Does Tax Avoidance Impair Accounting Comparability?

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Abstract

This paper examines the relationship between tax avoidance and accounting comparability. We argue that aggressive tax behavior impairs the comparability of financial statements by altering the accounting function, which maps economic events into accounting data. Using raw and industry-adjusted effective tax rates to proxy tax avoidance, we find that firms with more aggressive tax avoidance strategies have substantially lower accounting comparability. The evidence also shows that the negative effect of tax avoidance on accounting comparability is driven by firms with aggressive tax planning strategies beyond the industry norm. Furthermore, using an alternative measure of accounting comparability as a function of pre-tax income, we continue to find evidence of the negative effect of tax avoidance behavior. Importantly, this provides evidence that the effect of aggressive tax planning is not limited to the reported tax expense, but affects the comparability of the overall financial reporting system. Our results contribute to the literature on the costs of tax avoidance and on the determinants of accounting comparability.

1. Introduction

In this paper, we examine the relationship between tax avoidance and accounting comparability. We define accounting comparability as the similarity of the accounting function, which maps economic events into accounting data and, in particular, earnings. Aggressive tax planning leads to a shift of accounting income or expenses over time and/or over different business entities. This implies a change in the accounting function. Moreover, to enable the adoption of tax avoidance strategies, managers may construct overly complex operating structures than would otherwise be expected for the given economic activity. In this way the organizational complexity of the firm is affected and, as a consequence, the relationship between economic activities and the financial statements is altered. Accordingly, we argue that tax avoidance activities are detrimental to accounting comparability. As is common in the extant literature, we measure tax avoidance using effective tax rates (ETRs) with a focus on GAAP and cash ETRs (e.g., Dyreng *et al*., 2008; Chen *et al*., 2010; Lennox *et al*., 2013; Cen *et al*., 2017; Nguyen, 2021). We also construct two industry-adjusted measures of ETRs, following Balakrishnan *et al*. (2019). The industry-adjusted ETRs enable us to identify tax avoidance activities which deviate from the industry norm as aggressive tax planning strategies. We use the measure of accounting comparability developed by De Franco *et al*. (2011), which aims to capture the similarity of the accounting function.

Consistent with the expectation that tax avoidance activities alter the accounting function, our results show that tax avoidance is strongly and negatively associated with accounting comparability. Specifically, on average across the measures used, a one standard deviation increase in tax aggressiveness is associated with a 5.8% decrease in accounting comparability relative to its mean. We also find that the negative association between tax avoidance and accounting comparability is primarily driven by tax planning strategies that

positively deviate from the industry norm. Hence, tax avoidance activities impair accounting comparability when they are more aggressive than the strategies implemented by industry peers.

Furthermore, we find that the negative relation between tax avoidance and accounting comparability holds when we use pre-tax earnings to measure accounting comparability. Importantly, this evidence suggests that the effect of tax avoidance activities on accounting comparability is not limited to the tax expense but extends to the broader financial reporting system; the result being consistent with the expectation that tax avoidance activities affect the organizational and operational complexity of the firm.

Our findings are robust to controlling for potential issues of endogeneity in multiple ways. In particular, to mitigate concerns of endogeneity by reverse causality and simultaneity, we consider a difference-in-differences analysis around the enactment of the "Check-the-box" regulation;[1] a PSM approach and a regression on lagged values of tax avoidance further confirm our results. We also examine a set of alternative measures of tax avoidance, including the discretionary part of book-tax differences, the propensity to use tax havens and a more comprehensive measure based on factor analysis.

Our paper contributes to the literature in two ways. First, we contribute to the literature on the costs of tax aggressiveness (e.g., Hanlon and Slemrod, 2009; Hasan *et al*., 2014; Balakrishnan *et al*., 2019). Within this group of studies our analysis is most closely related to Balakrishnan *et al*. (2019) who document that tax aggressiveness is negatively associated with corporate transparency. Relatedly, recent surveys of tax avoidance research, including its consequences, are provided by Wang *et al*. (2020) and Bruehne and Jacob (2022). Importantly, our results identify a new potential cost of tax aggressive activities, being the loss of accounting comparability as driven by tax aggressive activities. Our second contribution is to the literature

[1] See Balakrishnan *et al*. (2019) for previous work using the "Check the Box" regulation as a quasi-natural experiment.

on the determinants of accounting comparability (e.g., DeFond *et al*., 2011; Yip and Young, 2012; Francis *et al*., 2014; Cascino and Gassen, 2015; Dhole *et al*., 2021). This field of research has mainly concentrated on how changes in the accounting standards or the introduction of new standards affect cross-country comparability. As these studies do not focus on firm-specific characteristics and choices which affect accounting comparability, they contain little evidence on the determinants of within-country accounting comparability across firms. Therefore, our findings add to this literature by examining a new firm-specific determinant of within-country accounting comparability; in particular, we show that tax avoidance strategies compromise accounting comparability.

The rest of our paper proceeds as follows. Section 2 reviews the related literature and presents our research questions. Section 3 details our empirical strategy and the data. Section 4 presents the main results with additional analyses. Section 5 includes robustness and endogeneity tests. Section 6 concludes.

2. Related Literature and Research Questions

2.1. Prior Literature

Literature on the costs of tax avoidance

Our paper contributes to the literature on the costs of tax avoidance. Early research considers tax avoidance as a value-transferring process from the state to the shareholders toward advancing shareholder interests. More recently, research also focuses on the costs associated with tax avoidance. Tax planning activities bring about not only direct implementation costs, such as transaction and labor/time costs, but also indirect costs including: potential lower reported book income; expected penalty, reputational and political costs; and the possibility of increased future taxes (e.g., Hanlon and Slemrod, 2009; Hasan *et al*., 2014). Desai and Dharmapala (2006, 2009) argue that management's self-interested transactions may be concealed by tax avoidance activities. The complexity of such activities is difficult for

investors to monitor which exacerbates the agency issue between management and investors. Chen *et al*. (2018) document that tax-motivated income shifting obscures the actual location of earnings, resulting in higher information asymmetry. Chung *et al*. (2019) find that tax avoidance is positively associated with the profitability of insider purchases; they attribute their results to managers exploiting the opacity arising from tax aggressive activities to extract rent from shareholders. Tax avoidance has also been shown to impair the informativeness of taxable income (Ayers *et al*., 2009) and to be negatively associated with financial statement readability (Nguyen, 2021). Other studies find an audit fee premium (Donohoe and Knechel, 2014), higher spreads of bank loans (Hasan *et al*., 2014) and larger costs of equity (Goh *et al*., 2016) for firms with more aggressive tax avoidance activities. Consistent with the notion that tax avoidance is costly, a group of studies document negative market reactions to the disclosure of tax avoidance activities (Desai and Hines, 2002; Desai *et al*., 2007; Hanlon and Slemrod, 2009). Most closely related to our paper, Balakrishnan *et al*. (2019) argue that aggressive tax planning increases the complexity of the organization and, therefore, decreases corporate transparency. In their main analysis, Balakrishnan *et al*. (2019) measure corporate transparency by examining analysts' forecast errors and forecast dispersion. Our paper finds that accounting comparability, which has been documented to be negatively associated with forecast errors and dispersion (De Franco *et al*., 2011), may be one of the channels by which tax aggressiveness compromises corporate transparency. In general, our findings add to this literature by identifying a new potential cost of tax avoidance in the form of its negative effect on accounting comparability.

Our paper is also related to but distinct from Hong *et al*. (2021), who examine the effect of accounting comparability on tax avoidance behavior. Hong *et al*. (2021) are interested in the hypothesis that, as accounting comparability increases, the incentive for tax avoidance behavior decreases as it is then easier for external observers to detect abnormal tax strategies. The authors find supporting evidence of an inverse relationship between accounting

comparability – similarly defined using De Franco *et al*. (2011)'s measure but restricted to after-tax earnings – and tax avoidance behavior (using various measures). Our paper differs from this previous work as we are interested in the opposite effect, of tax avoidance behavior on accounting comparability. Furthermore, we extend our analysis to include accounting comparability as measured by pre-tax earnings which provides evidence of the effect of aggressive tax behavior on the overall financial reporting environment. In Section 2.2, we argue why tax avoidance is likely to be a determinant of accounting comparability. Furthermore, our empirical strategy is careful to establish our evidence on the direction of the effect of tax aggressive behavior on accounting comparability. This is an important addition to the previous work, as where a lack of accounting comparability may incentivize firms to opportunistically engage in tax aggressive behavior (Hong *et al*., 2021), our paper shows that there is a cost to firms' choosing to engage in tax aggressive behavior in the form of reduced accounting comparability.

The determinants of accounting comparability

Our analysis also contributes to the literature on the determinants of accounting comparability.[2] This literature primarily focuses on the effects of the convergence of accounting standards on comparability. DeFond *et al*. (2011) and Yip and Young (2012) find a significant improvement in cross-country accounting comparability after the mandatory adoption of IFRS, which is attributable to the resulting higher information quality. However, Cascino and Gassen (2015) document that the effect of IFRS adoption on accounting

[2] There is also a stream of literature which examines the importance of accounting comparability; these studies generally document beneficial effects of more comparable accounting information. Accounting comparability has been found to be positively associated with the accuracy of analysts' forecasts (De Franco *et al*., 2011), the valuation accuracy of pricing multiples (Young and Zeng, 2015), the profitability of acquisition investment (Chen *et al*., 2018), and corporate innovative efficiency (Chircop *et al*., 2020). Accounting comparability has also been documented to be negatively associated with the dispersion of analysts' forecasts (De Franco *et al*., 2011), expected crash risk (Kim *et al*., 2011) and the cost of financing in private loans (Fang *et al*., 2016).

comparability is largely driven by tighter reporting enforcement environments. Other determinants of accounting comparability have been shown to include pressures from capital and labor markets as well as a firm's debt level, which influence financial reporting incentives (Beuselinck *et al*., 2007). In other work, Francis *et al*. (2014) show that auditor style affects within-country accounting comparability and Dhole *et al*. (2021) find a negative association between economic policy uncertainty and accounting comparability. Our findings contribute to this field of literature by identifying tax aggressive behavior as a new firm-specific determinant which compromises accounting comparability.[3]

We note that this field of research has mainly concentrated on how changes in the accounting standards or the introduction of new standards affect cross-country comparability. These studies have provided little evidence on the firm-specific characteristics and choices which affect accounting comparability. They have also provided scant evidence on the determinants of accounting comparability across different firms within a country. Our findings add to existing evidence by examining a new firm-specific determinant of within-country accounting comparability; in particular, we show that tax avoidance strategies can compromise accounting comparability.

2.2. Tax Avoidance and Accounting Comparability: Research Questions

This paper contributes to the literature on the costs of tax avoidance and the literature on the determinants of accounting comparability by addressing the following research questions.

[3] Relatedly, a few papers examine the relation between financial reporting choices and tax avoidance activities. Cloyd *et al*. (1996) find that managers tend to conform financial accounting choices to tax choices in order to reduce the probability of scrutiny by the tax authority. Chen *et al*. (2007) find that tax aggressive firms have lower informativeness in both taxable income and book income. Frank *et al*. (2009) and Wilson (2009) document a positive relation between discretionary accruals and tax avoidance. Lennox *et al*. (2013) provide evidence consistent with the view that tax aggressive firms are less likely to commit accounting fraud. Hanlon *et al*. (2014) find that high tax enforcement, which prevents managers from engaging in tax avoidance actions, hinders the obfuscation of transactions and thus benefits the company with a positive spill over effect on financial reporting quality.

Research question 1(RQ1): Do aggressive tax planning strategies impair accounting comparability?

In the first instance, we examine the effect of a firm's tax avoidance activities on its accounting comparability. We define accounting comparability as the similarity of the accounting function, which maps economic events into the financial statements (De Franco *et al*., 2011). Tax avoidance is defined as activities which are explicitly undertaken to reduce taxes (Hanlon and Heitzman, 2010). Widely used tax avoidance strategies include (among others): transfer pricing – the artificial pricing of intercompany transactions to shift profits to a lower tax jurisdiction; debt shifting – the (re)location of intercompany debt so as to have the interest taxed in a lower tax jurisdiction; thin capitalization – where a firm is disproportionately financed by intercompany debt so as to shift profits to lower tax jurisdiction(s) through interest payments; profit diversion – locating a firm in a lower tax jurisdiction which then undertakes sales into a higher tax jurisdiction without maintaining a presence therein so as to ensure the profits are subject to the lower rate of tax.

We argue that tax avoidance will impair accounting comparability by altering the accounting function for two reasons. First, tax avoidance strategies imply an artificial shift of accounting income or expenses across different business entities and/or different accounting periods. As this shift in income/expenses is not driven by related underlying economic events, it confounds the relation between economic events and their reporting in the financial statements (i.e., the accounting function). Second, tax avoidance activities commonly require a more complex and unconventional operating structure than would otherwise be the case for the given economic activity (Balakrishnan *et al*., 2019). This artificial increase in the complexity of the business will also confound the relation between economic events and their financial reporting. In either and both cases, the confounding of the relation between economic events and their reporting in the financial statements represents an alteration of the accounting

function which impairs accounting comparability.[4] In Appendix B, we discuss the example of how a widely known tax avoidance strategy, the "Double Irish Dutch Sandwich", may affect accounting comparability.

It is important to note that, if high tax avoidance is common across the peers of a firm, increased tax avoidance will not necessarily be associated with a decreased similarity of accounting function, and, therefore, with a decreased accounting comparability. Therefore, we address this possibility in RQ2 (discussed next). Finally, in RQ3, given the potential for tax avoidance strategies to require overly complex operating structures (e.g. see Appendix B), we repeat our analysis using a measure of accounting comparability as a function of *pre-tax* earnings.

To test RQ1, we follow De Franco *et al*. (2011) to measure accounting comparability. Their measure is based on how earnings are related to changes in economic events. We measure tax avoidance using effective tax rates.

Research question 2 (RQ2): Is the relation between tax avoidance and accounting comparability affected by the extent to which tax planning strategies deviate from the industry norm?

For our second research question, we refine the definition of tax avoidance behavior to be characterized by tax planning strategies that deviate from the industry norm. In this way, we distinguish between tax planning behavior (acceptable and the norm for the industry) and tax avoidance strategies (aggressive and outside the norm for the industry). We do this in

[4] Here we present a simple illustrative example which is based on a transfer pricing strategy. Two identical manufacturing firms are headquartered in high tax Country A. The two firms export one of their product lines to low tax Country B. Manufacturing firm 1 sells the product at the negotiated arm's length profit maximizing price to an unrelated firm in Country B. Manufacturing firm 2 sells the product to an associated firm in Country B. Therefore, Firm 2 has an incentive to alter (lower) the transfer price of the product so as to shift profits to its associated firm in low tax Country B. Both Country B firms sell all of the inventory on to unrelated third-party customers in Country B. Therefore, for the same economic activity (production and sales of this product line), the two manufacturing firms in Country A will report different tax expenses and earnings. As a consequence, in this example, the accounting function is altered by the tax avoidance strategy.

recognition that for the same level of economic activity, firms may face different levels of tax due to policy intended tax saving opportunities. For example, the US offers a research and development tax credit scheme (see I.R.C § 41) toward qualifying activity expenditures which will reduce taxes otherwise payable. Firms that operate in a research and development intensive industry (e.g., pharmaceutical companies) will enjoy a lower tax burden which is not indicative of tax aggressive behavior. Therefore, to differentiate tax avoidance strategies from legitimate tax planning activities, it is important to compare effective tax rates to the industry norm.

To address this research question, we first develop a set of industry-adjusted measures of tax avoidance similar to Balakrishnan *et al*. (2019). We then replicate our initial analysis using the industry-adjusted measures of tax avoidance. This analysis allows us to examine the relationship between abnormal relative to the industry tax avoidance and accounting comparability. To further investigate this research question, we then analyze for differential effects on comparability between firms with an ETR below the industry norm (indicative of tax aggressive behavior) and above the industry norm (no evidence of tax aggressive behavior). In this way, we investigate the effect of being more versus less tax aggressive – relative to the industry – on accounting comparability.

Research question 3 (RQ3): Is accounting comparability, beyond the tax expense, broadly affected by tax avoidance?

Aggressive tax behavior is explicitly undertaken to minimize taxes that would otherwise be paid for the given economic activity. In this way, we can expect the firm's tax expense – and by extension net earnings – component of the accounting function to be compromised. However, as discussed above, aggressive tax planning is achieved by a shift of accounting income or expenses over time and/or over different business entities. It may also include more complex operating structures than would otherwise be needed for given economic

activity. Therefore, it is also feasible that earnings components – other than the tax expense – of the accounting function may be affected by the tax avoidance strategy. If so, this implies that the comparability of a firm's reported financial information more broadly is also impaired.

Importantly, it is possible that aggressive tax strategies may not necessarily compromise the accounting function beyond the tax expense. An argument can be made that – for example – material effects of tax aggressive transfer pricing will be eliminated upon consolidation of the financial statements of the reporting entities.[5] Similarly, tax aggressive strategies that include the use of intercompany debt and interest payments may again be eliminated through financial statement consolidation of the firms. As we cannot specifically identify what (if any) tax aggressive strategies a particular reporting entity has undertaken and whether they would largely be eliminated upon consolidation, the effect of tax avoidance behavior on accounting comparability, beyond the tax expense, is ultimately an empirical question.

To examine this research question, we modify our main measure of accounting comparability. We note again that the measure used in the main tests is based on the relation between earnings and economic events where economic events are proxied by stock returns (De Franco *et al*., 2011). We modify our measure of accounting comparability to be a function of pre-tax earnings. This removes the effect of tax aggressive activities on the comparability of a firm's tax expense and enables us to consider the effect on the comparability of a firm's earnings more broadly.

[5] Continuing with the example presented in the previous footnote, assume that the manufacturing firms in Country A are the reporting firms and the associated entity in Country B is a wholly-owned subsidiary of Manufacturing firm 2. Upon consolidation of Manufacturing firm 2 with its wholly-owned subsidiary, the effect of the intercompany sales will be eliminated. The pre-tax earnings of the two Country A firms are therefore the same. Thus, the accounting function, beyond the tax expense, is not necessarily altered by the tax aggressive strategy in this case. On the other hand, the post-tax earnings will differ by the amount of tax avoided by Manufacturing firm 2.

3. Research design

3.1. Measuring accounting comparability

Early research on accounting comparability concentrates on the similarity of financial reporting inputs, i.e., the accounting methods applied (Krisement, 1997; Van der Tas, 1988; Archer *et al*., 1995; Herrmann and Thomas, 1995). Recent research is primarily focused on the outputs of financial reporting (output-based approach), in particular on earnings (e.g., Bhojraj and Lee, 2002; De Franco *et al*., 2011; Yip and Young, 2012; Kim *et al*., 2013).[6] In our analysis, we use the measure of accounting comparability developed by De Franco *et al*. (2011).

The De Franco *et al*. (2011)'s measure of comparability is aimed at capturing the similarity of the accounting function across firms where the accounting function maps a firm's economic events into its financial statements. Stock returns are used as a proxy for economic events and earnings is used as a proxy for the financial statement output. Accordingly, the accounting function of the analyzed firm *i* is modelled as the following time-series regression using the previous 16 quarters of data:[7]

$$Earnings_{it} = a_i + b_i Return_{it} + \varepsilon_{it} \quad (1)$$

$Earnings_{it}$ is defined as quarterly net income before extraordinary items divided by the market value of equity at the beginning period and $Return_{it}$ represents the stock price returns in quarter *t*. The parameters $\widehat{a_i}$ and $\widehat{b_i}$ represent the firm-specific accounting function of firm *i*. Similarly, for another firm *j* in the same industry the parameters $\widehat{a_j}$ and $\widehat{b_j}$, estimated using the returns and earnings of firm *j*, represent firm *j*'s accounting function. Applying firm *i*'s return to both accounting functions of firm *i* and firm *j*, we can obtain the predicted earnings of firm *i* and firm *j* for the same economic events (firm *i*'s return).

[6] See Gross and Perotti (2017) for a survey of the literature on output-based measurement of accounting comparability.

[7] In the main analysis we use 16 quarters of data, as in De Franco *et al*. (2011). We have also replicated the analysis using 12 quarters and the results, which are untabulated, are similar.

$$E(\text{Earnings})_{iit} = \widehat{a_i} + \widehat{b_i} Return_{it} \quad (2)$$

$$E(Earnings)_{ijt} = \widehat{a_j} + \widehat{b_j} Return_{it} \quad (3)$$

The difference between these two expected accounting outcomes captures the closeness of the earnings-return relation between firm *i* and firm *j* in period *t*. The accounting comparability between firm *i* and firm *j* is therefore defined as the negative value of the mean absolute difference between $E(Earnings)_{iit}$ and $E(Earnings)_{ijt}$:

$$CompAcct_{ijt} = -\frac{1}{16}\sum_{t-15}^{t}\left|E(\text{Earnings}_{iit}) - E(\text{Earnings}_{ijt})\right| \quad (4)$$

Higher values of $CompAcct_{ijt}$ indicate higher accounting comparability. For a given firm *i*, each *i-j* combination of accounting comparability measure for firm *j* within the same industry can be estimated with equation (4). Based on the firm *i* - firm *j* $CompAcct_{ijt}$, we can further obtain aggregated firm-year specific measures of accounting comparability. In our main analysis we focus on the following two measures: *CompAcctInd_Med*$_{it}$ is the median *CompAcct*$_{ijt}$ of all the firms *j* in the same industry as firm *i* and period *t*; *CompAcctInd_Mean*$_{it}$ is the mean *CompAcct*$_{ijt}$ of all the firms *j* in the same industry as firm *i* and period *t*.

We recognize that our measure of accounting comparability has its limitations, as similarly acknowledged by De Franco *et al*. (2011). A potential criticism is that it focuses only on the comparability of earnings. Although earnings is one of the most important summary metrics, it only captures one dimension of the financial statements. We choose this measure for two reasons. First, it is an output-based measure and, given the focus of financial statement users on the outputs of the financial reporting process, it is more relevant than input-based measures to users.[8] Second, the specific accounting comparability we employ has been

[8] For example, Gross and Perotti (2017, p. 2) mention the following four advantages of an output-based measure relative to an input-based measure: "1) it is more relevant for users because their focus is on the output; 2) it is more objective as it does not require the selection and weighting of the inputs; 3) it is easier to implement in practical terms due to the widely available data sources; and 4) it is potentially more accurate in measuring accounting comparability because it allows researchers to control for the similarity of economic events".

successfully used in the extant literature and is arguably the most widely used output-based measure of accounting comparability in recent literature, including, for example, Lang *et al*. (2010), Yip and Young (2012), Francis *et al*. (2014), Cascino and Gassen (2015) and Chen *et al*. (2018). However, we do echo De Franco *et al*. (2011)'s suggestion that there is scope for developing multidimensional measures of accounting comparability which could take into account the role of the balance sheet.

3.2. Measuring tax avoidance

No single measure of tax avoidance has yet to be agreed upon in the literature as there is similarly no single definition of what constitutes tax aggressive behavior (Balakrishnan *et al*., 2019; Blouin, 2014). As a result, a number of proxies have been developed, each of which has its strengths and weaknesses as a measure of tax avoidance (Hanlon and Heitzman, 2010). We follow the extant literature and use the two most common effective tax rate (ETR) measures of tax avoidance, where ETRs are measured as the average ratio of tax for every dollar of income or cash flow (see Dyreng *et al*., 2008; Chen *et al*., 2010; Lennox *et al*., 2013; Cen *et al*., 2017; Nguyen, 2021). The GAAP ETR (*GAAP_ETR*) is calculated as the financial statement reported total tax expense divided by pre-tax income and in this way will capture the effect of permanent differences but not timing differences as the latter is reflected in the firm's reported deferred taxes. The Cash ETR (*Cash_ETR*) is defined as cash taxes paid scaled by pre-tax income and in this way will also capture any timing difference effect as a measure of tax avoidance. The literature has not been clear as to whether including timing differences in a measure of tax avoidance is appropriate as in the long run, accounting and cash taxes paid are the same (Balakrishnan *et al*., 2019). Therefore, we use both measures toward ensuring the robustness of our results. The interpretation of ETRs is an inverse relationship with tax avoidance: the lower the ETR, the more tax aggressive a firm is considered to be. For ease of interpretation, we use the variables *TAGETR* and *TACETR* which are defined as: -1 multiplied

by *GAAP ETR* and *Cash ETR*, respectively. This way a greater value of these measures indicates more aggressive tax avoidance behavior.

To address RQ2, following Balakrishnan *et al*. (2019), we derive two industry-adjusted measures of the GAAP and Cash ETRs. The adjusted measures are obtained as: the difference between a firm's GAAP (Cash) ETR and the average value of GAAP (Cash) ETR during the same period for all firms in the same industry, where industry is defined by the two-digit SIC code. We denote these measures as *TAGETR_adj* (*TACETR_adj*). In this way, a positive value for *TAGETR_adj* (*TACETR_adj*) indicates aggressive tax planning behavior as compared to the industry norm. The greater the value, the more tax aggressive the firm is considered to be. The industry-adjusted measures enable us to control for tax planning behavior that is standard across a particular industry. For example, for the same level of earnings, a firm in a research and development intensive industry is not expected to face the same tax burden as a firm from an industry that does not benefit from such tax incentives. We also note that the design of the industry-adjusted ETRs is consistent with our measure of financial statement comparability which is also a function of a firm's industry, as described in Section 3.1 above.[9]

We measure the four ETRs over a three-year period in order to eliminate transient fluctuations of effective tax rates (Dyreng *et al*., 2008; Balakrishnan *et al*., 2019). Specifically, the GAAP (Cash) ETR is calculated by dividing the sum of a firm's total tax expense (cash taxes paid) over a three-year period by the sum of its total pretax income over that same period.

Full details of these measures are reported in Appendix A.

[9] At the extreme, this characterisation of tax avoidance as being relative to a firm's industry / peers' average tax burden enables us to not have to make a controversial judgement as to whether given tax minimization strategies constitute legitimate tax planning versus tax avoidance versus tax evasion. If the tax minimization strategies are common to the industry, we are interested in whether a particular firm's behavior deviates from the industry norm and its effect on accounting comparability.

3.3. Tax Avoidance and Accounting Comparability

We estimate the following model to examine the relationship between tax avoidance and accounting comparability:

$$CompAcctInd_{it} = \alpha + \beta TaxAvoid_{it} + \sum controls_{it} + SIC_i + \delta_t + \epsilon_{it} \quad (5)$$

where, $CompAcctind_{it}$ is the respective measure of accounting comparability as detailed in Section 3.1; $TaxAvoid_{it}$ is the respective measure of tax avoidance as detailed in Section 3.2; $\sum controls_{it}$ represents a range of control variables (discussed below); SIC_i and δ_t respectively are industry and year fixed effects; and ϵ_{it} is the random disturbance term.

Consistent with prior literature we include several control variables in the model (Francis *et al*., 2005; Lang *et al*., 2010; Francis *et al*., 2014). We control for company size (*Size*), leverage (*Leverage*), market-to-book ratio (*BM*), volatility of operations (*SD_sales* and *SD_CFO*), profitability (*ROA*), sales growth (*Growth*), operating cycle (*LNOC*) and loss (*Loss*). *Size* is computed as the nature logarithm of a firm's total assets and *Leverage* equals total liabilities divided by firm equity. *BM* is the ratio of the firm's book value of equity to its market value of equity. We measure the volatility of operations by *SD_sales*, the standard deviation of sales over 10 years, and *SD_CFO*, the standard deviation of operating cash flows over 10 years. In calculating *SD_sales* and *SD_CFO*, we require at least three years of observations. *ROA* equals income before extraordinary items divided by the firm's total assets at the beginning of the period. *Growth* is measured as year-on-year sales growth. *LNOC* is the nature logarithm of the firm's operating cycle. *Loss* is a dummy variable that equals one if the firm reports a loss during the previous two years and zero otherwise.

We also control for whether the firm is audited by one of the Big 5 accounting firms (Arthur Andersen, Deloitte & Touche, Ernst & Young, KPMG, PricewaterhouseCoopers). Francis *et al*. (2014) find that firms which engage with one of the Big 4 auditors have greater accounting comparability than those audited by a non-Big 4 auditor. Therefore, we include an

indicator variable (*Big5*) that takes on the value of one if the firm is audited by a Big 5 accounting firm and zero otherwise.[10] Finally, we include the absolute discretionary accruals (*ABSDA*), computed following the modified-Jones model (Dechow *et al*., 1995). This is also a way to control for corporate transparency (Balakrishnan *et al*., 2019).

We include industry, identified based on the two-digit SIC code, (*SIC*) and year (δ) indicator variables. In all regressions, we use standard errors clustered by firm. Detailed definitions of all variables are available in Appendix A.

To address RQ2, we first use the industry-adjusted ETRs (*TAGETR_adj, TACETR_adj*) as our measure of tax avoidance (*TaxAvoid)*. We also undertake a piecewise regression in which we partition the unadjusted ETR measures of tax avoidance as a function of the industry mean.

To investigate RQ3, we modify our main accounting comparability measures which are based on the relation between stock returns and earnings; specifically, we derive an alternative comparability measure based on the relation between stock returns and pre-tax income.

3.4. Data and descriptive statistics

The sample consists of North American listed companies with non-missing observations from 1987 to 2017. The starting point of 1987 avoids potential confounding effects of the Tax Reform Act of 1986 which introduced significant changes to US federal taxes (Auerbach and Slemrod, 1997).[11] We choose 2017 as the last year in our sample to avoid

[10] Due to the long time period the sample covers, we control Big 5 accounting firms here rather than Big 4 accounting firms.

[11] In addition to several adjustments to firm level marginal tax rates and the tax base, it also introduced provisions toward mitigating the effect of tax-avoidance strategies. For example, the TRA limits a corporation's use of a target's tax loss carry forward balances to offset its own income in mergers and acquisitions. It also cancelled the 10 percent tax credit for the investment in machinery and equipment. Though we have little direct evidence on the influence of TRA on corporate tax planning strategies or accounting systems, it is possible that the reform has an implicit impact on the relation between tax aggressiveness and accounting comparability as the enactment of TRA tends to affect a firm's incentive and choice of tax planning activities.

potential confounding effects deriving from the 2017 House Tax Cuts and Jobs Act (TCJA).[12] Accounting data are obtained from Compustat and market data from CRSP. We exclude firms belonging to the financial industry. We winsorize all continuous variables at 1 percent and 99 percent to mitigate the effect of outliers. Our final sample consists of 26,889 firm-year observations, representing a total of 3,583 distinct firms.

Descriptive statistics are reported in Table 1 and Appendix C presents the industry distribution. The mean GAAP ETR and Cash ETR are 33 percent and 28 percent respectively. The mean industry-adjusted ETRs are both close to zero and consistent with recent literature (e.g. Chen *et al*., 2010; Lennox *et al*., 2013; Balakrishnan *et al*., 2019).[13] Our sample firms are large (mean firm size is 6.51); profitable (mean return on asset is 0.08); growing (mean growth rate of sales is 0.12); and have a leverage ratio of 1.33. The volatility of operations on average is relatively high with a mean standard deviation of operating cash flows at 9% and a mean standard deviation of sales at 32%. The majority of the sample firms (approximately 83%) are audited by one of Big5 auditors and few of them report a loss in the recent two years (7%).

[Table 1]

Table 2 presents the Pearson correlations matrix of all variables. The tax avoidance proxies (both the raw and industry-adjusted ETRs) are positively correlated with each other and negatively correlated with the accounting comparability measures.

[12] Briefly, the TCJA included two potential but competing levers toward aggressive corporate tax behavior (see Tax Foundation (2017) for a summary of the main components of this Act). The TCJA included a significant decrease in the headline corporate tax rate – from 35% to 21% – which decreases the incentive to engage in tax avoidance. At the same time, the TCJA introduced a tax exemption on dividends from foreign subsidiaries, thereby shifting the US from a worldwide tax system toward a territorial tax system, which incentivizes US firms to avoid tax by shifting profits overseas. The net effect of these competing mechanisms continues to be a subject of academic debate (see for e.g. Garcia-Bernardo *et al*., 2022; Clausing, 2020). For robustness, we have also replicated all the analyses using the sample period 1987-2020 and the results are consistent with those reported in this paper.

[13] Notice that *TAGETR* and *TACETR* are equal to the opposite values of GAAP ETR and Cash ETR, and therefore have negative signs.

[Table 2]

4. Results

4.1. Main results

4.1.1. RQ1: Do aggressive tax planning strategies impair accounting comparability?

In RQ1, we examine how tax avoidance activities and accounting comparability are related. The results are presented in Table 3. In the left-hand panel, we measure accounting comparability using *CompAcctInd_Mean* and in the right hand panel we use *CompAcctInd_Med*. We note again that, based on our definition, as the *TAGETR* and *TACETR* increases, tax avoidance increases. Therefore, we find strong evidence of a negative relationship between tax aggressive behavior and accounting comparability: all coefficients on the measures of tax avoidance (*TAGETR, TACETR*) are negative and highly statistically significant.

[Table 3]

The results are also economically significant. A one standard deviation increase in *TAGETR* is associated with a 5.4% decrease in *CompAcctInd_Mean* and a 9.8% decrease in *CompAcctInd_Med* relative to the mean. Similarly, a one standard deviation increase in the *TACETR* leads to a 3.4% decrease in *CompAcctInd_Mean* and a 6.1% decrease in *CompAcctInd_Med* relative to the mean. On average, a one standard deviation increase in tax avoidance decreases accounting comparability by 6.2% relative to the mean.

The signs of the control variables are generally consistent with the prior literature. Firms with lower book-to-market ratio, leverage, profitability, volatility of operating cash flows and absolute discretionary accruals have higher accounting comparability; firms with higher sales growth have greater accounting comparability. We note that size, operating cycle and auditor features have statistically insignificant coefficients.

In the main analysis presented in Table 3 and in the following tables, we use industry and year fixed effects. We also repeated the analysis using firm and year fixed effects; the (untabulated) results are qualitatively similar.

These results provide evidence of a new cost of tax avoidance: accounting comparability decreases in a firm's tax aggressive activities.[14] The evidence is consistent with the view that tax avoidance alters the accounting function which maps economic events to the financial statements. As previously discussed, tax avoidance strategies imply a shift of accounting expenses or income across different business entities and/or different accounting periods; in addition, tax avoidance activities often lead to an increase in organizational complexity. Therefore, accounting comparability decreases because of the changes in the accounting function.

4.1.2. RQ2: Is the relation between tax avoidance and accounting comparability affected by the extent to which tax planning strategies deviate from the industry norm?

To address our second research question, we first repeat our analysis using the industry-adjusted measures of tax avoidance as our main explanatory variable of interest (*TAGETR_adj and TACETR_adj)*. The results are presented in Table 4.

[14] As discussed in Section 2, prior literature has documented that accounting comparability is associated with beneficial consequences for market participants. In particular, De Franco *et al*. (2011) find a negative association between accounting comparability and analysts' forecast error and dispersion. To further explore the consequences of our main results, we compared analysts' forecast error and dispersion in the following four groups of observations (where high and low are defined with respect to the mean of the sample): high comparability and low tax avoidance; high comparability and high tax avoidance; low comparability and low tax avoidance; low comparability and high tax avoidance. The results, which are untabulated, show that the average forecast error and dispersion are the highest (lowest) in the group with high tax avoidance and low comparability (low tax avoidance and high comparability). These findings are consistent with the view that the negative association between tax avoidance and accounting comparability is likely to affect the properties of analysts' forecasts. The findings are also consistent with the notion that accounting comparability may be one of the mechanisms which partially explains the results in Balakrishnan *et al*. (2019), who find a negative association between tax avoidance and corporate transparency. As this preliminary evidence is only suggestive rather than causal, future research may further examine the consequences of the negative association between tax avoidance and accounting comparability.

[Table 4]

The evidence is consistent with our main analysis (Table 3). The coefficients on the industry-adjusted measures of tax avoidance are all negative and highly statistically significant. The more tax aggressive a firm is – as defined relative to its industry peers – the less comparable its financial statements are. A one standard deviation increase in tax avoidance, on average, is associated with a 5.3% decrease in accounting comparability relative to the mean.

As an additional analysis to address RQ2, we estimate a piecewise regression as a function of the unadjusted tax avoidances measures (*TACETR, TAGETR*) above versus below the industry mean. The results are reported in the right-hand panel of Table 4. When a firm's tax planning is more aggressive than the industry average, the coefficients on the tax avoidance measures are negative and highly statistically significant. When tax planning activities are not aggressive (relative to the industry), the coefficients on the tax avoidance measures are not statistically significant. This evidence is consistent with the interpretation of tax minimization strategies in excess of the industry norm as being the mechanism that compromises a firm's financial information. Tax planning activities that positively deviate from the industry norm are likely to be those related to changes in the accounting function relative to the peers.

Firms with negative *TAGETR_adj* and *TACETR_adj* have ETRs which are higher than the industry average. These abnormally high ETRs are not likely to be due to artificial shifting of income or expenses or to changes in the organizational complexity relative to the industry average. Therefore, negative deviations of the tax avoidance measures from the industry average do not lead to a lower similarity of the accounting function within an industry and to a lower accounting comparability.

4.1.3. RQ3: Is accounting comparability, beyond the tax expense, broadly affected by tax avoidance?

To answer our third research question, we modify our measure of accounting comparability. As discussed in Section 3.1 and following De Franco *et al*. (2011), we use net income to proxy earnings in constructing our main dependent variables (*Earnings* in Equations 1-4). Here, we use pre-tax income to proxy earnings and build an alternative comparability measure which is not affected by the tax expense. We denote these alternative measures as: *CompAcctInd_PTI_Mean* and *CompAcctInd_PTI_Med*.

[Table 5]

In Panel A, we consider our main measures of tax avoidance (*TAGETR* and *TACETR*). In Panel B, we use the adjusted measures of tax avoidance (*TAGETR_adj* and *TACETR_adj*). The results are similar to those obtained in the main analysis, with a negative and highly significant coefficient on the tax avoidance measures. This result is important as it suggests that the effect of tax avoidance activities on accounting comparability is not limited to the tax payments but extends to the broader financial reporting system. It is also in line with the view that tax avoidance strategies imply an increase in organizational complexity, which, in turn, leads to changes in the accounting data.

In the last row of each panel of Table 5, we also present a Chi-squared test for the null hypothesis that the coefficients on the tax aggressiveness measures are equal to those in Table 3 (*TAGETR* and *TACETR*) and in Panel A of Table 4 (*TAGETR_adj* and *TACETR_adj*). The tests indicate that the coefficients are significantly different, consistent with the view that the relation between comparability and tax avoidance is partly due to the tax expense.

5. Additional Analyses

5.1. Alternative Measures of Tax Avoidance

We further examine the robustness of our evidence to alternative proxies for tax avoidance as used in the prior literature.

First, we use a tax avoidance measure which is based on the difference between pre-tax income and taxable income; this difference is often denoted as "book-tax difference". The common interpretation is that tax avoidance increases as book-tax differences increase (e.g., Wilson, 2009). Specifically, following Frank *et al*. (2009), we estimate the discretionary permanent book-tax difference (*TADBTD*).[15] Second, similar to Chen *et al*. (2010) and Lennox *et al*. (2013), we consider a more comprehensive measure of tax avoidance using a factor analysis of three measures: the discretionary permanent book tax difference, GAAP ETR and cash ETR. We denote this measure as *f_TaxAgg*.[16] Third, we focus on the tax havens in which a firm operates. Following Dyreng *et al*. (2015), we measure tax avoidance as the number of a firm's subsidiaries located in tax havens (*TaxHaven*).[17] We replicate our main analysis using these alternative proxies. The results are reported in Table 6.

[Table 6]

Except for *TADBTD*, the coefficients on all tax avoidance measures continue to be negative and highly statistically significant for both measures of accounting comparability

[15] Discretionary permanent book-tax difference is a regression-based measure which captures intentional tax avoidance. We calculate this measure consistent with Frank *et al*. (2009)'s work.

[16] Specifically, we take a common factor analysis of *TAGETR*, *TACETR* and *TADBTD*. We denote this first factor as *f_TaxAgg* and use it as our alternative measure of tax avoidance. We use the first factor because it is the only one with an eigenvalue greater than one (1.56). All the tax avoidance variables have positive factor loadings. Therefore, a higher value of the common factor shows greater tax avoidance.

[17] We define tax haven countries following Dyreng *et al*. (2015). The list of tax havens includes: Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Costa Rica, Cook Islands, Cyprus, Dominica, Gibraltar, Grenada, Guernsey and Alderney, Hong Kong SAR, Ireland, Isle of Man, Jersey, Lebanon, Liechtenstein, Luxembourg, Macao SAR, Malaysia (Labuan), Malta, Marshall Islands, Mauritius, Monaco, Montserrat, Nauru, Netherlands Antilles, Niue, Palau, Panama, Samoa, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Switzerland, Turks and Caicos Islands, and Vanuatu. The results are similar using the classification of tax havens in Dyreng and Lindsey (2009).

(*CompAcctInd_Mean* and *CompAcctInd_Med*). The evidence using the discretionary permanent book tax difference proxy is weaker. The coefficient on *TADBTD* is negative and statistically significant at the 5% level for the *CompAcctInd_Med* comparability measure, but is not statistically significant at conventional levels for the *CompAcctInd_Mean* measure.

Overall, the results of the robustness analyses with alternative tax avoidance measures support the main findings and show a negative and significant association between tax avoidance and its effect on accounting comparability.

5.2. Addressing potential endogeneity issues

Accounting comparability around the introduction of the "Check the box" regulation

A potential endogeneity issue may arise because tax avoidance strategies are the result of a choice. To address this issue, we follow the previous literature (e.g., Balakrishnan *et al*. 2019) and take advantage of a quasi-natural experimental setting. The event examined here is the "Check-the-Box" (CTB) regulation, which was issued by the Internal Revenue Service (IRS) in 1996 and became effective on 1 January, 1997. The regulation effectively (and unintentionally) enabled multinational firms to bypass an anti-tax avoidance provision.[18] We expect that the CTB enactment directly and exogenously affected tax avoidance without directly affecting accounting comparability.

As the CTB regulation only affects multinational firms, we compare the difference between the change in accounting comparability over the 1997 CTB regulation event across two groups of firms: treated firms (multinational firms) and control firms (non-multinational firms). We define the treated firms as the multinational firms, which are likely to respond to the CTB regulation with more tax avoidance activities, while the control firms are the non-

[18] See Blouin and Krull (2014) for a detailed discussion of the CTB regulation and its unintentional effect on the tax avoidance behavior of multinational firms.

multinationals, which are matched with the treatment group using propensity scores. If firms' tax avoidance activities compromise accounting comparability, we would expect that the treated firms' financial statements are less comparable after the enactment of the CTB regulation relative to the control firms.

We limit our analysis to the two three-year periods (1994-1996 and 1998-2000) surrounding the enactment of the CTB regulation.[19] The year 1997 is left out in our experiment as the CTB regulation was implemented at that year. To conduct the test, we construct two dummies, *Post-CTB* and *Treated*, and an interaction variable, $Post\_CTB \times Treated$. $Post\_CTB$ equals one if the firm-year observation falls in the period between 1998 and 2000, and zero if the observation is between 1994 and 1996. *Treated* equals one if the firm is multinational and zero otherwise. To eliminate the systematic differences between the treatment and the control sample we match each treated firm with one control firm using one-to-one propensity score matching (PSM). First, we estimate a logistic model using *Treated* as the dependent variable and several factors which influence the probability of a firm to be multinational. We use firm size, book-to-market value and sales growth as our independent variables. The propensity scores are predicted from the logistic regression using data just before the regulation change, representing the likelihood that a firm becomes a multinational. With the predicted propensity scores, we match (without replacement) each treated firm with the controlled firm that has the closest propensity score. We remove the treated observations that have higher propensity scores than the maximum value in the control sample, and those with lower scores than the minimum of the control sample. We end up with 137 matched pairs of firms, corresponding to 980 firm-year observations.

We conduct a difference-in-differences estimation using the same control variables as those used in the baseline regression. Table 7 presents the results. The coefficient on

[19] In this analysis, we only use the companies with shares traded in US markets.

$Post\_CTB \times Treated$ is negative and statistically significant (at the 10% level with the dependent variable of *CompAcctInd_Med* and the 5% level with *CompAcctInd_Mean*). This implies that multinational firms which were effectively given more tax avoidance opportunities by the CTB regulation have significantly lower levels of accounting comparability after the event year 1997 as compared to the matched non-multinational firms. To summarize, these results show that accounting comparability decreases more in the treated sample than in the control sample after the CTB regulation suggesting that tax avoidance leads to a decline in accounting comparability. This provides further evidence of the direction of a causal link from tax avoidance to accounting comparability.[20]

[Table 7]

Further tests to address potential endogeneity issues

We also run two additional tests to address potential endogeneity issues. The results of these tests, which are untabulated, are similar to those obtained in the main analysis. First, we consider a model in which we regress accounting comparability on the lagged value of tax avoidance. Although the main focus of our analysis is on the contemporaneous relation between tax avoidance and accounting comparability, these findings alleviate concerns about endogeneity due to simultaneity.[21] Furthermore, this test allows for the possibility that there is lagged effect between the tax avoidance behavior and its impact on accounting comparability. Second, we consider a further test based on PSM. Specifically, we rank our observations based on our tax avoidance measures, by year, and form four groups (quartiles). For this analysis, we focus on the top (firms with highest level of tax avoidance) and the bottom quartiles (firms

[20] We believe it would be interesting for future research to examine accounting comparability around other relevant changes in tax avoidance. The analysis would shed more light on the channels which link tax avoidance to accounting comparability and on whether firms can mitigate the adverse effects of tax avoidance on accounting comparability.

[21] We also replicated our tests using tax avoidance at time (*t*-2) or (*t*-3). The results, which are untabulated, are qualitatively unchanged. However, we observe a decrease in the estimated negative effect of tax avoidance on accounting comparability as the time lag increases.

with lowest level of tax avoidance). We then use PSM to match, one to one without replacement, the observations in the top quartile to those in the bottom quartile; we require a caliper of 0.01. In the first-stage model we use all the control variables. We then re-estimate our main model using the treatment sample and the matched observations.

6. Conclusion

In this paper, we examine the relation between tax avoidance and accounting comparability. Using raw and industry-adjusted proxies for tax avoidance behavior for a large sample of North American firms, we find that tax aggressive firms have substantially lower accounting comparability. This result is consistent with the view that tax avoidance activities alter the accounting function. Specifically, aggressive tax planning leads to a shift of accounting income or expenses over time and/or over different business entities; in addition, to adopt tax avoidance strategies, managers may construct overly complex operating structures than would otherwise be expected for the given economic activity. We also find that the negative effect of tax avoidance on accounting comparability is driven by tax avoidance behavior that is more aggressive relative to the industry norm. Furthermore, the evidence shows that the negative effect of tax avoidance on accounting comparability is not limited to the reported tax expense, but extends to the overall financial reporting system; this finding supports the argument that tax avoidance activities affect the complexity of the organization.

Our findings are robust to a host of additional tests. In particular, we use a set of alternative measures of tax avoidance, which include the discretionary part of book-tax differences, the propensity to use tax havens and a more comprehensive measure based on factor analysis. Importantly, we also control for potential issues of endogeneity in multiple ways including a difference-in-differences analysis around the enactment of the "Check-the-box" regulation. We also consider a PSM approach and a regression on lagged values of tax avoidance.

This paper contributes to the literature on the costs of tax aggressiveness (e.g., Hanlon and Slemrod, 2009; Hasan *et al*., 2014; Balakrishnan *et al*., 2019) as well as the literature on the determinants of accounting comparability (e.g., DeFond *et al*., 2011; Yip and Young, 2012; Francis *et al*., 2014; Cascino and Gassen, 2015; Dhole *et al*., 2021).

In this paper, we show that there is a new potential cost of tax avoidance being the loss of accounting comparability as driven by tax aggressive activities. Importantly, a solution to this issue is not easy. There is a significant history and investment toward combatting tax avoidance activities as most easily evidenced by the OECD's ongoing Base Erosion and Profit Shifting (BEPS) Project. This mitigation of tax avoidance project was initiated in 2013 by the OECD in conjunction with the G20. By 2023, the BEPS project has evolved to include and require the collaboration of governments and tax authorities from 135 countries (OECD, 2023). Given the ongoing challenges in tackling tax aggressive behavior, a related question is how to potentially reduce the costs of it. Related to our work on the negative effect of tax avoidance on the comparability and hence decision usefulness of firms' financial statements, is the Balakrishnan *et al*. (2019) paper which investigates the effect of tax aggressive behavior on a firm's corporate transparency. Although the authors do find evidence of a positive correlation between a firm's tax aggressive behavior and the volume of tax related disclosures in the Management Discussion and Analysis and conference calls – the argument being that increased disclosure is intended to offset the tax aggressive induced reduction in corporate transparency – the disclosure is limited in its ability to offset the related increase in analyst forecast errors. Combined with our paper and the evidence of a negative effect of tax aggressive behavior on accounting comparability, this is suggestive of future research into how that reduction in financial statement comparability can be offset.

Finally, we identify three limitations of our study which could be addressed by future research. First, although it is arguably the most widely used output-based measure of

accounting comparability, our accounting comparability measure has drawbacks. Future research may examine alternative measures, for example multidimensional measures which, in addition to earnings and the income statement, take into account balance sheet information. Second, prior literature has documented several benefits of accounting comparability for market participants. A possible avenue for future research could be the analysis of the consequences of the tax avoidance induced reduction in accounting comparability we observe; we only provide initial evidence on this point. Third, we focus on pre-tax income to investigate whether the association between tax avoidance and accounting comparability extends to the overall financial reporting system. We believe it would be interesting for future research to shed more light on the specific accounting policies which are affected by tax avoidance. This analysis may involve the investigation of further disaggregations of pre-tax income; alternatively, it could be based on a textual analysis of the annual reports.

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Appendix A: Variables definition

Measures of tax avoidance

Variable	*Definition*
$TAGETR_{it}$	The opposite of three-year GAAP ETR, where the three-year GAAP ETR equals to the sum of the past three year of total tax expense from year *t* to *t-2* divided by the sum of the past three year of pre-tax income.
$TACETR_{it}$	The opposite of three-year Cash ETR, where the three-year Cash ETR equals the sum of the past three year of cash taxes paid from year *t* to *t-2* divided by the sum of the past three year of pre-tax income.
$TAGETR\_adj_{it}$	Industry-matched three-year GAAP ETR less firm *i*'s three-year GAAP ETR, where industry-matched GAAP ETR equals the mean value of GAAP ETRs of all the firms in the same 2-digit SIC industry as firm *i* in year *t.*
$TACETR\_adj_{it}$	Industry-matched three-year Cash ETR less firm *i*'s three-year Cash ETR, where industry-matched Cash ETR equals the mean value of Cash ETRs of all the firms in the same 2-digit SIC industry as firm *i* in year *t.*
$TADBTD_{it}$	Residuals from the regression of: $Permanent\ BTD = \beta_0 + \beta_1 INTANG + \beta_2 UNCON + \beta_3 MI + \beta_4 CSTE + \beta_5 \Delta NOL + \beta_6\ LAGPBTD + \nu$, where *Permanent BTD* = pre-tax book income – (current federal tax expense + foreign tax expense)/statutory marginal tax rate - total deferred tax expense/statutory marginal tax rate; *INTANG* = goodwill and other intangibles; *UNCON* = income reported under the equity method; *MI* = minority interest; *CSTE* = current state income tax expense; $\Delta\ NOL$ = change in net operating loss carryforward; and *LAGPBTD* = the one-year lagged value of *PBTD*. All variables are scaled by beginning of year total assets.
f_TaxAgg_{it}	A common factor extracted from discretionary permanent book tax difference, GAAP ETR and Cash ETR.
$TaxHaven_{it}$	The number of a firm's subsidiaries located in tax havens.

Notes: Following Chen et al. (2010), for the calculation of our raw effective tax rates, we remove the observation if the denominator is equal to or below zero; in addition, we truncate GAAP and Cash effective tax rates into the range of [0,1].

Measures of accounting comparability

Variable	*Definition*
CompAcctInd_Med$_{it}$	The median *CompAcct*$_{ijt}$ of all the firms *j* in the same industry as firm *i* during period *t*, where *CompAcct*$_{ijt}$ is the difference of the predicted earnings between firm *i* and firm *j* across 16 consecutive quarters. The calculation follows De Franco et al. (2011)'s work and the details are given in Section 3.1.
CompAcctInd_Mean$_{it}$	The mean *CompAcct*$_{ijt}$ of all the firms *j* in the same industry as firm *i* during period *t*, where *CompAcct*$_{ijt}$ is the difference of the predicted earnings between firm *i* and firm *j* across 16 consecutive quarters. The calculation follows De Franco et al. (2011)'s work and the details are given in Section 3.1.

Control variables

Variable	*Definition*
Size	Nature logarithm of total assets
ROA	Net income before extraordinary items scaled by the total assets at the end of the prior fiscal year
Leverage	Total liabilities scaled by total common equity
BM	Book value of equity divided by market value of equity
SD_sales	Standard deviation of sales, scaled by prior year total assets, over the last 10 years
SD_CFO	Standard deviation of operating cash flow, scaled by prior year total assets, over the last 10 years
Growth	Change in sales scaled by lagged sales
Big5	Dummy variable which equals one if the firm is audited by a Big 5 auditor, and zero otherwise
LNOC	Natural logarithm of operating cycle, where operating cycle = 365/(cost of goods sold/average inventory) + 365/(sales /average accounts receivables)
Loss	Dummy variable which equals one if the firm reports a loss during the recent two years, and zero otherwise
ABSDA	The absolute value of the residuals from the industry-year regressions of: $\frac{TA_{i,t}}{AT_{i,t-1}} = \beta_0(\frac{1}{AT_{i,t-1}}) + \beta_1\left(\frac{\Delta REV_{i,t}}{AT_{i,t-1}} - \frac{\Delta REC_{i,t}}{AT_{i,t-1}}\right) +$

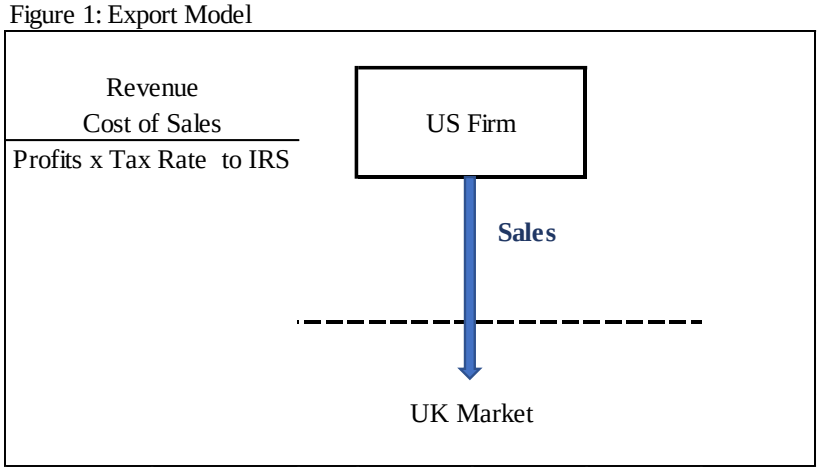
	$\beta_2(\frac{PPE_{i,t}}{AT_{i,t-1}}) + \vartheta_{i,t}$, where $TA_{i,t}$ = the change in current assets−the change in current liabilities−the change in cash and short-term investment+the change in debt−depreciation and amortization; $\Delta REV_{i,t}$ = the change in revenues of firm *i* from year *t-1* to t*;* $\Delta REC_{i,t}$ = the change in accounts receivable of firm *i* from year *t-1* to *t*; $PPE_{i,t}$ = gross property, plant, and equipment of firm *i* in year *t*; and $AT_{i,t-1}$ = total asset in year *t-1*.

Appendix B: Illustration of how tax avoidance can affect accounting comparability (Double Irish Dutch Sandwich)

To make ideas concrete and illustrate the confounding effect of tax aggressive behavior on accounting comparability, we briefly review one of the more (in)famous tax avoidance structures commonly referred to as the Double Irish Dutch Sandwich.

Assume that a US firm intends to expand into the UK market. The simplest approach would be to export its goods / services with the profits taxable in the US. See Figure 1.

Figure 1: Export Model

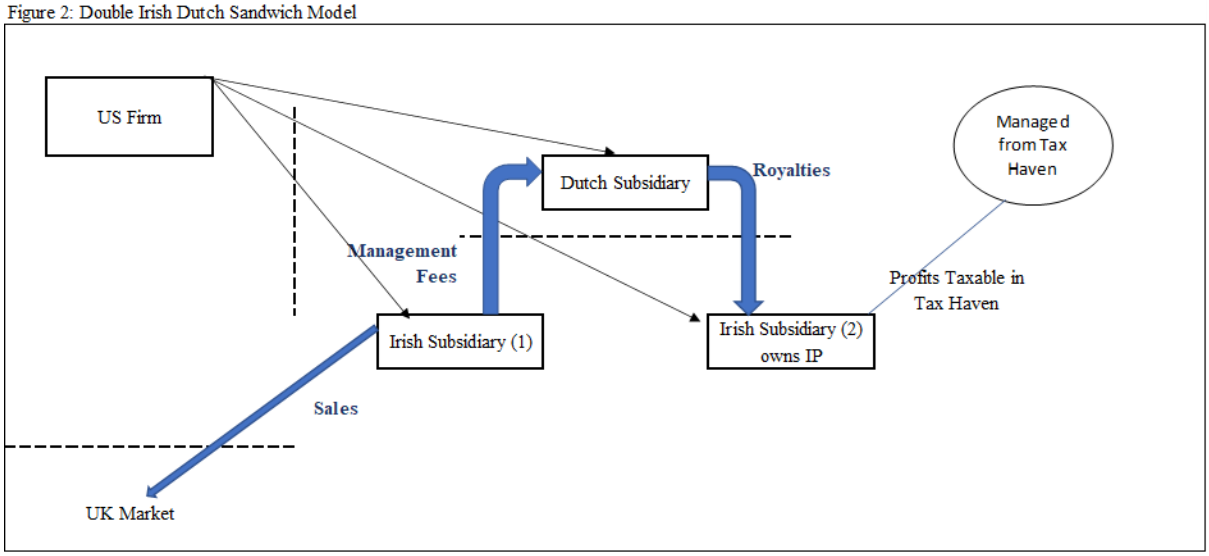


However, in order to minimize its tax expense (including corporation and withholding taxes), the US Firm incorporates three subsidiaries. See Figure 2[22].

Two subsidiaries are incorporated in Ireland and the third is incorporated in the Netherlands. Irish Subsidiary (1) effects the sales into the UK. However, in order to avoid Irish corporation tax, it pays substantial management fees to the Dutch subsidiary (and in doing so is also able to avoid withholding tax). Irish Subsidiary (2) holds the related intellectual property underlying the exported goods / services to the UK. Therefore, the Dutch subsidiary pays

[22] The choice of countries is not arbitrary as it relates to artefacts of the respective countries domestic tax law (e.g. the taxation of foreign managed Irish corporations) and international tax (e.g. withholding taxes between Ireland and the Netherlands). However, this additional detail is not disclosed here for ease of exposition but, is available from the authors by request.

Figure 2: Double Irish Dutch Sandwich Model



substantial royalty fees to Irish subsidiary (2) and therefore is able to avoid paying Dutch corporation (and withholding) tax. Although the profits are effectively back in Ireland via the management and royalty fee payments, Irish Subsidiary (2)'s management is located overseas and therefore, not subject to Irish corporation tax. Moreover, management is located in a Tax Haven and therefore, if implemented correctly (including avoiding US controlled foreign corporation rules) and to the extreme, the US Firm is able to avoid paying any tax indefinitely on the profits earned from its sales into the UK.[23]

The effects of such tax aggressive behavior on accounting comparability is threefold. In the first instance and as addressed in Research Question 1 (*RQ1*), the effect is a direct product of the motivation for the tax avoidance structure which is to – ceteris paribus – decrease the tax expense and increase the firm's earnings. As shown in the above illustration, the US firm in Figure 1 would be subject to 21% on its profits whereas the firm in Figure 2 would pay 0% (or very close to it depending on the details of implementation of its tax avoidance structure). However, the accounting comparability is also compromised by the significant difference in organizational complexity. We can imagine Figure 1 and Figure 2 representing competing US firms who undertake identical underlying economic activity in the export sales

[23] This tax avoidance structure was addressed by the US in 2015 and effectively shut down in 2020.

of goods / services into the UK market. However, the firm represented by Figure 2 not only pays less (to no) tax for the same economic activity, its operating structure includes three subsidiaries in two different countries to effect its sales into the third and intended export market. Furthermore, a direct comparison of the respective firms' sales activity into the UK market would involve the US firm's export activity from Figure 1 relative to that of Irish Subsidiary (1) in Figure 2 where, for the same level of sales into the UK by both firms, Irish Subsidiary (1) would also report substantial management fees, no tax, and no earnings. This is an example of a scenario which motivates our Research Question 3 (*RQ3*).

To quantify the potential effect of aggressive tax behavior on accounting comparability, it is estimated that Alphabet Inc. (the parent company to Google) used the Double Irish Dutch Sandwich strategy to shift $23 billion of income in 2017 alone, with its related Tax Haven (Bermuda) subsidiary paying $0 in corporate taxes (Srivastava *et al.*, 2020). In a special report for Reuters on Starbucks Coffee Company (UK) Limited (Starbuck's UK) and its tax avoidance strategies, Bergin (2012) analysed the UK accounts of some of the top global restaurant chains and drew comparisons between Starbucks (UK) paying no UK corporation tax on £1.2 billion in sales (2008 – 2011) in the UK versus Kentucky Fried Chicken's £36 million tax bill on £1.1 billion in sales over the same period.

Appendix C: Industry distribution

Industry	*Firm-years*	*%*	*Industry*	*Firm-years*	*%*
Agriculture	12	0.04	Aircraft	303	1.13
Food Products	750	2.79	Shipbuilding, Railroad Equipment	84	0.31
Candy & Soda	127	0.47	Defense	113	0.42
Beer & Liquor	165	0.61	Precious Metals	103	0.38
Recreation	329	1.22	Non-Metallic/Ind. Metal Mining	88	0.33
Entertainment	278	1.03	Coal	24	0.09
Printing and Publishing	343	1.28	Petroleum and Natural Gas	1,314	4.89
Consumer Goods	745	2.77	Utilities	2,262	8.41
Apparel	371	1.38	Communication	654	2.43
Healthcare	422	1.57	Personal Services	37	0.14
Medical Equipment	1,256	4.67	Business Services	741	2.76
Pharmaceutical Products	1,172	4.36	Computer Hardware	723	2.69
Chemicals	963	3.58	Computer Software	978	3.64
Rubber and Plastic Products	437	1.63	Electronic Equipment	2,054	7.64
Textiles	170	0.63	Measuring and Control Equipment	999	3.72
Construction Materials	868	3.23	Business Supplies	623	2.32
Construction	61	0.23	Shipping Containers	134	0.50
Steel Works Etc	583	2.17	Transportation	514	1.91
Fabricated Products	154	0.57	Wholesale	1,500	5.58
Machinery	1,596	5.94	Retail	628	2.34
Electrical Equipment	686	2.55	Restaurants, Hotels, Motels	543	2.02
Automobiles and Trucks	595	2.21	Almost Nothing	387	1.44

Table 1: Descriptive Statistics

	Obs	Mean	Std. Dev.	Min	Max
TAGETR	26,889	-0.33	0.11	-1	0
TACETR	26,889	-0.28	0.15	-1	0
TAGETR_adj	26,889	-0.02	0.1	-0.35	0.28
TACETR_adj	26,889	-0.01	0.14	-0.49	0.27
CompAcctInd_Mean	26,889	-2.69	1.52	-11.14	-0.85
CompAcctInd_Med	26,889	-1.68	1.43	-10.43	-0.42
Big5	26,889	0.83	0.38	0	1
SD_CFO	26,889	0.09	0.09	0.01	0.65
SD_sales	26,889	0.32	0.34	0.02	2.15
LNOC	26,889	4.71	0.62	2.55	6.01
Size	26,889	6.51	2.08	2.08	11.29
ROA	26,889	0.08	0.06	0	0.32
Leverage	26,889	1.33	1.4	-1.36	8.96
BM	26,889	0.56	0.39	0	2.2
Growth	26,889	0.12	0.21	-0.34	1.08
ABSDA	26,889	0.05	0.05	0	0.27
Loss	26,889	0.07	0.25	0	1
TADBTD	9,641	0	0.05	-0.18	0.21
f_TaxAgg	9,641	0	1	-6.12	5.39
TaxHaven	13,633	6.86	17.05	0	320

Notes: This table provides descriptive statistics for the primary variables used in the analysis. All the variables are described in Appendix A. All continuous variables are winsorized at the 1% level.

Table 2: Correlation matrix

	CompAcctInd_Mean	*CompAcctInd_Med*	*TAGETR*	*TACETR*	*TAGETR_adj*	*TACETR_adj*	*SD_CFO*	*SD_sales*	*Size*
CompAcctInd_Med	0.938***								
TAGETR	-0.159***	-0.150***							
TACETR	-0.105***	-0.089***	0.447***						
TAGETR_adj	-0.069***	-0.089***	0.927***	0.397***					
TACETR_adj	-0.048***	-0.059***	0.400***	0.939***	0.433***				
SD_CFO	-0.153***	-0.152***	0.058***	0.079***	0.058***	0.097***			
SD_sales	-0.080***	-0.081***	-0.040***	-0.024***	-0.009	0.017***	0.574***		
Size	0.006	0.031***	0.054***	0.077***	-0.005	-0.003	-0.312***	-0.275***	
LNOC	-0.112***	-0.102***	0.079***	-0.042***	0.037***	-0.017***	0.095***	-0.088***	-0.131***
ROA	-0.080***	-0.063***	0.110***	0.114***	0.086***	0.117***	0.186***	0.109***	-0.104***
Leverage	0.043***	0.015**	-0.049***	0.018***	-0.018***	0.019***	-0.125***	-0.070***	0.320***
BM	-0.069***	-0.100***	-0.032***	-0.097***	0.010*	-0.073***	0.004	0.056***	-0.255***
Growth	-0.009	-0.016***	0.010*	0.108***	0.015**	0.105***	0.218***	0.157***	-0.072***
ABSDA	-0.071***	-0.079***	-0.006	0.001	0.011*	0.028***	0.285***	0.220***	-0.235***
Big5	0.018***	0.031***	-0.010*	0.006	-0.012**	-0.011*	-0.075***	-0.052***	0.324***
Loss	-0.066***	-0.094***	-0.121***	-0.101***	-0.118***	-0.104***	0.104***	0.072***	-0.075***
TADBTD	-0.015	-0.024**	0.188***	0.095***	0.197***	0.098***	-0.009	-0.006	0.049***
f_TaxAgg	-0.138***	-0.124***	0.847***	0.817***	0.763***	0.744***	0.065***	-0.050***	0.129***
TaxHaven	-0.029***	-0.017**	0.112***	-0.021**	0.075***	-0.046***	-0.107***	-0.102***	0.387***

Table 2: Continued from previous page

	LNOC	*ROA*	*Leverage*	*BM*	*Growth*	*ABSDA*	*Big5*	*Loss*	*TADBTD*	*f_TaxAgg*
ROA	0.046***									
Leverage	-0.190***	-0.253***								
BM	0.045***	-0.423***	-0.091***							
Growth	-0.062***	0.310***	-0.033***	-0.161***						
ABSDA	0.075***	0.160***	-0.048***	0.000	0.246***					
Big5	-0.065***	-0.011*	0.099***	-0.123***	-0.013**	-0.083***				
Loss	0.034***	-0.126***	0.040***	0.092***	0.045***	0.069***	-0.020***			
TADBTD	0.016*	0.063***	0.009	-0.002	0.040***	-0.010	0.026**	0.048***		
f_TaxAgg	0.019*	0.132***	-0.027***	-0.104***	0.081***	-0.008	0.028***	-0.110***	0.385***	
TaxHaven	0.085***	-0.031***	0.124***	-0.090***	-0.040***	-0.075***	0.115***	0.003	0.008	0.029**

Notes: This table reports Pearson correlation coefficients for the primary variables used in the analysis. All the variables are described in Appendix A. All continuous variables are winsorized at the 1% level. These statistics are based on 26,889 observations. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 3: Tax avoidance and accounting comparability

	CompAcctInd_Mean		*CompAcctInd_Med*	
TAGETR	**-1.317*** **		**-1.504*** **	
	[-9.03]		**[-9.53]**	
TACETR		**-0.603*** **		**-0.681*** **
		[-6.75]		**[-7.21]**
Loss	-0.247***	-0.213***	-0.430***	-0.391***
	[-6.20]	[-5.35]	[-9.84]	[-8.98]
Big5	0.021	0.021	0.042	0.043
	[0.56]	[0.59]	[1.10]	[1.13]
Growth	0.125***	0.158***	0.131***	0.169***
	[2.59]	[3.24]	[2.64]	[3.34]
BM	-0.703***	-0.732***	-0.694***	-0.727***
	[-11.36]	[-11.76]	[-10.71]	[-11.15]
Leverage	-0.077***	-0.076***	-0.083***	-0.082***
	[-6.78]	[-6.68]	[-6.89]	[-6.76]
ROA	-2.526***	-2.628***	-2.415***	-2.534***
	[-8.20]	[-8.41]	[-7.53]	[-7.78]
Size	0.002	-0.000	0.004	0.001
	[0.18]	[-0.01]	[0.31]	[0.10]
LNOC	-0.035	-0.045	-0.047	-0.058
	[-0.81]	[-1.03]	[-1.02]	[-1.26]
SD_sales	-0.116**	-0.109**	-0.103*	-0.095*
	[-2.15]	[-2.03]	[-1.83]	[-1.69]
SD_CFO	-1.050***	-1.078***	-1.117***	-1.151***
	[-5.52]	[-5.68]	[-5.63]	[-5.83]
ABSDA	-0.767***	-0.770***	-0.868***	-0.871***
	[-3.81]	[-3.80]	[-4.14]	[-4.12]
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	26,889	26,889	26,889	26,889
Adjusted R-squared	0.341	0.336	0.216	0.208

Notes: This table reports the regression results on the relation between tax avoidance and accounting comparability. All the variables are described in Appendix A. Standard errors are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 4: Industry-adjusted tax avoidance measures

	Linear regressions				*Piecewise regressions*			
	CompAcctInd_Mean		*CompAcctInd_Med*		*CompAcctInd_Mean*		*CompAcctInd_Med*	
TAGETR_adj	**-1.230*** [-7.96]**		**-1.481*** [-8.89]**					
TACETR_adj		**-0.576*** [-6.12]**		**-0.696*** [-7.03]**				
TAGETR_adj (<0)					**0.012 [0.05]**		**0.150 [0.62]**	
TACETR_adj (>0)					**-2.397*** [-7.74]**		**-3.016*** [-9.05]**	
TAGETR_adj (<0)						**-0.008 [-0.05]**		**0.036 [0.24]**
TACETR_adj (>0)						**-1.408*** [-6.01]**		**-1.770*** [-7.17]**
NEARN	-0.231***	-0.208***	-0.415***	-0.388***	-0.145***	-0.165***	-0.302***	-0.331***
	[-5.81]	[-5.24]	[-9.55]	[-8.93]	[-3.74]	[-4.23]	[-7.18]	[-7.83]
Big5	0.021	0.021	0.042	0.042	0.019	0.020	0.040	0.041
	[0.56]	[0.57]	[1.10]	[1.10]	[0.52]	[0.55]	[1.04]	[1.09]
Growth	0.125**	0.154***	0.131***	0.166***	0.130***	0.163***	0.138***	0.178***
	[2.58]	[3.16]	[2.62]	[3.30]	[2.69]	[3.33]	[2.76]	[3.52]
BM	-0.707***	-0.733***	-0.697***	-0.728***	-0.701***	-0.723***	-0.689***	-0.715***
	[-11.40]	[-11.78]	[-10.73]	[-11.17]	[-11.22]	[-11.61]	[-10.52]	[-10.97]
Leverage	-0.077***	-0.076***	-0.083***	-0.082***	-0.075***	-0.073***	-0.080***	-0.078***
	[-6.79]	[-6.70]	[-6.90]	[-6.76]	[-6.64]	[-6.47]	[-6.73]	[-6.50]
ROA	-2.549***	-2.644***	-2.428***	-2.543***	-2.693***	-2.769***	-2.617***	-2.704***
	[-8.25]	[-8.44]	[-7.56]	[-7.79]	[-8.62]	[-8.67]	[-8.05]	[-8.13]
Size	0.003	0.000	0.005	0.002	-0.000	-0.002	0.001	-0.001
	[0.20]	[0.00]	[0.34]	[0.12]	[-0.03]	[-0.18]	[0.06]	[-0.11]
LNOC	-0.036	-0.045	-0.047	-0.058	-0.039	-0.047	-0.051	-0.060
	[-0.83]	[-1.03]	[-1.03]	[-1.27]	[-0.89]	[-1.07]	[-1.10]	[-1.31]
SD_sales	-0.115**	-0.108**	-0.102*	-0.094*	-0.119**	-0.112**	-0.108*	-0.099*
	[-2.13]	[-2.00]	[-1.82]	[-1.68]	[-2.20]	[-2.07]	[-1.91]	[-1.77]

Table 4: Continued from previous page

SD_CFO	-1.059***	-1.087***	-1.118***	-1.152***	-0.944***	-0.980***	-0.968***	-1.013***
	[-5.56]	[-5.72]	[-5.63]	[-5.84]	[-4.98]	[-5.16]	[-4.90]	[-5.15]
ABSDA	-0.756***	-0.765***	-0.855***	-0.866***	-0.734***	-0.726***	-0.827***	-0.816***
	[-3.75]	[-3.77]	[-4.08]	[-4.09]	[-3.68]	[-3.63]	[-3.99]	[-3.92]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,889	26,889	26,889	26,889	26,889	26,889	26,889	26,889
Adjusted R-squared	0.339	0.336	0.214	0.208	0.342	0.337	0.219	0.211

Notes: This table reports the regression results on the relation between tax avoidance and accounting comparability, obtained using the industry-adjusted measures of tax avoidance, *TAGETR_adj* and *TACETR_adj* (see Section 3.2). The variables used in the piecewise regressions are defined as follows. *TAGETR_adj (<0)* is equal to *TAGETR_adj* if *TAGETR_adj* is lower than zero; it is equal to zero otherwise. *TAGETR_adj (>0)* is equal to *TAGETR_adj* if *TAGETR_adj* is greater than zero; it is equal to zero otherwise. *TACETR_adj (<0)* is equal to *TACETR_adj* if *TACETR_adj* is lower than zero; it is equal to zero otherwise. *TACETR_adj (>0)* is equal to *TACETR_adj* if *TACETR_adj* is greater than zero; it is equal to zero otherwise. All the other variables are described in Appendix A. Standard errors are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 5: Accounting comparability based on the relation between stock returns and pre-tax income

Panel A: Unadjusted measures of tax aggressiveness				
	CompAcctInd_PTI_Mean		*CompAcctInd_PTI_Med*	
TAGETR	-0.719*** *[a]*		-0.961*** *[a]*	
	[-3.82]		[-4.80]	
TACETR		-0.346*** *[a]*		-0.467*** *[a]*
		[-2.93]		[-3.78]
Control variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	26,781	26,781	26,781	26,781
Adjusted R-squared	0.292	0.292	0.196	0.194
TAG©ETR (Table 3)	-1.317 *[b]*	-0.603 *[b]*	-1.504 *[b]*	-0.681 *[b]*
[a]-[b]	0.598***	0.257***	0.543***	0.214***

Panel B: Adjusted measures of tax aggressiveness				
	CompAcctInd_PTI_Mean		*CompAcctInd_PTI_Med*	
TAGETR_adj	-0.592*** *[a]*		-0.900*** *[a]*	
	[-2.94]		[-4.21]	
TACETR_adj		-0.300*** *[a]*		-0.457*** *[a]*
		[-2.40]		[-3.75]
Control variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	26,781	26,781	26,781	26,781
Adjusted R-squared	0.292	0.291	0.195	0.194
TAG(C)ETR_adj (Table 4)	-1.230 *[b]*	-0.576 *[b]*	-1.481 *[b]*	-0.696 *[b]*
[a]-[b]	0.638***	0.276***	0.581***	0.239***

Notes: This table reports the regression results on the relation between tax avoidance and accounting comparability; in these regressions, we use the accounting comparability measures based on the relation between pre-tax income and stock returns, *CompAcctInd_PTI_Mean* and *CompAcctInd_PTI_Med*. The last row reports the significance of a *Chi-square* test for the null hypothesis that the coefficients on the tax avoidance measures are equal to those in Table 3 (for *TAGETR* and *TACETR*) and in Table 4 (for *TAGETR_adj* and *TACETR_adj*). All the variables are described in Appendix A. In the last rows we compare the coefficients on the tax avoidance measures in Table 3 and Table 4. Standard errors are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 6: Alternative tax avoidance measures

	CompAcctInd_Mean	*CompAcctInd_Med*	*CompAcctInd_Mean*	*CompAcctInd_Med*	*CompAcctInd_Mean*	*CompAcctInd_Med*
TADBTD	**-0.213**	**-0.426****				
	[-1.18]	**[-2.07]**				
f_TaxAgg			**-0.084*****	**-0.110*****		
			[-5.23]	**[-6.53]**		
TaxHaven					**-0.005*****	**-0.005*****
					[-3.65]	**[-3.57]**
Loss	-0.807***	-1.261***	-0.112**	-0.270***	-0.577***	-0.923***
	[-12.42]	[-16.98]	[-2.11]	[-4.62]	[-11.18]	[-15.56]
Big5	0.170***	0.172***	0.018	0.032	0.137**	0.156**
	[2.91]	[2.64]	[0.41]	[0.68]	[2.10]	[2.09]
Growth	0.097*	0.098	0.068	0.080	0.241***	0.247***
	[1.68]	[1.51]	[1.15]	[1.39]	[4.09]	[3.63]
BM	-0.168***	-0.144**	-0.606***	-0.606***	-0.147**	-0.109
	[-2.58]	[-2.00]	[-8.80]	[-8.30]	[-2.17]	[-1.43]
Leverage	-0.053***	-0.059***	-0.078***	-0.079***	-0.033***	-0.040***
	[-4.56]	[-4.58]	[-4.71]	[-4.78]	[-3.74]	[-3.99]
ROA	2.281***	3.259***	-1.617***	-1.506***	3.205***	4.500***
	[11.73]	[14.98]	[-5.44]	[-5.03]	[15.24]	[18.43]
Size	0.090***	0.117***	0.038**	0.033**	0.092***	0.121***
	[6.09]	[7.06]	[2.53]	[2.20]	[6.20]	[7.21]
LNOC	0.010	0.017	0.045	0.034	0.123***	0.129**
	[0.18]	[0.27]	[0.97]	[0.70]	[2.68]	[2.41]
SD_sales	-0.220***	-0.223**	-0.000	0.000	-0.192**	-0.164*
	[-2.84]	[-2.56]	[-0.88]	[0.19]	[-2.36]	[-1.74]
SD_CFO	-0.357***	-0.454***	-1.239***	-1.217***	-0.643***	-0.820***
	[-2.85]	[-3.11]	[-6.34]	[-5.98]	[-3.83]	[-4.25]
ABSDA	-1.377***	-1.452***	-0.403*	-0.425*	-1.635***	-1.841***
	[-4.71]	[-4.32]	[-1.82]	[-1.90]	[-5.40]	[-5.27]

Table 6: Continued from previous page

Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,802	15,802	9,641	9,641	22,208	22,208
Adj. R-squared	0.366	0.389	0.426	0.305	0.363	0.353

Notes: This table reports the regression results on the relation between tax avoidance and accounting comparability, obtained using the alternative measures of tax avoidance which are described in Section 5.1. All the variables are described in Appendix A. Standard errors are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 7: Accounting comparability around the introduction of the CTB regulation

	CompAcctInd_Mean	*CompAcctInd_Med*
Post_CTB*×*Treated	**-0.317***	**-0.360****
	[-1.92]	**[-2.02]**
Treated	0.061	0.013
	[0.56]	[0.11]
Loss	-0.286**	-0.464***
	[-2.30]	[-3.26]
Big5	0.088	0.063
	[0.51]	[0.35]
Growth	0.082	0.050
	[0.49]	[0.27]
BM	-0.426**	-0.407*
	[-2.09]	[-1.90]
Leverage	-0.067*	-0.077*
	[-1.93]	[-1.92]
ROA	0.977**	1.811***
	[2.36]	[3.88]
Size	0.074***	0.111***
	[2.87]	[3.73]
LNOC	-0.010	0.054
	[-0.08]	[0.35]
SD_sales	0.128	0.185
	[0.59]	[0.78]
SD_CFO	-1.632**	-2.038***
	[-2.31]	[-2.84]
ABSDA	-0.818	-0.730
	[-0.79]	[-0.63]
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	980	980
Adj. R-squared	0.414	0.451

Notes: This table reports the results of the difference-in-differences analysis on the effect of the introduction of the CTB regulation on accounting comparability. We concentrate our analysis on the two three-year periods (1994-1996 and 1998-2000) surrounding the enactment of the CTB regulation. *Post_CTB* equals one if the firm-year observation falls in the period between 1998 and 2000, and zero if the observation is between 1994 and 1996. Using PSM, we match, one to one with replacement, the observations which correspond to multinational firms to non-multinational firms. *Treated* equals one if the firm is multinational and zero otherwise. All the other variables are described in Appendix A. We note that the variable *Post_CTB* (main effect) is not included as it is subsumed by the year fixed effects. The research design is described in Section 5.2 in detail. Standard errors are clustered by firm. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.