

CROSS-CULTURAL EVIDENCE ON TAX DISCLOSURES IN CSR REPORTS –

A TEXTUAL ANALYSIS APPROACH

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Abstract: This study examines how dimensions of culture influence variations in views about the link between corporate tax payments and corporate social responsibility (CSR). Using textual analysis and a newly-developed set of keywords unique to a tax setting, we analyze 4,438 CSR reports from 24 countries, which is the largest sample that has been analyzed in a tax context. We find significant variation across countries in whether and how often tax is mentioned and whether corporate tax payments and CSR are discussed as complements or substitutes. Using Hofstede's (2001) framework of cultural dimensions, we find cross-cultural variations in the relevance placed on tax in CSR reports. Further, firms in certain cultures are more likely to highlight their tax paid as a contribution to tax revenue or point out their socially responsible tax practices (complements) while others tend to criticize the tax system or their tax burden (substitutes).

Keywords: tax disclosure; corporate social responsibility; textual analysis; national culture

Data availability: Data are available from sources identified in the paper.

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I. INTRODUCTION

Recent research as well as anecdotal evidence posit different theories on the relationship between corporate social responsibility (CSR) and corporate tax payments (Davis, Guenther, Krull, and Williams 2016). Following stakeholder theory (Freeman 2010), some argue that paying tax is a component of CSR constituting a contribution to society, that is, tax and CSR are viewed as complements. In contrast, under shareholder theory (Friedman 1970), others posit that tax is an expense like any other to be minimized or that tax payments and CSR are substitutes because tax hinders innovation, economic growth, and development, thus decreasing overall social welfare. The substitutes and complements views go beyond a firm's tax avoidance behavior, reflecting a broad view of how firms perceive, portray, and behave surrounding tax payments in regards to their stakeholders. Archival research provides mixed results, with some studies showing evidence of the complements view (Lanis and Richardson 2012, 2015; Hoi, Wu, and Zhang 2013; Huang, Sun, and Yu 2017) while others show evidence of the substitutes view (Davis et al. 2016; A. Preuss and B. Preuss 2017). Firms' CSR reports also reflect such varying views. For instance, Davis et al. (2016) observe differences in tax CSR disclosures among 40 U.S. firms, both in whether tax information is disclosed at all, and what information is emphasized. Similarly, looking at hand-collected CSR reports by U.S., U.K., and German firms, Hardeck and Kirn (2016) show that tax disclosures vary across countries in terms of relevance and topics addressed.

We examine one specific factor that may be useful in explaining variations in views about tax and CSR: national culture.¹ Ringov and Zollo (2007) propose that national culture plays a key role in how society expects firms to behave, which in turn affects firm behavior. A rich literature finds culture influences corporate reporting and communication (e.g.,

¹ Following Guiso, Sapienza, and Zingales (2006, 23), we define culture as “those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation”.

Kanagaretnam, Lim, and Lobo 2014; Brochet, Miller, Naranjo, and Yu 2018) as well as CSR performance and disclosure (e.g., Chen and Bouvain 2009; Ho, Wang, and Vitell 2012).

Another line of literature examines how culture is associated with tax perception and behavior (e.g., Brink and Porcano 2016; Richardson 2007, 2008). This study bridges these literatures by examining how dimensions of culture influence the relevance of tax in the context of CSR and whether tax payments are viewed as complements or substitutes to CSR. To answer these questions, we capture firms' messages to stakeholders about their view of tax, applying textual analysis to a comprehensive, worldwide sample of 4,438 CSR reports across 24 countries, which is the largest sample of CSR reports to-date analyzed in a tax setting.

CSR reports are a unique instrument to gain insights into the effect of cultural dimensions on the link between tax and CSR. CSR reporting has become an increasingly common method for firms around the world to communicate to stakeholders (Dhaliwal, Radhakrishnan, Tsang, and Yang 2012). We argue that stakeholders' expectations and interests that are reflected in CSR reports are invariably framed by the stakeholders' culture. In addition, we assume that culture affects CSR reporting through the manager's perception of the stakeholders' expectations and interests, as well as the manager's own attitude, which are both shaped by their home culture (Brochet et al. 2018).²

The competing views on the association between tax and CSR as substitutes or complements offer a unique setting to examine cultural differences in CSR reports. The concept that paying tax is a socially responsible activity is contentious. In fact, some proponents of the substitutes view argue that firms have a duty to minimize tax payments as much as legally possible because the private sector more efficiently allocates these resources

² According to the most important standard on CSR reporting, the Global Reporting Initiative (GRI) Sustainability Reporting Standards, firms should disclose material topics, that is, topics that influence stakeholder assessments and decisions (GRI 2016a). The GRI (2016a, 8) explicitly requires firms "to consider the reasonable expectations and interests of stakeholders" when assembling the content of their CSR reports. Moreover, the management approach adopted by GRI stipulates that managers should disclose their view of material topics and how they deal with such topics (GRI 2016b).

than the government (Lantos 2001; Porter and Kramer 2006; Avi-Yonah 2009). This stark contrast in views does not exist in other CSR topics where a clear consensus exists regarding whether the activity is socially responsible. For example, polluting the environment and mistreating employees are unequivocally viewed as not socially responsible in any context. Additionally, the CSR context provides a superior setting in which to analyze these tax views because CSR reporting is less restricted by regulation than financial reporting, allowing managers to cater to shareholder expectations, as well as express their own views, which would not be suitable in a more regulated financial report.³

Using Hofstede's (2001) seminal work on culture as a framework, we outline how variations in national level measures of culture, specifically power distance, masculinity, individualism, and uncertainty avoidance, influence firms to disclose tax information in their CSR reports. Hofstede's measures represent the most commonly-used framework for culture (Alesina and Giuliano 2015) and have been used extensively in prior research in accounting (e.g., Brochet et al. 2018; Schultz, Johnson, Morris, and Dyrnes 1993; Kachelmeier and Shehata 1997).⁴

Our initial sample includes all CSR reports that are part of the GRI Sustainability Disclosure Database published between 2008 and 2017.⁵ We focus on multinational, listed firms and require reports to be separate CSR reports with extractable content in English.⁶ We employ a self-made Python program to assess tax disclosures in CSR reports. We examine

³ Certain countries (e.g. France, Denmark, and South Africa) and industries within countries require firms to publish CSR reports or integrate their CSR information into their financial report; however even in these instances, managers have considerable discretion in determining the actual content of the report. In particular, no country mandates a specific disclosure standard or tax-related disclosure requirements.

⁴ Hofstede's seminal work on cultural dimensions was published in 1980 for the first time. The second and significantly modified edition of his work followed in 2001.

⁵ <http://database.globalreporting.org/>.

⁶ We require separate CSR reports to avoid confounding financial tax disclosures with CSR-related tax disclosures. Therefore, we exclude CSR information that is part of a financial report such as a financial (annual) report with a CSR chapter or an integrated report. We focus on English reports due to textual analysis constraints. In particular, it is impossible to translate the keyword dictionary for 24 countries without losing appropriate context. In addition, English is the common language for corporate reporting.

two characteristics of tax disclosures. First, we capture the relevance of tax in CSR reports by examining whether firms mention tax information in their CSR report and the frequency of tax-related information. Second, we investigate whether tax and CSR are discussed as substitutes or complements. To measure how firms discuss tax and CSR, we create a collection of keywords that capture whether firms discuss tax critically (substitutes) or highlight their tax payments as beneficial to society and emphasize efforts to be a socially responsible taxpayer (complements). We then use regression analyses to examine how dimensions of culture impact these two aspects of tax disclosures.

After controlling for country-, firm-, and report-level differences, we find that dimensions of culture have differential effects on tax CSR disclosures. CSR reports mention tax more frequently and are more likely to exhibit a complements perspective when stakeholders in the firm's home country expect a low power differential between members of society (low power distance). We attribute these results to firms in such societies feeling compelled to highlight they are paying their fair share of tax and contributing to public welfare. CSR reports are more likely to mention tax and exhibit a complements view when the culture emphasizes caring for others and quality of life (low masculinity). In contrast, cultures that focus on material success and achievement (high masculinity), where tax is perceived as a hindrance to economic growth, place less relevance on tax in CSR reports and are more likely to espouse the substitutes view. Finally, firms in cultures that avoid uncertainty and ambiguity, and are thus risk averse (high uncertainty avoidance), tend to avoid taking a clear position on tax and CSR as either substitutes or complements. Our results are robust to a number of alternative specifications, including subsamples and alternative measurements of variables of interest. Overall, our findings demonstrate that cultural differences shape the relevance of tax and views towards tax in CSR reports.

We contribute to prior literature in several ways. First, we inform the contentious debate about the relationship between corporate tax payments and CSR. Prior studies focus on

the relationship between aggregated, firm-level performance indicators, such as effective tax rates (ETR), and CSR ratings. For example, in their primary statistical tests, Davis et al. (2016) rely on the association between ETRs and CSR ratings from MSCI (formerly KLD) to provide evidence that, on average, corporate tax payments and CSR act as substitutes in a U.S. setting. Using negative CSR activities from MSCI and measures of aggressive tax avoidance, Hoi et al. (2013) show results consistent with the complements view in a U.S. setting. We extend these studies, which focus on third party CSR ratings, by examining firm-provided CSR disclosures, which give insight into managerial perceptions of stakeholder beliefs, as well as the views of the managers themselves. Our methodology allows us to identify whether a specific firm exhibits the substitutes or complements view. The variability of tax views reflected in our sample demonstrates that conclusions about the dominance of one view over the other are more nuanced than reflected by the average association between ETRs and third-party CSR ratings. We also build on prior work by exploring national culture as a determinant of tax views. Our findings suggest that views about tax and CSR as either substitutes or complements vary with a firm's national cultural environment.

Second, we provide an extensive, worldwide picture of firms' discussions of tax and CSR. In contrast to prior research that provides anecdotal evidence or analyzes a small number of hand-collected CSR reports from one or a small number of countries (Davis et al. 2016; Hardeck and Kirn 2016), we use a self-made Python program to collect and analyze the largest sample of CSR reports that has been analyzed in a tax context.

Third, we advance an emerging methodology in the tax and accounting arena (Loughran and McDonald 2016): textual analysis. Specifically, we develop and test a comprehensive set of targeted tax search terms and keywords to extract tax-related content from CSR reports and to identify and classify how firms discuss tax and CSR. Our methodology also answers a call in Tausczik and Pennebaker (2010) for expansion of textual

analysis techniques to specific research programs. Future research can use our search terms and keyword collection to identify tax-related text and to classify tax themes in other contexts.

The paper also has practical implications related to CSR reporting. In particular, one should consider tax information in CSR reports in light of the influence culture has on the disclosures. Further, as regulators deliberate mandatory and/or regulated CSR reporting, cultural considerations should be included in the standard development process to minimize complications of cross-country comparisons by stakeholders and allow firms to continue to inform stakeholders on how they view tax in regards to CSR.

The rest of the paper is organized as follows: Section 2 discusses prior literature and develops our hypotheses. Next, we describe the sample selection (Section 3), and the research design (Section 4). Section 5 presents the results.

II. PRIOR LITERATURE AND HYPOTHESES

The Link between Tax and CSR

Relevance of corporate tax payments for CSR

Whait, Christ, Ortas, and Burritt (2018) reveal that CSR has many dimensions and managers have discretion over which dimensions to conceal and which to highlight. The GRI (2016a) posits that firms should disclose topics that are relevant or material. That is, topics that have significant economic, environmental or social impacts or that influence stakeholder assessments and decisions should be included (GRI 2016a). Currently, firms lack a uniform assessment of the materiality of corporate tax payments in the context of CSR. Davis et al. (2016), for instance, examine discussions of tax in 40 CSR reports by U.S. firms and find that nearly half of these reports do not contain any tax information at all or just include references to the firm's Form 10-K for information on tax. Similarly, Hardeck and Kirn (2016) show that tax disclosure in CSR reports varies across countries in terms of relevance, that is, whether and how much tax information is provided in the CSR report.

Substitutes and complements views

An often-debated topic in the tax literature is whether tax is viewed as a component of CSR constituting a contribution to society, or an expense to be minimized like any other (e.g., Avi-Yonah 2014; Sikka 2010, 2013; Hasseldine and Morris 2013; Dowling 2014). Tax payments and CSR can be viewed as complements, in that paying tax is beneficial to society. In contrast, tax payments and CSR can be viewed as substitutes if tax reduces innovation, economic growth and development, thus reducing overall social welfare. Empirical evidence on these two views is mixed and, therefore, does not resolve the ongoing debate. Moreover, existing empirical studies are difficult to reconcile due to variations in CSR measures, tax measures, methodologies, and geographic settings.

Arguments in favor of the complements view fall under the premise of stakeholder theory (Freeman 2010), which suggests firms exist not just to maximize profits for shareholders, but also to benefit a larger group of stakeholders. Thus paying tax in support of a government that provides benefits to society is a positive CSR activity. This view is echoed by initiatives including the GRI and the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises 2011 (OECD 2011), which express the importance of corporate tax payments to government programs that improve social welfare. Some empirical studies show good CSR performers are less likely to be tax aggressive (Lanis and Richardson 2012, 2015) and poor CSR performers are more tax aggressive (Hoi et al. 2013). Huang et al. (2017) find that firms with higher CSR performance are less likely to engage in a corporate inversion. These studies provide evidence in support of the complements view of tax and CSR.

The substitutes view of tax and CSR is grounded in the shareholder view (Friedman 1970), such that the firm should only engage in activities that increase shareholder value. Thus, paying tax reduces resources available for other positive net present value projects such as investments in income producing assets and job growth. In addition, some may view the

firm as better equipped to efficiently distribute resources to society (Lantos 2001; Porter and Kramer 2006; Avi-Yonah 2009). Davis et al. (2016) find that CSR performance is negatively associated with firms' ETRs. In a similar study, Preuss and Preuss (2017) confirm this association using a European setting. The negative association between tax and CSR in these studies provides evidence in support of the substitutes view. Mixed findings in prior studies call for further examination of tax and CSR.

Cross-Cultural Differences in Corporate Reporting and Communication

Kanagaretnam et al. (2014) show how firms' cultural environment is able to shape corporate reporting. Looking directly at the firms' managers, Brochet et al. (2018) find that their own cultural background influences the firm's communication with investors. Therefore, we assume that disclosure choices in terms of relevance and the view on tax are influenced by stakeholders' preferences and managers' views, which are both invariably framed by their home culture.

Cross-Cultural Differences in CSR Performance and Disclosure

Prior research suggests cross-cultural variations in CSR reporting. Ringov and Zollo (2007) find that the culture in the firm's home country influences CSR performance. The authors posit that national culture plays a role in how society expects firms to behave, which in turn influences how firms actually behave. Williams and Zinkin (2008) find cultural variation in the propensity of consumers to punish firms for irresponsible behavior, suggesting stakeholders can aid in explaining variations in CSR across countries. Chen and Bouvain (2009) use textual analysis to identify major themes in CSR reports in the United States, the United Kingdom, Germany, and Australia. They find differences across countries regarding which areas are most important and which interdependencies between the areas exist. Adnan, Hay, and van Staden (2018) show that the quality and quantity of CSR reporting is influenced by national culture because of its effect on the cognitive and normative structures of an

organization, which ultimately determine the CSR narrative. They find CSR reporting is more prevalent in individualistic societies and societies with equal power distribution.

Cross-Cultural Differences in Taxpayer Attitudes and Behavior

Another stream of literature examines the influence of culture on aspects of taxation. Much of the literature focuses on how culture influences the likelihood and level of tax evasion. Early studies in this stream find cross-cultural diversity in tax evasion (Strumpel 1969; Tittle 1980; Coleman and Freeman 1997; Chan, Troutman, and O'Bryan 2000). Recent studies extend this research by examining how specific cultural features influence tax evasion (Richardson 2006, 2008; Bame-Aldred, Cullen, Martin, and Parboteeah 2013; Tsakumis, Curatola, and Porcano 2007; Brink and Porcano 2016). Overall, these studies suggest that culture influences stakeholders' tax attitudes.

Hypotheses on Cross-Cultural Differences in CSR Tax Disclosures

Hofstede's (2001) dimensions of national culture are commonly used as a framework for examination of culture differences in a variety of settings, including CSR.⁷ The framework includes six features of national culture, of which four are particularly useful in our setting: power distance, individualism, masculinity, and uncertainty avoidance.⁸ For each cultural measure, we develop a prediction about how it impacts whether tax is portrayed as relevant in a CSR report and whether tax and CSR are portrayed as substitutes or complements.⁹ We summarize these predictions in Table 1.

[Insert Table 1 about here]

⁷ Hofstede's (1980) original study of cultural dimensions is based on a worldwide survey of IBM employees (117,000 questionnaires). Although the measures' validity for cross-cultural differences among people outside that firm has been challenged (e.g., Baskerville 2003, see also reply by Hofstede 2003), further studies used this questionnaire in other settings and confirmed Hofstede's findings (e.g., De Mooij 2003; Shane 1995).

⁸ Following prior literature (e.g., Richardson 2007; Adnan et al. 2018), we exclude the long-term orientation versus short-term normative orientation and indulgence versus restraint cultural measures because are unlikely to impact the relationship between tax and CSR.

⁹ The substitutes and complements views are not mutually exclusive within our sample. Because we examine each view individually, our analysis does not require reports to exhibit only one view.

Power distance

Power distance measures the extent to which differences in power within the society and institutions are accepted by the less powerful members (Hofstede 2001). This measure does not capture the actual power disparity among members of society but the acceptance of inequality by low power members (Hofstede 2001). In low power distance cultures, the citizens are more likely to demand fairness and equality as well as accountability from those in power. Consistent with the demand for fairness, Richardson (2008) documents that low power distance societies have higher tax equity. We assume stakeholders in these firms will expect managers to report on their tax activities and/or tax views whereas stakeholders in high power distance cultures will tolerate managers' avoiding the topic in CSR reports.

Given that low power distance cultures demand fairness and an equal distribution of power, firms in these cultures should be more likely to highlight they are paying their fair share and contributing to public welfare (complements view). Concerning the substitutes view, findings that high power distance is associated with lower tax equity (Richardson 2008) might imply criticism of the tax system by those who bear the greatest burden of the tax. However, high power distance cultures tolerate power disparities, institutional hierarchies, and even corrupt activities. Thus, managers in high power distance countries are not likely to criticize the tax legislator and instead may simply accept the tax system and its resulting burden imposed on taxpayers as a component of the existing hierarchical structure. To summarize, we predict a negative relationship between power distance and relevance as well as both the complements view and the substitutes view.

Individualism vs. collectivism

Individualism versus collectivism expresses the degree to which individuals are expected to take care of themselves or expect others to take care of them. Adnan et al. (2018) document a higher prevalence of CSR reporting in general in high individualist cultures, but it is not clear whether firms in these countries would necessarily be more likely to consider tax

payments relevant in the CSR setting. According to Triandis, Leung, Villareal, and Clack (1985) and Triandis (1995), individualism is reflected in idocentrism and a focus on personal achievement as well as enhanced self-esteem. Individualist societies might prefer private sector and individual solutions to community issues rather than public goods funded by tax as a means to care for people. Such views might go along with the belief that individuals and firms are able to more efficiently allocate resources, consistent with the substitutes view of tax and CSR. On the other hand, Hofstede (2001) notes that individualist societies are characterized by the view that laws and rights should be equal among all citizens. Consistent with Hofstede's argument, Tsakumis et al. (2007) find that tax evasion is lower in countries where individualism is higher. According to Brink and Porcano (2016), individualist societies require the tax burden to be equally and consistently borne by all taxpayers. The belief that the tax burden should be assessed and borne equally by taxpayers would be consistent with the complements view of tax and CSR. Overall, competing arguments on the relevance and the view of tax make it difficult to predict a clear relationship.

Masculinity vs. femininity

Masculinity versus femininity contrasts cultures with a preference for achievement, heroism, assertiveness and material rewards for success to cultures valuing cooperation, modesty, caring for the weak and quality of life. Firms in highly masculine cultures are expected to emphasize CSR achievements; however, profit-reducing activities such as paying tax would not likely be the kind of "heroic" achievements that merit highlighting given masculine cultures' emphasis on material and economic success (Hofstede 2001). Thus, firms in masculine societies should be less likely to discuss taxes and provide fewer tax disclosures. The tax system in masculine societies would likely be viewed as a hindrance to economic growth in these countries, consistent with the substitutes view of tax and CSR. As a result, firms may be critical of tax, noting its detraction from economic achievements. The high value placed on material success would also lead firms to be critical of costs that decrease

firm-level performance and profitability, including tax, which is also consistent with the substitutes view of tax and CSR. A preference for caring for others and quality life (Hofstede 2001) could induce low masculinity cultures to view tax and CSR as complements because tax revenue can be used to promote social programs for the poor and improve the quality of life for all members of society. Firms would want to highlight their contributions to society, including their tax payments. Low masculinity cultures also value cooperation (Hofstede 2001), which suggests firms would want to highlight a good relationship with tax authorities in their CSR reports. To summarize, we predict a negative relationship between masculinity and both relevance and the complements view as well as a positive relationship between masculinity and the substitutes view.

Uncertainty avoidance

Uncertainty avoidance refers to how members of a society feel about uncertainty and ambiguity. Strong uncertainty avoidance in a society is associated with strict codes of behavior, an intolerance toward behaviors that are out of the norm, and attempts to control or dictate the future rather than being at ease with future uncertainty. Stakeholders in high uncertainty avoidance countries likely demand high levels of disclosure to reduce their own uncertainty about the firm's prospects and future performance. Firms may respond by including more tax disclosures in their sustainability reports, suggesting a positive association between the relevance of tax in CSR reports and uncertainty avoidance. However, managers in high uncertainty avoidance countries may be less likely to engage in the uncertain behavior of disclosing voluntary information about tax that could be useful to tax authorities and regulators in future probes of their tax positions. Because of these competing arguments, we do not make a prediction for the association between tax relevance and uncertainty avoidance.

Uncertainty avoidance may hinder firms from taking a position in the controversial discussion on tax and CSR, making them less likely to highlight either the substitutes view or the complements view. Regarding the substitutes view, firms may avoid criticism of the tax

system and thus the government in general in a CSR report. The complements view should also be less likely in societies with strong uncertainty avoidance. Hofstede (2001) finds people's confidence in government institutions is negatively correlated with uncertainty avoidance. Consequently, firms in cultures whose citizens have lower confidence in the government (higher uncertainty avoidance) could be less likely to highlight their contribution to government revenues. Therefore, we expect uncertainty avoidance to be negatively associated with both the complements and the substitutes views on tax.

We include our specific predictions in Table 1 and make the following two general hypotheses:

H1: Differences in national culture impact whether firms portray tax as relevant in a CSR context in their CSR report.

H2: Differences in national culture impact whether firms portray tax and CSR as substitutes (a) or complements (b) in their CSR report.

III. SAMPLE SELECTION

Sample of CSR Reports with Available Information

The GRI Sustainability Disclosure Database includes 49,880 reports by 12,860 organizations from 1999 through October 2018. The GRI has developed the most popular CSR reporting standard with 89 percent of the largest 250 firms voluntarily reporting according to the GRI Standards in 2017 (KPMG 2017). Organizations self-register their reports on the GRI website to gain additional exposure for their report and highlight their CSR performance. Reports included on the GRI website can be stand-alone CSR reports, financial reports that include a CSR chapter, or fully integrated reports. Adherence to the GRI Standards is not a requirement for companies to register their reports on the website.¹⁰ When

¹⁰ GRI Standards suggest that companies indicate their economic contribution, and they specifically mention payments to governments (GRI 2016c, disclosure 201-1). The GRI Standards also direct firms to disclose any tax relief or subsidies received from governments (GRI 2016c, disclosure 201-4). Because of these rules, the

registering the report, organizations provide additional information about the company, their report, and often a link to the report. To access the database, we rely on the comprehensive GRI Report List as provided by GRI in 2018 (GRI 2018a).¹¹ Appendix A1 gives a graphic overview of how we created the sample. Table 2 presents an attrition table.

[Insert Table 2 about here]

We start with the complete list of reports published between 2008 and 2017 and filter for large, multinational, listed enterprises (9,578 reports). We require reports to be PDFs with extractable text in English. To gather the sample we create a Python program that downloads the PDF reports and extracts the text. For those reports with non-working or missing PDF links, non-PDF file format, or non-English, we initiate a manual search using the firms' homepages, the GRI Database, and search engines. After the additional manual search, our sample consists of 6,161 reports. Appendix A2 explains in detail how we gather and test reports with CSR information and how we extract and process the text.

Since CSR reporting is generally voluntary and less regulated, reports cover different time periods. If the report title includes a year (two years), we assign the report to the (second) year mentioned. For the remaining cases, we assume that the reporting year is one year prior to the publication year, which is consistent with our manual inspection of reports.

We then merge the sample of reports with CSR information with COMPUSTAT (COMPUSTAT NA and COMPUSTAT Global) data by firm, country, and year using two SAS spelling distance functions. Appendix A3 explains the merging process. For non-

use of the GRI Database could bias our results towards finding more tax disclosures and towards a predominant view of tax as a contribution to society (complements). However, only about 65.1 percent of all CSR reports in our sample adhere to the GRI Standards (Panel A of Table 4), which is less than the adherence rate among the largest 250 firms (KPMG 2017). Consequently, our sample is not over-represented by GRI-adhering firms, alleviating the concern that our results are biased by the use of the GRI database as our sample source. In addition, we control for GRI adherence in our regression analyses.

¹¹ The list is subject to an access fee. See https://www.globalreporting.org/services/reporting-tools/Reports_List/Pages/default.aspx.

matching or not perfectly-matching observations, we initiate a manual search. Overall, 5,802 reports have available COMPUSTAT identifiers and necessary financial data.

We focus on stand-alone CSR reports, which is necessary to distinguish CSR-related tax reporting from (mandatory) financial tax reporting according to U.S. GAAP (ASC 740), IFRS (IAS 12), or any local GAAP. We train a machine-learning model to determine whether a report is financial or stand-alone. Appendix A4 gives details on the identification process. Our final sample consists of 4,438 CSR reports by 1,220 distinct firms after omitting reports from countries with less than 30 CSR reports (252 reports).

Sample of CSR Reports that Mention Tax

We create a method that examines the reports for keywords that signal a tax-related context (i.e., inclusion words). Given that some inclusion words such as tax can be used in multiple ways that are unrelated to actual tax reporting (e.g., taxi, earnings before interest and taxes, pre-tax income), we create a list of 24 exclusion words or phrases. Our search method thus ignores the occurrence of an inclusion word if it corresponds to an exclusion word. To create our list of inclusion and exclusion words, we employ a multi-step approach.¹² This procedure is consistent with Chen, Schuchard, and Stromberg (2018), who created search strings to identify relevant tax media coverage in Factiva. Appendix B1 explains in detail how we assemble the list of inclusion and exclusion words.

Using these lists, we extract the context of the inclusion word, i.e., a text window of a fixed set of characters to the left and right of the inclusion word.¹³ As is common in textual analysis (Pennington, Socher, and Manning 2014), we extract a text window of all words within 50 characters to the left and right.¹⁴

¹² Our final inclusion words are as follows: 1) “tax*” 2) “payment.{0,3}to.{0,25}government”, and 3) “government.{0,15}payment” where $A\{x,y\}B$ means that A occurs, followed by at least x and at most y arbitrary characters, and then ends with B.

¹³ Figures and tables were included as long as the text was extractable by PDFMiner.

¹⁴ In general, textual analysis relies on windows of 10-20 words, which is similar to 40-100 characters. We additionally test +/-100 character text windows in our robustness tests.

IV. RESEARCH DESIGN

Model

We regress tax disclosure measures by firm i and reporting year t on independent culture variables for the firm i 's home country j .¹⁵ Furthermore, we employ a set of country-level, report-level, and firm-level controls as well as year fixed effects.

$$\text{Tax disclosure}_{it} = \text{Culture measures}_j + \text{country-level controls}_{jt} + \text{report-level controls}_{it} + \text{firm-level controls}_{it} + \text{year fixed effects} + \varepsilon_{it}$$

We estimate a logit model for binary dependent variables and OLS for our continuous dependent variable. We cluster standard errors by firm.

Measuring Tax Disclosure

Relevance of corporate tax payments for CSR

We capture the relevance of tax payments using two measures. First, we capture whether firms report any tax information at all. The dummy variable MENTION is 1 if the report has at least one inclusion word and 0 otherwise. Second, the natural log of the number of inclusion words by report assesses the frequency of tax information (FREQUENCY).

Substitutes and complements view

Following Davis et al. (2016), we identify common tax themes discussed in CSR reports, and we classify these themes as representative of either the complements view or the substitutes view. As an expression of tax and CSR as substitutes (SUBSTITUTES), firms could use their CSR report to criticize tax and thus express a negative sentiment towards the imposition of tax. Based on our analysis of reports, firms typically express this criticism as either macro-economic or firm specific, or both. The macro-economic theme

¹⁵ Consistent with GRI (2018b, 8), we define home country as the country in which the organization's headquarters are located. Certainly multinational companies have stakeholders (including employees) outside their headquarters country, which also influence the content of CSR reports. However, we focus on the headquarter country as a first investigation into these relationships and also due to data limitations in identifying where the other stakeholders are located. The existence of other stakeholders with different cultural values should merely add noise and bias against our predictions.

(DETRACTION) includes criticizing tax as an obstacle to economic growth and innovation or detrimental to society in general, and lobbying for lower tax or against certain taxes. One example is the 2016 CSR report by Eastman that criticizes that the “U.S. has the highest corporate tax rate in the world. Eastman supports comprehensive tax reform that lowers this rate to a level that helps ensure U.S. competitiveness” (Eastman 2016, 49).

The firm-specific theme (COST) entails referring to the negative impact of tax on the firm itself or its profit (high tax burden, compliance costs, tax uncertainty, tax litigation, and penalties), and the aim to minimize taxes. For example, Australia and New Zealand Banking Group’s 2014 CSR report states, “in fy2014, global taxes borne by ANZ amounted to \$3.257b (fy2013: \$2.775b), with corporate income tax being the largest component. Taxes borne represent an immediate cost to ANZ, impacting the profit and loss account” (ANZ 2014, 67).

Portraying tax and CSR as complements (COMPLEMENTS), by contrast, could be expressed by emphasizing the positive impact of taxes on society, local communities, or the economy or by highlighting the firm’s role as a taxpayer or the firm’s tax payments as part of its CSR activities (CONTRIBUTION). An example of this type of view is Commonwealth Bank of Australia’s 2017 CSR report: “Our global tax expense was more than \$3.9 billion, and goes back into the community in many forms including schools, hospitals, roads and social welfare payments” (Commonwealth Bank 2017, 42).

As a further expression of tax and CSR as complements, firms could state their purpose to be a socially responsible taxpayer beyond mere compliance by renouncing aggressive forms of tax avoidance or being more transparent or co-operative with tax authorities than required by the law (BEYOND). The intent to pay a “fair share” of taxes or supporting non-governmental organizations could also be reflective of this view on tax. As an example of such a disclosure, SSE’s 2016 CSR report states, “Paying a fair share of tax – Since 2014, SSE has remained the only FTSE 100 company with the Fair Tax Mark, an

independent stamp of approval for businesses that proactively demonstrate they pay the right amount of tax, in the right place, at the right time” (SSE 2016, 13).

To capture our identified themes in CSR reports, we manually generate a set of keywords related to each theme, similar to the method used by Tausczik and Pennebaker (2010) to create the Linguistic Inquiry and Word Count (LIWC) program used in a wide variety of experimental settings. The use of custom dictionaries is a common method in accounting research (e.g., Chen et al. 2018; Kuhnen and Niessen 2012). Appendix B2 explains how we assembled the 51 keywords for the four themes. We employ a dummy variable for each theme equal to 1 if at least one keyword of the respective theme was mentioned in the report and 0 otherwise. We rely on dummy variables rather than continuous scores given the positive skewness and the high number of zeros. It is important to note that these views (SUBSTITUTES and COMPLEMENTS) and themes (DETRACTION, COST, CONTRIBUTION, and BEYOND) are not mutually exclusive, and some firms exhibit more than one of them within the same report.

Measuring Culture

We use Hofstede’s dimensions of national culture as explanatory variables: power distance (PDI), individualism (IDV), masculinity (MAS), and uncertainty avoidance (UAI). These data are freely available at Hofstede’s website.¹⁶ The Hofstede cultural dimensions cover 111 countries and range from 0-100 for each dimension.¹⁷ The culture data are static such that each country has the same value for each variable over the entire sample period.¹⁸

Measuring Control Variables

We use four sets of control variables: country-level controls, firm-level controls, report-level controls, and year fixed effects to control for time effects. At the country level,

¹⁶ <https://geerthofstede.com/research-and-vsm/dimension-data-matrix/>.

¹⁷ We scaled the measures by 100 so variables range from 0 to 1.

¹⁸ The static nature of these variables is consistent with culture being stable over time (Alesina and Giuliano 2015; Guiso et al. 2006).

we control for national governance (GOVERNANCE), GDP per capita, and GDP growth (GDP_GROWTH) as measures for the institutional quality and economic development of the respective country. To measure national governance, we employ the six variables in the World Bank's Governance data set: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.¹⁹ We use the primary factor (GOVERNANCE) based on a principal component analysis because the six variables are highly correlated (Bernard, Grazzi, and Tomasi 2015). GDP per capita is measured as purchasing power parity in international dollars using the World Economic Outlook Database (October 2018) by the International Monetary Fund (IMF). We use the natural log of GDP per capita (GDP). GDP_GROWTH is also taken from the IMF database.

At the report level, we control for adherence to GRI Standards (GRI_ADHERE), which could be associated with viewing tax as beneficial to society as well as disclosing tax payments as economic value distributions. External assurance (ASSURANCE) is a binary variable, coded as 1 if the report was externally assured and 0 otherwise. Simnett, Vanstraelen, and Chua (2009) find firms use external assurance to enhance the credibility of their reports and achieve reputational benefits. Furthermore, because of an obvious correlation between disclosure and length (Dhaliwal, Li, Tsang, and Yang 2011), we control for report length (REPLENGTH) measured as the natural log of the report's total words. When regressing SUBSTITUTES and COMPLEMENTS, we additionally control for FREQUENCY

¹⁹ The Worldwide Governance Indicators (WGI) data set reports the perceptions of governance of a large number of survey respondents and expert assessments worldwide. The WGI aggregate 30 underlying data sources into six broad dimensions of governance: perceptions of the extent to which agents have confidence and abide by rules of society; likelihood of political instability and/or politically-motivated violence; the extent to which country's citizens are able to select government; quality of public services and policies; government's ability to formulate and implement sound policies; the extent to which public power is exercised for private gain. The scores for each variable range from -2.5 to 2.5 and change each year, however, the measures are fairly stable over time as would be expected of any national level variable. See Kaufmann, Kraay and Mastruzzi (2011) for information about WGI.

to take into account that an increasing number of tax windows is associated with a higher probability of word occurrences.

At the firm level, we control for financial variables. Given that our dataset is a worldwide sample, we rely on COMPUSTAT NA and COMPUSTAT Global, which restricts the availability of financial variables. In our baseline regressions, we control for firm size using the log of total assets in U.S. dollars (SIZE), return on assets (ROA), and leverage (LEV), calculated as long-term debt, scaled by total assets. To maximize the sample, we set long-term debt to zero if the data are missing (Dyreng and Lindsey 2009). These three financial variables are frequently discussed as determinants of the quantity and quality of CSR disclosures (Hahn and Kühnen 2013; Dienes, Sassen, and Fischer 2016). Hardeck and Kirn (2016) show that voluntary tax disclosure is associated with industry affiliation. Therefore, we also include industry fixed effects (INDUSTRY) using the Fama and French 17-industry classification scheme (Fama and French 1997). Appendix C summarizes all variables.

V. RESULTS

Descriptive Evidence

Table 3 describes the final sample in terms of geographic origin (Panel A) and years (Panel B). CSR reports are from 24 different countries covering the years 2007-2017.²⁰ Table 4, Panel A, provides summary statistics for the sample of all CSR reports and Panel B provides statistics for CSR reports that mention tax. As shown in Panel A, 2,562 CSR reports (57.73 percent of our sample) mention relevant tax-related information (MENTION). On average, tax reporters discuss tax 7.70 times (Table 4, Panel B, FREQUENCY). The median is 3.00, lower than the mean, suggesting that a small number of firms tends to provide a lot of tax information. Figures 1, 2, and 3 show that tax disclosure varies strongly across countries.

²⁰ Although our sample covers all six populated continents, Oceania (Australia), Africa (South Africa), and Latin America (Mexico) are represented by a single country only. We define continents following GRI.

Untabulated univariate tests provide evidence that there is a significant relationship between the tax relevance measures and country (MENTION: $\text{Chi}^2(23) = 597.717$, $p\text{-value} < .01$; FREQUENCY: $F(23, 2,538) = 12.71$, $p\text{-value} < .01$). Moreover, whether tax and CSR are discussed as substitutes or complements also varies significantly across countries (SUBSTITUTES: $\text{Chi}^2(23) = 120.49$, $p\text{-value} < .01$; COMPLEMENTS: $\text{Chi}^2(23) = 269.50$, $p\text{-value} < .01$). In the following section, we provide evidence regarding which aspects of culture are associated with these differences.

[Insert Tables 3-4 about here]

[Insert Figures 1-3 about here]

Regression Analyses

Table 5 presents the results for the impact of culture on the relevance of tax in a CSR setting (H1) using the likelihood of a report mentioning tax (MENTION – Columns 1 and 2) and the frequency of tax mentions (FREQUENCY – Columns 3 and 4). Table 6 provides the results for the impact of culture on the tax views exhibited (H2) using our two tax views – SUBSTITUTES (Columns 1 and 2) and COMPLEMENTS (Columns 3 and 4). For completeness, we specify two different versions of each model, one that includes only our test variables of interest (plus year and industry fixed effects) and one that includes our full set of control variables. Given the likelihood of omitted variable bias in the first specification, we focus our analysis and interpretation on the latter specification for each model. The highest variance inflation factor is 3.4, alleviating potential concerns with respect to multicollinearity. In the paragraphs that follow, we discuss our results for both H1 (Table 5) and H2 (Table 6) by cultural measure for parsimony and to maintain consistency with our focus on culture.

Power distance

We find evidence that tax is less relevant in the CSR setting for firms in high power distance cultures using FREQUENCY as the measure of relevance (Table 5, Column 4, $\text{coeff} = -1.073$; $p\text{-value} < .01$), consistent with managers minimizing discussions of tax.

Alternatively, firms in low power distance societies where citizens demand accountability tend to discuss tax more frequently. However, as shown in Table 5, Column 2, we do not find a significant association between power distance and the likelihood of mentioning tax suggesting the relationship between relevance and power distance is nuanced and dependent on the measure chosen.

Concerning the tax views espoused in reports (Table 6), our results do not provide evidence that power distance impacts whether firms exhibit a substitutes view. In contrast, firms in high (low) power distance countries are less (more) likely to display the complements view (Column 4, $\text{coeff} = -2.221$; $p\text{-value} < .01$). This result is consistent with our expectation that firms in cultures with lower power distance are more likely to highlight their tax contribution as a way to show stakeholders they are contributing to society by paying their fair share of tax.

Individualism vs. collectivism

We are unable to document any significant association between individualism and either the relevance of tax (Table 5, Columns 2 and 4) or the tax views exhibited (Table 6, Columns 2 and 4). It is possible that this dimension of culture has little or no impact on tax CSR disclosures. Alternatively, as discussed in our hypothesis development, it may be that individualism has competing impacts in both directions.

Masculinity vs. femininity

Our results for masculinity are in line with our expectations. We find that firms in more masculine (less masculine) societies are less (more) likely to mention tax (Table 5, Column 2, $\text{coeff} = -2.492$; $p\text{-value} < .01$) and discuss tax less (more) frequently (Table 5, Column 4, $\text{coeff} = -0.924$; $p\text{-value} < .01$). This result is consistent with masculine societies not viewing tax payments as a “heroic” achievement meriting mentioning in a CSR report.

Moreover, reports in high (low) masculinity countries are more (less) likely to reflect a substitutes view (Table 6, Column 2, $\text{coeff} = 2.220$; $p\text{-value} < .01$) and are less (more) likely

to depict a complements view (Table 6, Column 4, $\text{coeff} = -1.174$; $p\text{-value} < .01$). These results reflect firms in cultures that place a high value on material success and economic growth being more likely to view tax as a hindrance to firm performance or to economic growth in general, consistent with the substitutes view. In contrast, firms in low masculinity societies that place more emphasis on cooperation and caring for the weak may feel more compelled to highlight tax as contribution to society and their socially responsible tax practices (complements view).

Uncertainty avoidance

We find no evidence of an impact of uncertainty avoidance on the relevance of tax in CSR reports (Table 5, Columns 2 and 4). However, among firms that choose to mention tax (Table 6), we find that uncertainty avoidance is associated with a lower likelihood of both the substitutes view (Column 2, $\text{coeff} = -2.649$; $p\text{-value} < .01$) and the complements view (Column 4, $\text{coeff} = -1.268$; $p\text{-value} < .01$). These results suggest that when firms in cultures with high uncertainty avoidance discuss taxes in their CSR reports, they are more likely not to espouse either view of tax but rather to provide only tax disclosures that are agnostic in nature as to the firm's stance on their place in a CSR setting. Conversely, firms in cultures where people are more comfortable with uncertainty or ambiguity are more likely to express ideas consistent with a substitutes view, a complements view, or both.

Control variables

At the country level, we find that strong national governance increases the emphasis placed on tax in the CSR report (Table 5, Column 4). This result is consistent with Cahan, De Villiers, Jeter, Naiker, and van Staden (2016) who find CSR disclosures are greater in countries with stronger national-level institutions. Strong nation-level governance implies positive perceptions of government effectiveness and regulatory quality. Consequently, firms in well-governed countries are less likely to exhibit the substitutes view of tax and CSR (Table 6, Column 2) by criticizing the government, its tax system, and the appropriation of tax

revenue. GDP per capita is associated with a decreased emphasis on tax disclosures (Table 5, Column 4), and GDP_GROWTH is associated with a lower likelihood of discussing tax (Table 5, Column 2). This result could reflect the reduced importance of tax revenues to mitigate extreme social conditions such as rampant poverty when economic conditions are good. GDP is also associated with fewer disclosures representing the complements view (Table 6, Column 4). Again, in countries where the economy is strong, managers may not feel as compelled to highlight the firm's contributions to society through tax payments.

Turning to report-level controls, not surprisingly, firms that discuss tax more (FREQUENCY) are also more likely to exhibit both the substitutes view (Table 6, Column 2) and the complements view (Table 6, Column 4). In addition, as one would expect, longer reports (REPLENGTH) are more likely to place a higher relevance on tax (Table 5, Columns 2 and 4). Longer reports also have a higher likelihood of exhibiting the substitutes view of tax and CSR (Table 6, Column 2). Firms that adhere to the GRI Standards (GRI_ADHERE) are more likely to mention tax (Table 5, Column 2) since the Standards recommend that firms discuss their tax payments if they are material. Finally, reports that have been externally assured (ASSURANCE) tend to discuss tax more frequently (Table 5, Column 4).

At the firm level, we find reports of larger firms (SIZE) discuss tax more often (Table 5, Column 4). Lastly, larger firms and more highly leveraged firms (LEV) are more likely to reflect the complements view in their reports (Table 6, Column 4). Larger firms are subject to tighter public scrutiny and fear greater political costs. With regard to leverage, this result may reflect the importance of debtors as non-shareholder stakeholders.

[Insert Table 5 about here]

[Insert Table 6 about here]

Robustness Tests

We conduct several robustness tests and present the results in Table 7. We compare our robustness tests on tax views to Columns 2 and 4 of Table 6 that include relevant control

variables. First, we assess the sensitivity of our results to our sample selection. In Columns 1 and 2 of Table 7 (Panel A) we exclude CSR reports which were classified by our program as nonfinancial with a classification confidence level of less than 75 percent (741 reports, thereof 261 with tax information). We also re-run our main analysis including those financial reports that were identified by the person registering the report on the GRI Database as an integrated report (Table 7, Panel A, Columns 3 and 4). An integrated report is a report presenting financial and CSR information in an integrated manner (GRI 2018b) and we cannot rule out that especially good CSR reporters use this innovative concept.

Second, we assess the sensitivity of our results to our measurement of tax disclosure. Upon manual investigation, we found that some of the tax CSR disclosures were in sentences longer than 100 characters. Additionally, in Inger, Meckfessel, Zhou, and Fan's (2018) sample, the mean character count per sentence in the 10-K tax footnote was approximately 133, which suggests that firms tend to use long sentences when talking about tax. Therefore, we extract an alternative text window of ± 100 characters instead of ± 50 around the inclusion word to ensure we capture the full context of the tax disclosure (Table 7, Panel A, Columns 5 and 6). We also assess the consistency of our results when we drop the most frequently occurring keyword for the SUBSTITUTES and COMPLEMENTS view to ensure the results are not driven by one popular keyword (Table 7, Panel A, Columns 7 and 8). Overall, our inferences for all test variables remain unchanged.

Third, we challenge the robustness of our results on cultural influence using alternative tax-related country control variables. The aim is to ensure that results are not due to hidden tax attitudes or the tax system within a country. For instance, firms in countries with high statutory tax rates and a high compliance burden might be more critical towards tax in their CSR report. Therefore, we control for tax morale based on the most recent wave of the World Values Survey for each country as well as for the attractiveness of the tax system from a firm

perspective.²¹ The latter measure includes 20 tax system components such as the corporate income tax rate, anti-avoidance rules, and CFC rules (Grosselfinger and Schanz 2018). Our results (Table 7, Panel B) show that directions of effects on all test variables remain unchanged. Significance levels are also stable except for power distance in the tax morale specification (Columns 1 and 2).

[Insert Table 7 about here]

Supplemental Analysis I: Four Themes

Table 8 provides evidence regarding the four specific tax themes found in CSR reports that we used to construct the COMPLEMENTS and SUBSTITUTES variables. In our study, firms exhibit a substitutes view of tax and CSR by either mentioning the macro-economic detriments to society and efforts toward lobbying for lower tax (DETRACTION) or by discussing the specific ways in which tax payments hinder their own profits and economic success (COST), or both. We compare Columns 1 and 2 of Table 8 to Column 2 of Table 6 to investigate whether one of these two specific themes is the primary driver behind our results relating to the substitutes view. Firms in masculine societies are more likely to depict a substitutes view using both DETRACTION themes (coeff = 2.202; p -value < .01) and COST themes (coeff = 2.816; p -value < .05). This result is not surprising because firms and stakeholders in these societies should be more likely to criticize both the macroeconomic and firm-specific impacts of tax and the tax system.

Interestingly, the negative association between uncertainty avoidance and the substitutes view seems to be driven by DETRACTION (coeff = -2.483; p -value < .01). In other words, firms in high uncertainty avoidance countries are no more or less likely than other firms to discuss the specific negative impact of tax on their own profits (COST). However, these firms are less likely to mention the negative impacts to society in general

²¹ <https://www.tax-index.org/>.

caused by tax. The rigid and orderly nature of these cultures may make criticism of the tax system and thus the government undesirable to managers and stakeholders.

The complements view of tax and CSR is depicted in CSR reports by discussing themes related to the positive impact of tax on society or the firm's role as a taxpayer (CONTRIBUTION) or engaging in socially responsible tax practices (BEYOND), or both. We compare Columns 3 and 4 of Table 8 to Column 4 of Table 6 to investigate whether one of these two specific themes is the primary driver behind our results relating to the complements view. We find that firms in low masculinity societies are more likely to exhibit the complements view using both the CONTRIBUTION theme (coeff = -1.222 ; p -value $< .01$) and the BEYOND theme (coeff = -1.019 ; p -value $< .10$).

However, the negative association between both power distance and uncertainty avoidance with the complements view appears to be driven by the CONTRIBUTION theme (coeff = -2.389 ; p -value $< .01$ and coeff = -1.258 ; p -value $< .01$, respectively). This result is consistent with firms in cultures with low power distance and thus higher confidence in the government highlighting their tax contribution to the public.

[Insert Table 8 about here]

Supplemental Analysis II: Tax Avoidance

We argue that firms use CSR reports to communicate with their wider group of stakeholders. The message managers want to convey about their firm's actual tax behavior and activities also likely drives disclosure tendencies. To gain insights into the association between disclosure and actual firm behavior, we regress CSR tax disclosure variables on the firm's tax avoidance (TAXAVOID). Following Atwood, Drake, J. Myers, and L. Myers (2012) and Kanagaretnam, Lee, Lim, and Lobo (2018), we define tax avoidance as the reduction in the explicit tax paid and operationalize this measure as the difference between the tax on pre-tax income before exceptional items computed at the home-country statutory tax

rate, and the current tax expense. The difference is then divided by pre-tax income. The measure is calculated using a three-year window.

Table 9 presents results of our tax views analysis including tax avoidance. Columns 1 and 3 employ the continuous measure of tax avoidance where higher values represent greater levels of tax avoidance. In Columns 2 and 4, we examine those subsets of firms that represent the most aggressive and least aggressive in terms of tax avoidance. In these specifications, we include an indicator for those firms in the highest quintile (TAXAVOID_HIGH) of tax avoiders by year and those in the lowest quintile (TAXAVOID_LOW).²²

We find that tax avoidance is positively associated with the likelihood of a report expressing both a substitutes (Table 9, Column 1, coeff = 0.702; p -value < .10) and a complements (Table 9, Column 3, coeff = 0.450; p -value < .10) view. This result appears to be driven by those firms that are in the lowest quintile of tax avoidance. In other words, firms that pay more tax are less likely to exhibit the substitutes view (Table 9, Column 2, coeff = -0.475; p -value < .05) but also less likely to exhibit the complements view (Table 9, Column 4, coeff = -0.296; p -value < .10). Taken together, these results suggest that those firms that pay the most tax do that willingly and thus tend to avoid criticizing the impact of tax on society or mentioning their tax lobbying efforts. These same firms also refrain from emphasizing their contributions to society in the form of tax payments, possibly because they feel less need to justify themselves and present themselves as “good taxpayers”. Interestingly, we find no evidence that firms that pay the least in tax attempt to justify their tax behavior by exhibiting the substitutes the view. Instead, these firms appear to avoid shedding light on or drawing attention to their tax activities.

[Insert Table 9 about here]

²² We note that including tax avoidance does not alter the direction or significance of coefficients on any of our test variables with the exception that individualism becomes significant in Table 9, Column 4. Given that this result occurs only in one specification, we refrain from interpreting this result.

Supplemental Analysis III: Sentiment Analysis

Prior sentiment analysis in the tax accounting and finance arena generally relies on well-established dictionaries (e.g., Bodnaruk, Loughran, and McDonald 2015; Law and Mills 2015). The main advantage of this approach lies in reduced human misinterpretation (Loughran and McDonald 2016). However, in our setting, such an approach faces some limitations because existing dictionaries are not tax-specific. To give two examples, firms that highlight tax reductions achieved would not be captured as critical towards tax. By contrast, emphasizing the relevance of tax to reduce poverty might be classified as negative. Therefore, we use a more targeted approach to capture discussions of tax and CSR by means of a comprehensive set of keywords.

To counter subjectivity concerns and provide some evidence that our unique methodology does not detract from its validity, we compare the use of negative words according to a well-established dictionary, that is, Bing Liu's sentiment dictionary (Liu 2015),²³ in reports that depict the substitutes view to CSR reports that exclusively reflect the complements view. Examining negative words is superior to positive words because of their higher information content and the fact that humans are more focused and react more strongly to negative content (Law and Mills 2015).

We find that 81 percent of our sample of reports reflecting the substitutes view contain negative words. These "substitutes" reports are more negative than CSR reports that exclusively discuss tax and CSR as complements (81 percent vs. 52 percent with negative words, $\text{Chi}^2(1) = 151.94$, $p\text{-value} < .01$). Overall, a critical perspective on tax payments seems to involve a more negative sentiment than a tax-friendly position. These results provide support for the validity of our methodology using keywords.

²³ Since we rely only on nonfinancial reports, we do not use financial dictionaries such as the one developed by Loughran and McDonald (2011).

VI. DISCUSSION

Culture impacts CSR reporting as well as aspects of taxation, making tax disclosures in CSR reports a notable area of examination. Further, tax disclosures in CSR reports are interesting because of the diverse views on tax and CSR as either complements (paying tax is a form of CSR) or substitutes (tax reduces growth and thus overall welfare).

In the current study, we examine how culture differences influence tax disclosures in CSR reports. Using the GRI Sustainability Disclosure Database and supplemental hand collection, we create a sample of 4,438 CSR reports of 24 distinct countries. We use textual analysis to determine whether and how frequently firms mention tax in their CSR report and whether tax and CSR are discussed as substitutes or complements. We then run regression analyses to examine how dimensions of culture (Hofstede 2001) impact tax CSR disclosures.

We find significant variation in quantity of tax information and the themes discussed across countries. In a multivariate setting, we find that high masculinity is associated with a more negative and critical view towards tax, consistent with the view of tax as a burden to economic growth in high masculinity cultures. In contrast, we find a higher likelihood of highlighting the positive impact of tax in low power distance and low masculinity cultures, suggesting these cultures perceive tax and CSR as complements.

Our study is limited to firms who registered their CSR report on the GRI Database for which an English stand-alone CSR report was available in PDF format. An unavoidable limitation of the sample is that it does not cover the entire population of CSR reports. Although we acknowledge possible sub-cultures within countries, our study represents an initial investigation in this area and focuses on how national culture impacts CSR tax reporting. Future work could use our methodology, including the search terms and the keywords, to further explore tax in a CSR setting using within-country variation (country sub-cultures), as well as other settings such as firms' earnings announcements, conference calls, media sources, political statements, and other sources that contain tax information.

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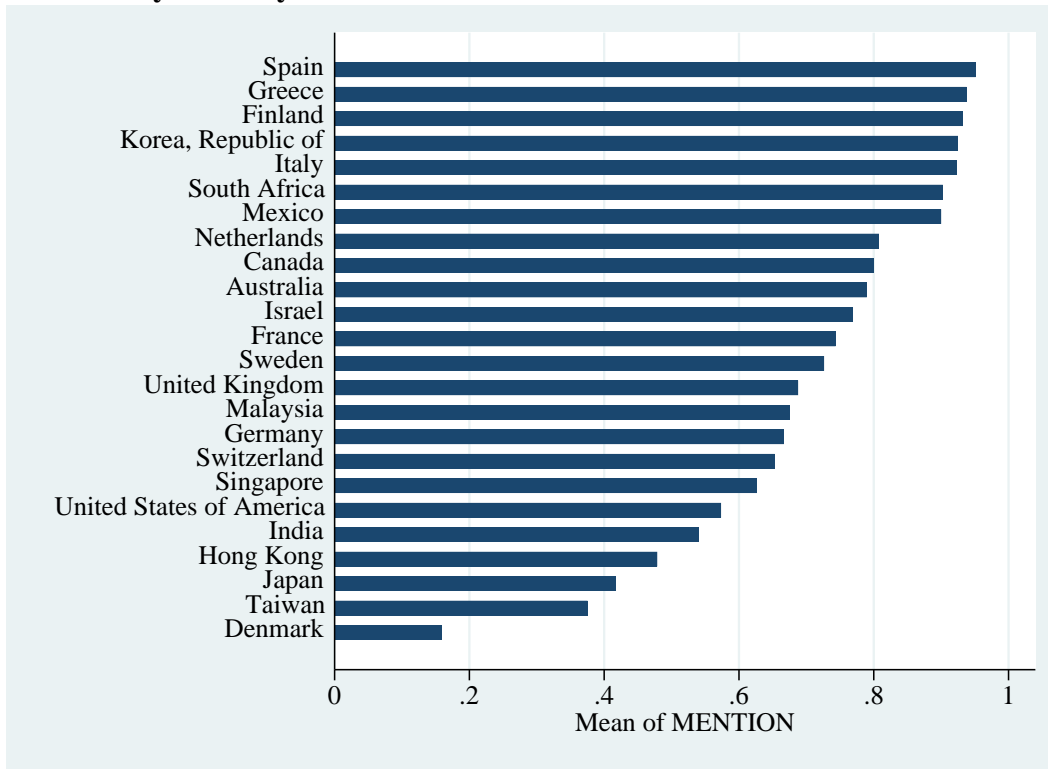
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Figure 1: MENTION

Panel A: By Country



Panel B: By Continent

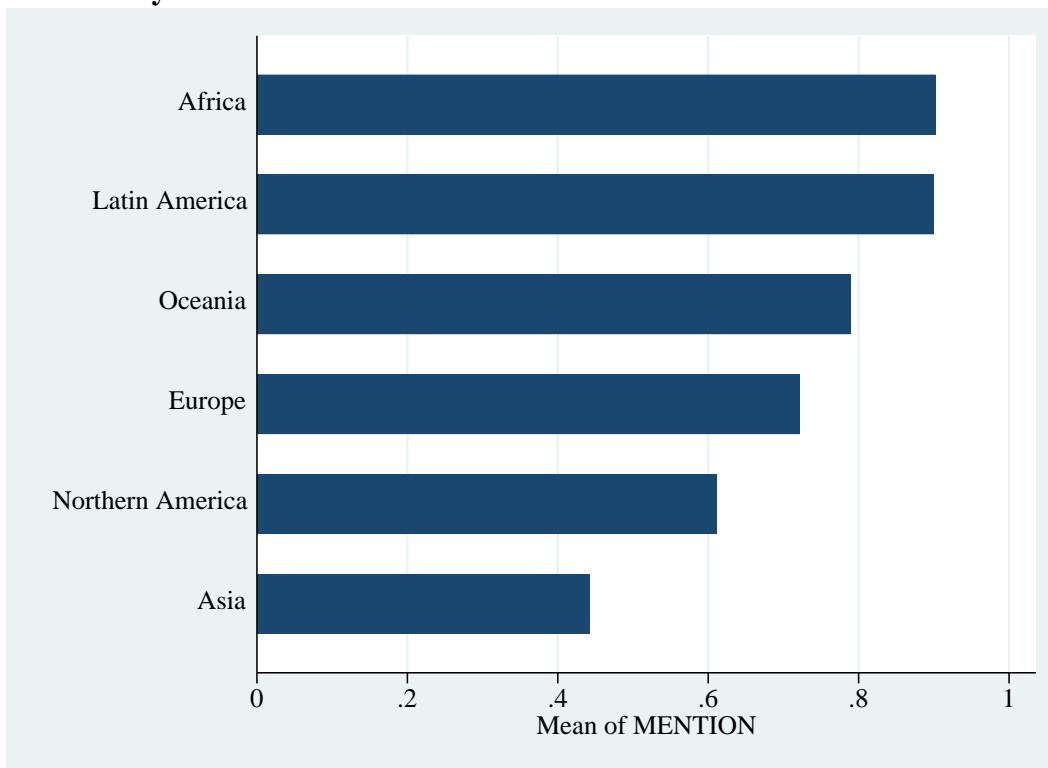
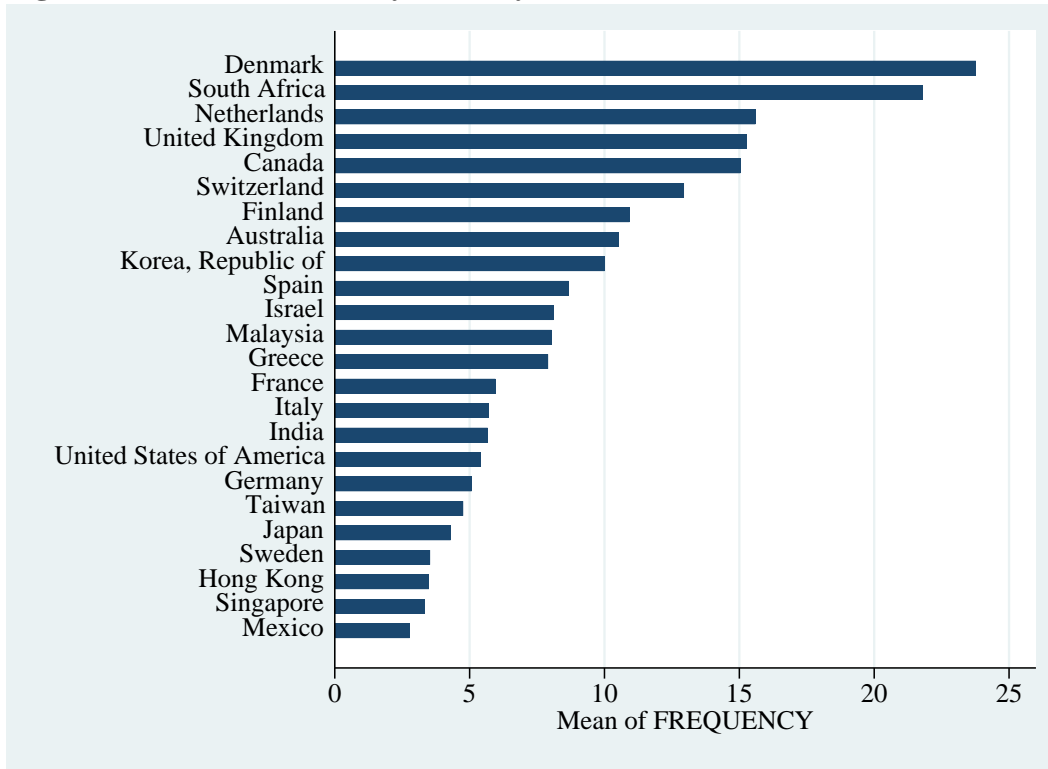


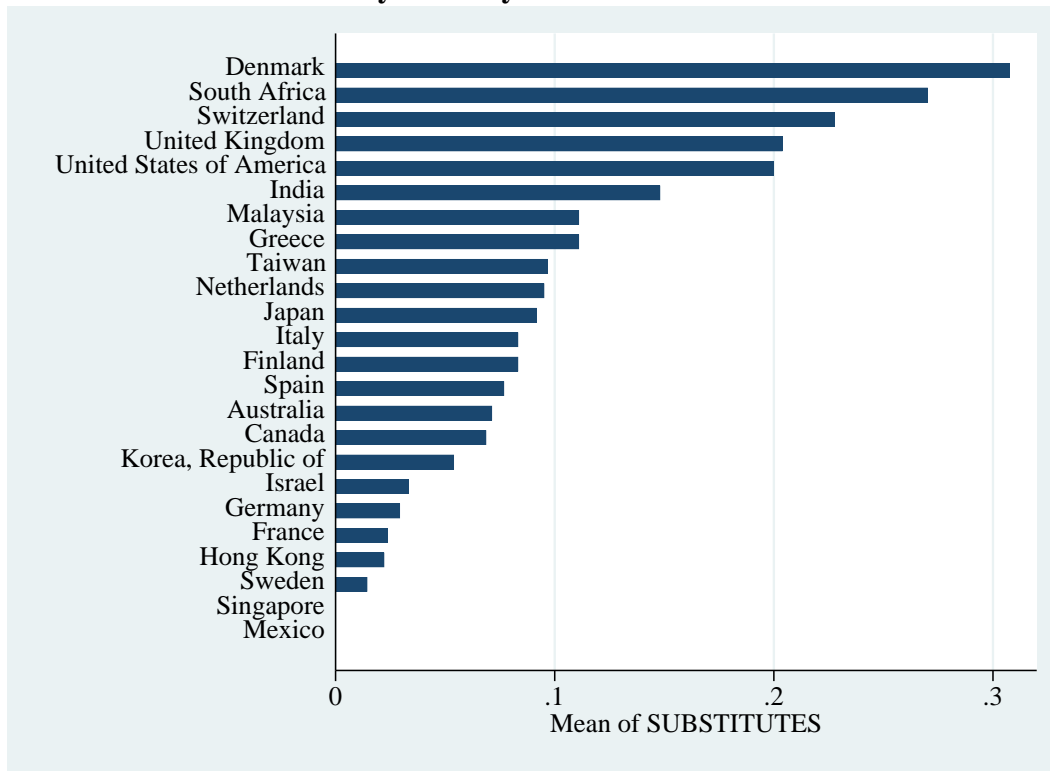
Figure 2: FREQUENCY²⁴ by Country



²⁴ In absolute numbers (without the log).

Figure 3: Tax Views

Panel A: SUBSTITUTES by Country



Panel B: COMPLEMENTS by Country

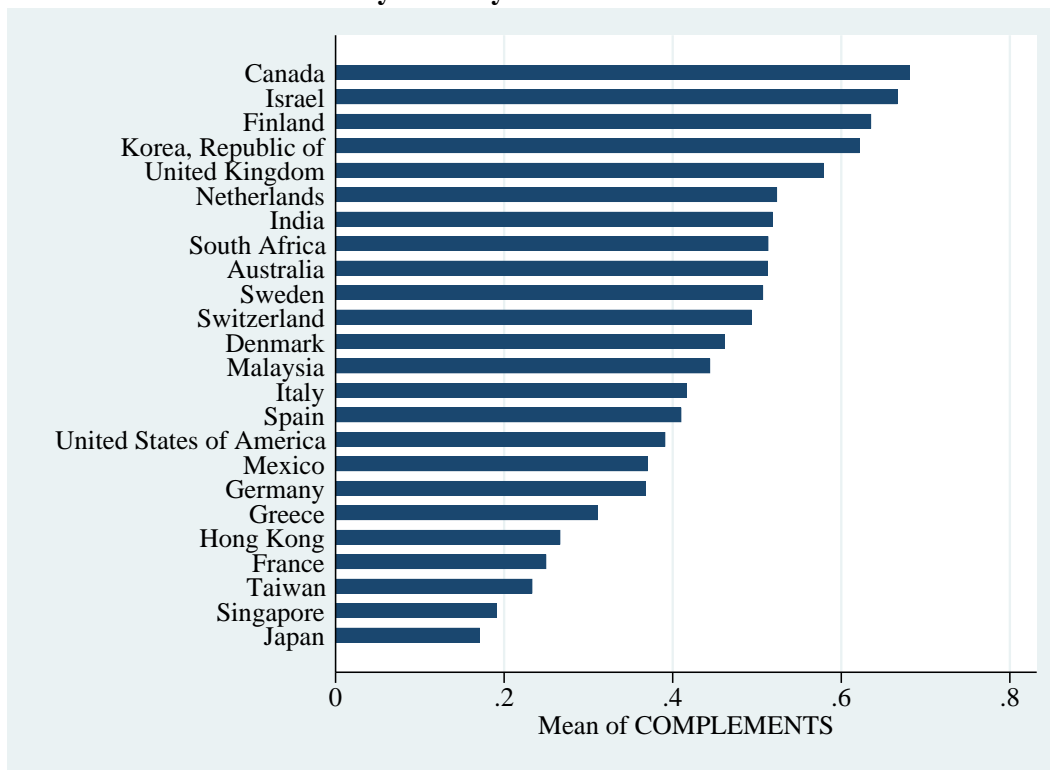


Table 1: Summary of Predictions

<u>Culture Measure</u>	<u>Relevance*</u>	<u>Substitutes View</u>	<u>Complements View</u>
	<i>Prediction (H1)</i>	<i>Prediction (H2a)</i>	<i>Prediction (H2b)</i>
Power Distance (PDI)	Negative	Negative	Negative
Individualism (IDV)	No prediction	No prediction	No prediction
Masculinity (MAS)	Negative	Positive	Negative
Uncertainty Avoidance (UAI)	No prediction	Negative	Negative

*Relevance = 1) whether taxes are mentioned or 2) how frequently taxes are mentioned in the report.

Table 2: Attrition Table

Initial sample	9,578
– Reports not accessible, non-extractable or non-English, duplicates	3,417
= Sample of adequate reports with CSR information	6,161
– Missing COMPUSTAT data	359
= Sample of adequate reports with CSR information and financial data	5,802
– Financial reports (annual reports with CSR chapter, integrated report)	1,112
– Too few reports by country	252
= Final sample of CSR reports	<u>4,438</u>
– CSR reports without tax information	1,876
= Final sample of CSR reports with tax information	<u>2,562</u>

Notes: This table presents our sample selection.

Table 3: Sample of CSR Reports**Panel A: By Country**

Country	CSR reports without tax information		CSR reports with tax information		All CSR reports
	<i>n</i>	percent	<i>n</i>	percent	<i>n</i>
Spain	2	4.88	39	95.12	41
Greece	3	6.25	45	93.75	48
Finland	7	6.80	96	93.20	103
Korea, Republic of	3	7.50	37	92.50	40
Italy	7	7.69	84	92.31	91
South Africa	4	9.76	37	90.24	41
Mexico	3	10.00	27	90.00	30
Netherlands	10	19.23	42	80.77	52
Canada	40	20.00	160	80.00	200
Australia	41	21.03	154	78.97	195
Israel	9	23.08	30	76.92	39
France	29	25.66	84	74.34	113
Sweden	26	27.37	69	72.63	95
United Kingdom	69	31.22	152	68.78	221
Malaysia	13	32.50	27	67.50	40
Germany	34	33.33	68	66.67	102
Switzerland	42	34.71	79	65.29	121
Singapore	28	37.33	47	62.67	75
United States of America	424	42.66	570	57.34	994
India	23	46.00	27	54.00	50
Hong Kong	49	52.13	45	47.87	94
Japan	563	58.28	403	41.72	966
Taiwan	378	62.48	227	37.52	605
Denmark	69	84.15	13	15.85	82
Total	1,876	42.27	2,562	57.73	4,438

Panel B: By Year

Year	CSR reports without tax information		CSR reports with tax information		All CSR reports
	<i>n</i>	percent	<i>n</i>	percent	<i>n</i>
2007	21	26.25	59	73.75	80
2008	71	36.60	123	63.40	194
2009	90	38.14	146	61.86	236
2010	125	36.98	213	63.02	338
2011	166	40.79	241	59.21	407
2012	171	36.46	298	63.54	469
2013	217	39.67	330	60.33	547
2014	278	42.84	371	57.16	649
2015	338	49.13	350	50.87	688
2016	332	48.12	358	51.88	690
2017	67	47.86	73	52.14	140
Total	1,876	42.27	2,562	57.73	4,438

Notes: These tables present the frequency of CSR reports by country (Panel A) and by year (Panel B) for CSR reports without tax information, with tax information, and for all CSR reports.

Table 4: Summary Statistics**Panel A: All CSR Reports**

VARIABLE	N	MEAN	SD	P10	P50	P90
MENTION	4,438	0.577	0.494	0.000	1.000	1.000
PDI	4,438	0.478	0.134	0.350	0.490	0.600
IDV	4,438	0.607	0.270	0.170	0.670	0.910
MAS	4,438	0.621	0.218	0.430	0.620	0.950
UAI	4,438	0.617	0.226	0.350	0.580	0.920
GOVERNANCE	4,438	2.060	0.977	1.248	2.053	3.156
GDP	4,438	10.659	0.315	10.462	10.688	10.946
GDP_GROWTH	4,438	0.017	0.021	-0.001	0.018	0.038
REPLENGTH	4,438	9.389	1.243	7.311	9.682	10.649
GRI_ADHERE	4,438	0.651	0.477	0.000	1.000	1.000
ASSURANCE	4,438	0.255	0.436	0.000	0.000	1.000
SIZE	4,438	9.011	2.001	6.448	8.933	11.674
LEV	4,438	0.167	0.130	0.001	0.155	0.345
ROA	4,438	0.068	0.075	0.000	0.059	0.162

Panel B: All CSR Reports with Tax Information

VARIABLE	N	MEAN	SD	P10	P50	P90
FREQUENCY ²⁵	2,562	7.699	13.694	1.000	3.000	19.000
FREQUENCY	2,562	1.346	1.110	0.000	1.099	2.944
SUBSTITUTES	2,562	0.117	0.322	0.000	0.000	1.000
COMPLEMENTS	2,562	0.396	0.489	0.000	0.000	1.000
PDI	2,562	0.469	0.137	0.340	0.400	0.680
IDV	2,562	0.645	0.256	0.180	0.710	0.910
MAS	2,562	0.600	0.206	0.390	0.620	0.950
UAI	2,562	0.602	0.220	0.350	0.510	0.920
GOVERNANCE	2,562	2.049	1.104	0.497	2.113	3.199
GDP	2,562	10.642	0.334	10.432	10.669	10.946
GDP_GROWTH	2,562	0.017	0.022	-0.003	0.018	0.038
REPLENGTH	2,562	10.000	0.701	9.174	10.049	10.810
GRI_ADHERE	2,562	0.767	0.423	0.000	1.000	1.000
ASSURANCE	2,562	0.306	0.461	0.000	0.000	1.000
SIZE	2,562	9.447	1.972	6.971	9.276	12.118
LEV	2,562	0.176	0.130	0.008	0.165	0.353
ROA	2,562	0.068	0.076	0.001	0.059	0.165

Notes: These tables present descriptive statistics for all CSR reports (Panel A) and CSR reports with tax information (Panel B). Financial variables are winsorized at the 1 and 99 percent level. Appendix C summarizes the definition of variables.

²⁵ In absolute numbers (without the log).

Table 5: Relevance of Corporate Tax Payments

VARIABLES	H1	(1) MENTION	(2) MENTION	(3) FREQUENCY	(4) FREQUENCY
PDI	–	2.070*** (0.616)	0.224 (0.875)	–0.988*** (0.358)	–1.073*** (0.321)
IDV	?	2.163*** (0.335)	0.633 (0.434)	0.090 (0.193)	0.048 (0.181)
MAS	–	–2.258*** (0.339)	–2.492*** (0.401)	–0.900*** (0.200)	–0.924*** (0.204)
UAI	?	1.531*** (0.339)	0.049 (0.412)	0.523*** (0.202)	–0.121 (0.212)
GOVERNANCE			–0.157 (0.097)		0.100** (0.044)
GDP			–0.319 (0.256)		–0.642*** (0.134)
GDP_GROWTH			–7.869** (3.399)		–1.948 (1.432)
REPLENGTH			1.642*** (0.080)		0.496*** (0.041)
GRI_ADHERE			0.737*** (0.116)		0.057 (0.069)
ASSURANCE			–0.143 (0.148)		0.214*** (0.067)
SIZE			–0.031 (0.044)		0.072*** (0.024)
LEV			0.456 (0.491)		–0.011 (0.240)
ROA			0.262 (0.865)		–0.359 (0.395)
Constant		–1.337* (0.773)	–9.559*** (2.842)	1.664*** (0.329)	3.235** (1.449)
Observations		4,438	4,438	2,562	2,562
R-squared		0.077	0.378	0.140	0.300
Year FE		YES	YES	YES	YES
Industry FE		YES	YES	YES	YES

Notes: This table presents results from logit ((1)-(2)) and OLS regressions ((3)-(4)) of relevance measures on culture and control variables. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All *p*-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

Table 6: Substitutes vs. Complements

VARIABLES	H2a	(1) SUBSTITUTES	(2) SUBSTITUTES	H2b	(3) COMPLEMENTS	(4) COMPLEMENTS
PDI	–	–0.774 (1.039)	–1.257 (1.247)	–	–1.939** (0.771)	–2.221*** (0.748)
IDV	?	0.834 (0.585)	0.209 (0.651)	?	0.289 (0.375)	–0.453 (0.416)
MAS	+	1.292** (0.566)	2.220*** (0.636)	–	–1.702*** (0.370)	–1.174*** (0.400)
UAI	–	–1.012* (0.556)	–2.649*** (0.600)	–	–0.048 (0.344)	–1.268*** (0.422)
GOVERNANCE			–0.390*** (0.149)			–0.001 (0.097)
GDP			0.649 (0.422)			–0.778** (0.311)
GDP_GROWTH			–7.337 (6.078)			–5.050 (3.216)
FREQUENCY			0.810*** (0.090)			1.103*** (0.075)
REPLENGTH			0.690*** (0.180)			0.044 (0.125)
GRI_ADHERE			0.002 (0.232)			0.274 (0.177)
ASSURANCE			–0.077 (0.214)			0.139 (0.164)
SIZE			0.033 (0.066)			0.191*** (0.049)
LEV			–0.246 (0.765)			1.465** (0.579)
ROA			0.626 (1.603)			1.451 (0.961)
Constant		–1.425 (1.158)	–14.236*** (4.552)		0.244 (1.348)	5.095 (3.548)
Observations		2,562	2,562		2,562	2,562
R-squared		0.041	0.194		0.095	0.289
Year FE		YES	YES		YES	YES
Industry FE		YES	YES		YES	YES

Notes: This table presents results from logit regressions of substitutes and complements measures on culture and control variables. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All *p*-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

Table 7: Robustness Tests**Panel A: Subsamples and additional measurements**

	Subsample excluding CSR reports with a confidence level < 0.75		Larger sample including integrated reports		Measurement based on text windows +/- 100 characters		Measurement without most frequent keyword by view	
VARIABLES	(1) SUBSTITUTES	(2) COMPLEMENTS	(3) SUBSTITUTES	(4) COMPLEMENTS	(5) SUBSTITUTES	(6) COMPLEMENTS	(7) SUBSTITUTES	(8) COMPLEMENTS
PDI	-1.561 (1.446)	-2.143*** (0.768)	-1.063 (1.088)	-2.284*** (0.750)	-1.716 (1.173)	-1.571** (0.724)	-1.741 (1.372)	-2.359*** (0.810)
IDV	0.296 (0.743)	-0.526 (0.433)	0.578 (0.578)	-0.310 (0.405)	-0.018 (0.577)	-0.398 (0.424)	-0.400 (0.737)	-0.353 (0.450)
MAS	2.148*** (0.750)	-0.790* (0.421)	1.581*** (0.514)	-1.340*** (0.383)	1.153** (0.533)	-0.763* (0.413)	2.332*** (0.692)	-1.138*** (0.394)
UAI	-3.103*** (0.732)	-1.201*** (0.436)	-1.526*** (0.502)	-0.648* (0.380)	-2.209*** (0.534)	-1.528*** (0.454)	-2.596*** (0.661)	-0.858* (0.443)
Observations	2,301	2,301	2,802	2,802	2,562	2,562	2,562	2,562
R-squared	0.210	0.288	0.210	0.258	0.195	0.266	0.181	0.290
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table presents results from logit regressions of substitutes and complements measures on culture and control variables for different samples and based on different measurements. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All *p*-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

Panel B: Additional country-related control variables

VARIABLES	With tax morale		With tax attractiveness	
	(1) SUBSTITUTES	(2) COMPLEMENTS	(3) SUBSTITUTES	(4) COMPLEMENTS
TAX_MORALE	-0.597* (0.312)	-0.424* (0.226)		
TAX_ATTRAC			-3.475*** (1.139)	-0.518 (0.742)
PDI	-3.755** (1.907)	-1.399 (1.047)	-1.073 (1.452)	-2.080*** (0.793)
IDV	-0.545 (0.804)	-0.201 (0.469)	-0.413 (0.705)	-0.493 (0.415)
MAS	1.743** (0.784)	-1.611*** (0.486)	2.150*** (0.739)	-1.240*** (0.415)
UAI	-2.972*** (0.718)	-1.521*** (0.439)	-3.448*** (0.757)	-1.342*** (0.433)
Observations	2,532	2,532	2,562	2,562
R-squared	0.202	0.289	0.203	0.289
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Notes: This table presents results from logit regressions of substitute and complements on culture and control variables including tax morale or tax attractiveness. Israel lacks information on tax morale, which reduces the size of our sample. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All *p*-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

Table 8: Tax Themes

VARIABLES	SUBSTITUTES VIEW		COMPLEMENTS VIEW	
	(1) DETRACTION	(2) COST	(3) CONTRIBUTION	(4) BEYOND
PDI	-0.845 (1.267)	-1.756 (1.655)	-2.389*** (0.711)	-0.431 (1.320)
IDV	0.548 (0.668)	-1.126 (1.096)	-0.336 (0.412)	-0.129 (0.704)
MAS	2.202*** (0.657)	2.816** (1.280)	-1.222*** (0.408)	-1.019* (0.592)
UAI	-2.483*** (0.616)	-1.566 (1.102)	-1.258*** (0.420)	-0.150 (0.766)
GOVERNANCE	-0.355** (0.154)	-0.620*** (0.224)	-0.051 (0.098)	0.241 (0.171)
GDP	0.683 (0.447)	0.502 (0.675)	-0.737** (0.296)	0.013 (0.507)
GDP_GROWTH	-8.262 (6.418)	-11.155 (9.945)	-4.236 (3.262)	-3.116 (5.836)
FREQUENCY	0.795*** (0.094)	0.927*** (0.179)	0.962*** (0.075)	1.552*** (0.125)
REPLENGTH	0.749*** (0.189)	-0.021 (0.278)	0.070 (0.128)	-0.169 (0.198)
GRI_ADHERE	-0.105 (0.237)	0.125 (0.443)	0.248 (0.173)	0.003 (0.288)
ASSURANCE	0.013 (0.219)	-0.193 (0.402)	0.152 (0.161)	0.272 (0.229)
SIZE	0.049 (0.068)	-0.004 (0.102)	0.175*** (0.050)	0.262*** (0.086)
LEV	-0.498 (0.798)	-0.953 (1.207)	1.697*** (0.562)	-0.301 (0.954)
ROA	1.067 (1.608)	0.133 (2.743)	1.740* (0.934)	0.494 (1.427)
Constant	-15.640*** (4.823)	-21.961*** (7.760)	4.489 (3.395)	-16.611*** (5.008)
Observations	2,562	2,562	2,562	2,562
R-squared	0.199	0.181	0.267	0.418
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Notes: This table presents results from logit regressions of substitutes and complements themes on culture and control variables including tax avoidance measures. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All *p*-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

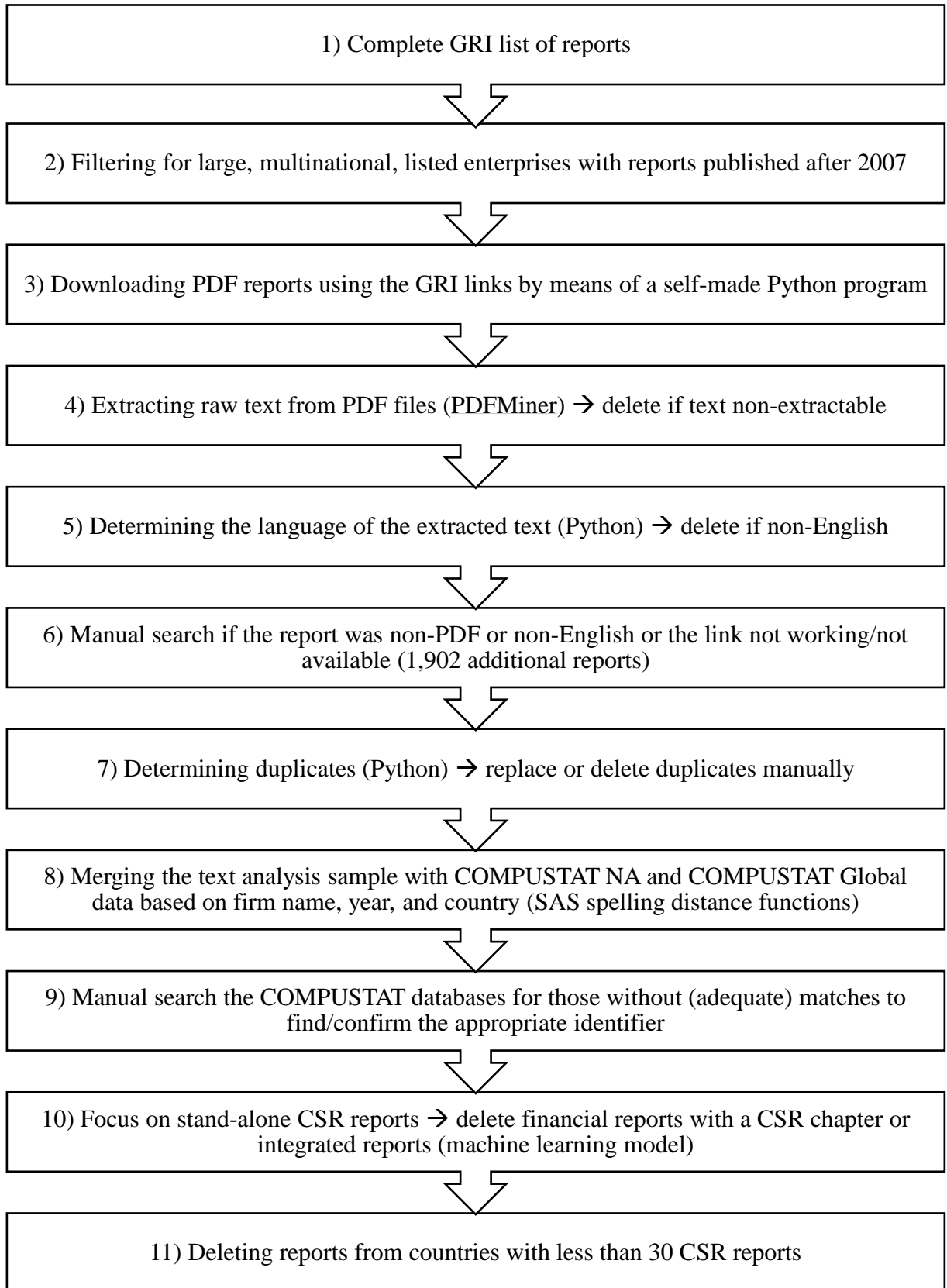
Table 9: Impact of Tax Avoidance

VARIABLES	(1) SUBSTITUTES	(2) SUBSTITUTES	(3) COMPLEMENTS	(4) COMPLEMENTS
PDI	-1.620 (1.430)	-1.764 (1.419)	-2.459*** (0.771)	-2.487*** (0.778)
IDV	0.141 (0.784)	0.145 (0.781)	-0.729 (0.452)	-0.760* (0.459)
MAS	2.574*** (0.749)	2.559*** (0.757)	-1.168*** (0.422)	-1.176*** (0.421)
UAI	-2.756*** (0.727)	-2.808*** (0.735)	-1.322*** (0.444)	-1.369*** (0.446)
GOVERNANCE	-0.360** (0.162)	-0.393** (0.167)	-0.017 (0.105)	-0.025 (0.106)
GDP	0.545 (0.425)	0.585 (0.435)	-0.809** (0.322)	-0.799** (0.323)
GDP_GROWTH	-2.624 (6.668)	-2.614 (6.772)	-9.056** (3.752)	-9.328** (3.778)
TAX_FREQUENCY	0.863*** (0.097)	0.863*** (0.096)	1.110*** (0.081)	1.113*** (0.080)
REPLENGTH	0.653*** (0.192)	0.659*** (0.190)	0.045 (0.134)	0.046 (0.134)
GRI_ADHERE	0.126 (0.244)	0.122 (0.243)	0.153 (0.185)	0.147 (0.184)
ASSURANCE	-0.032 (0.229)	-0.038 (0.230)	0.231 (0.178)	0.226 (0.178)
TAXAVOID	0.702* (0.393)		0.450* (0.250)	
TAXAVOID_HIGH		-0.073 (0.248)		0.031 (0.180)
TAXAVOID_LOW		-0.475** (0.232)		-0.296* (0.171)
SIZE	0.025 (0.074)	0.019 (0.074)	0.191*** (0.054)	0.188*** (0.054)
LEV	0.190 (0.809)	0.244 (0.810)	1.154* (0.620)	1.171* (0.617)
ROA	1.579 (1.688)	1.339 (1.703)	2.016* (1.166)	1.950* (1.167)
Constant	-13.190*** (4.648)	-13.136*** (4.779)	5.669 (3.612)	5.825 (3.614)
Observations	2,214	2,214	2,214	2,214
R-squared	0.217	0.217	0.293	0.294
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Notes: This table presents results from logit regressions of substitutes and complements measures on culture and control variables. Standard errors are presented in parentheses. *, **, *** indicate statistical significance at the .1, .05, and .01 levels, respectively. All p-values are based on two-tailed tests and are calculated based on standard errors that are clustered by firm. Appendix C summarizes the definition of variables.

Appendix A: Sample Creation

A1: Overview



A2: Selection of CSR Reports and Extraction of Text (Steps 2-7)

Filtering (Step 2)

We started with the complete list of reports from the GRI Report List and filtered for large, multinational, listed enterprises.²⁶ We excluded all state-owned firms, subsidiaries, cooperatives, and public institutions. We included only reports that were published in 2008 or later because CSR reporting was less standardized before and firms often published several nonfinancial reports such as an environmental and a social report. Since we rely on the publication year 2008, a CSR report from the year 2007 would be included if it is published in 2008 or later, which is usually the case. Our filters reduce the sample to 9,578 reports.

Downloading and data checks by means of a self-made Python program (Steps 3-5)

We required reports to be PDFs with extractable text in English. To gather the sample, we downloaded the PDF reports from the firms' websites using the links provided in the GRI Report List in an automatic manner by means of a self-made Python program.²⁷ If the link was (still) valid and the report could be downloaded, we extracted raw text from PDF files using an open source library for Python called PDFMiner. Several small pre-processing steps were made to improve the extraction process. Among others, we lower-cased the text and excluded tables of contents using a mechanism developed by Wu, Mitra, and Giles (2013). The language of the extracted text was automatically determined by counting stop words, which are frequent words such as articles or forms of "to be". The algorithm picked the language containing the most stop words found in the text.

²⁶ The GRI (2018b, 6) uses the EU definition for firm sizes, that is, large firms have at least 250 employees and a revenue of more than 50 million euros or total assets of more than 45 million euros.

²⁷ The other typical format is an html link. We were unable to analyze these reports because the full text is not typically on one browser page. Instead, the user must click links within the report to see the various sections. Reports are downloadable on the GRI website as well. However, they can only be downloaded separately and are secured by a robot question making it impossible to automatically crawl them.

Manual search (Step 6 and 7)

Out of the 9,578 reports, 4,269 initially fulfilled the criteria. For the remaining 5,309 reports, we initiated a manual search and examined the firms' homepages, the GRI Database, and search engines to get access to reports with nonworking or missing links to a PDF. For non-English reports, we manually searched firms' websites for an English version and included those reports that we successfully found. Afterwards, we again downloaded PDF reports of our new collection of links, extracted the text, determined the language, and removed duplicates. Overall, this manual approach led to 1,902 additional reports.

Finally, the Python program searched for duplicates in our set of downloaded reports to rule out that links for different firm-year combinations led to identical reports. Duplicates were manually inspected and either replaced by the correct link or omitted. The sample of adequate reports with CSR information consists of 6,161 reports.

A3: Merging with Financial Information (Step 8 and 9)

We then merged the text analysis sample with COMPUSTAT (COMPUSTAT NA and COMPUSTAT Global) data by firm and year. The GRI Report List does not include identifiers such as cusips or CIKs. Therefore, we matched firms to COMPUSTAT based on firm name, year, and country (to improve the accuracy of the match) using two SAS spelling distance functions. Some firms did not match reasonably to any COMPUSTAT firm using this method. For those observations, we manually searched the COMPUSTAT databases to find the appropriate identifier. All observations that were successfully matched using the SAS functions but did not result in a spelling distance of zero were further examined manually. If visual inspection could not confirm the match was accurate, we initiated a manual search to find the correct identifier for the GRI firm-year-country. Overall, 5,802 reports have available COMPUSTAT identifiers and financial data.

A4: Identifying Stand-Alone CSR Reports (Step 10)

From our sample of 5,802 reports, we focused on stand-alone CSR reports and deleted 1,112 financial reports with a CSR chapter or integrated reports. To distinguish financial reports from stand-alone CSR reports, we first manually coded a random sample of 200 reports as either financial or stand-alone. Specifically, we classified as stand-alone CSR reports any reports that did not contain financial information except for a short overview about the firm's performance at the beginning or end of the report. We identified all other reports as financial. We then trained a machine learning model using this manually-coded sample and employed the model to classify all remaining reports. To implement the machine-learning process, we first transformed all manually classified documents into TF-IDF matrixes. Then, we trained and evaluated multiple classifiers, namely support vector machines, random forests, and Naïve Bayes, which are known to be effective text classification methods (Aggarwal and Zhai 2012). Using a 20 fold cross validation, we achieved a very high mean accuracy (93 percent with a standard deviation of 7 percent). We also computed the confidence of the classifier for each prediction of a document as non-financial and financial.

Appendix B: Assembling Search Terms

B1: Development of Inclusion and Exclusion Words

To create our list of inclusion and exclusion words, we employed a multi-step approach and used data from our first test run. Our initial selection of words stemmed from the researchers' experience in prior CSR reporting projects, examples from the literature, and manual inspections of CSR reports. In multiple steps, we supplemented and reduced our initial selection of inclusion and exclusion words after thorough inspections of the output. We required inclusion words to have at least 10 hits without simultaneous occurrence with another inclusion word that has more hits and to have a negligible number of false hits that could not be corrected via exclusion words.

To name an example, the potential inclusion word "subsidy" generally occurs in an employee-related context such as subsidies for schooling costs, food, or pension contributions so we did not employ it. Similarly, a few firms talk about contributions to the public or the government without specifically naming taxes or using the word "payment". However, the low number of correct hits using the term "contribution" (or regular expressions that contain this term) did not justify the numerous false hits that occurred such as discussions regarding "non-monetary contributions" or even contributions to a public debate or discussion. Finally, we extracted a list of all text windows containing exclusion words and manually inspected the list for potentially relevant hits to avoid false exclusions. Two authors independently developed the two lists. Differing views were discussed with a third author.

B2: Keyword Search Methodology to Measure Tax Views

Tausczik and Pennebaker (2010) outline a process to create a transparent text analysis program, the Linguistic Inquiry and Word Count (LIWC) that is useful in detecting meaning in a wide variety of settings. Essentially, the process relies on domain expertise to develop a

dictionary of words to define particular categories. Tausczik and Pennebaker (2010) encourage the use of this process to develop textual analysis programs useful in other contexts. We follow their approach using judges with tax expertise to create an initial set of words and adjust the list based on agreement of two out of three judges. Initially, we created a coding scheme that determines which statements correspond to the substitutes and the complements view's themes DETRACTION, COST, CONTRIBUTION, and BEYOND (see section "Measuring Tax Disclosure"). We then determined potential keyword candidates from the coding scheme, examples in the literature (Davis et al. 2016; Hardeck and Kirn 2016), and inspections of a randomized list of text windows. To check the accuracy of our candidates and avoid false hits, we employed a randomized list of all text windows and inspected the first 25 occurrences of each potential keyword candidate. We then included a candidate if the success rate for the overall view was at least 66.67 percent. One author always inspected the 25 first occurrences, another one randomly checked the results. A third author resolved disagreements. Besides avoiding false hits, our set of keywords should be as complete as possible and ensure that text windows that signal the intended themes are identified. To this aim, three authors independently coded a random selection of 400 text windows as SUBSTITUTES and COMPLEMENTS. We then searched for windows for which our set of keywords was unable to identify the theme. Such text windows were inspected for additional keywords. After examining keywords as outlined before, we again tested our random selection. The process was repeated until more than 85 percent of all coded text windows were correctly identified.

Appendix C: Variables Measurement

Variable	Description	External Sources
MENTION	Dummy variable, coded 1 if the report includes at least one tax-related inclusion word, and 0 otherwise.	–
FREQUENCY	Natural logarithm of the number of inclusion words by report.	–
SUBSTITUTES	Dummy variable coded as 1 if at least one SUBSTITUTES keyword in tax-related text windows, and 0 otherwise.	–
COMPLEMENTS	Dummy variable coded as 1 if at least one COMPLEMENTS keyword in tax-related text windows, and 0 otherwise.	–
DETRACTION	Dummy variable coded as 1 if at least one DETRACTION keyword in tax-related text windows, and 0 otherwise. Theme of SUBSTITUTES.	–
COST	Dummy variable coded as 1 if at least one COST keyword in tax-related text windows, and 0 otherwise. Theme of SUBSTITUTES.	–
CONTRIBUTION	Dummy variable coded as 1 if at least one CONTRIBUTION keyword in tax-related text windows, and 0 otherwise. Theme of COMPLEMENTS.	–
BEYOND	Dummy variable coded as 1 if at least one BEYOND keyword in tax-related text windows, and 0 otherwise. Theme of COMPLEMENTS.	–
PDI	Power distance scale at country-level. The index ranges from 0 to 100 and is scaled by 100.	Hofstede (2001)
IDV	Individualism versus collectivism scale at country-level. The index ranges from 0 to 100 and is scaled by 100.	Hofstede (2001)
MAS	Masculinity versus femininity scale at country-level. The index ranges from 0 to 100 and is scaled by 100.	Hofstede (2001)
UAI	Uncertainty avoidance scale at country-level. The index ranges from 0 to 100 and is scaled by 100.	Hofstede (2001)
GOVERNANCE	National governance, measured using the primary factor based on a principal component analysis of the six variables in the World Bank's Governance data set.	Worldbank (2018)
GDP	The natural log of GDP per capita is measured at purchasing power parity in international dollars.	IMF (2018)
GDP_GROWTH	Change of GDP from year t-1 to t.	IMF (2018)
REPLENGTH	Natural logarithm of the total number of words by report.	–
GRI_ADHERE	Dummy variable coded 1 if the CSR report adheres to GRI Standards, and zero otherwise. Note that citing GRI is not equal to GRI adherence.	GRI (2018a)
ASSURANCE	Dummy variable coded 1 if the CSR report was externally assured, and zero otherwise.	GRI (2018a)
TAXAVOID	Difference between the tax on pre-tax income before exceptional items computed at the home-country statutory tax rate and the current tax expense. The difference is then divided by pre-tax income. The measure is calculated over a three-year window.	COMPUSTAT, KPMG (2018)

TAXAVOID_HIGH	Dummy variable coded 1 if the firm is in the highest quintile of TAXAVOID in that year, and 0 otherwise.	COMPUSTAT, KPMG (2018)
TAXAVOID_LOW	Dummy variable coded 1 if the firm is in the lowest quintile of TAXAVOID in that year, and 0 otherwise.	COMPUSTAT, KPMG (2018)
TAX_MORALE	Variable ranging between 1 and 5 that measures tax morale by means of the following question: Please tell me for the following statement whether you think it can always be justified, never be justified, or something in between: 'Cheating on taxes if you have the chance'.	World Value Survey
TAX_ATTRAC	The Tax Attractiveness Index is a composite index that measures the attractiveness of the tax environment for corporations. The index ranges between 0 and 1.	https://www.tax-index.org
SIZE	Natural logarithm of total assets (AT) in dollars.	COMPUSTAT
LEV	Long-term debt (DLTT), scaled by total assets (AT). Long-term debt is set to 0 if missing.	COMPUSTAT
ROA	Pre-tax income (PI), scaled by total assets (AT).	COMPUSTAT
INDUSTRY	Industry fixed effects according to the Fama French 17 industry classification.	COMPUSTAT
YEAR	Year fixed effects.	GRI (2018a)