

The Long Arm of the U.S. Tax Law: Participation Rates and Costs related to Mandated Information Sharing

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Abstract. We examine whether foreign countries and entities participate in cross-border sharing of financial information, and in turn whether participation subsequently affects firm performance. We employ the Foreign Accounts Tax Compliance Act (FATCA) as a quasi-natural shock to automatic information sharing. FATCA induces foreign financial institutions to share customer information with the U.S. government, which has the potential to diminish privacy and increase costs. We find that tax haven countries are more likely to coordinate with the IRS in information sharing and that participation rates for foreign financial institutions are exceptionally high. Importantly, we document significant reductions in firm-level financial performance following those firms' commitment to information sharing, as well as significantly negative portfolio returns for financial institutions when U.S. information sharing regulations were made public. Further, we find that the reduced performance is not temporary. Overall, the evidence suggests that despite lacking direct sovereignty, U.S. tax law has substantial force in inducing participation in automatic information sharing, which in turn imposes significant costs on foreign financial institutions.

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1. Introduction

Automatic information sharing – the ongoing exchange of financial, banking, and investment information across borders – is a relatively unexplored area in financial economics, though it is a highly contested topic in international politics. For example, the OECD is currently leading an initiative to induce foreign countries and companies to share information with hundreds of different jurisdictions, with the goal of increased transparency.¹ Although many governments support the free flow of financial information between governments, many financial institutions are less enthusiastic, largely due to the potential for high compliance costs and the loss of customer privacy. Given that customer privacy represents a distinct strategic advantage for the foreign banking sector, changes in transparency have implications for industry dynamics, capital structure, and corporate valuation (e.g., O’Donovan et al. 2019).

In this study, we examine foreign participation in cross-border information sharing and the financial costs and consequences when the U.S. government induces foreign entities to share information. To do so, we examine the effects of the new tax reporting requirements in the Foreign Account Tax Compliance Act (FATCA) that were passed as part of the 2010 HIRE Act. FATCA induces foreign financial institutions or their governments via bilateral agreements to directly report the holdings of their U.S. clients to the IRS, or else they face heavy withholding penalties. FATCA represents a suitable quasi-natural experiment for several reasons. First, FATCA is externally imposed by the U.S. government on foreign firms, for whom the U.S. has no direct jurisdiction. Second, the adoption of FATCA across firms and countries is staggered across time and entities. We combine these research design features with high-dimensional fixed effects (Gormley and Matsa 2014), all of which likely isolates plausibly exogenous variation in financial information sharing. In

¹ <http://www.oecd.org/tax/automatic-exchange/common-reporting-standard/>

sum, we employ FATCA to examine the extent to which changes to domestic financial information sharing laws can impose real, extraterritorial costs on foreign banks and financial institutions.

The legal and political rhetoric towards FATCA has been largely negative due to its broad requirements that largely affect foreign institutions outside the purview of the IRS.² Two general critiques lead out. The first is FATCA's extraterritorial overreach, as it arguably deploys the weight of U.S. market power to induce *non-U.S.* financial entities to share tax information. The second is that FATCA assigns the burden of enforcing U.S. tax regulation to foreign countries and entities, effectively outsourcing U.S. enforcement costs away from the IRS, and potentially imposing real economic costs on foreign entities.

Firm and country responses to FATCA provide an opportunity to test several economic hypotheses related to cross-border information sharing and unintended costs of tax regulation. Dharmapala (2016) develops a theoretical framework in which the increased information reporting requirements under FATCA can lead to high participation rates and can increase the cost of providing financial services for financial institutions. However, large-scale empirical evidence for these assertions is scant; participation and/or cost estimates, if available at all, are based on anecdotal, single-country or back-of-the-envelope evidence.³

First, we examine how other countries respond to changes in U.S. directives to share financial information. Specifically, we examine a foreign country's choice to share information with

² For example, *The Economist* labeled FATCA as a “heavy-handed, inequitable and hypocritical” piece of “extraterritoriality stunning even by Washington’s standards” (2014). Legal scholars have also been quite critical of FATCA, calling it “...an indiscriminate NSA-style information dragnet...” (Jatras 2014) and an “...extraterritorial intrusion of U.S. tax law” (Kelly 2017) that “...turns foreign banks into tax informants” (Ugeux 2013).

³ Two concurrent academic studies evaluate the effects of FATCA, but the focus is on offshore tax evasion by U.S. persons, finding that offshore accounts (Omartian 2017) and offshore funds (De Simone, Lester and Markle 2018) shifted substantially following the enactment of FATCA. Our focus is on a different stakeholder, as we examine both the *countries* and *corporate entities* who were mostly likely to bear the potential costs of FATCA, principally because they are called upon to enforce the dictates of FATCA. We discuss these studies further below.

the U.S. Treasury by agreeing to the terms of an Inter-Governmental Agreement (IGA).⁴ It is not a given that countries will easily and automatically share information with the U.S. despite its market power, because many countries already have local privacy laws that legally prevent the country from sharing citizens' information with other countries. These privacy laws are quite common for tax havens, which we expect will be more reticent to collaborate with U.S. tax authorities, while other types of countries, such as those with U.S. treaties, will be more willing to do so. However, we find clear evidence that tax havens are actually more likely to sign an IGA than are non-havens, suggesting that havens have more to lose by *not* signing an IGA, as failing to agree to information sharing may diminish their status as reliable banking centers. We also find other national attributes increase country-level FATCA cooperation with the U.S., including having an income tax treaty with the U.S., a high commitment to the rule of law, and large amounts of U.S.-bound portfolio investment.

Second, we examine how foreign banks and financial institutions respond to U.S. tax directives to share information. Although they are not under the direct purview of the U.S. government, foreign banks often have strong ties to the U.S. through their customer base or U.S. subsidiaries. To examine financial firms' choice to share information, we acquired the IRS's "FFI List," which contains the names of *participating* foreign financial institutions (FFIs) that have registered with the IRS and agreed to report information on U.S. clients. We report several descriptive findings related to FFI participation. First, the majority of our sample FFIs derive from tax haven countries—of the 15 countries with the most participating FFIs, eight of them are tax havens. Second, while FATCA was primarily aimed at foreign *financial* institutions, we also document

⁴ The IGAs use the term "Partner Jurisdiction" to identify countries that have agreements in effect to facilitate the implementation of FATCA. Hence, this term applies to countries that have not actually signed the an IGA but have one in effect—which is the majority of partner jurisdictions. We use the terms "sign", "agree to", and "become partner jurisdictions" interchangeably.

that a wide range of industries were affected by FATCA. Among entities registered as FFIs with the IRS, 16 percent are *not* financial in nature, potentially indicating overreach induced by mandated information sharing. In additional analyses, we document that many of these companies subsequently dropped off the IRS list, suggesting they registered with the IRS unnecessarily out of precaution. In other words, FATCA led to legal overreach, as some foreign non-financial entities deregistered disproportionately for FATCA.

We then perform extensive hand-collection to match a dataset of financial firms from Bureau Van Dijk's Orbis database—arguably the most comprehensive, commercially available dataset for international firms—to the FFI List. This process allows us to estimate a baseline firm-level FATCA participation or registration rate.⁵ We find that, among the Orbis sample firms we identified as FFIs, 97 percent registered under FATCA. This estimate represents an extremely high level of initial participation by FFIs and speaks to the market power of the U.S. for inducing extraterritorial financial information sharing.

In sum, our first set of results indicates extremely high rates of commitment to information sharing, both at the firm and country level. In next set of analyses, we examine whether information sharing imposed a real economic burden on foreign institutions, following the theoretical predictions of Dharmapala (2016). We examine economic costs from two perspectives: local stock market reactions to U.S. regulatory proposals of heightened information sharing and ex post profitability for local financial institutions that publicly commit to sharing information with the U.S. government.

We examine investor reactions to several key dates surrounding FATCA in order to assess investor expectations of the net costs of automatic information sharing. These dates relate to

⁵ Throughout the paper, we use the term foreign financial institution or FFI to refer to the population of all foreign entities that should comply with FATCA. We will use the term *participating* foreign financial institution or participating FFI to refer to those firms within the population that actually register with the IRS to comply with FATCA.

significant events leading up to the implementation of FATCA, ranging from the initial passage of the law, to proposed regulations for implementing the law, to the signing of agreements between countries. Again, because these events were imposed by the U.S. government on foreign entities and because they occur on different dates, they represent a plausibly exogenous shock to the costs of mandated information sharing that is not confounded by differences in local laws or concurrent events. We find that market reactions for affected firms were far more negative than those of unaffected firms across the event dates. Moreover, within the set of affected firms, the market response is even more negative for stocks in tax havens than in non-havens. Overall, these market reactions are consistent with investors' expectations that the U.S. mandating information sharing would negatively affect the performance of foreign financial institutions.

To examine ex post profitability, we use another source of data, Compustat Global, which has enough historical coverage to compare firm financial performance before and after FATCA. To ensure empirical identification, we use firms' staggered IRS registration combined with high-dimensional country-industry and year fixed effects, which yields a generalized difference-in-difference model that captures the incremental costs of information sharing borne by non-U.S. financial institutions who chose to share information with the IRS. We find that on average, financial firms' performance goes down significantly after firms chose to share information with the IRS. The effect is economically meaningful, as ROA dropped 60 bps on average subsequent to information sharing, which represents a 15 percent decrease in profitability relative to the sample average. We find a similar decline in financial performance as measured by ROE. In summary, this finding is consistent with substantial financial costs to cross-border information sharing.

Finally, we examine the decline in financial performance subsequent to information sharing from several different angles. First, we find that the decline in performance is not temporary, but rather seems to persist for at least three years subsequent to the foreign entity registering to share

information with the IRS. This finding is inconsistent with nominal, one-time costs of implementation, such as training or system development costs. In addition, the results satisfy parallel trends assumptions, as sample firms' profitability is fairly constant pre-FATCA. Finally, the decline in performance is concentrated in the smallest FFIs in local financial services markets.

Our study makes several contributions. First, it provides evidence that tax enforcement burdens can be both offshored and outsourced via automatic information sharing agreements. Mandated disclosure requirements and information sharing among tax authorities are not new phenomena. In order to overcome information asymmetries between taxpayers and tax authorities, tax systems have required information sharing by third-parties (e.g., income data reported by employers to the IRS) for decades (Slemrod 2007). However, FATCA is unique because the third-party reporting is mandated by a *foreign* government with no sovereign authority over the reporting entity. That is, FATCA lies between two extremes – full mandatory reporting (where compliance rates are near perfect) and self-reporting (where compliance rates are much lower) – therefore, whether countries and companies will commit to information share is unclear ex ante. Using several different approaches and benchmarks, we provide novel evidence that the rate of commitment to information sharing for both foreign governments and financial entities is remarkably high.

Second, this study provides new empirical evidence on the costs of cross-border information sharing policies. The effects and economic costs of information sharing policies are still in question. While FATCA increased the tax reporting of many countries to a single country (the U.S.), many other countries are contemplating similar information sharing laws, which given a high degree of coordination, could lead to global tax reporting. As noted above, the OECD is now pursuing a global network of automatic information exchange. As of July 2018, the total list of participating governments has grown to 124 countries, amounting to an N-by-N network of over 3,200 bilateral relationships. This level of commitment to cross-border tax reporting, generally based on the

Common Reporting Standard (CRS), is unprecedented. It is difficult to establish whether the rate of participation for CRS will be as high as we document for FATCA, or whether the costs will be as high, given the infrastructures already in place. Nevertheless, this study provides a large-scale quantification of the costs of information sharing using the most comprehensive international data sources available, which should add insights to the discussions around CRS.

2. Background and Predictions

In this section, we discuss prior research on cross-border information sharing and develop predictions for the potential effects of mandated information sharing on the foreign financial sector. We do not provide a detailed background on FATCA here, but refer the reader to Appendix 1, which provides details on the implementation, enforcement and legal perspective on FATCA.

2.1. Cross-border information sharing

To begin, we discuss the extensive literature examining tax evasion, which information sharing is designed to combat. The classic Allingham and Sandmo (1972) theory of rational tax evasion suggests that, from an economic cost-benefit perspective, tax evasion has low expected costs and should be fairly pervasive, even among risk-averse individual taxpayers. This theory is based upon the inherent information asymmetries that exist between the tax authorities and the taxpayer. In the absence of these information asymmetries, compliance would likely be nearly perfect and regulation would be unnecessary. However, in the presence of these asymmetries, there is potential for tax evasion and a need for regulation to improve information exchange between tax authorities and taxpayers.

Differences in regulation across the jurisdictions foster greater information asymmetries, particularly for taxpayers who can move taxable income across jurisdictions. As a result, significant potential exists for cross-border tax arbitrage, whereby taxpayers from countries with strict tax

regulations engage in cross-border activities in countries with weak tax regulations. A consequence of this form of arbitrage is the loss of tax revenues to the country with the stricter tax regulations.

In response, some countries seek to overcome cross-border tax arbitrage by requiring increased information sharing between and across countries. Countries employ several methods to combat cross-border tax arbitrage, including bilateral treaties (Johannesen and Zucman 2014), information exchange agreements (Hanlon et al. 2015; Braun and Weichenrieder 2014), amnesties and voluntary disclosures for offshore account-holders, legal measures against banks and bankers (e.g., the now infamous UBS case), and savings directives (Johannesen 2014).

Despite the apparent opportunities for evasion, some empirical research suggests that tax compliance rates are surprisingly high (Andreoni et al. 1998). However, *how* tax information is reported to the tax authority matters a great deal for compliance. For example, the IRS' third-party reporting rules require employers and investment managers to report an individual's wages, interest and dividends, which the IRS can in turn compare with the individual's own income declared on his or her tax return. Under self-reporting, a taxpayer only self-declares their income (such as Schedule C business income), and no third party confirms that income to the IRS. As Kleven et al. (2011) show, when third-party reporting is required, compliance rates are very high, but when taxpayers only self-report, compliance rates substantially decline.

FATCA falls on a spectrum somewhere between self-reporting and third-party reporting. Under FATCA, foreign entities as a third party are pressured to report an individual's identity and income to the IRS. However, those entities are foreign, and therefore are not under the same legal obligation as a U.S.-domestic entity. In that sense, these entities choose to *self-report* as a *third party*. This choice is part of what makes FATCA so interesting and important to study. In addition, the form and shape of FATCA is akin to other recent initiatives by the OECD and individual countries to dramatically increase cross-border tax reporting. To the extent that lessons

from FATCA can be applied to other initiatives, then understanding the costs and implications of FATCA is an important endeavor.

2.2. Costs and consequences of information sharing

Dharmapala (2016) models the potential costs of mandated information sharing for financial institutions. If financial institutions comply with the foreign-mandated information sharing, they must investigate whether current accountholders are non-residents and establish an infrastructure for automating reporting to the foreign countries. These foreign reporting costs are in addition to those related to compliance duties under home country regulations. The implication of this model is simple: the effect of mandating foreign financial entities to share information effectively outsources some of the administrative burden from the U.S. government (i.e., the IRS and/or Treasury) to foreign financial institutions, directly increasing their costs.

Another prediction of Dharmapala's (2016) model is how foreign-mandated information sharing affects the local financial sector. Banking is inherently about asset protection, which generally entails a certain degree of privacy. The ability to provide customers with both asset protection and privacy, especially for banks located in certain local economies (e.g., Switzerland), represents a large comparative advantage over banks in other local economies. Therefore, for the financial firms whose comparative advantage is directly tied to accountholder privacy, increased information-sharing can negatively influence their business model, and in turn, impair their ability to generate profits. We test these two theoretical predictions in the analyses that follow.

3. Data Sources and Variables

We use four different primary data sources in this study, each for a specific purpose.⁶ First, we identify which countries have agreed to implement FATCA using the U.S. Treasury's FATCA

⁶ Appendix 3 describes and summarizes the specific reason we use each dataset.

Resource Center.⁷ We also use this government data to identify the date a foreign jurisdiction entered into an IGA and the enforcement model used in that country. These data are required to get the detail necessary to examine country-level participation with FATCA.

Second, we use the IRS's *FATCA Foreign Financial Institution (FFI) List Search and Download Tool* to identify institutions that are complying with FATCA by registering with the IRS and thus being included on the FFI List.⁸ The FFI List is published monthly by the IRS and contains the name of each registered FFI, a unique identifier assigned to each FFI by the IRS (GIIN), and the FFI's home country. We collect all the official monthly FFI Lists from July 2014 to June 2018 to identify the date each FFI first registered with the IRS. The initial FFI List published in July 2014 indicated that 87,993 FFIs had registered. By June 2018, that number had grown to 314,026 FFIs. Across all monthly lists from July 2014 through June 2018, we identify 373,810 unique FFIs.

Third, we use data from Bureau Van Dijk's Orbis database, which gathers information on over 275 million companies around the world from various sources including public financial statements, local statutory filings, and other sources.⁹ We use the Orbis data to create an approximation of the population of financial institutions that we would expect to register on the FFI List. Hence, we include all firms in the financial industry (i.e., SIC between 6000 and 6999) except real estate firms (SIC between 6500 and 6599) in all countries outside the United States. Due to the time-intensive nature of manually reviewing and supplementing name matching scripts that match

⁷ <https://www.treasury.gov/resource-center/tax-policy/treaties/Pages/FATCA.aspx>

⁸ <https://www.irs.gov/businesses/corporations/fatca-foreign-financial-institution-list-search-and-download-tool>

⁹ The OECD claims that Orbis is the most comprehensive commercial cross-country data source, based on a summary of many international data sources, but that Orbis is not complete, global registry of firms and coverage varies from jurisdiction to jurisdiction (see, Action 11, Measuring and Monitoring BEPS 2015; p.143). Fortunately, Orbis coverage has greatly expanded since the 2006 data used in the OECD review, but we still acknowledge the incompleteness of global datasets and encourage readers to remember this limitation in interpreting the results.

the FFI List and Orbis, we focus on financial firms with at least \$100m in assets and \$100m in sales.¹⁰

We algorithmically and manually match this population of Orbis firms to the FFI List based on firm names. Specifically, we fuzzy match both with Bureau Van Dijk's name-matching features in Orbis and with procedures written in SAS. We then manually check uncertain name matches. Lastly, we examine by hand the firms in Orbis that did not match to a firm in the FFI List. This last step is vital to our study because we are attempting to identify firms that should have registered and showed up on the FFI List but do not.¹¹ In summary, we employ both fuzzy text matching techniques and significant manual checks to create what, to our knowledge, is the largest database of financial institutions, both participating and non-participating in cross-border information sharing with the U.S. government¹²

Fourth, we use data from Compustat Global to examine the ex post costs of mandated information sharing. While the strength of the Orbis data is its broad coverage and ownership data,

¹⁰ This cutoff yields 7,886 firms that require examination by hand, which took several hundred hours of research assistance. A lower threshold, such as \$10m in sales and assets, yields a set of more than 35,000 firms for manual examination.

¹¹ We begin this last step by performing an internet search for each company to identify its primary business activities and determine whether it is a financial institution, as defined in the FATCA final regulations. If it is not, then we exclude it from the sample. If the firm does appear to meet the definition of FFI, we then manually search for the firm in the FFI List.

¹² A significant advantage of using the Orbis database is that it contains unconsolidated accounting data for a large number of firms, and it contains detailed parent-subsidiary links. Hence, if a firm's parent (subsidiary) is a non-financial entity but it has a financial institution subsidiary (parent), we are able to identify the subsidiary (parent) firm within our sample and link it. We take a conservative approach and assume that if a FFI's parent or subsidiary has registered on the FFI List, we consider the entire FFI group to be compliant. We believe this is the correct approach for two reasons. First, in order to reduce the compliance burden, the FATCA rules allow FFIs to "sponsor" certain affiliated FFIs, meaning that one entity can cover the FATCA registration for affiliated entities. While sponsored FFIs do appear on the FFI List, they often have nondescript firm names and thus may not be identifiable even though they are compliant. For example, the name "Branch" appears 3,077 times in the June 2014 FFI List, representing 3.5 percent of the entire list. Second, we consider a firm's FATCA strategy and implementation (e.g. whether to comply and how) to be a high-level decision likely made at the top. We thus view it unlikely that one entity within a firm's global structure would make its own decision and perhaps depart from the entire firm's strategy.

there is often very little financial detail available, especially historical financial data from before FATCA's implementation. Compustat Global, on the other hand, covers only publicly-traded firms, but contains much more detail over a longer time-series for sample firms. We also impose several restrictions to generate our Compustat Global sample of financial institutions. For firm-level tests, we retain only firms that we can match with Bureau Van Dijk via an ISIN number, which ensures that we have actual FFI registration dates for sample firms. We focus on financial firms (i.e., `indfmt="FI"`) and require non-missing values for total assets (AT), book equity (CEQ), pretax income (PI), and standard industry codes (SICH). Our Compustat Global sample begins in 2011 in order to avoid the potentially confounding effects of the financial crisis and goes through 2017. We use Compustat Global to estimate generalized difference-in-differences estimates of the effects of FATCA on FFIs' financial performance.

In summary, we draw data from several different sources in order to perform diverse and robust empirical tests. We leverage the strengths of each to triangulate the effects of mandated information sharing on foreign financial institutions.

4. Commitment to Information Sharing: Empirical Tests and Results

We first examine the characteristics of countries that commit to financial information sharing with the U.S. government by becoming IGA partner jurisdictions. We then turn our attention to firm-level analysis of commitment to information sharing.

4.1 Descriptive statistics and univariate tests of country-level FATCA compliance

As of January 1, 2019, 113 foreign jurisdictions have reached an agreement with the United States about FATCA, either formally or in substance.¹³ Table 1, Panel A contains summary statistics

¹³ An agreement in substance means that, although there is no formal treaty, countries are complying with the tenets of FATCA without a signed agreement.

for our sample of 204 countries from the U.S Treasury resource center for which we can obtain all necessary control variables. Notably, 53 percent of sample countries have an IGA in place with the U.S.; 20 percent are tax havens; 28 percent have tax treaties with the U.S.; and market participants in the average foreign sample country invested \$79 billion in U.S. portfolios and securities. Table 1, Panel B summarizes univariate correlations among key country characteristics. Of note, we observe that *IGA* is significantly positively correlated our three primary country-level variables of interest: *TAX HAVEN*, *TREATY*, and *FPI*. We rely on the multivariate tests described in the next section draw inferences about the association between a country signing an IGA and other country-level attributes.

4.2 Multivariate tests of country-level participation in information sharing

To examine the factors associated with the probability a country enters into an IGA, we estimate a country-level linear probability model in which the dependent variable, *IGA*, is equal to one for countries that have entered into an IGA with the U.S. and equal to zero otherwise. This analysis is purely cross sectional in nature, as it examines cross-country variation in country attributes that explain the likelihood of a country signing an IGA with the U.S. Specifically, the linear probability model is as follows:

$$IGA_c = \alpha + \beta_1 TAX\ HAVEN_c + \beta_2 TREATY_c + \beta_3 LOG\ FPI_c + \phi \mathbf{X} + \varepsilon_{i,t}. \quad (1)$$

In equation (1), the dependent variable, *IGA_c*, is an indicator variable for whether the country, *c*, signed an IGA with the U.S. government. *TAX HAVEN*, *TREATY*, and *LOG FPI* are our primary variables of interest. We also include a vector of controls, \mathbf{X} , that account for other macroeconomic and legal variables that could influence information sharing with the U.S. government, including country-level economy size (*LOG GDP*), the quality of property rights, law enforcement, and the likelihood of crime and violence (*RULE OF LAW*, *ROL*); the quality and efficiency in the court system (*ENFORCE CONTRACTS*); the strength of minority shareholder

protections (*INVESTOR PROTECTION*); and the quality of insolvency proceedings (*RESOLVE INSOLVENCY*).¹⁴ For each country observation, we include the value of each independent variable in 2014, which is the first year mandated information sharing under FATCA went into effect.

Appendix 2, Panel A provides detailed definitions of all country-level variables.

The results of estimating Equation (1) are tabulated in Table 2.¹⁵ We first examine our independent variables of interest separately in Columns 1-3. The coefficient on *TAX HAVEN* in Column 1 is positive and significant at the one percent level. There are several potential interpretations of this finding. First, this result consistent with tax havens' increased cooperation with other tax-based initiatives (e.g., the OECD's heightened enforcement efforts) and suggests that tax havens have more to lose by *not* signing an IGA. Second, this result is consistent with haven countries signing agreements to promote their identity as safe financial centers, not merely as tax havens. Third, this finding suggests that tax haven governments are willing to set aside or modify local secrecy laws and other regulations to cooperate with U.S. cross-border information sharing efforts.

The coefficient on *TREATY* in Column 2 is also positive and significant at the one percent level. To the extent that having a preexisting tax treaty reduces the cost of coordinated enforcement between governments, this result suggests that the likelihood of a cooperative implementation is decreasing in coordination costs. Finally, the coefficient *LOG FPI* in Column 3 is also positive and significant at the one percent level, consistent with two potential interpretations. First, countries with high portfolio investment into U.S. markets wish to signal their quality with commitment to information sharing. Second, countries with high portfolio investment into U.S. markets will have

¹⁴ These country-level governance variables are commonly used in cross country studies and some have been gathered because of academic studies. See Armstrong et al. 2010, Hoberg and Moon 2017, and Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).

¹⁵ We are unable to find a rule of law score for 11 countries. For these observations, *ROL* is set equal to the sample average.

more tax payments withheld, so the withholding penalties under FATCA are potentially starker for those countries with high levels of FPI into the U.S.

In Column 4, we examine these variables together with other potential country-level attributes that can influence a country's decision to sign an *IGA*. We find that our three variables of interest remain statistically significant in the predicted direction. Furthermore, we find that countries with higher *RULE OF LAW* and *INVESTOR PROTECTION* are significantly more likely to become IGA partner jurisdictions. The finding that countries with higher rule of law are more compliant with mandated information is consistent with these countries' general adherence to higher legal protections. The positive coefficient on *INVESTOR PROTECTION* suggests that countries that are more protective of minority shareholder rights are also more willing to cooperate with the U.S. to implement information sharing.

In sum, these tests imply that the potential costs of mandated information sharing did not affect all countries equally. Tax havens, countries with tax treaties, and countries with large amount of capital invested in U.S. securities markets participate at a higher rate among the cross section of countries.

4.3 Insights from financial firms committing to sharing information with the IRS

We next employ microdata from the IRS's list of Foreign Financial Institutions to examine firm-level participation in information sharing with the U.S government. In particular, we examine the extent of firm-level FATCA participation using the IRS's database of registered FFIs, as described in Section 3. Our FFI data provides several descriptive insights.

Figure 1, Panel A presents a heat map of firm-level FATCA participation across the world. The circles on the associated map visually represent the relative number of participants by country. The heat map shows that firm-level FATCA participation was quite extensive, with firms from more

than 200 countries registering as FFIs with the IRS. It also shows that several tax haven countries have the highest participation rates across the world.

Panel B tabulates the number of firms that have registered as FFIs with the IRS by country, in descending order. The Cayman Islands was the largest contributor to the FFI List and, by itself, represents nearly 1/5 of the FFI List (i.e., $65,609/370,360 = 17.7$ percent). The Cayman Islands is followed by the United Kingdom, Brazil, Japan, and Luxembourg. Panel B also shows a strong clustering of tax havens near the top of the list (Cayman Islands #1; Luxembourg #5; British Virgin Islands #6; Jersey #8, Guernsey #9; Hong Kong #11; Switzerland #12; Ireland #13; Mauritius #17; Bermuda #18; and Singapore #19).

Figure 1, Panel C illustrates the relative proportion of firms on the FFI List that are from tax haven nations compared to those that are not. While only 19.5 percent of countries, territories, and commonwealths listed are tax havens (i.e., 43 out of 220), approximately 48 percent of the entities on the FFI list come from tax havens. Hence, a disproportionately high number of FFIs come from tax haven countries.

4.4 What explains firm-level participation in information sharing?

We next turn to understanding information sharing commitment at the firm-level and generating an estimate of global FATCA participation. We do this by comparing the FFI list to the set of financial firms in Orbis, the largest, most comprehensive pool of foreign financial firms available.¹⁶ We use all Orbis firms with SIC codes between 6000 and 6999 as our basis for the set of firms that could feasibly register with the IRS as an FFI.

¹⁶ To be clear, while Orbis is considered the best available data, it does not capture the complete universe of foreign financial firms. It therefore serves as the best commercially available approximation of the universe of firms. To the extent that certain firms are systematically excluded from Orbis or are able to avoid statutory filings, bank regulation reporting, and tax filings on which Orbis collects data, they will be excluded from the denominator of our participation estimate, biasing upwards our participation estimate.

Table 3 presents the descriptive results of our findings. Of the 6,283 firms in Orbis that meet the definition of a FFI, we are able to identify only 214 firms that do not register with the IRS. Within this sample, that number represents an enrollment rate of 97 percent. Panel A presents a side-by-side comparison of the summary statistics for the sample of firms that are on the FFI List and the much smaller sample of firms that are not on the FFI List. A comparison of firm-level attributes, measured as of 2014, shows that the firms on the FFI list are quite different from firms that are not on the list – the average FFI is larger (in terms of both total assets and sales), less profitable, and more highly levered than the average financial firm that is not on the FFI List. T-tests across the two groups also suggest that FFIs are also more likely to come from countries that are tax havens, as well as countries that have lower GDP, higher rule of law, higher enforcement of contract rights, stronger investor protection, and stronger insolvency resolution.

Table 3, Panel B presents univariate correlations among firm-level attributes. Pearson correlations are presented below the main diagonal and Spearman correlations are presented above the main diagonal. *REGISTER* is positively correlated with *TAX HAVEN* and negatively correlated with *TREATY* using both Pearson and Spearman correlations. The association between *REGISTRATION* and *LOG FPI* is not consistent and depends on the type of correlation examined.

Table 3, Panel C reports the ten most common home countries of the 214 financial firms that do not participate in information sharing with the U.S. at any point during our sample period—27 are from China, 20 are from the Netherlands, and 18 are from the United Kingdom. Besides the institutions in those three countries, the remaining foreign financial institutions that do not participate in information sharing and potentially face withholding penalties on all inbound payments from the U.S. are most concentrated in the following countries: Australia, Germany, Italy, Sweden, Iran, Canada, and Bermuda. Other than seven entities in Bermuda, there is no evidence of unregistered FFIs clustering in tax haven jurisdictions.

FATCA was targeted at foreign financial institutions; however, the composition of the FFI List indicates it had at a much broader scope. We fuzzy match the firm names from the FFI List to the Orbis universe (i.e., firms with an industry code outside of the 6000s) and examine the industry composition of this broader sample. Table 3, Panel D tabulates these results. We are able to match 97,522 of the FFIs to Orbis firms. Of those matched FFIs, we find that 82,357 FFIs tied to firms with a financial industry SIC code. Interestingly, we find that 15,165 FFIs, or about 16 percent of the identifiable FFIs, come from non-financial industries. The fact that firms whose major focus is not financial services have to participate in FATCA suggests that its scope is broad and reaches beyond its intended taxpayer pool. In other words, we find evidence to suggest legal overreach in response to FATCA.

To examine the factors associated with the probability a foreign financial firm registers with the IRS, we estimate a firm-level linear probability model in which the dependent variable, *REGISTER*, is equal to one if foreign firm *i* registers on the IRS's FFI list, and zero otherwise:

$$REGISTER_i = \alpha + \beta_1 SIZE_i + \beta_2 LEVERAGE_i + \beta_3 ROA_i + \varphi \mathbf{X} + \varepsilon_{i,t}. \quad (2)$$

This model includes several firm-level attributes acquired from Orbis, including the natural log of the firm's total assets (*SIZE*), debt-to-assets (*LEVERAGE*), and return on assets (*ROA*), as well the vector of country-level control variables (\mathbf{X}) included in equation (1).¹⁷ As before, variation in this model is purely cross-sectional (i.e., across many firms and countries); standard errors are clustered by country.

The results of estimating Equation (2) are presented in Table 4. Column 1 tabulates the results of estimating the model using just the firm-level characteristics. The coefficients on *SIZE* and *LEVERAGE* are both positive and significant. Column 2 tabulates the result of estimating

¹⁷ For these cross-sectional analyses, all independent variables are measured as of 2014, which is the first year of FATCA implementation.

Equation (2) including all country-level variables of interest and controls. *SIZE* and *LEVERAGE* both continue to be associated with a firms' choice to participate in information sharing. The results also suggest firms that do not register with the IRS are more likely to come from countries that have high levels of investor protection. The finding that large firms and more levered firms are more likely to participate in FATCA suggests that firms that ignore FATCA and choose not to have access to U.S. markets without a withholding penalty are smaller and use less debt.

Overall, the results of the firm-level tests are striking, as they show an incredibly high rate of firm-level participation with information sharing with the U.S government, despite the fact that they do not fall under the direct purview of the U.S. That is, the overwhelming majority of the world's financial institutions identified by Orbis registered with the IRS, effectively agreeing to participate in automated information sharing. Furthermore, our results suggest that larger and more leveraged firms are more likely to register. While FATCA registration is not synonymous with strict FATCA compliance by FFIs, it is a first, major, and heavily scrutinized step in that process. In Section 6, we examine the continued commitment to information sharing by examining firms' continued presence on the IRS's FFI list.

5. Costs and Consequences of Information Sharing: Empirical Tests and Results

Having established that virtually all foreign financial institutions in our sample participate in mandated information sharing, we next test the theory put forth in Dharmapala (2016) that financial institutions can bear significant costs as a result of commitment to information sharing. We examine these costs on two fronts: market reactions and ex post profitability. The market reactions capture investors' ex ante perceptions of both the likelihood that information sharing would be mandated, as well as its potential costs; the profitability tests capture the subsequent realized performance effects of mandated information sharing.

5.1 Market returns to events related to mandated information sharing

In order to assess the market perceptions of mandated information sharing, we identify a set of events that occurred between 2010 and 2014 that we gauge as affecting the likelihood that information sharing would be automated between the U.S. and that specific local market. Specifically, we identify four key dates that materially affected the probability and nature of information sharing through FATCA, each of which we describe next.

The first date is the day FATCA was passed as part of the HIRE Act in March 2010. On this date, FATCA was written into the law—however, considerable uncertainty remained regarding the scope and feasibility of the provisions outlined in the HIRE Act. Much of this uncertainty was resolved in ex-post guidance issued by regulators, which make up the next two dates. Our second date is the date the IRS issued proposed regulations for FATCA in February 2012. The proposed regulations addressed a number of questions raised by the HIRE Act and established an aggressive timeline for implementation.¹⁸ Our third date is when the IRS issued final regulations in January 2013. The final regulations made a number of material changes, many of which simplified information sharing.¹⁹ On the other hand, the issuance of final regulations cemented FATCA’s existence as a far-reaching information sharing regime, despite considerable pushback from the financial services industry. Indeed, our discussions with individuals working at financial institutions and consulting firms during this time suggest that many financial institutions delayed significant investments in compliance until the final regulations were issued. Our last date is based on country-specific IGAs. While the existence of an IGA does not affect whether a firm must comply with

¹⁸ FATCA implementation dates were delayed later in 2012 (IRS Notice 2012-42) and again in 2013 (IRS Notice 2013-43), resulting in delays of several years for some provisions.

¹⁹ For example, the final regulations introduced the FATCA registration web portal, which facilitates a paperless registration and reporting process. The final regulations also simplified compliance for financial firms with extensive organizational structures by allowing a single “sponsoring” entity to undertake FATCA obligations on behalf of other sponsored entities in its group.

FATCA, it does significantly impact the enforcement of information sharing by local tax authorities. We employ the earliest date among the dates that an IGA was agreed upon in substance, treated as effective, signed, or put into force. In sum, these four dates allow us to test market perceptions of mandated information sharing.

We examine the market reactions surrounding FATCA dates for two groups of firms: first, the firms most expected to be impacted by FATCA, namely foreign financial institutions; and second, financial firms located in tax havens (as a subset of the first group). We obtain daily unadjusted market returns for all firms in Compustat Global around the four event dates detailed above.²⁰ We then create value-weighted portfolio returns for the one-day event for different groups of potentially affected firms (e.g., foreign financial firms, tax haven firms).²¹ We compute event returns using one-day windows, as opposed to longer windows, because the dates are accurate and have been adjusted to account for time-zone differences.²² Following Armstrong et al. (2010), we compute statistical significance using bootstrapped standard errors.²³

²⁰ We use unadjusted (i.e., raw) returns to capture the systematic market impact on all firms in the industry, given the extensive and far-reaching impact of FATCA, and in part, because a suitable market index is not available for many small sample countries. Similar approaches have been used in other regulatory event studies that examine with events with significant global effects (e.g., Wagner et al. 2018a; Wagner et al. 2018b; Gaertner et al. 2019).

²¹ This approach is widely implemented in the literature, following recommendations in Sefcik and Thompson (1986). As noted in Armstrong et al (2010) among others, portfolio returns are suitable because they are unaffected by potential cross-section correlation due to firms sharing the same event dates.

²² To ensure accuracy, we align firms located in different time zones across the world with a one-day lag to all firms located outside of North and South America. In untabulated tests, we also consider 2-day and 3-day event windows. The size and significance of returns remains consistent in tests comparing FFI industries with non-FFI industries (as in Table 5, Panel A). However, the results are weaker for tests comparing havens to non-havens (as in Table 5, Panel B) when we extend to longer event windows, consistent with additional noise resulting from longer, less-precise time windows.

²³ Specifically, we compute a bootstrapped p-value based on the proportion of 500 draws for which the mean return of four randomly selected non-events exceeds the mean event return (e.g., Armstrong et al 2010). We use all trading days in calendar years 2010-2016 as our sample from which random non-events are drawn. Results are similar using simple t-tests of mean differences across groups.

We present the results of the market reaction tests in Table 5. In Panel A, we compare the market reaction for foreign financial industries to the reaction for non-financial industries.²⁴ The first column shows that, averaging across the four events, financial industries have portfolio event returns that statistically negative at -0.48 percent. The first two rows indicate the first two FATCA events had the most negative portfolio returns—the HIRE act date and the proposed regulations date—while the other two events exhibit portfolio returns for the financial industry that are close to zero. When compared to the portfolio returns of non-financial industries, the returns of financial industries are on average 0.39 percent lower and bootstrapped p-values suggest that the return difference is statistically significant. These results suggest that, in both absolute and relative terms, the market inferred a significantly negative penalty on foreign financial institutions subsequent to mandated information sharing under FATCA.

In addition, these tests also help us quantify the economic magnitude of the effect. The total portfolio returns to foreign financial institutions on the four event days implies an aggregate loss to market value of equity of \$91 billion, or \$14m per firm. While this analysis includes only publicly-traded firms, it likely captures a large portion of the cost borne by financial institutions.²⁵

We next focus on tax haven firms, as we expect that these firms face greater costs from information sharing. In Panel B, we restrict the sample to only firms in foreign financial industries and partition them by tax haven status. Consistent with our intuition, we find that among foreign financial industries, firms located in tax havens exhibit markedly lower returns on the event dates,

²⁴ We identify FFI industries at the 3-digit SIC level. We start with all SICs between 600 and 679 and remove industry codes that do not meet the definition of FFI in the final regulations. This primarily results in the removal of non-depository credit institutions, non-life insurance, and real estate. The full list of included SICs is in the appendix.

²⁵ These estimates are consistent with independent reports. A representative of Banco Bilbao Vizcaya Argentaria, a large Spanish bank, estimated compliance costs between \$8.5m for small, local entities to \$850 million for large global ones. One expert projected global compliance costs of \$60 billion to \$170 billion (Green 2017).

0.66 percent lower, than do non-tax haven firms on those dates. These tax haven returns, both on a standalone basis and compared to non-tax haven returns, are statistically significant.

Overall, these market returns tests provide evidence that investors perceived that information sharing related to FATCA would likely be implemented and would impose significant costs on foreign financial institutions, with tax haven financial institutions experiencing particularly adverse effects. In our next set of analyses, we examine whether investors' perceptions of potential costs of FATCA for foreign financial institutions were in fact realized—that is, we examine how foreign financial institutions' actual profitability was affected by mandated information sharing with the U.S. government.

5.2 Profitability analysis

Next, we examine how an individual foreign financial institution's financial performance changes following its registration with the IRS and inclusion on the IRS's FFI list. This analysis should help provide evidence about the extent of the regulatory burden that can result from mandated information sharing. With that objective in mind, we estimate the following model:

$$PERFORMANCE_{i,t} = \alpha_{c,j} + \delta_{c,t} + \beta POST_{i,t} + \varphi \mathbf{X} + \varepsilon_{i,t}. \quad (3)$$

The dependent variable, $PERFORMANCE_{i,t}$, is one of several measures of financial performance, including return on assets (ROA) and return on equity (ROE). ROA (ROE) for financial firm i in year t is defined as operating income scaled by total assets (total equity) in a given fiscal year, as reported in Compustat Global.²⁶ $POST$ is an indicator variable that is equal to one starting in the first full fiscal year that a firm or any of its subsidiaries is on the IRS's FFI list. It is set equal to zero otherwise, including each firm's registration year. Because firms register with FATCA at different

²⁶ Appendix 2 provides details on the source, description and computation of all test variables.

points in the sample period, *POST* is staggered across time for all firms, which aids in empirical identification.

In estimating equation (3), we include country-industry fixed effects ($\alpha_{c,j}$) to control for any time-invariant factors in a country, c , within industry, j . We also include country-year fixed effects ($\delta_{c,t}$) to control for all country-level time varying factors. \mathbf{X} is a vector of firm controls known to correlate with financial performance. At the firm-level, we include total revenues (*LOG SALES*) and financial leverage (*LEVERAGE*), as defined in Appendix 2. Standard errors are clustered by firm. Table 6 presents descriptive statistics for the Compustat Global sample. Panel A tabulates summary statistics and Panel B tabulates univariate correlations among variables of interest.²⁷

In Table 7, Panel A, we present the results of estimating Equation (3) using the sample of Compustat Global firms. In Columns 1 and 2, we report the results with *ROA* and *ROE*, respectively, as dependent variables.²⁸ We find that subsequent to mandated information sharing, both measures of financial performance are reduced. With *ROA* as the dependent variable, the estimated coefficient on *POST* that is negative (-0.006) and significant (p-value <0.05). This estimate suggests that sample firms' *ROA* decreased by 0.6 percent of assets (60 bps) in the several years after they registered with the IRS. Based on a sample mean *ROA* of 4.1 percent, this represents a 15 percent decrease in profitability, suggesting an economically meaningful effect on profitability. With *ROE* as the dependent variable, the coefficient on *POST* in Column 2 is negative and significant (p-value <0.10). The coefficient estimate (-0.021) scaled by the average *ROE* in the sample (0.342)

²⁷ The descriptives demonstrate the differences between Compustat Global, which covers a global sample of publicly traded firms, and Orbis, which covers a sample of both public and private firms. For instance, average assets and sales are larger for the sample of firms from Compustat Global than for the sample of firms from Orbis. The average *ROA* for Compustat Global firms is slightly lower than average *ROA* for firms in the 2014 Orbis data.

²⁸ The number of observations in Tables 7 and 8 does not match summary statistics in Table 6 because we drop observations where fixed effects are nested within clusters (i.e., a single observation per fixed effect, as discussed in Correia (2015)).

suggests FATCA can be linked to a 6% decrease in profitability. Overall, this finding suggests that U.S.-mandated information sharing imposes a significant economic cost on foreign financial firms.

5.3 Short-run versus long-run effects of information sharing

In our next set of analyses, we examine the short-run versus long-run costs of mandated information sharing. The costs estimates presented in Table 7 Panel A mingle the initial implementation costs of information sharing (e.g., information technology investment, operational process reviews, consulting fees, etc.) with ongoing costs of information sharing (ongoing monitoring costs, reputation costs, consequences of capital migration, etc.). While we are unable to perfectly separate and quantify these two broad cost buckets, we next examine how the cost of FATCA implementation varies in event time. If firms' cost outlays/profit losses due to mandated information sharing relates only to one-time implementation costs, then we would not expect the negative effect of FATCA on profitability to persist beyond the implementation year. We test this intuition with two different empirical approaches. First, we replace the general *POST* indicator in equation (3) with event-year indicators (*POST1* through *POST3*) for each of three years subsequent to the firm's registration with the IRS. Second, we break up the pre-period into separate event-year indicators (*PRE4* through *PRE1*) for each of the four years prior to the firm registering with the IRS. This specification approximates a parallel trends approach by allowing for comparison between the pre-registration indicators and post-registration indicators.

Table 7, Panel B presents the results of this estimation. Columns 1 and 2 (3 and 4) present results with *ROA* (*ROE*) as dependent variables. In Columns 1 and 3, the coefficients on *POST1*, *POST2*, and *POST3* are all negative and significant, consistent with persistent costs of information sharing. In Columns 2 and 4, the coefficients on all three *POST* indicators remain significant, while only a handful of the *PRE* indicators is significant. We interpret this finding to suggest that the model is not picking up a general trend in *ROA* and *ROE* for foreign financial firms—instead, it is

picking up the costs of mandated information sharing, as borne out by reduced profitability for financial firms.

5.4. *Size Effects*

We also examine cross sectional variation in the effects of mandated information sharing on financial firm performance. If FATCA simply imposed a proportionate fixed cost on all financial institutions, then we would expect to see a decline in firm performance among all sample firms. If, however, smaller firms have historically been able to cater to a demand for customer privacy, then we might expect to see smaller financial institutions bearing more of the cost of FATCA. Similarly, if FATCA imposed a true fixed cost on all financial institutions, small firms may face a relatively larger burden because there are fewer customers across which to spread the fixed costs. In our next analyses, we examine whether smaller foreign firms bore a larger burden after registration with the IRS. To capture size in these analyses, we rely on the firm's total revenues in USD.²⁹ Each year, firms are sorted into revenue terciles at within their home country and industry.

Table 8 tabulates the results of estimating Equation (3) using *ROA* (Panel A) and *ROE* (Panel B) as the dependent variable separately for three groups of firms based on their annual revenues. In Panel A, the estimate of *POST* in the first revenue tercile is negative (-0.009) and significant at the 5 percent level. The estimates of *POST* in the second tercile (-0.004) and third tercile (0.006) are not significant, but are monotonically increasing. The difference between the estimates of *POST* in the first and third terciles is significant (p -value < 0.05).³⁰ We find similar results in Panel B, using *ROE* as the dependent variable. These results suggest that smaller financial

²⁹ For this test, we do not measure *SIZE* with total assets as do earlier in the paper. This is because total assets is the denominator of our dependent variable and we do not want the variation in total assets across partitions to spuriously drive variation in *ROA*.

³⁰ The results are largely robust to other sample partitions based on size. For example, we repeat this analysis in untabulated robustness tests and alternatively form terciles based on size just within a country-year. We find a similar negative and significance estimate of *POST* in the smallest tercile and an increasing monotonic trend across terciles, although the difference between the first and third tercile is not statistically significant.

institutions were harmed relatively more by the regulatory burden imposed by FATCA than were larger financial institutions, which speaks to the distributional burden of FATCA.

6. Additional Evidence: Other Costs of Information Sharing

In our final set of analyses, we drill deeper into the participation rates documented in previous analyses to examine whether FFI registration represents a legitimate commitment to information sharing or whether it is a token gesture that represents pseudo-compliance. To do so, we examine firms that drop off the FFI List. There are two general reasons that firms do not remain on the IRS's FFI list: first, they did not need to comply with FATCA in the first place, and second, firms failed to fully comply with FATCA and chose to drop off the list or they were removed directly by the IRS.³¹

We are interested in both of these situations as part of our general research questions, as they relate to two important constructs: overreach and pseudo-compliance. To the extent that we find evidence of drop-off due to erroneous registration, we view this as overreach because U.S. law compelled foreign firms to comply even though they later realized compliance with FATCA was not necessary. To the extent that we find evidence of drop-off in jurisdictions with known issues (e.g. tax havens), we interpret this as evidence of pseudo-compliance.

Figure 2 presents a map of the percentage of FFIs that dropped off the FFI List by country, with the top ten jurisdictions highlighted in blue. Among the highest drop-off countries, we find a number a tax havens and low rule of law countries. Surprisingly, however, there is significant

³¹ For parsimony in writing, we have summarized the reasons for dropping of the FFI list into two broad categories. However, our discussions with individuals at the IRS who run the FFI portal suggests seven more specific reasons why firms would drop from the FFI List: (1) failure to comply with FATCA, (2) failure to renew the FFI Agreement, (3) incomplete registration, (4) erroneous/unnecessary registration, (5) cancellation by the FFI of its FFI Agreement, (6) mergers or acquisitions, and (7) sanctions by the Office of Foreign Assets Control.

variation in drop-off among tax havens. Gibraltar, Liberia, Belize, and Isle of Man all appear in the top ten; but other tax havens with a large number of registered FFIs have very low drop-off.³² The Cayman Islands, for example, has a drop-off percentage of just 10.6 percent despite having by far the most FFIs. To the extent that drop-off indicates pseudo compliance, this finding suggest variation in compliance across tax havens.

To examine the factors associated with the percent of FFI list drop-offs for a country, we estimate a country-level OLS model in which the dependent variable, *PCT DROP*, is the percentage of total FFIs in a country that drop off the FFI List before the end of our sample period. This analysis is purely cross sectional in nature, as it examines cross-country variation in country attributes that explain the proportion of drop-offs in the country. Specifically, the OLS model is as follows:

$$PCT\ DROP_c = \beta_1 IGA_c + \beta_2 TAX\ HAVEN_c + \beta_3 TREATY_c + \beta_4 LOG\ FPI_c + \varphi\mathbf{X} + \varepsilon_c. \quad (4)$$

In equation (4), *IGA* and *TAX HAVEN* are our primary country-level variables of interest. To the extent that tax haven countries exhibit higher levels of drop-offs (i.e., $\beta_2 > 0$), we interpret the result to suggest evidence of pseudo-compliance. *IGA* is also important in this model, as it captures the extent of drop-offs for countries that have agreed to an IGA with the U.S. A negative coefficient on *IGA* (i.e., $\beta_1 < 0$) is consistent with increased compliance associated with local enforcement. We also include as controls other macroeconomic and legal variables that could influence FATCA participation, as in equation (1) above, which are measured as of 2014. Appendix 2, Panel A provides detailed definitions of all country-level variables. Because a large number of countries have

³² Anecdotal evidence suggests significant variation in tax havens' risk appetite. Nicholas Shaxson, in his book *Treasure Islands*, quoted John Christensen, a former Jersey financial sector professional, as saying "We in Jersey regarded Gibraltar as totally subprime. This was where you put the real monkey business." (Shaxson, 2011, p.15).

very few FFIs on the FFI List, we include only those countries which have at least 100 FFIs, which reduces the sample size for this analysis to 104 countries.

We present the results of estimating equation (4) in Table 9. We find a positive and significant coefficient of 0.073 on *TAX HAVEN*, indicating that FFIs in tax haven jurisdictions are 7.3 percent more likely to drop off. We interpret this finding to suggest that some level of pseudo-compliance with FATCA occurred for tax haven countries. In addition, we find a negative and significant coefficient of -0.133 on *IGA*, meaning that FFIs in IGA jurisdictions are 13.3 percent less likely to drop off. This result suggests that IGAs are successful in mitigating firms in IGA countries from dropping off the FFI list. To the extent that we can show that drop-off relates to non-compliance, our result provides evidence that IGAs improve FATCA compliance. These results together suggest that we observe compliance in the cross-section where we would expect it (i.e., in IGA countries) and observe pseudo-compliance in the cross-section where we would expect it (i.e., in tax havens).

We continue our examination of drop-offs with a firm-level analysis. In particular, we estimate a firm-level linear probability model in which the dependent variable, *DROP*, is an indicator variable equal to one if firm *i* drops off the FFI List before the end of our sample period, and zero otherwise:

$$\begin{aligned}
 DROP_i = & \beta_1 IGA_i + \beta_2 TAX\ HAVEN_i + \beta_3 TREATY_i + \beta_4 LOG\ FPI_i \\
 & + \beta_5 NON-FINANCIAL_i + \phi\mathbf{X} + \varepsilon_i.
 \end{aligned}
 \tag{5}$$

Again, we rely on *IGA* and *TAX HAVEN* as our primary test variables of the notion of pseudo-compliance. This model includes a new variable relative to past models, *NON-FINANCIAL*, which is an indicator if firm *i* is not a financial firm (i.e., the firm's SIC is not between 6000 and 6999), and

zero otherwise.³³ If we find that non-financial firms drop off at a higher rate (i.e., $\beta_i > 0$), we interpret it to suggest additional costs of information sharing, in what might be called legal overreach.

The sample covers all firms on the raw FFI list, as in Figure 1, which has two noteworthy limitations. First, because we are using the raw data, we do not have access to firm-level control variables; however, we include several country-level controls (*CONTROLS*) in this model, which are measured as of 2014. Second, some of the entities on the raw FFI list are subsidiaries; but we attempt to exclude these entities in robustness tests to alleviate concerns that drop-off may be driven by the expiration of short-lived vehicles or erroneous registrations. As with equation (2), variation in model (5) is purely cross-sectional (i.e., across many firms); standard errors are clustered by country.

Table 10 presents the results of estimating equation (5). In Columns 1 and 2, we use the entire raw FFI List; in Columns 3 and 4, we examine only FFIs that are the primary entity.³⁴ Across all specifications, we find very consistent results. Similar to the country-level analysis, we find large, statistically significant negative coefficients on *IGA*, and large, statistically significant positive coefficients on *TAX HAVEN*. Again, because we find evidence of higher (lower) drop-offs for tax havens (IGA countries), we interpret this to suggest that some firms engaged in pseudo-compliance to FATCA.

Finally, we find that the coefficient on *NON-FINANCIAL* is significantly positive, indicating the firms in nonfinancial industries were significantly more likely to drop off the FFI List than firms in financial industries. This finding implies that a number of non-financial entities (such

³³ We obtain this indicator variable based on the sample of 97k firms that we fuzzy matched into Orbis and were able to obtain an industry code (See Table 3, Panel D). Hence, this variable is equal to one for approximately 15k firms, and zero for the remaining sample.

³⁴ We retain only those firms the FFI List identifies as “Single Financial Institutions”, “Lead Financial Institutions”, and “Sponsoring Financial Institutions.”

as construction and retail companies) registered as FFIs initially, only to drop off later when they realized they did not need to register with the IRS as an FFI. We interpret this as evidence of overreach of FATCA.

7. Conclusion and Caveats

This study presents evidence on the participations rates and consequences of extraterritorial mandates to share financial information with the U.S. government. In particular, we examine the reactions of, and potential costs to, foreign financial institutions around the imposition of FATCA, a U.S. regulation that induces foreign financial firms to disclose detail on U.S. clients and accountholders to the IRS. We examine participation at the country level in the form of becoming a FATCA partner jurisdiction and agreeing to an IGA with the U.S. Treasury. We also examine participation at the firm level in the form of foreign financial firm FATCA registration rates. In both cases, we find FATCA participation is very high—despite its non-mandatory nature. In sum, our evidence suggests that even though the U.S. has no jurisdiction over foreign financial firms, it is able to induce a high level of participation in information sharing arrangements.

Furthermore, we find that mandatory information sharing imposes significant economic consequences on firms located outside the U.S. Specifically, we find a significant decline in profitability and revenues for foreign financial institutions subsequent to their enrolling to customers' financial information with the U.S. government. Moreover, this effect persists for several years after agreeing to share information, consistent with a permanent welfare loss related mandated information sharing. Overall, the results suggest that a consequence of mandatory information sharing is the economic burden of imposing tax regulation is both outsourced and offshored.

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Appendix 1 – FATCA: Enactment, Policies, and Penalties

FATCA was passed as part of the HIRE Act in 2010 in response to allegations of widespread offshore tax evasion by U.S. persons and a down economy. Its aim is to combat tax evasion by compelling FFIs to provide the IRS with detailed information about U.S. investors or accountholders, which in turn enables the IRS to identify U.S. account holders with foreign cash. It also potentially acts as a deterrence mechanism, as the greater threat of detection resulting from information sharing can discourage U.S. persons opening unneeded foreign accounts or from underreporting income in foreign accounts.

FFIs that choose to register under FATCA agree to two responsibilities: (1) to perform due diligence to identify all U.S. account holders or investors, and (2) to report detailed account information annually to the IRS for the individuals identified. If FFIs choose not to participate in FATCA, they face a 30 percent withholding tax on any “withholdable payments” (generally interest, dividends, royalties, and other types of passive income) on U.S.-source income. In some cases, the withholding is not refundable, effectively imposing a penalty for non-compliance.³⁵

A withholding tax of this magnitude provides strong incentives for FFIs to participate in FATCA.³⁶ However, if FATCA operates as intended, no withholding tax will be collected because all FFIs will provide the IRS with account information for all U.S. persons with foreign accounts and investments. That is, the goal of FATCA is to raise revenue through increased tax compliance by individuals with offshore accounts, not to raise revenue by imposing a withholding tax on FFIs.

As noted above, FATCA is not without some controversy. When it was passed, some legal scholars considered it to be a gross overreach of sovereign rights that is both broad-sweeping in scope and expensive to implement (Harvey 2012). For one, FATCA applies to all “foreign financial institutions,” which is an extremely broad definition that includes (1) depository institutions, (2) custodial institutions, (3) investment entities, (4) certain insurance companies, and (5) certain holding companies and treasury centers. While there are exceptions to help alleviate the burden on small, local financial institutions with low risk of facilitating offshore tax evasion, in practice FATCA pulls in the vast majority of the world’s financial institutions and even a large number of non-financial firms. Moreover, FATCA affects all U.S. firms that make withholdable payments to non-U.S. entities, by requiring these firms to perform due diligence to determine whether payees are compliant and withhold the 30 percent tax if applicable.

When it was passed, many countries’ domestic privacy laws and banking regulations prohibited the kind of information sharing mandated by FATCA. Motivated in part by this concern, the U.S. introduced bilateral Intergovernmental Agreements (IGAs) with “partner jurisdictions,” which establish the terms for FATCA compliance in a given jurisdiction and, depending on the type of agreement, set up an alternative channel for information sharing.³⁷ When, in January 2013, the

³⁵ For example, beneficial owners of payments that are non-participating (non-compliant) FFIs are not entitled to a refund of the withholding tax unless they are entitled to a reduced rate pursuant to a tax treaty with the U.S. See § 1.1474-5(a)(2).

³⁶ Under most bilateral tax treaties, non-resident investors in U.S. securities are generally not subject to tax on certain types of portfolio income (i.e., capital gains from U.S. stocks or certain types of interest from U.S. debt). Thus, in many cases, a 30 percent withholding on all U.S. income payments out of the U.S. to foreign financial institutions creates the need for foreign individuals to actually file a U.S. tax return to claim the withheld amount—thus it represents more than just a delay in the receipt of funds.

³⁷ There are two major types of IGAs – Model 1 and Model 2. In Model 1 IGA countries, FFIs fulfill their annual reporting obligation by providing information on U.S. account holders to the partner jurisdiction (i.e. their local government). The partner jurisdiction then provides this information to the IRS on an automatic

preliminary IGA was finalized, only five countries had signed agreements, and it was unclear whether the U.S. would succeed in influencing foreign governments to enforce FATCA. However, as of July 2018, 113 countries have IGA agreements in effect, including nearly all major financial centers and tax havens. The IGAs are an intriguing aspect of FATCA because they often conflict with local privacy laws. That is, while they originated mainly as a way to overcome local legal impediments, the ultimate result is a set of agreements that both requires jurisdictions to change their local privacy laws and then outsources enforcement that typically falls to the IRS towards those foreign countries and entities.

Several anecdotes corroborate the notion that FATCA enactment is costly and the regulations are binding and enforced. First, in their 2017 Annual Report, Credit Suisse disclosed negotiations with the Swiss and U.S. governments to negotiate a replacement to the current FATCA agreement because “Complying with the required identification, withholding and reporting obligations requires *significant investment* in a FFI’s compliance and reporting framework” (Credit Suisse Annual report 2017, emphasis added). Second, the U.S. recently prosecuted its first bank executive for “conspiring to defraud the United States by failing to comply with Foreign Account Tax Compliance Act” in September 2018 (Department of Justice 2018). The defendant pled guilty of helping an undercover agent circumvent the FATCA reporting requirements at an offshore bank in Saint Vincent and the Grenadines—a tax haven. Penalties in this case included both extradition and prison time. Many believe the use of a sting operation was intended to send a message to foreign financial institutions and their decision makers (Rubinfeld 2018). Third, the IRS actively monitors the FFI List. In conversation with several individuals at the IRS, including the person who oversees the FFI List and registration web portal, they indicated that the IRS monitors the FFI list and has procedures in place to follow up with and remove firms who fail to provide adequate information. That is, firms who register but do not fully comply with their reporting requirements are removed from the FFI list and thus lose their exemption from the 30 percent withholding tax. We empirically examine these drop-offs in Section 6. Hence, firm disclosure, recent legal actions, and IRS monitoring all suggest that FATCA “has teeth” or at least that relevant parties believe it does.

basis. In Model 2 IGA countries, partner jurisdictions agree to allow direct reporting, which enables all relevant FFIs located in the jurisdiction to report specified information about their U.S. accounts directly to the IRS. In other words, countries that become Model 2 partner jurisdictions agree to amend local laws to allow FFIs to comply with FATCA.

Appendix 2 - Variable Definitions

| Panel A: Country-level variables | |
|---|--|
| IGA_c | An indicator variable equal to one if country c is an IGA partner jurisdiction, and zero otherwise. |
| $REGISTER_i$ | An indicator variable equal to one if firm i registers on the IRS FFI List, and zero otherwise. |
| $PCT\ DROP_c$ | The number of FFIs that drop off the IRS FFI List before the end of the sample period (June 2018) in country c , divided by the total number of FFIs in country c that ever appear on the IRS FFI List. |
| $DROP_i$ | An indicator variable equal to one if firm i drops off the IRS FFI List before the end of the sample period (June 2018), and zero otherwise. |
| $TAX\ HAVEN_c$ | An indicator variable equal to one if country c is a tax haven, and zero otherwise. We designate a country as a tax haven if it is on the Dyreng and Lindsey (2009) or Bennedsen and Zeueme (2017) |
| $TREATY_c$ | An indicator variable equal to one if country c has a tax treaty with the U.S., and zero otherwise. Source: IRS Tax Treaty Table 3 - https://www.irs.gov/pub/irs-utl/Tax_Treaty_Table_3.pdf . |
| $FPI_{c,t}$ | The amount of portfolio investment in U.S. securities in country c in year t , in USD billions. Source: U.S. Treasury. |
| $LOG\ FPI_{c,t}$ | The logged value of portfolio investment in U.S. securities in country c in year t . Source: U.S. Treasury. |
| $GDP_{c,t}$ | The amount of gross domestic product in country c in year t , in USD billions. Source: World Bank and CIA.gov. |
| $LOG\ GDP_{c,t}$ | The natural logarithm of gross domestic product in country c in year t . Source: World Bank and CIA.gov |
| $RULE\ OF\ LAW_{c,t}$ | The rule of law value from the World Bank's Worldwide Governance Indicators for country c in year t . For the small number of countries where this variable is unavailable, we set it equal to the median value. |
| $ENFORCE\ CONTRACTS_{c,t}$ | The enforcing contracts score from the World Bank's Doing Business Report for country c in year t . |
| $INVESTOR\ PROTECTION_{c,t}$ | The protecting minority investors score from the World Bank's Doing Business Report for country c in year t . |
| $RESOLVE\ INSOLVENCY_{c,t}$ | The resolving insolvency score from the World Bank's Doing Business Report for country c in year t . |
| Panel B: Firm-level variables | |
| $ASSETS_{i,t}$ | In Orbis: total assets for firm i , USD millions in 2014. In Compustat Global: total assets for firm i in year t , translated into USD millions. |
| $LOG\ ASSETS_{i,t}$ | The natural logarithm of $ASSETS$. |
| $SALES_{i,t}$ | In Orbis: operating revenue for firm i , USD millions in 2014. In Compustat Global: total revenue for firm i in year t , translated into USD millions. |
| $LOG\ SALES_{i,t}$ | The natural logarithm of $SALES$. |
| $SIZE_{i,t}$ | Log of total assets for firm i , in Orbis tests in 2014. Log of total sales for firm i in year t , in Compustat Global tests. |
| $LEVERAGE_{i,t}$ | In Orbis: (total assets - shareholder funds)/total assets for firm i in 2014. In Compustat Global: total liabilities/total assets (LT/AT) for firm i in year t . $LEVERAGE$ is winsorized at the 1st and 99th percentile. |
| $ROA_{i,t}$ | In Orbis: P/L for period/total assets for firm i in 2014. In Compustat Global: operating income after depreciation/total assets ($OLADP/AT$). ROA is winsorized at the 1st and 99th percentile in descriptive statistics and for OLS estimates. |

| | |
|--|--|
| $ROE_{i,t}$ | In Compustat Global: operating income after depreciation/book equity ($OLADP/CEQ$). ROE is winsorized at the 1st and 99th percentile in descriptive statistics and for OLS estimates. |
| $ROS_{i,t}$ | In Compustat Global: operating income after depreciation/total revenue ($OLADP/REVT$). ROS is winsorized at the 1st and 99th percentile in descriptive statistics only. |
| $REVENUE_{i,t}$ | In Compustat Global: total revenue / total assets ($REVT/AT$). $REVENUE$ is winsorized at the 1st and 99th percentile in descriptive statistics only. |
| $EXPENSES_{i,t}$ | In Compustat Global: total expenses / total assets ($(REVT-PI)/AT$). $EXPENSES$ is winsorized at the 1st and 99th percentile in descriptive statistics only. |
| $POST_{i,t}$ | An indicator variable equal to one for firm-year observations for which both (1) the firm has registered on the IRS FFI List and (2) the year-end date ($DATADATE$) is more than 365 days following the day of registration. |
| <i>Panel C: Other Variables</i> | |
| <i>FFI Industries</i> | We classify the following 3-digit SIC industries as FFI industries: 600, 602, 603, 606, 608, 609, 610, 618, 619, 620, 621, 622, 630, 631, 670, 671, and 673. All other 3-digit SIC industries we classify as non-FFI industries. |

Appendix 3: Data Sources and Sample Attrition

Panel A: Data source descriptions

- FATCA Resource Center: A U.S Treasury site that contains country-level detail on FATCA compliance. It has copies of all Intergovernmental Agreements (IGAs), summarizes information about FATCA enforcement models, and identifies the effective dates of these agreements. This is source of all information on IGAs. Please see: <https://www.treasury.gov/resource-center/tax-policy/treaties/Pages/FATCA.aspx>
- FATCA Foreign Financial Institution List Search and Download Tool: An IRS site that contains a monthly published list of all foreign financial institutions registered, accepted, and issued a unique identifier. Please see: <https://www.irs.gov/businesses/corporations/fatca-foreign-financial-institution-list-search-and-download-tool>
- Orbis: Bureau van Dijk's extensive database of private and listed company information from around the world. Orbis contains both financial and ownership variables, and covers a large number of private companies (over 99 percent of its 275 million companies are private). Orbis provides a limited time series of firm-year observations.
- Compustat Global: Contains detailed financial data for major companies trading on international exchanges. Compustat Global provides an extensive firm-year time series, with observations beginning in 1987.

Panel B: Attrition tables

Country Sample: Tables 1-2

| Criteria | Firms |
|---|-------|
| Countries in World Bank Databank with non-missing GDP | 217 |
| After manually adding Jersey, Gibraltar, and Taiwan | 220 |
| After removing countries with missing independent variables | 204 |

Orbis Sample: Tables 3-4

| Criteria | Firms |
|--|--------|
| Orbis non-U.S. financial firms (SIC 6000-6999) | 15,341 |
| After removing real estate (SIC 6500-6599) | 13,539 |
| After removing firms with U.S. parents | 12,875 |

Begin matching process

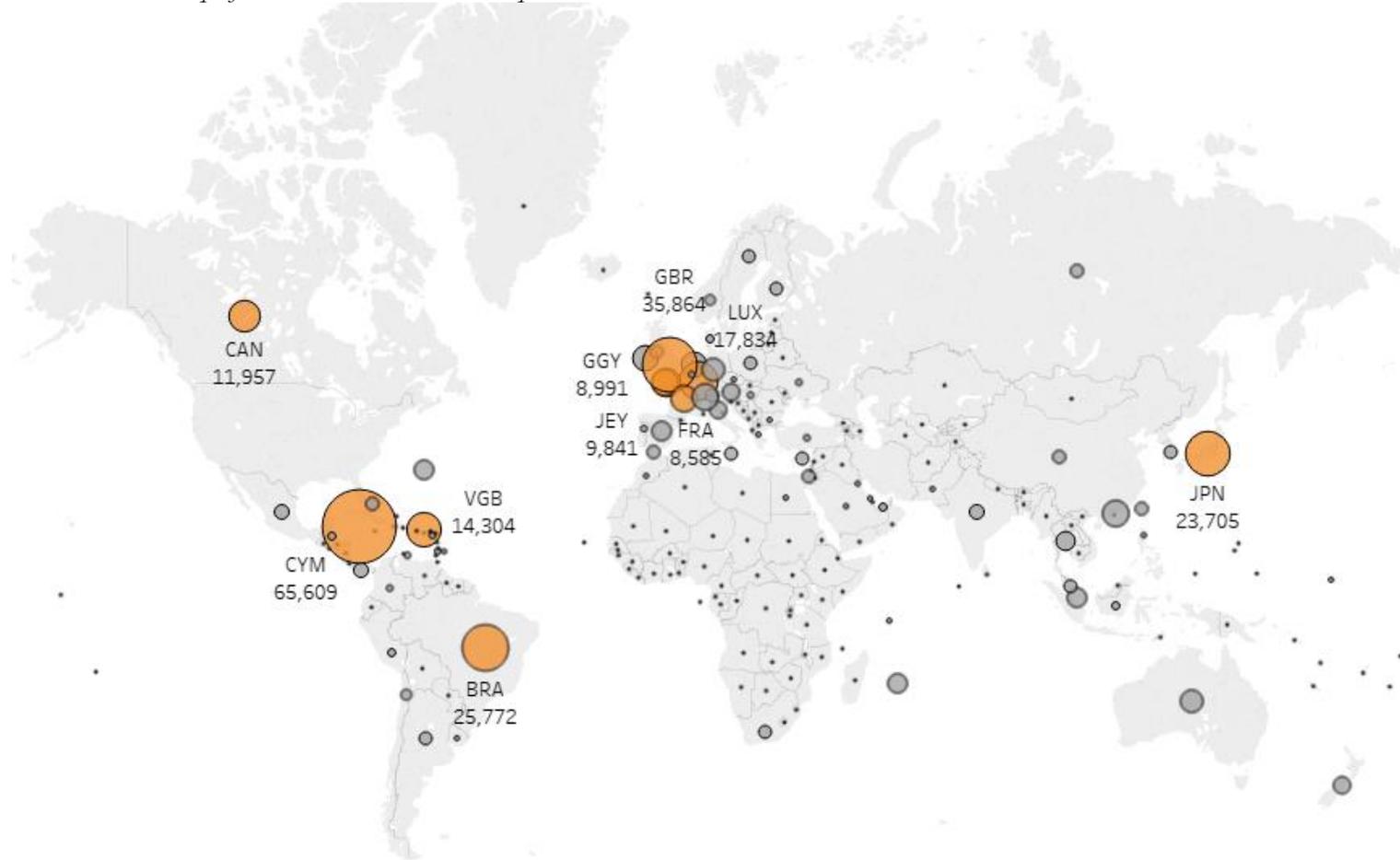
| | | |
|--|--------|-------|
| Fuzzy matched firms | 4,989 | |
| Remaining firms to be manually examined | 7,886 | |
| After removing firms not considered financial institutions under FATCA | -6,360 | 6,515 |
| After removing firms with missing dependent or independent variables | | 6,283 |

Compustat Global Sample: Tables 5-9

| Criteria | Firms | Firm-years |
|---|-------|------------|
| Orbis firms with International Securities Identification Numbers (ISINs) | 1,619 | |
| Orbis firms that merge into Compustat Global | 1,140 | 7,573 |
| After removing observations with missing dependent or independent variables | 1,039 | 6,931 |

Figure 1 - Composition of the FFI List

Panel A: Heat Map of Firm-level FATCA Participation



Panel B: Top 20 Countries based on Firm-level FATCA Participation

| RANK | COUNTRY NAME | CODE | NUMBER OF FFLs | RANK | COUNTRY NAME | CODE | NUMBER OF FFLs |
|------|------------------------|------|----------------|------|--------------|------|----------------|
| 1 | Cayman Islands | CYM | 65,609 | 11 | Hong Kong | HKG | 8,398 |
| 2 | United Kingdom | GBR | 35,864 | 12 | Switzerland | CHE | 8,381 |
| 3 | Brazil | BRA | 25,772 | 13 | Ireland | IRL | 8,016 |
| 4 | Japan | JPN | 23,705 | 14 | Netherlands | NLD | 7,754 |
| 5 | Luxembourg | LUX | 17,834 | 15 | Australia | AUS | 7,027 |
| 6 | British Virgin Islands | VGB | 14,304 | 16 | Germany | DEU | 6,157 |
| 7 | Canada | CAN | 11,957 | 17 | Mauritius | MUS | 5,252 |
| 8 | Jersey | JEY | 9,841 | 18 | Bermuda | BMU | 4,871 |
| 9 | Guernsey | GGY | 8,991 | 19 | Singapore | SGP | 4,587 |
| 10 | France | FRA | 8,585 | 20 | Spain | ESP | 4,558 |

Panel C: Composition by Haven Status

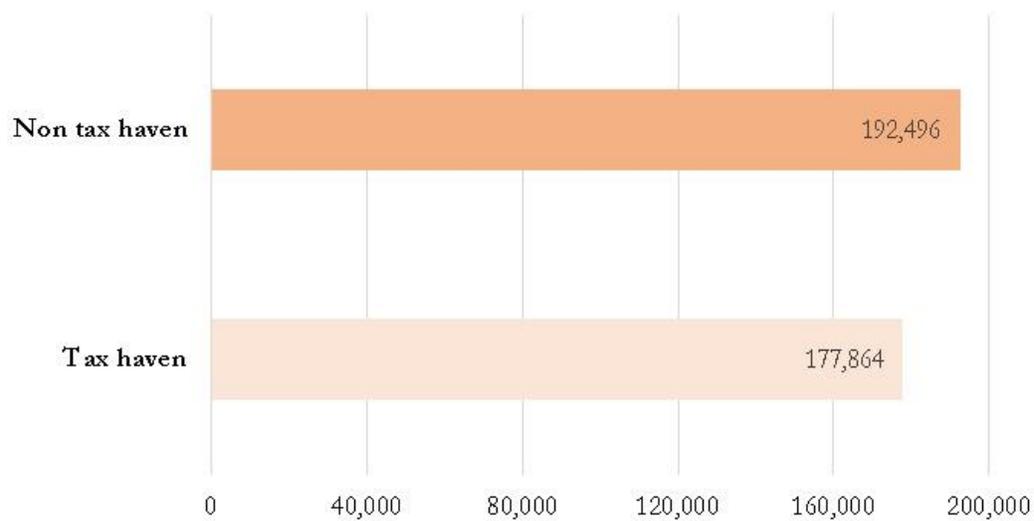


Figure 2 – Percentage Drop-off by Country

Panel A: Top 10 Countries Highlighted in Blue



Panel B: Top 20 Countries based on Percentage Drop-off

| <i>RANK</i> | <i>COUNTRY NAME</i> | <i>CODE</i> | <i>NUMBER OF FFI_s</i> | <i>RANK</i> | <i>COUNTRY NAME</i> | <i>CODE</i> | <i>NUMBER OF FFI_s</i> |
|-------------|------------------------|-------------|----------------------------------|-------------|---------------------|-------------|----------------------------------|
| 1 | Gibraltar | GIB | 63% | 11 | Russia | RUS | 34% |
| 2 | Liberia | LBR | 48% | 12 | Bangladesh | BGD | 33% |
| 3 | Sri Lanka | LKA | 46% | 13 | Namibia | NAM | 32% |
| 4 | Nigeria | NGA | 44% | 14 | Monaco | MCO | 32% |
| 5 | Bosnia and Herzegovina | BIH | 40% | 15 | South Korea | KOR | 31% |
| 6 | Belize | BLZ | 39% | 16 | Marshall Islands | MHL | 31% |
| 7 | Egypt | EGY | 39% | 17 | Saint Lucia | LCA | 30% |
| 8 | Venezuela | VEN | 38% | 18 | Ecuador | ECU | 29% |
| 9 | Isle of Man | IMN | 37% | 19 | Macao | MAC | 29% |
| 10 | Somoa | WSM | 36% | 20 | Belgium | BEL | 27% |

Table 1 - Descriptive Statistics for Country-level Tests

This table provides summary statistics (Panel A) and univariate correlations (Panel B) of variables used in country-level tests reported on Table 2. In Panel B, Pearson correlations are below the diagonal and Spearman correlation are above the diagonal. All variables are defined in Appendix 2.

Panel A: Summary Statistics

| | <i>N</i> | <i>MEAN</i> | <i>STDDEV</i> | <i>P25</i> | <i>MEDIAN</i> | <i>P75</i> |
|----------------------------|----------|-------------|---------------|------------|---------------|------------|
| <i>IGA</i> | 204 | 0.53 | 0.50 | 0.00 | 1.00 | 1.00 |
| <i>TAX HAVEN</i> | 204 | 0.20 | 0.40 | 0.00 | 0.00 | 0.00 |
| <i>TREATY</i> | 204 | 0.28 | 0.45 | 0.00 | 0.00 | 1.00 |
| <i>FPI (\$B)</i> | 204 | 79.43 | 265.91 | 0.04 | 0.96 | 16.05 |
| <i>LOG FPI</i> | 204 | 6.76 | 3.87 | 3.77 | 6.87 | 9.68 |
| <i>GDP (\$B)</i> | 204 | 317.00 | 963.00 | 6.33 | 29.10 | 218.00 |
| <i>LOG GDP</i> | 204 | 24.17 | 2.40 | 22.57 | 24.09 | 26.11 |
| <i>ROL</i> | 204 | 0.00 | 0.95 | -0.73 | -0.17 | 0.59 |
| <i>ENFORCE CONTRACTS</i> | 204 | 56.15 | 12.91 | 49.64 | 56.89 | 64.95 |
| <i>INVESTOR PROTECTION</i> | 204 | 51.93 | 15.17 | 41.67 | 53.33 | 60.00 |
| <i>RESOLVE INSOLVENCY</i> | 204 | 37.74 | 25.22 | 20.89 | 34.90 | 47.10 |

Panel B: Correlation Table

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|----------------------------|------|--------|---------|--------|--------|---------|---------|--------|---------|--------|--------|
| <i>IGA</i> | (1) | 0.2278 | 0.4339 | 0.5830 | 0.5830 | 0.3507 | 0.3507 | 0.5275 | 0.3592 | 0.4062 | 0.4123 |
| <i>TAX HAVEN</i> | (2) | 0.2278 | -0.1487 | 0.1602 | 0.1602 | -0.3341 | -0.3341 | 0.3054 | -0.0007 | 0.1101 | 0.1188 |
| <i>TREATY</i> | (3) | 0.4339 | -0.1487 | 0.5138 | 0.5138 | 0.5689 | 0.5689 | 0.4289 | 0.3550 | 0.2846 | 0.5201 |
| <i>FPI (\$B)</i> | (4) | 0.2736 | 0.0903 | 0.3107 | 1.0000 | 0.6174 | 0.6174 | 0.5270 | 0.3272 | 0.3133 | 0.4653 |
| <i>LOG FPI</i> | (5) | 0.5832 | 0.1596 | 0.5122 | 0.5108 | 0.6174 | 0.6174 | 0.5270 | 0.3272 | 0.3133 | 0.4653 |
| <i>GDP (\$B)</i> | (6) | 0.2115 | -0.1356 | 0.3686 | 0.6826 | 0.4062 | 1.0000 | 0.2070 | 0.3243 | 0.1956 | 0.4028 |
| <i>LOG GDP</i> | (7) | 0.3606 | -0.3292 | 0.5659 | 0.3625 | 0.6086 | 0.5393 | 0.2070 | 0.3243 | 0.1956 | 0.4028 |
| <i>ROL</i> | (8) | 0.5288 | 0.2783 | 0.4629 | 0.3600 | 0.5540 | 0.1776 | 0.2607 | 0.4305 | 0.4239 | 0.5710 |
| <i>ENFORCE CONTRACTS</i> | (9) | 0.3665 | 0.0573 | 0.3161 | 0.2855 | 0.3308 | 0.2049 | 0.3021 | 0.4918 | 0.3096 | 0.4727 |
| <i>INVESTOR PROTECTION</i> | (10) | 0.4231 | 0.1382 | 0.2817 | 0.2069 | 0.3861 | 0.1323 | 0.2553 | 0.4474 | 0.3619 | 0.4452 |
| <i>RESOLVE INSOLVENCY</i> | (11) | 0.4317 | 0.0809 | 0.5603 | 0.3613 | 0.5337 | 0.2772 | 0.4740 | 0.6747 | 0.5146 | 0.4989 |

Table 2 - Country-level Decision to Become IGA Partner Jurisdiction

This table examines countries' decisions to facilitate information sharing with the U.S. by signing an IGA partnership agreement. The linear probability model predicts IGA participation based on country characteristics. *IGA* is an indicator equal to one for countries that become a partner jurisdiction and equal to zero for countries that do not. All variables are defined in Appendix 2. T-statistics based on robust standard errors are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

| | (1) | (2) | (3) | (4) |
|----------------------------|---------------------|--------------------|---------------------|---------------------|
| | <i>IGA</i> | <i>IGA</i> | <i>IGA</i> | <i>IGA</i> |
| <i>TAX HAVEN</i> | 0.332*** (4.68) | | | 0.248*** (3.25) |
| <i>TREATY</i> | | 0.506*** (9.01) | | 0.244*** (3.25) |
| <i>LOG FPI</i> | | | 0.080*** (18.93) | 0.039*** (4.53) |
| <i>LOG GDP</i> | | | | 0.018 (1.38) |
| <i>ROL</i> | | | | 0.107*** (2.71) |
| <i>ENFORCE CONTRACTS</i> | | | | 0.003 (1.43) |
| <i>INVESTOR PROTECTION</i> | | | | 0.006*** (3.32) |
| <i>RESOLVE INSOLVENCY</i> | | | | -0.003** (-2.31) |
| <i>INTERCEPT</i> | 0.466*** (11.87) | 0.385*** (9.59) | -0.011 (-0.27) | -0.648** (-2.29) |
| <i>OBSERVATIONS</i> | 204 | 204 | 204 | 204 |
| <i>R-SQUARED</i> | 0.072 | 0.209 | 0.393 | 0.540 |

Table 3 - Descriptive Statistics for Entity-level Tests (Orbis Data)

This table provides summary statistics for our sample of financial institutions from Orbis. Each firm was manually matched with the FFI List to determine FATCA participation. Panel A separately describes those firms on the FFI List that participate in FATCA (“*FFIs*”) and those firms that are not on the FFI List and do not participate in FATCA (“*NON-FFIs*”). We compare the difference in groups means and ***, **, * at the far right indicate significance in two-tailed t-tests at the 10, 5, or 1 percent level, respectively. Panel B presents univariate correlations, with Pearson correlations below the diagonal and Spearman correlations above the diagonal. Panel C describes the ten countries from which the *NON-FFIs* most commonly originate. Panel D describes the industry composition of the *FFIs*. All variables are defined in Appendix 2.

Panel A: Summary Statistics for Orbis Sample

| | <i>FFIs</i> | | | <i>NON-FFIs</i> | | | |
|----------------------------|-------------|-------------|----------------|-----------------|-------------|----------------|-----|
| | <i>N</i> | <i>MEAN</i> | <i>STD DEV</i> | <i>N</i> | <i>MEAN</i> | <i>STD DEV</i> | |
| <i>TAX HAVEN</i> | 6,069 | 0.14 | 0.35 | 214 | 0.09 | 0.29 | ** |
| <i>TREATY</i> | 6,069 | 0.80 | 0.40 | 214 | 0.82 | 0.39 | |
| <i>FPI (\$B)</i> | 6,069 | 519.50 | 600.20 | 214 | 539.71 | 618.80 | |
| <i>LOG FPI</i> | 6,069 | 12.01 | 2.13 | 214 | 11.86 | 2.84 | |
| <i>ASSETS (\$M)</i> | 6,069 | 34,180.03 | 156,315.10 | 214 | 5,159.33 | 16,347.60 | *** |
| <i>LOG ASSETS</i> | 6,069 | 8.29 | 1.97 | 214 | 7.06 | 1.57 | *** |
| <i>SALES (\$M)</i> | 6,069 | 1,797.19 | 6,885.56 | 214 | 911.28 | 2,994.95 | * |
| <i>LOG SALES</i> | 6,069 | 6.13 | 1.43 | 214 | 5.79 | 1.60 | *** |
| <i>ROA</i> | 6,069 | 0.04 | 0.10 | 214 | 0.07 | 0.11 | *** |
| <i>LEVERAGE</i> | 6,069 | 0.80 | 0.23 | 214 | 0.61 | 0.30 | *** |
| <i>GDP (\$B)</i> | 6,069 | 2,090.00 | 2,280.00 | 214 | 2,560.00 | 3,210.00 | *** |
| <i>LOG GDP</i> | 6,069 | 27.59 | 1.57 | 214 | 27.67 | 1.70 | |
| <i>RULE OF LAW</i> | 6,069 | 1.08 | 0.96 | 214 | 0.95 | 1.07 | ** |
| <i>ENFORCE CONTRACTS</i> | 6,069 | 66.93 | 12.26 | 214 | 66.59 | 10.85 | |
| <i>INVESTOR PROTECTION</i> | 6,069 | 61.82 | 15.04 | 214 | 58.58 | 13.64 | *** |
| <i>RESOLVE INSOLVENCY</i> | 6,069 | 69.60 | 26.91 | 214 | 68.02 | 26.49 | |

Panel B: Correlation Table

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | |
|---------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| REGISTER | (1) | | 0.0277 | -0.0102 | -0.0034 | -0.0034 | 0.1171 | 0.0277 | 0.0277 | -0.0867 | 0.1237 | -0.0085 | -0.0085 | 0.0003 | 0.0219 | 0.0405 | 0.0119 |
| TAX HAVEN | (2) | 0.0277 | | -0.3750 | 0.0167 | 0.0167 | 0.0093 | -0.0026 | -0.0026 | 0.0378 | -0.0471 | -0.4628 | -0.4628 | 0.1124 | 0.1501 | 0.1162 | -0.0598 |
| TREATY | (3) | -0.0102 | -0.3750 | | 0.3450 | 0.3450 | 0.0400 | 0.0450 | 0.0450 | -0.1356 | 0.1396 | 0.5027 | 0.5027 | 0.3477 | 0.2654 | -0.0456 | 0.3751 |
| FPI (\$B) | (4) | -0.0061 | -0.0552 | 0.3087 | | 1.0000 | 0.0990 | 0.1019 | 0.1019 | -0.0979 | 0.0849 | 0.7016 | 0.7016 | 0.4332 | 0.3473 | 0.2175 | 0.5783 |
| LOG FPI | (5) | 0.0127 | 0.0189 | 0.3719 | 0.7110 | | 0.0990 | 0.1019 | 0.1019 | -0.0979 | 0.0849 | 0.7016 | 0.7016 | 0.4332 | 0.3473 | 0.2175 | 0.5783 |
| ASSETS (\$M) | (6) | 0.0342 | -0.0289 | 0.0581 | 0.1300 | 0.1016 | | 0.5799 | 0.5799 | -0.2989 | 0.4791 | 0.0958 | 0.0958 | -0.0534 | 0.0098 | -0.0410 | -0.0156 |
| SALES (\$M) | (7) | 0.0237 | -0.0172 | 0.0477 | 0.0846 | 0.0860 | 0.6203 | | 1.0000 | -0.0277 | 0.1563 | 0.0892 | 0.0892 | 0.0147 | 0.0389 | 0.0128 | 0.0146 |
| LOG SALES | (8) | 0.0428 | -0.0078 | 0.0326 | 0.0939 | 0.1233 | 0.4185 | 0.5356 | | -0.0277 | 0.1563 | 0.0892 | 0.0892 | 0.0147 | 0.0389 | 0.0128 | 0.0146 |
| ROA | (9) | -0.0581 | 0.0250 | -0.0056 | 0.0459 | 0.0646 | -0.0626 | -0.0518 | -0.0648 | | -0.5820 | -0.1183 | -0.1183 | -0.0337 | -0.0968 | 0.0654 | -0.0915 |
| LEVERAGE | (10) | 0.1457 | -0.0522 | 0.0640 | -0.0048 | -0.0777 | 0.1211 | 0.0765 | 0.1856 | -0.5067 | | 0.1082 | 0.1082 | -0.0137 | 0.0499 | -0.0712 | 0.0415 |
| GDP (\$B) | (11) | -0.0366 | -0.3199 | 0.3550 | 0.7031 | 0.5351 | 0.1359 | 0.1094 | 0.1141 | -0.0111 | 0.0526 | | 1.0000 | 0.1425 | 0.2278 | -0.0105 | 0.3579 |
| LOG GDP | (12) | -0.0097 | -0.5109 | 0.5362 | 0.5138 | 0.6421 | 0.1086 | 0.0948 | 0.1038 | 0.0116 | 0.0141 | 0.7454 | | 0.1425 | 0.2278 | -0.0105 | 0.3579 |
| RULE OF LAW | (13) | 0.0252 | 0.1272 | 0.3400 | 0.2432 | 0.5232 | 0.0239 | 0.0131 | 0.0147 | 0.0740 | -0.0923 | -0.0591 | 0.2194 | | 0.4897 | 0.2225 | 0.6924 |
| ENFORCE CONTRACTS | (14) | 0.0051 | 0.1693 | 0.2339 | 0.2302 | 0.4271 | 0.0377 | 0.0375 | 0.0468 | 0.0225 | -0.0392 | 0.1460 | 0.2194 | 0.6050 | | 0.0477 | 0.4751 |
| INVESTOR PROTECTION | (15) | 0.0392 | 0.1483 | -0.0628 | 0.2758 | 0.2940 | 0.0041 | -0.0191 | 0.0244 | 0.0925 | -0.1232 | -0.0965 | 0.0607 | 0.3189 | 0.1291 | | 0.4728 |
| RESOLVE INSOLVENCY | (16) | 0.0106 | -0.0529 | 0.4001 | 0.3276 | 0.4876 | 0.0274 | 0.0222 | 0.0317 | 0.0569 | -0.0813 | 0.0458 | 0.3223 | 0.7695 | 0.5071 | 0.4957 | |

Panel C: Non-FFIs by Country

| <i>RANK</i> | <i>COUNTRY</i> | <i>NO REGISTRATION</i> | <i>TOTAL FFIs</i> | <i>%</i> |
|-------------|----------------|------------------------|-------------------|----------|
| 1 | China | 27 | 286 | 9% |
| 2 | Netherlands | 20 | 203 | 10% |
| 3 | United Kingdom | 18 | 753 | 2% |
| 4 | Australia | 13 | 188 | 7% |
| 5 | Germany | 13 | 532 | 2% |
| 6 | Italy | 13 | 198 | 7% |
| 7 | Sweden | 11 | 115 | 10% |
| 8 | Iran | 9 | 9 | 100% |
| 9 | Canada | 8 | 122 | 7% |
| 10 | Bermuda | 7 | 71 | 10% |

Panel D: FFIs by Industry

| <i>INDUSTRY</i> | <i>COUNT</i> | <i>%</i> |
|----------------------------|---------------|-------------|
| Financial | 23,046 | 24% |
| Banks | 49,255 | 51% |
| Insurance | 7,414 | 8% |
| Real Estate | 2,642 | 3% |
| Total Financial Industries | 82,357 | 84% |
| Non-financial Industries | 15,165 | 16% |
| TOTAL | 97,522 | 100% |

Table 4 – Firm-level decision to register on IRS FFI List

This table examines individual firms' decisions to enter into FATCA agreements by registering with the IRS as a FFI. Specifically, we utilize a linear probability model regression of the decision to register on the FFI List (*REGISTER*) on firm attributes identified. Column 1 contains only firm-level characteristics as independent variables; column 2 includes firm-level and country-level independent variables. All variables are defined in Appendix 2. T-statistics based on robust standard errors are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

| | (1) | (2) |
|----------------------------|---------------------|--------------------|
| | <i>REGISTER</i> | <i>REGISTER</i> |
| <i>TAX HAVEN</i> | | 0.003 (0.18) |
| <i>TREATY</i> | | -0.006 (-0.47) |
| <i>LOG FPI</i> | | 0.000 (0.06) |
| <i>SIZE</i> | 0.006*** (3.52) | 0.006*** (3.38) |
| <i>LEVERAGE</i> | 0.104** (2.50) | 0.111** (2.61) |
| <i>ROA</i> | 0.054 (1.62) | 0.048 (1.51) |
| <i>LOG GDP</i> | | -0.001 (-0.18) |
| <i>RULE OF LAW</i> | | 0.012 (1.13) |
| <i>ENFORCE CONTRACTS</i> | | -0.000 (-0.47) |
| <i>INVESTOR PROTECTION</i> | | 0.001** (2.00) |
| <i>RESOLVE INSOLVENCY</i> | | -0.000 (-0.95) |
| <i>INTERCEPT</i> | 0.787*** (19.60) | 0.799*** (4.55) |
| <i>S.E. CLUSTERED BY</i> | Country | Country |
| <i>OBSERVATIONS</i> | 6,283 | 6,283 |
| <i>R-SQUARED</i> | 0.025 | 0.031 |

Table 5. Short-run returns around key FATCA dates

This table presents financial firms' market reactions around four key FATCA dates that significantly affected the likelihood and nature of information sharing under FATCA: the date that FATCA first became law as part of the HIRE Act, the date that the U.S. Treasury issued proposed regulations, the date that the U.S. Treasury issued final regulations, and the date a firm's local government signed a bilateral intergovernmental agreement related to FATCA. Panel A compares returns for a portfolio of foreign financial institutions relative to those for a portfolio of non-financial foreign firms. Panel B compares returns for a portfolio of financial institutions in tax havens relative to those for a portfolio of financial institutions in non-tax havens. All portfolio returns are computed as the value-weighted portfolio returns for the one-day unadjusted (raw) return on the event date. Statistical significance is assessed using bootstrapped p-values, using the method in Armstrong et al (2010).

Panel A. Portfolio returns: foreign financial institutions vs non-financial institutions

| Event Date | Description | Unadjusted Return: FFI Industries | Unadjusted Return: Non-FFI Industries | Difference |
|-------------------|------------------------------------|--|--|-------------------|
| March 18, 2010 | HIRE Act passed. | -0.582% | -0.494% | -0.088% |
| February 8, 2012 | FATCA Proposed Regulations issued. | -1.510% | -0.276% | -1.234% |
| January 17, 2013 | FATCA Final Regulations issued. | 0.123% | -0.170% | 0.293% |
| Various | Intergovernmental agreement. | 0.040% | 0.589% | -0.549% |
| | Mean Return across Events | -0.482% | -0.088% | -0.394% |
| | p-value _{bootstrap} | 0.036 ** | 0.308 | 0.058 * |

Panel B. Unadjusted returns of tax haven FFI industries compared to non-tax haven FFI industries

| Event Date | Description | Unadjusted Return: Tax Havens | Unadjusted Return: Non Tax Havens | Difference |
|-------------------|------------------------------------|--|--|-------------------|
| March 18, 2010 | HIRE Act passed. | -0.769% | -0.564% | -0.204% |
| February 8, 2012 | FATCA Proposed Regulations issued. | -2.955% | -1.341% | -1.614% |
| January 17, 2013 | FATCA Final Regulations issued. | -0.459% | 0.182% | -0.641% |
| Various | Intergovernmental agreement. | -0.130% | 0.061% | -0.191% |
| | Mean Return across Events | -1.078% | -0.416% | -0.663% |
| | p-value _{bootstrap} | 0.000 *** | 0.086 * | 0.020 ** |

Table 6 - Descriptive Statistics for Firm-level Consequences Tests (Compustat Global)

This table provides summary statistics (Panel A) and univariate correlations (Panel B) for our sample of non-U.S. financial institutions from Compustat Global. This sample is used in public-firm level tests that are reported in Tables 7 and 8. In Panel B, Pearson correlations are below the diagonal and Spearman correlations are above the diagonal. All variables are defined in Appendix 2.

Panel A: Summary Statistics

| | <i>N</i> | <i>MEAN</i> | <i>STD DEV</i> | <i>P25</i> | <i>MEDIAN</i> | <i>P75</i> |
|---------------------|----------|-------------|----------------|------------|---------------|------------|
| <i>ROA</i> | 6,931 | 0.041 | 0.039 | 0.015 | 0.032 | 0.056 |
| <i>ROE</i> | 6,931 | 0.342 | 0.298 | 0.135 | 0.242 | 0.494 |
| <i>POST</i> | 6,931 | 0.388 | 0.487 | 0.000 | 0.000 | 1.000 |
| <i>ASSETS (\$M)</i> | 6,931 | 83,204 | 260,069 | 3,638 | 12,702 | 45,311 |
| <i>LOG ASSETS</i> | 6,931 | 9.492 | 1.915 | 8.199 | 9.450 | 10.721 |
| <i>SALES (\$M)</i> | 6,931 | 4,912 | 13,386 | 325 | 807 | 2,776 |
| <i>LOG SALES</i> | 6,931 | 6.952 | 1.631 | 5.784 | 6.693 | 7.929 |
| <i>LEVERAGE</i> | 6,931 | 0.917 | 0.244 | 0.869 | 0.959 | 1.032 |

Panel B: Correlation Table

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | |
|---------------------|-----|--------|--------|--------|--------|--------|--------|--------|--------|
| <i>ROA</i> | (1) | | 0.647 | -0.056 | -0.373 | -0.373 | -0.100 | -0.100 | -0.057 |
| <i>ROE</i> | (2) | 0.464 | | -0.038 | 0.084 | 0.084 | 0.218 | 0.218 | 0.447 |
| <i>POST</i> | (3) | -0.041 | -0.046 | | 0.063 | 0.063 | 0.044 | 0.044 | -0.059 |
| <i>ASSETS (\$M)</i> | (4) | -0.153 | 0.011 | 0.014 | | 1.000 | 0.857 | 0.857 | 0.277 |
| <i>LOG ASSETS</i> | (5) | -0.368 | 0.065 | 0.063 | 0.578 | | 0.857 | 0.857 | 0.277 |
| <i>SALES (\$M)</i> | (6) | -0.129 | 0.027 | 0.009 | 0.763 | 0.569 | | 1.000 | 0.200 |
| <i>LOG SALES</i> | (7) | -0.138 | 0.145 | 0.045 | 0.565 | 0.870 | 0.674 | | 0.200 |
| <i>LEVERAGE</i> | (8) | -0.351 | 0.347 | -0.016 | 0.083 | 0.345 | 0.088 | 0.234 | |

Table 7 - Firm-level Tests of the Consequences of FFI List Registration (Compustat Global)

This table presents the results of generalized difference-in-differences tests that examine the performance of firms affected by FATCA. We use each firm's FFI List registration date to generate *POST*, our dependent variable of interest. Panel A reports the results of OLS regressions that include only the *POST* indicator and control variables. Panel B breaks out *POST* into three separate post-year indicators. Panel B also reports regressions with individual pre- and post-periods event year indicators (the event year indicator is omitted). All variables are defined in Appendix 2. We include country-industry and country-year fixed effects. T-statistics based on standard errors clustered by firm are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

Panel A: Single Post Variable

| | (1) | (2) |
|---------------------------------------|----------------------|--------------------|
| | <i>ROA</i> | <i>ROE</i> |
| <i>POST</i> | -0.006** (-2.14) | -0.021* (-1.77) |
| <i>LOG SALES</i> | 0.000 (0.56) | 0.018*** (4.29) |
| <i>LEVERAGE</i> | -0.038*** (-5.86) | 0.149*** (6.00) |
| <i>COUNTRY-INDUSTRY FIXED EFFECTS</i> | YES | YES |
| <i>COUNTRY-YEAR FIXED EFFECTS</i> | YES | YES |
| <i>S.E. CLUSTERED BY:</i> | Firm | Firm |
| <i>OBSERVATIONS</i> | 6,806 | 6,806 |
| <i>R-SQUARED</i> | 0.701 | 0.769 |

Panel B: Multiple Pre and Post Variables

| | (1) | (2) | (3) | (4) |
|---------------------------------------|-----------|-----------|-----------|----------|
| | ROA | ROA | ROE | ROE |
| <i>POST1</i> | -0.004* | -0.003 | -0.014 | -0.009 |
| | (-1.73) | (-1.47) | (-1.29) | (-0.88) |
| <i>POST2</i> | -0.010** | -0.009** | -0.041** | -0.033* |
| | (-2.49) | (-2.20) | (-2.31) | (-1.78) |
| <i>POST3</i> | -0.015** | -0.015** | -0.083*** | -0.071** |
| | (-2.44) | (-2.13) | (-3.09) | (-2.50) |
| <i>PRE4+</i> | | 0.007 | | -0.042 |
| | | (0.75) | | (-1.21) |
| <i>PRE3</i> | | 0.006 | | -0.014 |
| | | (0.98) | | (-0.58) |
| <i>PRE2</i> | | 0.005 | | 0.001 |
| | | (1.08) | | (0.07) |
| <i>PRE1</i> | | 0.003 | | -0.000 |
| | | (1.23) | | (-0.04) |
| <i>LOG SALES</i> | 0.000 | 0.000 | 0.018*** | 0.018*** |
| | (0.46) | (0.48) | (4.29) | (4.25) |
| <i>LEVERAGE</i> | -0.039*** | -0.038*** | 0.154*** | 0.153*** |
| | (-5.91) | (-5.94) | (6.13) | (6.12) |
| <i>COUNTRY-INDUSTRY FIXED EFFECTS</i> | YES | YES | YES | YES |
| <i>COUNTRY-YEAR FIXED EFFECTS</i> | YES | YES | YES | YES |
| <i>S.E. CLUSTERED BY:</i> | Firm | Firm | Firm | Firm |
| <i>OBSERVATIONS</i> | 6,806 | 6,806 | 6,806 | 6,806 |
| <i>R-SQUARED</i> | 0.706 | 0.706 | 0.772 | 0.772 |

Table 8 - Firm-level Tests, by Size Tercile (Compustat Global)

This table presents the results of estimating model 1 in Table 6, Panel A by size terciles. We use each firm's FFI List registration date to generate *POST*, our dependent variable of interest. We form size terciles using total revenue within a country-industry-year group. All variables are defined in Appendix 2. We include country-industry and country-year fixed effects. T-statistics based on standard errors clustered by firm are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

Panel A: ROA

| | SIZE TERCILE 1 | SIZE TERCILE 2 | SIZE TERCILE 3 |
|--|---------------------|----------------------|----------------------|
| | (1) | (2) | (3) |
| | <i>ROA</i> | <i>ROA</i> | <i>ROA</i> |
| <i>POST</i> | -0.009** (-2.32) | -0.004 (-0.70) | 0.006 (1.35) |
| <i>LEVERAGE</i> | -0.000 (-0.40) | -0.020*** (-2.85) | -0.023*** (-2.92) |
| <i>COUNTRY-INDUSTRY FIXED EFFECTS</i> | YES | YES | YES |
| <i>COUNTRY-YEAR FIXED EFFECTS</i> | YES | YES | YES |
| <i>S.E. CLUSTERED BY:</i> | Firm | Firm | Firm |
| <i>OBSERVATIONS</i> | 2,914 | 2,032 | 1,602 |
| <i>R-SQUARED</i> | 0.786 | 0.758 | 0.806 |
| <i>CROSS EQUATION TEST:</i> TERCILE 1 - TERCILE 3 | -0.014** (-2.56) | | |

Panel B: ROE

| | TERCILE 1 | TERCILE 2 | TERCILE 3 |
|--|----------------------|-------------------|--------------------|
| | (1) | (2) | (3) |
| | <i>ROE</i> | <i>ROE</i> | <i>ROE</i> |
| <i>POST</i> | -0.042** (-2.34) | -0.030 (-1.31) | 0.003 (0.11) |
| <i>LEVERAGE</i> | -0.000*** (-3.99) | 0.031 (1.08) | 0.137*** (3.28) |
| <i>COUNTRY-INDUSTRY FIXED EFFECTS</i> | YES | YES | YES |
| <i>COUNTRY-YEAR FIXED EFFECTS</i> | YES | YES | YES |
| <i>S.E. CLUSTERED BY:</i> | Firm | Firm | Firm |
| <i>OBSERVATIONS</i> | 2,914 | 2,032 | 1,602 |
| <i>R-SQUARED</i> | 0.793 | 0.833 | 0.877 |
| <i>CROSS EQUATION TEST:</i> TERCILE 1 - TERCILE 3 | -0.046 (-1.28) | | |

Table 9 – Country-level Drop-off Tests

This table presents the results of estimating a country-level test of FFI drop-off. *PCT DROP* is a country's percentage of total FFIs ever appearing on the IRS FFI List that drop off the list before the end of our sample period. We include only countries that have more than 100 firms on the FFI List. All variables are defined in Appendix 2. T-statistics based on robust standard errors are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

| | (1) |
|----------------------------|----------------------|
| | <i>PCT DROP</i> |
| <i>IGA</i> | -0.163*** (-8.07) |
| <i>TAX HAVEN</i> | 0.078*** (3.29) |
| <i>TREATY</i> | 0.020 (1.24) |
| <i>LOG FPI</i> | 0.000 (0.00) |
| <i>LOG GDP</i> | -0.001 (-0.09) |
| <i>RULE OF LAW</i> | 0.002 (0.26) |
| <i>ENFORCE CONTRACTS</i> | -0.000 (-0.69) |
| <i>INVESTOR PROTECTION</i> | -0.001 (-1.16) |
| <i>RESOLVE INSOLVENCY</i> | 0.001 (1.66) |
| <i>OBSERVATIONS</i> | 103 |
| <i>R-SQUARED</i> | 0.562 |

Table 10 – Entity-level Drop-off Tests

This table presents the results of estimating an entity-level test of FFI drop-off. *DROP* is an indicator variable equal to one if an entity drops off the IRS FFI List before the end of our sample period, and zero otherwise. Models 1 and 2 include all entities ever appearing on the IRS FFI List; models 3 and 4 include only primary entities (lead FIs, single FIs, and sponsoring FIs). All variables are defined in Appendix 2. T-statistics based on standard errors clustered by country are presented below the coefficients in parentheses. ***, **, * denotes statistical significance at the 10, 5, or 1 percent level, respectively.

| | (1) | (2) | (3) | (4) |
|----------------------------|----------------------|----------------------|----------------------|----------------------|
| | <i>DROP</i> | <i>DROP</i> | <i>DROP</i> | <i>DROP</i> |
| <i>IGA</i> | -0.074** (-2.18) | -0.074** (-2.17) | -0.141*** (-2.89) | -0.141*** (-2.89) |
| <i>TAX HAVEN</i> | 0.101*** (5.37) | 0.099*** (5.33) | 0.092*** (4.23) | 0.091*** (4.16) |
| <i>TREATY</i> | 0.002 (0.17) | 0.000 (0.00) | -0.013 (-0.64) | -0.014 (-0.70) |
| <i>LOG FPI</i> | -0.018*** (-3.87) | -0.018*** (-3.86) | -0.015** (-2.35) | -0.015** (-2.33) |
| <i>NON FINANCIAL</i> | | 0.060*** (5.01) | | 0.037*** (2.62) |
| <i>LOG GDP</i> | 0.012*** (3.69) | 0.012*** (3.66) | 0.017*** (4.13) | 0.016*** (4.01) |
| <i>RULE OF LAW</i> | -0.012 (-1.06) | -0.013 (-1.14) | -0.025 (-1.59) | -0.025 (-1.60) |
| <i>ENFORCE CONTRACTS</i> | 0.002*** (3.30) | 0.002*** (3.41) | 0.002*** (3.79) | 0.002*** (3.81) |
| <i>INVESTOR PROTECTION</i> | -0.001*** (-3.61) | -0.001*** (-3.56) | -0.001** (-2.25) | -0.001** (-2.17) |
| <i>RESOLVE INSOLVENCY</i> | 0.000 (0.96) | 0.000 (0.99) | 0.000 (0.46) | 0.000 (0.44) |
| <i>INTERCEPT</i> | 0.049 (0.56) | 0.056 (0.64) | -0.073 (-0.68) | -0.066 (-0.61) |
| <i>S.E. CLUSTERED BY</i> | Country | Country | Country | Country |
| <i>OBSERVATIONS</i> | 370,078 | 370,078 | 217,258 | 217,258 |
| <i>R-SQUARED</i> | 0.021 | 0.022 | 0.026 | 0.027 |