Does Tax-Motivated Income Shifting Make Forecasting Harder for Internationally Diverse Firms?

By

Mary E. Vernon

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The dissertation is approved by the following members of the Final Oral Committee:
Stacie K. Laplante, Associate Professor, Business
Fabio B. Gaertner, Associate Professor, Business
Daniel P. Lynch, Associate Professor, Business
Thomas J. Linsmeier, Professor, Business
Kim J. Ruhl, Associate Professor, Economics

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ABSTRACT

This study examines whether tax-motivated income shifting helps explain the negative association between international diversification and analysts' earnings per share forecast accuracy. Recent OECD, FASB, and SEC discussions suggest firms' international expansions and tax-motivated income shifting are of increased interest to policymakers, regulators, and financial statement users. I find both international diversification and tax-motivated income shifting have negative effects on forecast accuracy, but the combination of these two concepts only affects analysts' forecasts when firms expand their international footprint because of tax-motivated income shifting incentives. These less accurate forecasts continue for the three years following expansion and subsequently dissipate. As regulators and policymakers continue their deliberations of firms' international expansions and coinciding tax-motivated income shifting, my results suggest the incentive behind a firm's international expansion is an important factor regarding the information environment around firm diversification abroad.

I. INTRODUCTION

This study examines whether tax-motivated income shifting helps explain the negative association between international diversification and analysts' earnings per share forecast accuracy. International diversification reflects the extent to which a multinational firm's activities (operations and income) are globally dispersed; tax-motivated income shifting is a tax planning strategy that relocates income or expenses to exploit tax law differences across jurisdictions. As firms become more internationally diverse, analysts' earnings per share forecasts become less accurate (Nichols, Tunnel, and Seipel 1995; Duru and Reeb 2002). Likewise, as firms engage in more tax-motivated income shifting their information environments become less transparent (Chen, Hepfer, Quinn, and Wilson 2018; Balakrishnan, Blouin, and Guay 2019; Francis, Neuman, and Newton 2019). However, there is no evidence of whether tax-motivated income shifting is a driving factor in the less accurate forecasts of internationally diverse firms.

Examining the market's understanding of international diversification and tax-motivated income shifting is important and timely. A two-decade-long expansion of firms internationally and a coinciding decrease in firms' effective tax rates spurred interest from financial statement users as well as reactions from regulators and standard-setters regarding a firm's global footprint and international tax planning strategies.[1] Many regulatory and standard-setting entities require or are considering requiring information about the global footprint and related jurisdictional tax

[1] For example, for firms in my sample existing in both 2000 and 2015, the number of countries listed on Exhibit 21 went from a mean (median) of 22 to 34 (17 to 30) and the absolute value of foreign income to total income went from a mean (median) of 40 percent to 72 percent (28 percent to 60 percent). Meanwhile, GAAP effective tax rates went from 33 percent to 25 percent (34 percent to 26 percent). This downward trend in effective tax rates is consistent with prior literature (Dyreng, Hanlon, Maydew, and Thornock 2017; Drake, Hamilton, and Lusch 2020).

information of the firm to improve the information environment around firms' international diversification and tax-motivated income shifting. Through these actions, regulators and standard setters presumably view these two sources of low information transparency as similar constructs and imply that by disclosing information about one, users will learn valuable information about the other. However, there is limited evidence supporting this presumption.

Prior literature separately examines the market's ability to incorporate, measured as analyst forecast accuracy, firms' international diversification (Duru and Reeb 2002) and the information environment effects of tax-motivated income shifting (e.g., Chen et al. 2018). Duru and Reeb (2002) suggest that a firm's ability to "transfer profits or losses within to take advantage of international tax differences" is a factor when diversifying internationally (p. 418). With a broader global footprint, firms gain more opportunities to take advantage of jurisdictional tax differences. Tax-motivated income shifting creates a misalignment between the economic location of income and the reported location of the income and increases the financial complexity of the firm, leading to a less transparent information environment (Chen et al. 2018; Balakrishnan et al. 2019). Therefore, determining future growth rates for various revenue streams and forecasting when and how income will be taxed could be even more burdensome as the alignment of economic activity and reporting location of that activity differs, especially for firms with large global footprints. Further, the extent of a firm's global footprint is not always clear in the firm's financial filings, and prior literature suggests the information environment around a firm's tax planning is generally poor (e.g., Hope, Ma, and Thomas 2013; Balakrishnan et al. 2019). Yet, the academic literature provides little evidence of whether international diversification and tax-motivated income shifting, two separate but related items that each increase the financial complexity of the firm, combine to affect analyst forecast accuracy.

Simultaneously examining international diversification and tax-motivated income shifting is especially important as these are related but not necessary and sufficient conditions for each other. When discussing tax-motivated income shifting, media reports often focus on the tax planning of large, internationally diverse corporations, linking these two items closely together.[2] While international diversification can increase a firm's opportunity to engage in tax-motivated income shifting, internationally diverse firms do not necessarily engage in more income shifting. Likewise, an aggressive income shifter is not necessarily highly diverse internationally. Multinational firms with tax planning incentives could implement income shifting strategies with subsidiaries across only a few countries (e.g., Ireland, The Netherlands, and Bermuda) or with multiple subsidiaries across numerous countries. Therefore, whether tax-motivated income shifting helps explain the association between international diversification and analysts' earnings per share forecast accuracy is an empirical question.

Using a sample of 9,017 multinational firm-year observations from 1999 through 2016, I estimate whether the association between earnings per share forecast accuracy and international diversification differs based on a firm's level of tax-motivated income shifting. I include covariates for forecasting characteristics, firm characteristics, and geographic disclosure tendencies. I corroborate Duru and Reeb's (2002) original findings by confirming that international diversification results in less accurate earnings per share forecasts in my sample. Economic magnitude estimates in my sample suggest an economically significant $0.03 per share less accurate forecast associated with a one standard deviation increase in international

[2] Examples include Apple (e.g., https://fortune.com/2018/01/18/apple-bonuses-money-us-350-billion-taxes-trump/), Google (Alphabet, Inc) (e.g., https://www.theguardian.com/technology/2020/jan/01/google-says-it-will-no-longer-use-double-irish-dutch-sandwich-tax-loophole), and Starbucks (e.g., https://www.reuters.com/article/us-britain-starbucks-tax/special-report-how-starbucks-avoids-uk-taxes-idINBRE89E0EX20121015).

diversification and a $0.05 per share less accurate forecast associated with a one standard deviation increase in tax-motivated income shifting. These economic estimates suggest both international diversification and tax-motivated income shifting have economically significant negative effects on analyst forecast accuracy.

While I find that international diversification and income shifting separately have negative effects on forecast accuracy, I do not detect a significant coefficient when I include a simple interaction of international diversification and tax-motivated income shifting, on average. However, I hypothesize and find that as firms expand their international footprint due to tax-motivated income shifting incentives by establishing a subsidiary in a tax haven, analysts' earnings per share forecasts become less accurate. In further analysis, the less accurate forecasts related to international diversification because of tax-motivated income shifting incentives continue for the three years after the expansion but appear to subsequently dissipate.

This study makes numerous contributions to the accounting and finance literature. These findings provide empirical evidence of the effects of international diversification and tax-motivated income shifting on analyst forecast accuracy. This is timely as regulatory, standard-setting, and policymaking entities require or are considering requiring information about the global footprint and related jurisdictional tax information of the firm. The Organization for Economic Cooperation and Development's (OECD) base erosion and profit shifting initiative to curb tax-motivated income shifting is an example of one response to expanding global footprints and decreasing effective tax rates (OECD 2015). Part of the OECD's initiative involves the disclosure of tax and accounting information on a tax-jurisdictional (country-by-country) basis. The purpose of the reporting is to improve the information environment between taxing authorities and taxpayers regarding a firm's tax-motivated income shifting due to the "lack of

quality data on corporate taxation" (OECD 2015).[3] The U.S. Internal Revenue Service (IRS) now requires this type of filing for U.S. multinational firms, although the filings are only visible to taxing authorities.

Standard-setters and regulators are also debating what geographically segmented accounting information firms should disclose, if any, to public financial statement users. The FASB considered country-by-country reporting of pre-tax income and tax expense in a proposed standard but concluded that the implementation and disclosure costs were too high (FASB 2019). In response to this lack of additional requirements, a group of U.S. Senators urged the FASB to require public firms to report country-by-country information. In their letter, the Senators suggest the disclosure is for "lawmakers, the public, and investors" to determine whether such low worldwide tax rates are explained by public purpose tax breaks or related to "unsustainable tax practices that exploit unintended loopholes."[4]

Further, the Securities and Exchange Commission (SEC) is also interested in addressing the information environment related to a firm's global footprint and tax-motivated income shifting. Recent SEC comment letters focus on "operations located in foreign jurisdictions" with regards to firms' tax rate reconciliations. One comment includes a desired disclosure of "the primary taxing jurisdictions where your foreign earnings are derived and the relevant statutory rates in those jurisdictions" (EY 2020, p. 35). I provide more details of the OECD/IRS, FASB, and SEC requirements, proposals, and comments in Appendix 1. These recent discussions

[3] Per the OECD website description on "What is the issue?" regarding Action 13 Country-by-Country Reporting. Available at http://www.oecd.org/tax/beps/beps-actions/action13/ (accessed 12/22/2020).
[4] See the full letter and associated U.S. Senators at: https://www.vanhollen.senate.gov/imo/media/doc/Financial%20Accounting%20Standards%20Board%20Letter%209.30.19.pdf.

suggest firms' international diversification and tax-motivated income shifting are inter-related topics of increased interest to worldwide policymakers and regulators.

As OECD, FASB, and SEC discussions develop around firms' international expansions and tax-motivated income shifting, understanding how these two concepts interact is one important factor in determining what information could be useful to financial statement users. For example, my results suggest that although analysts struggle to incorporate the complicating effects of international diversification and tax-motivated income shifting, the combination of these two concepts is important only when tax-motivated income shifting primarily drives the firm's expansion internationally.

Second, I contribute to the analyst forecast, geographic diversification, and tax literatures. This study connects multiple literatures that examine firms' expansions abroad, coinciding reductions in effective tax rates, and the market's understanding of these connected concepts. This study also contributes to the literature on the capital market effects of firm diversification (e.g., Tong 2011; Volkov and Smith 2015) by examining how markets comprehend the effects of international diversification and related tax-motivated income shifting. This study finds the incentive behind a firm's expansion internationally is an important factor regarding the information environment around firm diversification abroad and tax-motivated income shifting.

II. LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Analyst Forecasts & Geographic Diversification

Analysts are important financial statement users and the intermediary processors of accounting information for investors (Schipper 1991). Accurate forecasts are important because they represent the capital markets' earnings expectations and are used in firm valuations (e.g., O'Brien 1988; Schipper 1991; Duru and Reeb 2002). Many studies examine determinants of forecast accuracy to investigate when and why analysts' forecasts are potentially poor proxies for expectations and valuations.

Generally, as the complexity of a task increases, performance in that task decreases (e.g., Bonner 1994; Plumlee 2003). The forecasting literature also supports that as complexity increases, forecasting becomes more difficult. For example, Haw, Jung, and Ruland (1994) find that forecast accuracy declines after mergers, but this dip in accuracy only lasts about four years when accuracy returns to pre-merger levels. Baldwin (1984) finds that segment disclosures increase forecast accuracy as this additional disclosure assists analysts in understanding the firm, especially for firms with multiple segments that did not previously disclose segmented earnings. Dunn and Nathan (2009) show that as industry diversification increases analysts' forecasts become less accurate. Bhushan (1989) similarly finds that as the number of business segments increases, analyst following decreases, suggesting the cost to the analyst of following that firm due to the complex nature outweighs the potential benefits. The information complexity around intangible assets also leads to less accurate forecasts (Gu and Wang 2005). In sum, forecast accuracy declines as forecast complexity increases and as transparency decreases.

International diversification is an area of accounting complexity that analysts increasingly face as corporations become more global. International diversification means how disperse a

multinational firm is around the world regarding sales and operations. Multiple studies analyze the effects of *geographic* diversification on various accounting and financial consequences. For example, lower geographic diversification across states is associated with higher stock returns to compensate for the lack of diversification (Garcia and Norli 2012).[5] Geographic diversification across states is also associated with lower accrual-based earnings management and higher real-earnings management (Shi, Sun, and Luo 2015). Further, geographic diversification across U.S. regions has valuation impacts (Gao, Ng, and Wang 2008).

Pertinent to this study, prior literature finds that forecasting earnings per share is harder for geographically diversified firms due to the poor information environment. Duru and Reeb (2002) find that forecasting earnings per share is more complex for internationally diversified firms. The Duru and Reeb (2002) sample is after the passage of SFAS 14, which required the disaggregation of certain disclosures into geographic segments. Nichols et al. (1995) found SFAS 14 helped analysts provide more accurate forecasts for multinational firms. However, management guidance for internationally diverse corporations deteriorates after Regulation Fair Disclosure (Herrmann, Hang, and Kim 2010). Mauri, Lin, and Neiva de Figueiredo (2013) support that analysts' forecast accuracy depends on the type of international diversification, horizontal (market/sales expansion) or vertical (supply chain). Platikanova and Mattei (2016) provide similar inferences to those of Duru and Reeb (2002) when examining within-country diversification (states).

[5] Studies that examine geographic diversification either examine diversification across states/regions within the U.S. or across countries. The inferences from either type of study are often applied to either setting. I indicate in my study which setting each study uses for geographic diversification for clarification as to why I do not follow specific proxies used in these other studies.

Duru and Reeb (2002) suggest the complexity of forecasting earnings could stem from growth volatility across countries, tax-motivated income shifting, greater manager discretion, or cultural bounds. However, Duru and Reeb (2002) did not test any of these explanations. While Platikanova and Mattei (2016) provide an updated examination of geographic diversification and forecasting, they limit their examination to within-country diversification (U.S. states) and do not specifically examine tax differences across areas of diversification. Many of the explanations offered by Duru and Reeb (2002) (e.g., manager discretion abroad, analyst cultural knowledge, broad tax-motivated income shifting) are not directly applicable or testable in the state setting. In summary, geographic diversification contributes to a poor information environment and is associated with multiple accounting and finance outputs and metrics. I add to this literature by examining whether tax-motivated income shifting is a specific factor related to international diversification that could lead to less accurate analyst earnings per share forecasts. I further the understanding of the interaction between these two concepts.

Analyst Forecasts & Tax Planning

Tax-Motivated Income Shifting

Multinational firms engage in income shifting, leading to a "substantial redistribution" of corporate tax revenues (Hines and Rice 1994; Huizinga and Laeven 2008, p. 1164; Klassen and Laplante 2012; Blouin and Robinson 2020; Clausing 2020). I focus on tax-motivated income shifting due to its prevalence in the media, academic literature, and, most relevantly, policymakers' and regulators' agendas (e.g., Klassen and Laplante 2012; OECD 2015; Bloomberg 2018; De Simone, Mills, and Stomberg 2019; FASB 2019; Blouin and Robinson 2020). Further, inherent forecasting complexity is present in this specific strategy. Chen et al. (2018) find that tax-motivated income shifting increases firm complexity and decreases

transparency, underlying mechanisms leading to lower information quality. Duru and Reeb (2002) suggest that a firm's ability to "transfer profits or losses within to take advantage of international tax differences" is a factor in forecasting when diversifying internationally.

Tax-motivated income shifting creates a misalignment between the economic location of income and the reported location of the income. Therefore, determining future growth rates for various revenue streams and forecasting when and how income will be taxed is even more burdensome especially when financial statement users do not have a full understanding of the firm's international operations. Further, accounting for income taxes for multinational firms introduces additional complexities not present when determining GAAP tax expense for domestic firms. When accounting for income taxes, corporations must consider differences in treatment of activity between accounting (GAAP) and tax purposes, creating book-tax differences. Specific to multinational firms, permanent book-tax-differences relate to different tax bases, foreign rate structures, tax-based financing provisions, foreign tax credits, permanently reinvested earnings ("deferral"), and consolidation differences for foreign subsidiaries for tax and accounting purposes (Raabe, Young, Hoffman, Nellen, and Maloney 2020; Hanlon and Maydew 2009). These additional accounting considerations increase the necessary knowledge needed to incorporation a firm's tax motivation income shifting activity into earnings per share forecasts. Overall, this line of literature suggests that tax-motivated income shifting increases the general complexity of the firm and decreases the firm's transparency (Chen et al. 2018; Balakrishnan et al. 2019).

Tax Information Disclosure

Along with the inherent complexity in forecasting for firms engaging in tax-motivated income shifting, prior literature suggests the information environment around a firm's tax

planning information is generally poor (e.g., Hope et al. 2013; Deng, Gaertner, Lynch, and Steele 2020). Prior literature suggests analysts struggle to incorporate tax information into forecasts and valuations (e.g., Amir and Sougiannis 1999; Chen, Danielson, and Schoderbek 2003; Plumlee 2003; Shane and Stock 2006; Weber 2009; Kim, Schmidt, and Wentland 2015; Hutchens 2017; Balakrishnan et al. 2019; Francis et al. 2019). This struggle to incorporate seems to stem at least partly from the proprietary costs of tax avoidance and disclosing tax information. Firms engaging in tax avoidance (such as tax-motivated income shifting) are less likely to disclose specific, often international, tax information. Hope et al. (2013) find that firms discontinuing disclosure of geographic segments (earnings) after SFAS 131 have lower worldwide effective tax rates.[6] Deng et al. (2020) find firms disclosing geographic instead of business segments use more discretion in disclosing geographic-level tax information. Likewise, Osswald (2019) finds riskier tax planning attenuates the otherwise positive association between internal and external information quality, suggesting proprietary costs of tax disclosure.

The reduction in disclosure due to proprietary costs appears to decrease a firm's level of information transparency. Balakrishnan et al. (2019) find greater analysts' earnings forecast errors due to a less transparent information environment when firms are more tax aggressive. Although, that study also supports that managers attempt to mitigate this transparency issue by providing more tax information in the MD&A and over conference calls. Balakrishnan et al. (2019) examine how aggressive tax planning affects corporate transparency, proxied by analyst forecast errors and bid/ask spreads. My study differs from, yet compliments, this study in a number of ways. First, international diversification does not equate to tax aggressiveness. Balakrishnan et al. (2019) control for geographic diversification, understanding that these

[6] This effect lessens after the IRS's implementation of the Form M-3 reconciling book and tax income.

concepts are not the same. Furthermore, Balakrishnan et al. (2019) rely on the finding by Duru and Reeb (2002) that geographic diversification leads to less accurate analyst forecasts, whereas my study further examines this general relation to determine the role of tax-motivated income shifting. Finally, Balakrishnan et al. (2019) include geographic diversification in their regressions as a *control* variable. However, making theoretical inferences from the relation between control and dependent variables without appropriate research design choices made to examine that specific relation is a misguided task, especially related to possible colliding variables or "bad controls" in the regression (Swanquist and Whited 2018).

Chen et al. (2018) also find that tax-motivated income shifting decreases financial statement transparency. Similarly, Francis et al. (2019) find firms spending more on tax planning, in general, have higher earnings forecast errors. However, Lewellen (2019) finds the low transparency associated with tax havens (common tax-motivated income shifting tools) is not ubiquitous. Overall, this line of literature suggests that tax avoidance reduces disclosure quality and reduces the quality of the information environment.

Likewise, prior literature discusses the complexity and difficulty in understanding tax disclosures and footnotes that are provided by firms (Graham, Raedy, and Shackelford 2012; Lundholm and Sloan 2007; Hutchens 2017), possibly leading to the challenge in forecasting when incorporating this information. Weber (2009) finds larger analyst earnings per share forecast errors related to larger book-tax differences; while Hutchens (2017) finds larger analyst effective tax rate forecast errors when firms discuss changes in the valuation allowance, permanently reinvested earnings, or net operating loss carryforwards as well as when firms have research and development expenditures, high permanent book/tax differences, or unrecognized

tax benefits. Therefore, these lines of literature together suggest that not only does tax avoidance reduce the disclosure quality of the firm, but that tax information itself is hard to understand.

Despite regulatory calls for more information on foreign operations and associated tax planning, prior literature does not empirically examine whether tax-motivated income shifting and international diversification interact to affect the market's ability to forecast future earnings. Therefore, my study examines whether tax-motivated income shifting is a driving factor in the negative relation between a firm's international diversification and analyst forecast accuracy.

Hypothesis Development

To form my hypotheses, I consider the international diversification and tax-motivated income shifting literatures together. Prior literature points to less accurate forecasts and poor information environments related to international diversification and to tax-motivated income shifting. However, no study of which I am aware explores the interactions of these two concepts. I am specifically interested in whether developing forecasts for internationally diverse firms is harder due to their engagement in tax-motivated income shifting.

Hypothesis 1

Tax-motivated income shifting creates a misalignment between the economic location of income and the reported location of the income. Therefore, determining future growth rates for various revenue streams and forecasting when and how income will be taxed could be even more burdensome, especially for firms with large global footprints. Although international diversification and tax-motivated income shifting are likely related, they are not necessary and sufficient conditions for each other. An internationally diversified firm does not necessarily engage in more income shifting, and a firm engaging in a lot of income shifting is not necessarily internationally diverse. Multinational firms with tax planning incentives could implement

income shifting strategies with only a few subsidiaries across a few countries (e.g., in Ireland and Luxembourg) or with multiple subsidiaries across numerous countries. Further, I could find no prior empirical evidence that internationally diverse firms engage in any more income shifting than less internationally diverse firms.

Prior empirical studies show a negative association between international diversification and analyst forecast accuracy. Further, tax aggressiveness leads to decreased analyst forecast accuracy due to a less transparency environment, and tax-motivated income shifting is a specific aggressive tax planning strategy shown to lead to less transparency (Balakrishnan et al. 2019; Chen et al. 2018). However, no studies examine how international diversification and tax-motivated income shifting interact to affect analyst forecast accuracy, even though there is an inherent economic connection between the two concepts. With the lack of theory examining either the co-dependency of these two concepts or whether internationally diverse firms engage in any more income shifting than less internationally diverse firms, I propose the following hypothesis in the null:

> ***Hypothesis 1:*** *The effect of international diversification on analysts' forecast accuracy does not differ by firm engagement in tax-motivated income shifting, ceteris paribus.*

Hypothesis 2

My second hypothesis focuses on the motivation for diversifying abroad that could lead to tax-motivated income shifting playing an important role in the association between international diversification and analyst forecast accuracy. Although international diversification and tax-motivated income shifting are not necessary and sufficient conditions for each other, there can be situations when the two concepts are more inherently connected. When tax-motivated income shifting incentives drive a firm's diversification abroad, the firm's level of

international diversification is now more influenced by the firm's tax-motivated income shifting. In this situation, I expect a firm's tax-motivated income shifting to play a stronger role in the relation between international diversification and analysts' earnings per share forecast accuracy because tax-motivated income shifting is associated with an increase in complexity and a decrease in transparency.

To exemplify the differing relations among international diversification and tax-motivated income shifting, consider two types of firms. Some firms diversify internationally for operational or sales growth reasons and, once established abroad, take advantage of income shifting opportunities. Tax-motivated income shifting, in this scenario, is more of a by-product of international diversification than a reason for it. Tax-motivated income shifting and international diversification are connected only through the ex-post utilization of existing tax differences across jurisdictions in which the firm operates. Further, the firm's level of international diversification is less dependent on the firm's tax-motivated income shifting incentives.

In contrast, other firms diversify internationally primarily to take advantage of income shifting opportunities. For example, firms add a subsidiary in a tax haven (e.g., Barbados, Cayman Islands) to primarily take advantage of lower statutory corporate tax rates and transfer-pricing agreements, as these types of countries typically have a low gross domestic product and limited growth opportunities. Richardson and Taylor (2015) find tax haven utilization is associated with income shifting incentives, suggesting income shifting is a strong motivator for entering a tax haven. Still, the firm is expanding its international diversification when entering and utilizing a tax haven for tax purposes. In this scenario, international diversification is more dependent on the firm's tax-motivated income shifting, and the financial complexities that

underlie tax-motivated income shifting are more important to understanding the firm's international diversification.

These examples describe two hypothetical firms with similar levels of international diversification but differing inter-dependencies between tax-motivated income shifting and international diversification. When tax-motivated income shifting incentives drive a firm's international diversification, I predict the firm's tax-motivated income shifting to play a stronger role in the relation between international diversification and the inaccuracy of analysts' earnings per share forecasts. Therefore, I state my second hypothesis in the alternative as follows:

> ***Hypothesis 2:*** *The effect of international diversification on analysts' forecast accuracy is stronger for firms diversifying internationally to take advantage of tax-motivated income shifting opportunities, ceteris paribus.*

III. RESEARCH DESIGN

Hypothesis 1

For hypothesis 1, I examine the role of tax-motivated income shifting in the relation between international diversification and analysts' earnings per share forecast accuracy using OLS regression analysis. I use the following model to estimate this relation:

$$Accuracy\ EPS_{i,t} = \gamma_0 + \gamma_1 ID_{i,t-1} + \gamma_2 Income\ Shifting_{i,t-1} +$$
$$\gamma_3 ID_{i,t-1} * Income\ Shifting_{i,t-1} + \Sigma_k \gamma_k Controls_{i,t-1} + Industry_l + Year_t + \varepsilon_{i.t} \quad (1)$$

In equation (1), *Accuracy EPS* represents earnings per share forecast accuracy and equals negative one times the absolute value of the difference between consensus (mean) forecasted earnings per share and actual earnings per share scaled by beginning of year price. I examine consensus forecasts for firm (*i*) and year (*t*). I focus on the yearly consensus forecast in the third month after the prior year-end to ensure the firm's prior-year financial statements are available (Duru and Reeb 2002). *ID* is international diversification; *Income Shifting* is tax-motivated income shifting.

When examining analyst forecasts, it is important to understand that sell-side analysts for clearinghouse services (e.g. *I/B/E/S, Zacks, First Call)* track "Street" earnings instead of earnings calculated following generally accepted accounting principles (GAAP). Compared to GAAP earnings, Street earnings typically exclude certain expenses such as restructuring charges, impairments, research and development expenses, and merger and acquisition costs (special items or non-cash items) (Bradshaw and Sloan 2002), so these one-time items are not a concern in my setting. Bradshaw and Sloan (2002) find and Bradshaw, Christensen, Gee, and Whipple (2020) confirm that the Street earnings are a primary determinant of stock prices rather than

GAAP earnings. Finally. Beardsley, Mayberry, and McGuire (2020) find that Street effective tax rates are more informative than GAAP effective tax rates.

I mean-center the continuous right-hand side variables when an interaction is used to ease the interpretation of the results. Since *ID* and some of my measures of *Income Shifting* do not contain zeros as actual observations, the coefficients on γ_1 and γ_2 would be uninterpretable if not mean-centered. Interpreting these coefficients is important because no studies to my knowledge have explicitly examined the direct effect of tax-motivated income shifting on analyst forecast accuracy, specifically for firms with geographic disclosures available for public use. With this mean-centered specification, a negative coefficient on *ID* means that for a firm with the mean level of *Income Shifting*, an increase in *ID* results in less accurate forecasts. A negative coefficient on *Income Shifting* would suggest that for a firm with the mean level of *ID*, an increase in *Income Shifting* results in less accurate forecasts. The coefficient on *ID*Income Shifting* represents the relation between *ID* and *Accuracy EPS* when increasing the value of *Income Shifting*. An insignificant coefficient on *ID*Income Shifting* would not reject the null hypothesis 1. A significant and negative coefficient on *ID*Income Shifting* would reject hypothesis 1 and support that the level of tax-motivated income shifting for internationally diverse firms affects analyst forecast accuracy. Given the prior literature shows a negative effect of international diversification and tax-motivated income shifting separately, I only expect a negative or insignificant combined effect in the coefficient on *ID*Income Shifting*.

I also include year and industry fixed effects with industries defined following Barth, Beaver, Hand, and Landsman (2005) as these are more meaningful groupings of industries from a tax perspective. Appendix 2 defines variables and provides corresponding Compustat and I/B/E/S mnemonics. I remove influential observations and outliers based on Cook's *D* when

estimating the model (Cook 1977). Per Leone, Minutte-Meza, and Wasley (2019), the nature of accounting rules along with wide cross-sectional and time-series variation leads to influential observations affecting inferences, and winsorizing or truncating is not the most effective way to accommodate these observations.[7] Alternative methods of accommodating influential outliers other than truncating and winsorizing are becoming more common in accounting research (e.g., Dyreng, Hanlon, and Maydew 2019).

Hypothesis 2

To test hypothesis 2, I use a full changes model specification as shown in equation (2).

$$Change\ in\ Accuracy\ EPS_{i,t} = \gamma_0 + \gamma_1 Change\ in\ ID_{i,t-1} + \gamma_2 Change\ in\ ETR_{i,t} + \sum_k \gamma_k Change\ in\ Controls_{i,t-1} + Industry_l + Year_t + \varepsilon_{i.t} \quad (2)$$

Determining the motivations behind why a firm became internationally diverse and engaged in tax-motivated income shifting is difficult to do absent observing the change in international diversification and tax planning. In this research design, I make several additional sample requirements beyond the sample requirements in hypothesis 1. My goal is to separate firms that appear to be increasing international diversification due to a desire to increase tax-motivated income shifting and firms that appear to be increasing tax-motivated income shifting because of existing international diversification.

First, I require firms to engage in new tax planning. To capture new tax planning, I require a reduction in a firm's GAAP ETR. I only keep firms with a reduction in GAAP ETR

[7] I first confirm the presence of influential observations using Cook's *D* with the recommended cutoff of >4/*n* (Leone et al. 2019). See Sample Selection for further details. Leone et al. (2019) also note that of the econometric textbooks (Belsely, Kuh, and Welsch 1980; Greene 2006; Kennedy 2003; Wooldridge 2006) "none of these textbooks recommend variable-by-variable winsorization or truncation, even though these are the most common approaches in accounting."

from *t-2* to *t-1 AND* from *t-1* to *t* to support a sustained reduction in GAAP ETR, as ETRs can vary year to year (e.g., Klassen and Laplante 2012).[8] Given I predicate the sample selection on having a GAAP ETR decrease in time *t,* I also control for the magnitude of change in GAAP ETR from *t-1* to *t*, *Change in ETR*. Next, I split this sample of firms by whether each firm-year added a new subsidiary in a new tax haven in year *t-1*.[9] The addition of a tax haven in the prior year along with a current year GAAP ETR reduction suggests that the firm enacted a tax-motivated income shifting strategy. Richardson and Taylor (2015) find that tax haven utilization is positively associated with income shifting incentives (e.g., transfer-pricing aggressiveness, thin capitalization, and intangible assets). I assume firms that decrease their GAAP ETR seemingly by the addition of a tax haven are increasing their international diversification because of tax-motivated income shifting incentives, instead of using their existing complex international structure to implement tax planning strategies. Finally, I only include firms with increases in international diversification (*Change in ID* > 0), to focus on the one-directional effect of firms increasing their international diversification. A negative coefficient on *Change in ID,* the independent variable of interest, would suggest a year-over-year increase in *ID* is associated with a less accurate consensus EPS forecast compared to the prior year. Finding this result only in the group of firms that added a tax haven in year *t-1* would support hypothesis 2.

International Diversification

A common proxy for international diversification is the foreign sales ratio (foreign sales divided by total worldwide sales) (Sullivan 1994; Duru and Reeb 2002; Herrmann et al. 2010). This measure captures the extent to which a firm achieves its sales in foreign markets compared

[8] Given the examination of information for one observation over *t*-2 to *t*, I also require observations to have actual EPS available over the same period.
[9] Change in the number of tax haven countries listed in Exhibit 21 from *t-2* to *t-1* is greater than zero.

to domestic markets. However, this measure does not consider the dispersion of these sales across different countries. Therefore, a U.S. multinational firm could categorize 80 percent of its sales as foreign sales; however, a firm with 95 percent of those foreign sales from one country is arguably not as internationally diverse as compared to a firm with 50 percent of its sales dispersed among ten different countries.

Alternatively, Kang, Khurana, and Wang (2017) use a sales-based Herfindahl-Hirschman index (*Foreign Sales HHI*) for each geographic segment to measure international diversification.[10,11] However, this measure does not incorporate the magnitude of foreign sales to the corporation. For forecasting purposes, both the amount and dispersion of foreign sales create difficulties in forecasting future growth rates, expenses, and overall earnings. Therefore, I construct an updated measure of international diversification that combines both the foreign sales ratio and the diversification of those sales using the following measure:

$$ID = Foreign\ Sales\ Ratio * Foreign\ Sales\ HHI$$

where

$$Foreign\ Sales\ Ratio = (foreign\ sales_{i,t-1} / worldwide\ sales_{i,t-1})$$

$$Foreign\ Sales\ HHI = (1 - \Sigma_{i,t} ((foreign\ sales_{c,i,t-1} / foreign\ sales_{i,t-1})^2)$$

where $foreign\ sales_{i,t}$ is the sum of foreign sales revenue across all geographic segments for each firm, i, and each year, t; and $foreign\ sales_{c,i,t}$ is foreign sales revenue for each geographic segment, c, for each firm-year. I subtract the HHI measure from one so that a higher number

[10] HHI based on sales per business segment is also a common proxy for industry diversification (e.g. Thomas 2002).
[11] Kang et al. (2017) find their results are robust to using alternative measures of HHI and the ratio of foreign sales to total sales based on principal component analysis.

represents more diversification for *Foreign Sales HHI*.[12] All three variables are greater than zero and less than one.

To be clear, Duru and Reeb's (2002) primary measure of international diversification uses principle component analysis to combine the foreign sales ratio, the foreign asset ratio, and the number of geographic segments. I do not use the exact measure Duru and Reeb (2002) use for a few reasons. First, with the passage of SFAS No. 131, foreign assets are no longer consistently reported by firms. Also, creating a factor variable using principal component analysis with various combinations of foreign diversification including foreign sales, foreign income, and number of geographic segments fails to pass the Kaiser-Meyer-Olkin measure of sampling accuracy. This test suggests that my data is not suited for factor analysis/principal component analysis (Kaiser and Rice 1974). Duru and Reeb (2002) use the foreign sales ratio as a robustness test and report similar results to their primary variable of interest.

To validate this measure, I graph several variables to examine whether *ID* captures increasing international diversification. Figure 1 graphs the two components of my *ID* measure, *Foreign Sales Ratio* and *Foreign Sales HHI*, by *ID* decile. Each component has an upward trend, supporting that one measure is not driving the variation in *ID*. *Foreign Sales Ratio* has more variation between the lowest and highest deciles, but *Foreign Sales HHI* still ranges from a mean of 0.35 in the lowest decile to 0.87 in the highest. Figure 2 graphs the foreign employee percentage (the number of foreign employees over the number of worldwide employees) against *ID* decile.[13] Again, there is an upward trend in the foreign employee percentage supporting that *ID* is capturing more than U.S. firms' sales abroad, including an expansion of operations as well.

[12] I gather geographic-segment-level sales data from the Compustat Historic Segments File.
[13] I thank Nathan Goldman, Katharine Drake, and Frank Murphy for providing these data (first examined in Drake, Goldman, and Murphy 2020) to me.

Finally, Figure 3 graphs the total country count per Exhibit 21 against *ID* decile.[14] Total country count trends upward with *ID* decile, providing some support that *ID* is capturing U.S. firms' sales abroad in a wide number of countries.

Tax-Motivated Income Shifting

I use two conceptual proxies to capture a firm's level of tax-motivated income shifting: location of foreign activity (tax havens) and low foreign tax rates. The first is the location of the firm's foreign activity. Firms report all major subsidiaries and their states or countries of organization in Exhibit 21 of the annual 10-K report. I first use the percentage of countries listed in a firm's Exhibit 21 that are tax havens per Dyreng, Lindsey, and Thornock (2012). *Tax Haven Percentage* is calculated as the number of tax haven countries divided by the number of total countries disclosed in Exhibit 21. I also use an alternative measure of the number of individual subsidiaries located in tax haven countries. *Tax Haven Subsidiary Percentage* is calculated as the number of subsidiaries in tax haven countries divided by the number of total subsidiaries disclosed in Exhibit 21. I trim these variables at the 1st and 99th percentiles by year to remove extreme values. Instead of estimating Cook's *D* for each separate regression where I use a different measure of tax-motivated income shifting, I winsorize these variables and use the Cook's *D* for the main regression without the interaction to maintain a more consistent sample across the three variables. However, I indicate in my results section when results are or are not consistent when estimating separate Cook's *D* for each interaction regression instead of trimming the tax-motivated income shifting variables.

[14] I thank Scott Dyreng for providing this data (first examined in Dyreng, Lindsey, and Thornock 2012) on his personal website.

For the second measure of tax-motivated income shifting, I use a measure of each firm's average foreign effective tax rate compared to the U.S. statutory rate over the prior five years (*t-5* to *t-1*). This measure captures an incentive to shift income, a proxy for actual income shifting (Klassen and Laplante 2012).[15] I create a measure, in the spirit of Klassen and Laplante 2012, *Average Foreign Tax Rate (FTR)* as [U.S. Statutory Rate – ($\sum_{t-5}^{t-1}$ foreign tax expense$_i$/$\sum_{t-5}^{t-1}$foreign income$_i$)]. When using the full spectrum of foreign tax rates, extreme values such as negative foreign tax rates or very high foreign tax rates (70 percent) may capture abnormal tax activity such as tax audit settlements, pre-tax foreign losses, refunds, etc., instead of very aggressive or very ineffective income shifting strategies. Therefore, I treat *Average FTR* as missing if the firm-year has a negative average foreign tax rate or the average foreign tax rate greater than 70 percent. I limit the foreign tax rate to 70 percent to allow for a span of possibilities 35 points above and below zero for the value of *Average FTR*.

If *Average FTR* is positive, then *Low Average Foreign Tax Rate (FTR)* is set to -1*(*Average FTR)*, zero otherwise. I multiply this by negative one so that as *Low Average FTR* increases, the incentive for income shifting also increases. I also include *High Average Foreign Tax Rate (FTR)*. If *Average FTR* is negative (foreign rate is higher than the average U.S. statutory rate), then *High Average FTR* is set to (*Average FTR*), zero otherwise. If the average foreign rate is larger than the U.S. statutory tax rate, then there is a limited incentive to shift income out of the U.S.

[15] I do not use the measure presented in Chen et al. (2018) (*Shift_Ave*) for multiple reasons. First, that measure is very restrictive regarding data requirements and results in few usable observations in my sample. Also, Chen et al. (2018) do not find as big of an effect of tax-motivated income shifting on information asymmetry using the *Shift_Ave* measure for tax-motivated income shifting for firms that disclose geographic segments. The combination of a smaller sample and a lessor effect of *Shift_Ave* in the geographic segments group suggest this measure is not the best measure of tax-motivated income shifting for my study.

To examine univariately how my measures of tax-motivated income shifting and *ID* compare, I include Figures 4 and 5. These figures present mean values of *Tax Haven Percentage* and *Foreign Tax Rate Differential* by *ID* decile. *Foreign Tax Rate Differential* is simply the difference between a firm's foreign effective tax rate and the U.S. statutory rate of 35 percent. Figure 4 presents *Tax Haven Percentage* by *ID* decile. The mean value of *Tax Haven Percentage* does not vary much by *ID* decile and hovers around 20 percent regardless of *ID* decile. This suggests firms with more international diversification do not have a higher percentage of tax havens than firms with less international diversification. Figure 5 presents *Foreign Tax Rate Differential* by *ID* decile. Again, the mean value of *Foreign Tax Rate Differential* does not vary much by *ID* decile and on average is 16.7 percentage points across all deciles, meaning the average foreign tax rate is 18.3 percent (35.00 – 16.67). This graph again supports that firms with more international diversification do not have any lower foreign tax rate than firms with less international diversification.

Control Variables

I control for items affecting the relation between international diversification and attributes of EPS forecasting that make forecasting more difficult. I include the following variables to control for general firm-level characteristics correlated with both international diversification and forecast accuracy that are expected to decrease accuracy: book-to-market ratio (*Book-to-Market*$_{t-1}$), pre-tax prior-year loss (*Loss*$_{t-1}$), leverage (*Leverage*$_{t-1}$), R&D spending (*Research & Development*$_{t-1}$), equity method income (*Equity Method Income*$_{t-1)}$, non-controlling interests (*Non-Controlling Interest*$_{t-1)}$, and earnings volatility (*Earnings Volatilty*$_{t-5tot-1}$) (e.g., Lim 2001; Duru Reeb 2002; Bratten, Gleason, Larocque, and Mills 2017). Finally, I control for

analyst following, (*Analysts Following*$_t$) and firm size (*Size*$_{t-1}$) as these variables increase forecast accuracy (Lang and Lundholm 1996; Duru and Reeb 2002).

I control for specific forecast characteristics expected to increase the difficulty of forecasting EPS including mean time horizon between the consensus forecast date and period end (*EPS Forecast Horizon*$_t$), the dispersion of the EPS forecasts (*Dispersion of EPS*$_t$), the skewness of EPS over the life of the firm in the sample (*Skewness*$_t$), and the change in EPS from last year (*t-1*) to the current year (*t*) (*Change in EPS)* as large changes in EPS year-over-year can make forecasting EPS more difficult (e.g., Brown, Richardson, and Schwager 1987; Lang and Lundholm 1996; Duru and Reeb 2002).[16] I include the number of segments in the geographic segment details that are geographic "summary" segments (*No. Of Summary Segments*$_{t-1}$), such as "Americas" or "Europe" as summary segments could affect both my international diversification measure and forecast accuracy given the lower amount of detail provided in these "summary" segments. I also include this variable as firms with tax havens are more likely to aggregate these geographic disclosures (Akamah, Hope, and Thomas 2018). I include *Presence of "Other" Segment* to account for firms following ASC 280's ten percent threshold reporting requirement and combining geographic segments, leading to a mechanically lower *HHI* value. I provide more details about these two specific variables in Appendix 3. For equation (2), all control variables in equation (1) are re-measured as a change from *t-2* to *t-1* to prevent look-ahead bias except for *Change in EPS* and *Change in Accuracy EPS* which are already a change from *t-1* to *t*.

Sample Selection

[16] One concern is that *Dispersion of EPS* could also be a dependent variable of interest in this setting, leading to its inclusion as a control variable potentially problematic. Results are robust to excluding this control variable. However, I keep this control in the regression for consistency with the original Duru and Reeb (2002) model.

My sample runs from 1999, the year after the start of SFAS 131 which changed the requirement for segment disclosures, through 2016, the most recent year before the passage of the Tax Cuts and Jobs Act (TCJA). The TCJA became law in late 2017 and dramatically changed the U.S. tax code, leading to abnormally high GAAP ETRs in 2017 (Dyreng, Gaertner, Hoopes, and Vernon 2020) and possible changes in income shifting incentives (Donohoe, McGill, and Outslay 2020). I use consensus annual forecasts from the *I/B/E/S* database.[17] I match these *I/B/E/S* forecasts to both Compustat Annual and Compustat Historical Segment File databases to measure the independent variable of interest and all control variables.

Table 1 provides the sample selection. My primary sample consists of 9,017 firm-year observations from 1999 to 2016. I exclude observations with earnings per share forecasts less than negative one (-1) because the economic interpretation of these forecasts is hard to determine since the forecast is off by more than the actual line item. I also exclude observations with fewer than three analysts' forecasts (Bratten et al. 2017). I exclude firms with missing control variables necessary for the regression analyses as well as firms with less than $10 million in assets. I exclude domestic firms, multinational firms without necessary segment data to calculate *ID* (geographic segments in Compustat's Historical Segment File), and observations with a value of *ID* above one, given the economic interpretation of a value over one is uncertain. Finally, I drop influential observations based on the methodology in Cook (1977). I drop 2.6 percent of my remaining observations for exceeding the Cook's *D* for the *Accuracy EPS* model (without the income shifting variables or their interactions in the regressions) as used in Table 4.

[17] Data downloaded 3/19/2020.

IV. RESULTS

Descriptive Statistics

Table 2 provides descriptive statistics for all variables within my analyses. The mean earnings per share (EPS) forecast error (*Accuracy EPS*) is -0.016, equating to mean (median) error of $0.35 ($0.18) per share (untabulated). *ID* is a variable greater than zero and less than one and has a mean value of 0.355. Providing a tangible interpretation of *ID* will provide context to the results presented in this paper and the economic implications of those results. For example, a firm moving one standard deviation of *ID* (0.25) would increase its foreign employee percentage by seven percentage points, increase the number of countries reported on Exhibit 21 by 22, and increase foreign sales ratio by 25 percentage points, on average. For comparison, for firms that are increasing in foreign sales, the average one-year change in foreign sales is 14 percent in my sample. Regarding the tax-motivated income shifting variables, *Tax Haven Percentage* is 0.207, meaning 20.7 percent of countries reported in Exhibit 21 are tax havens. *Low Average FTR* is 0.151, implying the average foreign tax rate for firms with an average foreign tax rate below the U.S. statutory rate is 15 percentage points below the U.S. statutory rate of 35 percent.

Table 3 presents Pearson correlations for the dependent variables and independent variable of interest with all tax-motivated income shifting variables. I use Pearson correlations because I have continuous variables and want to examine their linear, not monotonic, relation. *ID* is significantly negatively correlated with *Accuracy EPS*, consistent with the Duru and Reeb (2002) findings. The tax-motivated income shifting variables are also negatively correlated with *Accuracy EPS*, although not always significantly. Specifically, *Tax Haven Percentage* and *Tax Haven Subsidiary Percentage* have a -0.068 and -0.057 correlation, respectively, with *Accuracy EPS*, significant at the one percent level. *Low Average FTR* has a -0.018 correlation with

Accuracy EPS, although not quite significant. I do not present the correlations among control variables. I perform regression collinearity diagnostic procedures found in Belsley, Kuh, and Welsch (1980) to ensure multicollinearity is not an issue.[18]

Multivariate Results

Duru and Reeb (2002) Replication

Before testing my hypotheses, I replicate the inferences of the effect of international diversification on EPS accuracy from the original Duru and Reeb (2002) study using my sample period, selection criteria, and measure of international diversification to validate my updated research choices. I use the *Foreign Sales Ratio* as the measure of international diversification in this replication and start with the base level controls as used in Duru and Reeb (2002).

Table 4 presents the results. Panel A presents my primary replication of inferences and results using my measure of *ID.* Columns (1) and (2) present results from estimating the effect of *Foreign Sales Ratio* on *Accuracy EPS* using OLS with trimmed observations at the top and bottom 1.0 percent. Column (1) only includes control variables from the Duru and Reeb (2002) study (*Change in EPS, Dispersion of EPS, Skewness, EPS Forecast Horizon, Analysts Following, Size, Loss,* and *Earnings Volatility)*. Column (2) adds controls from subsequent literature (*Book-to-Market, Leverage, Research & Development, NOL, Equity Method Income,* and *Non-Controlling Interest*) (Bratten et al. 2017; Lang and Lundholm 1996; and Lim 2001). The coefficients in both specifications are negative and significant consistent with the findings in Duru and Reeb (2002). Column (3) of Table 4 replaces *Foreign Sales Ratio* with *ID*, trimmed at

[18] I use the Stata command *coldiag2* to perform these procedures. I follow Belsley et al. (1980) and look for condition indexes over 30. For these condition indexes, I look for two or more variables with variance decomposition portions over 0.5. I found no variables that met these thresholds suggesting multicollinearity is not an issue within my regressions.

the top and bottom 1.0 percent, along with the same control variables as in column (2). The coefficient on *ID* in this specification is also negative and significant.

Column (4) presents results with *ID* as the independent variable of interest, but instead of using trimmed observations, this column uses OLS with influential observations removed as described in the Sample Selection section. Again, the coefficient is negative and significant. The specification in column (4) is my primary specification used throughout the rest of the paper. Finally, for robustness purposes, Column (5) uses the median consensus forecast instead of the mean consensus forecast to calculate *Accuracy EPS*. Results are similar when using this measure. Overall, this table supports the primary inferences from Duru and Reeb (2002) are also present in my sample period and selection criteria when using similar research designs.

In Panel B of Table 4, I further verify my measure of international diversification by splitting *ID* into its two components: *Foreign Sales Ratio* (column 1) and *Foreign Sales HHI* (column 2). I find both load negatively and significantly when used in place of *ID.* Specifically, in column (1) the coefficient on *Foreign Sales Ratio* is -0.0034 with a p-value less than 0.01, and in column (2) the coefficient on *Foreign Sales HHI* is -0.0028 with a p-value less than 0.01. All controls variables as presented in Panel A are also included in these regressions. This result suggests that both the amount of foreign sales and the dispersion of those sales are important factors in EPS forecast accuracy.

Hypothesis 1 Testing

Table 5 presents results from model (1) with *Tax Haven Percentage* and *Tax Haven Subsidiary Percentage* in Panel A and *Low Average FTR* in Panel B. I first examine *ID* (column 1) and *Tax Haven Percentage* (column 2) separately using the sample of firms with available data to calculate *Tax Haven Percentage*. In column (1) I continue to find the negative association

between *ID* and *Accuracy EPS* in this group of firms as in Table 4. Column (2) results show that income shifting is negatively associated with analyst forecast accuracy (coef. = -0.0082, p-value <0.01). Column (3) includes both *ID* and *Tax Haven Percentage* in the regression, and the coefficients on each are nearly identical to the coefficients in columns (1) and (2). This finding suggests that *ID* and *Tax Haven Percentage* affect forecast accuracy differently and are possibly more different than standard-setters and policymakers believe.

From an economic significance perspective, the impact of the relations presented in column (3) equates to a $0.03 and $0.05 per share less accurate forecast for one-standard-deviation change in *ID* and *Tax Haven Percentage*, respectively. To calculate these economic interpretations, I present my results in Panels C and D using standardized coefficients. All information and columns are identical to Panels A and B, except for the substitution of standardized coefficients for traditional coefficients. A move from the lowest to the highest level of international diversification or tax-motivated income shifting is not economically intuitive nor practical, which is why I present these economic interpretations as a function of the standardized coefficients. The standardized coefficient on *ID* of -0.0363 (Table 5, Panel C, column 3) means that a one-standard-deviation change in *ID* (0.245 as presented in Table 2) is associated with a 0.0363 standard deviation decrease in *Accuracy EPS,* equal to $-0.03. The full calculation is as follows: standardized coefficient times the standard deviation *Accuracy EPS* times the average beginning of year share price ((-0.0363*0.025)*38.91). For *Tax Haven Percentage*, the standardized coefficient is -0.0516 (Table 5, Panel C, column 3). I reach the amount of $-0.05 using the same formula as for *ID* ((-0.0516*0.025)*38.91). For comparison, these economic impacts are similar to common control variables used in analyst forecasting analyses, *Earnings*

$Volatilty_{t\text{-}5tot\text{-}1}$ ($0.04) and $Size_{t\text{-}1}$ ($0.03) (Mitton 2020).[19] This provides a baseline understanding of the significant economic effect of international diversification and tax-motivated income shifting on forecast accuracy.

Finally, column (4) of Panel A presents results directly testing hypothesis 1. The negative, mean-centered coefficients on *Tax Haven Percentage* and *ID* are like those in column (3). Importantly, the interaction of *ID*Tax Haven Percentage* is positive and insignificant (coef. = 0.0008, p-value >0.10). This finding suggests the negative relation between *ID* and *Accuracy EPS does not* differ based on the level of tax-motivated income shifting. Therefore, I cannot reject hypothesis 1. Columns (5)-(8) present the same analysis using *Tax Haven Subsidiary Percentage* as the measure of tax-motivated income shifting. Results are consistent with columns (1)-(4) and do not reject hypothesis 1.

Panel B of Table 5 presents results using *Low Average FTR* as the measure of tax-motivated income shifting. Coefficients for *ID* in all columns continue to be negative and marginally significant, although slightly closer to zero, possibly due to the smaller sample size. *Low Average FTR* is negative and significant in columns (2)-(4). Column (4) tests hypothesis 1 using *Low Average FTR*, and I continue to find that for a given level of *ID,* higher levels of income shifting do not lead to less accurate forecasting. Consistent with Panel A, these results cannot reject my stated hypothesis 1.

One concern is a possible lack of power given the relatively small sample size and the fact that the coefficient on the interaction variable is negative and of an expected size as compared to the coefficients on each *ID* and *Low Average FTR*. Power tests for the interaction

[19] For *Earnings Volatility*, the standardized coefficient is -0.0372 (untabulated). $-0.0362 = ((-0.0372*0.025)*38.91). For *Size*, the standardized coefficient is -0.0311 (untabulated). $-0.0303 = ((-0.0311*0.025)*38.91).

suggest the effect size would need to be double the current size to be able to detect with only 5,498 observations, suggesting power could be a potential issue with this coefficient, although a coefficient double the current size would be less economically plausible. Further, results are not robust to re-estimating Cook's *D* for this regression including the interaction. The main effect of *Low Average FTR* and the interaction become positive and insignificant, which further fails to reject hypothesis 1. Overall, results in Table 5 fail to reject hypothesis 1 and suggest, on average, the effect of international diversification on analyst forecast accuracy does not differ by the level of tax-motivated income shifting, on average.

As an additional robustness check for this table, I include Panels E and F. Panels E and F are replicas of Panels A and B but include industry-year fixed effects instead of industry and year fixed effects. Results are consistent with Panels A and B.

Finally in this table, Panels G and H are replicas of Panels A and B but determine outliers using Cook's *D* for each set of tests using each different tax-motivated income shifting measure using regressions with interactions (column 4 and 8 of Panel G and column 4 of Panel H). This is compared to trimming the tax-motivated income shifting variables while using the main Cook's *D* cutoff as presented in Table 4, column 4. Panel G presents results using *Tax Haven Percentage* and *Tax Haven Subsidiary Percentage*. These results are consistent with Panel A. Panel G presents results using *Low Average FTR*. These results are generally consistent with Panel B, although the coefficient on *Low Average FTR* is no longer statistically significant.

Additional Robustness Tests

One potential concern is that a firm with a high level of international diversification is a company with more business segment or industry diversification. Therefore, a correlated omitted variable in the relation between international diversification, forecast accuracy, and tax-

motivated income shifting could be general business (industry) diversification. To be a correlated omitted variable, industry-related diversification would need to be correlated with both *ID* and *Accuracy EPS*, correlations Duru and Reeb (2002) do not support. However, more current papers document these correlations in other research settings (e.g., Black, Dikolli, and Dyreng 2014; Gao et al. 2008).

I re-estimate equation (1) with and without the income shifting variable, *Tax Haven Percentage*, including a measure of business segment (industry) diversification, *Business Segments HHI.* I create this measure following the *Foreign Sales HHI* measure but use firms' reported business segments instead of geographic segments.[20] Table 6, Panel A presents results including this measure as an additional control variable. Columns (1), mean forecast accuracy, and (2), median forecast accuracy, are very similar to columns (4) and (5) of Table 4. Column (3) presents results including *ID* and *Tax Haven Percentage* and their interaction. Results are like those presented in Panel A of Table 5, although the coefficient on *ID*Tax Haven Percentage* is now negative, but not significant. Power tests indicate there are enough observations to detect a significant effect on a one-tailed test with a coefficient of -0.094, slightly larger than the estimated coefficient. Lack of power could be a concern here. Therefore, I also present results using *Tax Haven Subsidiary Percentage* and *Low Average FTR* in Panel B of Table 6. Again, in these results, I fail to find a significantly negative coefficient on the interaction of *ID* and each measure of tax-motivated income shifting. The coefficient on *ID*Tax Haven Subsidiary Percentage* is large enough to detect a significant effect, if it were present. Further, the

[20] Firms do not consistently report sales for both types of segments, greatly reducing my sample. Given I do not find *Business Segments HHI* affects my estimates or inferences, I do not include this variable in my primary sample to preserve a larger sample for broader generalizability and cross-sectional tests.

coefficient on *ID*Low Average FTR* is positive. Therefore, given these additional results, I do not think the lack of significance is due to a lack of power.

Another concern is that tax-motivated income shifting and international diversification increase the volatility in earnings growth compared to domestic earnings growth. This could lead to harder-to-forecast earnings, which could affect the inferences in Table 5. To control for this possibility, I include *Growth Gap* in columns (4)-(6) in Panel A of Table 6. Following Chen et al. (2018), *Growth Gap* measures the difference in the growth rate between domestic and foreign earnings. As shown in Table 6, results are robust to including *Growth Gap* as a control variable.

Results are also robust when using the total number of different industries listed, *Number of Industries*, as the measure for the business segment diversification for each firm-year as presented in Panel C of Table 6. Columns (1) and (2) of Panel C present results when using *Tax Haven Percentage* and *Tax Haven Subsidiary Percentage*, respectively, as the measures of tax-motivated income shifting. Column (3) presents results when using *Low Average FTR* as the measure of tax-motivated income shifting. Although, the main effect of *Low Average FTR* is not significant in this specification. Interestingly, *Number of Industries* is also not significant in any specification.

Pre-tax Income and Effective Tax Rate Forecasts

Next, I separately examine the accuracy of pre-tax income (PTI) forecasts and effective tax rate (ETR) forecasts. These two items are fundamental components to EPS forecast accuracy that have been separately studied in prior literature (e.g., Bratten et al. 2017; Plumlee 2003). Examining each component separately provides a further understanding of analysts' forecast inaccuracy and determines whether tax-motivated income shifting that leads to more general firm complexity or more specific tax complexity impacts the main findings of this study.

First, shifting income across jurisdictions can increase overall complexity and decrease transparency associated with the underlying economics of the firm (Chen et al. 2018). There are multiple potential complications when forecasting pre-tax earnings for internationally diverse firms including differing foreign operating environments compared to the domestic operating environment and higher manager operational discretion abroad, as suggested by Duru and Reeb (2002), as well as foreign exchange rates and additional accounting complications as the number and types of transactions increase when firms diversify. Adding tax-motivated income shifting to the firm's worldwide operations can make the additional accounting complications, number and types of transaction, and general complexity of the firm increase even further. This firm-complexity implication would make PTI more difficult to forecast as any pure tax implications would not affect this line item.

Second, shifting income can also make the tax situation of the firm more difficult to forecast as understanding where and how income is taxed is an important factor in accurately forecasting a firm's effective tax rate. Generally, analysts are not efficient at incorporating tax complexity into forecasts (Plumlee 2003; Hutchens 2017; Weber 2009). Furthermore, due to the complexity of tax laws, the tax implications in different jurisdictions are hard to accurately interpret and understand. Unlike other items on the income statement that are calculated following GAAP, calculating total tax expense involves calculating both book income following GAAP and taxable income following federal, foreign, and state tax regulations. While many analysts and investors are likely familiar with federal and some state tax policies, understanding foreign tax laws can be considerably more challenging as each country differs in its tax regulations. Also, the firms' engagement in tax-motivated income shifting makes forecasting when and how income will be taxed even more burdensome. Overall results regarding EPS

accuracy could differ based on whether a firm's tax-motivated income shifting is leading to generally broader firm complexity (Chen et al. 2018) resulting in less accurate PTI forecasts or leading to tax complexity (Plumlee 2003; Hutchens 2017; Weber 2009) resulting in less accurate ETR forecasts.

I conduct a similar test as in Table 5 for this analysis but substitute *Accuracy PTI* and *Accuracy ETR* where I had previously examined *Accuracy EPS. Accuracy PTI* is calculated as consensus pre-tax income less actual pre-tax income scaled by beginning of year price, multiplied by negative one to ensure larger (closer to zero) forecast errors equate to higher accuracy.

To calculate *Accuracy ETR*, I first calculate the following:

$$(Pre\text{-}tax\ Earnings\ Forecast_{i,t,a} - After\text{-}Tax\ Earnings\ Forecast_{i,t,a}) / Pre\text{-}tax\ Earnings\ Forecast_{i,t,a}$$

I use the difference between the EPS and PTI per share forecasts as the inferred tax expense for each individual analyst forecast (*a)* (Bratten et al. 2017; Ertimur, Mayew, and Stubben 2011). I then divide the inferred tax expense by PTI to reach an implied effective tax rate forecast. I take the absolute value of the forecasted rate less the actual implied rate per I/B/E/S. I multiply this number by negative one to ensure larger (closer to zero) forecast errors equate to higher accuracy. Finally, I calculate the mean (consensus) ETR forecast error for each firm-year from the individual analysts' forecast errors (e.g., Hutchens 2017). I use effective tax rates instead of tax expense for two reasons. First, the integral method requires managers to apply a best estimate of the expected annual effective tax rate to the year-to-date pre-tax income and record this total tax expense less cumulative tax expense recorded in prior quarters. Therefore, managers are required to calculate an expected annual rate, not an expected total tax expense. Second, consistent with finance and

valuation texts and prior literature, analysts forecast tax expense by applying a rate to pre-tax income (Bratten et al. 2017; Hutchens 2017). Using a rate also takes into consideration that an analyst could predict pre-tax income incorrectly, therefore, affecting the estimate of the tax expense line item. By looking at just the estimated rate, the effects of pre-tax income are mitigated. I also control for the accuracy of pre-tax income in regression analyses using *Accuracy ETR*.

Accuracy PTI and *Accuracy ETR* must be greater than negative one because the economic interpretation of forecasts less than negative one is hard to determine since the forecast is off by more than the actual line item. I remove influential observations and outliers based on Cook's *D* when estimating each model separately (Cook 1977).

Table 7 presents results of examining *Accuracy PTI* and *Accuracy ETR.* Panel A uses *Tax Haven Percentage* as the measure of tax-motivated income shifting. When examining *Accuracy PTI* in column (1), the coefficients on both *ID* and *Tax Haven Percentage* are significant and negative. These findings suggest tax-motivated income shifting increases the overall complexity and uncertainty associated with the underlying economics of the firm, consistent with the findings in Chen et al. (2018). However, the interaction of *ID* and *Tax Haven Percentage* is positive and insignificant, suggesting the combination of these two items does not lead to any less accurate PTI forecasts than each item separately, consistent with the findings for *Accuracy EPS* from Table 5.

Panel A, column (2) examines *Accuracy ETR.* While none of the coefficients presented are statistically significant, the coefficient on *Tax Haven Percentage* is negative and of expected size but just outside the range of significance. Again, the lack of result on the interaction of *ID* and *Tax Haven Percentage* suggests that being more internationally diverse does not make incorporating the tax complexities of a firm into ETR forecasts any more difficult. The Cook's *D*

procedure removed a larger number of influential outliers from this regression than the *Accuracy PTI* regression, possibly leading to the lack of a significant negative effect for *Tax Haven Percentage* on *Accuracy ETR* as would otherwise be expected due to power limitations. I further examine this unexpected result in Panels B and C.

In Panels B and C of Table 7, I use *Tax Haven Subsidiary Percentage* and *Low Average FTR* as the measures of tax-motivated income shifting, respectively. In Panel B, the coefficient on *ID* is significant and negative. However, *Tax Haven Subsidiary Percentage* and the interaction of *ID* and *Tax Haven Subsidiary Percentage* are both insignificant. Column (2) of Panel B examines *Accuracy ETR* and shows a negative and significant coefficient on *Tax Haven Subsidiary Percentage* as would be expected as firms that engage in more income shifting have harder-to-forecast ETRs. *ID* is again insignificant, consistent with Panel A. Interestingly, the interaction of *ID* and *Tax Haven Subsidiary Percentage* is positive and significant, possibly suggesting that larger, more diverse firms engaging in tax-motivated income shifting have ETRs that regress to an average ETR that is easier to forecast.

The results in Table 7, Panel C are similar to those in the other two panels. Column (1) presents results for *Accuracy PTI*. Again, the coefficient on *ID* is negative and significant. Column (2) presents results for *Accuracy ETR*. The coefficient on *Low Average FTR* is negative and significant, while all other coefficients, other than *Accuracy PTI*, are insignificant.

Overall, the findings from these tests support that whether tax-motivated income shifting results in more general firm complexity or a more complex tax situation does not impact the finding that the negative relation between international diversification and forecast accuracy *does not* differ based on the level of tax-motivated income shifting.

Hypothesis 2 Testing

While I am unable to reject my first hypothesis, the role of tax-motivated income shifting in the relation between international diversification and analyst forecast accuracy could differ based on the inter-dependency of international diversification and tax-motivated income shifting. Hypothesis 2 examines whether the relation between international diversification and analyst forecast accuracy differs for firms that increase international diversification for tax planning incentives compared to firms that engage in tax-motivated income shifting as part of their existing international diversification. To perform this test, I estimate model (2).

Table 8, Panel A presents the results of this test. Column (1) shows firms that added a tax haven in *t-1* and column (2) shows firms that did not add a tax haven. Again, both sets of firms report a two-year reduction in GAAP ETRs; the difference between the two sets of firms is whether the firm added a tax haven. The coefficient on *Change in ID* in column (1) is negative and significant (coef. = -0.0175, p-value < 0.10), while the coefficient on *Change in ID* in column (2) is insignificant. A one-sided Wald test confirms that the coefficients across the two groups are different (p-value = 0.0635). This suggests that analysts' earnings per share forecasts are less accurate when a year-over-year increase in international diversification is driven by tax planning incentives through expansion into a new tax haven. However, when a year-over-year increase in international diversification is accompanied by more tax planning through an avenue other than expansion into a new tax haven, analysts' forecasts are not less accurate.

Additional Robustness Tests

One potential concern is that the act of adding a new country in general could be leading to the result in column (1). Therefore, in column (3) I restrict the non-tax haven addition firms (presented in column (2)) to firms that added a new subsidiary in a non-tax haven country in year *t-1*, so this group of firm-years also faces the potential complexity of adding a new country.

Results in column (3) continue to show an insignificant coefficient on *Change in ID*. A one-sided Wald test confirms that the coefficients across column (1) and column (3) are different (p-value = 0.0452). Overall, this result supports hypothesis 2 and suggests that the negative effect of international diversification on analysts' forecast accuracy is stronger for firms diversifying internationally because of tax-motivated income shifting incentives.

A second potential concern is the endogeneity of a firm choosing to enter a new tax haven. Firms that add a new tax haven could be fundamentally different than firms that do not add a tax haven. While column (2) presents firms that did not add a tax haven in *t-1*, those firms are not restricted to have never added a tax haven.[21] Still, if the firms that add a new tax haven in *t-1* are fundamentally different and harder to forecast for than firms that do not add a tax haven in *t-1*, the negative association found in column (1) would not be restricted to year *t*. Therefore, as a placebo test, in column (4) I examine this association in the two years prior to the firm's addition of a subsidiary in a tax haven. Results in column (4) show a positive and insignificant coefficient on *Change in ID*, suggesting the addition of a tax haven in *t-1* is the driving factor in the negative association between international diversification and analysts' forecast accuracy for this subset of firms.

These results are robust to entropy balancing as presented in Panel B of Table 8. I balance the main two groups of firms based on firm and forecast characteristics including: *Change in EPS, EPS Dispersion, EPS Skewness, EPS Horizon, Analyst Following, Size, Book-to-Market, Loss, Leverage, R&D, NOL, Equity Method Income, Non-Controlling Interest, Earnings Volatility, Number of Summary Segments,* and *Presence of "Other" Segment* on the second

[21] Results continue to hold when restricting these non-tax haven addition firms to having at least one existing tax haven.

moment. As results show in column (2) of Panel B, the coefficient on *Change in ID* is still insignificant.

Results in Panel A, columns 1 and 2 are robust to including a level variable capturing the total number of tax havens that a firm lists in Exhibit 21 as of *t-2* as shown in Panel C. Finally, results in Panel A, columns 1 and 2 are robust to winsorizing at the 1st and 99th percentiles to identify outliers instead of relying on Cook's *D* as used in my primary analysis as shown in Panel D. In sum, the results in Table 8 support that the addition of a tax haven in *t-1* is the driving factor in the negative association between international diversification and analysts' forecast accuracy for this subset of firms. These results stand even when performing a number of robustness checks to this analysis.

Lasting Negative Effects

I next examine how long firms that expand their international footprint because of tax-motivated income shifting incentives experience less accurate forecasts. For this test, I estimate equation (1) including an indicator variable for the firm-years *t+1*, *t+2*, and *t+3* after the year of expansion for the firms that expanded internationally for tax-motivated income shifting incentives (the year that is examined in Table 8, Panel A, column 1) called *Post Expansion +1 to +3*. I also create an indicator variable for the firm-years *t+4*, *t+5*, and *t+6* after the year of expansion called *Post Expansion +4 to +6*. I interact these variables with *ID* to examine whether the relation between internationally diversification and analysts' forecast accuracy continues to be more negative for these firm-years post expansion. I include the magnitude of the change in *ID* in the future periods by including *Change in ID*Post Expansion +1 to +3(Post Expansion +4 to +6)* to control for potential changes in *ID* affecting the EPS accuracy in those future years.

All controls from Table 4 are also included but suppressed for brevity. Industry fixed effects and year fixed effects are also included but suppressed. *ID* is mean-centered as in Table 5.

Results are presented in Table 9. The coefficient on *ID*Post Expansion +1 to +3* is negative and significant, suggesting in the three years post expansion, these firms' analysts' forecasts continue to be less accurate. Further, the coefficient on *ID*Post Expansion +4 to +6* is negative but not significant, suggesting the negative effect appears to dissipate in the subsequent three years. Overall, these findings suggest that the less accurate analysts' earnings per share forecasts related to international diversification driven by tax-motivated income shifting incentives persist for the three years following the expansion but appear to subsequently dissipate. Interestingly, this finding is similar to that in Haw et al. (1994), which finds that after mergers, analysts' forecasts become less accurate, yet this is temporary as accuracy returns to pre-merger levels approximately four years after the merger.

V. CONCLUSION

This study examines whether tax-motivated income shifting helps explain the negative association between international diversification and analysts' earnings per share forecast accuracy. Overall, I find that although both international diversification and income shifting are negatively associated with forecast accuracy, the combination of international diversification and tax-motivated income shifting only matters when the incentive to engage in tax-motivated income shifting drives the firm's diversification internationally. These effects persist for the three years following the expansion but appear to subsequently dissipate. These results and inferences are robust to multiple robustness tests including multiple measures of a firm's engagement in tax-motivated income shifting; controlling for business segments and industry diversification, controlling for the difference in a firm's foreign and domestic growth; examining pre-tax income and effective tax rate forecasts separately; entropy balancing; addressing endogeneity in choosing to enter a new tax haven; and winsorizing instead of determining outliers based on Cook's *D*.

As OECD, FASB, and SEC discussions develop around firms' international expansions and tax-motivated income shifting, understanding how these two concepts interact is one important factor in determining what information is useful to financial statement users. My results suggest that although analysts struggle to incorporate the complicating effects of international diversification and tax-motivated income shifting, the combination of these two concepts is important only when tax-motivated income shifting primarily drives the firm's expansion internationally. My study finds that the incentive behind a firm's expansion internationally is an important factor regarding the information environment around firm diversification abroad. My study also connects different literatures that examine firms'

expansions abroad, coinciding reductions in effective tax rates, and the market's understanding of these connected concepts. Finally, my study contributes to the literature on the capital market effects of firm diversification by supporting that firms that expand internationally for tax-motivated income shifting purposes have less accurate analyst forecasts, at least initially.

My study is subject to limitations. I rely on firm disclosures of geographic segment sales data. I am unable to estimate effects for firms that do not report geographical data, a group of firms for which the association between international diversification, tax-motivated income shifting, and earnings per share forecast accuracy could be more impactful. Therefore, this study could be under-estimating the effect of international diversification on forecasts, especially for aggressive income-shifting firms that do not disclose geographic segment information. Despite this limitation, this study makes an important contribution to the understanding of the relations between international diversification, tax-motivated income shifting, and analyst forecasts, especially as regulators and policymakers continue deliberations around these important factors.

REFERENCES

Akamah, H. O-K. Hope, and W. B. Thomas. 2018. Tax havens and disclosure aggregation. *Journal of International Business Studies* 49: 49-69.

Amir, E., and T. Sougiannis. 1999. Analysts' interpretation and investors' valuation of tax carryforwards. *Contemporary Accounting Review* 16 (1): 1-38.

Balakrishnan, K., J. Blouin, and W. Guay. 2019. Tax aggressiveness and corporate transparency. *The Accounting Review* 94 (1): 45-70.

Barth, M. E., W. H. Beaver, J. R. M. Hand, and W. R. Landsman. 2005. Accruals, accounting-based valuation models, and the prediction of equity values. *Journal of Accounting, Auditing, and Finance* 20 (4): 311-345.

Baldwin, B. A. 1984. Segment earnings disclosure and the ability of security analysts to forecasts earnings per share. *The Accounting Review* 59 (3): 376-389.

Beardsley, E. L., M. A. Mayberry, and S. T. McGuire. Street vs. GAAP: Which effective tax rate is more informative? *Contemporary Accounting Research*, forthcoming.

Belsley, D., E. Kuh, and R. Welsch. 1980. Regression diagnostics: Identifying influential data and sources of collinearity. New York, NY: John Wiley.

Bhushan, R. 1989. Firm characteristics and analyst following. *Journal of Accounting and Economics* 11: 255-274.

Black, D. E., S. S. Dikolli, and S. D. Dyreng. 2014. CEO pay-for-complexity and the risk of managerial diversion from multinational diversification. *Contemporary Accounting Research* 31 (1): 103-135.

Blouin, J., and L. A. Robinson. 2020. *Double Counting Accounting: How Much Profit of Multinational Enterprises is Really in Tax Havens?* Working paper, University of Pennsylvania and Dartmouth College.

Bonner, S. E. 2008. *Judgment and Decision Making in Accounting*. Upper Saddle River, NJ: Pearson, Prentice Hall.

Browning, L. (Bloomberg). 2018. *Profit Shifting.* Accessed April 20, 2020. Available at: https://www.bloomberg.com/quicktake/profit-shifting

Bradshaw, M. T., and R. G. Sloan. 2002. GAAP versus The Street: An empirical assessment of two alternative definitions of earnings. *Journal of Accounting Research* 40(1): 41-66.

Bradshaw, M. T., T. E. Christensen, K. H. Gee, and B. C. Whipple. 2020. Analysts' GAAP earnings forecasts and their implications for accounting research. *Journal of Accounting and Economics* 66 (1): 64-66.

Bratten, B., C. A. Gleason, S. A. Larocque, and L. F. Mills. 2017. Forecasting taxes: New evidence from analysts. *The Accounting Review* 92 (3): 1-29.

Brown, L. D., G. D. Richardson, and S. J. Schwager. 1987. An information interpretation of financial analyst superiority in forecasting earnings. *Journal of Accounting Research* 25 (1): 49-67.

Chen, K. C., M. G. Danielson, and M. P. Schoderbek. 2003. Analysts' interpretation of transitory earnings components: Evidence form forecast revisions after disclosure of the 1993 deferred tax adjustment. *Journal of Accounting, Auditing, & Finance*: 333-353.

Chen, C-W., B. F. Hepfer, P. J. Quinn, and R. J. Wilson. 2018. The effect of tax-motivated income shifting on information asymmetry. *Review of Accounting Studies* 23: 958-1004.

Cook, R. D. 1977. Detection of influential observations in linear regression. *Technometrics*. American Statistical Association. 19 (1): 15-18.

Clausing, K. 2020. *How Big is Profit Shifting?* Working paper, Reed College.

De Simone, L., L. F. Mills, and B. Stomberg. 2019. Using IRS data to identify income shifting to foreign affiliates. *Review of Accounting Studies* 24: 694-730.

Deng, J., F. B. Gaertner, D. P. Lynch, and L. B. Steele. 2020. Proprietary costs and the reporting of segment-level tax expense. *Journal of the American Taxation Association, forthcoming.*

Donohoe, M. P., G. A. McGill, and E. Outslay. 2019. The geometry of international tax planning after the Tax Cuts and Jobs Act: A riff on circles, squares, and triangles. *National Tax Journal* 72 (4), 647–670.

Drake, K. D., N. C. Goldman, and F. Murphy. 2020. *Foreign Employment, Income Shifting, and Tax Uncertainty.* Working paper, University of Arizona, North Carolina State University, and University of Connecticut.

Drake, K. D., R. Hamilton, and S. J. Lusch. 2020. Are declining effective tax rates indicative of tax avoidance? Insight from effective tax rate reconciliations. *Journal of Accounting and Economics* 70 (1): 1-24.

Dunn, K. and N. Siva. 2009. Diversified companies and analysts' earnings forecasts. *Journal of Investing* 18 (2): 33-41.

Duru, A., and D. M. Reeb. 2002. International diversification and analysts' forecast accuracy and bias. *The Accounting Review* 77 (2): 415-433.

Dyreng, S. D., F. B. Gaertner, J. L. Hoopes, and M. E. Vernon. 2020. *The Effect of U.S. Tax Reform on the Taxation of U.S. Firms' Domestic and Foreign Earnings.* Working paper,

Duke University, University of Wisconsin – Madison, and University of North Carolina at Chapel Hill.

Dyreng, S. D., M. Hanlon, and E. L. Maydew. 2019. When does tax avoidance result in tax uncertainty? *The Accounting Review* 94 (2): 179-203.

Dyreng, S. D., M. Hanlon, E. L. Maydew, and J. R. Thornock. 2017. Changes in corporate effective tax rates over the past 25 years. *Journal of Financial Economics* 124 (3): 441-463.

Dyreng, S. D., B. P. Lindsey, and J. R. Thornock. 2013. Exploring the role Delaware plays as a domestic tax haven. *Journal of Financial Economics* 108 (3): 751-772.

Ertimur, Y., W. J. Mayew, and S. R. Stubben. 2011. Analyst reputation and the issuance of disaggregated earnings forecasts to I/B/E/S. *Review of Accounting Studies* 16: 29-58.

EY. 2020. *SEC Reporting Update. Highlights of trends in 2020 SEC comment letters.* (Last accessed September 21, 2020). Available at: https://www.ey.com/en_us/assurance/accountinglink/sec-reporting-update---highlights-of-trends-in-2020-sec-comment-

Financial Accounting Standards Board (FASB). 2019. *Proposed accounting standards updated (revised) – Income taxes (topic 740): Disclosure Framework – Changes to the disclosure requirements for income taxes*. Available at: https://www.fasb.org/jsp/FASB/CommentLetter_C/CommentLetterPage&cid=1218220137090&project_id=2019-500

Francis, J., S. S. Neuman, and N. J. Newton. 2019. Does tax planning affect analysts' forecast accuracy? *Contemporary Accounting Research* 36 (4): 2663-2694.

Gao, W., L. Ng, and Q. Wang. 2008. Does geographic dispersion affect firm valuation? *Journal of Corporate Finance* 14: 674-687.

Garcia, D., and O. Norli. 2012. Geographic dispersion and stock returns. *Journal of Financial Economics* 106: 547-565.

Graham, J. R., J. S. Raedy, and D. A. Shackelford. 2012. Research in accounting for income taxes. *Journal of Accounting and Economics* 53: 412-434.

Greene, W. 2006. Econometric analysis 5th Edition. New York, NY: Pearson.

Gu, F. and W. Wang. 2005. Intangible assets, information complexity, and analysts' earnings forecasts. *Journal of Business Finance & Accounting* 32 (9) & (10): 1673-1702.

Hanlon, M., and E. L. Maydew. 2009. Book-tax conformity: Implications for multinational firms. *National Tax Association* 62 (1): 127-153.

Haw, I., K. Jung, and W. Ruland. 1994. The accuracy of financial analysts forecasts after mergers. *Journal of Accounting, Auditing, and Finance* 9 (Summer): 465-486.

Herrmann, D., T. Kang, and J. Kim 2010. International diversification and management earnings guidance: The effects of Reg FD. *Journal of International Accounting Research* 9 (1): 1-22.

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

Hope, O., M. Ma, and W. B. Thomas. 2013. Tax avoidance and geographic earnings disclosure. *Journal of Accounting and Economics* 56 (2-3): 170-189.

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

Hutchens, M. 2017. *Can Disclosure Characteristics Improve Analyst Forecast Accuracy?* Working paper, University of Illinois Urbana-Champaign

Internal Revenue Service (IRS). 2019. *Country-by-Country Reporting.* (Last accessed November 22, 2019). Available at: https://www.irs.gov/businesses/international-businesses/country-by-country-reporting

Kaiser, H. F., and J. Rice. 1974. Little Jiffy, Mark IV. *Educational and Psychological Measurement* 34: 111-117.

Kang, T., I. K. Khurana, and C. Wang. 2017. International diversification, SFAS 131 and post-earnings-announcement drift. *Contemporary Accounting Research* 34 (4): 2152-2178.

Kennedy, P. 2003. A Guide to econometrics 5th edition. Boston, MA: MIT Press.

Kim, S., A. P. Schmidt, and K. Wentland. 2015. *Analysts, Taxes, and Information Processing Costs.* Working paper, University of Massachusetts -Boston, North Carolina State University, George Mason University.

Klassen, K., and S. K. Laplante. 2012. Are U.S. multinational corporations becoming more aggressive income shifters? *Journal of Accounting Research* 50 (5): 1245-1286.

Lang, M. H., and R. J. Lundholm. 1996. Corporate disclosure policy and analyst behavior. *The Accounting Review* 71 (4): 467-492.

Leone, A. J., M. Minutti-Mezza, and C. E. Wasley. 2019. Influential observations and inference in accounting research. *The Accounting Review* 94 (6): 337-364.

Lewellen, C. M. 2019. *Tax Haven Incorporation and Financial Reporting Transparency*. Working paper, North Carolina State University.

Lim, T. 2001. Rationality and analysts' forecast bias. *Journal of Finance* 56: 369–385.

Lundholm, R., and R. Sloan. 2007. *Equity Valuation and Analysis*. New York, NY: The McGraw-Hill Companies, Inc.

Mauri, Lin, and Neiva de Figueiredo 2013. The influence of strategic patterns and internationalization on the accuracy and bias of earnings forecasts by financial analysts. *International Business Review* 22: 725-735.

Mitton, T. 2020. *Economic Significance in Corporate Finance.* Working paper, Brigham Young University.

Nichols, D. L. Tunnell, and C. Seipel. 1995. Earnings forecast accuracy and geographic segment disclosures. *Journal of International Accounting Auditing, and Taxation* 4 (2): 113-126.

O'Brien, P. 1988. Analysts' forecasts as earnings expectations. *Journal of Accounting and Economics* 10: 53-83.

OECD. 2015. Transfer Pricing Documentation and Country-by-Country Reporting, Action 13 - 2015 Final Report http://www.oecd.org/tax/transfer-pricing-documentation-and-country-by-country-reporting-action-13-2015-final-report-9789264241480-en.htm

Osswald, B. 2019. *Corporate Tax Planning and Firms' Information Environment.* Working paper, University of Illinois.

Platikanova, P., and M. M. Mattei. 2016. Firm geographic dispersion and financial analysts' forecasts. *Journal of Banking & Finance* 64: 71-89.

Plumlee, M. A. 2003. The effect of information complexity on analysts' use of that information. *The Accounting Review* 78 (1): 275-296.

Raabe, W. A., J. C. Young, W. H. Hoffman, A. Nellen, and D. M. Maloney. 2020. South-Western Federal Taxation: Corporations, Partnerships, Estates, and Trusts, 2020 Edition. Cengage. Boston, MA.

Richardson, G., and G. Taylor. 2015. Income shifting incentives and tax haven utilization: Evidence from multinational U.S. firms. *The International Journal of Accounting* 50: 458-485.

Schipper, K. 1991. Commentary on Analysts' Forecasts. *Accounting Horizons* (December): 105-121.

Shi, G., J. Sun, and R. Luo. 2015. Geographic dispersion and earnings management. *Journal of Accounting and Public Policy* 34: 490-508.

Shane, P. B., and T. Stock. 2006. Security analyst and stock market efficiency in anticipating tax-motivated income shifting. *The Accounting Review* 81 (1): 227-250.

Swanquist, Q. T., and R. L. Whited. 2018. *Out of Control: The (Over)Use of Controls in Accounting Research.* Working paper, University of Alabama and University of Massachusetts– Amhurst.

Sullivan, D. 1994. Measuring the degree of internationalization of a firm. *Journal of International Business Studies* 25 (Second Quarter): 325-334.

Thomas, S. 2002. Firm diversification and asymmetric information: Evidence from analysts' forecasts and earnings announcements. *Journal of Financial Economics* 64 (3): 373–96.

Tong, Z. 2011. Firm diversification and the value of corporate cash holdings. *Journal of Corporate Finance* 17: 741-758.

Weber, D. 2009. Do analysts and investors fully appreciate the implications of book-tax differences for future earnings? *Contemporary Accounting Review* 26 (4): 1175-1206.

Wooldridge, J. 2006. Introductory Econometrics: A modern approach 4th edition. Mason, OH: South-Western Cengage Learning.

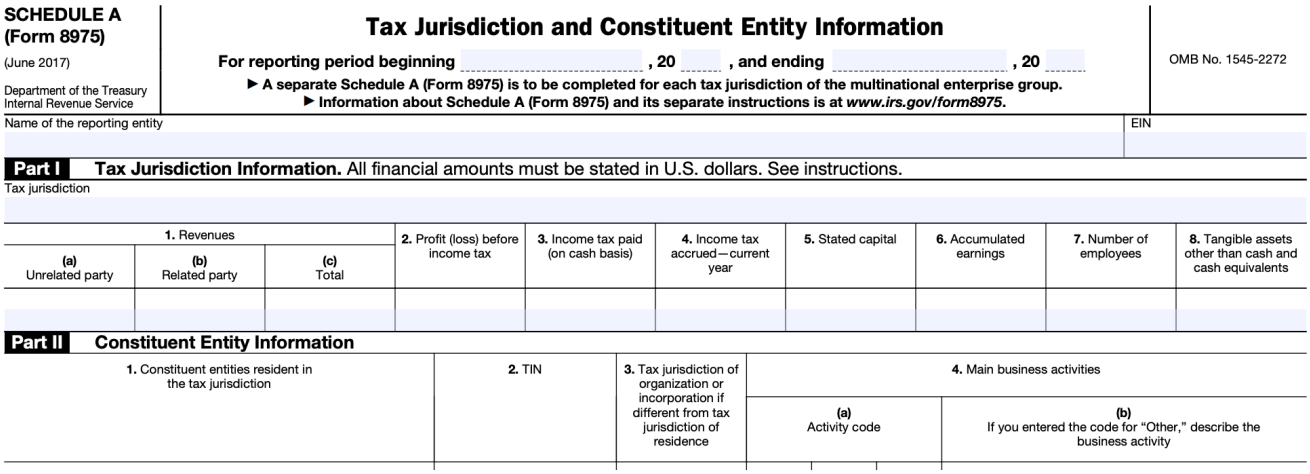
Volkov, N. I. and G. C. Smith. 2015. Corporate diversification and firm value during economic downturns. *The Quarterly Review of Economics and Finance* 55: 160-175.

APPENDIX 1
Current Country-by-Country Disclosure Considerations

Organization for Economic Cooperation and Development/U.S. Internal Revenue Service

In 2013, the Organization for Economic Cooperation and Development (OECD) released the Inclusive Framework on Base Erosion and Profit Shifting (BEPS Initiative). Per the OECD website, "over 135 countries are implementing 15 Actions to tackle tax avoidance, improve the coherence of international tax rules and ensure a more transparent tax environment."[22] Under Action 13 of the BEPS Initiative, the OECD set out to improve tax transparency. All multinational firms with greater than $850 million (€750 million) in prior year revenues are required to file country-by-country reports that include accounting and tax numbers for each tax jurisdiction in which it operates. The U.S. IRS adopted these requirements and followed the OECD-provided reporting template. The Form 8975 is the IRS form that U.S. multinational firms must file. An excerpt of this form is available in Figure A1.

FIGURE A1.1



SCHEDULE A (Form 8975) (June 2017)
Department of the Treasury Internal Revenue Service

Tax Jurisdiction and Constituent Entity Information

For reporting period beginning _____ **, 20** ____ **, and ending** _____ **, 20** ____

► **A separate Schedule A (Form 8975) is to be completed for each tax jurisdiction of the multinational enterprise group.**
► **Information about Schedule A (Form 8975) and its separate instructions is at *www.irs.gov/form8975*.**

OMB No. 1545-2272

Name of the reporting entity | EIN

Part I **Tax Jurisdiction Information.** All financial amounts must be stated in U.S. dollars. See instructions.

Tax jurisdiction

1. Revenues			2. Profit (loss) before income tax	3. Income tax paid (on cash basis)	4. Income tax accrued—current year	5. Stated capital	6. Accumulated earnings	7. Number of employees	8. Tangible assets other than cash and cash equivalents
(a) Unrelated party	(b) Related party	(c) Total							

Part II **Constituent Entity Information**

1. Constituent entities resident in the tax jurisdiction	2. TIN	3. Tax jurisdiction of organization or incorporation if different from tax jurisdiction of residence	4. Main business activities	
			(a) Activity code	(b) If you entered the code for "Other," describe the business activity

[22] https://www.oecd.org/tax/beps/about/

On Form 8975, U.S. multinational firms must report total revenues, unrelated party revenues, related party revenues, profit(loss) before income taxes, cash income taxes paid, stated capital, accumulated earnings, number of employees, and tangible assets other than cash on a tax-jurisdictional basis (typically country-by-country). Multinational groups with a U.S. parent were required to file these country-by-country reports starting with the 2017 tax year but could also file in the 2016 tax year to avoid filing requirements they would otherwise meet in other countries. Unlike many other countries, the U.S. does not require firms to file the "master" and "local" files also recommended by the OECD. The master and local files provide more detailed transfer pricing strategies for multinational groups.

Financial Accounting Standards Board

The Financial Accounting Standards Board (FASB) recently proposed a standard for changes to the income taxes disclosure requirements to include country-by-country reporting of pre-tax foreign income (loss) from continuing operations, foreign taxes paid, and foreign income tax expense. Users stated that tax information related to foreign income taxes at a more granular level "could further their understanding of exposures to various countries" (FASB 2019, p. 25).[23] However, the FASB decided not to implement these requirements at this time. FASB's stated reasons for not requiring this information include possible misleading information, significant costs and complexities related to process and system changes to determine appropriate GAAP numbers, the ability of tax authorities to use this information to collect additional tax revenues,

[23] See ps. 25-27 of the FASB report for its discussion of "country-level disaggregation," also known as country-by-country reporting.

and increased public pressure on governments to increase taxes on reporting entities (FASB 2019).

Securities and Exchange Commission

The Securities and Exchange Commission's (SEC) 2020 comment letters have also shown an interest in information asymmetries related to a firm's global footprint and tax-motivated income shifting. A summary provided by EY (EY 2019) states that the SEC staff has requested more information regarding firms' tax rate reconciliations. "These comments often related to operations located in foreign jurisdictions that have low tax rates" as described in the EY summary (EY 2019, p. 35). An excerpt from one SEC staff comment is available in Figure A2.

FIGURE A1.2

Example SEC staff comment: Nature of reconciling items affected effective tax rates

We note from your tax rate reconciliation that foreign income taxed at lower rates significantly impacted your effective tax rates. Please help us understand the nature of this reconciling item, including the primary taxing jurisdictions where your foreign earnings are derived and the relevant statutory rates in those jurisdictions. Please also discuss any incentivized tax rates you have been granted and briefly describe the factual circumstances of any tax holidays, the per-share effects of the tax holiday and the date upon which any special tax status terminates. Refer to ASC 740-10-50-12 and SAB Topic 11.C.

(EY 2019, p. 35)

APPENDIX 2
Variable Descriptions

TABLE A2.1

VARIABLE	*DEFINITION*	*Calculation*
Primary Variables of Interest		
Accuracy EPS	Earnings per share forecast accuracy measured as the absolute value of mean consensus annual forecast less actual earnings per share, scaled by the beginning of year price. This value is multiplied by -1 so that higher values mean more accurate. Mean forecast is for year-end *t* made three months after year-end for year *t-1*.	*-1*abs(meanest-actual)/prcc_f*$_{t-1}$
ID	International Diversification	*Foreign Sales Ratio * Foreign Sales Diversification*
Foreign Sales HHI	Herfindahl-Hirschman Index of foreign sales	$(1 - \Sigma ((foreign\ sales_{c,i,t-1} / foreign\ sales_{i,t-1})^2)$
Foreign Sales Ratio	Ratio of foreign sales to worldwide sales	$(foreign\ sales_{i,t-1} / worldwide\ sales_{i,t-1})$
Additional Variables of Interest		
Tax Haven Percentage	Percentage of countries listed on Exhibit 21 that are tax havens (Dyreng, Lindsey, and Thornock 2012)	$nhavencountries_{t-1}/ncountries_{t-1}$
Tax Haven Subsidiary Percentage	Percentage of subsidiaries listed on Exhibit 21 that are in tax havens (Dyreng, Lindsey, and Thornock 2012)	$nhavensubs_{t-1}/(totalcount_{t-1}+totalstatecount_{t-1})$
Low/High Average Foreign Tax Rate (FTR)	Foreign tax rates compared to the U.S. statutory tax rate. If *Average FTR* is less than -0.35 or greater than 0.35, then the observation is set to missing. If *Average FTR* is positive, then *Low Average Foreign Tax Rate (FTR)* is set to -1*(*Average FTR)*, zero otherwise. If *Average FTR* is negative then *High Average FTR* is set to (*Average FTR*), zero otherwise.	$Average\ FTR =[.35 – ((\Sigma_{t-1\ to\ t-5}\ txfo\ )/(\Sigma_{t-1\ to\ t-5}\ pifo))]$
Post Expansion +1 to +3, Post Expansion +4 to +6	Indicator variable for the firm-years after the year of expansion into a tax haven for tax-motivated income shifting incentives. The year of expansion is examined in Table 7 and defined as having the following: a reduction in GAAP ETR for years *t-1* and *t*, an increase in *ID* in year *t-1*, an addition of a tax haven listed on Exhibit 21 in year *t-1*, and non-missing EPS reported for years *t-2* through *t*.	

Control Variables		
Change in EPS	Magnitude of the change in actual earnings per share over prior year (absolute value)	*$abs(EPS_t - EPS_{t-1})$*
EPS Forecast Dispersion	Dispersion of earnings per share EPS forecasts for the year scaled by price	*$Stdev_t/prcc\_f_{t-1}$*
EPS Skewness	Earnings skewness	*[n/((n-1)(n-2))]*[Σ((ib-mean(ib))/std(ib))^3]*
EPS Forecast Horizon	Forecast horizon	*(fpedats - anndats)/365*
Analysts Following	Number of analysts following firm	Number of analysts for the year reported in I/B/E/S ($numest_t$)
Size	Firm size	*$log(at_{t-1})$*
Book-to-Market	Book-to-market value	*$at_{t-1}/log(prcc\_f_{t-1}*csho_{t-1})$*
Loss	Pre-tax loss in the prior year (indicator)	*$pi_{t-1} < 0$ then LOSS = 1, else LOSS = 0*
Leverage	Leverage	*$dltt_{t-1}/at_{t-1}$*
Research & Development	Research and development spending	*$xrd_{t-1}/sale_{t-1}$*
NOL	Tax-loss carryforward (indicator)	*$tlcf_{t-1}$; equal to 1 if not missing, zero otherwise*
Equity Method Income	Equity method income (indicator)	*$esub_{t-1}$; equal to 1 if not missing, zero otherwise*
Non-Controlling Interest	Non-controlling interest (indicator)	*mii_{t-1} ; equal to 1 if not missing, zero otherwise*
Earnings Volatility	Long-term earnings volatility	*$std(ib_{t-1}/at_{t-1})$ over previous 5-year period*
Number of Summary Segments	Number of "summary segments" reported in the firm's geographic segments disclosures. Summary segments include ROW (rest of world), Americas, Africa, Asia-Pacific, Caribbean, Central America, EMEA, Europe, Middle East, Middle East and North Africa, North America, South America, Sub-Saharan Africa)	See Appendix 3
Presence of Other Segment	Presence of an "other" segment based on ASC 280 10% threshold reporting requirement.	See Appendix 3

Business Segments HHI	Herfindahl-Hirschman Index of business segment sales per year *t-1*. I exclude segments that report negative sales as these are very often intercompany eliminations, which I do not want to capture and when included create above one or below zero values.	$(1 - \Sigma_{i,t}((business\ segment\ sales_{s,i,t-1}/total\ business\ segment\ sales_{i,t-1})^2)$
Number of Industries	The number of different industries reported in a firm's business segment reporting per Compustat Historic Segment File for year *t-1*.	
Growth Gap	Per Chen, Hepfer, Quinn, and Wilson (2018) description of variable calculation: *"Indicator variable equal to 1 if either (i) three-year average of annual growth in pretax domestic income is in the top (bottom) quintile, relative to firms in the same fiscal year, and three-year average of annual growth in pretax foreign income is in the bottom (top) quintile, relative to firms in the same fiscal year, or (ii) three-year average of absolute annual growth in pretax domestic income is in the top (bottom) quintile, relative to firms in the same fiscal year, and three-year average of absolute annual growth in pretax foreign income is in the bottom (top) quintile, relative to firms in the same fiscal year. Indicator variable equals 0 otherwise. Averages are over years t through t–2. Domestic (foreign) earnings growth is the annual change in PIDOM (PIFO), scaled by lagged PIDOM (PIFO)."*	Follows Chen, Hepfer, Quinn, and Wilson (2018) calculation of variable.

APPENDIX 3
Summary Segments

In developing my measure for international diversification (ID), I manually clean and re-categorize company-decided segments to (1) standardize spelling and abbreviations for segments and (2) determine whether companies often use "summary segments." I first went through the list of geographic segments from the Compustat Historic Segment File with a *geotp* equal to 3. I then re-labeled segments based on a maximum of two countries (*Country1* and *Country2*). For example, a firm disclosing "United Kingdom and Ireland," "U.K. and Ireland," or "UK & Ireland" would have *Country1* equal to "United Kingdom" and *Country2* equal to "Ireland." This helped standardize listed countries and correct for potential misspellings.

When examining the segment disclosure data, I noticed firms often define their own segments as well as combine multiple countries on the same line. For example, "United Kingdom and Ireland," "Republic of South Africa, Asia, Japan, Pacific, Australia" and "Europe, Great Britain, Australia, Brazil, Other Foreign" are common examples of the type of segments a company might disclose. To provide some standardization of geographic disclosures, I first develop summary segments related to geographic regions of the world that I found to be commonly disclosed regions with examples in Table A3.1.

TABLE A3.1

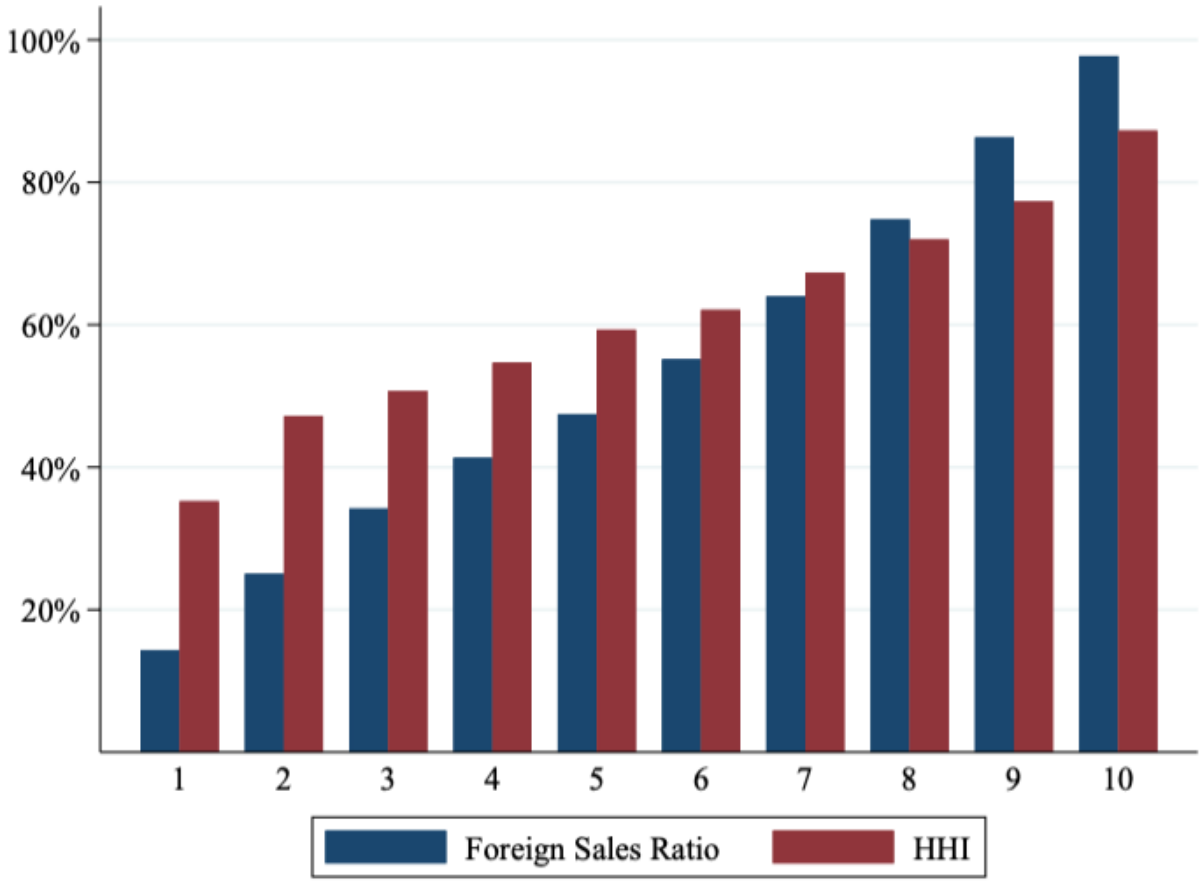
Summary Segment	**Example**
Americas	Canada/Latin America, Caribbean/Central & South America, Mexico/Latin America
Africa	Africa, Continental Africa, East Africa, Rest of Africa
Asia-Pacific	Asia, Australia, Asia-Pacific, Asia/Japan
Caribbean	Caribbean Region, St. Maarten, Dominica
Central America	Central America

EMEA (Europe, Middle East, Africa)	EMEA, Other Europe/MEA. Republic of South Africa/Middle East/Europe
Europe	Europe/Germany, Europe/France/Spain, Any group of European countries
Middle East	Middle East
Middle East and North Africa	MENA, Middle East/Other Africa
North America	Canada or Mexico (Non-U.S.)
South America	South America
Sub-Saharan Africa	Sub-Saharan Africa, Ethiopia, and Zanzibar
ROW (Rest of World)	Any listing of more than two countries or two summary segments
Other	Other Countries, Other Developed Markets, Other Foreign

I created these segments in an iterative process, meaning I went through all the segments and designated a summary segment, adding segments as I went. I then went through the list two more times to re-categorize as necessary. These categories are also firm directed, meaning I did not create a segment category that at least one firm in the disclosure file did not use. My individual categorizations are available upon request.

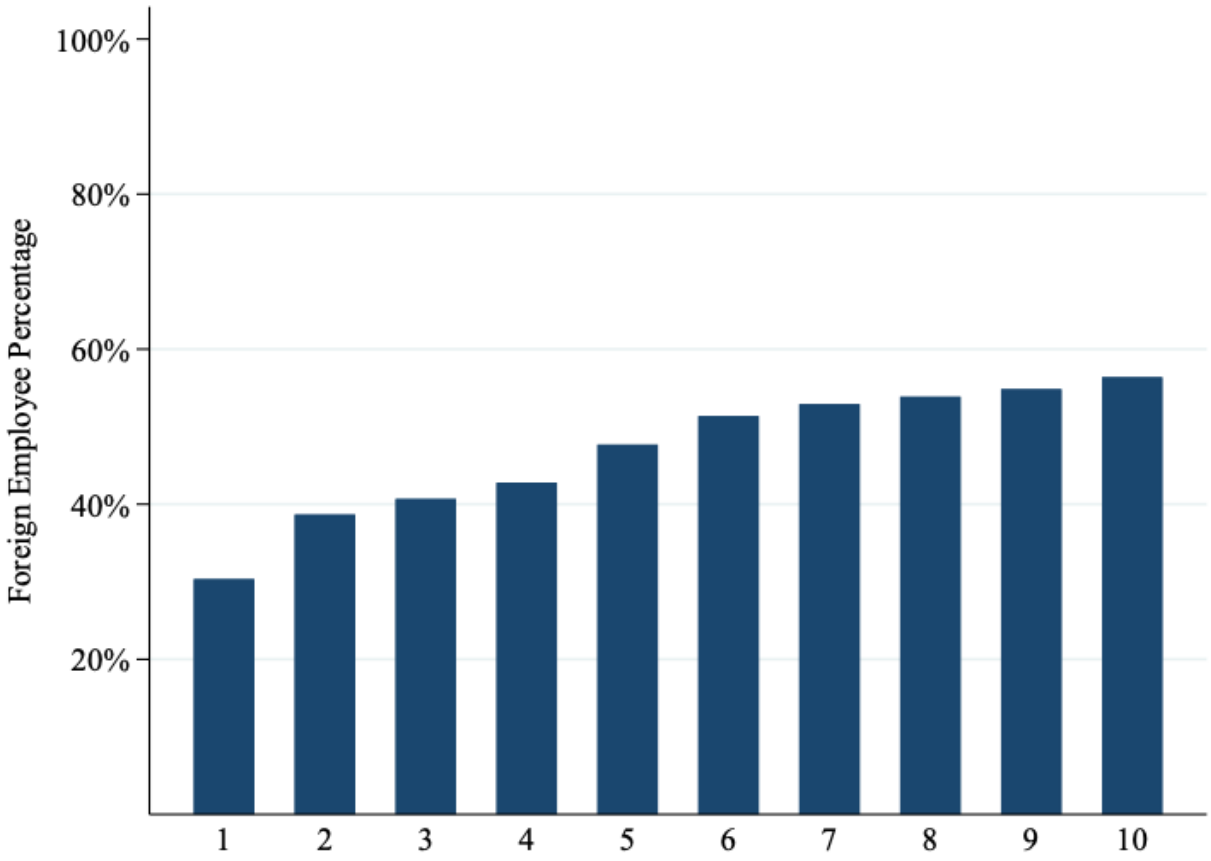
FIGURES

FIGURE 1
Foreign Sales Ratio and *Foreign Sales HHI* by *ID* Decile



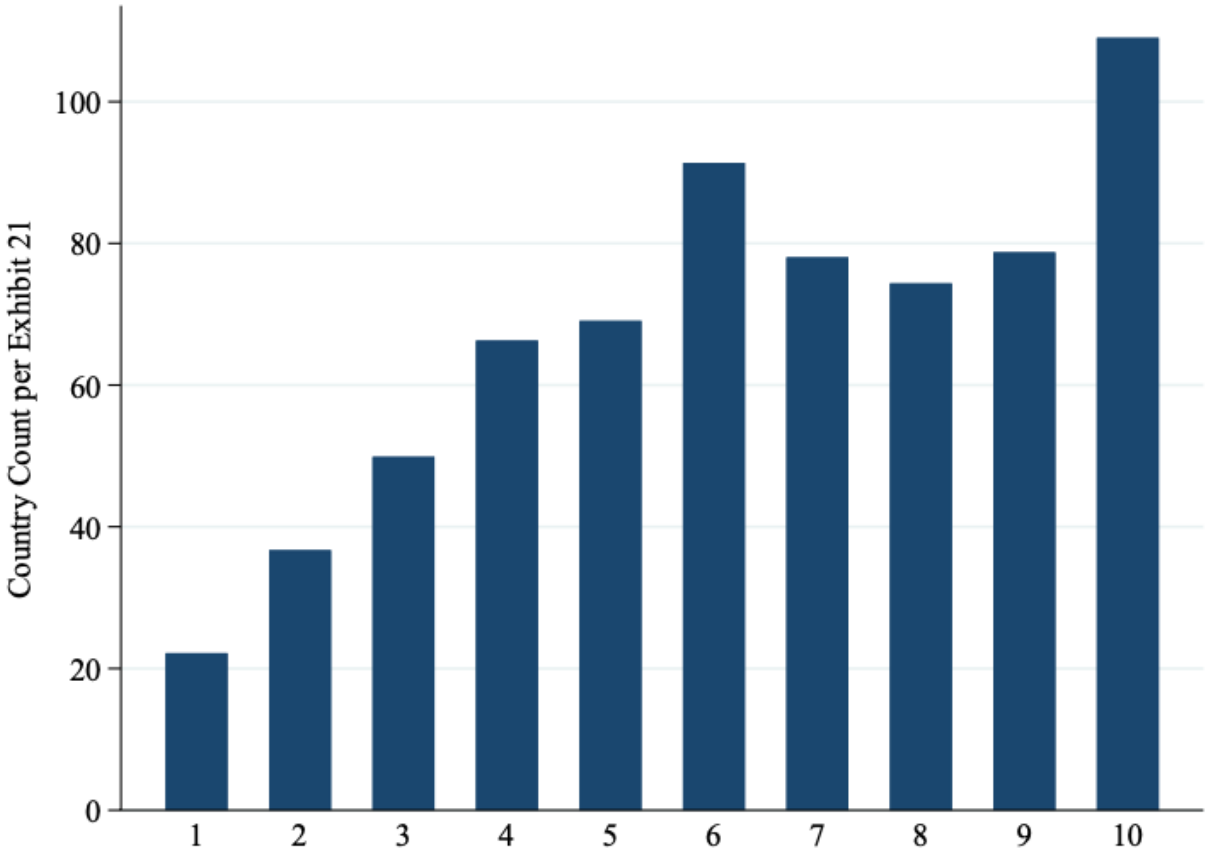
This figure graphs the mean values of the two components of *ID*, *Foreign Sales Ratio* ((*foreign sales*$_{i,t-1}$ / *worldwide sales*$_{i,t-1}$)) and *Foreign Sales HHI* ((1 - Σ ((*foreign sales*$_{c,i,t-1}$ / *foreign sales*$_{i,t-1}$)^2)), over *ID* deciles for the sample of firms as described in Table 1. See Appendix 2 for further variable definitions.

FIGURE 2
Foreign Employee Percentage by *ID* Decile



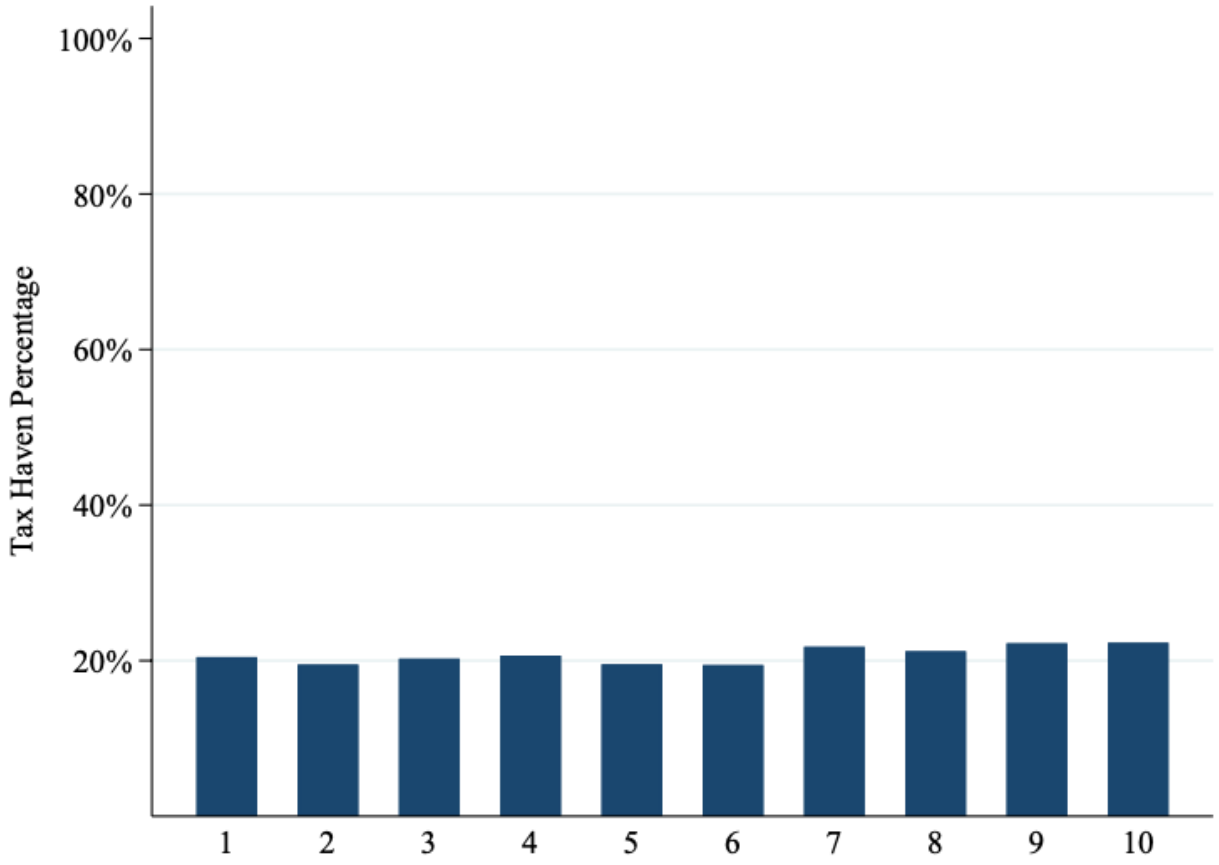
This figure graphs the mean *Foreign Employee Percentage* (total foreign employees over total worldwide employees) over *ID* deciles for the sample of firms as described in Table 1.

FIGURE 3
Total Country Count by *ID* Decile



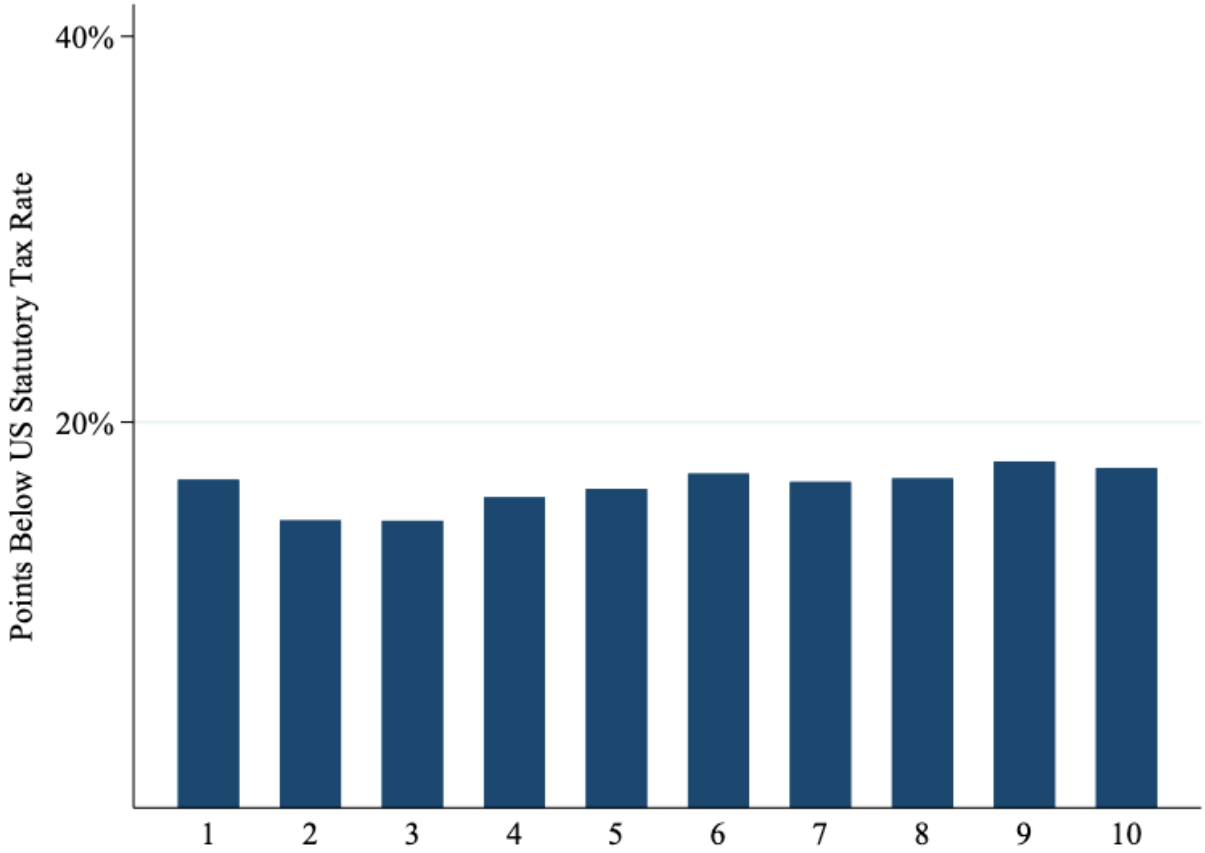
This figure graphs the mean *Total Country Count* (total number of countries listed per Exhibit 21) over *ID* deciles for the sample of firms as described in Table 1.

FIGURE 4
Tax Haven Percentage by *ID* Decile



This figure graphs the mean *Tax Haven Percentage* as defined in Appendix 2 over *ID* deciles for the sample of firms as described in Table 1.

FIGURE 5
Foreign Tax Rate Differential by *ID* Decile



This figure graphs the mean *Foreign Tax Rate Differential*, the difference between a firm's foreign effective tax rate and the U.S. statutory rate of 35 percent, over *ID* deciles for the sample of firms as described in Table 1. A higher value means, on average, a firm's foreign effective tax rate is lower than the U.S. statutory rate.

TABLES

TABLE 1
Sample Selection

1	Number of Non-Missing Consensus Estimates from 1999 to 2016	40,739
2	Less: *Accuracy EPS* less than -1	(599)
3	Less: *Analyst Following* less than 3	(5,806)
4	Less: Missing control variables or less than $10m in lagged assets	(9,880)
5	Less: Domestic firms (MNC=0) or MNCs without necessary segment data to calculated independent variable of interest (*ID*), with values of *ID* > 1 or <= 0, with *Foreign Sales* <= 0, or with *Foreign Sales HHI* <=0	(15,195)
6	Less: Influential observations	(242)
	Total firm-year observations	9,017

This table presents the sample selection process used for observations in this study. I start with non-missing consensus earnings per share annual forecasts from I/B/E/S that match to annual observations in Compustat North America.

TABLE 2
Descriptive Statistics

Variable	N	Mean	StDev	25%	50%	75%
Dependent and Indep. Variables of Interest						
Accuracy EPS	9,017	-0.016	0.025	-0.017	-0.006	-0.002
ID	9,017	0.355	0.254	0.152	0.289	0.527
Control Variables						
Change in EPS	9,017	0.027	0.068	0.004	0.010	0.025
Dispersion of EPS Forecasts	9,017	0.006	0.019	0.001	0.002	0.006
Skewness of EPS	9,017	-1.660	5.264	-4.265	-1.016	1.311
EPS Forecast Horizon	9,017	-0.105	0.041	-0.129	-0.099	-0.077
Analysts Following	9,017	11.691	7.862	5.000	9.000	16.000
Size	9,017	7.595	1.745	6.342	7.507	8.734
Book-to-Market	9,017	1185	4976	85	240	712
Loss	9,017	0.167	0.373	0.000	0.000	0.000
Leverage	9,017	0.168	0.159	0.007	0.148	0.266
Research & Development	9,017	0.073	0.116	0.000	0.024	0.112
NOL	9,017	0.580	0.494	0.000	1.000	1.000
Equity Method Income	9,017	0.440	0.496	0.000	0.000	1.000
Non-Controlling Interest	9,017	0.490	0.500	0.000	0.000	1.000
Earnings Volatility	9,017	0.067	0.125	0.017	0.032	0.069
No. of Summary Segments	9,017	1.490	1.361	0.000	1.000	2.000
Presence of "Other" Segment	9,017	0.603	0.489	0.000	1.000	1.000
Tax-Motivated Income Shifting Variables						
Tax Haven Percentage	7,842	0.207	0.160	0.120	0.190	0.267
Tax Haven Subsidiary Percentage	7,078	0.135	0.107	0.057	0.119	0.192
Low Average Foreign Tax Rate	5,498	0.151	0.102	0.063	0.159	0.232
High Average Foreign Tax Rate	5,498	0.016	0.051	0.000	0.000	0.000

This table presents descriptive statistics for variables used in this study. The sample in this table includes the final sample, as described in Table 1. This table presents un-altered (un-trimmed) variables. See Appendix 2 for variable definitions.

TABLE 3
Pearson Correlations

VARIABLES	*Accuracy EPS*	*ID*	*Tax Haven Percentage*	*Tax Haven Subs. Perc.*	*Low Average FTR*
Accuracy EPS	1.000				
ID	-0.062*	1.000			
Tax Haven Percentage	-0.068*	0.060*	1.000		
Tax Haven Subsidiary Percentage	-0.057*	0.179*	0.709*	1.000	
Low Average FTR	-0.018	0.144*	0.174*	0.256*	1.000
High Average FTR	-0.024	-0.080*	-0.034*	-0.066*	-0.459*

This table presents Pearson correlations among the dependent and independent variables of interest in the primary analysis. The sample in this table includes the final sample, as described in Table 1. See Appendix 2 for variable definitions. * denotes significance at a 1 percent level for two-tailed tests.

TABLE 4
EPS Forecast – Duru and Reeb (2002) Inferences
Panel A: *ID*

VARIABLES	(1) *Accuracy EPS* Trimmed	(2) *Accuracy EPS* Trimmed	(3) *Accuracy EPS* Trimmed	(4) *Accuracy EPS* Cook's *D*	(5) *Accuracy EPS (Median)* Cook's *D*
Foreign Sales Ratio	-0.0023**	-0.0027**			
	(-2.169)	(-2.450)			
ID			-0.0024*	-0.0035***	-0.0039***
			(-1.936)	(-3.031)	(-3.137)
Change in EPS	-0.3625***	-0.3585***	-0.3572***	-0.1257***	-0.1167***
	(-10.544)	(-10.388)	(-10.295)	(-7.201)	(-5.085)
Dispersion of EPS	-0.6437***	-0.6711***	-0.6771***	-0.3431***	-0.3959***
	(-4.294)	(-4.338)	(-4.357)	(-6.182)	(-3.414)
Skewness	0.0001**	0.0001**	0.0001**	0.0002***	0.0002***
	(2.148)	(2.181)	(2.189)	(4.180)	(3.949)
EPS Forecast Horizon	0.0449***	0.0390***	0.0394***	0.0164**	0.0131*
	(3.707)	(3.185)	(3.222)	(2.171)	(1.716)
Analysts Following	0.0001**	0.0001	0.0001	0.0002***	0.0003***
	(2.087)	(1.382)	(1.447)	(5.339)	(5.107)
Size	0.0004	0.0011**	0.0011**	0.0005*	0.0006*
	(1.314)	(2.571)	(2.462)	(1.664)	(1.840)
Loss	-0.0080***	-0.0084***	-0.0085***	-0.0116***	-0.0114***
	(-5.786)	(-6.045)	(-6.104)	(-10.510)	(-8.154)
Earnings Volatility	0.0046	0.0039	0.0037	-0.0053**	-0.0061**
	(0.885)	(0.747)	(0.706)	(-2.113)	(-2.079)
Book-to-Market		-0.0000*	-0.0000*	-0.0000**	-0.0000**
		(-1.701)	(-1.656)	(-2.108)	(-2.197)
Leverage		0.0005	0.0003	-0.0028	-0.0025
		(0.191)	(0.108)	(-1.338)	(-1.147)
Research & Development		0.0083**	0.0080**	0.0040	0.0087**
		(2.149)	(2.059)	(1.087)	(2.002)
NOL		-0.0000	0.0000	-0.0004	-0.0007
		(-0.018)	(0.065)	(-0.812)	(-1.215)
Equity Method Income		-0.0004	-0.0004	-0.0008	-0.0008
		(-0.636)	(-0.610)	(-1.333)	(-1.333)
Non-Controlling Interest		-0.0003	-0.0003	0.0000	0.0001
		(-0.456)	(-0.478)	(0.040)	(0.094)
No. of Summary Segments		0.0004*	0.0005*	0.0001	0.0000
		(1.676)	(1.760)	(0.540)	(0.018)
"Other" Segment Present		-0.0005	-0.0005	-0.0002	-0.0005
		(-0.679)	(-0.671)	(-0.446)	(-0.904)
Constant	-0.0016	-0.0066*	-0.0069*	-0.0108***	-0.0106***

	(-0.521)	(-1.808)	(-1.873)	(-4.061)	(-3.846)
Observations	8,476	8,459	8,453	9,017	9,017
R-squared	0.552	0.554	0.553	0.434	0.417
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes

Panel B: *Foreign Sales Ratio* and *Foreign Sales HHI*

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*
Foreign Sales Ratio	-0.0034***	
	(-3.170)	
Foreign Sales HHI		-0.0028**
		(-2.166)
Constant	-0.0100***	-0.0097***
	(-3.811)	(-3.733)
Observations	9,017	9,017
R-squared	0.434	0.433
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

This table presents results of replicating the main inferences from Duru and Reeb (2002) in my sample and verifying my main model specification and measure of international diversification. Panel A presents replication results and my main model. The accuracy of EPS forecasts, *Accuracy EPS,* is the dependent variable of interest in all columns. *Foreign Sales Ratio* is the independent variable of interest in Columns (1) and (2) of Panel A. *ID* is the independent variable of interest in columns (3), (4), and (5) of Panel A. Panel A, columns (1), (2), and (3) use OLS with trimmed variables. Columns (4) and 5 use untrimmed data with influential observations dropped (Cook's *D*). Panel A, column (1) includes only control variables included in Duru and Reeb's (2002) original model. Panel A, columns (2) through (5) include additional controls correlated with both the dependent variable and the independent variable of interest. Panel B provides a robustness check of column (4) of Panel A. Panel B, column 1 substitutes *Foreign Sales Ratio* for *ID.* Panel B, column (2) substitutes *Foreign Sales HHI* for *ID.* Panel B includes all controls as presented in column 4 of Panel A, suppressed for brevity. All variables are described in Appendix 2. Year and industry fixed effects are included. Standard errors are clustered by firm. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.

TABLE 5
Hypothesis 1 Testing
Panel A: Tax Haven Usage

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*	(5) *Accuracy EPS*	(6) *Accuracy EPS*	(7) *Accuracy EPS*	(8) *Accuracy EPS*
	Tax Haven Percentage				*Tax Haven Subsidiary Perc.*			
ID	-0.0037***		-0.0035***	-0.0035***	-0.0038***		-0.0032***	-0.0033***
	(-3.167)		(-2.994)	(-3.033)	(-3.079)		(-2.598)	(-2.664)
Tax Haven Percentage		-0.0082***	-0.0079***	-0.0079***				
		(-4.041)	(-3.952)	(-3.914)				
*ID*Tax Haven Percentage*				0.0008				
				(0.116)				
Tax Haven Subsidiary Perc.						-0.0108***	-0.0097***	-0.0098***
						(-3.457)	(-3.097)	(-3.134)
*ID*Tax Haven Subsidiary Perc.*								0.006
								-0.607
Constant	-0.0106***	-0.0087***	-0.0093***	-0.0136***	-0.0104***	-0.0089***	-0.0095***	-0.0143***
	(-3.883)	(-3.268)	(-3.410)	(-8.286)	(-3.563)	(-3.126)	(-3.267)	(-8.294)
Observations	7,842	7,842	7,842	7,842	7,078	7,078	7,078	7,078
R-squared	0.451	0.452	0.453	0.453	0.463	0.464	0.465	0.465
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Average Foreign Tax Rate

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*
ID	-0.0023*		-0.0021*	-0.0021*
	(-1.884)		(-1.736)	(-1.708)
Low Average FTR		-0.0079**	-0.0076*	-0.0074*
		(-1.999)	(-1.917)	(-1.909)
*ID*Low Average FTR*				-0.0057
				(-0.500)
High Average FTR		-0.0016	-0.0017	-0.0014
		(-0.313)	(-0.339)	(-0.262)
*ID*High Average FTR*				0.0059
				-0.238
Constant	-0.0066**	-0.0066**	-0.0067**	-0.0122***
	(-2.083)	(-2.108)	(-2.122)	(-6.303)
Observations	5,498	5,498	5,498	5,498
R-squared	0.392	0.392	0.393	0.393
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes

Panel C: Tax Haven Usage, Standardized Coefficients

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*	(5) *Accuracy EPS*	(6) *Accuracy EPS*	(7) *Accuracy EPS*	(8) *Accuracy EPS*
	Tax Haven Percentage				*Tax Haven Subsidiary Perc.*			
ID	-0.0387***		-0.0363***	-0.0364***	-0.0396***		-0.0334***	-0.0341***
	(-3.167)		(-2.994)	(-3.033)	(-3.079)		(-2.598)	(-2.664)
Tax Haven Percentage		-0.0532***	-0.0516***	-0.0515***				
		(-4.041)	(-3.952)	(-3.914)				
*ID*Tax Haven Percentage*				0.0014				
				-0.116				
Tax Haven Subsidiary Perc.						-0.0470***	-0.0422***	-0.0425***
						(-3.457)	(-3.097)	(-3.134)
*ID*Tax Haven Subsidiary Perc.*								0.007
								-0.607
Constant	-0.0106***	-0.0087***	-0.0093***	-0.0136***	-0.0104***	-0.0089***	-0.0095***	-0.0143***
	(-3.883)	(-3.268)	(-3.410)	(-8.286)	(-3.563)	(-3.126)	(-3.267)	(-8.294)
Observations	7,842	7,842	7,842	7,842	7,078	7,078	7,078	7,078
R-squared	0.451	0.452	0.453	0.453	0.463	0.464	0.465	0.465
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel D: Average Foreign Tax Rate, Standardized Coefficients

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*
ID	-0.0279*		-0.0258*	-0.0254*
	(-1.884)		(-1.736)	(-1.708)
Low Average FTR		-0.0388*	-0.0372*	-0.0366*
		(-1.999)	(-1.917)	(-1.909)
*ID*Low Average FTR*				-0.0069
				(-0.500)
High Average FTR		-0.0038	-0.0041	-0.0033
		(-0.313)	(-0.339)	(-0.262)
*ID*High Average FTR*				0.0037
				-0.238
Constant	-0.0066**	-0.0066**	-0.0067**	-0.0122***
	(-2.083)	(-2.108)	(-2.122)	(-6.303)
Observations	5,498	5,498	5,498	5,498
R-squared	0.392	0.392	0.393	0.393
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes

Panel E: Tax Haven Usage, Industry-Year Fixed Effects

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*	(5) *Accuracy EPS*	(6) *Accuracy EPS*	(7) *Accuracy EPS*	(8) *Accuracy EPS*
	Tax Haven Percentage				*Tax Haven Subsidiary Perc.*			
ID	-0.0037***		-0.0034***	-0.0034***	-0.0037***		-0.0031**	-0.0032**
	(-3.019)		(-2.839)	(-2.869)	(-2.846)		(-2.388)	(-2.442)
Tax Haven Percentage		-0.0083***	-0.0081***	-0.0081***				
		(-3.979)	(-3.886)	(-3.859)				
*ID*Tax Haven Percentage*				-0.0001				
				(-0.021)				
Tax Haven Subsidiary Perc.						-0.0109***	-0.0098***	-0.0099***
						(-3.384)	(-3.060)	(-3.096)
*ID*Tax Haven Subsidiary Perc.*								(0.433)
Constant	-0.0062**	-0.0041	-0.0046	-0.0094***	-0.0057*	-0.0040	-0.0046	-0.0097***
	(-2.179)	(-1.444)	(-1.614)	(-5.255)	(-1.922)	(-1.371)	(-1.550)	(-5.390)
Observations	7,842	7,842	7,842	7,842	7,078	7,078	7,078	7,078
R-squared	0.467	0.469	0.470	0.470	0.481	0.482	0.483	0.483
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel F: Average Foreign Tax Rate, Industry-Year Fixed Effects

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*
ID	-0.0025*		-0.0023*	-0.0023*
	(-1.936)		(-1.798)	(-1.773)
Low Average FTR		-0.0073*	-0.0069*	-0.0068*
		(-1.781)	(-1.693)	(-1.685)
*ID*Low Average FTR*				-0.0046
				(-0.396)
High Average FTR		-0.0010	-0.0011	-0.0008
		(-0.179)	(-0.203)	(-0.147)
*ID*High Average FTR*				0.0064
				(0.242)
Constant	-0.0077***	-0.0076***	-0.0072***	-0.0090***
	(-5.800)	(-5.482)	(-4.981)	(-6.580)
Observations	5,498	5,498	5,498	5,498
R-squared	0.423	0.424	0.424	0.424
Controls	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes

Panel G: Tax Haven Usage, Cook's *D*

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*	(5) *Accuracy EPS*	(6) *Accuracy EPS*	(7) *Accuracy EPS*	(8) *Accuracy EPS*
	Tax Haven Percentage				*Tax Haven Subsidiary Perc.*			
ID	-0.0038***		-0.0036***	-0.0036***	-0.0036***		-0.0032***	-0.0032***
	(-3.289)		(-3.134)	(-3.137)	(-3.035)		(-2.632)	(-2.700)
Tax Haven Percentage		-0.0079***	-0.0077***	-0.0078***				
		(-3.876)	(-3.791)	(-3.816)				
*ID*Tax Haven Percentage*				-0.0033				
				(-0.494)				
Tax Haven Subsidiary Perc.						-0.0086***	-0.0076***	-0.0076***
						(-2.992)	(-2.603)	(-2.638)
*ID*Tax Haven Subsidiary Perc.*								
								(0.600)
Constant	-0.0112***	-0.0094***	-0.0099***	-0.0170***	-0.0088***	-0.0075***	-0.0081***	-0.0176***
	(-4.053)	(-3.469)	(-3.613)	(-10.180)	(-3.119)	(-2.705)	(-2.864)	(-10.586)
Observations	7,845	7,845	7,845	7,845	7,058	7,058	7,058	7,058
R-squared	0.443	0.444	0.446	0.446	0.440	0.440	0.441	0.441
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel H: Average Foreign Tax Rate, Cook's *D*

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*	(4) *Accuracy EPS*
ID	-0.0019**		-0.0018**	-0.0018**
	(-2.097)		(-2.041)	(-2.023)
Low Average FTR		-0.0030	-0.0028	-0.0027
		(-1.104)	(-1.009)	(-0.989)
*ID*Low Average FTR*				-0.0042
				(-0.447)
High Average FTR		-0.0021	-0.0023	-0.0022
		(-0.507)	(-0.550)	(-0.527)
*ID*High Average FTR*				-0.0021
				(-0.123)
Constant	-0.0189***	-0.0190***	-0.0187***	-0.0198***
	(-13.641)	(-13.603)	(-13.209)	(-13.958)
Observations	5,458	5,458	5,458	5,458
R-squared	0.575	0.574	0.575	0.575
Controls	Yes	Yes	Yes	Yes
Industry-Year FE	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes

This table presents results of estimating equation (1) using various measures of tax-motivated income shifting with *Tax Haven Percentage* and *Tax Haven Subsidiary Percentage* in Panel A and *Low Average FTR* in Panel B. Columns (1) and (5) of Panels A, C, E, and G and column (1) of Panels B, D, F and H include only *ID* and control variables. Columns (2) and (6) of Panels A, C, E, and G and column (2) of Panels B, D, F and H include just the tax-motivated income shifting variable of interest and control variables. Columns (3) and (7) of Panels A, C, E, and G and column (3) of Panels B, D, F and H include *ID* and the tax-motivated income shifting variable of interest with no interaction and control variables. Columns (4) and (8) of Panels A, C, E, and G and column (4) of Panels B, D, F and H include *ID*, the tax-motivated income shifting variable of interest, and the interaction of *ID* and the tax-motivated income shifting variable of interest, along with all control variables, which is the full test of hypothesis 1. Panels C and D present the exact same tests as Panels A and B, respectively, although Panels C and D present standardized coefficients instead of traditional coefficients. These standardized coefficients provide the necessary estimates to calculate economic interpretations of these results. Panels E and F present the exact same tests as Panels A and B, respectively, although Panels E and F include industry-year fixed effects. Panels G and H present the exact same tests as Panels A and B, respectively, although Panels G and H determine outliers using Cook's *D* for each panel using regressions with interactions (columns (4) and (8) of Panel G and column (4) of Panel H) instead of trimming the tax-motivated income shifting variables while using the main Cook's *D* cutoff as used in all other panels. All variables are described in Appendix 2. Year and industry fixed effects are included in Panels A, B, C, D, G, and H. Standard errors are

clustered by firm. I include control variables as presented in Table 4, omitted for brevity. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.

TABLE 6
Hypothesis 1 Robustness Test
Panel A: *Tax Haven Percentage*

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS (median)*	(3) *Accuracy EPS*	(4) *Accuracy EPS*	(5) *Accuracy EPS (median)*	(6) *Accuracy EPS*
ID	-0.0033**	-0.0031**	-0.0037**	-0.0035***	-0.0038***	-0.0035***
	(-2.321)	(-2.295)	(-2.508)	(-3.003)	(-3.115)	(-3.006)
Tax Haven Percentage			-0.0052*			-0.0079***
			(-1.762)			(-3.920)
*ID*Tax Haven Percentage*			-0.0078			0.0011
			(-0.770)			(0.158)
Business Segments HHI	0.0011	0.0008	0.0017			
	(0.689)	(0.546)	(0.997)			
Growth Gap				-0.0022*	-0.0020	-0.0019
				(-1.716)	(-1.512)	(-1.543)
Constant	-0.0064*	-0.0070**	-0.0142***	-0.0109***	-0.0107***	-0.0136***
	(-1.874)	(-2.138)	(-7.811)	(-4.130)	(-3.905)	(-8.343)
Observations	3,832	3,832	3,450	9,017	9,017	7,842
R-squared	0.467	0.494	0.472	0.434	0.417	0.453
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: *Tax Haven Subsidiary Percentage* and *Average Foreign Tax Rate* with *Business Segments HHI*

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*
ID	-0.0033**	-0.0032*
	(-2.166)	(-1.937)
Tax Haven Subsidiary Perc.	-0.0063	
	(-1.434)	
*ID*Tax Haven Subsidiary Perc.*	-0.0095	
	(-0.713)	
Low Average FTR		-0.0092
		(-1.428)
*ID*Low Average FTR*		0.0110
		(0.758)
High Average FTR		0.0064
		(0.909)
*ID*High Average FTR*		0.0270
		(0.904)
Business Segments HHI	0.0023	-0.0007
	(1.299)	(-0.367)
Constant	-0.0143***	-0.0160***
	(-7.422)	(-6.009)
Observations	3,247	2,676
R-squared	0.477	0.436
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

Panel C: Income Shifting and *Number of Industries* Control

VARIABLES	(1) *Accuracy EPS*	(2) *Accuracy EPS*	(3) *Accuracy EPS*
ID	-0.0037***	-0.0037***	-0.0029**
	(-2.851)	(-2.802)	(-2.105)
Tax Haven Percentage	-0.0066***		
	(-2.639)		
*ID*Tax Haven Percentage*	-0.0035		
	(-0.435)		
Tax Haven Subsidiary Perc.		-0.0086**	
		(-2.501)	
*ID*Tax Haven Subsidiary Perc.*		-0.0024	
		(-0.208)	
Low Average FTR			-0.0049
			(-0.988)
*ID*Low Average FTR*			0.0034
			(0.247)
High Average FTR			0.0021
			(0.342)
*ID*High Average FTR*			0.0049
			(0.163)
Number of Industries	0.0002	0.0001	0.0001
	(0.942)	(0.553)	(0.333)
Constant	-0.0150***	-0.0157***	-0.0153***
	(-8.423)	(-8.614)	(-6.331)
Observations	5,008	4,635	3,822
R-squared	0.449	0.463	0.401
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes

This table presents results of estimating equation (1) and controlling for a measure of business segment diversification, *Business Segments HHI,* for the difference in domestic and foreign growth rates, *Growth Gap,* and for another measure of business diversification, *Number of Industries*. Panel A uses *Tax Haven Percentage* as the measure of tax-motivated income shifting. Columns (1) and (2) of Panel A present results without the tax-motivated income shifting variable/interaction, corresponding to Table 4 columns (4) and (5), while including the variable *Business Segments HHI* to control for business segment diversification. Panel A, column (3) presents *Business Segments HHI* results with the tax-motivated income shifting variable/interaction, *Tax Haven Percentage*, corresponding to Table 5, Panel A, column (1). Column (3) (column (4)) presents results without the tax-motivated income shifting variable/interaction, corresponding to Table 4, column (4) (column (5)) while including the variable *Growth Gap* to control for the difference in foreign and domestic growth rates. Column (6) presents *Growth Gap* results with the tax-motivated income shifting variable/interaction, *Tax Haven Percentage*, corresponding to Table 5, Panel A, column (1). Panel B presents results including *Business Segments HHI* when using *Tax Haven Subsidiary Percentage* (column (1)) and *Low Average FTR* (column (2)) as the measures of tax-motivated income

shifting. Panel C presents results including *Number of Industries* as the measure of business diversification including *Tax Haven Percentage* (column (1)), *Tax Haven Subsidiary Percentage* (column (2)), and *Low Average FTR* (column (3)) as the measures of tax-motivated income shifting All variables are described in Appendix 2. Year and industry fixed effects are included. Standard errors are clustered by firm. I include control variables as presented in Table 4, omitted for brevity. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.

TABLE 7
Pre-tax Income and Effective Tax Rate Accuracy
Panel A: *Tax Haven Percentage*

	(1)	(2)
VARIABLES	*Accuracy PTI*	*Accuracy ETR*
ID	-0.0045***	-0.0019
	(-2.663)	(-0.133)
Tax Haven Percentage	-0.0047*	-0.0358
	(-1.717)	(-1.534)
*ID*Tax Haven Percentage*	0.0052	0.0279
	(0.574)	(0.414)
Accuracy PTI		0.4145***
		(2.603)
Constant	-0.0216***	-0.1911***
	(-9.490)	(-8.651)
Observations	5,847	2,958
R-squared	0.209	0.099
Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

Panel B: *Tax Haven Subsidiary Percentage*

	(1)	(2)
VARIABLES	*Accuracy PTI*	*Accuracy ETR*
ID	-0.0046**	-0.0049
	(-2.573)	(-0.324)
Tax Haven Subsidiary Perc.	-0.0023	-0.0940**
	(-0.516)	(-2.246)
*ID*Tax Haven Subsidiary Perc.*	0.0209	0.2384*
	(1.369)	(1.854)
Accuracy PTI		0.4391***
		(2.645)
Constant	-0.0215***	-0.2045***
	(-9.135)	(-8.700)
Observations	5,268	2,679
R-squared	0.222	0.105
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

Panel C: *Average Foreign Tax Rate*

VARIABLES	(1) *Accuracy PTI*	(2) *Accuracy ETR*
ID	-0.0044**	-0.0014
	(-2.432)	(-0.079)
Low Average FTR	0.0043	-0.0986*
	(0.825)	(-1.758)
*ID*Low Average FTR*	0.0303*	-0.0407
	(1.762)	(-0.235)
High Average FTR	-0.0041	-0.0167
	(-0.446)	(-0.188)
*ID*High Average FTR*	0.0305	-0.1063
	(0.794)	(-0.299)
Accuracy PTI		0.3269*
		(1.668)
Constant	-0.0202***	-0.2203***
	(-8.216)	(-7.403)
Observations	4,126	2,201
R-squared	0.225	0.115
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

This table presents results of estimating two equations. Column (1) (Panels A, B, and C) $Accuracy\ PTI_{it} = \beta_0 + \beta_1\ ID_{it-1} + \beta_2 Tax\ Haven\ Percentage_{it-1} + \beta_3 ID_{it-1} * Tax\ Haven\ Percentage_{it-1} + \beta_k\ Controls_{it} + \varepsilon$. Where *Controls* include *Change in PTI, Dispersion of PTI, PTI Skewness, PTI Forecast Horizon, Analysts Following, Size, Loss, Earnings Volatility, Book-to-Market, Leverage, Research & Development, NOL, Equity Method Income, Non-Controlling Interest, No. of Summary Segments,* and *"Other" Segment Present*, omitted for brevity. Column (2) (Panels A, B, and C) $Accuracy\ ETR_{it} = \beta_0 + \beta_1\ ID_{it-1} + \beta_2 Tax\ Haven\ Percentage_{it-1} + \beta_3 ID_{it-1} * Tax\ Haven\ Percentage_{it-1} + \beta_k\ Controls_{it} + \varepsilon$. Where *Controls* include *Change in ETR, Dispersion of ETR, ETR Skewness, PTI Forecast Horizon, Accuracy PTI* and the remaining firm-level controls as listed above. *ID* and *Tax Haven Percentage* are as defined previously. Panels B and C are identical to Panel A, except for the use of *Tax Haven Subsidiary Percentage* and *Low Average FTR* as the measures of tax-motivated income shifting, respectively. Year and industry fixed effects are included. Standard errors are clustered by firm. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.

TABLE 8
Hypothesis 2 Testing – Diversification Driven by Tax-Motivated Income Shifting Incentives
Panel A: Main Test and Robustness Checks

VARIABLES	(1) *Change in Accuracy EPS*	(2) *Change in Accuracy EPS*	(3) *Change in Accuracy EPS*	(4) *Change in Accuracy EPS*
	Main Test		Robustness Check 1	Robustness Check 2
	Added a Tax Haven in *t-1*	Did not Add a Tax Haven in *t-1*	Added a Non-Tax Haven Country in *t-1*	Two Years Before Adding a Tax Haven
Change in ID	-0.0175*	-0.0022	0.0005	0.0045
	(-1.862)	(-0.340)	(0.065)	(0.844)
Change in ETR	-0.0021**	0.0004	0.0004	0.0001
	(-2.160)	(0.794)	(0.180)	(0.814)
Constant	-0.0146	-0.0063	-0.0183	0.0127
	(-1.414)	(-0.936)	(-1.398)	(0.936)
Observations	175	725	355	288
R-squared	0.743	0.200	0.299	0.377
Changes Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Clustered SE by Firm	Yes	Yes	Yes	Yes

Panel B: Entropy Balancing

VARIABLES	(1) *Change in Accuracy EPS*	(2) *Change in Accuracy EPS*
	Entropy Balanced Sample	
	Added a Tax Haven in *t-1*	Did not Add a Tax Haven in *t-1*
Change in ID	-0.0175*	-0.0004
	(-1.862)	(-0.057)
Change in ETR	-0.0021**	0.0021**
	(-2.160)	(2.379)
Constant	-0.0146	-0.0091
	(-1.414)	(-0.859)
Observations	175	725
R-squared	0.743	0.195
Changes Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

Panel C: Controlling for *Number of Tax Haven*

VARIABLES	(1) *Change in Accuracy EPS*	(2) *Change in Accuracy EPS*
	Added a Tax Haven in *t-1*	Did not Add a Tax Haven in *t-1*
Change in ID	-0.0172*	-0.0024
	(-1.830)	(-0.368)
Change in ETR	-0.0021**	0.0004
	(-2.153)	(0.782)
Num. of Tax Havens	-0.0002	0.0001
	(-0.395)	(0.294)
Constant	-0.0138	-0.0065
	(-1.306)	(-0.939)
Observations	175	725
R-squared	0.743	0.200
Changes Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

Panel D: Winsorization

VARIABLES	(1) *Change in Accuracy EPS*	(2) *Change in Accuracy EPS*
	Added a Tax Haven in *t-1*	Did not Add a Tax Haven in *t-1*
Change in ID	-0.0230**	-0.0071
	(-2.344)	(-1.050)
Change in ETR	-0.3991***	-0.1371**
	(-3.886)	(-2.253)
Constant	-0.0011	0.0087
	(-0.126)	(1.286)
Observations	179	739
R-squared	0.656	0.228
Changes Controls	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Clustered SE by Firm	Yes	Yes

This table presents the results of equation (2). All variables presented in Table 5 are re-measured as a change from *t-2* to *t-1* to prevent look-ahead bias except for *Change in EPS* which is already a change from *t-1* to *t* and *Change in Accuracy EPS*, which is also a change from *t-1* to *t*. Control variables are omitted for brevity. All firm-year observations in this sample have an increase in ID, meaning *Change in ID* is greater than zero. Panel A, columns (1) and (2) present firm-years that show a reduction in GAAP ETR from *t-2* to *t-1 AND* from *t-1* to *t* to support a sustained reduction in GAAP ETR. Given the examination of information for one observation is over *t*-2 to *t*, I also require observations to have actual EPS available over the same period. Firms are then split by those that added a tax haven to Exhibit 21 in *t-1* (column (1)) and those that did not add a tax haven in *t-1* (column (2)). Panel A, column (3) is a subset of the sample of firms in column (2) and further requires only firm-years that added a non-tax haven country in year *t-1*. Panel A, column (4) examines the firms that added a tax haven to Exhibit 21 in *t-1* (column 1) by examining if these firms have less accurate forecasts associated with a change in *ID* in the two years prior to the addition of a tax haven. Panel B presents results after entropy balancing. Panel B, column 1 is a replication of Panel A, column 1. Panel B, column (2) presents results for the firms that did not add a tax haven in *t-1* when including the appropriate weights estimated in the entropy balancing exercise. Panel C presents results when including *Number of Tax Havens*$_{t-2}$ as an additional control variable. Panel D presents results when winsorizing at the 1st and 99th percentiles instead of using Cook's *D* as a way to identify outliers. All columns use year and industry fixed effects with standard errors clustered by firm. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.

TABLE 9
Lasting Effects of Tax-Motivated Income Shifting Expansion

VARIABLES	(1) *Accuracy EPS*
ID	-0.0022*
	(-1.773)
Post Expansion +1 to +3	-0.0006
	(-0.626)
*ID*Post Expansion +1 to +3*	-0.0089**
	(-2.341)
Post Expansion +4 to +6	0.0011
	(1.447)
*ID*Post Expansion +4 to +6*	-0.0038
	(-0.900)
*Change in ID*Post Expansion +1 to +3*	0.0056*
	(1.902)
Change in ID Post Expansion +4 to +6*	0.0002
	(1.559)
Constant	-0.0131***
	(-8.473)
Observations	3,380
R-squared	0.524
Controls	Yes
Year FE	Yes
Industry FE	Yes
Clustered SE by Firm	Yes

This table presents the results of equation (1) using *Post Expansion +1 to +3* and *Post Expansion +4 to +6. Post Expansion +1 to +3* is an indicator variable for the firm-years *t+1*, *t+2*, and *t+3* after the year of expansion for tax-motivated income shifting incentives (the year that is examined in Table 7, column (1)). *Post Expansion +4 to +6* is an indicator variable for the firm-years *t+4*, *t+5*, and *t+6* after the year of expansion. I include the magnitude of the change in *ID* in the future periods by including *Change in ID* Post Expansion +1 to +3(Post Expansion +4 to +6)* to control for potential changes in ID affecting the EPS accuracy in those future years. *Change in ID* equals $ID_{t-1} - ID_{t-2}$. All variables are described in Appendix 2. This test uses year and industry fixed effects with standard errors clustered by firm and includes controls variables as presented in Table 4, omitted for brevity. I report coefficients with *t*-statistics in parenthesis. ***, **, and * denote significance at a 1, 5, and 10 percent level for two-tailed tests.