The Effect of U.S. Country-by-Country Reporting on U.S. Multinationals' Tax-Motivated Income Shifting and Real Activities

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March 2022

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ABSTRACT

The Organization for Economic Co-operation and Development introduced country-by-country reporting (CbCR) for multinational enterprises (MNEs) to help tax authorities combat tax-motivated income shifting. This study uses confidential tax administrative data from 2011-2018 to examine the effect of U.S. CbCR adoption on the tax-motivated income shifting and real activities of U.S. MNEs. We first document that U.S. CbCR provides the Internal Revenue Service with incremental information about U.S. MNEs' international operations in both low-tax and non-low-tax countries relative to Form 5471 filings, but we also observe substantial overlap between U.S. CbCR and Form 5471 filings. Next, in contrast with prior CbCR studies in cross-country settings, we find no evidence of a decrease in U.S. MNEs' tax-motivated income shifting or a change in real activities in response to U.S. CbCR using multiple empirical approaches. Our results collectively suggest that U.S. MNEs continue to engage in tax-motivated income shifting after U.S. CbCR adoption, but U.S. CbCR disclosures can potentially inform tax enforcement decisions and future tax legislation.

1. Introduction

Base erosion and profit shifting (BEPS) activities by multinational enterprises (MNEs) pose a substantial threat to the tax bases of countries worldwide. The Organization for Economic Co-operation and Development (OECD) estimates BEPS practices cost countries four to ten percent of global corporate income tax revenue each year, which is equivalent to $100 to $240 billion (OECD [2015b]). In 2013, the OECD outlined a series of recommended actions to combat BEPS activities. Action 13 of the OECD's BEPS initiative established country-by-country reporting (CbCR) guidelines, which aim to assist tax administrations in identifying and curtailing income shifting through enhanced transparency. The U.S. implemented CbCR for tax years beginning on or after June 30, 2016 for U.S. MNEs with prior year consolidated revenues of at least $850 million.[1] This study employs novel U.S. tax administrative data to examine two research questions. First, does U.S. CbCR provide the Internal Revenue Service (IRS) with incremental information about U.S. MNEs' international operations that could be helpful in combatting BEPS activities? Second, do U.S. MNEs reduce their tax-motivated income shifting or change their allocation of real economic activities in response to U.S. CbCR?

Recent research provides insights into the effects of CbCR adoption in cross-country settings using publicly available data. Joshi [2020] finds European Union (E.U.) MNEs report higher GAAP effective tax rates (ETRs) following E.U. CbCR adoption, consistent with a reduction in tax avoidance. De Simone and Olbert [2021] provide evidence that, following E.U.

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[1] U.S. MNEs file Form 8975, *Country-by-Country Report*, and a Schedule A, *Tax Jurisdiction and Constituent Entity Information*, for each jurisdiction in which a constituent entity has tax residence along with their annual U.S. income tax return. For each country in which the MNE group operates, the MNE must disclose total revenues, revenues from unrelated parties, revenues from related parties, pretax profits or losses, income taxes paid, income taxes accrued, stated capital, accumulated earnings, number of employees, and non-cash tangible assets, as well a list of all constituent entities in the jurisdiction. A U.S. MNE's ultimate parent entity files the group's country-by-country report with the U.S. tax authority, who can share the disclosure with tax authorities in other countries where the U.S. MNE operates.

CbCR adoption, MNEs increase real economic activity primarily in European countries with preferential tax regimes. This result suggests MNEs alter their real activities to substantiate their tax avoidance strategies. Using a broader sample of CbCR adopting countries, Hugger [2020] observes a decrease in tax avoidance and tax-motivated income shifting among MNEs. Understanding the extent to which the effects of CbCR in primarily non-U.S. settings generalize to the U.S. is important because U.S. MNEs represent a significant portion of global economic activity and often engage in aggressive tax avoidance and tax-motivated income shifting (e.g., Klassen and Laplante [2012]; Dowd, Landefeld, and Moore [2017]; Clausing [2020a]).[2]

U.S. CbCR could lower the perceived net benefits of tax-motivated income shifting by increasing the risk of tax authorities successfully challenging tax-motivated income shifting strategies. If so, U.S. MNEs could respond to U.S. CbCR by engaging in less tax-motivated income shifting or by reallocating real economic activity to jurisdictions where they have a tax incentive to report income (Hanlon [2018]). This would be similar to the CbCR responses observed in primarily non-U.S. settings (Joshi [2020]; Hugger [2020]; De Simone and Olbert [2021]).

However, U.S. MNEs could respond to CbCR differently from non-U.S. MNEs due to the institutional features of the U.S. tax system and U.S. CbCR adoption. U.S. MNEs were already required to provide extensive disclosures about their non-U.S. operations to the IRS prior to U.S. CbCR adoption.[3] Furthermore, unlike many other countries, the U.S. implemented only certain

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[2] For 2020, U.S. gross domestic product (GDP) of $20.9 trillion represents approximately 25 percent of world GDP (World Bank [2021]).

[3] U.S. taxpayers disclose information about: (1) foreign corporations on Form 5471, *Information Return of U.S. Persons with Respect to Certain Foreign Corporations*, (2) foreign partnerships on Form 8865, *Return of U.S. Persons with Respect to Certain Foreign Partnerships*, and (3) foreign disregarded entities on Form 8858, *Information Return of U.S. Persons with Respect to Foreign Disregarded Entities*. The IRS expanded Form 8858 in 2018 to include reporting for foreign branches.

components of Action 13 and negotiates bilateral agreements with individual countries rather than utilizing the OECD's standardized mechanism that facilitates the automatic exchange of country-by-country reports across jurisdictions. If U.S. MNEs do not perceive that CbCR will decrease the net benefits of their existing tax-motivated income shifting activities, we might not observe changes in their behavior. The effect of U.S. CbCR on U.S. MNEs' tax-motivated income shifting and real economic activities is therefore an empirical question.

Before examining the effect of U.S. CbCR on U.S. MNEs' tax-motivated income shifting and allocation of real activities, we exploit the richness of confidential tax administrative data to investigate whether U.S. CbCR provides incremental information to the IRS about U.S. MNEs' international operations. Specifically, we investigate whether and to what extent U.S. CbCR provides incremental information about the location of U.S. MNEs' profits and real activities relative to Form 5471. We focus on incremental information relative to Form 5471 for these analyses because (i) Form 5471 provides extensive disclosure about non-U.S. activity, and (ii) prior research has used Form 5471 as a source of information about U.S. MNEs' international activity (e.g., Dowd, Landefeld, and Moore [2017]; De Simone, Mills, and Stomberg [2019]; Dyreng et al. [2020]).[4]

We begin by presenting descriptive evidence at the aggregate level on the incremental information provided by U.S. CbCR relative to Form 5471. In U.S. MNEs' 2017 country-by-country reports (for both public and private U.S. MNEs), 68% of the countries disclosed are listed as a principal place of business on the U.S. MNEs' Form 5471 filings (hereafter, "overlapping

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[4] U.S. CbCR could provide incremental information relative to Form 5471 because of differences in reporting requirements and differences in tax and financial accounting consolidation requirements. U.S. taxpayers report information for foreign corporations in which they hold 10 percent or more of the voting power on Form 5471. Under U.S. CbCR, U.S. taxpayers report information for "constituent entities" included in their consolidated financial statements according to tax residence. We discuss these reporting differences, as well as alternate sources of information about international activity included in the U.S. tax return, in greater detail in Sections 2 and 3.

countries") and 32 percent of the countries disclosed are not (hereafter, "non-overlapping countries").[5] We observe that three of the top ten most frequently reported non-overlapping countries are low-tax jurisdictions (Singapore, Hong Kong, and Ireland).[6] Approximately 62 percent (89 percent) of non-overlapping countries' aggregate pretax profits (accumulated earnings) is attributable to low-tax countries, but only 37 percent (12 percent) of non-overlapping countries' aggregate tangible assets (income taxes accrued) is connected to low-tax countries. While these aggregate-level descriptives indicate a high degree of overlap between CbCR and Forms 5471, the presence of non-overlapping low-tax countries and their share of aggregate pretax profits and accumulated earnings relative to their share of aggregate tangible assets and income taxes suggests U.S. CbCR has the potential to provide the IRS with incremental information that is helpful in understanding U.S. MNEs' tax-motivated income shifting.

Next, we explore the incremental information provided by U.S. CbCR at the MNE level. Our analysis suggests that while U.S. CbCR provides incremental information about a relatively modest portion of overall international activities for many U.S. MNEs, the incremental information is substantial for some U.S. MNEs. We also construct MNE-country level indicators of transfer pricing risk (OECD [2017]) and compare them across overlapping and non-overlapping countries to further explore whether U.S. CbCR could be helpful to the IRS in identifying tax-motivated income shifting. These descriptive analyses suggest that U.S. MNEs' activities in non-overlapping countries present relatively less transfer pricing risk than their

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[5] We focus the incremental information analyses on countries included in a U.S. MNE's U.S. CbCR and not in its Forms 5471 (i.e., non-overlapping countries). Some of the quantitative items disclosed in U.S. CbCR have analogs on Form 5471, but we do not attempt to compare amounts across U.S. CbCR and Form 5471 because of differences in the definitions of economic activities. We acknowledge U.S. CbCR may provide incremental information about economic activity even for countries reported on both U.S. CbCR and Form 5471 (i.e., overlapping countries). Thus, our analyses provide a lower bound of incremental information provided by U.S. CbCR relative to Form 5471.
[6] We follow Hines [2010] to classify low-tax jurisdictions. Appendix A provides a list of the low-tax jurisdictions.

activities in overlapping countries. Overall, our descriptive analysis suggests that although U.S. CbCR provides incremental information to the IRS related to low-tax and non-low-tax countries, it is unclear whether the incremental information will help the IRS identify and challenge U.S. MNEs' tax-motivated income shifting.

After providing descriptive evidence regarding the incremental information provided by U.S. CbCR, we examine the effect of U.S. CbCR on U.S. MNEs' tax-motivated income shifting and allocation of real activities by exploiting the U.S. CbCR $850 million prior year revenue reporting threshold to implement both difference-in-differences and regression discontinuity (RD) research designs. In the difference-in-differences tax-motivated income shifting (allocation of real activities) tests, we examine the change in the sensitivity of U.S. MNEs' pretax profits and net intercompany payments (tangible assets and compensation expense) to their tax incentive to report income in a country following U.S. CbCR adoption (e.g., Huizinga and Laeven [2008]; Hines and Rice [1994]). In the RD tax-motivated income shifting (allocation of real activities) analyses, we examine discontinuities in pretax profits and net intercompany payments (tangible assets and compensation expense) for countries partitioned on the strength of the U.S. MNEs' tax incentive to report profits in the country. We obtain the MNE-country-year data necessary to conduct these tests from Forms 5471, *Information Return of U.S. Persons with Respect to Certain Foreign Corporations*, for the years 2011 through 2018.[7]

We do not find evidence of a decrease in tax-motivated income shifting or an increase in the responsiveness of real economic activities to the tax incentive to report profits in a country for U.S. MNEs in response to U.S. CbCR. In additional analyses, we also do not observe changes in U.S. MNEs' overall tax avoidance, which we proxy for using cash ETRs, GAAP ETRs, and

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[7] The Tax Cuts and Jobs Act (TCJA) was signed into law on December 22, 2017. Our results are robust to excluding 2018 to avoid any effects of the TCJA.

U.S. federal ETRs. Overall, our results suggest that U.S. CbCR did not deter U.S. MNEs from continuing to engage in tax-motivated income shifting or incentivize them to reallocate their real economic activities to substantiate their tax avoidance, consistent with U.S. MNEs perceiving limited risk to providing CbCR information to the IRS. These results differ from the effects of CbCR on MNEs documented in prior studies using cross-country settings and underscore the importance of considering the potential for institutional factors to affect firms' responses to disclosure regulation (e.g., Leuz and Wysocki [2016]).

Our study contributes to the literature in multiple ways. First, our findings contribute to the literature that examines the effect of private country-by-country disclosure requirements on firms' tax avoidance and real activities. This research stream is important because CbCR is one of the central components of the OECD's first BEPS initiative. Existing research finds reductions in the tax avoidance of MNEs in the E.U. (Joshi [2020]) and in a broad sample of countries (Hugger [2020]) in response to CbCR and concludes private country-level tax disclosures may be sufficient to deter corporate tax avoidance. However, we do not find evidence of a decrease in tax-motivated income shifting or a decrease in tax avoidance by U.S. MNEs in response to CbCR, which suggests private CbCR alone may not curb the income shifting behavior of U.S. MNEs. Given prior evidence that reputational concerns affect U.S. firms' tax avoidance decisions (e.g., Graham et al. [2014]; Austin and Wilson [2017]), policymakers might consider whether requiring public disclosure of country-by-country information would curtail tax-motivated income shifting by U.S. MNEs. Indeed, environmental, social, and governance (ESG)-oriented investors have begun pushing for greater transparency with respect to companies' tax payments (e.g., O'Neal, Beyoud, and Hood [2021]; Dalby et al. [2021]). In addition, while De Simone and Olbert [2021] find MNEs subject to CbCR allocate real economic activities to European countries with

preferential tax regimes, we do not find evidence U.S. MNEs reallocate their real activities in response to CbCR. Thus, we do not observe that U.S. CbCR creates distortions in U.S. MNEs' real activities.

Second, access to confidential tax administrative data enables us to provide the first insights into the incremental information provided to the IRS by U.S. CbCR. Understanding the potential for U.S. CbCR to provide incremental information to the U.S. tax authority is important because preparing country-by-country reports imposes significant compliance costs on companies. Our evidence indicates U.S. CbCR provides the IRS with incremental information relative to Form 5471 regarding U.S. MNEs' international activities, and the information provided by U.S. CbCR may potentially assist the IRS and U.S. Department of the Treasury (U.S. Treasury) in identifying and potentially curbing tax-motivated income shifting. Finally, our analysis of U.S. MNEs' responses to and the incremental information provided by U.S. CbCR answers calls for policy-relevant academic research (e.g., Mills [2019]; Rajgopal [2020]).

2. *Background and Hypothesis Development*

2.1 INSTITUTIONAL BACKGROUND ON COUNTRY-BY-COUNTRY REPORTING

The OECD's BEPS initiative arose from concerns that governments lose substantial corporate tax revenue when MNEs shift income to locations with the most favorable tax treatment (OECD [2013a]). In 2013, the OECD outlined 15 recommended actions aimed at providing countries with tools to combat BEPS. To enhance transparency for tax administrations, Action 13 called for the development of rules regarding transfer pricing documentation and a requirement for MNEs to report information on their global allocation of income, taxes paid, and economic activity to all relevant governments in a common format (OECD [2013b]).

Under Action 13, the OECD provided countries with a proposed three-tiered approach to transfer pricing documentation. First, the guidance outlined in Action 13 proposes a "master file" that provides high-level information regarding an MNE's global operations and transfer pricing policies. Second, it proposes a "local file" that provides detailed transfer pricing documentation specific to each country. Third, the guidance proposes that large MNEs file a country-by-country report every year that discloses the amount of revenue, pretax profit or loss, income taxes, and economic activity for each tax jurisdiction in which they conduct business activities. The ultimate parent entity of an MNE group files country-by-country reports in its headquarters' tax jurisdiction, and the tax authority then shares the reports with other tax jurisdictions. The OECD developed the Multilateral Competent Authority Agreement on the Exchange of Country-by-Country Reports (MCAA) to facilitate the automatic exchange of country-by-country reports filed by the ultimate parent entity of an MNE group with all jurisdictions in which the MNE group operates.[8]

These three tiers of documentation are intended to help tax administrations assess transfer pricing risks and determine whether companies have shifted income into tax-advantaged jurisdictions (OECD [2015c]). The OECD published its final Action 13 report on October 5, 2015. As of May 2021, 84 countries had implemented the CbCR requirements, and 51 countries had implemented the master file and/or local file requirements (KPMG [2021]). Eighty-nine countries had signed the MCAA (KPMG [2021]).

In line with the OECD's Action 13 initiative, the U.S. adopted CbCR in 2016. The U.S. Treasury published final regulations related to CbCR on June 30, 2016. The U.S. requires CbCR

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[8] The OECD requires that CbCR disclosures are made available only to tax administrations. This contrasts with other regimes, such as the E.U. disclosure requirements for the banking industry (under Capital Requirement Directive IV), that require public disclosure of country-by-country information.

for U.S. MNEs with prior year consolidated revenues of at least $850 million for tax years beginning on or after June 30, 2016. The MNE must disclose the following for each country in which the group operates: total revenues, revenues from unrelated parties, revenues from related parties, pretax profits or losses, income taxes paid, income taxes accrued, stated capital, accumulated earnings, number of employees, non-cash tangible assets, and a list of all constituent entities in the jurisdiction.[9] The MNE's ultimate parent entity files the group's country-by-country report with the U.S. tax authority, who can share the disclosure with tax authorities in other countries where the U.S. MNE operates. Because other countries adopted CbCR requirements beginning January 1, 2016 (e.g., E.U. countries), the U.S. permitted early adoption of U.S. CbCR.

The U.S. did not implement the master file or local file components of the OECD's Action 13. In addition, the U.S. did not sign the MCAA, which provides a standardized mechanism to facilitate the automatic exchange of country-by-country reports between countries. Instead, the U.S. relies on its existing treaty network and negotiates bilateral agreements to exchange country-by-country reports with individual countries. These countries must satisfy the U.S.' bilateral data safeguards and infrastructure review to ensure the confidentiality of taxpayer data. As a result, the U.S. has fewer activated exchange relationships to provide country-by-country reports relative to many other major economies.[10]

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[9] A constituent entity is any separate business entity of a U.S. MNE group, including any entity recognized for U.S. tax purposes (excluding certain trusts), any entity with a single owner that may be disregarded as an entity separate from its owner for U.S. tax purposes, and any permanent establishment that prepares financial statements separate from those of its owner for financial reporting, regulatory, tax reporting, or internal management control purposes.

[10] For example, as of March 2021, the U.S. had activated exchange relationships to provide country-by-country reports to 42 jurisdictions (OECD [2021]), and France, Germany, and the United Kingdom had relationships with 67, 67, and 66 jurisdictions, respectively.

2.2 HYPOTHESIS DEVELOPMENT

U.S. CbCR has the potential to reduce U.S. MNEs' tax-motivated income shifting if intensified tax enforcement decreases the perceived or actual net tax benefits of tax-motivated income shifting. CbCR is intended to provide tax authorities with useful information to assess transfer pricing risks (OECD [2015c]). For example, a high proportion of related party revenues, significant profits but limited real activity, or deviations from comparable taxpayers in a jurisdiction may indicate potential tax risk (OECD [2017]). If U.S. CbCR disclosures are informative to tax authorities, they could use the information to detect and challenge U.S. MNEs' tax-motivated income shifting behavior. Armed with this information, tax authorities could conduct more audits, perform more in-depth audits, and propose higher audit adjustments. Prior research provides evidence U.S. firms decrease tax avoidance when facing stricter tax enforcement (e.g., Hoopes, Mescall, and Pittman [2012]). Potential increased audit-related costs and/or additional tax payments would lower the net tax benefits of U.S. MNEs' tax-motivated income shifting.

Existing research examines MNEs' responses to private CbCR in cross-country settings using publicly available data. Joshi [2020] examines the tax avoidance and tax-motivated income shifting of E.U. MNEs after the implementation of Action 13 in 2016. Using regression discontinuity and difference-in-differences research designs, she documents a significant reduction in E.U. MNEs' tax avoidance (measured by GAAP ETRs), and the reduction in tax avoidance is greater for MNEs facing higher detection risk and stronger enforcement in their home countries. She also finds evidence consistent with a reduction in tax-motivated income shifting in 2018. Hugger [2020] finds an increase in GAAP ETRs and a decrease in tax-motivated

income shifting in a sample that extends beyond E.U. MNEs.[11]

In contrast to the findings of these existing studies, U.S. CbCR may not lead U.S. MNEs to decrease tax-motivated income shifting for several reasons. Existing research provides mixed evidence regarding changes in U.S. firms' tax avoidance following the implementation of other U.S. tax return disclosures (Donohoe and McGill [2011]; Henry, Massel, and Towery [2016]; Towery [2017]). If U.S. MNEs do not expect U.S. CbCR to provide incremental information to tax authorities that helps them identify and successfully challenge income shifting activities, U.S. MNEs will have little incentive to reduce their tax-motivated income shifting.

U.S. MNEs have strong incentives to shift income out of the U.S., especially prior to the Tax Cuts and Jobs Act of 2017 (TCJA) due to the high U.S. statutory corporate tax rate relative to other countries.[12] Because the U.S. tax authority has strong incentives to recover income shifted out of its jurisdiction, the extent to which U.S. CbCR provides incremental information to the U.S. tax authority is of paramount importance. Prior to U.S. CbCR, U.S. MNEs already reported extensive information about foreign corporations in their MNE group on Form 5471, *Information Return of U.S. Persons with Respect to Certain Foreign Corporations*.[13] In addition, U.S. MNEs reported information about foreign partnerships on Form 8865, *Return of U.S. Persons with Respect to Certain Foreign Partnerships*, and foreign disregarded entities on Form 8858, *Information Return of U.S. Persons with Respect to Foreign Disregarded Entities*, although the

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[11] In studies of public CbCR disclosures by E.U. financial firms under Capital Requirements Directive IV, Brown [2020] and Joshi, Outslay, and Persson [2020] do not find evidence of a statistically significant reduction in tax avoidance by E.U. banks after adoption. However, Overesch and Wolff [2021] find an increase in ETRs for multinational banks with activities in low-tax jurisdictions.

[12] Clausing [2020b] concludes U.S. MNEs' tax-motivated income shifting remains an important concern post-TCJA.

[13] U.S. taxpayers report foreign corporations in which they hold 10 percent or more of the voting power on Form 5471. When a U.S. taxpayer controls a foreign corporation, the information required by Form 5471 includes the corporation's country of incorporation, principal place of business, country of foreign address, income statement (Schedule C), taxes paid or accrued (Schedule E), balance sheet (Schedule F), current and accumulated earnings and profits (Schedules H and J), and transactions between the corporation and related parties (Schedule M).

information provided on these forms is less extensive than information provided on Form 5471.[14] Further, as mentioned above, the U.S. did not adopt the master file and local file requirements of Action 13. Therefore, the incremental information provided to the IRS by U.S. CbCR may be considerably less than the incremental information provided to the relevant tax authorities of non-U.S. MNEs. As a result, the responses of U.S. MNEs to CbCR could differ from the responses observed for other MNEs in Joshi [2020] and Hugger [2020].

Even if U.S. CbCR does provide the IRS with incremental information about U.S. MNEs' non-U.S. activities, the information may not be helpful to the IRS in successfully challenging U.S. MNEs' tax-motivated income shifting. The U.S. CbCR proposed regulations stated: "[T]he information in a [country-by-country] report will not be used as a substitute for appropriate transfer pricing determination based on a best methods analysis …, and transfer pricing adjustments will not be based solely on a [country-by-country] report." (80 FR 79795). Hanlon [2018] highlights the disconnect between the current transfer pricing rules based on the arm's length principle and the information provided by CbCR. Unlike some other countries, the U.S. did not change its existing transfer pricing documentation requirements by adopting the local file of Action 13. Thus, if U.S. MNEs do not believe U.S. CbCR will be helpful to the IRS in challenging their transfer pricing arrangements, they will not decrease their tax-motivated income shifting in response to U.S. CbCR.

It is therefore an empirical question whether U.S. CbCR leads U.S. MNEs to reduce their tax-motivated income shifting. We state the following hypothesis:

> *H1*: U.S. MNEs do not decrease their tax-motivated income shifting in response to U.S. CbCR.

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[14] Reporting of foreign branches was added to Form 8858 starting in 2018.

U.S. CbCR could also affect U.S. MNEs' real economic activities. The OECD's BEPS initiative seeks to better align rights to tax profits with economic activity (OECD [2013b]). Thus, Hanlon [2018] posits MNEs could respond to CbCR by reallocating economic activities to jurisdictions where MNEs have a tax incentive to report income. By increasing capital assets and employment in countries in which they have a tax incentive to report profits, MNEs can better substantiate their tax avoidance (e.g., Hines and Rice [1994]; Grubert and Slemrod [1998]). The potential for increased scrutiny of divergence between where profits are reported and where economic activity takes place revealed by CbCR could trigger MNEs to allocate more tangible assets and employees in low-tax countries. De Simone and Olbert [2021] provide evidence subsidiaries of MNEs subject to CbCR invest more in tangible assets and employees in European countries with preferential tax regimes (Switzerland, Cyprus, Ireland, Luxembourg, Malta, and the Netherlands).

Nevertheless, U.S. CbCR may not lead U.S. MNEs to reallocate economic activities to jurisdictions in which they have a tax incentive to report income for multiple reasons. If U.S. MNEs do not expect U.S. CbCR will be helpful to the IRS in challenging their transfer pricing arrangements, they will not have incentive to reallocate economic activities to substantiate their reported profits. Further, it may be more costly for U.S. MNEs relative to other MNEs to reallocate economic activities based on the tax incentive to report profits because of greater coordination and communication difficulties due to the distance between the U.S. headquarters and low-tax jurisdictions (e.g., Shroff, Verdi, and Yu [2013]).

Thus, whether U.S. CbCR leads U.S. MNEs to reallocate their real economic activities to align with their tax incentive to report profits in a country is an empirical question. We state the following hypothesis:

H2: The responsiveness of U.S. MNEs' real economic activity to their tax incentive to report income in a country does not increase in response to U.S. CbCR.

3. Incremental Information Provided by U.S. CbCR

Before testing our hypotheses regarding changes in U.S. MNEs' tax-motivated income shifting or allocation of real economic activities after the implementation of U.S. CbCR, we explore the potential incremental information U.S. CbCR disclosures provide to the IRS.[15] Specifically, we use confidential tax administrative data to present descriptive analyses investigating the incremental information U.S. CbCR provides about U.S. MNEs' geographic footprints and international activity relative to information provided by Form 5471.[16]

Despite the extensive information required by Form 5471 and its accompanying schedules, U.S. CbCR could provide the IRS with incremental information about U.S. MNEs' international operations because U.S. CbCR's reporting by constituent entity is more granular than Form 5471's reporting by corporation. Further, U.S. CbCR reporting is based on the country of tax residence, while Form 5471 does not precisely identify the locations of the profits or economic activity of the foreign corporation (i.e., a foreign corporation could have activity in multiple countries). For instance, profits or economic activity of a constituent entity with tax

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[15] Public MNEs also report some information about international operations in their financial statements. Specifically, U.S. GAAP requires firms to disclose the location of material subsidiaries in Exhibit 21 (although not the magnitude of activity), and some MNEs also disclose sales, assets, and earnings by geographic segment. However, these public disclosures vary in scope and quality and are not necessarily comparable across firms.

[16] We focus on the incremental information provided by U.S. CbCR relative to Form 5471 rather than other existing forms (i.e., Form 8858 and Form 8865) for several reasons. Form 5471 is an important source of information about U.S. MNEs' international operations. We do not focus on incremental information relative to Form 8858, *Information Return of U.S. Persons with Respect to Foreign Disregarded Entities* because U.S. CbCR includes information not included on Form 8858, such as related party revenues, tangible assets, and labor. Thus, even if a U.S. MNE files Form 8858 for an entity organized in a country, U.S. CbCR still provides the IRS with incremental information regarding the U.S. MNE's activity in the country. We do not focus on incremental information relative to Form 8865, *Information Return of U.S. Persons with Respect to Certain Foreign Partnerships* because, to the extent that partnerships do not have a tax jurisdiction, partnerships are included as "stateless" activity on Form 8975 Schedule A. When activity is classified as "stateless", Form 8975 Schedule A does not provide incremental information to the IRS about the location of the activity.

residence in the Netherlands that is owned by a controlled foreign corporation incorporated in the United Kingdom (U.K.) would be included in the U.K. owner's Form 5471 but disclosed on a Netherlands Form 8975, Sch. A under U.S. CbCR. Therefore, even if activity reported in a particular country under U.S. CbCR is reflected in Forms 5471 filed by the U.S. MNE in some other way, U.S. CbCR provides more precise identification of the locations of profits and economic activity because of the granularity of the reporting unit and because the reporting is based on tax residence.

We first present descriptive evidence on the extent to which countries reported under U.S. CbCR are also disclosed as a principal place of business on the U.S. MNEs' Form 5471 filings. In addition, we consider whether information about countries disclosed under U.S. CbCR that are not disclosed as a principal place of business on Forms 5471 could potentially be helpful to the IRS in combatting U.S. MNEs' tax-motivated income shifting activity.

3.1 AGGREGATE-LEVEL DESCRIPTIVE ANALYSES

U.S. CbCR requires U.S. MNEs with consolidated revenues of $850 million or more in the preceding reporting period to file Form 8975 and attach a Schedule A for each jurisdiction in which the MNE group has a constituent entity. We obtain U.S. CbCR filings (Forms 8975 and Schedules A) from the IRS Statistics of Income Division and Form 5471 filings from the IRS Research, Applied Analytics, and Statistics Division. For the descriptive analysis of the incremental information provided by U.S. CbCR, we identify all U.S. MNE filers of Form 1120 that also file U.S. country-by-country reports (Form 8975) in 2017. We focus on 2017 filings because 2017 is the first full tax year of U.S. CbCR filings, and because 2017 filings will not be impacted by changes U.S. MNEs may have made in response to the TCJA. We then compare the tax jurisdiction reported on each Form 8975 Schedule A filed by a U.S. MNE to the principal

places of business reported on the U.S. MNE's Forms 5471. We refer to countries a U.S. MNE reports on both its U.S. CbCR and Forms 5471 as "overlapping" and countries that are only reported on U.S. CbCR (and not on Forms 5471) as "non-overlapping". We view non-overlapping countries as providing incremental information to the IRS about U.S. MNEs' geographic footprints and international activities relative to Form 5471.[17]

Table 1, panel A presents the aggregate number of Schedule A filings and non-U.S. activity reported by U.S. MNEs, which demonstrates the significant international activities of U.S. MNEs.[18,19] We then bifurcate the totals into the aggregate number of filings and activity in overlapping and non-overlapping countries and provide the overlapping countries amounts as a percentage of the U.S. CbCR totals. We observe that 68% of the countries disclosed on U.S. CbCR filings are listed as a principal place of business on the U.S. MNEs' Form 5471 filings. Figure 1 shows the percent of overlapping filings by country. We observe that a substantial percentage of U.S. CbCR filings in each country overlap with Form 5471, particularly in large economies such as Canada, Mexico, the U.K., China, and India. In panel A of table 1, we also see that 85% or more of revenues, pretax profits, income taxes accrued, tangible assets, and

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[17] We acknowledge Form 8975 may provide incremental information about economic activity even for countries reported on both Form 8975 and Form 5471. However, we do not directly compare the activity reported on Forms 8975 and 5471 because the specific definitions of economic activities vary across forms and, therefore, do not permit us to make direct comparisons. Further, due to differing filing requirements, some activity may be reported on Form 5471 and not on Form 8975. Specifically, Form 5471 reports activity for foreign corporations with 10-50 percent U.S. ownership, which is information that would not be reported on Form 8975.

[18] We exclude U.S. and stateless Schedule A filings from the analysis because we are interested in the potential incremental information U.S. CbCR provides about U.S. MNEs' international operations. Many U.S. MNEs report stateless activity on Form 8975, and the magnitude of stateless activity is substantial. While the term "stateless income" is used to describe income that is not taxed anywhere (Kleinbard [2011]), stateless entities also include pass-through entities in CbCR. Form 8975 does not provide sufficient information to disentangle the composition of stateless income (i.e., pass-through activity versus untaxed activity).

[19] A portion of a U.S. MNE group's pretax profits may be double counted in U.S. CbCR amounts due to ownership interests in affiliates characterized as stateless entities and/or due to the treatment of dividends received from corporate subsidiaries (e.g., Horst and Curatolo [2020]; Clausing [2020a]). We follow Clausing [2020a] and exclude stateless income from the analysis because of the double counting. By excluding stateless activity, our analyses provide a lower bound on the incremental information provided by U.S. CbCR.

employees reported on U.S. CbCR are in overlapping countries. Overall, table 1, panel A and figure 1 indicate considerable overlap between the information about the location of U.S. MNEs' global activities provided by U.S. CbCR and Forms 5471, but U.S. CbCR does provide some incremental information about U.S. MNEs' geographic footprints and international activities.

Next, we further explore this incremental information at the aggregate-level. Figure 2 provides the top ten countries reported on U.S. CbCR that were not disclosed as a principal place of business on the U.S. MNEs' Forms 5471. The most frequent non-overlapping countries include the four largest European economies (France, Germany, Italy, and the United Kingdom), and three of the top ten countries are low-tax countries (Singapore, Hong Kong, and Ireland). The presence of non-overlapping low-tax countries suggests U.S. CbCR can potentially provide the IRS with incremental information relevant to understanding U.S. MNEs' BEPS activities.

In panels B and C of table 1, we present the aggregate activity for low-tax and non-low-tax countries, respectively. In panel B, we observe $52.5 billion of aggregate pretax profits, $243.9 billion of aggregate related party revenues, and $576.5 billion of aggregate accumulated earnings in non-overlapping low-tax countries, which represent 81%, 79%, and 74%, respectively, of the low-tax country totals.[20] Figure 3 depicts the proportion of total non-overlapping activity reported in low-tax and non-low-tax countries. We observe a higher proportion of non-overlapping aggregate pretax profits, related party revenues, and accumulated earnings in low-tax countries relative to non-low-tax countries, but a lower proportion of non-overlapping aggregate unrelated revenues, tangible assets, accrued income taxes, and employees.

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[20] Specifically, $52.5 billion ($243.9 billion and $576.5 billion) represents the aggregate pretax profits (related party revenues and accumulated earnings) reported in low-tax countries not listed as the principal place of business on a U.S. MNE's Form 5471. It is possible that the amounts reported for non-5471 countries are included or consolidated in other filings that are part of the tax return (e.g., Form 1120, other Forms 5471, Form 8858, etc.). Even if the amounts reported under U.S. CbCR are reflected in another part of the tax return, U.S. CbCR provides more precise identification of the location of these items.

The disproportionate share of low-tax countries' aggregate non-overlapping pretax profits, related revenues, and accumulated earnings suggests it is possible U.S. CbCR provides the IRS with information that is helpful in understanding U.S. MNEs' tax-motivated income shifting.

Figures 4 and 5 provide detail on non-overlapping aggregate pretax profits and accumulated earnings by country. Figure 4 illustrates the amount of non-overlapping pretax profits for individual countries, and the proportion of non-overlapping pretax profits relative to the total pretax profits reported in the country. Nine of the twenty countries with the highest amounts of non-overlapping pretax profits are low-tax countries. The Cayman Islands alone comprises $39.1 billion of the aggregate non-overlapping pretax profits, and this represents 75% of all of the pretax profits reported in the Cayman Islands under U.S. CbCR. Figure 5 depicts the amount of non-overlapping accumulated earnings for individual countries, and the share of non-overlapping accumulated earnings relative to the total accumulated earnings reported in the country. In figure 5, seven of the top ten countries are low-tax countries. Jersey accounts for $438.0 billion of aggregate non-overlapping accumulated earnings, and this represents 95% of all accumulated earnings reported in Jersey under U.S. CbCR. Collectively, the aggregate-level descriptive evidence indicates U.S. CbCR provides the IRS with some incremental information about U.S. MNEs' activities, including their activities in low-tax countries.

3.2 MNE-LEVEL AND MNE-COUNTRY LEVEL DESCRIPTIVE ANALYSES

Next, we consider the incremental information provided by U.S. CbCR relative to Form 5471 at the MNE-level. To do so, we construct MNE-year measures of the incremental information provided by U.S. CbCR for 2017 filings. Table 2 presents descriptive statistics for the number of country filings, pretax profits, related revenues, tangible assets, and accumulated earnings for non-overlapping countries relative to the total amounts reported by a U.S. MNE *(%*

Non-overlapping), as well as analogous descriptives specific to low-tax countries. All variables are defined in appendix B. We observe considerable heterogeneity in the incremental information provided by U.S. CbCR for individual U.S. MNEs. The interquartile range for the percent of non-overlapping countries is approximately 40% (i.e., 9.14% versus 50.00%). With respect to the activities reported, the interquartile range for the percent of non-overlapping pretax profits (accumulated earnings) is approximately 40% (28%).We observe similar heterogeneity when focusing on incremental information about low-tax countries.[21] Thus, while for many individual U.S. MNEs, U.S. CbCR provides incremental information about a modest portion of their overall international activities (e.g., medians below 3%), the incremental information is substantial for some U.S. MNEs.

In our final descriptive analysis, we compare several MNE-country-level indicators of transfer pricing risk across MNE-country observations with and without overlapping Forms 5471 to explore the possibility the incremental information provided by U.S. CbCR could be helpful to the IRS in identifying individual U.S. MNEs' tax-motivated income shifting.[22] Lower (higher) effective tax rates (return on tangible assets, return on third-party sales, profit per employee, % related party sales, and accumulated earnings to tangible assets) indicate higher transfer pricing risk. All of transfer pricing risk indicators are defined in appendix B. We present the mean and median values for overlapping and non-overlapping observations and test for differences across the groups. We focus the discussion below on the median values because of the potential for extreme observations to influence the mean values.

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[21] For U.S. MNEs that do not report any low-tax countries on U.S. CbCR, the *% Non-overlapping* variables equal 0.00%.

[22] These transfer pricing risk indicators are based on the OECD *Handbook on Effective Tax Risk Assessment* (OECD [2017]).

In table 3, panel A the median effective tax rate is not significantly different across the overlapping and non-overlapping groups, and the other medians are significantly *lower* in the non-overlapping group. In panels B and C, we focus on countries that are most likely to be involved in U.S. MNEs' tax-motivated income shifting. When we focus on low-tax countries in panel B, we observe that median effective tax rates are *higher* and the other medians are *lower* in the non-overlapping group. In panel C, we focus on countries where U.S. MNE groups have strong tax incentives to report profits (i.e., below median C_8975).[23] In panel C, we do observe significantly lower median effective tax rates in non-overlapping countries, but the other medians are also *lower* in the non-overlapping group. Thus, the descriptive evidence in table 3 is generally consistent with U.S. MNEs' activities in non-overlapping countries presenting less transfer pricing risk than their activities in overlapping countries.

3.3 SUMMARY

U.S. MNEs were already required to provide extensive disclosures regarding their international operations to the IRS prior to U.S. CbCR. We observe U.S. CbCR does provide the IRS with incremental information about U.S. MNEs' international activities, although the incremental information is a relatively modest portion of U.S. MNEs' aggregate international activities. We also observe heterogeneity across U.S. MNEs in the extent of incremental information provided, with U.S. CbCR providing considerable incremental information for some U.S. MNEs.

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[23] The tax incentive variable (*C*) equals the revenue-weighted average of the tax rate differences between country *c* and all other countries where the U.S. MNE operates, and it is a key parameter in tax-motivated income shifting models (e.g., Huizinga and Laeven [2008]). *C* is decreasing in the U.S. MNE group's incentive to shift income into the country (i.e., lower values indicate a stronger tax incentive to report income in the country). In this analysis, we use Form 8975 data to construct the tax incentive variable (*C_8975*).

In addition, while we observe disproportionate shares of aggregate incremental pretax profits, related party revenues, and accumulated earnings reported under U.S. CbCR in low-tax jurisdictions, it is not clear how helpful the incremental information provided by U.S. CbCR will be to the IRS in identifying and challenging many U.S. MNEs' tax-motivated income shifting. Based on our observations from this descriptive analysis, some U.S. MNEs may not have strong incentives to decrease their tax-motivated income shifting or reallocate their real activities in response to U.S. CbCR.[24]

4. Research Design and Sample

4.1 RESEARCH DESIGNS FOR TESTING H1

To examine the effect of U.S. CbCR on U.S. MNEs' tax-motivated income shifting (*H1*), we employ (1) a difference-in-differences framework and (2) a regression discontinuity (RD) design. First, we adapt the tax-motivated income shifting model developed by Hines and Rice [1994] and Huizinga and Laeven [2008] in a difference-in-differences research design (e.g., Joshi [2020]). We estimate the following model:

$$
\begin{aligned}
Log(Profit\ 5471_{ict}) \\
&= \beta_0 + \beta_1 CbCR_i * Post_t * C\_5471_{ict} + \beta_2 C\_5471_{ict} + \beta_3 Post_t * C\_5471_{ict} \\
&\quad + \beta_4 CbCR_i * C\_5471_{ict} + \beta_5 CbCR_i * Post_t + \beta_6 Log(Comp\ 5471_{ict}) \\
&\quad + \beta_7 Log(TangAssets\ 5471_{ict}) + \beta_8 Log(GDP_{ct}) + MNE\ FE + Year\ FE \\
&\quad + \varepsilon \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad (1)
\end{aligned}
$$

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[24] As an important caveat to this summary, we acknowledge that what is reported on the 2017 U.S. CbCR filings used in this descriptive analysis will be affected by any changes U.S. MNEs made in their tax-motivated income shifting or allocation of real activities by the end of 2017.

where *i* denotes U.S. MNE group (MNE), *c* denotes country, and *t* denotes year. The dependent variable is the natural logarithm of net income before income tax expense reported by the MNE in country *c* on Form 5471 (*Log(Profit 5471)*) in year *t*. We use Form 5471 data to construct our MNE-country-year variables because Form 5471 enables us to measure profits, the tax incentive variable, compensation expense, and tangible assets before and after the implementation of CbCR. We replace missing Form 5471 line items for these variables with zeroes on otherwise complete Forms 5471. If an MNE files multiple Forms 5471 for a given country during the year, we combine the foreign corporations into a single MNE-country-year observation based on the principal place of business.

CbCR equals one for U.S. MNEs subject to U.S. CbCR requirements (i.e., treatment MNEs), and zero otherwise. A U.S. MNE ultimate parent entity must file Form 8975 if the group reports revenues of $850 million or more in the preceding reporting period. Appendix C provides a detailed discussion of how we identify treatment MNEs. *POST* equals one for years 2016 and forward, and zero otherwise.[25] The tax incentive variable, *C_5471*, equals the revenue-weighted average of the tax rate differences between country *c* and all other countries in which the U.S. MNE operates (Huizinga and Laeven [2008]). We calculate this variable using information reported on Form 5471 and Form 1120. *C_5471* is decreasing in the U.S. MNE group's tax incentive to shift income into country *c*. Thus, a negative coefficient on *C_5471* indicates tax-motivated income shifting. Our variable of interest is the three-way interaction between *CbCR*, *POST*, and *C_5471*. A positive β_1 coefficient indicates a decrease in tax-motivated income shifting by U.S. MNEs subject to CbCR relative to U.S. MNEs not subject to CbCR.

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[25] As explained in Section 2, U.S. CbCR is required for tax years beginning on or after June 30, 2016. Because CbCR was required in other jurisdictions before the U.S. effective date (e.g., January 1, 2016 for EU countries), the U.S. permitted early adoption of U.S. CbCR to allow U.S. MNEs to avoid the need to file in other jurisdictions. Thus, we include 2016 in the post-CbCR period.

Equation (1) includes the natural logarithm of one plus compensation expense (*Log(Comp 5471)*) and the natural logarithm of one plus tangible assets (*Log(TangAssets 5471)*) as controls for the U.S. MNE's economic activity in country c and the natural logarithm of country c's gross domestic product (*Log(GDP)*) as a control for country-level productivity (Huizinga and Laeven [2008]). We also include MNE group and year fixed effects in the model, which subsume the main effects of *CbCR* and *POST*.

Tax-motivated income shifting is accomplished through intercompany transactions within an MNE group. Therefore, we also utilize intercompany payments data from Form 5471, Schedule M to test *H1* (e.g., De Simone, Mills, and Stomberg [2019]). Specifically, we estimate equation (1) with *Net Payments* as the dependent variable. *Net Payments* equals total inbound payments less total outbound payments reported by the U.S. MNE in country c in year t, scaled by total revenue reported by the U.S. MNE on all Forms 5471 for the year. Similar to the previous specification, a positive β_1 coefficient indicates a decrease in tax-motivated income shifting by U.S. MNEs subject to CbCR relative to U.S. MNEs not subject to CbCR.

We restrict the difference-in-differences tests to U.S. MNEs within +/- $500 million of the U.S. CbCR filing threshold to compare similar groups of MNEs. We also perform entropy balancing to further address differences in the treatment and control samples. We cluster the standard errors at the MNE group level following Cameron and Miller [2015] to ensure proper estimation when using fixed effects and clustering standard errors at the same level.

In addition to the difference-in-differences framework, we also utilize the $850 million prior year consolidated revenue filing threshold in a RD design to test *H1*. The RD analyses rely on identification of U.S. MNEs around the filing threshold to provide stronger causal inference.

We estimate a nonparametric local linear regression using a triangle kernel and use the optimal bandwidth based on the Calonico, Cattaneo, and Farrell [2020] algorithm.

We perform RD tests with profits (*Log(Profits 5471)*) and net intercompany payments (*Net Payments*) as outcome variables and partition the sample on the tax incentive to shift income (*C_5471*). Specifically, we partition the sample into low *C_5471* (i.e., high tax incentive) and high *C_5471* (i.e., low tax incentive) groups to identify *tax-motivated* differences in profits or intercompany payments around the $850 million consolidated revenue filing threshold. We consider specifications without controls or year fixed effects as well as with the control variables from equation (1) and year fixed effects. Observing a more negative RD estimate for the low *C_5471* group relative to the high *C_5471* group is consistent with U.S. MNEs decreasing tax-motivated income shifting in response to U.S. CbCR.

4.2. RESEARCH DESIGNS FOR TESTING H2

To examine the effect of U.S. CbCR on the allocation of U.S. MNEs' real economic activities (*H2*), we first test whether U.S. CbCR increases the sensitivity of U.S. MNEs' economic activity in country *c* to its tax incentive to report profits in country *c* by adapting the Hines and Rice [1994] model in a difference-in-differences framework. We adapt the Hines and Rice [1994] model because our hypothesis relates to the responsiveness of U.S. MNEs' real economic activities to their tax incentive to report income in a country; we do not make a prediction regarding the effect of U.S. CbCR on the level of real economic activities. We estimate the following model to test *H2*:

$Economic\ Activity_{ict}$

$$= \beta_0 + \beta_1 CbCR_i * Post_t * C\_5471_{ict} + \beta_2 C\_5471_{ict} + \beta_3 Post_t * C\_5471_{ict}$$

$$+ \beta_4 CbCR_i * C\_5471_{ict} + \beta_5 CbCR_i * Post_t + \beta_6 Log(GDP_{ct}) + MNE\ FE$$

$$+ YearFE + \varepsilon \qquad\qquad (2)$$

The proxies for real economic activity include the natural logarithm of one plus total tangible assets *(Log(TangAssets 5471))* and the natural logarithm of one plus total compensation expense *(Log(Comp 5471))*, which we construct using Form 5471 data.[26] We include *Log(GDP)* to control for overall economic activity in the country. In additional specifications, we also include MNE-level controls for profitability (*ROA*), leverage (*Leverage*), and cash holdings (*Cash*).[27] We include MNE-group and year fixed effects to control for time-invariant heterogeneity among the MNE groups and aggregate trends over time. As explained above, lower values of *C_5471* indicate that the U.S. MNE faces a lower tax rate in country *c* relative to the rest of the MNE group. Thus, a negative coefficient on *C_5471* is consistent with U.S. MNEs locating more economic activity in countries where they face relatively lower tax rates. A negative β_1 coefficient indicates an increase in the responsiveness of real economic activity to the tax incentive to report profits in a country for U.S. MNEs subject to CbCR relative to U.S. MNEs not subject to CbCR.

Like our tests of *H1*, we utilize the $850 million consolidated revenue filing threshold to test *H2* in an RD design. We perform RD tests with tangible assets (*Log(TangAssets 5471)*) and compensation expense (*Log(Comp 5471)*) as outcome variables and with the sample partitioned on the tax incentive to report profits in a country (*C_5471*). Partitioning the sample into low

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[26] We add one to the raw values before performing the log transformation to retain observations with either zero tangible assets or zero compensation expense.

[27] Because CbCR adoption could also impact time-varying MNE and subsidiary characteristics, we consider specifications without and with these characteristics as controls in the main tests to avoid introducing bias to the results (Angrist and Pischke [2009]; De Simone and Olbert [2021]).

C_5471 (i.e., high tax incentive) and high *C_5471* (i.e., low tax incentive) groups allows us to identify *tax-motivated* differences in real economic activities around the $850 million consolidated revenue filing threshold (e.g., De Simone and Olbert [2021]). We consider specifications without controls or year fixed effects and with controls and year fixed effects. Observing a more positive (or less negative) RD estimate for the low *C_5471* group relative to the high *C_5471* group is consistent with the responsiveness of U.S. MNEs' real economic activities to the tax incentive to report profits in a country increasing in response to U.S. CbCR.

Appendix B provides complete variable definitions. We winsorize continuous variables at the 1st and 99th percentiles and cluster standard errors by MNE group.

4.3 DATA AND SAMPLE CONSTRUCTION

We utilize data from multiple sources to test our hypotheses. We obtain public financial statement data from Compustat, confidential Form 1120 and Form 5471 data from the IRS Research, Applied Analytics, and Statistics Division, and confidential U.S. CbCR (i.e., Form 8975/Schedule A) data from the IRS Statistics of Income Division. Country-level corporate statutory tax rates and gross domestic product are obtained from the Tax Foundation and the World Bank, respectively.[28]

Table 4 presents the sample derivation process. The initial sample includes U.S. public MNEs with available Form 1120 data, and at least one Form 5471 during the years 2011 through 2018.[29] In panel A, the initial sample includes 175,018 MNE-country-year observations for 2,533

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[28] We obtain statutory corporate tax rate data from the Tax Foundation: https://taxfoundation.org/publications/corporate-tax-rates-around-the-world/. We obtain GDP data from the World Bank database: https://data.worldbank.org/indicator/.

[29] We focus on publicly listed U.S. MNEs that file Form 1120. As explained in appendix C, we use revenue from U.S. GAAP consolidated financial statements to identify U.S. MNEs subject to U.S. CbCR. Thus, we limit our sample in these tests to public U.S. MNEs in order to accurately determine whether the U.S. MNEs meet the $850 million prior year revenue U.S. CbCR reporting threshold. In addition, we limit our analyses specifically to Form 1120 filers and exclude Form 1120-REIT/L/PC filers (REITs and insurance companies) and non-C corporation filers (e.g., flow-through entities) because the income shifting incentives and opportunities likely differ for these entities.

unique publicly listed U.S. MNEs. We remove MNE-country-years with pretax losses because the dependent variable in equation (1), *Log(Profit 5471))*, is undefined for loss observations (Huizinga and Laeven [2008]).[30] Next, we remove observations for which data are not available to compute the tax incentive variable (*C_5471*). We then remove MNE-country-years with insufficient data to construct the control variables in equation (1). These criteria yield 90,768 MNE-country-year observations for 1,933 unique public U.S. MNEs for the years 2011-2018.

[Insert Table 4 here]

Panel B (panel C) of table 4 provides the number of observations included in the difference-in-differences (RD) analyses. For the difference-in-differences tests, we focus on MNEs whose prior-year revenues are within $500 million of the filing threshold to reduce concerns about size-based differences between treatment and control MNEs. This yields a sample of 14,478 MNE-country-year observations for 620 unique public U.S. MNEs over the 2011-2018 period. The treatment (control) sample includes 9,835 (4,643) MNE-country-year observations. In the RD analyses, we include all available post-CbCR observations in the determination of the optimal bandwidth. Thus, the RD tests sample includes 37,492 MNE-country-year observations for 1,799 unique public U.S. MNEs over the years 2016 to 2018, with 31,582 (5,910) available treatment (control) MNE-country-years.

5. Results for Tests of H1 and H2

5.1 DESCRIPTIVE STATISTICS

Table 5 presents descriptive statistics for the variables (prior to log transformation) used in our hypothesis tests. Panel A presents descriptive statistics for the full sample used in the

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[30] Results are robust to the income shifting model originally implemented in De Simone, Klassen, and Seidman [2017] and a modified version of equation (1) that incorporates loss observations.

difference-in-differences tests. In panel A, the negative mean value of *C_5471* indicates U.S. MNEs on average have a tax incentive to shift income into the countries included in the sample. The negative 25th percentile and positive 75th percentile of *Net Payments* indicates the sample includes MNE-country-years that have both net outbound and net inbound intercompany payments. Panel B reports the descriptive statistics separately for the control group and the treatment group in the pre-period (2011-2015) and the post-period (2016-2018). In panel B, we observe negative mean values of *C_5471* for both control and treatment observations. This incentive reflects the inclusion of the U.S. in the calculation of *C_5471*. We also observe that U.S. MNE country-level observations subject to CbCR are on average more profitable, have higher compensation expense, and have more tangible assets than U.S. MNE country-level observations not subject to CbCR during the pre-period and the post-period. These differences are expected, and in line with prior studies (e.g., Joshi [2020]), because only large MNEs with prior-year consolidated revenues above the reporting threshold are subject to CbCR. In light of these differences, we also entropy balance the difference-in-differences sample based on *Log(Comp 5471)*, *Log(TangAssets 5471)*, and *Log(GDP)* on the first and second moments by year to reduce covariate imbalance, while allowing for sample attrition and time variation in covariates across years.

[Insert Table 5 here]

Panel C of table 5 presents descriptive statistics for the full sample entering the RD tests, and panel D reports them separately for the control and treatment observations. These descriptive statistics provide similar observations as panels A and B.

5.2 RESULTS OF TESTING H1

Table 6 presents the results of testing whether U.S. MNEs decrease their tax-motivated income shifting in response to U.S. CbCR (*H1*). Panel A (panel B) reports the results of the difference-in-differences (RD) tests. In panel A, a significant positive coefficient on the three-way interaction term *CbCR*Post*C_5471* would be consistent with U.S. MNEs subject to CbCR decreasing their tax-motivated income shifting after adoption relative to control U.S. MNEs. Column 1 provides the results of estimating equation (1) with *Log(Profit 5471)* as the dependent variable. The coefficient on the tax incentive variable (*C_5471*) is negative and statistically significant, consistent with tax-motivated income shifting among control MNEs during the pre-period. With respect to the test of *H1*, we do not observe a positive and statistically significant coefficient on our variable of interest (*CbCR*Post*C_5471*). An untabulated F-test indicates the change in tax-motivated income shifting for the treatment MNEs from the pre-period to the post-period is not significantly different from zero, suggesting that the difference-in-differences estimate reflects a change in tax-motivated income shifting for control MNEs. We observe similar results in column 3 when we employ entropy balancing to further address covariate differences between treatment and control observations. Thus, the results are not consistent with U.S. CbCR decreasing U.S. MNEs' tax-motivated income shifting.

[Insert Table 6 here]

As an additional test of tax-motivated income shifting, we present results with *Net Payments* as the dependent variable in column 2 of table 6, panel A. The coefficient on the variable of interest (*CbCR*Post*C_5471*) is statistically insignificant and is also insignificant in column 4 when using entropy balancing. Thus, our difference-in-differences tests fail to provide evidence U.S. MNEs decrease their tax-motivated income shifting in response to U.S. CbCR.

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Panel B of table 6 presents the results of the RD tests of H1.[31] A more negative RD estimate for the strong tax incentive (*Low C_5471*) than the weak tax incentive (*High C_5471*) group would be consistent with U.S. MNEs decreasing tax-motivated income shifting after U.S. CbCR adoption relative to control U.S. MNEs. Columns 1 and 2 report the results for *Log(Profit 5471)* without controls or fixed effects, and the RD estimates are not statistically significant. Inferences are unchanged when including control variables and year fixed effects in columns 3 and 4. When we examine *Net Payments* as the outcome variable in columns 5 and 6, the RD estimate is statistically insignificant in the strong tax incentive and negative and significant in the weak tax incentive group. The results are similar when control variables and year fixed effects are included in columns 7 and 8. These results indicate a decrease in net intercompany payments by treated U.S. MNE groups in countries where they have a weak tax incentive to report profits, which is not consistent with a decrease in tax-motivated income shifting in response to U.S. CbCR. Therefore, in both our difference-in-differences and regression discontinuity tests, we fail to find evidence U.S. MNEs decrease their tax-motivated income shifting in response to U.S. CbCR.

These results for U.S. MNEs contrast with the decrease in tax-motivated income shifting by MNEs from a broad sample of countries observed in Hugger [2020] and in Joshi [2020]. One possible reason that we observe a different pattern of results for U.S. MNEs relative to non-U.S. MNEs is that U.S. MNEs do not expect U.S. CbCR to lead to intensified tax enforcement because of the extensive U.S. reporting requirements already in place prior to CbCR or because of the differences in the U.S. implementation of CbCR (e.g., the U.S. did not implement the master or local file requirements).

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[31] In untabulated tests, we do not observe statistically significant pre-period discontinuities.

5.3 RESULTS OF TESTING H2

Table 7 presents the results of testing whether U.S. MNEs reallocate their real economic activity to more closely align with their incentive to report profits in a country in response to U.S. CbCR (*H2*). Panel A (panel B) presents the results of the difference-in-differences (RD) tests. In panel A, a significant negative coefficient on the three-way interaction term *CbCR*Post*C_5471* would be consistent with the real economic activities of U.S. MNEs subject to CbCR becoming more responsive to the tax incentive to report profits in a country after CbCR adoption relative to control U.S. MNEs. Columns 1 and 2 report the results of estimating equation (2) with tangible assets and compensation expense as measures of real economic activity before including MNE-level controls or performing entropy balancing. In both columns, the coefficient on the tax incentive variable (*C_5471*) is negative and statistically significant, consistent with Hines and Rice [1994]. This indicates the level of tangible assets and compensation expense is sensitive to control MNEs' tax incentive to report profits in the country during the pre-period. Regarding the test of *H2*, we do not observe a negative and statistically significant coefficient on the variable of interest (*CbCR*Post*C_5471*). Inferences are unchanged in columns 3 and 4 when we include MNE-level controls (*ROA*, *Leverage*, and *Cash*) and in columns 5 through 8 when we use an entropy balanced sample. Thus, in the difference-in-differences tests, we fail to find evidence that the sensitivities of U.S. MNEs' tangible assets and compensation expense to an MNE's tax incentive to report profits in a country increased after the adoption of U.S. CbCR.

[Insert Table 7 here]

Panel B of table 7 presents the results of the RD tests of *H2*.[32] A more positive (or less negative) RD estimate for the strong tax incentive (*Low C_5471*) than the weak tax incentive

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[32] In untabulated tests, we do not observe statistically significant pre-period discontinuities.

(*High C_5471*) group would be consistent with U.S. MNEs reallocating real economic activities to countries where they have a stronger tax incentive to report profits after U.S. CbCR adoption relative to control U.S. MNEs. Columns 1 and 2 report the results for tangible assets without controls or fixed effects, and the RD estimates are not statistically significant. Inferences are unchanged when including control variables and year fixed effects in columns 3 and 4. Columns 5 and 6 report the results for compensation expense, and again the RD estimates are not statistically significant and remain so in columns 7 and 8 when controls variables and year fixed effects are included.

Therefore, in both our difference-in-differences and regression discontinuity tests, we fail to find evidence U.S. MNEs reallocate their real economic activities to more closely align with the tax incentive to report profits in a country in response to U.S. CbCR. These results differ from the findings in De Simone and Olbert [2021] regarding European MNEs' real activity responses to CbCR. Potential reasons for the different pattern of results for U.S. MNEs include U.S. MNEs not expecting CbCR to be helpful to the IRS in challenging the location of their reported profits or higher costs faced by U.S. MNEs to alter the location of their real activities.

5.4 POSSIBLE ANTICIPATORY EFFECTS

We acknowledge the possibility that a decrease in tax-motivated income shifting or an increase in the responsiveness of real economic activity to tax incentives in response to U.S. CbCR could have occurred prior to the first year of CbCR filings (i.e., 2016). U.S. MNEs were aware of the development and finalization of BEPS Action 13 by the OECD and may have responded in advance of the actual U.S. implementation. Therefore, in the next set of tests, we examine the possibility of an anticipatory effect. In the difference-in-differences tests, we incorporate interactions between a year 2015 indicator variable (*Y2015*), the tax incentive variable

(*C_5471*), and the indicator variable for the treatment firms (*CbCR*) in equations (1) and (2). In the regression discontinuity tests, we conduct the tests using year 2015 observations. We focus on 2015 because the tests rely on the revenue-based filing threshold to identify treatment and control MNEs, and the OECD did not provide the specific reporting threshold (€750 million in total consolidated revenue) until February 2015 (OECD [2015a]).

Table 8 presents the results of the anticipatory effects tests. Panel A (panels B and C) present the results of the difference-in-differences (RD) tests. In panel A, if U.S. MNEs decrease their tax-motivated income shifting prior to the actual U.S. CbCR adoption, we expect to observe a significant positive coefficient on the three-way interaction term, *CbCR*Y2015*C_5471,* in columns 1 and 2. Similarly, if U.S. MNEs reallocate their real economic activity in anticipation of U.S. CbCR, we expect a significant negative coefficient on the three-way interaction term, *CbCR*Y2015*C_5471,* in columns 3 and 4. Across all four columns, the coefficient of interest (*CbCR*Y2015*C_5471*) is statistically insignificant.[33] In panel B (panel C), a smaller (larger) RD estimate for the strong tax incentive (*Low C_5471*) than the weak tax incentive (*High C_5471*) group would be consistent with U.S MNEs' decreasing their tax-motivated income shifting (reallocating their real activities in better align with their tax incentives) in anticipation of U.S. CbCR. The RD estimates in panels B and C are statistically insignificant. We thus fail to find evidence in both the difference-in-differences and RD tests that U.S. MNEs decreased their tax-motivated income shifting or reallocated their real activities in anticipation of U.S. CbCR adoption.

[Insert Table 8 here]

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[33] Inferences are unchanged in columns 3 and 4 when MNE-level controls (*ROA*, *Leverage*, and *Cash*) are included.

Because our main tests do not provide evidence U.S. MNEs decrease their tax-motivated income shifting or reallocate their real activities following the adoption of U.S. CbCR, we conduct additional tests to further investigate U.S. MNEs' responses. In untabulated tests, we re-estimate the difference-in-differences tests on a subsample limited to U.S. MNEs within a narrower $250 million bandwidth around the $850 million consolidated revenue reporting threshold to increase the comparability of the treatment and control groups. Consistent with the main results, we fail to find evidence of a decline in tax-motivated income shifting or an increase in the sensitivity of real economic activities to the tax incentive to report profits in a country by U.S. MNEs in response to U.S. CbCR. Thus, estimating the tests on a more homogeneous sample of U.S. MNEs does not change our inferences.

We also examine the effect of U.S. CbCR adoption on U.S. MNEs' overall tax avoidance using both difference-in-differences and RD research designs. We examine three tax avoidance proxies: GAAP ETRs (*GAAP ETR*), cash ETRs (*Cash ETR*), and U.S. federal ETRs (*Federal ETR*).[34] Panel A of table 9 presents the results of the tax avoidance difference-in-differences tests. We include control variables based on prior literature, MNE fixed effects, and year fixed effects in these tests. Across all three tax avoidance measures, the coefficient of interest (*CBCR*Post*) is statistically insignificant. Panel B of table 9 reports the results of the regression discontinuity tests, and the RD estimates are also statistically insignificant. Thus, we fail to find evidence of a

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[34] We exclude observations with fiscal years after November 30, 2017 and before December 1, 2018 from the GAAP ETR tests because the financial accounting income tax adjustments U.S. corporations recorded in 2017 with the enactment of the TCJA introduce substantial noise into this measure. These adjustments do not impact the cash or federal ETR tests. We remove loss observations from tests using ETR measures. We also exclude MNE-years with ETRs less (greater) than or equal to zero (one) to mitigate the influence of outliers. Prior research concludes factors largely unrelated to tax avoidance, such as operating performance, explain a large portion of the deviation from the statutory tax rate for corporations at the extremes of ETR distributions (Schwab, Stomberg, and Xia [2022]).

significant decrease in overall tax avoidance among U.S. MNEs in response to U.S. CbCR, which complements the previous results regarding U.S. MNEs' tax-motivated income shifting.[35]

[Insert Table 9 here]

5.6 SUMMARY

In conclusion, our difference-in-differences and RD tests fail to find evidence of U.S. MNEs decreasing their tax-motivated income shifting or reallocating their real economic activities in response to U.S. CbCR. We also fail to find evidence of a decrease in overall tax avoidance. The contrast between the responses to CbCR observed in Joshi [2020], De Simone and Olbert [2021], and Hugger [2020], and our results for U.S. MNEs illustrate the importance of considering institutional factors when examining corporations' responses to disclosure regulation (e.g., Leuz and Wysocki [2016]).

6. Conclusion

This study examines the effect of U.S. CbCR on U.S. MNEs' tax-motivated income shifting and allocation of real activities using novel tax administrative data. Whereas extant literature focuses on CbCR adoption in broad samples of countries (e.g., Joshi [2020]; De Simone and Olbert [2021]; Hugger [2020]), little is known about the impact of CbCR specifically on U.S. MNEs. Examining U.S. MNEs' responses to CbCR is important given the significance of U.S. MNEs in the global economy and the different institutional features of U.S. tax reporting and U.S. CbCR implementation relative to other countries.

We begin by employing confidential tax data to examine the potential incremental information provided to the IRS by U.S. CbCR relative to existing U.S. tax return disclosures.

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[35] These results are consistent with the cross-sectional finding in Hugger [2020] that U.S. MNEs' GAAP ETRs do not change, on average, in response to CbCR.

We document that although there is substantial overlap between countries reported on U.S. CbCR and Form 5471, U.S. MNEs' country-by-country reports do include countries (including low-tax countries) not listed as a principal place of business on the U.S. MNEs' Forms 5471. It is possible the incremental information provided by U.S. CbCR could potentially helpful to the IRS in understanding U.S. MNEs' BEPS activities.

When we examine U.S. MNEs' responses to U.S. CbCR, we do not find evidence of a decrease in U.S. MNEs' tax-motivated income shifting or a reallocation of real economic activities. These results contrast with existing empirical evidence on the consequences of CbCR adoption outside of the U.S. (e.g., Joshi [2020]; De Simone and Olbert [2021]; Hugger [2020]). The findings suggest private CbCR disclosures have not been sufficient to change U.S. MNEs' tax-motivated income shifting behavior.

Our study makes multiple contributions to the literature. First, we contribute to research on the economic consequences of private CbCR by providing empirical evidence on the effects of this transparency initiative on U.S. MNEs. The differences between the findings in our study and findings of studies focused on countries outside of the U.S. highlight the importance of a country's institutional features on the effectiveness of tax transparency requirements. Second, we offer the first insights into the incremental information provided by CbCR to the IRS. Our analyses of U.S. MNEs' responses to and the incremental information provided by U.S. CbCR should be of interest to academics, tax administrations, and policy makers.

Our study is subject to limitations. First, when examining the incremental information provided by U.S. CbCR, we compare to Form 5471, an important source of information about U.S. MNEs' international operations. While we acknowledge there are other tax forms that provide information about U.S. MNEs' international operations, these forms provide less detailed

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information than Form 5471. Second, we exclude "stateless" activity from our analyses as this classification does not provide incremental information to the IRS about U.S. MNEs' global footprints. To the extent that foreign partnerships as reported on Form 8865 do not have a tax jurisdiction ("stateless"), these partnerships are not included in our analyses. Finally, given the recent implementation of U.S. CbCR, we acknowledge that we have a limited post-U.S. CbCR period. We encourage future research to examine the potential long-run effects of U.S. CbCR.

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APPENDIX A: LIST OF LOW-TAX COUNTRIES

This appendix lists the 52 countries classified as "low-tax" based on Hines [2010]. Hines [2010] defines low-tax jurisdictions as those that "offer low tax rates and favorable regulatory policies to foreign investors" (p. 103). Hines [2010] provides a list of low-tax jurisdictions identified in prior academic literature (e.g., Hines and Rice [1994]) and other authoritative sources (e.g., OECD and U.S. GAO publications).

Andorra	Liechtenstein
Anguilla	Luxembourg
Antigua & Barbuda	Macau
Aruba	Maldives
Bahamas	Malta
Bahrain	Marshall Islands
Barbados	Mauritius
Belize	Micronesia
Bermuda	Monaco
British Virgin Islands	Montserrat
Cayman Islands	Nauru
Cook Islands	Netherlands Antilles
Costa Rica	Niue
Cyprus	Panama
Djibouti	Samoa
Dominica	San Marino
Gibraltar	Seychelles
Grenada	Singapore
Guernsey	St. Kitts & Nevis
Hong Kong	St. Lucia
Ireland	St. Martin
Isle of Man	St. Vincent & the Grenadines
Jersey	Switzerland
Jordan	Tonga
Lebanon	Turks & Caicos
Liberia	Vanuatu

APPENDIX B: DEFINITIONS OF VARIABLES

VARIABLE	DESCRIPTION	SOURCE
Accumulated earnings to tangible assets	Accumulated earnings divided by tangible assets (excluded if non-positive tangible assets).	Form 8975
C_8975 (C_5471)	Tax incentive variable, defined as the revenue-weighted average tax differential between each affiliate, computed per Huizinga and Laeven [2008]: $$C_{i,t} = \frac{1}{(1-\tau_{i,t})} \frac{\sum_{k\neq i}^{n} \frac{B_{k,t}(\tau_{i,t}-\tau_{k,t})}{1-\tau_{k,t}}}{\sum_{k=1}^{n} \frac{B_{k,t}}{1-\tau_{k,t}}}$$ Where τ is the average statutory corporate tax rate of country i out of n total countries, and B is the total revenue of affiliate k. This variable is defined using the total revenues amount from Form 8975 (*C_8975*) or Form 5471 (*C_5471*). The calculation includes U.S. revenues in the revenue-weighted average tax rate differential, based on total revenues reported on Form 1120, to reflect the MNE's U.S. operations in its worldwide tax incentive. However, the U.S.-related variable is not included in the analysis. *Low(High) C_5471* is below(above) median *C_5471* value calculated by year. *Low C_8975* is below median *C_8975* value for each MNE for the year.	Form 8975 or Form 5471
Capital Intensity	Capital expenditures (CAPX), scaled by lagged assets.	Compustat
Cash	Cash and short-term investments (CHE), scaled by lagged total assets.	Compustat
Cash ETR	Cash effective tax rate, measured as cash taxes paid (TXPD) divided by book pretax income (PI) (excludes PI<0 and is bounded by (0,1) exclusive).	Compustat
CbCR	Indicator equal to one for MNEs (thus corresponding MNE-year or MNE-country-year observations) subject to a Form 8975 filing requirement; zero otherwise. See appendix B for detailed information about how treatment observations are determined.	Form 8975, Compustat
Effective tax rate	Effective tax rate in a country, measured as income taxes accrued divided by pretax profits from Form 8975 Schedule A (excludes pretax profits<0 and is bounded by (0,1) exclusive).	Form 8975
GAAP ETR		Compustat

	GAAP effective tax rate, measured as book tax expense (TXT) divided by book pretax income (PI) (excludes PI<0 and is bounded by (0,1) exclusive). MNE-years ending after 11/30/2017 are excluded to avoid the financial reporting implications of the Tax Cuts and Jobs Act.	
Federal ETR	Federal effective tax rate, measured as total tax due per Form 1120, line 31, divided by book pretax income (PI) (excludes PI<0 bounded by (0,1) exclusive).	Form 1120 & Compustat
Intangible Intensity	Intangible assets (INTAN), scaled by lagged assets.	Compustat
Leverage	Long-term debt (DLC + DLTT), scaled by lagged total assets.	Compustat
Log(Comp 5471)	Log of one plus total compensation reported on Form 5471.	Form 5471
Log(GDP)	Log of country's gross domestic product (expressed in equivalent of 2010 U.S. dollars).	World Bank
Log(Profit 5471)	Log of net income before tax (if positive) reported on Form 5471 (*Log(Profit 5471)*).	Form 5471
Log(TangAssets 5471)	Log of one plus tangible assets reported on Form 5471 (*Log(TangAssets 5471)*). Tangible assets from Form 5471 include inventory, net depreciable and depletable assets, and land.	Form 5471
Loss	Indicator equal to one if net operating loss carryforward (TLCF) greater than zero; zero otherwise.	Compustat
Missing|Percent Foreign Income|	Indicator equal to one if |*Percent Foreign income*| is missing; zero otherwise.	Compustat
Net Payments	Total inbound payments less total outbound payments per Form 5471, Schedule M aggregated by country *i*, scaled by total revenue reported on all Forms 5471.	Form 5471
% Non-overlapping Accumulated Earnings	Accumulated earnings reported on Form 8975 in countries without a corresponding Form 5471 divided by the aggregate accumulated earnings reported on Form 8975. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Countries	Number of Form 8975 Schedule A filings in countries without a corresponding Form 5471 divided by the total number of Form 8975 filings. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Pretax Profits	Pretax profits and losses reported on Form 8975 in countries without a corresponding Form 5471 divided by the aggregate pretax profits and losses reported on Form 8975. Set to zero if numerator or denominator is missing.	Form 8975

% Non-overlapping Related Revenues	Related party revenues reported on Form 8975 in countries without a corresponding Form 5471 divided by the aggregate related party revenues reported on Form 8975. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Tangible Assets	Tangible assets reported on Form 8975 in countries without a corresponding Form 5471 divided by the aggregate tangible assets reported on Form 8975. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Low-Tax Accumulated Earnings	Accumulated earnings reported on Form 8975 in low-tax countries (as defined in Hines [2010] and appendix A) without a corresponding Form 5471 divided by the aggregate accumulated earnings reported on Form 8975 in low-tax countries. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Low-tax Countries	Number of Form 8975 Schedule A filings in low-tax countries (as defined in Hines [2010] and appendix A) without a corresponding Form 5471 divided by the total number of Form 8975 filings in low-tax countries. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Low-Tax Pretax Profits	Pretax profits and losses reported on Form 8975 in low-tax countries (as defined in Hines [2010] and appendix A) without a corresponding Form 5471 divided by the aggregate pretax profits and losses reported on Form 8975 in low-tax countries. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Low-Tax Related Revenues	Related party revenues reported on Form 8975 in low-tax countries (as defined in Hines [2010] and appendix A) without a corresponding Form 5471 divided by the aggregate related party revenues reported on Form 8975 in low-tax countries. Set to zero if numerator or denominator is missing.	Form 8975
% Non-overlapping Low-Tax Tangible Assets	Tangible assets reported on Form 8975 in low-tax countries (as defined in Hines [2010] and appendix A) without a corresponding Form 5471 divided by the aggregate tangible assets reported on Form 8975 in low-tax countries. Set to zero if numerator or denominator is missing.	Form 8975
Num. 5471 Ctrys	Total number of countries reported on Form 5471.	Form 5471
|Percent Foreign Income|	Absolute value of percent of pretax income that is foreign (PIFO/PI); zero if missing. PIFO is set to PI – PIDOM if missing.	Compustat
Post	Indicator equal to one for tax years 2016 and 2017; zero otherwise.	N/A

Profit per employee	Pretax profit or loss divided by number of employees	Form 8975
R&D	Research and development expenditures (XRD), scaled by lagged assets; set to zero if missing.	Compustat
% Related party sales	Related party revenues divided by total revenues.	Form 8975
Return on tangible assets	Pretax profit or loss divided by tangible assets (excluded if non-positive tangible assets).	Form 8975
Return on third-party sales	Pretax profit or loss divided by unrelated revenues	Form 8975
ROA	Return on assets, computed as income before extraordinary items (IB), scaled by lagged total assets.	Compustat
Size	Log of lagged total assets (AT).	Compustat
Y2015	Indicator equal to one for tax year 2015; zero otherwise.	N/A

APPENDIX C: IDENTIFICATION OF TREATMENT MNES

This appendix describes the process for identifying U.S. MNEs subject to U.S. CbCR (i.e., treatment MNEs). The Form 8975 instructions state:

A U.S. person must file Form 8975 and Schedules A (Form 8975) if it is the ultimate parent entity of a U.S. MNE group with revenues of $850 million or more in the immediately preceding reporting period.

The first step in identifying treatment MNEs was determining which MNE groups had prior year revenues of $850 million. A U.S. MNE group includes "the ultimate parent entity … and all of the business entities required to consolidate their accounts with the ultimate parent entity's accounts under U.S. generally accepted accounting principles" (Treas. Reg. § 1.6038-4(b)(5)). Therefore, we used revenues from the MNE's consolidated U.S. GAAP financial statements to examine the filing threshold. We did not use revenues reported on the consolidated tax return (including Form 1120 and Form 5471) because MNEs are not required (and in some cases allowed) to include all entities in their U.S. GAAP consolidated group in their consolidated U.S. tax return. Thus, using reported numbers on Form 1120 and Form 5471 may not yield accurate ultimate parent entity revenues for the CbCR reporting threshold.

After determining whether an MNE reported $850 million in prior-year revenues in its U.S. GAAP financial statements, we determined whether the MNE actually filed a Form 8975 in 2016, 2017, and/or 2018. We then categorized the 2016, 2017, and 2018 MNE-years into four groups:

	Did Not File Form 8975	*Filed Form 8975*
Below Revenue Threshold	Group 1 (*Control*) N = 3,540	Group 2 (See below) N = 115
Above Revenue Threshold	Group 3 (See below) N = 541	Group 4 (*Treatment*) N = 2,422

We classified MNEs in Group 1 (below revenue threshold and did not file) as the control group and MNEs in Group 4 (above revenue threshold and did file) as the treatment group. MNEs in Groups 2 and 3 required further investigation.

We examined MNEs in Group 2 (below revenue threshold but still filed) to determine if they met the $850 million filing threshold based on revenues per the tax return. If we could not observe the prior year's financial statements or tax return, or if the MNE's prior year revenues were between $800 and $850 million, we determined whether these MNEs had $850 million in *current year* revenues for either source. The majority of MNEs met the $850 million revenue threshold based on one of these alternative criteria. We classified all MNEs for which we could verify the revenue threshold in this group as treatment MNEs (i.e., included them with Group 4). We set the classification for the remaining MNE-years to missing.

We examined MNEs in Group 3 (above revenue threshold but did not file) to determine why they did not file. Some MNEs were not incorporated in the U.S., which resulted in removal from the sample because we only examine U.S. MNEs. Many of the remaining MNEs did not have

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substantial foreign operations. If an MNE reported $850 million in financial statement revenues and had either zero or missing foreign income in Compustat or zero or missing total revenue per Forms 5471, we designated it as a "domestic-only" firm and excluded it from the sample.

We further examined 2016 MNE-years in Group 3 because 2016 was a "voluntary" U.S. filing year. If an MNE met the $850 million revenue threshold, but did not file Form 8975 in 2016, we determined whether the MNE had a CbCR filing requirement abroad based on the location of foreign controlled corporations on Form 5471. If the MNE did not face a CbCR filing requirement abroad, we classified the MNE as a control MNE for the year. If the MNE faced a CbCR filing requirement abroad and the MNE also reported $850 million in revenues per the tax return (as an alternative measure of revenues), we categorized the MNE as a treatment MNE for the year. Otherwise, we excluded the MNE from the sample.

Of the remaining 2017 and 2018 MNE-years in Group 3, if the MNE met the $850 million revenue threshold per the financial statements and per the tax return, we classified it as a treatment MNE for the year. If the MNE met the $850 million threshold per the financial statements but not per the tax return, we excluded it from the sample because we could confirm whether the MNE met the $850 million threshold.
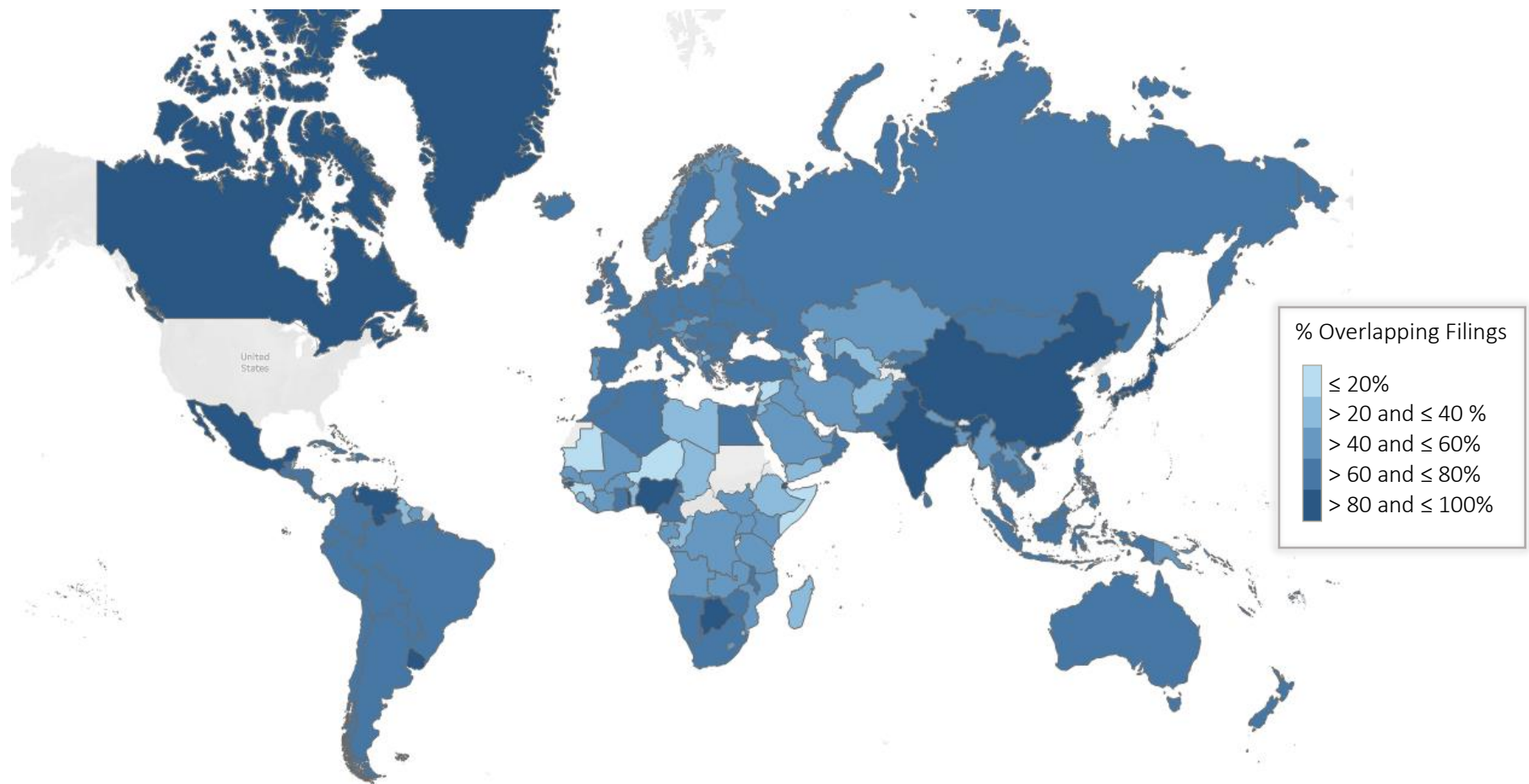
FIG. 1.— Percentage of Overlapping Filings by Country.

This map shows the percentage of U.S. CbCR filings in each country that correspond with Forms 5471 filed for the same country (overlapping countries) in tax year 2017. For example, 20% indicates 20% of all U.S. CbCR filings in a given country are filed by U.S. MNEs that have also reported the country as a principal place of business on Form 5471. Darker shades indicate greater overlap.
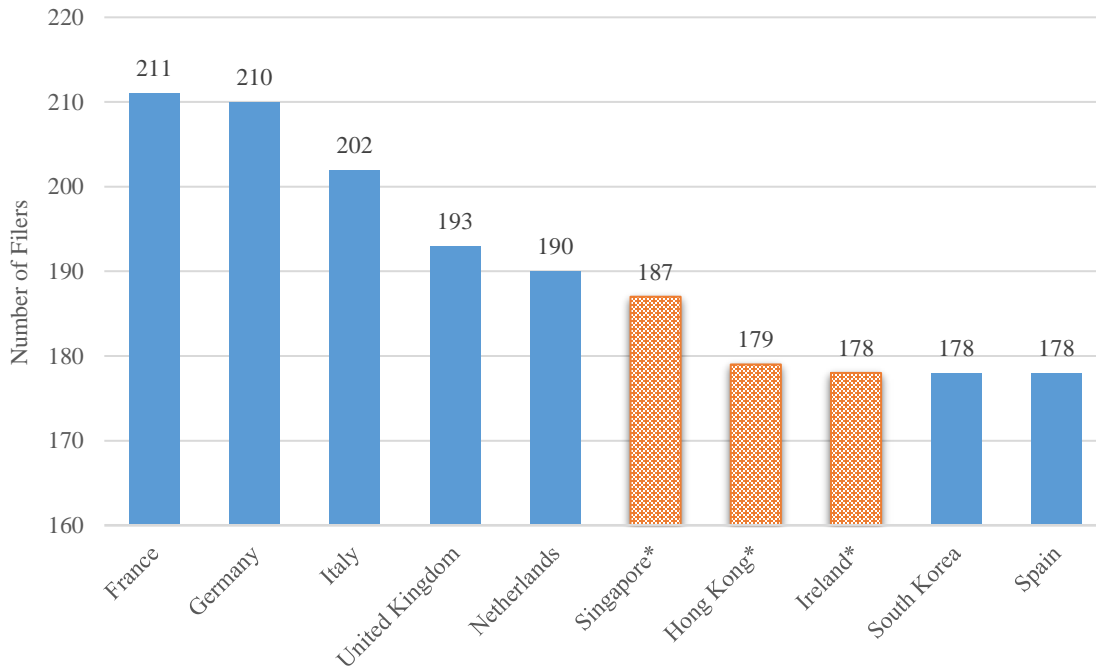
FIG. 2.— Top 10 Non-Overlapping Countries.
This figure shows the top 10 countries reported on U.S. CbCR but not on Form 5471 (non-overlapping countries) for filers in tax year 2017. * indicates "Low-tax" countries as defined per Hines [2010] (see appendix A).
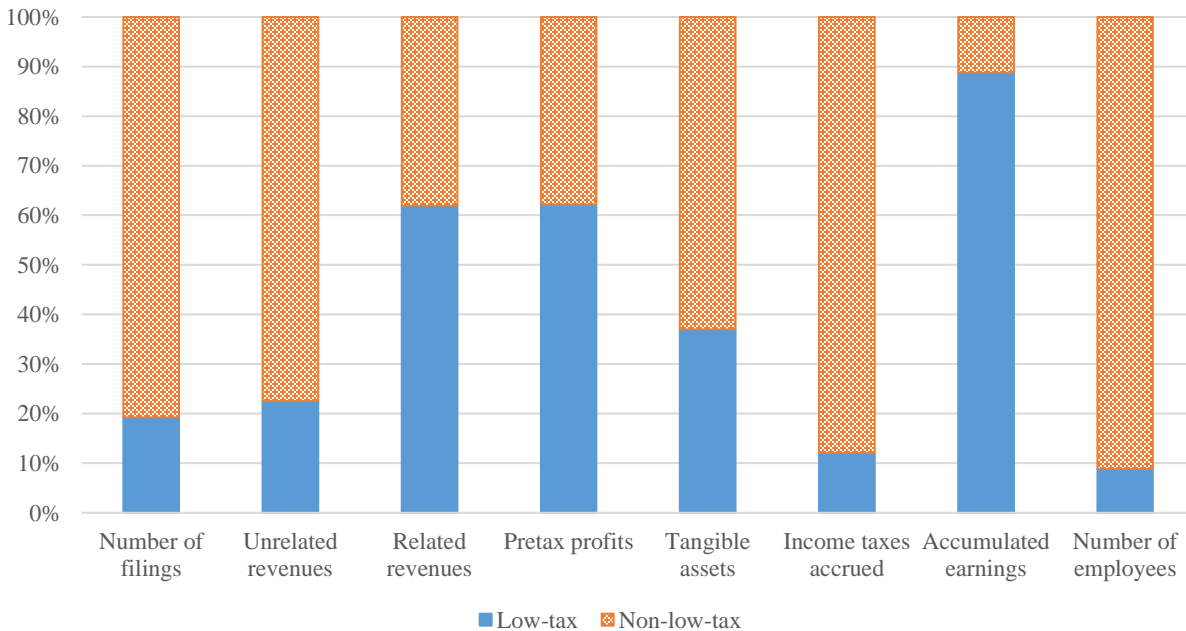
FIG. 3.— Aggregate Non-Overlapping Activity in Low-Tax and Non-Low-Tax Countries.
This figure shows the percentage of filings and activity in low-tax and non-low-tax countries reported on U.S. CbCR but not on Forms 5471 (non-overlapping countries/activity) in tax year 2017. "Low-tax" countries are defined per Hines [2010] (see appendix A).

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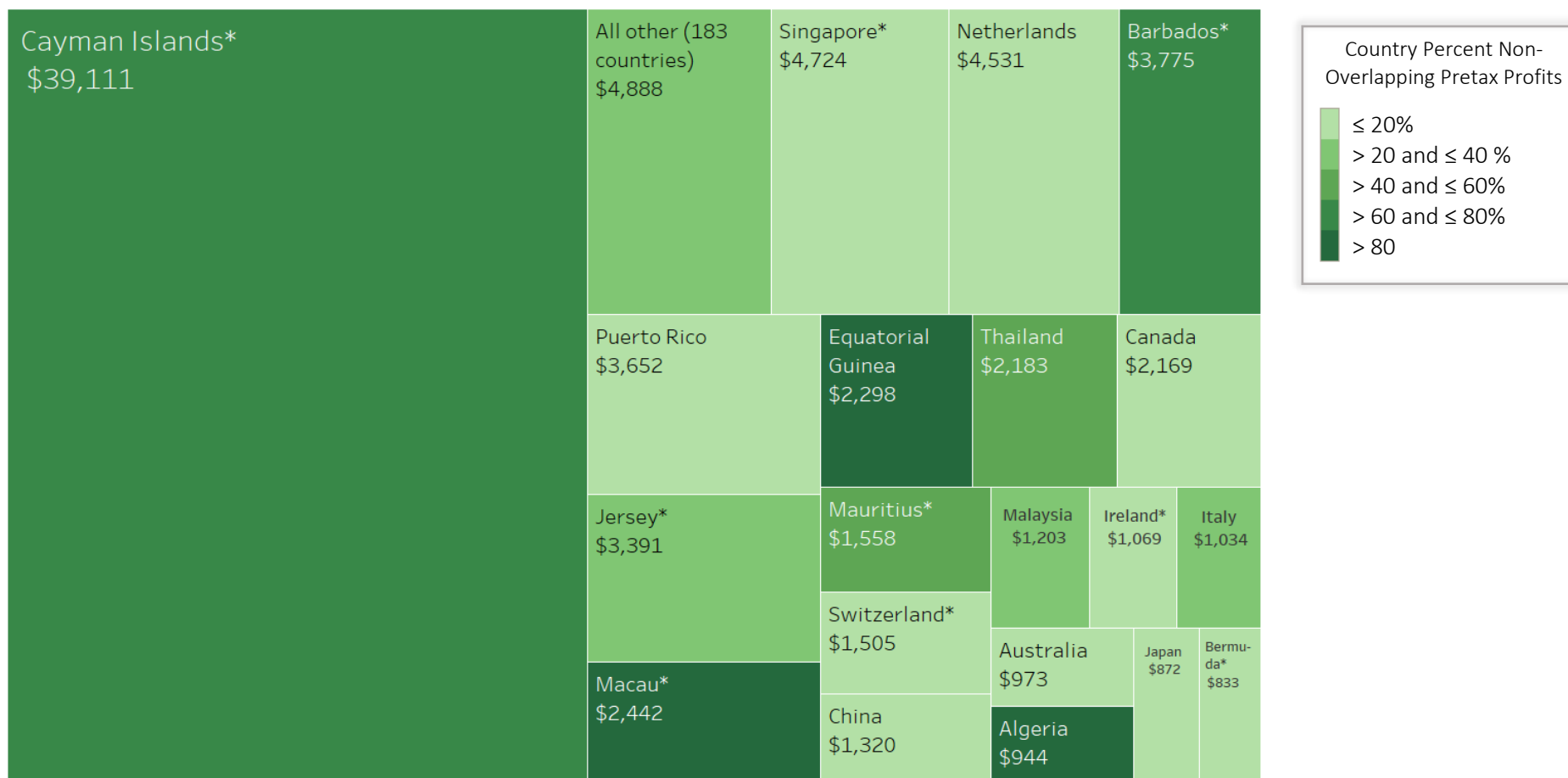
FIG. 4.— Aggregate Non-Overlapping Pretax Profits by Country

This figure shows the amount (in millions) of non-overlapping pretax profits in individual countries for tax year 2017. Larger boxes indicate higher dollar amounts of non-overlapping pretax profits reported in the country on U.S. CbCR. Darker shades indicate a greater percentage of the country's total pretax profits reported on CbCR are non-overlapping. * indicates "Low-tax" countries as defined per Hines [2010] (see appendix A).
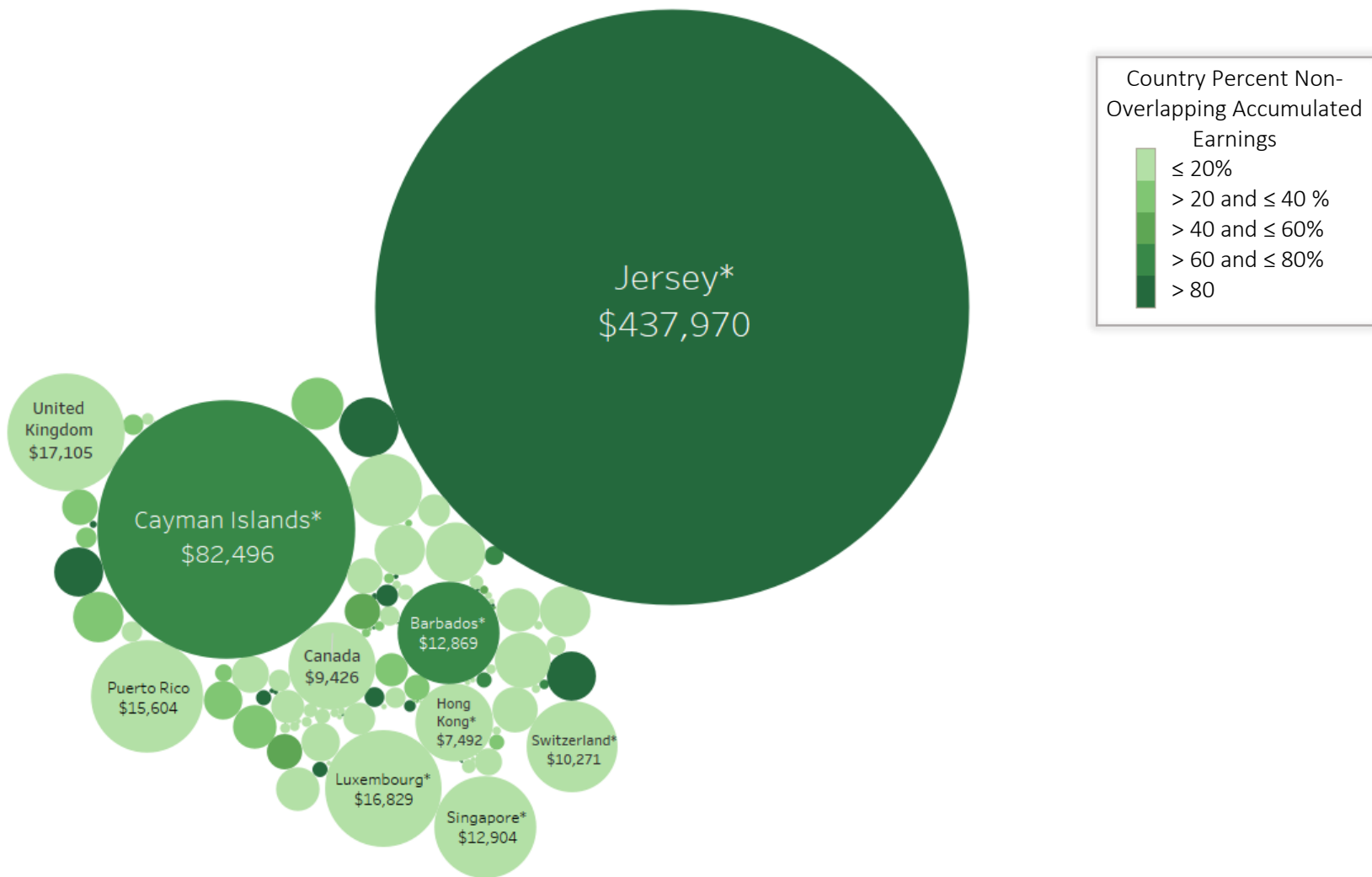
FIG. 5.— Aggregate Non-Overlapping Accumulated Earnings by Country
This figure shows the amount (in millions) of non-overlapping accumulated earnings in individual countries for tax year 2017. Larger bubbles indicate higher dollar amounts of non-overlapping accumulated earnings reported in the country on U.S. CbCR. Darker shades indicate a greater percentage of the country's total accumulated earnings reported on CbCR are non-overlapping. * indicates "Low-tax" countries as defined per Hines [2010] (see appendix A).

TABLE 1

Aggregate Activity Reported on 2017 U.S. Country-by-Country Reports

Panel A: All countries

	Total	Overlap	Non-Overlap	% Overlap
Number of filings	28,306	19,338	8,968	68.32%
Unrelated revenues (mil)	3,473,360	3,034,507	438,853	87.37%
Related revenues (mil)	2,639,402	2,245,307	394,095	85.07%
Pretax profits (mil)	571,552	487,078	84,474	85.22%
Income taxes accrued (mil)	98,245	86,368	11,877	87.91%
Accumulated earnings (mil)	3,784,505	3,134,951	649,554	82.84%
Tangible assets (mil)	2,093,397	1,881,985	211,411	89.90%
Number of employees (mil)	11.4988	10.0641	1.4347	87.52%

Panel B: Low-tax countries

	Total	Overlap	Non-Overlap	% Overlap
Number of filings	5,029	3,304	1,725	65.70%
Unrelated revenues (mil)	804,648	705,733	98,915	87.71%
Related revenues (mil)	1,160,690	916,827	243,863	78.99%
Pretax profits (mil)	275,371	222,839	52,532	80.92%
Income taxes accrued (mil)	15,139	13,707	1,432	90.54%
Accumulated earnings (mil)	2,244,850	1,668,319	576,531	74.32%
Tangible assets (mil)	499,118	420,915	78,203	84.33%
Number of employees (mil)	0.5974	0.4709	0.1265	78.82%

Panel C: Non-low-tax countries

	Total	Overlap	Non-Overlap	% Overlap
Number of filings	23,277	16,034	7,243	68.88%
Unrelated revenues (mil)	2,668,712	2,328,774	339,938	87.26%
Related revenues (mil)	1,478,712	1,328,480	150,232	89.84%
Pretax profits (mil)	296,181	264,238	31,942	89.22%
Income taxes accrued (mil)	83,106	72,661	10,446	87.43%
Accumulated earnings (mil)	1,539,655	1,466,633	73,023	95.26%
Tangible assets (mil)	1,594,278	1,461,070	133,208	91.64%
Number of employees (mil)	10.9014	9.5932	1.3082	88.00%

This table provides aggregate descriptives statistics for filings and activity reported on U.S. CbCR for tax year 2017 (excluding U.S. and stateless activity). "Overlap" indicates aggregate filings and activity for countries that are reported by U.S. MNEs on both their U.S. CbCR and Forms 5471. "Non-Overlap" indicates aggregate filings and activity for countries that are reported by U.S. MNEs on their U.S. CbCR but not on their Forms 5471. This table includes all U.S. CbCR filers that also file Form 1120 and at least one Form 5471.

TABLE 2

MNE-Level Non-Overlapping Country Activity in 2017

	N	Mean	Std. Dev.	P25	Median	P75
% Non-overlapping Countries	1,202	33.71%	30.19%	9.14%	25.00%	50.00%
% Non-overlapping Pretax profits	1,202	20.49%	80.67%	0.00%	2.72%	40.35%
% Non-overlapping Related revenues	1,202	23.39%	46.55%	0.00%	1.45%	26.60%
% Non-overlapping Tangible assets	1,202	21.44%	33.30%	0.00%	2.53%	27.28%
% Non-overlapping Accumulated earnings	1,202	17.47%	194.42%	0.00%	0.51%	28.45%
% Non-overlapping Low-tax countries	1,202	29.08%	32.85%	0.00%	20.00%	50.00%
% Non-overlapping Low-tax profits	1,202	22.84%	92.78%	0.00%	0.00%	36.80%
% Non-overlapping Low-tax related revenues	1,202	18.17%	37.03%	0.00%	0.00%	09.47%
% Non-overlapping Low-tax tangible assets	1,202	18.43%	35.95%	0.00%	0.00%	05.43%
% Non-overlapping Low-tax accumulated earnings	1,202	30.05%	275.35%	0.00%	0.00%	22.88%

This table provides the percentage of total activity that is reported on U.S. CbCR but not on Forms 5471 (non-overlapping activity) for tax year 2017 (excluding U.S. and stateless activity) at the MNE level. The table includes all U.S. CbCR and Form 1120 filers that also file at least one Form 5471. Countries classified as "Low-tax" are identified per Hines [2010]. See appendix A for list of "Low-tax" countries. Reported values at the 25th, 50th, and 75th percentiles represent the averages of the three values above and below each respective percentile value. See appendix B for all variable descriptions.

TABLE 3

Tax-Motivated Income Shifting Risk Ratios

Panel A: All countries

(based on Form 8975 amounts)	Overlap			Non-overlap		
	N	Median	Mean	N	Median	Mean
Effective tax rate	14,713	0.2281	0.2950	6,500	0.2202	0.3229***
Return on tangible assets	15,511	0.3748	10.6870	5,758	0.3006***	11.6476
Return on third-party sales	15,690	0.0785	47.8158	6,166	0.0511***	56.7726
Profit per employee	15,977	0.0163	0.0967	6,509	0.0116***	0.0721***
% Related party sales	17,527	0.1579	0.3674	7,481	0.1160***	0.3890***
Accum. earnings to tangible assets	15,637	0.9898	32.0384	5,832	0.3602***	26.9830

Panel B: Low-tax countries

	Overlap			Non-overlap		
	N	Median	Mean	N	Median	Mean
Effective tax rate	2,409	0.1039	0.2366	1,203	0.1151*	0.2983***
Return on tangible assets	1,922	0.7242	27.4358	749	0.4303***	20.9861
Return on third-party sales	2,197	0.1383	103.7105	951	0.0824***	61.2242*
Profit per employee	1,925	0.0366	0.3723	808	0.0177***	0.2432***
% Related party sales	2,660	0.4992	0.5088	1,245	0.3465**	0.4800*
Accum. earnings to tangible assets	1,951	2.0808	98.5722	759	0.7718***	70.8146

Panel C: Low *C_8975*

	Overlap			Non-overlap		
	N	Median	Mean	N	Median	Mean
Effective tax rate	6,822	0.1714	0.2115	3,106	0.1587***	0.2014**
Return on tangible assets	7,476	0.4035	12.3673	3,014	0.3546**	13.4874
Return on third-party sales	7,829	0.0793	47.2329	3,385	0.0501***	48.3489
Profit per employee	7,712	0.0168	0.1242	3,382	0.0123***	0.0897***
% Related party sales	8,816	0.1855	0.3827	4,145	0.1298**	0.3977*
Accum. earnings to tangible assets	7,536	1.1182	42.3070	3,042	0.4537***	37.7061

This table presents MNE-country-level ratios that reflect tax-motivated income shifting risk in countries reported on both U.S. CbCR and 5471 ("Overlap") and in countries reported on U.S. CbCR but not on Form 5471 ("Non-overlap") for tax year 2017 (excluding U.S. and stateless activity). This table includes all U.S. CbCR Form 1120 filers that also file at least one Form 5471. "Low-tax countries" are classified per Hines [2010]. See appendix A for list of "Low-tax" countries. "Low *C_8975*" describes MNE-country observations that fall below the median value of *C_8975* for each MNE during the tax year. See appendix B for all variable descriptions. Reported median values represent the averages of the three values above and below the median. *, **, and *** indicate significance at the 10%, 5%, and 1% level for tests of differences in means and medians.

TABLE 4

Sample Construction – Tax-Motivated Income Shifting (H1) and Real Activity (H2) Tests

Panel A: Available Observations	MNE-Country-Year	MNE
U.S. Public MNE-Country-Year observations of Form 1120 filers with at least one Form 5471 (2011-2018):	175,018	2,533
MNE-Country-Years with pretax income:	111,986	2,158
MNE-Country-Years with sufficient data to construct tax incentive variable (*C_5471*):	110,343	2,153
MNE-Country-Years with sufficient data to construct all control variables:	90,768	1,933
Observations Available for Difference-in-Differences & RD Tests	**90,768**	**1,933**

Panel B: Difference-in-Differences Tests Sample		
With consolidated prior-year revenues within +/=$500 million of the $850 million prior-year revenue filing threshold:	14,478	620
Full Sample for Difference-in-Differences Tests	**14,478**	**620**
CbCR Firms Only	9,835	352
Control Firms Only	4,643	268

Panel C: Regression Discontinuity (RD) Tests Sample		
Post-CbCR Years Only (2016-2018):	37,492	1,799
Full Sample for RD Tests	**37,492**	**1,799**
CbCR Firms Only	31,582	1,009
Control Firms Only	5,910	790

This table summarizes the sample derivation process for the tests of *H1* and *H2*.

TABLE 5

Descriptive Statistics – Tax-Motivated Income Shifting (H1) and Real Activity (H2) Tests

Panel A: Full Sample - Difference-in-Differences Tests

Variable	N	Mean	Std. Dev.	P25	Median	P75
CbCR	14,478	0.679	0.467	0.000	1.000	1.000
C_5471	14,478	-0.066	0.053	-0.101	-0.065	-0.035
Profit 5471 ($ millions)	14,478	7.634	29.710	0.243	0.923	3.739
Net Payments	14,478	0.010	0.091	-0.008	0.000	0.011
Net Payments ($ millions)	14,478	0.987	48.436	-3.011	0.000	3.997
Comp 5471 ($ millions)	14,478	5.489	14.414	0.179	1.229	4.574
TangAssets 5471 ($ millions)	14,478	13.482	53.753	0.099	0.956	6.989
GDP ($ millions)	14,478	2,022.01	2,353.84	383.56	1,320.20	2,620.13

Panel B: Partitioned Sample - Difference-in-Differences Tests

2011-2015 (Pre-CbCR)

Variable	Control Observations			CbCR Observations		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.
C_5471	2,439	-0.063	0.051	6,093	-0.063	0.054
Profit 5471 ($ millions)	2,439	5.206	22.846	6,093	8.393	30.702
Net Payments	2,439	0.005	0.096	6,093	0.010	0.089
Net Payments ($ millions)	2,439	-0.183	29.827	6,093	0.955	52.316
Comp 5471 ($ millions)	2,439	3.175	9.345	6,093	6.044	15.495
TangAssets 5471 ($ millions)	2,439	12.053	61.059	6,093	13.847	51.443
GDP($ millions)	2,439	2,028.81	2,185.86	6,093	1,827.91	2,119.93

2016-2018 (Post-CbCR)

Variable	Control Observations			CbCR Observations		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.
C_5471	2,204	-0.069	0.051	3,742	-0.071	0.054
Profit 5471 ($ millions)	2,204	4.986	20.546	3,742	9.540	35.772
Net Payments	2,204	0.017	0.108	3,742	0.008	0.080
Net Payments ($ millions)	2,204	2.231	30.326	3,742	1.067	59.150
Comp 5471 ($ millions)	2,204	4.077	10.261	3,742	6.925	16.938
TangAssets 5471 ($ millions)	2,204	11.825	60.876	3,742	14.796	47.488
GDP ($ millions)	2,204	2,454.43	2,723.01	3,742	2,078.95	2,543.16

TABLE 5 – *Continued*

Panel C: Full Sample – Regression Discontinuity (RD) Tests

Variable	N	Mean	Std. Dev.	P25	Median	P75
CbCR	37,492	0.842	0.364	0.000	1.000	1.000
C_5471	37,492	-0.075	0.055	-0.111	-0.075	-0.035
Profit 5471 ($ millions)	37,492	30.339	99.362	0.430	2.080	10.777
Net Payments	37,492	0.008	0.078	-0.004	0.000	0.003
Net Payments ($ millions)	37,492	-5.025	123.761	-8.995	-0.028	5.088
Comp 5471 ($ millions)	37,492	12.394	31.720	0.003	1.314	6.762
TangAssets 5471 ($ millions)	37,492	51.458	163.584	0.238	2.509	19.672
GDP ($ millions)	37,492	1,757.75	2421.90	272.02	839.72	2121.20

Panel D: Partitioned Sample – Regression Discontinuity (RD) Tests

2016-2018 (Post-CbCR)

Variable	Control Observations				CbCR Observations		
	N	Mean	Std. Dev.		N	Mean	Std. Dev.
C_5471	5,910	-0.071	0.052		31,582	-0.075	0.056
Profit 5471 ($ millions)	5,910	5.736	33.563		31,582	34.943	106.654
Net Payments	5,910	0.038	0.145		31,582	0.002	0.056
Net Payments ($ millions)	5,910	0.940	38.672		31,582	-6.141	133.744
Comp 5471 ($ millions)	5,910	3.652	9.523		31,582	14.030	34.067
TangAssets 5471 ($ millions)	5,910	10.558	58.319		31,582	59.112	175.384
GDP ($ millions)	5,910	2,492.04	2724.20		31,582	1,620.34	2,335.69

This table presents descriptive statistics for the MNE-country-year observations used in tests of *H1* and *H2*. Panels A and B present descriptive statistics for all MNE-Country-Year observations within +/-$500 million of the $850 million prior-year consolidated revenue U.S. CbCR filing threshold (used in difference-in-differences tests). Panel B presents descriptive statistics when partitioning the sample into pre-CbCR (2011-2015)/post-CbCR (2016-2018) and control/treatment (*CbCR*) observations. Panels C and D present descriptive statistics for all post-CbCR MNE-Country-Years (used in RD tests). Panel D presents descriptive statistics when partitioning this sample into control/treatment (*CbCR*) observations. All continuous variables are winsorized at the 1st and 99th percentiles. Reported values at the 25th, 50th, and 75th percentiles represent the averages of the three values above and below each respective percentile value. See appendix B for all variable descriptions.

TABLE 6

Tax-Motivated Income Shifting (H1) Tests

Panel A: Difference-in-Differences Tests

VARIABLES	Difference-in-Differences without Balancing		Entropy Balanced Difference-in-Differences	
	Log(Profit 5471)	*Net Payments*	*Log(Profit 5471)*	*Net Payments*
	(1)	(2)	(3)	(4)
CbCR*Post*C_5471	**-2.148****	**0.008**	**-2.433****	**0.044**
	(-2.221)	**(0.134)**	**(-2.370)**	**(0.632)**
C_5471	-2.016***	0.077	-2.364***	0.141*
	(-2.747)	(1.441)	(-3.063)	(1.845)
*Post*C_5471*	1.330*	-0.046	1.606*	-0.084
	(1.735)	(-0.906)	(1.932)	(-1.366)
*CbCR*C_5471*	0.781	-0.020	1.124	-0.061
	(0.912)	(-0.354)	(1.243)	(-0.835)
*CbCR*Post*	-0.145*	-0.010	-0.175*	-0.008
	(-1.674)	(-1.626)	(-1.914)	(-1.064)
Log(Comp 5471)	0.751***	0.007***	0.733***	0.009***
	(20.456)	(3.061)	(19.045)	(3.021)
Log(TangAssets 5471)	0.751***	0.001	0.744***	0.001
	(26.539)	(0.577)	(24.796)	(0.464)
Log(GDP)	0.055***	-0.002	0.057***	-0.004
	(2.920)	(-1.469)	(2.918)	(-1.607)
Constant	-2.201***	0.021**	-2.267***	0.037**
	(-14.796)	(2.274)	(-14.691)	(2.097)
N	14,478	14,478	14,478	14,478
Year fixed effects	Yes	Yes	Yes	Yes
MNE fixed effects	Yes	Yes	Yes	Yes
SE Clustered	By MNE	By MNE	By MNE	By MNE
Adj. R^2	0.536	0.0109	0.645	0.413

This panel presents results on the effect of U.S. CbCR requirements on U.S. MNEs' tax-motivated income shifting (*H1*). All MNE-Country-Year observations fall within +/-$500 million of the $850 million ultimate parent prior-year consolidated revenue U.S. CbCR filing threshold. Columns 3 and 4 entropy balance the sample based on *Log(Comp 5471), Log(TangAssets 5471)*, and *Log(GDP)* on the first and second moments by year. See appendix B for all variable descriptions. T-statistics are presented in parentheses below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% alpha levels (two-tailed), respectively.

TABLE 6 – *Continued*

Panel B: Regression Discontinuity (RD) Tests

VARIABLES	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*
			Log(Profit 5471)				*Net Payments*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CbCR	**-0.231**	-0.180	**-0.145**	-0.197	**-0.009**	-0.017*	**-0.011**	-0.020**
	(-1.046)	(-0.882)	**(-0.968)**	(-1.321)	**(-1.006)**	(-1.768)	**(-1.250)**	(-2.052)
Observations	18,088	18,153	18,088	18,153	18,088	18,153	18,088	18,153
Effective Obs. Left of $850m	2,880	3,274	2,880	3,274	2,880	3,274	2,880	3,274
Effective Obs. Right of $850m	5,132	4,735	4,860	4,569	4,918	4,494	4,897	4,398
Bandwidth	2,652.706	2,158.666	2,882.872	2,288.448	2,884.209	2,206.675	2,802.985	2,114.128
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	No	Yes	Yes	No	No	Yes	Yes

This panel presents results on the effect of U.S. CbCR requirements on U.S. MNEs' tax-motivated income shifting (*H1*) using a regression discontinuity design (nonparametric local linear regression) on either side of the $850 million prior-year consolidated revenue filing threshold using the mean square error optimal bandwidth. Columns 1, 2, 5 and 6 present results without controls or fixed effects; columns 3, 4, 7, and 8 present results with controls as presented in panel A and year fixed effects. *Low C* (*High C*) is equal to one for below (above) median values of *C_5471* by year. We show bias-corrected estimates using the robust inference method. We use the triangular kernel function. Standard errors are clustered by MNE. See appendix B for all variable descriptions. Z-statistics are presented in parentheses below coefficient estimates.

TABLE 7

Responsiveness of Real Activities to Tax Incentives (H2) Tests

Panel A: Difference-in-Differences Tests

VARIABLES	Difference-in-Differences without Balancing				Entropy Balanced Difference-in-Differences			
	Log(TangAssets 5471)	Log(Comp 5471)	Log(TangAssets 5471)	Log(Comp 5471)	Log(TangAssets 5471)	Log(Comp 5471)	Log(TangAssets 5471)	Log(Comp 5471)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CbCR*Post*C_5471	**1.373***	**0.379**	**1.903****	**0.459**	**1.477***	**0.317**	**1.967****	**0.402**
	(1.794)	**(0.612)**	**(2.246)**	**(0.698)**	**(1.848)**	**(0.502)**	**(2.225)**	**(0.599)**
C_5471	-2.117***	-1.627***	-1.703**	-1.428***	-1.841**	-1.336**	-1.477*	-1.174**
	(-2.596)	(-2.989)	(-2.226)	(-2.642)	(-2.249)	(-2.479)	(-1.903)	(-2.195)
Post*C_5471	-0.547	-0.459	-0.879	-0.453	-0.657	-0.412	-0.947	-0.402
	(-0.907)	(-0.952)	(-1.270)	(-0.860)	(-1.034)	(-0.839)	(-1.302)	(-0.750)
CbCR*C_5471	-0.071	0.168	-0.507	-0.015	-0.227	0.067	-0.608	-0.080
	(-0.075)	(0.249)	(-0.561)	(-0.022)	(-0.240)	(0.100)	(-0.665)	(-0.119)
CbCR*Post	0.158**	0.020	0.179***	-0.005	0.163**	0.017	0.180**	-0.003
	(2.488)	(0.311)	(2.613)	(-0.074)	(2.472)	(0.251)	(2.540)	(-0.036)
Log(GDP)	0.129***	0.151***	0.129***	0.150***	0.117***	0.132***	0.116***	0.130***
	(6.123)	(9.154)	(6.007)	(8.935)	(4.650)	(7.183)	(4.533)	(7.011)
ROA			0.415	-0.028			0.608*	-0.244
			(1.476)	(-0.090)			(1.922)	(-0.746)
Leverage			0.011	-0.071			-0.031	-0.096
			(0.187)	(-0.719)			(-0.513)	(-1.091)
Cash			-0.184*	-0.096			-0.184*	-0.104
			(-1.837)	(-0.829)			(-1.779)	(-0.807)
Constant	0.192	-0.155	0.235	-0.109	0.271	-0.058	0.321*	0.000
	(1.188)	(-1.270)	(1.429)	(-0.871)	(1.444)	(-0.429)	(1.692)	(0.001)
N	14,478	14,478	14,025	14,025	14,478	14,478	14,025	14,025
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MNE fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SE Clustered	By MNE	By MNE	By MNE	By MNE	By MNE	By MNE	By MNE	By MNE
Adj. R^2	0.0189	0.0462	0.0186	0.0453	0.392	0.394	0.393	0.391

This panel presents results on the effect of U.S. CbCR requirements on the responsiveness of U.S. MNEs' real activities to the tax incentive to report profits in a country (*H2*). All MNE-Country-Year observations fall within +/-$500 million of the $850 million ultimate parent prior-year consolidated revenue U.S. CbCR filing threshold. Columns 5 and 6 entropy balance based on *Log(GDP)* on the first and second moments by year. Columns 7 and 8 entropy balance based on *Log(GDP), ROA, Leverage,* and *Cash* on the first and second moments by year. See appendix B for all variable descriptions. T-statistics are presented in parentheses below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% alpha levels (two-tailed), respectively.

TABLE 7 – *Continued*

Panel B: Regression Discontinuity (RD) Tests

VARIABLES	Low C_5471	High C_5471	Low C_5471	High C_5471	Low C_5471	High C_5471	Low C_5471	High C_5471
	Log(Tang Assets 5471)				Log(Comp 5471)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CbCR	**-0.235**	-0.135	**-0.291**	-0.185	**0.236**	0.198	**0.176**	0.154
	(-1.230)	(-0.785)	**(-1.547)**	(-1.093)	**(1.587)**	(1.289)	**(1.275)**	(1.057)
Observations	18,088	18,153	17,333	17,337	18,088	18,153	17,333	17,337
Effective Obs. Left of $850m	2,880	3,274	2,718	3,088	2,880	3,274	2,718	3,088
Effective Obs. Right of $850m	5,061	4,853	4,861	4,542	4,350	4,357	4,162	4,123
Bandwidth	2,568.505	2,347.21	2,647.159	2,382.894	2,257.967	1,992.817	2,195.397	1,901.093
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	No	Yes	Yes	No	No	Yes	Yes

This panel presents results on the effect of U.S. CbCR requirements on the responsiveness of U.S. MNEs' real activities to tax incentives (*H2*) using a regression discontinuity design (nonparametric local linear regression) on either side of the $850 million prior-year consolidated revenue filing threshold using the mean square error optimal bandwidth. Columns 1, 2, 5 and 6 present results without controls or fixed effects; columns 3, 4, 7, and 8 present results with controls as presented in panel A, columns 3 and 4 and year fixed effects. *Low C_5471* (*High C_5471*) is equal to one for below (above) median values of *C_5471* by year. We show bias-corrected estimates using the robust inference method. We use the triangular kernel function. Standard errors are clustered by MNE. See appendix B for all variable descriptions. Z-statistics are presented in parentheses below coefficient estimates.

TABLE 8
Possible Anticipatory Effects

Panel A: Difference-in-Differences Tests

VARIABLES	(1) Log(Profit 5471)	(2) Net Payments	(3) Log(TangAssets 5471)	(4) Log(Comp 5471)
CbCR*Y2015*C_5471	**-0.324**	**-0.041**	**1.195**	**0.262**
	(-0.257)	**(-0.581)**	**(1.195)**	**(0.352)**
CbCR*Post*C_5471	-2.228**	-0.001	1.669*	0.444
	(-2.118)	(-0.020)	(1.792)	(0.623)
C_5471	-2.066**	0.072	-1.863**	-1.515**
	(-2.546)	(1.291)	(-2.161)	(-2.556)
Y2015*C_5471	0.189	0.020	-0.981	-0.455
	(0.177)	(0.329)	(-1.265)	(-0.841)
Post*C_5471	1.382*	-0.041	-0.802	-0.571
	(1.651)	(-0.685)	(-1.061)	(-1.016)
CbCR*C_5471	0.859	-0.011	-0.363	0.102
	(0.921)	(-0.183)	(-0.365)	(0.140)
CbCR*Y2015	-0.027	-0.005	0.144*	0.072
	(-0.222)	(-0.762)	(1.853)	(0.922)
CbCR*Post	-0.152	-0.011	0.196**	0.040
	(-1.574)	(-1.563)	(2.578)	(0.526)
Log(Comp 5471)	0.751***	0.007***		
	(20.452)	(3.061)		
Log(TangAssets 5471)	0.751***	0.001		
	(26.535)	(0.579)		
Log(GDP)	0.055***	-0.002	0.129***	0.151***
	(2.920)	(-1.472)	(6.124)	(9.151)
Constant	-2.201***	0.021**	0.197	-0.149
	(-14.751)	(2.278)	(1.218)	(-1.227)
Observations	14,478	14,478	14,478	14,478
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Clustered errors	By firm	By firm	By firm	By firm
Adj. R-squared	0.536	0.0107	0.0189	0.0461

This panel presents results on the anticipatory effect of U.S. CbCR requirements on U.S. MNEs' tax-motivated income shifting and real activities. All MNE-Country-Year observations fall within +/-$500 million of the $850 million prior-year consolidated revenue U.S. CbCR filing threshold. See appendix B for all variable descriptions. T-statistics are presented in parentheses below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% alpha levels (two-tailed), respectively.

TABLE 8 – *Continued*

Panel B: Regression Discontinuity (RD) Tests for Tax-Motivated Income Shifting

VARIABLES	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*
		Log(Profit 5471)				*Net Payments*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CbCR	-0.027	-0.088	-0.119	0.024	-0.009	0.007	-0.013	0.007
	(-0.094)	(-0.297)	(-0.601)	(0.114)	(-0.764)	(0.539)	(-1.167)	(0.590)
Observations	5,637	5,647	5,637	5,647	5,637	5,647	5,637	5,647
Eff. Obs. Left of $850m	959	1,132	956	1,132	956	1,132	956	1,132
Eff. Obs. Right of $850m	1,708	1,591	1,716	1,537	1,646	1,515	1,646	1,516
Bandwidth	3790.05	2709.96	3747.41	2605.59	3685.71	2676.69	3752.87	2631.59
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	No	Yes	Yes	No	No	Yes	Yes

Panel C: Regression Discontinuity (RD) Tests for Real Activities Reallocation

VARIABLES	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*	*Low* *C_5471*	*High* *C_5471*
		Log(Tang Assets 5471)				*Log(Comp 5471)*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CbCR	-0.073	-0.154	-0.151	-0.173	0.255	0.039	0.281	0.091
	(-0.337)	(-0.687)	(-0.688)	(-0.800)	(1.130)	(0.216)	(1.460)	(0.515)
Observations	5,637	5,647	5,579	5,592	5,637	5,647	5,579	5,592
Eff. Obs. Left of $850m	956	1,132	954	1,124	956	1,132	954	1,124
Eff. Obs. Right of $850m	1,671	1,515	1,666	1,436	1,770	1,445	1,698	1,397
Bandwidth	3554.22	2597.27	3535.93	2566.14	3782.69	2518.08	3805.14	2415.56
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	No	Yes	Yes	No	No	Yes	Yes

Panels B and C present results on the anticipatory effect of U.S. CbCR requirements on U.S. MNEs' tax-motivated income shifting and real activities using a regression discontinuity design (nonparametric local linear regression) on either side of the $850 million prior-year consolidated revenue filing threshold using the mean square error optimal bandwidth. Columns 1, 2, 5 and 6 of both panels present results without controls or fixed effects; columns 3, 4, 7, and 8 of both panels present results with controls as well as year fixed effects. *Low C* (*High C*) is equal to one for below (above) median values of *C* by year. We show bias-corrected estimates using the robust inference method. We use the triangular kernel function. Standard errors are clustered by MNE. See appendix B for all variable descriptions. Z-statistics are presented in parentheses below coefficient estimates.

TABLE 9
Overall Tax Avoidance Tests

Panel A: Difference-in-Differences Tests

VARIABLES	Difference-in-Differences without Balancing			Entropy Balanced Difference-in-Differences		
	GAAP ETR	*Cash ETR*	*Federal ETR*	*GAAP ETR*	*Cash ETR*	*Federal ETR*
	(1)	(2)	(3)	(4)	(5)	(6)
CbCR*Post	**0.020**	**0.021**	**0.023**	**0.016**	**0.016**	**0.029**
	(1.547)	**(1.378)**	**(1.510)**	**(0.824)**	**(0.798)**	**(1.593)**
Size	-0.070***	-0.018	-0.011	-0.056**	-0.024	-0.024
	(-3.832)	(-0.864)	(-0.636)	(-2.461)	(-0.876)	(-1.008)
ROA	-2.396***	-2.282***	-1.582***	-2.105***	-1.904***	-1.405***
	(-8.816)	(-9.159)	(-6.105)	(-6.221)	(-5.291)	(-4.898)
Leverage	0.000	0.050	0.059*	0.008	0.038	-0.001
	(0.013)	(1.552)	(1.758)	(0.178)	(0.785)	(-0.020)
Intangible Intensity	-0.056**	0.030	-0.080**	-0.072	0.054	-0.011
	(-2.166)	(0.913)	(-2.383)	(-1.270)	(0.928)	(-0.191)
Capital Intensity	0.288**	-0.002	-0.376***	0.182	0.122	-0.217
	(2.004)	(-0.008)	(-2.598)	(0.978)	(0.567)	(-0.973)
R&D	-0.208	-0.101	-0.083	0.041	0.044	-0.034
	(-1.137)	(-0.354)	(-0.343)	(0.159)	(0.140)	(-0.108)
Loss	-0.020**	-0.046***	-0.022	-0.028**	-0.038*	-0.025
	(-2.012)	(-3.104)	(-1.630)	(-2.092)	(-1.870)	(-1.259)
|Percent Foreign income|	-0.019	0.046**	0.004	0.008	0.071***	0.029
	(-0.740)	(1.971)	(0.189)	(0.217)	(2.603)	(0.961)
Missing|Percent Foreign income|	-0.001	0.024	0.028	0.002	0.027	0.042
	(-0.057)	(0.819)	(0.949)	(0.089)	(0.821)	(1.124)
Num. 5471 Ctrys	0.000	0.003*	-0.001	0.001	0.003	-0.002
	(0.216)	(1.916)	(-0.594)	(0.425)	(1.294)	(-0.746)
Constant	0.886***	0.433***	0.346***	0.779***	0.414**	0.391**
	(7.632)	(3.064)	(2.820)	(5.224)	(2.276)	(2.452)
N	1,951	2,218	1,840	1,951	2,218	1,840
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
MNE fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
SE Clustered	By MNE	By MNE	By MNE	By MNE	By MNE	By MNE
Adj. R^2	0.202	0.135	0.0987	0.524	0.450	0.480

This panel presents results on the effect of U.S. CbCR requirements on U.S. MNEs' overall tax avoidance behavior by comparing treatment (*CbCR*) and control groups before and after (*Post*) the CbCR requirement. Columns 4 through 6 entropy balance based on *ROA*, *Leverage*, *Intangible Intensity*, *Capital Intensity*, *R&D*, *Percent Foreign Income*, and *Num. 5471 Ctrys* on the first moment by year. See appendix B for all variable descriptions. T-statistics are presented in parentheses below coefficient estimates. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% alpha levels (two-tailed), respectively.

TABLE 9—*Continued*

Panel B: Regression Discontinuity (RD) Tests						
VARIABLES	*GAAP ETR* (1)	*Cash ETR* (2)	*Federal ETR* (3)	*GAAP ETR* (4)	*Cash ETR* (5)	*Federal ETR* (6)
CbCR	0.026	-0.004	-0.017	0.030	0.003	-0.009
	(0.992)	(-0.129)	(-0.681)	(1.267)	(0.113)	(-0.392)
N	2,236	3,217	2,691	2,236	3,217	2,691
Effective Observations Left of $850m	696	924	785	696	930	785
Effective Observations Right of $850m	372	487	494	368	488	499
Bandwidth	1,074	940	1,206	1,044	945	1,194
Controls & Year Fixed Effects	No	No	No	Yes	Yes	Yes

This panel presents results on the difference in the overall tax avoidance behavior between treatment (*CbCR*) and control groups after the CbCR requirement using a regression discontinuity design (nonparametric local linear regression) on either side of the $850 million ultimate parent prior-year consolidate revenue filing threshold using the mean square error optimal bandwidth. We show bias-corrected estimates using the robust inference method. The same control variables as presented in panel A are also included in columns 4 through 6 along with year fixed effects. We use the triangular kernel function. Standard errors are clustered by MNE. See appendix B for all variable descriptions. Z-statistics are presented in parentheses below coefficient estimates.