Strategic Subsidiary Disclosure

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Abstract. We use data multinational firms provide to the Internal Revenue Service regarding their true foreign subsidiary locations to show that some firms fail to publicly disclose subsidiaries in some countries, even when the subsidiaries are significant and should be disclosed per Security and Exchange Commission rules. The propensity to omit significant subsidiaries is especially strong when subsidiaries are in tax havens and when the firm is more highly scrutinized by the media, suggesting firms believe there are reputational costs associated with operations in tax havens. Additionally, we find evidence that firms omitting significant subsidiaries are more likely to misstate their financial results and are more likely to receive an SEC comment letter as compared to firms that do not omit significant subsidiaries. These findings suggest that subsidiary omission may be indicative of firms' broader disclosure and accounting choices.

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1. Introduction

Over the past three decades, U.S. enterprises have become increasingly multinational in scope as they seek to expand opportunities in consumer, labor, and financial markets (e.g., Dyreng et al. 2017). Operating in multiple jurisdictions exposes enterprises to myriad risks that accompany diverse legal, cultural, and financial systems around the world. Moreover, multinational firms are exposed to disjointed tax rules across countries, creating opportunities for income shifting, treaty shopping, and other forms of tax planning. The significant nature of foreign operations may affect the costs and benefits of related disclosures, as these disclosures have the potential to reveal potentially unsavory glimpses into the firm's tax avoidance activities, exposure to complex geopolitical risks, and other factors about a company's operational positions. Despite the growing importance of the global business landscape, disclosure requirements related to foreign operations for publicly traded U.S. multinational firms have changed little in the past several decades, and existing disclosures have not been studied extensively.

One disclosure related to multinational operations that has received increasing attention in recent years is the Securities and Exchange Commission's (SEC) required list of "significant" subsidiaries, reported in Exhibit 21 of the Form 10-K. Investors use Exhibit 21 to identify "systemic risk, firm interconnectivity" and "understand complex structures employed by some firms" (SEC Investor Advisory Committee 2016).[1] The SEC requires firms to disclose the name and jurisdiction of incorporation for all significant subsidiaries, providing the most granular publicly available disclosure of the company's operating locations.[2] Academics have used Exhibit

[1] See the letter from the SEC Investor Advisory Committee, https://www.sec.gov/spotlight/investor-advisory-committee-2012/iac-approved-letter-reg-sk-comment-letter-062016.pdf.

[2] A significant subsidiary is one whose income or assets are 10 percent or more of the consolidated firm's income or assets. For the complete regulations regarding subsidiary disclosure, see Appendix 1.

21 information over the past decade to estimate exposure to specific countries (Dyreng et al. 2012) and as a proxy for various tax planning strategies requiring legal operations in tax haven countries (e.g., Higgins et al. 2015; Law and Mills 2017; Law and Mills 2014). Reporters and nonprofit organizations have also used Exhibit 21 disclosures to scrutinize companies with operations in tax haven countries (e.g., Phillips et al. 2016). However, surprisingly little is understood about the information contained in Exhibit 21. Are firms complying with the disclosure requirements as set forth by the SEC? Do firms strategically decide which subsidiaries to disclose and which to omit? What factors drive the decision to disclose versus omit a subsidiary from Exhibit 21?

We undertake the first comprehensive study of information contained in Exhibit 21.[3] We compare foreign subsidiary information contained in Exhibit 21 with a comprehensive dataset of U.S. multinational firms' foreign subsidiaries obtained from IRS tax filings for the years 2005-2013.[4] We find evidence of under-disclosure in Exhibit 21 and find that the omitted information is associated with a variety of firm and subsidiary characteristics.[5]

First, we show that firms are more likely to withhold disclosure of subsidiaries located in tax haven countries compared with other countries. Recent survey evidence suggests firms are especially sensitive to potential reputational costs of tax planning activities (Graham et al. 2014) – even more sensitive than they are to the risk of the IRS challenging a position or the possibility of needing to later restate financial statements. Further, sensitivity to such reputational costs appears to be growing over time (EY 2014). Our findings suggest firms incur significant

[3] Numerous studies use Exhibit 21 data. See, for example, (Akamah et al. 2017; Dyreng and Markle 2016; Lisowsky 2010; De Simone et al. 2017; Heckemeyer et al. 2017; Dyreng et al. 2015; Bozanic et al. 2017; Demere et al. 2016; Law and Mills 2017; Chow et al. 2017; Law and Mills 2014; Hanlon et al. 2015; Dyreng and Lindsey 2009; Dyreng et al. 2013; Dyreng et al. 2012; Black et al. 2014; Dyreng et al. 2017). However, ours is the first study to comprehensively examine information in and systematic under-disclosure of data in 10-K Exhibit 21 filings, comparing it to firms' actual locations for a large sample of firms.

[4] We use data from the universe of Form 5471 information returns, "Information Return of U.S. Persons With Respect to Certain Foreign Corporations" filed with the IRS.

[5] This lack of disclosure may also exist elsewhere in the annual report. For example, Akamah et al. (2017) find more aggregation of segment-level disclosures if the segment is related to a tax haven location.

reputational costs when disclosing subsidiaries located in tax haven countries, most likely because tax haven countries are known to facilitate tax avoidance activities. Consistent with this explanation, the propensity to withhold disclosure doubles when the subsidiaries are in a so-called "dot" haven such as Bermuda or the Cayman Islands, where the primary purpose of the subsidiary is likely tax avoidance, as opposed to subsidiaries in other tax havens with larger economies such as Ireland, Singapore, or Switzerland, where the primary purpose of the subsidiary could more plausibly be linked to non-tax economic factors.

Second, we show that the nondisclosure of significant subsidiaries is more likely when the firm is more highly scrutinized in the media. Media reports often focus on firms' tax planning strategies, including subsidiary locations, and anecdotal evidence suggests the media may obtain subsidiary information from Exhibit 21.[6] In Figure 1 we plot the annual number of instances major media outlets downloaded an Exhibit 21 from EDGAR, the SEC's database of firms' financial filings, in each of the years 2004 to 2013, and we note a steady increase.[7] Consistent with this rise in scrutiny, we find that media coverage is positively associated with the likelihood of subsidiary nondisclosure. In fact, our regression analysis suggests that a one standard deviation increase in media coverage increases the likelihood of significant subsidiary nondisclosure by 85%. We also find that media coverage is only associated with nondisclosure of subsidiaries located in tax haven countries; there is no evidence that media coverage has an effect on nondisclosure of subsidiaries that are not in tax haven countries.

Third, we move beyond the idea that firms bear costs when disclosing information related to their tax avoidance activities and test whether firms also perceive costs to disclosure of

[6] See, for example, https://www.bna.com/thousands-subsidiaries-go-n57982079146/.

[7] We use the same methodology as Bozanic et al. (2017) to isolate downloaders from the SEC's EDGAR database by using the IP address of the downloader. We obtain the IP address from 17 different media outlets that downloaded Exhibit 21's over this time period. The New York Times downloaded by far the most Exhibit 21's, downloading 294 of the 821 total downloads we document.

subsidiaries in countries with high political risks. Multinational firms are subject to the political systems of all countries in which they operate and these risks vary substantially by country. Research highlights the reality of political risk and shows that market participants recognize that risk (Bekaert et al. 2014; Clark 1997; Erb et al. 1996; Butler and Joaquin 1998). To the extent that firms desire to minimize public scrutiny of their exposure to geopolitical risks, they may choose to withhold disclosure of subsidiaries in particularly risky countries. Consistent with this possibility, we find that the likelihood of nondisclosure of significant subsidiaries is positively related to the political risk in the country. Here, we find a one standard deviation in political risk increases the probability of not disclosing significant subsidiaries in the risky country by about 102%.

Finally, we examine whether firms' omission of significant subsidiaries from their Exhibit 21 disclosures is associated with other negative signals about financial reporting quality. Specifically, we provide evidence that firms with Exhibit 21 omissions are more likely to misstate their financial statements and receive SEC comment letters. We do not assert that these restatements or comment letters are a direct result of the Exhibit 21 disclosure, but rather, that they are general signals of low financial reporting and disclosure quality. Our evidence suggests that it is generally low-disclosure firms that also omit significant subsidiaries.

Our study has important implications for existing research and for public policies regarding disclosure. First, our findings suggest some firms are sensitive to public scrutiny of operations in tax haven countries, consistent with recent research that shows multinational firms are under an increasingly bright public spotlight with regard to their international tax planning and tax haven operations (Dyreng et al. 2016; EY 2014; Hoopes et al. 2016). Public scrutiny, media attention, and political rhetoric regarding tax planning appear to be at an all-time high (EY 2014) and firms

are eager to shield themselves from the attention that they receive when they are perceived as overly aggressive tax planners.

Relatedly, our findings contribute to a growing literature that examines how reputational costs drive firm decisions, highlighting not only the existence of tax-related reputational costs (Hanlon and Slemrod 2009; Gallemore et al. 2014; Austin and Wilson 2017; Dyreng et al. 2016; Hoopes et al. 2018), but also the link between tax and financial reporting disclosure decisions. In the case of Exhibit 21 disclosures, firms may withhold disclosure of some significant subsidiaries to conceal tax avoidance information from the public even though the information they are hiding is known to the IRS, the very agency charged with ensuring compliance with tax laws.

Second, our study shows that firms ignore mandatory disclosure requirements if the costs of disclosure are high relative to the costs of noncompliance, especially in the case of reputation damaging tax-related disclosures. This finding is especially insightful given that many disclosure models take as given that firms' disclosures are truthful though some evidence suggests that this may not always be true (Ayers et al. 2014). To our knowledge, no firm has ever been fined by the SEC for failure to disclose significant subsidiaries on Exhibit 21, suggesting that the cost of noncompliance with this requirement is low. On the other hand, reputational costs of compliance may be high, particularly for firms with many subsidiaries in tax havens or politically risky countries. The results of our study suggest that in some settings, the benefits of not complying with mandatory disclosure exceed the costs. Indeed, our study suggests firms are not blind followers of all disclosure requirements, but strategically weigh the costs and benefits of required disclosure, and only comply when the benefits of *mandatory* disclosure are sufficiently high relative to the costs.

Third, our results are informative regarding recent policy changes with regard to country-by-country reporting of financial and tax information. In an effort to curb tax avoidance across

international borders, some countries – including the U.S. – have recently instituted regulations requiring firms to report financial results and tax payments on a country-by-country basis. Some countries are considering a requirement to make these disclosures public (OECD 2014; Cockfield and MacArthur 2015; Hoopes 2016). Our findings suggest that firm compliance with publicly disclosed, country-by-country reporting requirements may hinge critically on the requirements being clearly delineated and rigorously enforced.

Our results are also relevant to current discussions surrounding proposed changes to Regulation S-K. The SEC is currently considering whether firms should be required to provide Legal Entity Identifiers for their subsidiaries. Our evidence, which suggests that some firms appear to make Exhibit 21 disclosures based on sensitivity to reputational risks, should inform this discussion. Furthermore, some have recently advocated requiring firms to disclose all subsidiaries instead of just significant subsidiaries.[8] Knowing that firms are sensitive to what is disclosed in Exhibit 21, and that some firms may be willing to break the law to conceal certain entities in their Exhibit 21, helps inform whether firms should be required to disclose all their subsidiaries. It also raises questions about whether requiring such disclosures will simply engender more non-compliance.

Finally, our results raise questions about what a firm's willingness to ignore mandatory disclosure requirements signals regarding the transparency of its other activities. Are firms that fail to disclose significant subsidiaries on Exhibit 21 also obscuring other important information from investors and the public? If so, how much would shareholders benefit if the SEC enforced existing disclosure rules more rigorously? If not, why do firms choose specifically to obscure

[8] For example, the Main Street Alliance advocated for full subsidiary disclosures--https://www.sec.gov/comments/s7-06-16/s70616-27.pdf. They note that a listing of all subsidiaries would help investors "to understand how companies are structured and operate, including whether they are operating in high risk jurisdictions, may have actual or potential tax liabilities, or may be engaged in other types of unknown or ill-understood corporate activities."

information about foreign locations but not other types of information? While our study cannot fully address these questions, it lays a foundation upon which future research can begin to explore the many questions our results raise.

2. Background and Hypotheses

The most granular required disclosure specifically designed to provide investors with information on the scope of a firm's geographic footprint is Exhibit 21 of Form 10-K, required by SEC regulation S-K.[9] This regulation requires that firms disclose the name and jurisdiction of incorporation of all significant subsidiaries, where significance is defined as any subsidiary whose assets are greater than 10% of consolidated assets or whose income is greater than 10% of consolidated income. Moreover, any undisclosed subsidiary should also be disclosed if, when considering all undisclosed subsidiaries as a single subsidiary, they reach the 10% of assets or income thresholds (see Appendix 1 for the text to the regulation). Thus, Exhibit 21 should list the subsidiary names and geographic locations of incorporation for at least 90% of the firm's assets and income.

Even though the information in Exhibit 21 is relatively terse, lacking any financial data or qualitative discussion, its granular information about geographic presence likely provides valuable information to shareholders and other financial statement users. Prior research shows that geographically dispersed firms are fundamentally different from less dispersed firms, and investors demand information about that dispersion (Landier et al. 2009; Platikanova and Mattei 2016). Simply knowing the location of significant subsidiaries can provide shareholders with at least some information regarding a firm's exposure to foreign market risks, geopolitical risks, tax planning strategies, and other issues related to operating in multiple geographic jurisdictions. Confirming

[9] See 17 CFR 229.601(b)(21).

the importance of Exhibit 21 information, untabulated analyses reveal that in nearly 200 cases, the SEC has corresponded with firms about the contents (or lack thereof) of Exhibit 21 disclosures in comment letters concerning the firms' 10-Ks filings.

Academic researchers have also used the information in Exhibit 21 to study, among other phenomena, tax avoidance (Dyreng and Lindsey 2009), audit coordination across jurisdictions (Gunn and Michas 2017), and earnings management (Dyreng et al. 2012). Despite its frequent use as a proxy for geographic exposure, little is understood about the quality of the disclosure and anecdotal evidence suggests that firms may not fully comply with the requirement to disclose the name and location of all significant subsidiaries. For example, media reports and non-profit activist groups suggest some firms may strategically stop disclosing some of their subsidiary information to avoid public scrutiny.[10] Likewise, using publicly available information, Gramlich and Whiteakre-Poe (2013) document the cases of two large public firms whose Exhibit 21 disclosures appeared to change dramatically year over year, without accompanying evidence that the subsidiaries had been disposed of. Indeed, some research argues that firms with dramatic decreases in the number of subsidiaries listed on Exhibit 21 have lower effective tax rates, suggesting that the changes were designed to hide information about the firm's tax avoidance activities (Herbert et al. 2016).

These anecdotes and studies suggest that, even though Exhibit 21 is a required disclosure, some firms may not disclose all their significant subsidiaries to avoid public scrutiny. This form of disclosure failure is consistent with the findings of Dyreng et al. (2016), who highlight how about half of the largest U.K. multinationals (FTSE 100) failed to disclose some of their subsidiaries despite U.K. law requiring such disclosure. While the U.K. case is distinct from the

[10] See, for example, https://www.wsj.com/articles/SB10001424127887323463704578497290099032374.

U.S. because of different disclosure requirements, enforcement regimes, and plausibly different public attitudes towards tax planning, it does suggest that firms may ignore mandatory disclosure requirements, especially if the press or other entities may use the disclosures to paint the firm in a negative light.

Indeed, the incentives to underdisclose subsidiaries on Exhibit 21 are clear—based on a firm's subsidiary locations, one can gain insights into a firm's tax planning, its dealings with countries that are not seen as savory trading partners, and its exposure to geographic, geopolitical, and other risks. For example, the presence of subsidiaries in the Cayman Islands or Bermuda for a large industrial firm may suggest that the firm is using those subsidies for tax planning purposes, as small islands are not known to be well-suited manufacturing locations. Likewise, the presence of a subsidiary in Venezuela might suggest the firm's assets could be expropriated by the government because of the unstable economic and political environment (e.g., Reuters 2017).

What is not clear from prior research is whether the incentives to conceal subsidiary information are sufficient to induce firms to violate SEC disclosure rules. One challenge in evaluating the possibility that firms withhold required information is that it is often difficult to observe the counterfactual; what has been disclosed is observable, but what should have been disclosed is unobservable. We overcome this obstacle using private data filed with the IRS that provides information on foreign subsidiaries. Using this data, we can compare the information disclosed to the public with complete information provided privately to the IRS, thereby observing whether the public disclosures are complete.[11]

[11] Other studies that have had similar ability to compare disclosure to truth include Bens, Berger and Monahan (2011), who compare segment disclosures with private Census data on manufacturing facilities, Gleason and Mills (2002), who compare disclosures related to the income tax contingency (before the adoption of FIN 48) to IRS data on tax contingencies, and Gow, Wahid, and Yu (2017), who compare directors' disclosed biographical information to directors' actual biographies.

3. Data and Sample Selection

In this study we combine data from three main sources: (1) Exhibit 21 of Form 10-K filed publicly with the SEC, (2) Form 5471, "Information Return of U.S. Persons With Respect To Certain Foreign Corporations," filed privately with the IRS as part of the annual corporate tax return (Form 1120), and (3) Compustat.

3.1 Exhibit 21

Public firms in the U.S. are required to disclose the name and jurisdiction of incorporation for all significant subsidiaries. SEC regulations provide three bright line tests to determine whether a subsidiary is "significant" and thus required to be disclosed in Exhibit 21. Disclosure is required if any of the following criteria are met: (1) the parent's and its other subsidiaries' investments in (advances to) a given subsidiary exceed 10 percent of consolidated parent assets; (2) the parent's proportionate share of the subsidiary's assets exceeds 10 percent of consolidated parent assets; (3) the parent's proportionate share of the subsidiary's pretax income before extraordinary items exceeds 10 percent of the consolidated parent's pretax income.[12] Appendix 1 provides the complete SEC regulations for significant subsidiary disclosures in Exhibit 21.

We gather data from Exhibit 21 using a text search program as described in Dyreng and Lindsey (2009).[13] The program searches every Form 10-K filed with the SEC and identifies Exhibit 21 (if it exists). Within Exhibit 21, the program searches for countries by name and counts the number of times each country name appears in the exhibit. The resulting output captures

[12] We use Form 5471 data as reported, consistent with instructions for the firms to report Form 5471 financial statement information in U.S. dollars per U.S. GAAP. In limited instances, the firms report negative assets values, which works against our finding evidence of significant subsidiary under-disclosure.

[13] These data are publicly available here: https://sites.google.com/site/scottdyreng/Home/data-and-code. The online appendix to the data, available on the download site, contains additional information on the Exhibit 21 data.

whether the firm discloses the presence of at least one subsidiary in any particular country in the world.[14]

3.2 Form 5471

Section 6038 of the Internal Revenue Code requires that U.S. taxpayers (including corporate taxpayers) file Form 5471 for each of their controlled foreign subsidiaries. Form 5471 requires parent firms to disclose a variety of information about each foreign subsidiary, including the subsidiary's country of incorporation, its income statement and balance sheet (presented in U.S. dollars and in accordance with U.S. GAAP) and the fraction of the subsidiary owned by the parent.[15,16] Using this data, we can determine the location of each subsidiary and whether it should be considered significant under the SEC rules governing Exhibit 21 described above (i.e., whether the parent's proportionate share of subsidiary assets exceeds 10 percent of the consolidated firm's total assets).[17] We use data from Form 5471 to identify the true location of firms' significant

[14] Because some firms include the name of the country in the name the subsidiary (e.g., Johnson & Johnson Korea, Ltd. is a Korean subsidiary of Johnson & Johnson), the program sometimes double-counts subsidiaries. This does not affect most of our tests because we are primarily interested in situations where no presence was disclosed in a country in Exhibit 21, but should have been based on our analysis of data in Form 5471, not the number of subsidiaries disclosed in country.

[15]There are several criteria that require U.S. taxpayers to file Form 5471, including if they own (acquire) at least 10 percent of a foreign corporation, had control of such corporation during the year, or U.S. taxpayers control the corporation and the firm owns at least 10 percent of the stock of that corporation (see Form 5471, https://www.irs.gov/pub/irs-pdf/i5471.pdf).

[16] In some cases, the country code of the firm is not based on the IRS's standardized country code schema. We discuss sensitivity tests we conduct with these observations in section 4.2.

[17] The Form 5471 data is not sufficiently granular to determine whether a given subsidiary is significant with respect to investments in or proportionate share of pre-tax income before extraordinary items (significant subsidiary definitions 1 and 3 above). To the degree that firms fail the asset test, but would satisfy one of these alternative tests, our tests provide a lower bound of significance. We multiply the percentage ownership from Form 5471 by the subsidiary's assets to compute the firm's proportionate share of subsidiary assets. We use the largest subsidiary (based on proportionate assets) in each firm-country-year to determine whether the firm-country-year is significant. This approach is consistent with Exhibit 21 reporting at the subsidiary level and prevents duplicate counting in the case of any potential duplicate entries of Form 5471 for the same subsidiary in a given year. If the Form 5471 for a given subsidiary is missing the percentage ownership, we use the Form 5471 category filer to estimate ownership. Specifically, we treat Category 4 filers (who must file because they control the subsidiary for at least 30 days during the year) as owning 50 percent and Category 5 filers (who must file if they own at least 10 percent of the subsidiary at the end of the year) as owning 10 percent of the subsidiary's assets. This estimate should represent a lower bound of ownership, as the actual ownership for each category may be, and often is, much higher (e.g., 100 percent). Thus, our approach should represent a lower bound in computing proportionate subsidiary assets and thus likely understates the extent of significance. We discuss Category 4 filers in more detail in section 4.2. In some instances, we are unable to infer the percentage ownership of a firms' assets. This is particularly true when the data suggest that, for example,

subsidiaries so we can compare to the publicly disclosed subsidiaries on Exhibit 21.[18]

Firms might strategically omit filing Form 5471 for some subsidiaries in an attempt to withhold information from tax authorities. However, the significant penalties for failing to file Form 5471 mitigates this concern.[19] Specifically, IRC §6038(b) provides for a $10,000 fine for every subsidiary not disclosed every year the disclosure is not made, plus $10,000 per month per subsidiary if the nondisclosure persists for more than 90 days following the IRS' notification that failure to comply has occurred (Rojas and Slonina, 2015). More importantly, failure to file any Form 5471 causes the taxpayers' entire corporate income tax to remain subject to audit, effectively halting the statute of limitations from ending the IRS' ability to examine the return (IRC §6501(c)(8)). Additionally, Form 5471 data are private, available only to IRS employees and contractors and certain other policymaking or oversight government entities such as the Joint Committee on Tax, and as such, these disclosures do not create publicity-related risks for firms.[20]

"9999" or "99999" of the subsidiary is owned by the parent. One could infer this to be 99.99%, 9.999%, 0.9999%, or as an indicator for a missing value. We generally interpret these values as 99.99%, as that type of ownership is common in subsidiary ownership when technical reasons preclude a fully owned subsidiary. Discarding these difficult-to-interpret values does not affect our conclusions (i.e., all the coefficients of interest for Eq. (1) have the same sign and are significant at the same level as our primary results). We treat ownership values of -1 or exceeding 100 as 100% ownership as Form 5471 criteria suggest that firms only need file the form if they own at least 10 percent of the subsidiary.

[18] Strictly speaking, it would be possible for a firm to have an investment in a foreign subsidiary that represents a very small fraction of the foreign corporation's total ownership (i.e., less than 10 percent), but which accounts for more than 10 percent of the firm's total consolidated assets. Although we expect this possibility to be unlikely, in such cases, firms would disclose Exhibit 21 subsidiaries and not file a Form 5471, but this would not lead to under-disclosure on Exhibit 21 compared with Form 5471. Moreover, Form 5471 data does not include data on non-corporate entities, which are sometimes disclosed on Exhibit 21, such that our estimates represent a lower bound of significant nondisclosure.

[19] To the extent we do not have specific Form 5471s or subsidiary information because firms ignore the requirement to file form 5471 or noise in merging across (within) IRS and other datasets, we will not capture every case of under-disclosure on the Exhibit 21. However, when we observe a 5471 disclosure for a subsidiary that is large enough to constitute a significant subsidiary, and do not observe a corresponding Exhibit 21 disclosure, we take this as evidence of a firm not disclosing an existing subsidiary for financial accounting purposes.

[20] There are other, alternative sources of subsidiary locations, but all have more severe limitations than our data. For example, banks in the U.S. are required to disclose their subsidiary locations in their publicly-disclosed call reports. However, banks are subject to different regulations from most U.S. firms, have different tax planning opportunities, and, because banks know that their subsidiary locations will be made public in their call reports, they may make different Exhibit 21 reporting decisions than other firms. Alternatively, some tax haven jurisdictions provide a list of all incorporated entities (whether voluntarily or involuntarily, as with the recent Bahamas Leak (Omartian 2017)), with varying degrees of subsidiary level detail available depending on the jurisdiction. However, this information is

3.3 Compustat and Other Datasets

We gather all firm-level financial variables from Compustat. These variables include tax expense and pre-tax income to be able to compute *GAAP ETR,* auditor information, the firm's tax loss carry-forward, total assets, leverage, book and value and market value of the firm, and the property plant, and equipment of the firm. In addition to these Compustat variables, for our main analysis, we also obtain the number of analysts that cover the firm from I/B/E/S and the number of media articles about the firm from Ravenpack.

3.3 Final Dataset

We aggregate data from Form 5417 and Exhibit 21 such that we have one observation per firm per year per country. Using Form 5471, we create an indicator variable if a given firm has a significant subsidiary in a given country in a given year. Using Exhibit 21, we create an indicator variable if a firm disclosed a subsidiary in a given country in a given year. Thus, for the majority of our analyses, the unit of analysis is firm-country-year.[21]

After aggregating the data at this level, we merge the three datasets (Form 5471, Exhibit 21, and Compustat). We merge the Exhibit 21 data to the Compustat data by CIK number, also available in Compustat. We merge these data to the data obtained from the IRS using Employer Identification Number (EIN), which is disclosed in tax filings and on Form 10-K, and hence available in Compustat.The final sample consists of 126,895 firm-country-year observations with sufficient data for our models.

neither available for all tax haven countries nor for all legal jurisdictions. Moreover, there may be insufficient information available from these tax haven locations to ensure that the subsidiaries are significant to the parent firm.

[21] An alternative approach would be to conduct the analysis at the subsidiary level. However, there is no consistent identification convention for corporate subsidiaries that would allow us to match the exact subsidiary disclosed on the Exhibit 21 to Form 5471. Even matching by names might be problematic as firms may list slightly different names of subsidiaries on their Exhibit 21 and 5471.

4. Disclosure of Significant Subsidiaries on Exhibit 21

4.1 Graphical Evidence

We begin by examining temporal trends in Exhibit 21 reporting compared with firms' actual subsidiary locations as reflected in their Form 5471 filings. Figure 2 plots the percentage of instances, by year, in which a firm fails to disclose a subsidiary in a given country when data from Form 5471 suggests one should have been disclosed (*Undisclosed Significant Country*). We plot the line separately for tax haven and non-tax haven countries. About 1.5 percent of observations that should have disclosed a significant subsidiary in a tax haven country in 2005 did not. This percentage increases to over 2.0 percent in 2013. In contrast, the level and the trend for undisclosed subsidiaries in non-tax haven countries is both lower and flat. These findings are consistent with the increase in public pressure against firms' tax planning activities, as well as increasing media interest in covering tax planning activities by firms (Graham et al. 2014; Ernst & Young 2014).

In Figure 3 we plot the percentage of firm-country-years that have omitted disclosure of a significant subsidiary when Form 5471 suggests one should have been disclosed. In the figure, hollow dotted bars represent tax haven countries and solid black bars represent non-tax haven countries. We sort the countries by the percentage of instances of nondisclosure, with the countries with the highest nondisclosure on the left of the graph. We depict the 25 countries with the most nondisclosure (omitting countries with less than 30 firm-country-year observations). Of the top ten countries by nondisclosure, eight are tax havens, with the U.K. and Germany being the only non-tax haven countries to make the top ten.[23] For more than four percent of firm-country-year observations in tax haven countries Macau, the British Virgin Islands, Bermuda, the Cayman Islands, Luxembourg, Switzerland, and the Netherlands, firms have at least one subsidiary with

[23] Some have argued that the U.K. can be considered a tax haven (Garside 2017).

assets that exceed 10 percent of the parent firm's total assets and the firms appear to not disclose this presence in their Exhibit 21. Notably, the two tax haven nations with the lowest percentage of undisclosed significant subsidiaries are Singapore and Hong Kong, which are large, economically vibrant nations where firms may legitimately operate absent tax considerations. The concentration of tax havens on the left of the graph is consistent with strategic nondisclosure by firms.

4.2 Determinants of Failure to Disclose Significant Subsidiary

We complement our graphical evidence by estimating regressions to examine what factors are associated with nondisclosure of significant subsidiaries. Using a regression framework (estimated using a linear probability model) allows us to control for other factors that may influence disclosure choices and examine multiple factors at the same time. We estimate the following regression, estimated at the firm, *i*, year, *j*, country, *k*, level:

$$\begin{aligned} \textit{Undisclosed Significant Country}_{ijk} = {} & \beta_0 + \beta_1 \textit{Tax Haven Country}_k + \beta_2 \textit{Low GAAP ETR Indicator}_{ij} \\ & + \beta_3 \textit{Tax Haven Country}_k \times \textit{Low GAAP ETR Indicator}_{ij} + \beta_4 \textit{Political Risk Index}_{jk} \\ & + \beta_5 \textit{Political Risk 0}_{jk} + \beta_6 \textit{LN(Media Articles)}_{ij} + \beta_7 \textit{Articles 0}_i + \beta_8 \textit{Big 4 Auditor}_{ij} \\ & + \beta_9 \textit{New Auditor}_{ij} + \beta_{10} \textit{LN(Analyst)}_{ij} + \beta_{11} \textit{Country Assets}_{ijk} + \beta_{12} \textit{NOL}_{ij} + \beta_{13} \textit{Time Trend}_j \\ & + \beta_{14} \textit{LN(AT)}_{ij} + \beta_{15} \textit{Merger or Acquisition}_{ij} + \beta_{16} \textit{ROA}_{ij} + \beta_{17} \textit{Leverage}_{ij} \\ & + \beta_{18} \textit{Book to Market}_{ij} + \beta_{19} \textit{Capital Intensity}_{ij} + \epsilon \end{aligned} \quad (1)$$

The dependent variable, *Undisclosed Significant Country*, is an indicator variable equal to one if data from Form 5471 suggest the firm has a significant subsidiary in a given country, but no subsidiary in that country is disclosed in Exhibit 21. *Tax Haven Country* is an indicator variable equal to one if the country is a tax haven country as defined by Dyreng et al. (2015). We expect the coefficient on *Tax Haven Country* to be positive if firms are more likely to omit disclosure of a subsidiary located in a tax haven country relative to subsidiaries located in other countries.

Consistent with the widespread and growing attention on tax planning activities of U.S. firms (Graham et al. 2014; Ernst & Young 2014), it is possible that media and other public commentators are more likely to scrutinize firms with low reported effective tax rates. To this end,

firms with low reported tax rates might incur greater costs when disclosing significant subsidiaries in some countries and particularly in tax haven countries. Therefore, we include an indicator variable in the regression equal to one when tax expense divided by pretax income is in the lowest quartile of the distribution of GAAP ETR (*Low GAAP ETR Indicator*), and interact it with *Tax Haven Country*. We expect the coefficient on *Low GAAP ETR Indicator* to be negative if the costs of subsidiary disclosures are higher when reported tax rates are low and we expect the coefficient on the interaction term to be negative if subsidiaries in tax haven countries are particularly costly to disclose when the firm has a low reported tax rate.

We also expect that firms may be more likely to withhold disclosure of subsidiaries in risky countries (such as Ecuador, Venezuela, or Zimbabwe) because the costs of disclosing operations in those types of countries might be higher than other countries. Accordingly, Eq. (1) also includes *Political Risk Index*, an index from 0 to 100 that is increasing in the political risk of a country-year. We obtain this measure from Political Risk Services, which has 17 different risk components, including factors such as possible equity restrictions, exchange controls, changes to fiscal and/or monetary policy, labor costs and requirements, external borrowing liabilities, etc., along with the intrinsic political risk in the country.[24] As the *Political Risk Index* is not available for all countries in our sample, we replace *Political Risk Index* equal to zero for missing country-years, and include an indicator variable, *Political Risk 0*, equal to one (zero) for such observations (observations with an available value) in the regression (Greene 2011). We expect *Political Risk Index* to have a positive association with *Undisclosed Significant Country*.

We expect that media coverage also increases the cost of subsidiary disclosure. To capture this effect, we compute the variable *LN(Media Articles)*, which is the natural log of 1 plus the

[24] For more details, see https://www.prsgroup.com/category/risk-index.

number of media articles for the firm-year in dj_equities file in Ravenpack on WRDS.[25] We expect the coefficient on *LN(Media Articles)* to be positive in Equation (1). As with *Political Risk Index*, as we do not have Ravenpack data for our entire sample, we set *LN(Media Articles)* equal to zero and we include an indicator variable, *Articles 0*, equal to one (zero) for observations with missing (non-missing) Ravenpack data.

Independent audit opinions cover specific components of the 10-K filings (e.g., financial statements) and auditor activities may not deter or uncover non-compliance with SEC requirements outside the scope of the opinion. However, given research suggesting that Big 4 audit firms provide more rigorous audits than other audit firms (Francis et al. 1999; Francis and Yu 2009; Lennox and Pittman 2010), we expect firms with high-quality auditors to have less flexibility in getting away with flagrant non-compliance with the SEC's Exhibit 21 disclosure rules. Therefore, we include the indicator *Big 4 Auditor*, coded one for firms audited by a Big 4 auditor, zero otherwise. We expect the coefficient on *Big 4 Auditor* to be negative, consistent with higher audit quality deterring significant under-disclosure.

Relatedly, we include an indicator variable coded to equal one if the firm has a new auditor in a given year (*New Auditor)*. We expect the coefficient on *New Auditor* to be positive, as firms that experience an audit change may experience a less rigorous audit (Bockus and Gigler 1998; Zhan Shu 2000). In addition, we include the natural log of 1 plus the number of financial analysts following the firm (numest in I/B/E/S of the final forecast for the year; we set missing values of numest to zero), *LN(Analyst)*, as a proxy for capital market pressure. Finally, survey evidence suggests that public pressure related to firms' tax activities appears to be increasing over time

[25] We look only at firms with Country_Code = "US" and relevance=100.

(Ernst & Young 2014). To examine such a time trend, we include a variable equal to the tax year minus 2004, the year before our sample period begins (*Time Trend*) in Equation (1).

We also include several control variables in our regression specifications. We include the size of assets held in subsidiaries in the country (*LN(Country Assets)*) to control for the possibility that certain countries may simply have fewer operations on average and thus may be less likely to be included in Exhibit 21 on average. We set missing values of this variable to zero. In addition, we include firm-year level controls for whether the firm has an *NOL*, the size of the parent firm (consolidated book assets, *LN(AT)*), the profitability of the parent (*ROA*), and the leverage, growth opportunities, and capital intensity of the parent firm (i.e., *Leverage*, *Book to Market*, and *Capital Intensity*, respectively).

Table 1 reports the descriptive statistics for the variables in Eq. (1). We find that significant subsidiaries are omitted from Exhibit 21 in about 0.6 percent of firm-country-years (*Undisclosed Significant Country*).[26] However, the rate of omission varies significantly with whether the nondisclosed subsidiary is located in a tax haven (1.56 percent of firm-country-years) or a non-tax haven country (0.31 percent of firm-country-years), the difference being statistically significant ($p < 0.01$). We find that *Political Risk Index* (*LN(Media Articles)*) is lower (higher) for tax haven firm-country-years relative to non-tax haven firm-country-years ($p < 0.01$). In addition, we find evidence of significant differences between tax haven firm-country-years and non-tax haven firm-country-years along other dimensions, including *Country Assets*, *Big 4 Auditor*, *LN(AT)*, *NOL*, *ROA*, *Book to Market*, *Capital Intensity*, *New Auditor*, *Ln(Analyst)*, with each difference significant at the 5% level or better.

[26] This low percentage is also consistent with the literature in financial reporting, which documents small percentages of firms that engage in egregious financial misconduct (e.g., Dechow et al. 2010).

Table 2 reports the results of our regression model. The estimated coefficient of *Tax Haven Country* is positive (0.0067) and significant ($p < 0.001$). Compared to the mean level of *Undisclosed Significant Country*, 0.006, this result suggests that the probability a significant subsidiary is omitted from Exhibit 21 roughly doubles if the subsidiary is located in a tax haven country. This result is consistent with firms acting to avoid tax-related reputational costs and responding to incentives to prevent external, non-regulator, parties from using information in Exhibit 21 to gather information on their tax planning.

We find the coefficient on *Low GAAP ETR Indicator* is not significantly different from zero, but the interaction between *Tax Haven Country* and *Low GAAP ETR Indicator* is marginally significant ($p = 0.0762$) and negative, suggesting that firms with low reported tax rates are more likely to withhold disclosure of significant subsidiaries if the subsidiaries are located in a tax haven country. We also find the coefficient on *LN(Media Articles)* is 0.0024 ($p = 0.0026$), suggesting that the more media coverage the firm receives, the more likely it is to withhold disclosure. In contrast, the coefficient on *LN(AT)* is negative, suggesting that larger firms are less likely to withhold disclosure. As larger firms receive more media coverage, on average, one concern is that media coverage merely captures the size of the firm. However, the opposing signs of the coefficients on *LN(Media Articles)* and *LN(AT)* suggests that *LN(Media Articles)* is not merely capturing firm size.[27]

[27] We conduct several tests to mitigate concerns that media coverage merely reflects firm size. In untabulated tests we find the correlation between *LN(Media Articles)* and *LN(AT)* is 0.331 and the correlation between *Articles 0* and *LN(AT)* is -0.077. The coefficients of interest for Eq. (1) have the same sign and are significant at the same level if we exclude *LN(Media Articles)*. Further, if we exclude *Articles 0*, *Political Risk 0*, and *Time* (the variables with the highest variance inflation factors, (VIFs)) from Eq. (1), all VIFs are below 2.5 and the coefficients of interest have the same sign and are significant at the same level other than for *LN(Media Articles)*, which becomes insignificant, consistent with the model failing to control for the effect of missing coverage (i.e., firm-year values set to zero if missing Ravenpack data).

We find the coefficient estimate on *Political Risk Index* is positive (0.0002) and significant ($p < 0.001$), suggesting that firms are more reluctant to disclose significant subsidiaries located in politically risky countries.[28] This result also suggests that firms believe subsidiary location disclosures provide more information than simply a glimpse into the tax avoidance strategies. [30,31]

We find the coefficient estimate on *Big 4 Auditor* is -0.0098 and significant ($p = 0.004$), suggesting that firms with larger, higher quality auditors are less likely to withhold disclosure of a significant subsidiary. This result suggests auditors partially mitigate the risk of nondisclosure, all else equal, even if their audit opinion does not cover the specific 10-K exhibit. Although the coefficient on *New Auditor* is insignificant ($p > 0.10$), we find the coefficient on *LN(Analyst)* is negative (-0.0013) and marginally significant ($p = 0.070$), suggesting that capital market pressure

[28] In some cases, the country code of the firm is not based on the IRS's a commonly used standardized country code schema (ISO, the IRS's schema, etc.). In these instances, we hand-categorize subsidiaries to countries based on the country description and/or address information. Including an indicator in the primary regression for these difficult-to-interpret country codes does not change our inferences (i.e., all the coefficients of interest for Eq. (1) have the same sign and are significant at the same level). Inferences are also similar if we exclude these observations (i.e., the coefficients of interest for Eq. (1) have the same sign and are significant at $p < 0.05$ other than the coefficient on *Tax Haven Country × Low GAAP ETR Indicator*, which becomes insignificant $p > 0.10$). We exclude firm-country-years populated with non-country information or for country code fields that do not follow the IRS schema, are not immediately identifiable, and/or may not have a consistent pattern across observations (i.e., the subsidiaries may are not be in the same country). One example is country code "ZZ".

[30] As with other research using IRS and other datasets, merging across and within these data sources may introduce noise and reduce our ability to detect evidence of under-disclosure as well as the factors significantly associated with such under-disclosure. As one example, if an acquired foreign subsidiary has a different year-end date from the parent, it could induce noise in identifying under-disclosure. Although tax law will require that they have the same year in many cases (e.g., when the parent is the majority U.S. shareholder, IRC §898) and we have little reason to expect such cases to be associated with specific types of subsidiaries (e.g., subsidiaries in tax havens), we confirm this possibility has no effect on our inferences. Specifically, we include an indicator control variable for firm-country-years in tax havens where *Undisclosed Significant Country* from Eq. (1) below equals 1 and the largest subsidiary (based on proportionate assets) – upon which *Undisclosed Significant Country* is based – has a different year-end date from the parent for the given tax year. The coefficients of interest for Eq. (1) retain the same sign and are significant at the same level as those reported in the primary analysis.

[31] The structure of our tests also mitigates other potential concerns related to noise in the data or merging. For example, to the degree that we are missing information on certain Form 5471s (e.g., firms fail to file or there is noise in merging across (within) IRS and other datasets), our results represent a lower bound of under-disclosure. Moreover, our use of only the single largest subsidiary in each firm-country-year to identify significant under-disclosure mitigates concerns that any potential duplication of Form 5471 filings could overstate significant under-disclosure. As any instance of potential duplication of Form 5471 entries would overstate *LN(Country Assets)*, we confirm that if we exclude *LN(Country Assets)* from Eq. (1), each of the coefficients of interest retains the same sign and is significant at the same level (or better) as those reported in the primary analysis other than the coefficient on *Political Risk Index*, which becomes insignificant.

and external scrutiny related to analyst coverage is associated with lower likelihood of nondisclosure.

Overall, the results in Table 2 provide evidence that subsidiary disclosures omitted from Exhibit 21 are not random. They suggest that firms are sensitive to costs imposed by public scrutiny of subsidiary locations, particularly if subsidiaries are in tax haven countries or politically risky countries. However, we also find that high quality audits and analyst coverage are associated with decreases in the probability of nondisclosure.[32]

4.3 Additional Analyses of Subsidiary Nondisclosure

4.3.1. Subsidiary Nondisclosure in "Dot" versus "Big 7" Haven Countries

Our primary results suggest that firms are more likely to omit disclosure of significant subsidiaries located in tax haven countries relative to other countries. Prior research suggests that although tax havens generally are associated with significant tax-planning opportunities, some tax haven countries – called "Dot" havens – are typically exclusively associated with tax-planning benefits but offer very limited operational benefits. Other more populated tax haven countries – called the "Big 7" – offer both tax and non-tax economic benefits (e.g., a large labor force, many customers) (Hines and Rice 1994; Desai et al. 2006). To this end, subsidiaries in Dot tax haven countries are more difficult to justify on economic grounds outside of tax avoidance, and are hence more likely to be scrutinized by the public. To the extent negative scrutiny related to tax avoidance

[32] If the Form 5471 for a given subsidiary is missing the percentage ownership and we use the Form 5471 category filer to estimate ownership, we treat Category 4 filers (who must file because they control the subsidiary for at least 30 days during the year) as owning 50 percent. The Form 5471 Category 4 filing requirement consists of control during the year, but not necessarily at the end of the year. Thus, one possibility for nondisclosure is that Form 5471 requirement require disclosure, but year-end Exhibit 21 criteria do not—if, for example, the firm liquidates its interest in the firm by the end of the year. To examine how such a possibility affects the results, we include an indicator variable in Eq. (1) for significant nondisclosure firm-country-years in a tax haven where we used Category 4 filing to compute proportionate assets (i.e., the subsidiary had the greatest proportionate assets based on Category 4 50% ownership estimates) and the firm does not appear to be a Category 5 filer for the given firm-country-year (i.e., the firm did not have at least 10% ownership in the U.S. shareholder-controlled foreign corporation). In this untabulated test we find that each of the coefficients of interest for Eq. (1) have the same sign and are significant at the same level, mitigating concerns that estimating proportionate assets based on Category 4 filing status drive the observed results.

is costly, we expect that nondisclosure of significant subsidiaries is even more likely in Dot tax havens than Big 7 tax havens. To test this conjecture, we partition *Tax Haven Country* into *Big 7 Tax Haven Country* and *Dot Tax Haven Country*. *Big 7 Tax Haven Country* is an indicator variable equal to one if the firm-country-year observation is in Hong Kong, Ireland, Lebanon, Liberia, Panama, Singapore, or Switzerland, following Hines and Rice (1994). *Dot Tax Haven Country* is an indicator variable equal to one if the firm-country-year observation is located in a tax haven country other than one of the Big 7 countries. Then, we re-estimate Eq. (1) using the "Big 7" and "Dot" haven country indicators.[33] We include the interaction of both *Big 7 Tax Haven Country* and *Dot Tax Haven Country* with *Low GAAP ETR Indicator*.

We report the results of these tests in Table 3. We find that the coefficients on both *Big 7 Tax Haven Country* and *Dot Tax Haven Country* are positive and significant, consistent with tax-related reputational costs being associated with nondisclosure of significant subsidiaries. However, we find that the coefficient on *Dot Tax Haven Country* (0.0099) is over twice the size of the coefficient on *Big 7 Tax Haven Country* (0.0041), suggesting that firms' propensity not to include a significant subsidiary from Exhibit 21 is much more likely if it is located in a Dot haven than in a Big 7 haven. This result suggests that companies are particularly sensitive to disclosure of subsidiaries where their likely purpose is tax planning rather than non-tax economic investment (e.g., accessing the country's labor force, positioning operations to increase sales, etc.). Notably, we also find the coefficient on the interaction term between *Dot Tax Haven Country* and *Low GAAP ETR Indicator* is positive and significant ($p < 0.05$), whereas the interaction of *Big 7 Tax Haven Country* and *Low GAAP ETR Indicator* is not statistically different from zero ($p > 0.10$).

[33] The Hines and Rice (1994) categorization was made based on existing tax situations that prevailed at the time. We use an updated tax haven list, which includes the Netherlands as a tax haven. The Netherlands may well be considered a "Big 7" type country, as it has a substantial economy, is not a small island nation, etc. Including The Netherlands as a Big 7 (thus, Big 8), does not change the tenor of our results (i.e., all the coefficients of interest for Eq. (1) have the same sign and are significant at the same level).

Taken together, these results suggest that firms appear to conceal their presence in countries that are known for their clear tax-savings benefits, especially when the firm also reports with a lower effective tax rate.

4.3.2. Alternative Dependent Variables Based on Haven Country Designation

In the tests discussed in the previous section, we document a positive association between media coverage and subsidiary nondisclosure. To the extent that negative publicity of tax avoidance strategies drives this association, we expect the relation to be particularly salient for subsidiaries in tax haven countries. To test this conjecture, we estimate two regression specifications identical to Eq. (1), but where we replace the dependent variable *Undisclosed Significant Country* with one of two new dependent variables, *Undisclosed Significant Tax Haven Country* or *Undisclosed Significant Non-Tax Haven Country*. Given that we construct these alternative dependent variables with reference to whether the country is a tax haven, we omit *Tax Haven* from the regressions. If our conjecture is correct, we expect a positive relation between media coverage and nondisclosure of subsidiaries in tax haven countries, but no relation between media coverage and nondisclosure of subsidiaries in non-tax haven countries.

We report the results of these tests in Table 4. In column 1, we find that *LN(Media Articles)* has a positive association with *Undisclosed Significant Tax Haven Country* ($p < 0.001$), suggesting that more media coverage is associated with less disclosure of firms' significant presence in a tax haven nation. However, in column 2, we do not find evidence that *LN(Media Articles)* is significantly different from zero ($p > 0.10$), consistent with media pressure not explaining firms' Exhibit 21 reporting decisions of non-tax haven subsidiaries. As such, these results provide additional evidence that firms strategically omit disclosures that could be used by the media to publicize their tax avoidance strategies.

5. Is Significant Nondisclosure Indicative of Other Corporate Behavior?

Our primary tests indicate that some firms systematically omit significant subsidiaries when they face reputational or other incentives to do so. However, left unanswered in these analyses is whether these omissions are symptomatic of firms' larger disclosure or accounting choices. On the one hand, firms may make isolated subsidiary disclosure decisions to mitigate tax-related reputational costs. On the other hand, some firms may frequently make accounting and disclosure choices that push the boundaries of or violate accounting and disclosure rules.

To test whether omitting a significant subsidiary is indicative of other accounting choices, we examine whether failing to disclose significant subsidiaries from Exhibit 21 is associated with two outcomes that prior accounting literature associates with low accounting or disclosure quality: (1) financial accounting restatements and (2) receiving a comment letter from the SEC (e.g., Dechow et al. 2015; Cassell et al. 2013; Hoopes et al. 2017; Christensen et al. 2015). We measure accounting restatements using the Audit Analytics non-reliance restatements database and measure comment letters using the Audit Analytics comment letters database. We estimate the following linear probability regression model:

$$\begin{aligned} \textit{Disclosure Outcome}_i = {} & \beta_0 + \beta_1\, \textit{Undisclosed Significant Subsidiary}_i + \beta_2 \textit{LN(AT)}_i + \beta_3 \textit{Big 4 Auditor}_i \\ & + \beta_4 \textit{Merger or Acquisition}_i + \beta_5 \textit{Leverage}_i + \beta_6 \textit{Book to Market}_i + \beta_7 \textit{Capital Intensity}_i \\ & + \beta_8 \textit{LN(Analyst)}_i + \epsilon \end{aligned} \tag{2}$$

Disclosure Outcome is measured as either *Restatement* or the receipt of an *SEC Comment Letter*. We include control variables based on prior literature examining factors associated with financial restatements (Dechow et al. 2011). For these tests, we aggregate observations at the firm level. Thus, *Undisclosed Significant Subsidiary* is equal to one if the firm fails to disclose a significant subsidiary during the sample period and *Restatement* is equal to one if the firm misstates its financial statements during the sample period, as evidenced by a subsequent financial restatement. Similarly, *SEC Comment Letter* is equal to one if the firm receives a comment letter

during the sample period. Here, we further refine *SEC Comment Letter* by defining a new variable *SEC Tax Comment Letter*, which is equal to one if the topic of the SEC comment letter is tax related.[34]

We tabulate descriptive statistics for the sample used to estimate Eq. (2) in Table 5, Panel A. About 33 percent of firms in our sample misstated their financial results at least once during our sample period, 70 percent received a comment letter from the SEC, 25 percent received a comment letter specifically related to a tax issue, and 15 percent have failed to disclose a significant subsidiary. Importantly, this firm-level analysis aggregates the incidence of events over the full sample period and thus, we expect the frequency of these events to be significantly higher than corresponding event rates in studies examining firm-year events.

We report results from estimating Eq. (2) in Table 5, Panel B. In Column 1, we find a significant ($p < 0.01$) positive association between *Restatement* and *Undisclosed Significant Subsidiary*. The coefficient estimate of 0.085 in the linear probability model suggests that firms with an *Undisclosed Significant Subsidiary* are 8.5 percentage points more likely to have a *Restatement* compared with other firms in our sample. For context, we note that *Restatement* has an unconditional mean in the sample of 33.7 percent, suggesting that having an undisclosed significant subsidiary is associated with a 25 percent increase in the likelihood that firm has a financial restatement. Column 2 and Column 3 suggest that having an *Undisclosed Significant Subsidiarity* is also associated with receiving an *SEC Comment Letter* in general, as well as a *SEC Tax Comment Letter* ($p < 0.01$) in particular. Here, we find that significant subsidiary nondisclosure is associated with an 8.4 percent (40.9 percent) increased likelihood of an *SEC*

[34] We measure *SEC Tax Comment Letter* using the categorization provided by Audit Analytics which identifies tax-related disclosure issues raised by the SEC in the comment letter. Specifically, we code SEC Tax Comment Letter=1 when the Audit Analytics variable ISS_ACCRL_DISC_KEYS is equal to 214, which is the code for "Tax expense/benefit/deferral/other (FAS 109) issues".

Comment Letter (SEC Tax Comment Letter) (i.e., 5.9 (10.1) percentage point increase from the unconditional mean of 70.7 percent (24.8 percent)).

It is possible that omitting a significant subsidiary in a tax haven is more indicative of the firm's willingness to succumb to various forms of pressure and thus might be more strongly associated with accounting and disclosure choices. To investigate this possibility, we re-estimate the regressions from Table 5, Panel B, replacing *Undisclosed Significant Subsidiary* in the model with indicators for whether the firm failed to disclose a subsidiary in a tax haven (*Undisclosed Significant Tax Haven Subsidiary*) or a non-tax haven (*Undisclosed Significant Non-Haven Subsidiary*).

In Panel C of Table 5 we report the results of estimating this modification of Equation (2). In Column 1, we find a positive association between *Restatement* and both *Undisclosed Significant Tax Haven Subsidiary* and *Undisclosed Significant Non-Haven Subsidiary* ($p < 0.05$). In Column 2, we find that when including both *Undisclosed Significant Tax Haven Subsidiary* and *Undisclosed Significant Non-Haven Subsidiary*, only *Undisclosed Significant Tax Haven Subsidiary* is significantly associated with SEC Comment Letters ($p < 0.05$). Finally, in the last column, we find that both *Undisclosed Significant Tax Haven Subsidiary* and *Undisclosed Significant Non-Haven Subsidiary* are associated with SEC tax-related comment letters ($p < 0.05$). Overall, the evidence in these analyses suggests that firms that conceal significant subsidiaries are more likely to restate their financial statements and more likely to receive both general and tax-related SEC comment letters.

We note that these analyses are tests of association with no clear source of identification and subject to some sources of noise, though as we discuss throughout the paper, our results are robust to numerous sensitivity analyses and we expect such noise to generally lead to us under-identifying significant under-disclosure. Nevertheless, for governmental regulators such as the IRS

or SEC, which are tasked with regulating firm activities and enforcing the law, our collective results suggest that comparing public data to private data and focusing on firms whose public data does not reconcile with their private data may be an important and fruitful area of further study.

6. Online Appendix

A growing literature uses Exhibit 21 disclosures to measure firm exposure to different countries, including tax haven usage (e.g., Akamah et al. 2017; Dyreng and Markle 2016; Lisowsky 2010; De Simone et al. 2017; Heckemeyer et al. 2017; Dyreng et al. 2015; Bozanic et al. 2017; Demere et al. 2016; Law and Mills 2017; Chow et al. 2017; Law and Mills 2014; Hanlon et al. 2015; Dyreng and Lindsey 2009; Dyreng et al. 2013; Dyreng et al. 2012; Black et al. 2014; Dyreng et al. 2017). As our data show that subsidiary omissions from Exhibit 21 are not random, we provide an online appendix to offer additional insights on using Exhibit 21 data as proxies for actual subsidiary locations. In interpreting these supplementary results, we note that the firms most sensitive to reputational and related costs may be the firms of particular interest in many tax studies.

7. Conclusion

We undertake the first comprehensive study of information contained in Exhibit 21, comparing firms' true subsidiary locations obtained via tax filings with the firms' disclosed subsidiary locations from Exhibit 21. First, we establish that in hundreds of cases, firms omit significant subsidiaries from their Exhibit 21. Recognizing that firms face reputational costs by revealing themselves as engaging in aggressive tax planning, we first examine whether this nondisclosure of significant subsidiaries is more likely to happen if subsidiaries are located in tax havens. We find the likelihood of a significant subsidiary not being disclosed more than doubles when the subsidiary is in a tax haven, consistent with a reputational cost of tax planning. Further, the propensity to omit disclosure of subsidiaries in so-called Dot havens – such as the Cayman

Islands or the Bahamas, where the primary purpose of the subsidiary is likely for tax planning purposes – is more than twice the probability of nondisclosure in large, economically vibrant tax haven countries such as Ireland, Switzerland, or Singapore.

Next, as reputational costs are likely driven in part by media coverage, we examine whether media coverage is associated with the propensity to under-disclose significant subsidiaries in Exhibit 21. We find evidence suggesting that it does. Furthermore, we find that media coverage only drives under-disclosure of subsidiaries located in tax havens—we do not observe an effect on the probability of not disclosing significant subsidiaries that are not in tax havens. Finally, we examine whether firms omit disclosure of their subsidiaries that are in politically risky countries and find evidence suggesting subsidiaries located in politically risky nations are more likely to be omitted from Exhibit 21 than are other subsidiaries.

Overall, we provide evidence that firms weigh the costs of disclosure against the benefits and may only disclose when the benefits outweigh the costs. This general behavior has been well-documented in the accounting literature (Dye 2001), but is generally examined with voluntary disclosures. We show that firms may be willing to under-disclose mandatory disclosures to conceal their tax planning activities and operations in politically risky countries. This behavior is especially interesting given that the IRS has all this information, and more, in tax filings, such that the nondisclosure likely has little to do with fear of additional tax authority scrutiny. The firm behavior we observe is consistent with recent survey evidence put forth by EY (2014), which notes that, "Being compliant with the law isn't always good enough if a journalist writes about your taxes… There is a far higher threshold for public approval of a tax position than there is when you are dealing with a tax auditor." Indeed, EY (2014) finds that 42% of the largest companies surveyed are changing the way they communicate about taxes to external stakeholders. Our findings suggest

that some of this change may be obscuring information about tax planning from the public, even if that information is legally required to be disclosed.

Our results have implications for various settings, including policy discussions regarding tax disclosure in general, and more specifically about the public disclosure of country-by-country reporting. In light of recent regulation in the U.S. and other countries requiring firms to disclose financial information (e.g., income and taxes paid) by country, the findings in this study are relevant to regulators charged with implementing these provisions.[35] Indeed, our findings suggest that there may not be full compliance with country-by-country reporting requirements unless the requirements are clearly regulated and rigorously enforced.

[35] See, for example, https://www.federalregister.gov/documents/2016/06/30/2016-15482/country-by-country-reporting.

Appendix 1. Law Regarding Subsidiary Disclosure in Exhibit 21

17 CFR 229.601(b)

> (21)Subsidiaries of the registrant.
> (i) List all subsidiaries of the registrant, the state or other jurisdiction of incorporation or organization of each, and the names under which such subsidiaries do business. This list may be incorporated by reference from a document which includes a complete and accurate list.
> (ii) The names of particular subsidiaries may be omitted if the unnamed subsidiaries, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary as of the end of the year covered by this report. (See the definition of "significant subsidiary" in Rule 1-02(w) (17 CFR 210.1-02(w)) of Regulation S-X.) The names of consolidated wholly-owned multiple subsidiaries carrying on the same line of business, such as chain stores or small loan companies, may be omitted, provided the name of the immediate parent, the line of business, the number of omitted subsidiaries operating in the United States and the number operating in foreign countries are given. This instruction shall not apply, however, to banks, insurance companies, savings and loan associations or to any subsidiary subject to regulation by another Federal agency.

17 CFR 210.1-02

> (w)Significant subsidiary. The term significant subsidiary means a subsidiary, including its subsidiaries, which meets any of the following conditions:
> (1) The registrant's and its other subsidiaries' investments in and advances to the subsidiary exceed 10 percent of the total assets of the registrant and its subsidiaries consolidated as of the end of the most recently completed fiscal year (for a proposed combination between entities under common control, this condition is also met when the number of common shares exchanged or to be exchanged by the registrant exceeds 10 percent of its total common shares outstanding at the date the combination is initiated); or
> (2) The registrant's and its other subsidiaries' proportionate share of the total assets (after intercompany eliminations) of the subsidiary exceeds 10 percent of the total assets of the registrants and its subsidiaries consolidated as of the end of the most recently completed fiscal year; or
> (3) The registrant's and its other subsidiaries' equity in the income from continuing operations before income taxes, extraordinary items and cumulative effect of a change in accounting principle of the subsidiary exclusive of amounts attributable to any noncontrolling interests exceeds 10 percent of such income of the registrant and its subsidiaries consolidated for the most recently completed fiscal year.

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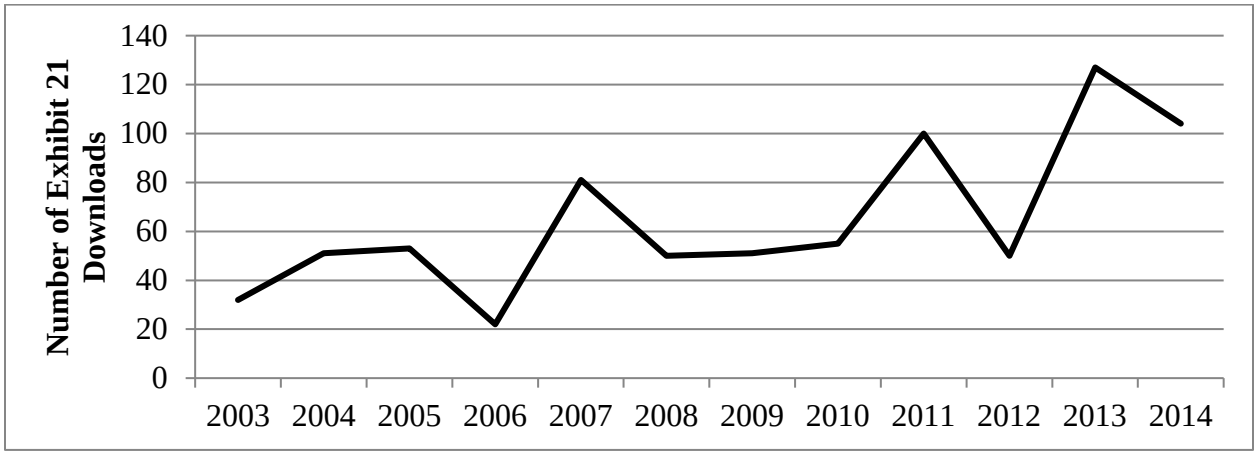
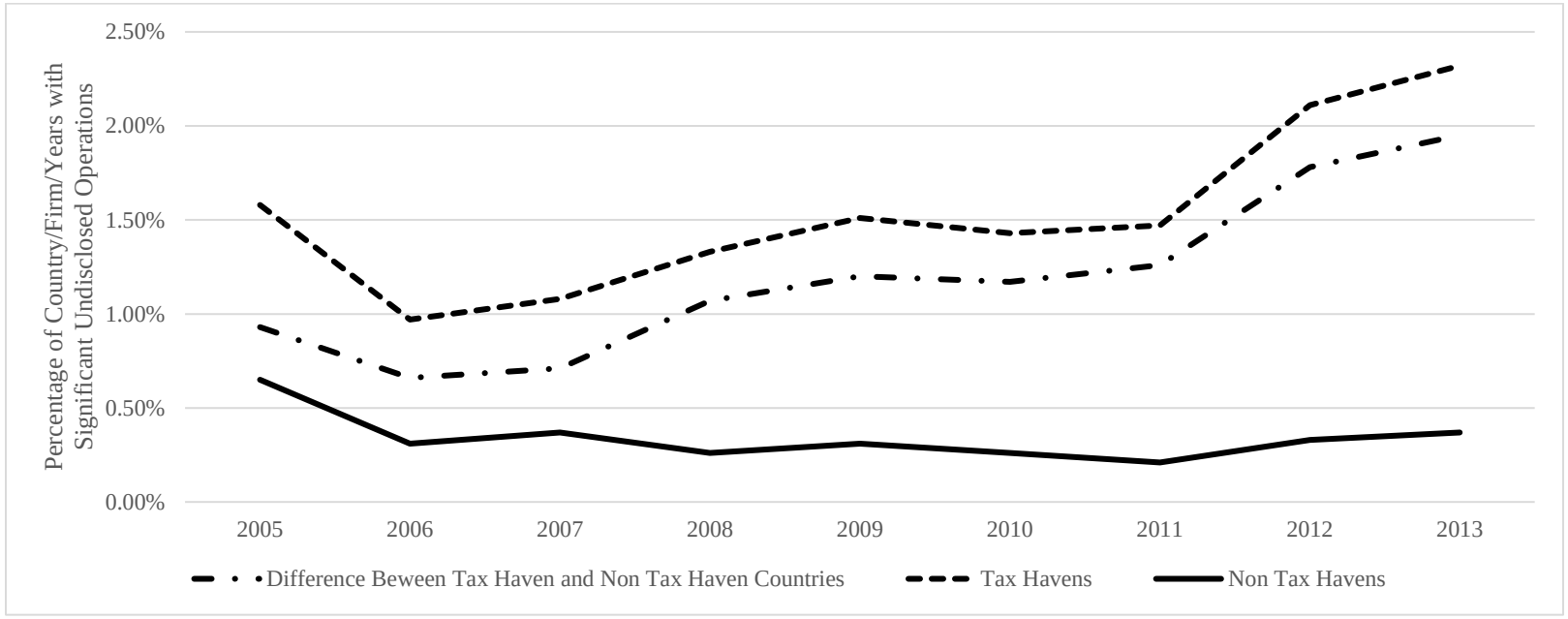
Figure 1. Downloads of Exhibit 21 by Media Outlets



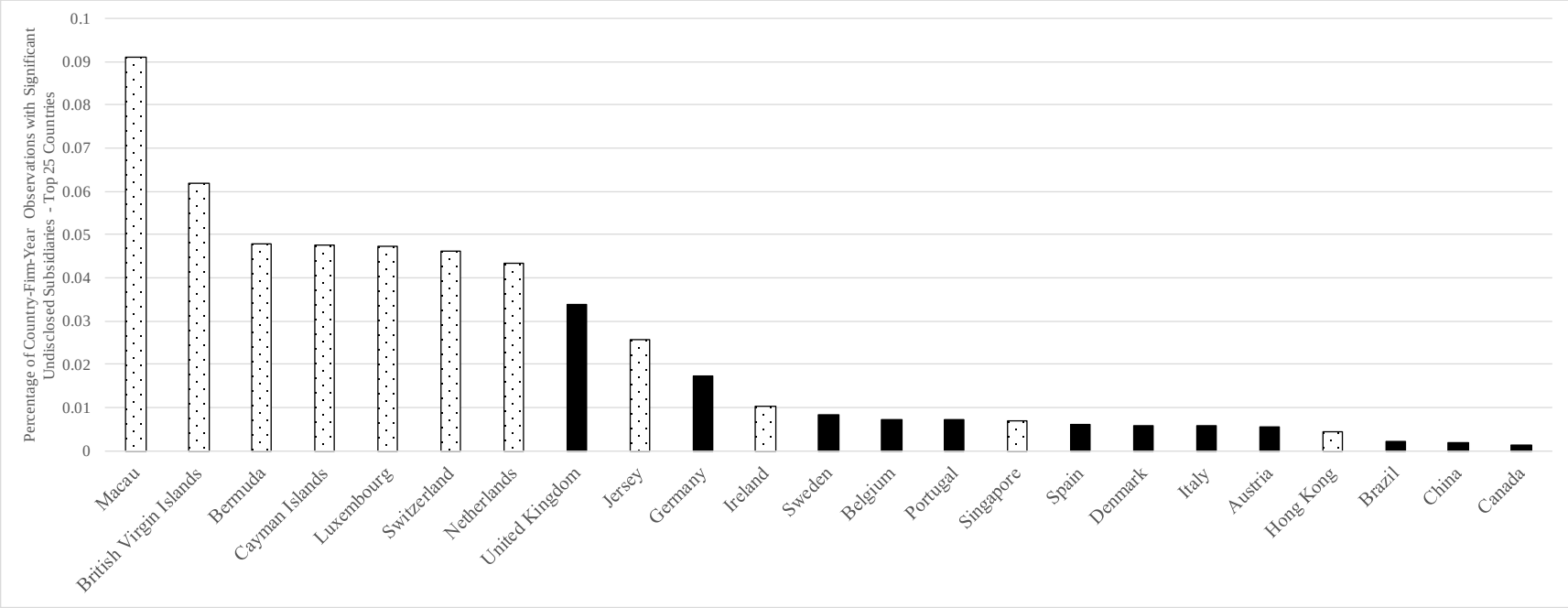
Notes. The graph depicts the number of Exhibit 21 downloads from 17 different media outlets, using the same methodology as Bozanic et al. (2017) to isolate specific downloaders from the SEC's EDGAR database by using the IP address of the downloader.

Figure 2. Percentage of Firm-Country-Years with Significant Undisclosed Operations



Notes. This graph depicts the percentage of instances, by year, in which a significant country presence is undisclosed, by tax havens, non-tax havens, and the difference between tax havens and non-tax havens . A firm has a significant undisclosed subsidiary if the firm-country-year has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, but the firm fails to disclose a subsidiary in that country in the Exhibit 21.

Figure 3. Percentage of Firm-Country-Year Observations with Significant Undisclosed Countries



Notes. This figure graphs the percentage of observations that are significant and not disclosed in Exhibit 21, by country, in 2013. We graph only countries with more than 30 firm-country-year observations. Hollow dotted bars are tax haven countries, and black solid bars are non-haven countries.

Table 1. Descriptive Statistics

	Not in Tax Haven			In Tax Haven			Difference	Significance
	Mean	Std Dev	N	Mean	Std Dev	N		
Undisclosed Significant Country	0.0031141	0.0557176	97941	0.015646	0.1241018	28954	-0.01253	***
Tax Haven Country	0	0	97941	1	0	28954	-1	***
Low GAAP ETR Indicator	0.2499566	0.4329899	97941	0.250017	0.4330301	28954	-6.1E-05	
Political Risk Index	-63.08738	30.647192	97941	-44.88036	42.8221548	28954	-18.207	***
Political Risk 0	0.1792508	0.3835641	97941	0.473855	0.4993246	28954	-0.2946	***
LN(Media Articles)	4.4069634	2.1177713	97941	4.456457	2.1127866	28954	-0.04949	***
Articles 0	0.1669781	0.3729582	97941	0.162637	0.3690408	28954	0.004341	*
LN(Country Assets)	2.761401	2.2173965	97941	3.243553	2.7979799	28954	-0.48215	***
Big 4 Auditor	0.9532678	0.2110658	97941	0.949782	0.2183974	28954	0.003485	**
Time Trend	5.5996978	2.3972062	97941	5.616702	2.3880463	28954	-0.017	
LN(AT)	8.6216244	1.8864205	97941	8.760371	1.9806689	28954	-0.13875	***
Merger or Acquisition	0.2644756	0.4410558	97941	0.261277	0.4393379	28954	0.003199	
NOL	0.5916011	0.4915401	97941	0.578918	0.4937412	28954	0.012683	***
ROA	0.0981066	0.085963	97941	0.095946	0.0864452	28954	0.00216	***
Leverage	0.1890344	0.1437564	97941	0.187136	0.1454981	28954	0.001899	**
Book to Market	0.453861	0.3203875	97941	0.485529	0.3395168	28954	-0.03167	***
Capital Intensity	0.1821205	0.1502259	97941	0.193619	0.1745082	28954	-0.0115	***
New Auditor	0.0270571	0.1622507	97941	0.029012	0.1678417	28954	-0.00195	*
LN(Analyst)	2.2909756	0.8324592	97941	2.314648	0.8335618	28954	-0.02367	***

Notes. *Undisclosed Significant Country* is an indicator variable equal one if a firm-country-year has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, but the firm fails to disclose a subsidiary in that country in the Exhibit 21. *Tax Haven Country* is an indicator variable equal to one for firm-country-years located in located in a tax haven country, as defined by Dyreng et al (2015). Low GAAP ETR Indicator is an indicator variable equal to 1 for firms with GAAP effective tax rate (tax expense divided by pretax income, winsorized at 0 and 1) in the lowest quartile of GAAP ETRs. *Political Risk Index* is an index, from 0 to -100 (we multiply the raw values by -1 so the variable is increasing in political risk) for the given country-year, obtained from Political Risk Services. *Political Risk 0* is an indicator equal to one if data are not available for the given country-year and zero otherwise. *LN(Media Articles)* is one plus the logged number of media articles for the firm-year in Ravenpack (we set missing values equal to zero). *Articles 0* is an indicator equal to one if the firm is not covered in Ravenpack (i.e., where we set the number of articles to zero) and zero otherwise. *Big 4 Auditor* is an indicator variable coded to equal one for firms audited by a Big 4 auditor. *New Auditor* is an indicator variable coded to equal one if the firm has a new audit firm. *LN(Analyst)* is the natural log of one plus the number of analysts covering the firm. *Country Assets* is the size of assets held in subsidiaries in the country, measured as the natural log of one plus aggregate total assets (in millions) for all subsidiaries of the firm in the given country and year. *NOL* is an indicator variable equal to one for non-missing, non-zero values of tax loss carryforwards (tlcf in Compustat) in the given year. *Time Trend* is a count variable equal to 1 for 2005, 2 for 2006, etc. *LN(AT)* is the natural log of assets at the parent company. *Merger or Acquisition* is an indicator variable equal to one for firms engaged in a merger or acquisition in the given year. *ROA* is the (parent) firm's return on assets (pre-tax income, scaled by lagged total assets). *Leverage* is total long-term debt (dltt) scaled by total assets (at). *Book to Market* is the book-to-market ratio. *Capital Intensity* is net PP&E (ppent in Compustat) scaled by total assets (at in Compustat).

Table 2. Determinants of Significant Under-disclosure

Dependent Variable: Undisclosed Significant Country			
Parameter	Estimate	Standard Error	Pr > |t|
Tax Haven Country	0.0067	0.0014	<.0001
Low GAAP ETR Indicator	0.0010	0.0008	0.2481
Tax Haven Country X Low GAAP ETR Indicator	0.0045	0.0025	0.0762
Political Risk Index	0.0002	0.0000	<.0001
Political Risk 0	-0.0029	0.0025	0.2503
LN(Media Articles)	0.0024	0.0008	0.0026
Articles 0	0.0151	0.0051	0.0034
Big 4 Auditor	-0.0098	0.0034	0.0040
New Auditor	0.0027	0.0023	0.2345
LN(Analyst)	-0.0013	0.0007	0.0700
LN(Country Assets)	0.0050	0.0004	<.0001
NOL	-0.0015	0.0009	0.0783
Time Trend	0.0014	0.0007	0.0399
LN(AT)	-0.0048	0.0005	<.0001
Merger or Acquisition	0.0003	0.0007	0.7012
ROA	0.0129	0.0065	0.0463
Leverage	-0.0050	0.0030	0.0901
Book to Market	0.0011	0.0016	0.5001
Capital Intensity	0.0048	0.0046	0.2884
Year Fixed Effects		Yes	
Industry Fixed Effects		Yes	
R-square		3.3%	
Observations		126895	

Notes. This table reports the results of our primary test examining factors associated with significant under-disclosure of subsidiaries. *Undisclosed Significant Country* is an indicator variable equal one if a firm-country-year has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, but the firm fails to disclose a subsidiary in that country in the Exhibit 21. *Tax Haven Country* is an indicator variable equal to one for firm-country-years located in located in a tax haven country, as defined by Dyreng et al (2015). *Low GAAP ETR Indicator* is an indicator variable equal to 1 for firms with GAAP effective tax rate (tax expense divided by pretax income, winsorized at 0 and 1) in the lowest quartile of GAAP ETRs. *Political Risk Index* is an index, from 0 to -100 (we multiply the raw values by -1 so the variable is increasing in political risk) for the given country-year, obtained from Political Risk Services. *Political Risk 0* is an indicator equal to one if data are not available for the given country-year and zero otherwise. *LN(Media Articles)* is one plus the logged number of media articles for the firm-year in Ravenpack (we set missing values equal to zero). *Articles 0* is an indicator equal to one if the firm is not covered in Ravenpack (i.e., where we set the number of articles to zero) and zero otherwise. *Big 4 Auditor* is an indicator variable coded to equal one for firms audited by a Big 4 auditor. *New Auditor* is an indicator variable coded to equal one if the firm has a new audit firm. *LN(Analyst)* is the natural log of one plus the number of analysts covering the firm. *Country Assets* is the size of assets held in subsidiaries in the country, measured as the natural log of one plus aggregate total assets (in millions) for all subsidiaries of the firm in the given country and year. *NOL* is an indicator variable equal to one for non-missing, non-zero values of tax loss carryforwards (tlcf in Compustat) in the given year. *Time Trend* is a count variable equal to 1 for 2005, 2 for 2006, etc. *LN(AT)* is the natural log of assets at the parent company. *Merger or Acquisition* is an indicator variable equal to one for firms engaged in a merger or acquisition in the given year. *ROA* is the (parent) firm's return on assets (pre-tax income, scaled by lagged total assets). *Leverage* is total long-term debt (dltt) scaled by total assets (at). *Book to Market* is the book-to-market ratio. *Capital Intensity* is net PP&E (ppent in Compustat) scaled by total assets (at in Compustat).

Table 3. Determinants of Significant Under-disclosure, by Tax Haven Country Type

Dependent Variable: Undisclosed Significant Country			
Parameter	Estimate	Standard Error	Pr > |t|
Big 7 Tax Haven Country	0.0041	0.0015	0.0072
Dot Tax Haven Country	0.0099	0.0021	<.0001
Low GAAP ETR Indicator	0.0010	0.0008	0.2627
Big 7 Tax Haven Country X Low GAAP ETR Indicator	-0.0006	0.0027	0.8102
Dot Tax Haven Country X Low GAAP ETR Indicator	0.0085	0.0038	0.0239
Political Risk Index	0.0002	0.0000	<.0001
Political Risk 0	-0.0035	0.0025	0.1617
LN(Media Articles)	0.0024	0.0008	0.0023
Articles 0	0.0152	0.0051	0.0030
Big 4 Auditor	-0.0098	0.0034	0.0042
New Auditor	0.0028	0.0023	0.2256
LN(Analyst)	-0.0013	0.0007	0.0677
LN(Country Assets)	0.0049	0.0004	<.0001
NOL	-0.0015	0.0009	0.0736
Time Trend	0.0014	0.0007	0.0396
LN(AT)	-0.0048	0.0005	<.0001
Merger or Acquisition	0.0003	0.0007	0.7056
ROA	0.0130	0.0064	0.0440
Leverage	-0.0051	0.0030	0.0844
Book to Market	0.0011	0.0016	0.5086
Capital Intensity	0.0048	0.0046	0.2957
Year Fixed Effects		Yes	
Industry Fixed Effects		Yes	
R-square		3.4%	
Observations		126895	

Notes. This table reports the results of our primary test, but with a focus on subsidiary presence in Big 7 haven (tax haven countries that also have clear non-tax economic advantages for a firm's operations) versus dot haven countries Hines and Rice 1994). *Undisclosed Significant Country* is an indicator variable equal one if a firm-country-year has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, but the firm fails to disclose a subsidiary in that country in the Exhibit 21. *Big 7 Tax Haven Country* is an indicator variable coded to equal one if the firm-country-year observation is in Hong Kong, Ireland, Lebanon, Liberia, Panama, Singapore, or Switzerland, following Hines and Rice (1994). *Dot Tax Haven Country* is an indicator variable coded to one if the firm-country-year observation is located in tax haven (Dyreng et al. 2015) other than a "Big 7" haven defined above. Low GAAP ETR Indicator is an indicator variable equal to 1 for firms with GAAP effective tax rate (tax expense divided by pretax income, winsorized at 0 and 1) in the lowest quartile of GAAP ETRs. *Political Risk Index* is an index, from 0 to -100 (we multiply the raw values by -1 so the variable is increasing in political risk) for the given country-year, obtained from Political Risk Services. *Political Risk 0* is an indicator equal to one if data are not available for the given country-year and zero otherwise. *LN(Media Articles)* is one plus the logged number of media articles for the firm-year in Ravenpack (we set missing values equal to zero). *Articles 0* is an indicator equal to one if the firm is not covered in Ravenpack (i.e., where we set the number of articles to zero) and zero otherwise. *Big 4 Auditor* is an indicator variable coded to equal one for firms audited by a Big 4 auditor. *New Auditor* is an indicator variable coded to equal one if the firm has a new audit firm. *LN(Analyst)* is the natural log of one plus the number of analysts covering the firm. *Country Assets* is the size of assets held in subsidiaries in the country, measured as the natural log of one plus aggregate total assets (in millions) for all subsidiaries of the firm in the given country and year. *NOL* is an indicator variable equal to one for non-missing, non-zero values of tax loss carryforwards (tlcf in Compustat) in the given year. *Time Trend* is a count variable equal to 1 for 2005, 2 for 2006, etc. *LN(AT)* is the natural log of assets at the parent company. *Merger or Acquisition* is an indicator variable equal to one for firms engaged in a merger or acquisition in the given year. *ROA* is the (parent) firm's return on assets (pre-tax income, scaled by lagged total assets). *Leverage* is total long-term debt (dltt) scaled by total assets (at). *Book to Market* is the book-to-market ratio. *Capital Intensity* is net PP&E (ppent in Compustat) scaled by total assets (at in Compustat).

Table 4. Determinants of Significant Under-disclosure for Haven and Non Haven Countries

Dependent Variable:	Undisclosed Significant Tax Haven Country			Undisclosed Significant Non Tax Haven Country		
Parameter	Estimate	Standard Error	Pr > |t|	Estimate	Standard Error	Pr > |t|
Low GAAP ETR Indicator	0.0013	0.0006	0.0472	0.0008	0.0006	0.1960
Political Risk Index	0.0000	0.0000	0.3622	0.0001	0.0000	0.0049
Political Risk 0	0.0152	0.0019	<.0001	-0.0061	0.0021	0.0031
LN(Media Articles)	0.0018	0.0005	0.0005	0.0006	0.0006	0.2936
Articles 0	0.0101	0.0032	0.0014	0.0049	0.0040	0.2295
Big 4 Auditor	-0.0066	0.0025	0.0082	-0.0033	0.0023	0.1537
New Auditor	0.0035	0.0017	0.0365	-0.0007	0.0014	0.6045
LN(Analyst)	-0.0005	0.0006	0.3867	-0.0008	0.0005	0.0800
LN(Country Assets)	0.0031	0.0003	<.0001	0.0019	0.0002	<.0001
NOL	0.0005	0.0006	0.3554	-0.0020	0.0006	0.0012
Time Trend	0.0009	0.0005	0.0648	0.0005	0.0004	0.2555
LN(AT)	-0.0028	0.0004	<.0001	-0.0021	0.0003	<.0001
Merger or Acquisition	-0.0001	0.0005	0.7855	0.0004	0.0004	0.3528
ROA	0.0091	0.0048	0.0575	0.0039	0.0040	0.3315
Leverage	-0.0034	0.0021	0.0995	-0.0017	0.0020	0.4052
Book to Market	0.0011	0.0013	0.4135	0.0002	0.0011	0.8716
Capital Intensity	0.0061	0.0035	0.0830	-0.0008	0.0031	0.7893
Year Fixed Effects		Yes			Yes	
Industry Fixed Effects		Yes			Yes	
R-square		2.5%			1.2%	
Observations		126895			126895	

Notes. This table reports the results of our primary test examining factors associated with significant under-disclosure of subsidiaries. *Undisclosed Significant Country* is an indicator variable equal one if a firm-country-year has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, but the firm fails to disclose a subsidiary in that country in the Exhibit 21. *Tax Haven Country* is an indicator variable equal to one for firm-country-years located in located in a tax haven country, as defined by Dyreng et al (2015). Low GAAP ETR Indicator is an indicator variable equal to 1 for firms with GAAP effective tax rate (tax expense divided by pretax income, winsorized at 0 and 1) in the lowest quartile of GAAP ETRs. *Political Risk Index* is an index, from 0 to -100 (we multiply the raw values by -1 so the variable is increasing in political risk) for the given country-year, obtained from Political Risk Services. *Political Risk 0* is an indicator equal to one if data are not available for the given country-year and zero otherwise. *LN(Media Articles)* is one plus the logged number of media articles for the firm-year in Ravenpack (we set missing values equal to zero). *Articles 0* is an indicator equal to one if the firm is not covered in Ravenpack (i.e., where we set the number of articles to zero) and zero otherwise. *Big 4 Auditor* is an indicator variable coded to equal one for firms audited by a Big 4 auditor. *New Auditor* is an indicator variable coded to equal one if the firm has a new audit firm. *LN(Analyst)* is the natural log of one plus the number of analysts covering the firm. *Country Assets* is the size of assets held in subsidiaries in the country, measured as the natural log of one plus aggregate total assets (in millions) for all subsidiaries of the firm in the given country and year. *NOL* is an indicator variable equal to one for non-missing, non-zero values of tax loss carryforwards (tlcf in Compustat) in the given year. *Time Trend* is a count variable equal to 1 for 2005, 2 for 2006, etc. *LN(AT)* is the natural log of assets at the parent company. *Merger or Acquisition* is an indicator variable equal to one for firms engaged in a merger or acquisition in the given year. *ROA* is the (parent) firm's return on assets (pre-tax income, scaled by lagged total assets). *Leverage* is total long-term debt (dltt) scaled by total assets (at). *Book to Market* is the book-to-market ratio. *Capital Intensity* is net PP&E (ppent in Compustat) scaled by total assets (at in Compustat).

Table 5. The Association between Subsidiary Nondisclosure, Restatements and Comment Letters

Panel A. Descriptive Statistics for Firm-Level Analysis

Variable	N	Mean	Std Dev
Restatement	2912	0.33723	0.47284
SEC Comment Letter	2912	0.70707	0.45518
SEC Tax Comment Letter	2912	0.2476	0.43169
Undisclosed Significant Subsidiary	2912	0.1535	0.36053
LN(AT)	2912	6.55608	2.08272
Big 4 Auditor	2912	0.79087	0.40676
Merger or Acquisition	2912	0.49038	0.49999
ROA	2912	0.00289	0.21064
Leverage	2912	0.16892	0.18611
Book to Market	2912	0.49581	0.56257
Capital Intensity	2912	0.19272	0.18848
LN(Analyst)	2912	1.70168	0.90252

Panel B. All Undisclosed Significant Subsidiaries

Dependent Variable:	Restatement			SEC Comment Letter			SEC Tax Comment Letter		
Parameter	Estimate	Standard Error	Pr > |t|	Estimate	Standard Error	Pr > |t|	Estimate	Standard Error	Pr > |t|
Undisclosed Significant Subsidiary	0.0853	0.0256	0.0009	0.0594	0.0201	0.0032	0.1012	0.0239	<.0001
LN(AT)	0.0047	0.0073	0.5152	0.0352	0.0066	<.0001	0.0553	0.0067	<.0001
Big 4 Auditor	0.0943	0.0240	<.0001	0.0619	0.0251	0.0136	-0.0264	0.0199	0.1862
Merger or Acquisition	0.1168	0.0183	<.0001	0.1461	0.0167	<.0001	0.0855	0.0160	<.0001
ROA	-0.0522	0.0444	0.2401	0.1770	0.0477	0.0002	0.0769	0.0340	0.0240
Leverage	0.1568	0.0544	0.0040	-0.0206	0.0538	0.7022	0.0036	0.0440	0.9347
Book to Market	0.0456	0.0161	0.0047	0.0439	0.0166	0.0082	0.0038	0.0121	0.7559
Capital Intensity	-0.0476	0.0630	0.4496	0.0889	0.0604	0.1414	-0.0401	0.0520	0.4400
LN(Analyst)	-0.0424	0.0144	0.0032	0.0301	0.0135	0.0257	0.0054	0.0130	0.6751
Industry Fixed Effects		Yes			Yes			Yes	
R-square		6.0%			15.4%			12.6%	
Observations		2912			2912			2912	

Panel C. Undisclosed Significant Subsidiaries in Tax Havens

Dependent Variable:	Restatement			SEC Comment Letter			SEC Tax Comment Letter		
Parameter	Estimate	Standard Error	Pr > |t|	Estimate	Standard Error	Pr > |t|	Estimate	Standard Error	Pr > |t|
Unidsclosed Significant Tax Haven Subsidiary	0.0768	0.0318	0.0159	0.0524	0.0243	0.0313	0.0763	0.0306	0.0128
Unidsclosed Significant Non-Haven Subsidiary	0.0818	0.0351	0.0199	0.0374	0.0273	0.1716	0.0803	0.0319	0.0120
LN(AT)	0.0048	0.0073	0.5138	0.0352	0.0066	<.0001	0.0556	0.0067	<.0001
Big 4 Auditor	0.0942	0.0240	<.0001	0.0621	0.0251	0.0133	-0.0266	0.0200	0.1825
Merger or Acquisition	0.1164	0.0183	<.0001	0.1466	0.0167	<.0001	0.0860	0.0160	<.0001
ROA	-0.0526	0.0445	0.2370	0.1769	0.0477	0.0002	0.0776	0.0341	0.0229
Leverage	0.1565	0.0544	0.0040	-0.0207	0.0538	0.7009	0.0028	0.0441	0.9496
Book to Market	0.0449	0.0161	0.0054	0.0435	0.0166	0.0088	0.0032	0.0122	0.7918
Capital Intensity	-0.0493	0.0629	0.4335	0.0876	0.0605	0.1476	-0.0414	0.0521	0.4264
LN(Analyst)	-0.0424	0.0144	0.0033	0.0299	0.0135	0.0267	0.0052	0.0130	0.6875
Industry Fixed Effects		Yes			Yes			Yes	
R-square		6.1%			15.3%			12.5%	
Observations		2912			2912			2912	

Notes. This table reports the results of tests examining the association between subsidiary nondisclosure, restatements and comment letters. *Restatement* is an indicator variable equal to one if the sample firm misstated its financial statements for any year during the sample period. *SEC Comment Letter* is an indicator variable equal to one if the firm received an SEC comment letter in any year in the sample period. *SEC Tax Comment Letter* is an indicator variable equal to one if the firm received a comment letter from the SEC about a tax-related issue in any year in the sample period. *Undisclosed Significant Subsidiary* is an indicator variable equal one if the firm, in any year in the sample period, has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets and the firm fails to disclose a subsidiary in that country in the Exhibit 21. *Undisclosed Significant Tax Haven Subsidiary* is an indicator variable equal to one if the firm, in any year in the sample period, has one (or more) subsidiary(ies) that represent more than 10 percent of the firm's consolidated assets, the firm fails to disclose a subsidiary in that country in the Exhibit 21, and the country is a tax haven. *LN(AT)* is the natural log of assets at the parent company averaged over all observations for the firm. *Big 4 Auditor* is an indicator variable coded to equal one if the firm was ever audited by a Big 4 auditor. *Merger or Acquisition* is an indicator variable equal to one for firms that were engaged in a merger or acquisition in the sample period. *ROA* is the (parent) firm's return on assets (pre-tax income, scaled by lagged total assets), averaged over all observations for the firm. *Leverage* is total long-term debt (dltt) scaled by total assets (at), averaged over all observations for the firm. *Book to Market* is the book-to-market ratio, averaged over all observations for the firm. *Capital Intensity* is net PP&E (ppent in Compustat) scaled by total assets (at in Compustat) averaged over all observations for the firm. *LN(Analyst)* is the natural log of one plus the number of analysts covering the firm averaged over all observations for the firm.

Online Appendix: Using Exhibit 21 Disclosures in Research

As a straightforward way to examine how large a discrepancy there is between Exhibit 21 disclosures and 5471 disclosures, we provide some descriptive comparisons between Exhibit 21 and Form 5471 data. We start by aggregating the firm-country-year information we use in our primary analyses up to the firm-year level, which is the unit of analysis in most studies that use Exhibit 21 disclosure data. A common use of Exhibit 21 data is to calculate a variable which indicates whether the firm has operations in any tax haven country in a given year. As a simple test of this proxy, we examine how many firms are misclassified using Exhibit 21 to measure whether the firm has at least one subsidiary in a tax haven. Table A1, Panel A, reveals that of the 9,622 firm-year observations in our sample that have at least one foreign subsidiary in a tax haven based on Form 5471 disclosures (ignoring significance thresholds), 10.7% do not disclose any tax haven subsidiaries in Exhibit 21. The usefulness of Exhibit 21 as a proxy for a firm's subsidiary locations is likely tied to the specific question of the study. Our evidence suggests that using Exhibit 21 data would fail to identify over 10 percent of firm-years as having a subsidiary in a tax haven location when they actually have one.[36] Importantly, the firms most sensitive to reputational costs are often the firms of interest in many tax studies. That said, we also note that as a proxy, Exhibit 21 appears to correctly identify the incidence of tax haven use almost 90 percent of the time, suggesting that Exhibit 21 likely provides an effective proxy for many settings.

In Figure A1, we examine the 10.7% of firm/year observations that would be misclassified as not having a tax haven subsidiary if one were using Exhibit 21 as a proxy for subsidiary locations. For this figure, we retain firm-country-years of firm-years that report a haven subsidiary per Form 5471 data but do not appear to report a tax haven subsidiary in Exhibit 21. We then graph the ratio of subsidiary assets to parent assets for the largest subsidiary (based on proportionate total assets) in each firm-country-year. We find the vast majority of these unreported subsidiaries are small, with between 0 and 1% of total firm assets. Indeed, 83.4% of observations are below 2% of parent firm assets, and 94.5% of these subsidiaries have assets that are smaller than 10% of the parent firm assets. These results suggest that in the vast majority of cases in which researchers would misclassify a firm-year as not having a tax haven subsidiary when the firm actually does have a tax haven subsidiary, the subsidiaries generally (haven and non-haven) of the firm-year are not significant. While these results do not suggest that these small subsidiaries are not important to the firm, it does suggest that if using Exhibit 21 as a proxy for tax planning, researchers will capture nearly all of firms' tax haven (and non-tax haven) subsidiaries that represent a significant portion of parent assets.

In Panel B of Table A1, we provide further descriptive evidence that enables researchers to compare what is measured with Exhibit 21 to what is reported on Form 5471 (again, not conditional on the SEC definition of significance). We compare the total number of foreign subsidiaries, and total number of all tax haven subsidiaries from Exhibit 21 with the corresponding numbers from Form 5471. Using Exhibit 21, we find that the mean firm-year has 31.9 foreign subsidiaries, and 7.9 of which are in tax havens.[37] Form 5471 reveals that the mean firm-year has

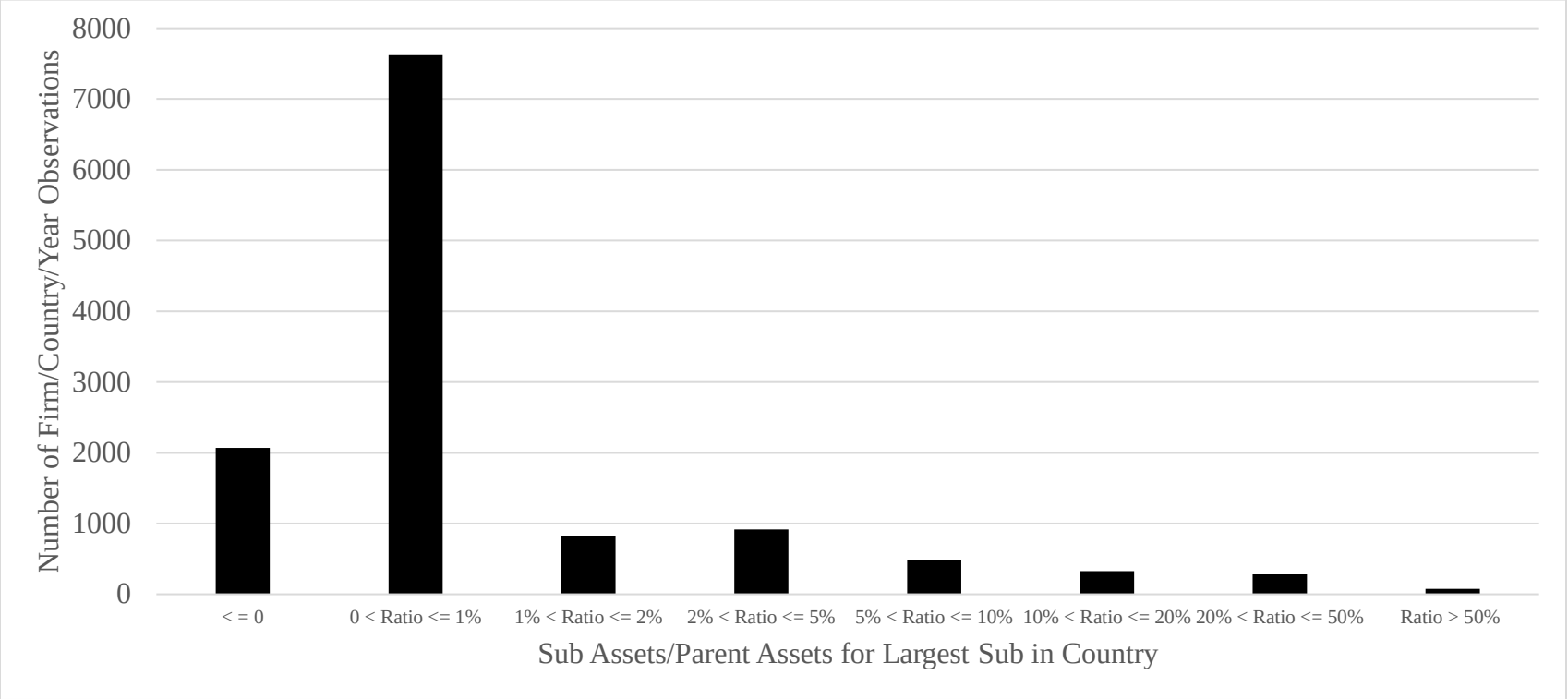
[36] As our focus in this study is the incidence of information not reported in public disclosures (Exhibit 21) that is reported in private disclosures (Form 5471), we begin with data from Form 5471 and merge in Exhibit 21 data such that in no case would we report instances of Exhibit 21 data without corresponding Form 5471 data. Thus, if Form 5471 were not to be filed for a (tax haven) subsidiary, but were filed with Exhibit 21, our firm-year analysis would not reflect that Exhibit 21 subsidiary.

[37] Our text-search program counts the number of subsidiaries in Exhibit 21 with error in some cases because, for example, some subsidiaries have the name of the country as part of the name of the subsidiary.

43.2 subsidiaries in total, and of those, 9.6 are in tax havens. These results suggest that, as can be expected, many firms do not report all their foreign subsidiaries on Exhibit 21, and as a result, if researchers use Exhibit 21 to proxy for the firms real set of subsidiaries, they will undercount the number of true subsidiaries.

Figure A2, Panel A, depicts the distribution of the number of foreign subsidiaries as reported on Exhibit 21 (solid black bar), and Form 5471 (non-solid bar) for firm-years in our sample. More firms report between 1 and 10 subsidiaries on Exhibit 21 than on Form 5471, while in nearly every other category firms report more subsidiaries on Form 5471, consistent with the evidence in Table A1, Panel B, where firms do not report many of their foreign subsidiaries on Exhibit 21. However, in Panel B of Figure A1, when we limit the graph to only disclosed tax haven subsidiaries, in nearly every non-zero category, firms disclose more tax haven subsidiaries on Form 5471 than on Exhibit 21. This figure makes clear that when using Exhibit 21 to depict a firm's true set of subsidiaries, many firms will be classified as having a fewer number of subsidiaries, and that this result is especially true when examining the total number of tax haven subsidiaries.

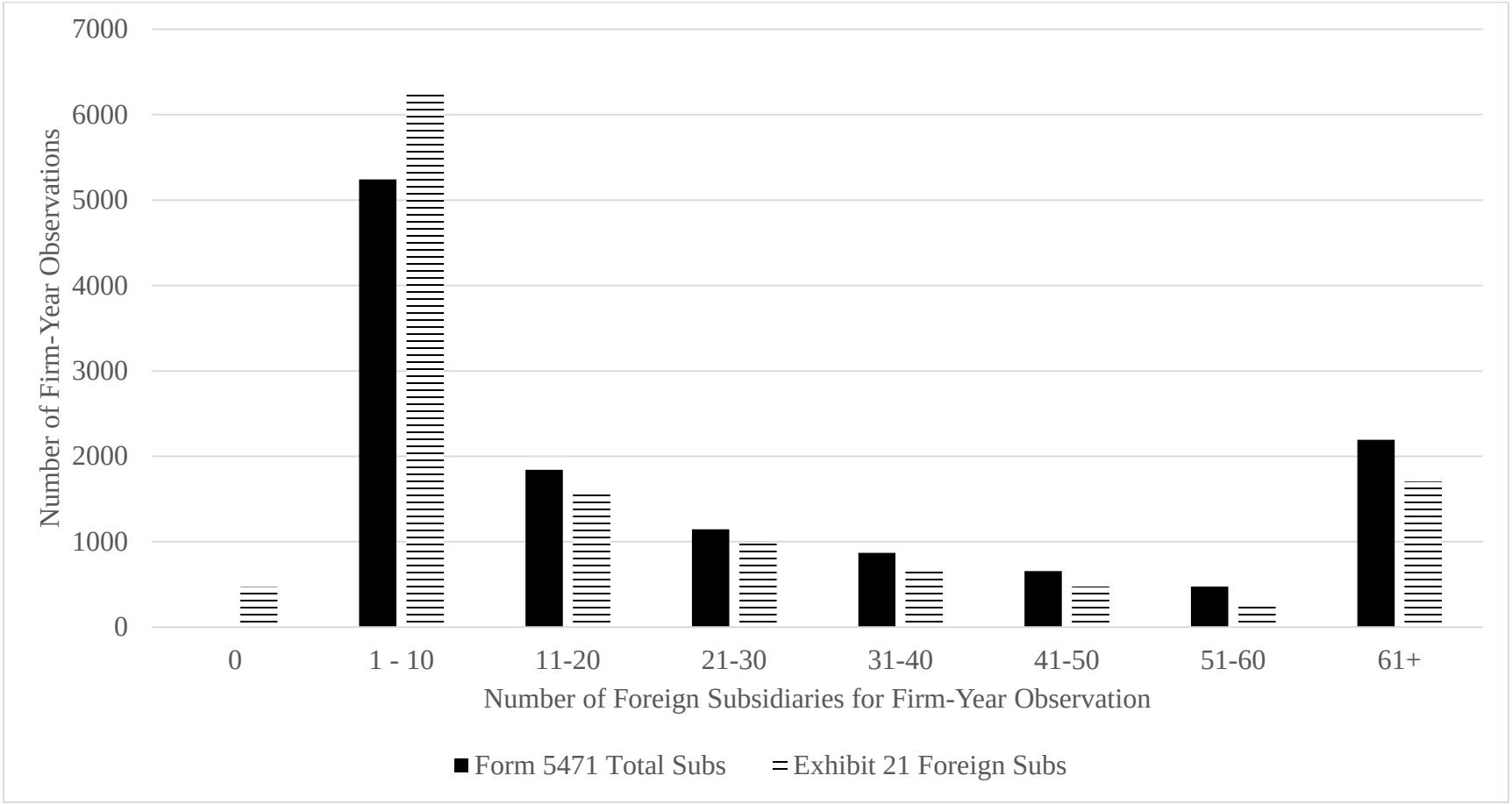
Figure A1. Distribution of Asset Size of Subsidiaries for Firm-years with Undisclosed Tax Haven Subsidiaries



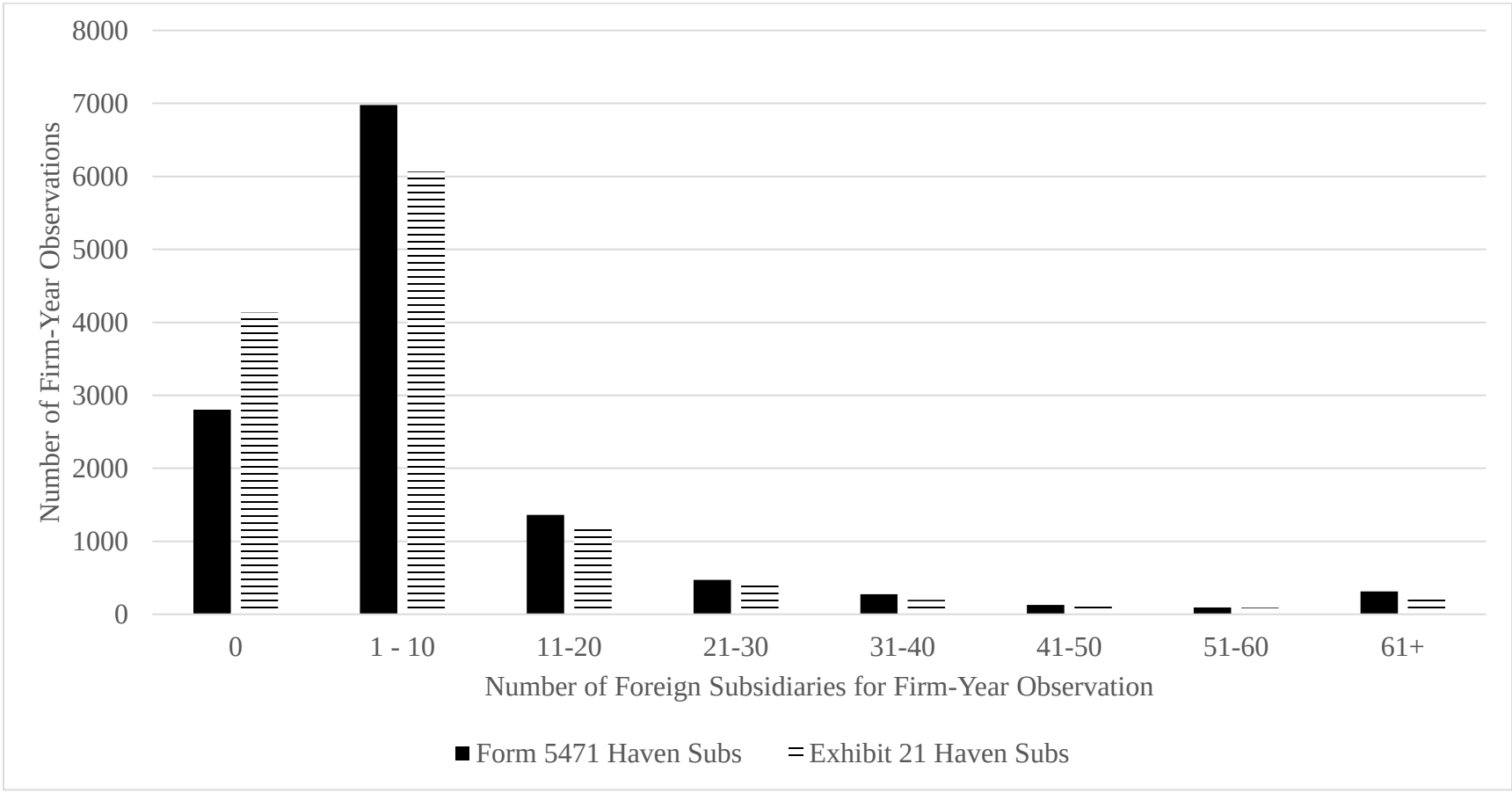
Notes. This figure depicts the size, in terms of percentage of total parent size, for the largest subsidiary in haven and non-haven firm-country-year observations for firm-years that disclose at least one tax haven subsidiary on Form 5471, but none on Exhibit 21.

Figure A2. Distribution of Number of Subsidiaries

Panel A. All Subsidiaries



Panel B. Tax Haven Subsidiaries



Notes. Panel A depicts the distribution of the number of subsidiaries in our sample of firm-year observations, as reported on Form 5471 (solid bar), and Exhibit 21 (non-solid bar). Panel B depicts the distribution of the number of subsidiaries in our sample of firm year observations, as reported on Form 5471 (solid bar), and Exhibit 21 (non-solid bar).

Table A1. Measuring Tax Havens

Panel A. Misclassification of Tax Haven Subsidiary Firm-Years Using Exhibit 21

Has Tax Haven Subsidiary in 5471	Has Tax Haven Subsidiary in Exhibit 21: No	Has Tax Haven Subsidiary in Exhibit 21: Yes
No	22.6%	-
Yes	10.7%	66.7%

Panel B. Descriptive Statistics for Firm-Year Observations

Variable	N	Mean	Std Dev
5471 Subsidiaries	12425	43.2	98.6
Exhibit 21 Subsidiaries	12425	31.9	73.8
5471 Tax Haven Subsidiaries	12425	9.6	25.1
Exhibit 21 Tax Haven Subsidiaries	12425	7.9	23.9

Notes. Panel A contains the percentage of firm-years that do, and do not, have a tax haven subsidiary in Exhibit 21, and the percentage of firm-years that do, and do not, have a tax haven subsidiary on Form 5471. In Panel B, *5471 Subsidiaries* is the number of subsidiaries disclosed on Form 5471 in a firm-year observation. *Exhibit 21 Subsidiaries* is number of subsidiaries disclosed on Exhibit 21 in a firm-year observation. *5471 Tax Haven Subsidiaries* is the number of tax haven subsidiaries disclosed on Form 5471 in a firm-year observation. *Exhibit 21 Tax Haven Subsidiaries* is the number of tax haven subsidiaries disclosed on Exhibit 21 in a firm-year observation.

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