: Corporate citizenship and reputational risk. *Business and Society Review*, *105*(1), 85-106.

Friedman, M. (1970), The social responsibility of business is to increase its profits, *New York Times Magazine,* September 13, 1970.

Glaeser, E. L., & Shleifer, A. (2002). Legal origins. *Quarterly Journal of Economics*, *117*(4), 1193-1229.

Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic Management Journal*, *30*(4), 425-445.

Goss, A., & Roberts, G. S. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking & Finance*, *35*(7), 1794-1810.

Graham, J. R. (2003). Taxes and corporate finance: A review. *Review of Financial Studies*, *16*(4), 1075-1129.

Graham, J. R., Hanlon, M., Shelvin, T. & Shroff, N. (2014). Incentives for Tax Planning and Avoidance: Evidence from the Field. *Accounting Review,* 89, 991-1023.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal*, *8*(2), 47-77.

Hanlon, M., & Slemrod, J. (2009). What Does Tax Aggressiveness Signal? Evidence from Stock Price Reactions to News About Tax Shelter Involvement. *Journal of Public Economics,* 93, 126-141.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, *50*(2-3), 127-178.

Hasan, I., Kobeissi, N., Liu, L., & Wang, H. (2018). Corporate social responsibility and firm financial performance: The mediating role of productivity. *Journal of Business Ethics*, *149*(3), 671-688.

Henrich, J., McElreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyanatz, A., ... & Lesorogol, C. (2006). Costly punishment across human societies. *Science*, *312*(5781), 1767-1770.

Hermalin, B. E., & Weisbach, M. S. (1991). The effects of board composition and direct incentives on firm performance. *Financial Management*, 101-112.

Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: what's the bottom line?. *Strategic Management Journal*, *22*(2), 125-139.

Hines Jr, J. R., & Rice, E. M. (1994). Fiscal paradise: Foreign tax havens and American business. *Quarterly Journal of Economics*, *109*(1), 149-182.

Hoi, C. K., Wu, Q., & Zhang, H. (2013). Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities. *Accounting Review*, *88*(6), 2025-2059.

Hong, H. G., and Liskovich, I. (2016). Crime, Punishment and the Value of Corporate Social Responsibility. Available at SSRN: https://ssrn.com/abstract=2492202 or http://dx.doi.org/10.2139/ssrn.2492202

Huizinga, H., & Laeven, L. (2008). International profit shifting within multinationals: A multi-country perspective. *Journal of Public Economics*, *92*(5-6), 1164-1182.

Hurst, J. W. (1970). *The legitimacy of the business corporation in the law of the United States 1780-1970*. The University Press of Virginia, Charlottesville, VA.

Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies*, *43*(9), 834-864.

Ioannou, I., & Serafeim, G. (2015). The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics. *Strategic Management Journal*, *36*(7), 1053-1081.

Janney, J. J., & Gove, S. (2011). Reputation and corporate social responsibility aberrations, trends, and hypocrisy: Reactions to firm choices in the stock option backdating scandal. *Journal of Management Studies*, *48*(7), 1562-1585.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360.

Karkinsky, T., & Riedel, N. (2012). Corporate taxation and the choice of patent location within multinational firms. *Journal of International Economics*, *88*(1), 176-185.

Kennett, D. A. (1980). Altruism and Economic Behavior: II Private Charity and Public Policy. *American Journal of Economics and Sociology*, *39*(4), 337-352.

Klassen, K. J., & Laplante, S. K. (2012). Are US multinational corporations becoming more aggressive income shifters?. *Journal of Accounting Research*, *50*(5), 1245-1285.

Kohlhase, S. and Pierk, J. (2016) Why are U.S.-Owned Foreign Subsidiaries Not Tax Aggressive? WU International Taxation Research Paper Series, 2016-06. WU Vienna University of Economics and Business, Universität Wien, Vienna.

Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, *115*(2), 304-329.

Laeven, L., & Levine, R. (2009). Bank governance, regulation and risk taking. *Journal of Financial Economics*, *93*(2), 259-275.

Lanis, R., & Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: a test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, *26*(1), 75-100.

Liang, H., & Renneboog, L. (2017). On the foundations of corporate social responsibility. *Journal of Finance*, *72*(2), 853-910.

Lin, C., Ma, Y., Malatesta, P., & Xuan, Y. (2011). Ownership structure and the cost of corporate borrowing. *Journal of Financial Economics*, *100*(1), 1-23.

Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *Journal of Finance*, *72*(4), 1785-1824.

Mackey, A., Mackey, T. B., & Barney, J. B. (2007). Corporate social responsibility and firm performance: Investor preferences and corporate strategies. *Academy of Management Review*, *32*(3), 817-835.

Markle, K. (2016). A comparison of the tax-motivated income shifting of multinationals in territorial and worldwide countries. *Contemporary Accounting Research*, *33*(1), 7-43.

McCarthy, S., Oliver, B., & Song, S. (2017). Corporate social responsibility and CEO confidence. *Journal of Banking & Finance*, *75*, 280-291.

McGuinness, P. B., Vieito, J. P., & Wang, M. (2017). The role of board gender and foreign ownership in the CSR performance of Chinese listed firms. *Journal of Corporate Finance*, *42*, 75-99.

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal*, *31*(4), 854-872.

McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification?. *Strategic Management Journal*, *21*(5), 603-609.

Masulis, R. W., & Reza, S. W. (2014). Agency problems of corporate philanthropy. *Review of Financial Studies*, *28*(2), 592-636.

Maydew, E. L. (2001). Empirical tax research in accounting: A discussion. *Journal of Accounting and Economics*, *31*(1-3), 389-403.

Nelling, E., & Webb, E. (2009). Corporate social responsibility and financial performance: the "virtuous circle" revisited. *Review of Quantitative Finance and Accounting*, *32*(2), 197-209.

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113-1155.

Porta, R. L., Lopez-de-Silanes, F., & Shleifer, A. (2008). The economic consequences of legal origins. *Journal of economic literature*, *46*(2), 285-332.

Rubin, A. (2008). Political views and corporate decision making: The case of corporate social responsibility. *Financial Review*, *43*(3), 337-360.

Shackelford, D. A., & Shevlin, T. (2001). Empirical tax research in accounting. *Journal of Accounting and economics*, *31*(1-3), 321-387.

Scholes, M., Wolfson, M. A., Erickson, M. M., Hanlon, M. L., Maydew, E. M., Shelvin, 2015. Taxes and Business Strategy, 5th Edition, Prentice Hall.

Toplensky, R. (2018, March 11). Multinationals pay lower taxes than a decade ago. *Financial Times*, Retrieved from https://www.ft.com/content/2b356956-17fc-11e8-9376-4a6390addb44.

Sacconi, L. (2007). A social contract account for CSR as an extended model of corporate governance (II): Compliance, reputation and reciprocity. *Journal of Business Ethics*, *75*(1), 77-96.

Sikka, P. (2010). Smoke and mirrors: Corporate social responsibility and tax avoidance. *Accounting Forum, 34*(3-4), 153-168.

Simon, F. L. (1995). Global corporate philanthropy: a strategic framework. *International Marketing Review*, *12*(4), 20-37.

Stock J, Yogo M. (2005). Testing for Weak Instruments in Linear IV Regression. In: Andrews DWK Identification and Inference for Econometric Models. New York: Cambridge University Press. 80-108.

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance–financial performance link. *Strategic Management Journal*, *18*(4), 303-319.

Waldman, D. A., Siegel, D. S., & Javidan, M. (2006). Components of CEO transformational leadership and corporate social responsibility. *Journal of Management Studies*, *43*(8), 1703-1725.

Watson, L. (2015). Corporate social responsibility, tax avoidance, and earnings performance. *The Journal of the American Taxation Association*, *37*(2), 1-21.

Yuan, Y., Tian, G., Lu, L. Y., & Yu, Y. (2017). CEO ability and corporate social responsibility. *Journal of Business Ethics*, 1-21.

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
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
French legal origin	A dummy that takes the value one for all firms originating from a country under French legal origin.	Own calculation

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	152,287.700	-1,554,860	267.888	1930.175	7,037.116	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 (ind)	26,752	0.333	0.207	0.000	0.000	0.435	0.478	0.576
Profit shifting (year)	26,752	0.277	0.173	0.000	0.000	0.362	0.398	0.480
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
French legal origin	26,752	0.268	0.443	0.000	0.000	0.000	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: High vs. low CSR

This table reports differences of the main variables between the firms with high (above the median) CSR scores and firms with low (below the median) CSR scores. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively.

	High CSR			Low CSR			Differences			
Variable	N	mean	p50	N	mean	p50	Mean	Sig.	Median	Sig.
Ln(EBT)	10,908	8.259	8.215	10,623	7.902	7.902	0.357	***	0.313	***
Low	13,356	0.759	1.000	13,396	0.698	1.000	0.061	***	0.000	***
Parent profits	13,356	14.495	14.599	13,396	13.304	13.280	1.191	***	1.320	***
Profit shifting	13,356	0.330	0.427	13,396	0.280	0.378	0.050	***	0.049	***
Profit shifting (ind)	13,356	0.360	0.466	13,396	0.305	0.412	0.055	***	0.054	***
Profit shifting (year)	13,356	0.300	0.388	13,396	0.254	0.343	0.046	***	0.045	***
CSR	13,356	0.882	0.886	13,396	0.613	0.672	0.269	***	0.214	***
Parent ln(Total assets)	13,356	10.547	10.789	13,396	9.234	9.118	1.313	***	1.671	***
Parent Leverage	13,356	0.951	0.973	13,396	0.895	0.897	0.055	***	0.075	***
Parent ROA	13,356	0.079	0.067	13,396	0.073	0.064	0.006	***	0.003	***
Parent Fixed assets/TA	13,356	0.613	0.620	13,396	0.580	0.586	0.033	***	0.034	***
Parent R&D/TA	13,356	0.031	0.023	13,396	0.023	0.010	0.008	***	0.013	***
Subsidiary ln(Total assets)	13,356	3.830	3.720	13,396	3.435	3.333	0.395	***	0.387	***
Subsidiary Leverage	13,356	0.990	0.951	13,396	0.969	0.927	0.021	***	0.024	***
Subsidiary ROA	13,356	0.085	0.071	13,396	0.079	0.069	0.006	***	0.002	***
Subsidiary Fixed assets/TA	13,356	0.253	0.171	13,396	0.271	0.195	-0.018	***	-0.024	***
Subsidiary R&D/TA	13,356	0.001	0.000	13,396	0.001	0.000	0.000	***	0.000	***
Territorial dummy	13,356	0.592	1.000	13,396	0.626	1.000	-0.034	***	0.000	***

Table 5: 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. 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 6: 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. 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 7: Worldwide vs. territorial tax systems

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: *Territorial*—a dummy that equals one for countries with a territorial tax system, and zero for countries under a worldwide tax system, *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. 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.

	Worldwide	Territorial	Pooled
	(1)	(2)	(3)
CSR t-1	0.005**	0.038**	0.000
	(2.219)	(2.400)	(0.017)
CSR t-1 × Territorial dummy			0.040**
			(2.230)
Parent ln(Total assets) t-1	0.024***	0.010	0.014***
	(30.259)	(1.611)	(4.024)
Parent Leverage t-1	-0.005***	-0.008	-0.008
	(-3.011)	(-0.567)	(-1.049)
Parent ROA t-1	-0.001	0.045	0.013
	(-0.290)	(1.498)	(0.824)
Parent Fixed assets/TA t-1	-0.001	-0.075***	-0.029***
	(-0.224)	(-3.194)	(-2.706)
Parent R&D/TA t-1	0.047***	0.355**	0.114
	(3.346)	(2.198)	(1.625)
Subsidiary ln(Total assets) t-1	-0.000***	0.002	0.002*
	(-2.844)	(1.574)	(1.712)
Subsidiary Leverage t-1	0.000	-0.004	0.000
	(1.496)	(-1.009)	(0.019)
Subsidiary ROA t-1	0.001	-0.008	-0.011
	(0.700)	(-0.845)	(-1.488)
Subsidiary Fixed assets/TA t-1	-0.000	-0.009	-0.009
	(-0.085)	(-1.165)	(-1.465)
Subsidiary R&D/TA t-1	0.002	-0.174	-0.238*
	(0.285)	(-0.667)	(-1.793)
Observations	9,450	17,302	26,752
Adjusted R-squared	0.982	0.777	0.742
Parent FE	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes

Table 8: 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. 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 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. 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. 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: Endogeneity and selectivity using legal origins 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. 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)	0.147**			
	(2.201)			
High CSR (top 25%) t-1			0.036**	
			(1.980)	
French legal origin		0.099***		0.475***
		(16.707)		(20.958)
Parent ln(Total assets) t-1	0.039***	0.060***	0.014***	0.438***
	(8.643)	(30.197)	(2.623)	(53.875)
Parent Leverage t-1	-0.103***	0.116***	0.004	0.567***
	(-6.726)	(8.853)	(0.344)	(11.902)
Parent ROA t-1	0.047	0.443***	0.006	3.940***
	(1.113)	(11.135)	(0.198)	(21.056)
Parent Fixed assets/TA t-1	-0.020	-0.027	-0.022	0.813***
	(-1.016)	(-1.418)	(-1.171)	(10.300)
Parent R&D/TA t-1	0.234**	0.743***	-0.186	8.547***
	(2.374)	(7.297)	(-1.444)	(26.231)
Subsidiary ln(Total assets) t-1	-0.000	0.004***	-0.009***	0.007
	(-0.186)	(2.878)	(-14.636)	(1.132)
Subsidiary Leverage t-1	-0.006	-0.006	-0.014***	0.024
	(-1.349)	(-1.469)	(-7.352)	(1.115)
Subsidiary ROA t-1	-0.024**	-0.009	0.010*	0.097
	(-2.274)	(-0.978)	(1.685)	(1.451)
Subsidiary Fixed assets/TA t-1	-0.023***	0.005	0.009**	-0.093**
	(-2.635)	(0.684)	(2.259)	(-2.273)
Subsidiary R&D/TA t-1	-0.185	-0.313	0.187*	0.242
	(-0.974)	(-1.358)	(1.957)	(0.236)
Hazard lambda			-0.020*	
			(-1.925)	
Observations	26,752	26,752	26,752	26,752
Adjusted R-squared	0.492	0.524		
Kleibergen-Paap LM statistic		250.191***		
Cragg-Donald Wald F statistic		1264.105***		
Stock-Yogo critical values 10%		16.38		
F-statistics		279.130***		

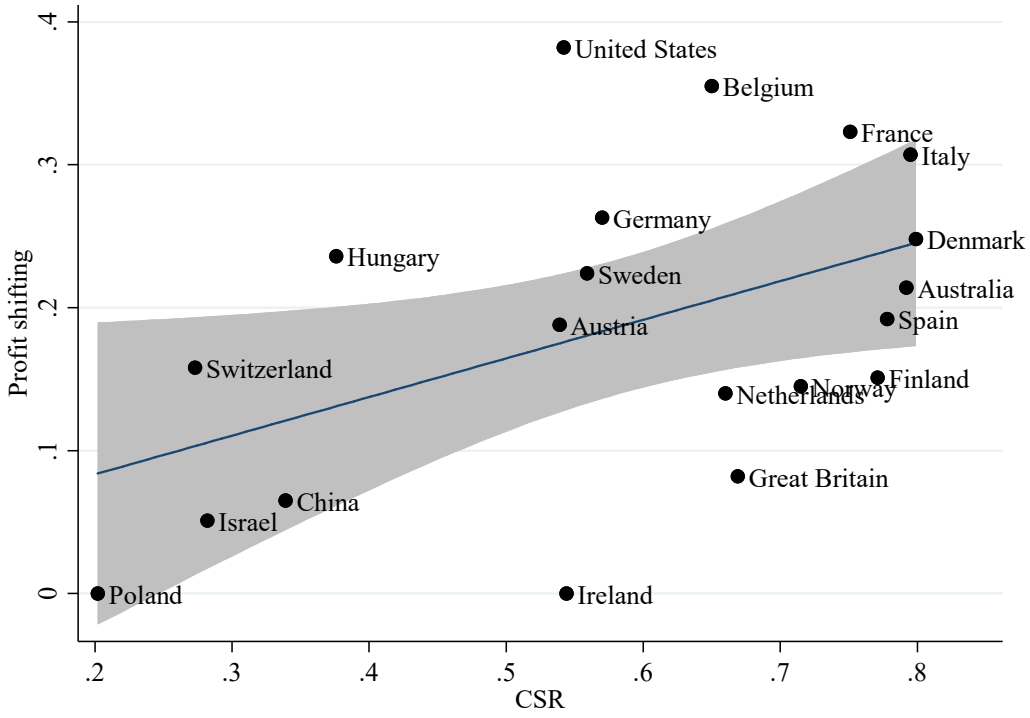
Table 12: Alternative instrumental variables

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

This appendix contains auxiliary information to the main text. Tables A1 and A2 provide information about the distributions of subsidiary and parent firms. Table A3 shows the evolution of CSR over the years (average values), while Table A4 provides the correlations of the main variables used in our analysis. Table A5 runs the same specification as our baseline model for all firms but those MNEs from the United States. Table A6 reports results where we interact U.S. only firms and those under the territorial tax system. Table A7 reports results where we interact high boycott countries and CSR for only the parent firms located in countries with territorial tax system. Table A8 repeats our baseline specification but now using changes instead of levels. In Table A9, we test the reverse causality issue, where again we use changes instead of levels. In Table A10 we re-run the most conservative form of our baseline specification using a Tobit model. Table A11 presents an alternative profit shifting estimation, where instead of using parent earnings defined as $\tilde{\pi}$, we use true pre-tax parent earnings, π. Finally, in Table A12 we repeat the exercise of baseline Table 5, with the alternative measure of profit shifting.

Table A1: Information regarding subsidiary firms

This table reports the number of unique subsidiary firms in each country, along with average CSR and profit shifting scores. For example, there are 351 unique subsidiaries in Belgium—fully owned or partially owned by MNEs outside Belgium,—which equals 5.84% of our sample.

Country	Country code	Subsidiaries	Subsidiaries %	CSR	Profit shifting measure
Albania	AL	1	0.02%	0.767	0.416
Austria	AT	89	1.48%	0.741	0.376
Australia	AU	190	3.16%	0.721	0.245
Bosnia and Herzegovina	BA	2	0.03%	0.626	0.416
Bangladesh	BD	1	0.02%	0.916	0.060
Belgium	BE	351	5.84%	0.757	0.123
Bulgaria	BG	51	0.85%	0.774	0.415
Brazil	BR	33	0.55%	0.787	0.105
Botswana	BW	1	0.02%	0.783	0.198
Canada	CA	1	0.02%	0.885	0.509
Chile	CL	4	0.07%	0.806	0.451
China	CN	388	6.45%	0.781	0.346
Colombia	CO	9	0.15%	0.801	0.238
Czech Republic	CZ	226	3.76%	0.736	0.409
Germany	DE	638	10.61%	0.754	0.302
Denmark	DK	96	1.60%	0.741	0.272
Estonia	EE	23	0.38%	0.725	0.293
Spain	ES	425	7.07%	0.739	0.286
Finland	FI	48	0.80%	0.735	0.359
France	FR	618	10.28%	0.718	0.207
Great Britain	GB	646	10.74%	0.731	0.402
Ghana	GH	1	0.02%	0.904	0.124
Greece	GR	64	1.06%	0.799	0.359
Croatia	HR	39	0.65%	0.808	0.398
Hungary	HU	97	1.61%	0.753	0.410
Ireland	IE	92	1.53%	0.735	0.399
India	IN	11	0.18%	0.863	0.136
Iceland	IS	3	0.05%	0.746	0.385
Italy	IT	377	6.27%	0.729	0.219
Jamaica	JM	1	0.02%	0.719	0.000
Japan	JP	27	0.45%	0.834	0.168
Kenya	KE	1	0.02%	0.904	0.000
Korea (South)	KR	97	1.61%	0.765	0.361
Cayman Islands	KY	1	0.02%	0.668	0.419
Kazakhstan	KZ	1	0.02%	0.689	0.377
Lithuania	LT	9	0.15%	0.745	0.412
Luxembourg	LU	23	0.38%	0.833	0.243
Latvia	LV	26	0.43%	0.800	0.411
FYROM	MK	1	0.02%	0.743	0.383
Malta	MT	3	0.05%	0.907	0.381

(Table A1 continues on next page)

(Table A1 continued from previous page)

Country	Country code	Subsidiaries	Subsidiaries %	CSR	Profit shifting measure
Mexico	MX	5	0.08%	0.651	0.172
Malaysia	MY	16	0.27%	0.779	0.407
Nigeria	NG	3	0.05%	0.844	0.000
Netherlands	NL	48	0.80%	0.754	0.362
Norway	NO	125	2.08%	0.757	0.247
Oman	OM	1	0.02%	0.740	0.360
Panama	PA	1	0.02%	0.810	0.450
Pakistan	PK	3	0.05%	0.855	0.000
Poland	PL	213	3.54%	0.790	0.413
Portugal	PT	116	1.93%	0.795	0.363
Romania	RO	134	2.23%	0.774	0.421
Serbia	RS	27	0.45%	0.760	0.423
Russian Federation	RU	285	4.74%	0.734	0.375
Sweden	SE	163	2.71%	0.753	0.326
Slovenia	SI	20	0.33%	0.810	0.422
Slovakia	SK	88	1.46%	0.732	0.368
Turkey	TR	2	0.03%	0.831	0.405
Taiwan	TW	2	0.03%	0.809	0.407
Ukraine	UA	22	0.37%	0.809	0.434
United States	US	9	0.15%	0.759	0.000
Viet Nam	VN	13	0.22%	0.667	0.399
South Africa	ZA	1	0.02%	0.606	0.000
Zambia	ZM	1	0.02%	0.698	0.000
Total		6,013	100.0%		

Table A2: Parent distribution

This table reports the number of unique parent firms in each country, along with average CSR and profit shifting scores. For example, there are 116 unique parent firms from Great Britain, making up about 22.8% of the parent firms on our sample. These 116 British parent firms fully (or partially) own 923 subsidiaries around the world.

Owner country	Parents	Parents %	Subsidiaries	Subsidiaries %	CSR	Profit shifting measure
Austria	2	0.39%	38	0.6%	0.539	0.188
Australia	2	0.39%	5	0.1%	0.792	0.214
Belgium	5	0.98%	81	1.3%	0.650	0.355
Switzerland	1	0.2%	7	0.1%	0.273	0.158
China	3	0.59%	11	0.2%	0.339	0.065
Germany	34	6.68%	915	15.2%	0.570	0.263
Denmark	2	0.39%	18	0.3%	0.799	0.248
Spain	14	2.75%	130	2.2%	0.778	0.192
Finland	6	1.18%	73	1.2%	0.771	0.151
France	35	6.88%	1,149	19.1%	0.751	0.323
Great Britain	116	22.79%	923	15.4%	0.669	0.082
Hungary	1	0.2%	7	0.1%	0.376	0.236
Ireland	3	0.59%	26	0.4%	0.544	0.000
Israel	1	0.2%	3	0.0%	0.282	0.051
Italy	3	0.59%	40	0.7%	0.795	0.307
Netherlands	14	2.75%	189	3.1%	0.660	0.140
Norway	2	0.39%	10	0.2%	0.715	0.145
Poland	3	0.59%	17	0.3%	0.202	0.000
Sweden	20	3.93%	255	4.2%	0.559	0.224
United States	242	47.54%	2,116	35.2%	0.542	0.382
Total	509	100%	6,013	100.0%		

Table A3: CSR over the years

This table reports the number of observations, along with average scores for CSR and profit shifting, by year. Additionally, it also shows the number of unique parent firms by year. For example, compared to 2009 (the initial year of our study), where we had 166 unique parent firms, in 2016, this number has increased around 2.5 times, indicating that more than 270 new unique firms entered the sample.

Year	Subsidiaries	Percent	Unique parents	CSR	Profit shifting measure
2009	1,643	6.14	166	0.714	0.332
2010	2,518	9.41	288	0.750	0.314
2011	3,324	12.43	332	0.755	0.314
2012	3,354	12.54	336	0.753	0.306
2013	3,609	13.49	347	0.753	0.307
2014	3,713	13.88	355	0.751	0.293
2015	4,195	15.68	377	0.743	0.292
2016	4,396	16.43	438	0.747	0.301
Total	26,752	100		0.748	0.305

Table A4: Correlation matrix

This table presents correlations of the variables used in the study. The sample includes data for the period 2009-2016 where each observation is a subsidiary firm tied to a foreign parent firm. Star indicates statistical significance at the 1% level. Sample size (N = 26,752).

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EBT	(1)	1							
Low	(2)	0.034*	1						
Parent profits	(3)	0.204*	0.265*	1					
Profit shifting	(4)	0.069*	0.981*	0.416*	1				
CSR	(5)	0.129*	0.049*	0.434*	0.125*	1			
Parent ln(Total assets)	(6)	0.188*	0.261*	0.866*	0.390*	0.518*	1		
Parent Leverage	(7)	-0.006	-0.093*	0.065*	-0.079*	0.218*	0.229*	1	
Parent ROA	(8)	0.089*	0.051*	0.014	0.059*	-0.001	-0.125*	-0.287*	1
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Parent Fixed assets/TA	(9)	1							
Parent R&D/TA	(10)	-0.244*	1						
Subsidiary ln(Total assets)	(11)	0.081*	0.055*	1					
Subsidiary Leverage	(12)	-0.050*	-0.005	-0.033*	1				
Subsidiary ROA	(13)	-0.01	0.076*	-0.040*	-0.254*	1			
Subsidiary Fixed assets/TA	(14)	0.152*	-0.153*	0.232*	-0.115*	-0.149*	1		
Subsidiary R&D/TA	(15)	-0.016*	0.132*	0.092*	-0.038*	-0.008	0.005	1	
Parent territorial dummy	(16)	0.091*	-0.387*	-0.067*	0.037*	-0.052*	0.108*	-0.064*	1

Table A5: Results excluding U.S. parent firms

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. 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	0.041***	0.038**	0.040***	0.037**
	(2.639)	(2.450)	(2.582)	(2.400)
Parent ln(Total assets) t-1		0.011*		0.011*
		(1.746)		(1.663)
Parent Leverage t-1		-0.009		-0.009
		(-0.646)		(-0.616)
Parent ROA t-1		0.042		0.043
		(1.405)		(1.440)
Parent Fixed assets/TA t-1		-0.075***		-0.074***
		(-3.234)		(-3.184)
Parent R&D/TA t-1		0.363**		0.351**
		(2.257)		(2.194)
Subsidiary ln(Total assets) t-1			0.002	0.002
			(1.553)	(1.544)
Subsidiary Leverage t-1			-0.004	-0.004
			(-1.121)	(-1.096)
Subsidiary ROA t-1			-0.010	-0.010
			(-1.024)	(-1.020)
Subsidiary Fixed assets/TA t-1			-0.009	-0.009
			(-1.174)	(-1.159)
Subsidiary R&D/TA t-1			-0.184	-0.179
			(-0.712)	(-0.690)
Observations	17,491	17,491	17,491	17,491
Adjusted R-squared	0.777	0.777	0.777	0.777
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 A6: US firms vs. firms under the territorial rule

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: *Territorial*—a dummy that equals one for countries with a territorial tax system, and zero for countries under a worldwide tax system, *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. 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.

	US sample	Territorial	Pooled
	(1)	(2)	(3)
CSR t-1	0.005**	0.038**	-0.000
	(2.028)	(2.400)	(-0.002)
CSR t-1 × Territorial dummy			0.041**
			(2.244)
Parent ln(Total assets) t-1	0.024***	0.010	0.014***
	(31.093)	(1.611)	(4.004)
Parent Leverage t-1	-0.005***	-0.008	-0.008
	(-3.154)	(-0.567)	(-1.030)
Parent ROA t-1	-0.001	0.045	0.013
	(-0.170)	(1.498)	(0.811)
Parent Fixed assets/TA t-1	0.000	-0.075***	-0.030***
	(0.042)	(-3.194)	(-2.740)
Parent R&D/TA t-1	0.046***	0.355**	0.113
	(3.362)	(2.198)	(1.611)
Subsidiary ln(Total assets) t-1	-0.000**	0.002	0.002*
	(-2.554)	(1.574)	(1.755)
Subsidiary Leverage t-1	0.000	-0.004	0.000
	(0.672)	(-1.009)	(0.067)
Subsidiary ROA t-1	0.000	-0.008	-0.011
	(0.281)	(-0.845)	(-1.394)
Subsidiary Fixed assets/TA t-1	-0.001**	-0.009	-0.009
	(-2.006)	(-1.165)	(-1.474)
Subsidiary R&D/TA t-1	0.005	-0.174	-0.246*
	(0.873)	(-0.667)	(-1.845)
Observations	9,261	17,302	26,563
Adjusted R-squared	0.980	0.777	0.739
Parent FE	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes

Table A7: High vs. low boycott countries and CSR under territorial tax system

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. 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
CSR t-1	0.068**	0.009	0.041***
	(2.180)	(0.345)	(2.665)
CSR t-1 × High boycott			0.042**
			(2.444)
High boycott			-0.009
			(-0.621)
Parent ln(Total assets) t-1	0.015	0.025**	-0.001
	(0.905)	(2.304)	(-0.147)
Parent Leverage t-1	-0.019	-0.060***	-0.009
	(-0.747)	(-2.739)	(-0.601)
Parent ROA t-1	0.044	0.013	0.098***
	(0.659)	(0.319)	(3.423)
Parent Fixed assets/TA t-1	0.140***	-0.035	-0.037
	(2.889)	(-0.821)	(-1.579)
Parent R&D/TA t-1	0.570	0.431**	0.401**
	(1.078)	(1.974)	(2.532)
Subsidiary ln(Total assets) t-1	0.001	0.001	0.002
	(0.455)	(0.870)	(1.594)
Subsidiary Leverage t-1	-0.002	-0.005	-0.004
	(-0.334)	(-1.271)	(-1.117)
Subsidiary ROA t-1	0.003	-0.006	-0.009
	(0.238)	(-0.611)	(-0.916)
Subsidiary Fixed assets/TA t-1	0.002	-0.011	-0.009
	(0.218)	(-1.606)	(-1.200)
Subsidiary R&D/TA t-1	-0.003	0.018	-0.194
	(-0.011)	(0.048)	(-0.741)
Observations	8,292	9,010	17,302
Adjusted R-squared	0.807	0.847	0.774
Parent FE	Yes	Yes	Yes
Parent Industry*Year FE	Yes	Yes	Yes
Parent Country*Year FE	Yes	Yes	Yes
Subsidiary Industry*Year FE	Yes	Yes	Yes
Subsidiary Country*Year FE	Yes	Yes	Yes

Table A8: Changes in profit shifting and changes in corporate social responsibility

The dependent variable is the change of profit shifting measure from period (t-1) to t. The main independent variable is the (lagged) change of CSR from period (t-2) to (t-1). Model (2) also includes the lagged level of the dependent variable as a regressor to take into consideration cases where changes in the dependent variable are small. All other control variables are (lagged) changes from period (t-2) to (t-1). 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)
Δ CSR from t-2 to t-1	0.024***	0.020***
	(3.688)	(3.140)
Profit shifting t-1		-0.046***
$\Delta(\mathrm{Var}_{(t-2)\to(t-1)})$		
Δ Parent ln(Total assets)	-0.004	-0.002
	(-1.277)	(-0.741)
Δ Parent leverage	-0.002	0.002
	(-0.422)	(0.384)
Δ Parent ROA	-0.002	-0.003
	(-0.167)	(-0.268)
Δ Parent Fixed assets / TA	0.003	0.001
	(0.313)	(0.065)
Δ Parent R&D / TA	-0.260***	-0.351***
	(-6.218)	(-7.798)
Δ Subsidiary ln(Total assets)	-0.000	0.001
	(-0.000)	(0.730)
Δ Subsidiary leverage	-0.001	-0.002
	(-0.472)	(-0.868)
Δ Subsidiary ROA	-0.004	-0.005
	(-1.007)	(-1.171)
Δ Subsidiary Fixed assets / TA	-0.002	-0.001
	(-0.281)	(-0.189)
Δ Subsidiary R&D / TA	-0.022	-0.071
	(-0.058)	(-0.187)
Constant	-0.002***	0.012***
	(-6.906)	(11.782)
Observations	19,844	19,844
Adjusted R-squared	0.001	0.021

Table A9: Changes in corporate social responsibility and changes profit shifting

The dependent variable is the change of CSR measure from period (t-1) to t. The main independent variable is the (lagged) change of profit shifting from period (t-2) to (t-1). Model (2) also includes the lagged level of the dependent variable as a regressor to take into consideration cases where changes in the dependent variable are small. All other control variables are (lagged) changes from period (t-2) to (t-1). 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)
Δ Profit shifting from t-2 to t-1	-0.010	-0.007
	(-1.166)	(-0.808)
CSR t-1		-0.116***
		(-33.161)
$\Delta\left(\mathrm{Var}_{(t-2)\to(t-1)}\right)$		
Δ Parent ln(Total assets)	0.024***	-0.001
	(4.978)	(-0.130)
Δ Parent leverage	0.030***	0.032***
	(4.295)	(4.954)
Δ Parent ROA	-0.021*	-0.026**
	(-1.788)	(-2.397)
Δ Parent Fixed assets / TA	-0.039***	-0.024**
	(-3.633)	(-2.379)
Δ Parent R&D / TA	0.683***	0.471***
	(9.207)	(6.887)
Δ Subsidiary ln(Total assets)	-0.002	-0.005***
	(-1.018)	(-2.759)
Δ Subsidiary leverage	0.000	0.002
	(0.050)	(0.632)
Δ Subsidiary ROA	-0.002	-0.001
	(-0.433)	(-0.298)
Δ Subsidiary Fixed assets / TA	0.003	0.002
	(0.417)	(0.327)
Δ Subsidiary R&D / TA	-0.594	-0.637
	(-1.367)	(-1.484)
Constant	0.007***	0.095***
	(14.063)	(32.606)
Observations	16,965	16,965
Adjusted R-squared	0.007	0.111

Table A10: Tobit model

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. Stars, ***, **, and *, indicate significance levels at the 1%, 5%, and 10%, respectively. t-statistics, based on robust standard errors clustered at the subsidiary level. A complete description of variables along with their sources is in Table 1.

	Coefficient	t-statistic
CSR t-1	0.023***	12.622
Parent ln(Total assets) t-1	0.013***	87.512
Parent Leverage t-1	0.004**	2.557
Parent ROA t-1	0.005	0.432
Parent Fixed assets/TA t-1	-0.032***	-14.108
Parent R&D/TA t-1	0.080***	3.603
Subsidiary ln(Total assets) t-1	0.002***	7.500
Subsidiary Leverage t-1	0.002	1.422
Subsidiary ROA t-1	-0.014***	-4.906
Subsidiary Fixed assets/TA t-1	-0.009***	-3.599
Subsidiary R&D/TA t-1	-0.291***	-12.524
Constant	-0.717***	-491.419
Observations	26,752	
Parent FE	Yes	
Parent Industry*Year FE	Yes	
Parent Country*Year FE	Yes	
Subsidiary Industry*Year FE	Yes	
Subsidiary Country*Year FE	Yes	

Table A11: Profit shifting measure evaluation: Profit shifting estimation using the true pre-tax parent earnings

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. *True pre-tax parent earnings* denotes the parent's pre-tax and pre-shifting earnings. *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) True pre-tax parent earnings	0.037***	0.035***	0.039***	0.037***
	(3.629)	(3.452)	(3.760)	(3.425)
Low	-0.406***	-0.400***	-0.442***	-0.477***
	(-3.053)	(-3.003)	(-3.245)	(-3.414)
True parent profits	0.008	0.013	0.001	-0.001
	(0.830)	(1.274)	(0.137)	(-0.127)
Subsidiary total assets	0.759***	0.772***	0.767***	0.762***
	(48.157)	(48.169)	(47.020)	(45.835)
Subsidiary leverage	-0.385***	-0.395***	-0.391***	-0.388***
	(-15.572)	(-15.877)	(-15.620)	(-15.277)
Subsidiary population	-1.345***	-0.504	-0.574	
	(-4.093)	(-1.278)	(-1.398)	
Subsidiary GDP per capita	0.084**	0.118**	0.082	
	(1.973)	(2.268)	(1.527)	
Observations	38,725	38,725	38,526	38,484
Adjusted R-squared	0.822	0.822	0.824	0.824
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
Country-pair-year effects	No	No	No	No

Table A12: Profit shifting measure evaluation: Impact of CSR on modified profit shifting measure (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) using the true pre-tax parent earnings, π, instead of $\tilde{\pi}$. *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. 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	0.044***	0.038***	0.043***	0.037***
	(3.256)	(2.775)	(3.163)	(2.704)
Parent ln(Total assets) t-1		0.009*		0.009*
		(1.771)		(1.658)
Parent Leverage t-1		0.001		0.000
		(0.047)		(0.036)
Parent ROA t-1		0.049**		0.051**
		(2.078)		(2.162)
Parent Fixed assets/TA t-1		-0.046***		-0.045***
		(-2.948)		(-2.877)
Parent R&D/TA t-1		0.246**		0.234**
		(2.302)		(2.184)
Subsidiary ln(Total assets) t-1			0.003*	0.003*
			(1.793)	(1.782)
Subsidiary Leverage t-1			0.001	0.001
			(0.239)	(0.243)
Subsidiary ROA t-1			-0.012	-0.012
			(-1.108)	(-1.119)
Subsidiary Fixed assets/TA t-1			-0.013	-0.013
			(-1.587)	(-1.577)
Subsidiary R&D/TA t-1			-0.348**	-0.346**
			(-1.999)	(-1.988)
Observations	25,376	25,376	25,376	25,376
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