Can tax payments complement high environmental, social, and governance reputational risk?

Okuyama, Akihiro and TSUGAWA, Shuichi and Matsunaga, Chiaki and Managi, Shunsuke

Department of Law, Economics and Management, Okinawa University, Department of Urban and Environmental Engineering, Kyushu University, Department of Environmental Science, International College of Arts and Sciences, Fukuoka Women's University

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Can tax payments complement high environmental, social, and governance reputational risk?

Akihiro Okuyama* **Shuichi Tsugawa†** **Chiaki Matsunaga‡**
Shunsuke Managi§

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Abstract

Purpose This study aims to investigate firms' tax payment motivation from the point of corporate social responsibility by dissecting samples into firms with high, low, and no environmental, social, and governance (ESG)-related reputational risk.

Design/methodology/approach This paper is an empirical study using 3,981 firm-year observations from 31 countries from OECD countries through 2017 to 2019. We construct panel data and use the fixed-effects model to control unobserved firm heterogeneity. To capture legal tax avoidance, we use two types of tax avoidance measurements.

Findings We find that paying taxes can complement the high reputational risk of ESGs. However, if ESG-related reputational risk is not large, tax payments do not affect ESG risk. Our results indicate that tax payment is a matter of firms' ESG-related reputational risk. This paper contributes to providing evidence to show that the relationship between ESG and tax avoidance is different depending on an individual firm's level of ESG-related reputational risk.

*okuyama.akihiro.886@s.kyushu-u.ac.jp, Department of Urban and Environmental Engineering, Kyushu University
†s-tsugawa@okinawa-u.ac.jp, Department of Law, Economics and Management, Okinawa University
‡matsunaga@fwu.ac.jp, Department of Environmental Science, International College of Arts and Sciences, Fukuoka Women's University
§managi@doc.kyushu-u.ac.jp, Department of Urban and Environmental Engineering, Kyushu University

Originality We create a reputation-based ESG risk data set that addresses the endogeneity associated with the manager's decision and simultaneity bias to determine the relationship between ESG and tax avoidance. Also, this is one of few studies that examine the relationship between CSR and tax avoidance internationally.

Keywords Corporate social responsibility, ESG, Sustainable investment, Tax avoidance, International evidence, Reputational risk exposure

Paper type Research Paper

1 Introduction

1.1 Research Background

We study the relationship between corporate social responsibility (CSR) and corporate tax avoidance to determine the tax payment motivation from the point of CSR[1)2)]. There has been a profound increase in interest in both CSR and corporate tax avoidance. In fact, a large amount of literature has explained the relationship between CSR and corporate tax avoidance ((Lanis & Richardson 2012); (Lanis & Richardson 2015); (Davis et al. 2016); (Watson 2015); (Hoi et al. 2013)). However, they have provided mixed results about the relationship between CSR and tax avoidance. This research helps to clarify this relationship by focusing on each firm's environmental, social, and governance (ESG) reputational risk. This paper aims to determine how CSR is associated with tax avoidance depending on each firm's ESG-related reputational risk by dissecting the firms into high and low risks.

The OECD notes that corporate tax avoidance, such as tax base erosion and profit shifting (BEPS), has become a major international issue ((OECD Publishing. 2013)). BEPS is a tax planning strategy in which companies artificially shift profits to low- or no-tax countries where there are little or no business activities to reduce the amount of profits in the place where their income is earned. Aggressive corporate tax activities can be considered to be socially irresponsible activities because they bring potential losses to society as a whole. On the other hand, some claims that tax payments can also deteriorate social welfare because paying taxes reduces free cash flow to use for innovations, production, job creation, and so on (Djankov et al. 2010).

The purpose of this study is to use a new dataset to establish the statistical correlation between CSR and tax payments. In this study, to measure CSR, we use RepRisk, which is more objective than other CSR measures in the previous literature that examines the relationship between CSR and tax payments. In addition,

RepRisk addresses endogeneity. This paper contributes to the literature in assuring the robustness of the CSR and tax payment relationship to alternative CSR measures, sample countries, and sample heterogeneity.

In this study, we classified our sample into three groups according to firms' level of ESG-related reputational risk: firms with low-risk exposure, firms with high-risk exposure, and firms with no reputational risk. Our results show that among firms with high reputational risk exposure, socially irresponsible firms are less likely to engage in tax avoidance activities. We also find that ESG-related reputational risk and tax avoidance have no relationship within firms with low-risk exposure. Furthermore, our results suggest that among firms with no reputational risk exposure, socially responsible firms are less likely to engage in tax avoidance activities.

1.2 Our Contribution

This study makes four contributions to the literature. First, our sample consists of 31 OECD countries in a cross-country study. Although a large amount of the literature has examined the relationship between CSR and tax payments, most of those studies have focused on one specific country, such as the U.S. or Australia, and they have obtained different results (Stephenson & Vracheva (2015), Davis et al. (2016), Lanis & Richardson (2012)). This may be because of institutional discrepancies and/or because of differences in the social environment, which can affect CSR and tax payments (Stephenson & Vracheva 2015). It would be difficult to consider all institutional differences in investigating the international trend of tax avoidance activities because each country has a different corporate tax system and rate. We include the World Government Indicators published by the World Bank and the statutory corporate tax rate (SCTR) in our regression to control the legal and institutional environments in each country. Second, we use a unique CSR measurement that is based only on information in the media and overcomes endogeneity. While most studies have used indexes that rate CSR activities and their impact on society that are based on both firms' self-reported information and reputation, to our knowledge, few empirical studies have used an index based only on firms' reputation in the media. Third, this study uses panel data analysis. Most previous studies have used cross-sectional regression to investigate how CSR is related to tax payments. However, those studies could suffer from omitted variable bias because their models did not capture the effect of time-invariant variables such as corporate culture. To address this gap in the literature, we use a panel data analysis in addition to a cross-sectional analysis. Finally, we dissect the observations into high, low, and no ESG-related reputational risks firms to drill down the prior mixed results. Few papers have studied the association between CSR and tax avoidance by focusing on a firm's reputational risk. We split our sample

into three groups depending on their ESG-related reputational risk to determine whether socially responsible companies pay corporate taxes fairly.

This paper proceeds as follows. Section 2 reviews the relevant literature. Section 3 explains the sample and measurements. Section 4 describes the research design. Section 5 reports the empirical results. Finally, Section 6 concludes.

2 Literature Review

Over the past few years, many researchers have shown an interest in the relationship between CSR and tax payments. However, existing theory and empirical studies find different results.

2.1 Positive Association

(Margolis & James 2003) state the theory that firms must consider stakeholders to maximize their value. According to this theory, firms engage in CSR activities even if those activities reduce the firm's present profit ((Mackey et al. 2007)). These results are consistent with the theory suggested by (Carroll 1979). This theory suggests that firms that find value in CSR activities devote their resources and human effort to non-CSR activities even though those CSR activities do not always create financial benefits for firms. In fact, (Hoi et al. 2013) argue that firms that expend efforts to CSR activities are less likely to engage in tax avoidance. Firms that do not engage in tax avoidance fulfill CSR even though taxes reduce profit. This is consistent with engaging in CSR activities in a positive manner.

Some studies find evidence that CSR is positively related to tax payments. In other words, the greater the firm pays tax, the higher the CSR index they obtain. (Lanis & Richardson 2012) suggest that they find a negative relationship between CSR disclosure and tax aggressiveness. (Lanis & Richardson 2015) show that the higher the level of CSR performance of a firm is, the lower the possibility of tax avoidance.

2.2 Negative Association

On the other hand, some studies find that CSR is negatively correlated with tax payments. There are two types of hypotheses to support this relationship: efficient management of resources and insurance effects of CSR activities. (McGee 2010) claims that it is more beneficial for society to keep resources in the private sector than in the government sector because the private sector utilizes resources more efficiently. (Porter & Kramer 2006) argue that since firms are not responsible for all problems in the world, each firm can efficiently

identify and solve particular problems in their field. It can have a greater impact on social goods than any other organization. This indicates that socially responsible firms do not consider tax payments to be the best way to carry out their social responsibilities, even if they allocate resources to CSR activities.

(Godfrey 2005) and (Gardberg & Fombrun 2006) note that certain types of CSR activities have a risk-management effect. They claimed that when negative events happen, some types of CSR activities preserve shareholder value because they act as 'insurance-like' protection because CSR activities create a form of goodwill or moral capital for the firm. This means that some firms engage in CSR activities to protect themselves from the reputational risk that arises from tax aggressiveness practices.

Some studies claim that there is a negative relationship between CSR and tax payments. One such example is (Godfery et al. 2009) who posited a theory about the risk management of CSR activity by using an event study of 178 legal or regulatory actions against firms from 1993 to 2003. They found that CSR activities create value for shareholders when the firms are in the face of a particular type of negative event.

(Davis et al. 2016) also find that CSR activities have a negative relation to tax payments. They examine the five-year cash effective tax rates for a total of 5,588 firms in the U.S. from 2006 through 2011. This result indicates that socially responsible firms do not pay more corporate taxes than other firms, which implies that CSR and tax payments act as substitutes.

3 Sample and Data

We use financial and nonfinancial data to study the ESG-tax payments relationship. Orbis from the Bureau van Dijk provides those data. Our final sample includes firms from 31 countries that were OECD members from 2017 through 2019.

3.1 Measurement of tax payments

There are several ways to capture tax avoidance activities. To triangulate our results, we use two different measures to capture them because each measure has limitations. Measures of corporate tax payments are determined in the following two ways in previous studies ((Manzon, Jr. & Plesko 2005),(Desai & Dharmapala 2006)).

The first measure is the Manzon-Plesko book-tax difference (MP_BTD), which is book income less taxable income scaled by lagged total assets. Taxable income is calculated by corporate tax payments divided by the SCTR. This measurement is used in many studies to capture tax avoidance((Kim et al. 2011, Wilson 2009,

Hanlon & Heitzman 2010)). (Wilson 2009) found that firms with larger BTD tend to engage in more tax shelters. (Lev & Nissim 2004) and (Hanlon 2005) indicated that BTD identifies aggressive tax reporting.

The second measure is the Desai-Dharmapala discretionary book-tax difference(DD_BTD) which is the residual from a regression of MP_BTD on total accruals((Desai & Dharmapala 2006)). According to (Dechow et al. 1995) method, we calculate accruals using the following equations:

$$AC_t = (\Delta CA_t + \Delta LOAN_t - \Delta CASH_t - Dep_t)/(A_{t-1}) \tag{1}$$

where

AC = total accruals

ΔCA = change in current assets

$\Delta LOAN$ = change in short term financial debts

$\Delta CASH$ = change in cash and cash equivalent

Dep = Depreciation & Amortization

A = change in current assets

(Desai & Dharmapala 2006) documented that MP_BTD can be enlarged or reduced by earning management (controlling accounting income or reducing taxable income to archive several aims). DD_BTD is a measurement that excludes the effect of earning management from MP_BTD. We delete firm-year observations with negative taxable income. In other words, our final sample consists of firms with positive taxable income from 2017 to 2019.

3.2 ESG (CSR) index

3.2.1 RepRisk

This study focuses on how firms change their tax planning in response to a negative reputation in the media regarding ESG issues, which requires data capturing negative ESG events. The ESG data were collected from RepRisk, a dataset that has been updated daily since 2007. RepRisk is an indicator of ESG-related reputational risk. It covers more than 100,000 listed and nonlisted firms exposed to ESG risks plus projects from all countries and sectors, including emerging and frontier markets. RepRisk systematically screens and analyzes negative ESG and business conduct information that can affect firms' reputations and finances. RepRisk covers over 80,000 media outlets, stakeholders, and other third-party sources in 20

languages by using advanced machine learning. Then, human analysts analyze each risk incident according to their methodology. The collected data are classified into 28 core issue categories. These 28 issues can be mapped to the 10 principles of the UN Global Compact, which determines people's and firms' basic responsibility to adopt sustainable and socially responsible policies. RepRisk also covers 50 additional topic tags that are labeled ESG "hot topics" or extensions of RepRisk's core ESG issues. Topic tags are specific and thematic, and each tag can be linked to multiple ESG issues.

Through this process, the RepRisk Index (RRI) is constructed and makes it easy to understand entities' exposure to ESG-related risk. RRI is calculated on a scale between 0 and 100. Since the RRI captures and quantifies reputational risk exposure related to ESG issues, a firm with a low RRI has been exposed to less ESG-related risk, and an RRI score of zero indicates that a firm has no ESG-related reputational risk. According to RepRisk's documentation, an RRI score between 0 and 25 indicates low-risk exposure, 26 to 49 indicates medium-risk exposure, 50 to 59 indicates high-risk exposure, 60-74 indicates very high-risk exposure, and 75 to 100 indicates extremely high-risk exposure. We consider firms with high RRI to be socially irresponsible and firms with low RRI to be socially responsible.

RepRisk is more suitable for our study than other CSR measures because our study focuses on the effect of reputation on tax plans. By using RepRisk, we can observe the net effect and overcome endogeneity. Other CSR measurements that are used in other study based mainly on self-reported information (Zeng 2019, Garcia et al. 2017). RepRisk is a unique measurement that is based only on information in the media. We can explore how reputations related to CSR activities influence firms' tax planning. Other measures capture both positive and negative ESG information. Then, we observe the net effect, although RepRisk captures only negative information.

This study overcomes two endogeneity issues. First, there is an endogeneity issue between tax planning and ESG disclosure. Most of the ESG measures used in the literature depend on information disclosed by each firm. However, managers' decisions affect both tax planning and ESG disclosure, leading to omitted variable bias. On the other hand, the fluctuation of RepRisk is independent of managers' decisions regarding ESG disclosure.

The second issue is that there is an endogeneity issue between CSR and tax planning, which is commonly discussed in the literature. Previous studies have suffered from the endogeneity issue that firms that can afford to pay taxes properly engage more positively in CSR activity. This issue is unlikely to arise in our research because regardless of companies' efforts to improve CSR, RepRisk captures only negative information related to ESG in the media.

In this study, we classify our sample into three groups: firms with low ESG-related risk exposure, firms, with high ESG-related risk exposure firms, and firms with no ESG-related reputational risk. This enables us to investigate whether firms that are viewed as socially responsible by other organizations actually pay corporate taxes properly. Additionally, we can determine whether companies that are considered socially irresponsible truly engage in more tax avoidance.

3.2.2 MSCI ESG Rating

Even though RepRisk has several advantages over other CSR scores, there are some limitations. RepRisk cannot capture positive information related to ESG. For this reason, we cannot identify firms that do not engage in many CSR activities or those that vigorously engage in CSR activities when such firms have zero RRI, even though they participate differently in CSR activities. To solve this limitation, we use MSCI for these firms to investigate the relationship between CSR and tax avoidance. We use the MSCI ESG rating for firms with zero RRI (firms with no reputational risk). These data are among the most commonly used in the previous literature to measure ESG. The information sources of MSCI are specialized datasets provided by governments and nongovernmental organizations, company disclosures, and media sources The greatest difference between RepRisk and MSCI is that MSCI captures both negative and positive information about ESG. We use the final industry-adjusted score, which is calculated by normalizing each firm's Environment, Social, and Governance scores on an industry basis. This score ranges from 0 to 10 according to ESG performance. Companies with a higher MSCI score have better reputations related to ESG.

3.3 Control Variables

We include the following variables to control for the effects of firm features. We include several control variables that the previous literature has found to be important in examining the relationship between CSR and tax payments. According to (Liang & Renneboog 2017), we control for common law countries (COM), measured as an indicator variable that is equal to 1 for a common law country and 0 for a civil law country, and countries with worldwide tax systems (WW), measured as an indicator variable that is equal to 1 for countries with worldwide tax systems and 0 for countries with territorial tax systems ((Young E&Y)). We also add indicator variables (IFRS) to control for the adoption of International Financing Reporting Standards (IFRS), equal to 1 for countries that require IFRS for domestic public companies and 0 otherwise.

We also include the government index taken from the World Government Indicators (WGI) proposed by (Kaufmann et al. 2011) and published by the World Bank. In this study, we use four major indicators that

the previous literature has shown to be relevant to governance level: government effectiveness, regulatory quality, rule of law, and control of corruption. We identify a new variable, GOV, that is the sum of these four indicators((Sáenz González & García-Meca 2014);(Zeng 2019)).

Then, we control intangible fixed assets (Intang), research and development costs (R&D), long-term debt (Leverage), costs of goods and other operating expenses (SG&A), and cash and cash equivalents (Cash). Most existing studies have included firm size (Size) and pretax returns on assets (PTROA) as control variables. However, we find a strong correlation between the RRI and firm size (the correlation between RRIave and Size is 0.672). RRI can be biased toward news from larger companies since such news is more likely to appear in the media than news about smaller companies. Therefore, we exclude Size from our control variables. Additionally, MP_BTD reflects PTROA because it contains pretax incomes and is scaled by total assets. Thus, we eliminate PTROA from our control variables to avoid the econometric problem.

After we remove observations with negative taxable income and observations with missing data for any of our regression variables, our sample consists of 3,981 firm-year observations from 31 countries. The observations contain 1,327 individual firms from 2017 to 2019.

4 Research Design

First, we construct panel data from these samples. We used the fixed effects model to control unobserved firm heterogeneity. Our panel analysis results explain the relationship between CSR and tax avoidance more precisely than those of previous studies since we controlled time-invariant variables such as corporate culture. When examining CSR and tax payments, ignoring corporate culture could lead to an overestimation of the effect of tax payments.

Although our main analysis is a panel regression, we conduct a cross-sectional analysis similar to those used in previous papers to compare our results with those of other studies. Conducting a cross-sectional analysis reveals the importance of capturing time-invariant variables.

We examine the relationship between CSR and tax avoidance using the following regression model:

$$TA_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \sum \beta_k CONTROLS_k + \mu_{i,t} \tag{2}$$

$$TA_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \sum \beta_k CONTROLS_k + Yeardummies + Industrydummies + \mu_{i,t} \quad (3)$$

TA is one of two different variables:

DD_BTD = the residual from a regression of the Manzon-Plesko book-tax difference on total accruals

MP_BTD = book income less taxable income scaled by lagged total assets

ESG is one of four different variables:

$RRIave$ = the average value of the RRI during the fiscal year

$RRImedian$ = the median value of the RRI during the fiscal year

$MSCIave$ = the average value of the MSCI industry-adjusted score during the fiscal year

$MSCImedian$ = the median value of the MSCI industry-adjusted score during the fiscal year

We classify our final samples into three groups: firms with low ESG-related reputational risk, firms with high ESG-related reputational risk, and firms with a good ESG reputation. In Section 3, we state that according to RepRisk documentation, a firm with an RRI score larger than 50 is considered to have high-risk exposure. However, most of our sample had an RRI score lower than 50. Hence, we classified our final samples into three groups according to their average RRI value (RRIave). Since the RRIave and RRImedian value among firms with some reputational risk is approximately 18, we define the group of firms whose three-year peak RRI is 18 or lower as low-risk firms. We characterize the group of firms whose three-year peak RRI is higher than 18 as high-risk firms. Finally, we define firms whose RRI remained at zero for three years as good-ESG reputation firms.

We use equation (2) for panel regression analysis and (3) for cross-sectional analysis. A larger TA indicates more tax avoidance. The coefficient of ESG captures the relationship between ESG and tax avoidance. A

positive coefficient for RRI implies that ESG and tax payments are complementary. This indicates that socially responsible firms are more likely to pay more tax because they consider tax payments to be part of their CSR activities. On the other hand, a negative RRI coefficient implies that socially irresponsible firms tend to pay more taxes. In this case, ESG and taxes act as substitutes because firms may not view taxes as a CSR activity and/or might engage in CSR activities to protect their reputation from a negative event. In addition, equations (2) and (3) have year and industry fixed effects, where the industry is based on the US SIC two-digit industry classification.

5 Results

Table I provides descriptive statistics of the dependent and independent variables of our firm-year observations. They seem to agree with intuitive assumptions. A positive sign of the mean of DD_BTD indicates that firms may engage in tax avoidance to some extent. The mean value of MP_BTD is negative, which shows that firms report lower book incomes than their taxable income. For ESG-related variables, the means of RRIave and RRImedian were almost the same. This shows that the average and median values of RRI for our whole sample are approximately 5.6. Additionally, the mean SCTR shows that the average mean SCTR for the 31 OECD countries is 27.684 percent. It also reveals that at the country level, approximately 40 percent of firms are in common law countries, and approximately 13 percent of firms are from countries with worldwide tax systems. Furthermore, approximately 50 percent of firms use IFRS for their reporting.

Table II presents the Pearson correlation matrix for the whole sample, which reports the correlations between each variable. The correlation between two tax avoidance variables and two ESG-related variables is positive, which reveals that firms with higher ESG-related reputational risk tend to engage in more tax avoidance activities. In addition, it shows that SCTR, Intang, R&D, Leverage, GOV, COM, WW, and IFRS are positively related to two ESG-related reputational risk variables. It also shows that SG&A and Cash are negatively correlated with all ESG-related risk variables.

5.1 Firms with Reputational Risk

This section classifies our samples with some reputational risk into two groups and estimates the relationship between ESG-related reputational risk and tax avoidance among firms sorted by reputational risk exposure.

Since the average value of RRIave and RRImedian for our firms with some risk is approximately 18, we define the group composed of firms whose three-year peak RRI score is 18 or lower as low-risk firms. We characterize another group that consists of firms whose three-year peak RRI is higher than 18 as the group of high-risk firms.

In this analysis, the group of firms with low ESG-related reputational risk has 468 firm-year observations in 23 OECD countries. The group of firms with high ESG-related reputational risk has 387 firm-year observations in 15 OECD countries.

We examine the relationship between CSR and tax avoidance by using the regression models in equations (2) and (3).

Table III demonstrates the regression results when DD_BTD is used as a dependent variable. Columns (1), (2), (5), and (6) report the results of the panel regression. Columns (3), (4), (7), and (8) present the results of the cross-sectional regression. Columns (1) through (4) show the results of the group of low-risk firms. Columns (5) through (8) display the results of the group of high-risk firms.

In columns (5) and (6), the coefficients of RRIave and RRImedian are significantly negative. This result indicates that among high-risk firms, those with higher RRI are less likely to engage in tax avoidance activities. The coefficient of RRImedian is -0.0010, which suggests that a one-point increase in RRImedian is associated with a 0.0010 percentage point decrease in DD_BTD.

SCTR is significantly correlated with tax avoidance in columns (5) and (6). A positive sign of SCTR is that among firms with high-risk exposure, those in countries with a higher SCTR are more likely to engage in tax avoidance activities.

Table IV reports the regression results when MP_BTD is used as a dependent variable. In columns (5) and (6), the coefficients of ESG-related variables are significantly negative. This result is consistent with the results presented in Table III; it suggests that among high-risk firms, those with high ESG-related reputational risk are prone to pay more taxes. In addition, the coefficient of SCTR is positive and significantly correlated with tax avoidance in columns (5) and (6). This finding is also consistent with Table III.

Overall, our results suggest that among firms with high ESG-related reputational risk, CSR and tax payments act as substitutes, while CSR and tax payments are not correlated within low-risk firms.

We find that among companies with high-risk exposure, those with higher ESG-related reputational risk

is less likely to engage in tax avoidance activities. These results support the theory suggested by (Djankov et al. 2010) that high-risk firms do not consider paying taxes to be the best way to accomplish their social responsibility because it degrades social welfare by reducing free cash flow for job creation, innovations, production, and so on.

The second interpretation of the results is that firms with high ESG-related risk pay more corporate taxes to protect shareholder value in preparation for negative events that may happen in the future. This finding is consistent with (Godfrey 2005) and (Gardberg & Fombrun 2006); firms with high-risk exposure pay taxes in the hope of a tax insurance effect.

We find some evidence that corporate tax payment and CSR act as substitutes among firms with high ESG-related reputational risk. However, when we use cross-sectional regressions, we find no evidence that tax payments are correlated with CSR. This finding indicates that the results of cross-sectional regression are not significant since it could not control the effect of time-invariant variables, such as corporate culture. Additionally, other studies that have found a relationship between CSR and tax payments used biased data such as MSCI. We find no relationship between tax payments and CSR when we use cross-sectional regression since we use a new dataset that is not biased toward positive information, in contrast to the previous literature.

5.2 Firms with good ESG

This subsection estimates the relationship between firms' ESG scores and tax avoidance for firms with no ESG-related reputational risk. This group consists only of firms with no ESG-related reputational risk that maintained an RRI score of zero from 2017 to 2019. The MSCI ESG scores for this group must capture only positive information since RepRisk captured no negative information. This group consists of samples of 537 firm-year observations in 20 OECD countries.

Table V provides the results of the regression when DD_BTD is used as a dependent variable. Columns (1) and (2) display the results of the panel regression. The results of the cross-sectional regression are presented in columns (3) and (4). In columns (1) and (2), the coefficients of MSCIave and MSCImedian are significantly negative.

Table VI demonstrates the results of the regression models when MP_BTD is used as a dependent variable. We find that the negative coefficients of MSCIave and MSCImedian are significant in the panel regression.

Our results suggest that among firms with no ESG-related reputational risk, those with higher ESG scores are less likely to engage in tax avoidance activities, which indicates that CSR and tax payments act as complements. This supports the theory presented by [Carroll, 1979] that firms that find value in CSR activities devote their resources and human efforts to CSR activities even though those activities do not always create financial benefits.

5.3 Full sample Results

We test the relationship between CSR and tax payments by using the regression models in equations (2) and (3). We test how CSR is relevant to tax avoidance for all our sample firm-year observations to check the trend among all sample firms.

Table VII reports the results of the regression when DD_BTD is used as a dependent variable. Columns (1) and (2) present the results of the panel regression. Columns (3) and (4) report the results of the cross-sectional regression. In columns (3) and (4), the coefficients of RRIave and RRImedian are significantly positive.

Table VIII represents the results of regression models when MP_BTD is used as a dependent variable. As shown in Table VIII, we find that the positive coefficients of RRIave and RRImedian are significant in the cross-sectional regression.

On the whole, we find that the regression coefficients for the cross-sectional analysis are significantly positive. The results of the combined sample cross-sectional analysis provide evidence that supports the previous literature. This finding suggests that firms with higher ESG-related reputational risk are more likely to engage in more tax avoidance. In other words, CSR and tax payments act as complements, and this result supports the theory presented by (Carroll 1979).

However, the panel analysis shows no statistically significant relationship between reputational risk and tax avoidance. This finding implies the importance of controlling the effect of time-invariant variables, which implies bias that is uncontrolled in the cross-sectional analysis.

6 Conclusion

This study examines the relationship between CSR and corporate tax payments. Specifically, we explore how ESG-related reputational risk influences corporate tax avoidance. Most studies of CSR and tax payments have the following four limitations: focusing on a specific country, using a CSR index biased toward positive information, using cross-sectional analysis, and focusing on all levels of ESG risk firms simultaneously. Our research contributes to a better understanding of the relationship between CSR and tax avoidance. Our cross-country analysis suggests that the relationship between CSR and tax avoidance is different according to the level of firms' ESG-related reputational risk. Our results could be key to understanding why the results of previous research have provided mixed results. We find that ESG-related reputational risk is negatively related to tax avoidance among firms with high ESG-related reputational risk. Additionally, the results show that corporate tax payments and ESG-related reputational risk have no relationship within firms with low ESG-related reputational risk. Moreover, ESG scores are negatively correlated with tax avoidance in a group of firms with no ESG-related reputational risk.

These results imply that firms with a high level of reputational risk may pay taxes in the hope of the tax insurance effect or may not consider tax payments to be the best way to achieve social responsibility. Furthermore, firms with no reputational risk may engage in CSR activities even though such practices might not create financial benefits (Carroll 1979).

In comparison to other studies, there are important differences in both the measurement of the CSR index and methods of analysis. First, our CSR index is different from those used in other studies. The CSR indexes used in previous studies have been biased toward positive information because they capture information provided in company disclosures. However, we use a CSR index that captures only negative information from media reports. Moreover, our study overcomes two endogeneity issues, tax planning and ESG disclosure and tax planning and CSR, by using RepRisk. Second, we use panel regression analysis for our sample to capture time-invariant variables. We also classify our sample into three groups in accordance with the level of ESG-related reputational risk to see how reputational risk influences tax planning in firms with different levels of risk exposure.

A key finding is that our results help us to understand how ESG-related reputational risk affects corporate tax payments. Our findings offer several important practical pieces of information for corporate managers and institutional investors. The important practical contribution is that the current findings may improve our understanding of the relationship between CSR and corporate tax payments. We also find the possibility that information about corporate tax payments could be used when institutional investors engage in sustainable

investing based on the ESG index.

TABLE I. Descriptive Statistics

	N	Mean	Std.Dev.	Min	Max
DD_BTD	3981	.0180407	.0927984	-1.71765	.6798558
MP_BTD	3981	-.0106987	.0922719	-1.827564	.6463737
RRIave	3981	5.76676	10.22917	0	66.66666
RRImedian	3981	5.545968	10.2716	0	66.5
MSCIave	537	4.969476	1.925423	0	10
MSCImedian	537	4.945065	1.971168	0	10
SCTR	3981	.2768353	.056929	.125	.4442889
Intang	3981	.197965	.2634198	0	4.388146
R&D	3981	.0181123	.0465106	-.0237933	.9348467
Leverage	3981	.2121373	.2118587	0	3.482868
SG&A	3981	.9917863	.712574	-.5447274	5.2923
Cash	3981	.1695057	.193725	.0000306	2.31793
GOV	3981	5.605384	1.837428	-1.532512	8.053719
COM	3981	.4024115	.4904456	0	1
WW	3981	.1341372	.3408424	0	1
IFRS	3981	.4951017	.5000388	0	1

TABLE II. Pearson Correlation Results(Whole Samples)

Variables	DD_BTD	MP_BTD	RRIave	RRImedian	SCTR	Intang	R&D	Leverage	SG&A	Cash	GOV	COM	WW	IFRS
DD_BTD	1.000													
MP_BTD	0.984	1.000												
RRIave	0.090	0.083	1.000											
RRImedian	0.086	0.080	0.991	1.000										
SCTR	0.054	0.070	0.003	0.001	1.000									
Intang	0.074	0.078	0.131	0.125	-0.012	1.000								
R&D	-0.399	-0.399	0.037	0.036	0.069	0.064	1.000							
Leverage	-0.060	-0.067	0.116	0.111	0.055	0.383	0.043	1.000						
SG&A	-0.150	-0.129	-0.143	-0.138	-0.049	-0.093	0.007	-0.201	1.000					
Cash	-0.198	-0.189	-0.172	-0.165	0.116	-0.183	0.290	-0.137	0.136	1.000				
GOV	-0.026	-0.029	0.057	0.055	0.194	0.103	0.032	0.036	0.008	0.033	1.000			
COM	-0.013	-0.021	0.194	0.183	-0.042	0.326	0.164	0.269	-0.087	-0.191	0.330	1.000		
WW	0.063	0.063	0.127	0.123	0.073	0.078	-0.030	-0.019	-0.052	-0.105	-0.237	-0.323	1.000	
IFRS	0.024	0.027	0.100	0.097	-0.300	0.061	-0.150	-0.074	-0.060	-0.310	0.044	-0.041	0.190	1.000

TABLE III. Regression Result Firms with reputational risk(DD_BTD)

	Low-Risk Firms				High-Risk Firms			
	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section	(5) Panel	(6) Panel	(7) Cross-Section	(8) Cross-Section
RRIave	0.0001		-0.0000		-0.0009*		-0.0001	
	(0.0004)		(0.0004)		(0.0005)		(0.0002)	
RRImedian		0.0001		-0.0000		-0.0010**		-0.0001
		(0.0004)		(0.0003)		(0.0005)		(0.0002)
SCTR	-0.0300	-0.0303	0.2131***	0.2131***	0.1511**	0.1507**	0.2224***	0.2223***
	(0.0761)	(0.0761)	(0.0439)	(0.0439)	(0.0636)	(0.0634)	(0.0400)	(0.0400)
Intang	0.0728**	0.0730**	0.0021	0.0021	0.0219	0.0230	-0.0013	-0.0012
	(0.0323)	(0.0323)	(0.0132)	(0.0132)	(0.0148)	(0.0148)	(0.0090)	(0.0090)
R&D	-0.1933	-0.1976	0.4671***	0.4670***	-0.4007	-0.3814	0.1666**	0.1665**
	(0.7022)	(0.7021)	(0.0976)	(0.0976)	(0.4557)	(0.4551)	(0.0778)	(0.0777)
Leverage	-0.0409	-0.0409	0.0042	0.0043	-0.0484	-0.0501	-0.0032	-0.0032
	(0.0294)	(0.0294)	(0.0166)	(0.0166)	(0.0304)	(0.0304)	(0.0181)	(0.0181)
SG&A	-0.0383	-0.0384	-0.0021	-0.0021	0.0043	0.0036	-0.0066	-0.0066
	(0.0269)	(0.0269)	(0.0055)	(0.0055)	(0.0228)	(0.0227)	(0.0054)	(0.0054)
Cash	0.0863*	0.0866*	0.0462	0.0462	-0.0064	-0.0081	0.0024	0.0024
	(0.0514)	(0.0513)	(0.0327)	(0.0328)	(0.0660)	(0.0658)	(0.0325)	(0.0325)
GOV	0.0085	0.0085	-0.0007	-0.0007	0.0039	0.0038	0.0047**	0.0047**
	(0.0139)	(0.0139)	(0.0017)	(0.0017)	(0.0108)	(0.0108)	(0.0019)	(0.0019)
COM			0.0156*	0.0156*			-0.0117	-0.0117
			(0.0082)	(0.0082)			(0.0094)	(0.0094)
WW			0.0082	0.0082			-0.0046	-0.0047
			(0.0090)	(0.0090)			(0.0074)	(0.0074)
IFRS			0.0038	0.0038			-0.0333***	-0.0333***
			(0.0076)	(0.0076)			(0.0092)	(0.0092)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No	Yes	Yes	No	No
_cons	0.0094	0.0094	-0.1654***	-0.1653***	0.0097	0.0121	-0.0136	-0.0136
	(0.0808)	(0.0808)	(0.0356)	(0.0355)	(0.0633)	(0.0631)	(0.0265)	(0.0265)
Observations	468	468	468	468	387	387	387	387
R^2	0.626	0.626	0.206	0.206	0.734	0.735	0.296	0.296

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE IV. Regression Result Firms with reputational risk(MP_BTD)

	Low-Risk Firms				High-Risk Firms			
	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section	(5) Panel	(6) Panel	(7) Cross-Section	(8) Cross-Section
RRIave	-0.0000		-0.0000		-0.0009*		-0.0001	
	(0.0004)		(0.0004)		(0.0005)		(0.0002)	
RRImedian		0.0000		-0.0000		-0.0009*		-0.0001
		(0.0004)		(0.0003)		(0.0005)		(0.0002)
SCTR	-0.0470	-0.0472	0.2131***	0.2131***	0.1597**	0.1597**	0.2264***	0.2262***
	(0.0759)	(0.0759)	(0.0439)	(0.0438)	(0.0627)	(0.0626)	(0.0395)	(0.0395)
Intang	0.0719**	0.0722**	0.0073	0.0073	0.0219	0.0228	-0.0000	0.0000
	(0.0322)	(0.0322)	(0.0132)	(0.0132)	(0.0146)	(0.0146)	(0.0089)	(0.0089)
R&D	-0.0863	-0.0920	0.4413***	0.4412***	-0.2400	-0.2255	0.1603**	0.1598**
	(0.6999)	(0.6998)	(0.0975)	(0.0976)	(0.4493)	(0.4491)	(0.0767)	(0.0767)
Leverage	-0.0529*	-0.0529*	0.0023	0.0023	-0.0472	-0.0486	-0.0007	-0.0007
	(0.0293)	(0.0293)	(0.0166)	(0.0166)	(0.0300)	(0.0300)	(0.0179)	(0.0179)
SG&A	-0.0139	-0.0140	0.0009	0.0009	0.0181	0.0175	-0.0053	-0.0053
	(0.0268)	(0.0269)	(0.0055)	(0.0055)	(0.0225)	(0.0224)	(0.0054)	(0.0054)
Cash	0.1190**	0.1193**	0.0555*	0.0555*	-0.0006	-0.0023	0.0120	0.0120
	(0.0512)	(0.0512)	(0.0327)	(0.0327)	(0.0651)	(0.0649)	(0.0321)	(0.0321)
GOV	0.0068	0.0068	-0.0007	-0.0007	-0.0034	-0.0036	0.0043**	0.0043**
	(0.0138)	(0.0138)	(0.0017)	(0.0017)	(0.0107)	(0.0107)	(0.0019)	(0.0019)
COM			0.0142*	0.0142*			-0.0127	-0.0128
			(0.0082)	(0.0082)			(0.0093)	(0.0093)
WW			0.0066	0.0066			-0.0061	-0.0062
			(0.0090)	(0.0090)			(0.0073)	(0.0073)
IFRS			0.0049	0.0049			-0.0309***	-0.0309***
			(0.0076)	(0.0076)			(0.0091)	(0.0091)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No	Yes	Yes	No	No
_cons	-0.0287	-0.0288	-0.1941***	-0.1941***	0.0033	0.0049	-0.0379	-0.0381
	(0.0805)	(0.0805)	(0.0356)	(0.0355)	(0.0624)	(0.0623)	(0.0261)	(0.0261)
Observations	468	468	468	468	387	387	387	387
R^2	0.629	0.629	0.206	0.206	0.738	0.739	0.307	0.307

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE V. Regression Results Firms without any reputational risk(DD_BTD)

	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section
MSCIave	-0.0163***		0.0027	
	(0.0054)		(0.0017)	
MSCImedian		-0.0109**		0.0027
		(0.0046)		(0.0017)
SCTR	-0.0005	0.0060	0.2742***	0.2745***
	(0.0764)	(0.0767)	(0.0617)	(0.0617)
Intang	0.0110	0.0110	0.0193	0.0196
	(0.0210)	(0.0211)	(0.0126)	(0.0126)
R&D	-1.1196***	-1.1298***	-0.6945***	-0.6946***
	(0.1323)	(0.1329)	(0.0598)	(0.0598)
Leverage	-0.0270	-0.0272	-0.0437**	-0.0440**
	(0.0325)	(0.0328)	(0.0187)	(0.0188)
SG&A	-0.0100	-0.0112	-0.0189***	-0.0189***
	(0.0205)	(0.0207)	(0.0055)	(0.0055)
Cash	0.0619*	0.0578*	-0.0104	-0.0101
	(0.0320)	(0.0321)	(0.0211)	(0.0211)
GOV	-0.0096	-0.0087	0.0008	0.0008
	(0.0155)	(0.0156)	(0.0021)	(0.0021)
COM			0.0120	0.0119
			(0.0085)	(0.0085)
WW			0.0054	0.0052
			(0.0113)	(0.0113)
IFRS			-0.0143*	-0.0144*
			(0.0075)	(0.0075)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No
_cons	0.1652*	0.1333	-0.1862***	-0.1874***
	(0.0879)	(0.0868)	(0.0447)	(0.0448)
Observations	537	537	537	537
R^2	0.769	0.766	0.351	0.351

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE VI. Regression Results Firms without any reputational risk(MP_BTD)

	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section
MSCIave	-0.0161***		0.0025	
	(0.0054)		(0.0017)	
MSCImedian		-0.0110**		0.0025
		(0.0046)		(0.0017)
SCTR	-0.0080	-0.0017	0.2763***	0.2763***
	(0.0766)	(0.0769)	(0.0622)	(0.0622)
Intang	0.0283	0.0281	0.0248*	0.0250**
	(0.0210)	(0.0212)	(0.0127)	(0.0127)
R&D	-1.1458***	-1.1558***	-0.6865***	-0.6865***
	(0.1326)	(0.1332)	(0.0603)	(0.0603)
Leverage	-0.0458	-0.0459	-0.0457**	-0.0460**
	(0.0326)	(0.0328)	(0.0189)	(0.0189)
SG&A	-0.0016	-0.0028	-0.0171***	-0.0171***
	(0.0206)	(0.0207)	(0.0056)	(0.0056)
Cash	0.0668**	0.0627*	-0.0114	-0.0111
	(0.0321)	(0.0322)	(0.0213)	(0.0213)
GOV	-0.0086	-0.0078	0.0005	0.0005
	(0.0155)	(0.0156)	(0.0021)	(0.0021)
COM			0.0120	0.0119
			(0.0085)	(0.0085)
WW			0.0054	0.0053
			(0.0113)	(0.0114)
IFRS			-0.0133*	-0.0134*
			(0.0076)	(0.0076)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No
_cons	0.1583*	0.1280	-0.1816***	-0.1826***
	(0.0881)	(0.0870)	(0.0451)	(0.0452)
Observations	537	537	537	537
R^2	0.770	0.768	0.347	0.347

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE VII. Full Sample Result(DD_BTD)

	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section
RRIave	0.0002		0.0008***	
	(0.0003)		(0.0001)	
RRImedian		0.0002		0.0007***
		(0.0002)		(0.0001)
SCTR	0.0540*	0.0537*	0.1655***	0.1659***
	(0.0322)	(0.0321)	(0.0262)	(0.0262)
Intang	0.0283***	0.0282***	0.0373***	0.0374***
	(0.0083)	(0.0083)	(0.0059)	(0.0059)
R&D	-0.6735***	-0.6735***	-0.8295***	-0.8292***
	(0.0624)	(0.0624)	(0.0306)	(0.0306)
Leverage	-0.0408***	-0.0407***	-0.0668***	-0.0667***
	(0.0104)	(0.0104)	(0.0071)	(0.0071)
SG&A	-0.0505***	-0.0505***	-0.0198***	-0.0199***
	(0.0058)	(0.0058)	(0.0021)	(0.0021)
Cash	0.1285***	0.1285***	-0.0255***	-0.0258***
	(0.0105)	(0.0105)	(0.0081)	(0.0081)
GOV	-0.0010	-0.0009	-0.0020**	-0.0020**
	(0.0057)	(0.0057)	(0.0008)	(0.0008)
COM			0.0098***	0.0101***
			(0.0034)	(0.0034)
WW			0.0053	0.0056
			(0.0044)	(0.0044)
IFRS			-0.0083***	-0.0083***
			(0.0030)	(0.0030)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No
_cons	0.0507*	0.0509*	0.0017	0.0020
	(0.0304)	(0.0304)	(0.0228)	(0.0228)
Observations	3981	3981	3981	3981
R^2	0.807	0.807	0.241	0.240

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TABLE VIII. Full Sample Result(MP_BTD)

	(1) Panel	(2) Panel	(3) Cross-Section	(4) Cross-Section
RRIave	0.0003		0.0007***	
	(0.0003)		(0.0001)	
RRImedian		0.0002		0.0007***
		(0.0002)		(0.0001)
SCTR	0.0613*	0.0612*	0.1685***	0.1688***
	(0.0315)	(0.0315)	(0.0261)	(0.0262)
Intang	0.0397***	0.0396***	0.0414***	0.0415***
	(0.0081)	(0.0081)	(0.0059)	(0.0059)
R&D	-0.6717***	-0.6718***	-0.8328***	-0.8325***
	(0.0612)	(0.0612)	(0.0305)	(0.0306)
Leverage	-0.0582***	-0.0582***	-0.0680***	-0.0679***
	(0.0102)	(0.0102)	(0.0071)	(0.0071)
SG&A	-0.0251***	-0.0251***	-0.0168***	-0.0169***
	(0.0057)	(0.0057)	(0.0021)	(0.0021)
Cash	0.1295***	0.1295***	-0.0206**	-0.0208***
	(0.0103)	(0.0103)	(0.0080)	(0.0080)
GOV	-0.0055	-0.0055	-0.0023***	-0.0023***
	(0.0056)	(0.0056)	(0.0008)	(0.0008)
COM			0.0089***	0.0092***
			(0.0034)	(0.0034)
WW			0.0043	0.0045
			(0.0043)	(0.0043)
IFRS			-0.0069**	-0.0069**
			(0.0030)	(0.0030)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Firms	Yes	Yes	No	No
_cons	0.0213	0.0213	-0.0172	-0.0169
	(0.0298)	(0.0298)	(0.0228)	(0.0228)
Observations	3981	3981	3981	3981
R^2	0.812	0.812	0.235	0.234

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes

[1)] We mainly focus on legal tax avoidance even though we cannot completely eliminate the impact of illegal tax avoidance because legal tax avoidance could reduce government revenue and social welfare.

[2)] It is extremely difficult to distinguish legal tax avoidance and illegal tax avoidance from accounting information. (Kanagaretnam et al. 2018) use a dataset from the World Bank Enterprise Surveys as a measure of tax evasion. However, those data include mostly smaller, private firms from less developed countries.

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