



Counteracting offshore tax evasion: Evidence from the foreign account tax compliance act

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ABSTRACT

This paper aims to investigate the effect of the Foreign Account Tax Compliance Act (FATCA) on the deposits held by US global banks through their branches located around the world. Using an unpublished dataset on deposits held by branches of US banks on a geographically unconsolidated basis, we find that the FATCA led to a reduction in deposits held in branches located in tax havens. We find that this effect is more severe in those jurisdictions signing a reciprocal exchange of information agreement. We also advance evidence in support of deposit shifting within the US banking system towards locations without a reciprocal intergovernmental agreement.

1. Introduction

The Foreign Account Tax Compliance Act (FATCA) is the boldest and more powerful US regulatory initiative to fight international tax evasion, giving US regulators extraterritorial oversight over foreign financial institutions. Since its enactment in 2010, these enhanced powers have facilitated the crackdown of a number of tax evasion cases involving US taxpayers through the facilitating role of foreign banks. In 2019, the Department of Justice convicted a former executive of a Belize-based stock brokerage firm who, in an attempt to launder money for an FBI undercover agent posing as a potential US client, was ready and willing to conceal the transaction from US authorities.¹ In the context of the largest tax evasion case against a US individual, US lawmakers have also relied on their enhanced powers under the FATCA to press Mirabaud & Cie, a Swiss bank, for information on a case. Following declarations from a whistleblower, the billionaire Robert Brockman, Chairman and CEO of The Reynolds and Reynolds Company, was charged for concealing more than \$2 billion of income from the US tax authorities in 2020. The

decade-long tax evasion scheme was highly sophisticated, featuring a complex web of shell companies and bank accounts, records tampering and backdating, and encrypted communication. Following the billionaire indictment, federal court records have allowed identifying some of the financial institutions holding undeclared bank accounts, located in Switzerland and Bermuda. Most prominently, Mirabaud & Cie, which under the FATCA should have been sharing information on accounts held by Americans with the US tax authorities, was found to hold around \$1 billion in undisclosed deposits on behalf of Mr. Brockman.²

The FATCA constitutes a large leap from previous countering tax-evasion policies mainly because of its extraterritorial reach. Indeed, under the FATCA, the fight against offshore tax evasion by US citizens and fiscal residents relies principally on the cooperation of foreign financial institutions (FFIs), who have renewed incentives to disclose information on asset holdings of US taxpayers to the Internal Revenue Service (IRS).³ The failure to disclose results in a punitive withholding tax of 30% on US-originating income streams directed to FFIs. Cooperating foreign governments can also benefit from reciprocity in exchange

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¹ The executive of Loyal bank Ltd, Adrian Baron, was extradited to the US to be trialed and currently facing a sentence of a maximum of 5 years in US federal prisons.

² The affaire Brockman has been widely covered in the press, as it is known to be the largest tax evasion case against a US individual. Brockman tax evasion scheme relied heavily on the creation of shell banks, whose deposits at foreign banks were not subject to the FATCA reporting requirements. The trial for Robert Brockman never occurred as its date was set after his death (February 2023).

³ The FATCA definition of US person, to which the Act applies, includes US individuals (such as US citizens, green card holders, and residents) and US entities (such as US corporations).

for tax information through the signature of bilateral intergovernmental agreements (IGAs).

While some US and international policymakers have lauded such a bold regulatory initiative, many have expressed severe criticism towards the FATCA. Foreign financial institutions and some foreign governments have been particularly vocal against the FATCA due to the high compliance costs and the lack of a true reciprocal exchange of information from the US side (Eccleston and Gray, 2014). US banks have also raised great concerns. The Bankers Association, in the context of a lawsuit filed over the reporting rules of the FATCA, pointed out that it would lead to a substantial withdrawal of deposits and investments out of US banks in favor of their foreign competitors, impairing US banks' activities. While the evidence is starting to emerge in the related literature supporting foreigners' disinvestment in US securities following the FATCA (De Simone et al., 2020; Menkhoff and Mieth, 2019), it is unclear whether it has any adverse effects on US banks themselves. One question that remains unanswered is: What are the FATCA's implications on US banks, and in particular global banks? Answering this question is of crucial importance for understanding the far-reaching implications of the FATCA and its possible unintended effects on the international financial system. To the extent to which the FATCA will significantly reduce funds held in tax havens via offshore banks, US global banks are expected to be particularly impacted by the Act. A closer look at the geographic distribution of the activities of US banks indeed reveals their important presence in tax havens, such as the Cayman Islands, Channel Islands, and the Bahamas.

This paper aims to investigate the impact of the FATCA on US global banks by using an unpublished dataset on foreign deposits of foreign branches of US banks obtained from the US regulator. The geographically segmented deposit data of foreign branches of US banks covers 57 jurisdictions, including many tax havens, for the 1990–2017 period. We test for several scenarios that US banks may face following the implementation of the FATCA. First, we investigate whether the enhanced FATCA reporting system adopted by US banks, involving most notably a more thorough investigation of the identification of the ultimate beneficiary of shell companies, has led to an overall decline in deposits held in tax havens. Second, we explore whether branches located in IGA-signing tax havens experience a heightened decline in deposits. A more pronounced flight of US tax evaders' deposits may be observed in branches located in tax havens that sign an IGA, possibly due to increased pressure in the local banking systems to enhance transparency and due diligence (driven by the compulsory exchange of information system faced by local banks) which increases the probability of detection of tax evaders. Last, we investigate whether US banks engage in the cross-border transfer of US tax-evading deposits held in tax havens to branches located in non-IGA locations. As argued by De Simone et al. (2020), evading taxpayers can circumvent FATCA requirements by moving their hidden assets to non-FATCA signing countries. Here, we provide evidence for whether US banks facilitate this deposit shifting.

Our results point to a significant post-FATCA reduction of deposits held in branches of US banks located in tax havens and in particular in those who have signed an IGA. From interoffice capital flows, we also advance evidence in support of a transfer of deposits from branches located in tax havens signing IGA to branches located in jurisdictions that have not signed an IGA. The post-FATCA decrease in deposits in tax haven locations is an indication of the facilitation of tax evasion by US banks before the implementation of the Act.

This paper relates to the broader strand of literature on the evaluation of regulatory initiatives to counteract tax evasion by households.⁴ Several

⁴ For an overview of the literature on theoretical contributions modeling tax evasion through utility maximization problems under the constraints of legal penalties and sanctions, see Slemrod (2007) and Sandmo (2005). For a comprehensive literature review on post-crisis regulatory initiatives, see Meier et al. (2021).

papers investigate the effect of international deposits following information exchange treaties threatening bank secrecy in tax havens. As shown in Caruana-Galizia and Caruana-Galizia (2016), Johannesen and Zucman (2014), and O'Donovan et al. (2016), the signature of reciprocal agreements leads to an overall reduction in international deposits. Huizinga and Nicodème (2004), focusing on cross-border deposit flows, suggest that frictions in the system of information sharing hinder the effectiveness of offshore tax evasion policies. Johannesen and Zucman (2014) evaluate the impact of tax treaties aimed at exchanging banking information between G20 countries and tax havens signed in 2009. The authors find a negligible impact on overall deposits held offshore explained by the geographic reallocation of funds to banks located in tax havens with weaker information exchange obligations. Johannesen (2014) focuses on the effect on Swiss bank deposits held by EU households following the 2004 European Saving Directive aimed at collecting the interest income earned by depositors in some tax havens without disclosing the identity of the owner of the deposit account. The author finds a decline of approximately 40% in Swiss deposits made by European households as well as a geographic reallocation of funds to nonparticipating tax havens.

A more recent strand of the literature focuses on the actual implications of the FATCA implementation. De Simone et al. (2020) show that the FATCA has led to a decrease in investment in the US financial market by foreign investors. The authors report a negative post-FATCA impact on foreign holdings of US securities amounting to \$78.0 billion. Menkhoff and Mieth (2019) advance evidence in support of the fact that tax havens having entered a bilateral reciprocal FATCA IGA experience a post-regulatory decline in cross-border (outbound) nonbank deposits from the US. A few other scholars have raised the alarm about the increasing number of US citizens' bank account closures by foreign banks to avoid compliance with the FATCA (Grinberg, 2012; Woldeab, 2015). In the case of nonreciprocal IGAs, Dharmapala (2016) theoretically shows that the FATCA can lead to an increase in charges imposed by compliant FFIs to foreign resident account holders as well as increased levels of cross-border tax evasion.

The paper is organized as follows. Section 2 details the hypotheses tested. Section 3 presents the empirical results, and Section 4 concludes.

2. The FATCA and US global banks: background and hypotheses

Before the FATCA, the IRS introduced a variety of policy initiatives aimed at enforcing offshore tax compliance with measures ranging from bilateral information-exchange-on-request agreements with offshore jurisdictions to amnesties for self-reporting tax evaders. Most notably, the US signed several bilateral information-exchange-on-request agreements with several tax havens within the OECD's Tax Information Exchange Agreements (TIEAs).⁵ Hanlon et al. (2015) show that the TIEAs signed by the US with tax havens have encouraged round-tripping tax evasion via non-signing tax havens. The authors argue that a great limitation hindering the success of the TIEAs pertains to the 'on request' nature of the information exchange, which requires prior knowledge of the infraction and of the identity of the tax evader. In addition, other limitations include the fact that TIEAs do not prevail over local bank secrecy laws and that tax havens do not collect information on the ultimate beneficiary of shell corporations incorporated on their soil.

A set of additional measures aimed at incentivizing US taxpayers to self-report their assets shielded overseas. To this extent, a few voluntary offshore disclosure programs have been sequentially introduced since

⁵ In addition, the US has in place tax treaties with many countries around the world. These agreements are wider in scope, as they allow for reciprocal reduced tax rates and fiscal exemptions. Tax evasion by US taxpayers is explicitly addressed in some of these treaties through a saving clause. For full details, see <https://home.treasury.gov/policy-issues/tax-policy/treaties>. For a discussion on the exchange of information under the EU, Savings Tax Directive see Schwarz (2009).

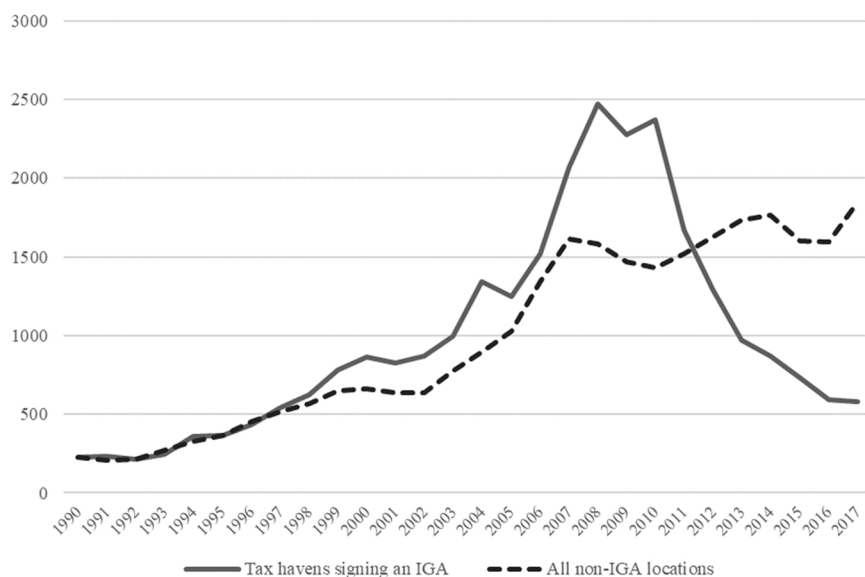


Fig. 1. Deposits held in foreign branches of US banks by location (US\$ billion),

Source: Author's calculation based on FFIEC 030 dat, Notes: Countries are grouped according to whether they have an IGA in place after 2014. Tax havens signing an IGA include the following jurisdictions: the Bahamas, Bahrain, the British Virgin Islands, the Cayman Islands, the Channel Islands, Hong Kong, Ireland, Macao SAR, Panama, Singapore, and Switzerland. All non-IGA locations include 46 other jurisdictions that are not tax havens and have not signed an IGA.

the early 2000 s, aiming at encouraging self-reporting by granting an exemption from criminal liability. Langenmayr (2017), focusing on the 2009 program, finds that voluntary disclosure programs increase tax evasion due to disparities in the moral costs of tax-evading individuals.⁶

In 2001, the IRS introduced a “Qualified Intermediary” (QI) program under which registered banks (foreign banks or foreign branches of US banks) agreed to identify US taxpayers among their clients and to withhold due taxes on US income on behalf of the IRS in exchange for a reduced withholding tax for its non-US customers. As became clear from the 2009 UBS scandal, the QI program stimulated the concealment of assets via the creation of trusts and shell companies incorporated in tax havens, leading to a substantial increase in income hidden offshore (De Simone et al., 2020). As further highlighted by Zucman (2014) and Findley et al. (2012), offshore banks have further facilitated the disguise of the traceability of hidden assets by channeling tax evaders' assets across the complex web of their global locations before reaching tax havens.

Under the FATCA, foreign branches of US banks have reporting and withholding requirements in line with those required from other FFIs. To ensure compliance with the FATCA, foreign branches must improve their reporting and documentation systems to meet two key regulatory requirements. First, they must develop enhanced procedures allowing them to ascertain whether US taxpayers are the ultimate owners of deposits held by foreign nonfinancial institutions held at their offices across the globe. That is, if the account holder is a company, then foreign branches must carry out the due diligence required to identify the *controlling person* of a company.⁷ Anonymous shell corporations established in tax havens are of particular interest to policymakers as they are known to hold a large proportion of tax evaders' deposits (Findley et al. 2012; Johannesen, 2014; Zucman, 2014),^{8,9} The increased likelihood of

the identification of ultimate deposit holders under the FATCA may thus lead foreign branches of US banks located in tax havens to experience a withdrawal of deposit liabilities held by sham corporations whose owners are US taxpayers. The first testable hypothesis is then formulated as follows:

Hypothesis 1. The FATCA leads to a decrease in deposits held in foreign branches of US banks located in tax havens.

Under the FATCA, FFIs located in jurisdictions signing an IGA are required to adopt a new reporting system to facilitate the automatic exchange of information between the IRS and the relevant tax authority of the signing counterparty. This requirement increases scrutiny of the activities of banks located in signing IGA tax havens, exposing US tax evaders who hold deposit accounts with US banks. The increased reporting pressure and regulatory requirements in these banking systems may cause a generalized flight of deposits, including at the foreign branches of US banks.¹⁰ To the extent to which US tax evaders hold deposits in offshore locations, we may observe a more significant decline in deposits held at foreign branches of US banks located in tax havens that sign an IGA. Clearly, as the number of tax haven jurisdictions signing an IGA increase, this effect may become more pronounced. We can now formulate our second testable hypothesis as follows.

Hypothesis 2. Foreign branches of US banks located in tax havens that sign an IGA will experience a more significant decline in deposits.

The last hypothesis we formulate aims to track the eventual flight of deposits out of tax havens and is related to evidence advanced by the literature supporting deposit flights towards jurisdictions not captured by a bilateral exchange of information initiatives (Chernykh and Mityakov, 2017; Huizinga and Nicodème, 2004; Omartian, 2016). In our case and following the arguments advanced by Hypothesis 2, we explore whether the FATCA has resulted in cross-border deposit transfers within the US banking system to branches located in non-IGA signing jurisdictions. Indeed, branches located in these latter jurisdictions are not obligated to register under the FATCA reporting system and may still allow tax evaders to shield their deposits. The signature of an IGA by a tax haven, instead, increases the risks of the detection of tax evaders in the local banking systems. As a result, US banks can transfer shielded deposits from IGA-signing tax havens to non-IGA signing jurisdictions,

⁶ For a review of the effects of tax amnesty programs see Graetz and Wilde (1993).

⁷ Further details on policies and procedures on the identification of the controlling person are available from the Treasury website: <https://home.treasury.gov/policy-issues/tax-policy/foreign-account-tax-compliance-act>.

⁸ Shell corporations located offshore are also incorporated for other reasons. For instance, Arbel (2016) discusses the extent to which shell companies are created to shield assets from bankruptcy seizures.

⁹ Findley et al. (2012) argue that the identification of the tax evader becomes extremely difficult if his/her deposits are held in tax havens via sham corporations as once funds are fed into the complex global network of international banks, they are routed across several locations and dissimulated in financial accounts via the recording of transactions of other forms.

¹⁰ See Bertrand and Klein (2021) for a comprehensive review of the extent of the costs attached to a larger collection of clients' information by banks.

using interoffice transactions occurring in internal capital markets. We test this hypothesis by investigating post-FATCA dynamics in interoffice inflows to non-IGA signing jurisdictions and interoffice outflows from IGA signing tax havens. That is, we test for deposit transfers across related branches by examining the potential effect that internal liquidity movements have on outstanding deposits. We thus formulate our third testable hypothesis as follows:

Hypothesis 3. Following the FATCA, US global banks have shifted tax evaders' deposits from foreign branches in IGA-signing countries to those in non-IGA countries.

Hypothesis 3 is verified if, after the FATCA implementation, we observe two opposing effects on deposits. First, a negative effect of the outbound interoffice positions on deposits in tax haven IGA signing jurisdictions can be an indication of deposit transfers to related branches located elsewhere. Second, a positive effect of inbound interoffice positions on deposits in non-IGA signing jurisdictions can be an indication of deposit influx from related branches. Taken jointly, the occurrence of these two effects suggests a pro-active response of US global banks following the FATCA materializing in a shift of deposits from foreign branches in IGA-signing countries to those in non-IGA countries.

A closer look at some preliminary statistics shows support for our hypotheses. Deposits held in the Cayman Islands, the second largest location by the size of foreign activities of US banks, stood at \$1.2 tr in 2010, while the amount was only \$0.26 tr in 2017, representing a drop of almost 80%. Branches located in the Bahamas experienced a 94% drop in deposits over the same period. Fig. 1 shows the evolution of deposits according to whether the location is an IGA signatory jurisdiction. In particular, we observe a vertiginous drop in aggregate deposits held in foreign branches of US banks located in tax havens with an IGA. In these countries, the drop in deposits has been almost fivefold since 2010. In contrast, branches located in non-IGA signing jurisdictions have experienced a steady increase since 2010.

3. Empirical section

3.1. Data and model

The empirical analysis is centered on unpublished balance sheet data on foreign branches of US banks collected by the Federal Financial Institution Examination Council (FFIEC, FFIEC 030 report).¹¹ The data is collected by the location of branches and aggregated over all US banks. We have information on deposits held in branches of US banks located in 57 foreign countries for 1990–2017 on an annual basis (balanced panel).¹² Our empirical strategy is based on a difference-in-differences (DiD) framework. The benchmark model considered has the following form:

$$\begin{aligned} \text{deposits}_{i,t} &= \beta_0 + \beta_1 \text{Post_FATCA}_t + \beta_2 TH_i + \beta_3 TH_i \\ & * \text{Post_FATCA}_t + \alpha_i + \gamma_t + X\theta + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The cross-section subscript i captures the country in which bank deposits are made by the foreign branches of US banks. The dependent variable $\text{deposits}_{i,t}$ is the natural logarithm of nonbank deposits outstanding in the balance sheet of foreign branches located in the sample jurisdictions over time.¹³ The indicator variable Post_FATCA takes a value of 1 from 2011 onwards and captures the implementation of the FATCA. Our benchmark tax haven country dummy, namely TH ,

follows Hines (2010) and includes the following jurisdictions: the Bahamas, Bahrain, the British Virgin Islands, the Cayman Islands, the Channel Islands, Hong Kong, Ireland, Jordan, Macao SAR, Panama, Singapore, Switzerland, and the US Virgin Islands. We also add to these jurisdictions the US territories of Guam, Puerto Rico, and the Northern Mariana Islands for which we have data. The European Union lists Guam and the Northern Mariana Islands as noncooperative tax havens, while Sampas (2015) discusses the role of Puerto Rico in tax evasion. To account for the divergence in tax haven classifications found in the existing literature (Bilicka and Fuest, 2014; Dharmapala, 2008; Dharmapala and Hines, 2009; Dyreng and Lindsey, 2009; Schwarz, 2011), we also consider a broader set of tax haven jurisdictions as listed in Johannesen and Zucman (2014) and Menkhoff, and Miethe (2019). We thus also create the TH_{broad} tax haven grouping by adding Belgium, Chile, Malaysia, and Uruguay to the benchmark list.

Vector X includes several time-varying host country controls. Following Menkhoff and Miethe (2019) we here include a financial weight variable to account for financial integration between the US and country i unrelated to tax evasion. We construct this time-varying variable as the ratio of claims recorded by foreign branches of US banks located in location i divided by the aggregate value of claims for all other locations.¹⁴ As in De Simone et al. (2020), we also control for population, GDP, and tax incidence. We thus include the natural logarithm of GDP (in million US\$), total taxes paid by businesses (as a percentage of profits), and the natural logarithm of the population (source: World Bank). Intercept α_i is the fixed effect capturing the time-invariant unobservable host country's i characteristics. Time-fixed effect γ_t controls for the time-varying factors common to all locations, such as global shocks, and $\varepsilon_{i,t}$ captures idiosyncratic disturbances.

Turning to the parameters' interpretation, β_1 captures the average change in deposits in non-tax havens post-FATCA and β_2 represents the difference in deposits between tax havens and non-tax havens pre-FATCA. The DiD parameter β_3 captures the extent to which average deposits in tax havens have changed post-FATCA, compared to what deposits in this group would have been without the FATCA implementation. A negative estimated coefficient for β_3 gives empirical support to the first hypothesis put forward in Section 2. That is, it would indicate that average deposits of branches located in tax havens deviate negatively from those of the non-tax haven control group. As discussed above, this can be explained by the fact that under the FATCA, US banks must put in place rigorous procedures to identify whether US taxpayers are the ultimate beneficiaries of their deposit accounts held by corporations at their foreign premises, which will result in a flight of deposits from foreign branches located in tax havens.

3.2. Results

Table 1 reports the regression estimates for several specifications of Eq. (1). Most notably, columns (1)–(3) consider the baseline tax haven country listing while columns (4)–(5) include the broader set of tax havens. Alongside country-fixed effects, we consider in specification (1) time-fixed effects while in specification (2) we include a country-specific linear time trend to account for the heterogeneity of deposit trends in each host country. In both specifications, we find that the DiD estimated coefficient for the baseline tax haven treatment group ranges between -0.738 and -0.752 , implying a substantial drop (74–75%) in deposits in tax havens attributable to the FATCA implementation, in line with the preliminary statistics presented in Section 2. When considering the broad set of tax havens, the corresponding estimated drop in deposits driven by the FATCA is estimated to be 84% (column 4). In columns (3) and (4) we consider as a dummy capturing the timing of the FATCA

¹¹ The dataset was obtained through a Freedom of Information Act request (research purpose).

¹² Variables refer to the December figures of the corresponding year.

¹³ This is a continuous variable, referring to outstanding amounts of deposits held by branches in each location. Unfortunately, the report does not yield any information on the nationality or residence of deposit holders.

¹⁴ The financial weight variable is obtained from the FFIEC 030 report. Nonbank claims include loans secured by real estate, loans to depository institutions, commercial and industrial loans, and all other loans and all leases.

Table 1
Deposits and tax havens after the FATCA.

	Dependent variable: ln (deposits)				
	(1)	(2)	(3)	(4)	(5)
TH	7.790 *** (2.171)	8.473 *** (2.171)	7.480 *** (2.160)		
TH _{broad}				7.497 *** (2.152)	7.266 *** (2.149)
Post_FATCA	0.900 *** (0.305)	0.367 *** (0.135)		1.010 *** (0.305)	
TH*Post_FATCA	-0.738 *** (0.183)	-0.752 *** (0.184)			
TH _{broad} *Post_FATCA				-0.836 *** (0.183)	
Post_FATCA _{14,17}			0.966 *** (0.307)		1.089 *** (0.310)
TH*Post_FATCA _{14,17}			-0.941 *** (0.225)		
TH _{broad} *Post_FATCA _{14,17}					-1.040 *** (0.211)
Controls	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	Yes
Linear trend	No	Yes	No	No	No
R-squared	0.7041	0.6976	0.7044	0.7056	0.7057
Observations	1584	1584	1584	1584	1584

Notes: Robust standard errors are shown in parentheses. *Post_FATCA* takes a value of 1 from 2011 onwards while *Post_FATCA_{14,17}* takes a value of 1 from 2014 onwards. *TH* captures the following tax havens: the Bahamas, Bahrain, the British Virgin Islands, the Cayman Islands, the Channel Islands, Hong Kong, Ireland, Jordan, Macao SAR, Panama, Singapore, Switzerland, the US Virgin Islands, Guam, Puerto Rico and the Northern Mariana Islands. In the *TH_{broad}* tax haven grouping, we additionally include Belgium, Chile, Malaysia, and Uruguay. The sample of locations includes 57 host countries, including tax havens. Data are available annually for 1990–2017. * denotes 10% significance, ** 5% significance, and *** 1% significance.

Table 2
IGA signature, focus on tax havens.

	Dependent variable: ln (deposits)		
	(1)	(2)	(3)
IGA*Post_FATCA*TH	-0.911 *** (0.338)		
IGA*Post_FATCA ₁₄₋₁₇ *TH		-1.952 *** (0.411)	
IGA*Post_FATCA ₁₄₋₁₇ *TH _{broad}			-1.620 *** (0.371)
Post_FATCA, IGA and TH indicators included	Yes	Yes	Yes
Post_FATCA, IGA and TH full-set of cross-interactions included	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Observations	1584	1584	1584
R-squared	0.7056	0.7088	0.7094

Notes: Robust standard errors are shown in parentheses. *Post_FATCA* takes a value of 1 from 2011 onwards while *Post_FATCA_{14,17}* takes a value of 1 from 2014 onwards. *TH* captures the following tax havens: the Bahamas, Bahrain, the British Virgin Islands, the Cayman Islands, the Channel Islands, Hong Kong, Ireland, Jordan, Macao SAR, Panama, Singapore, Switzerland, the US Virgin Islands, Guam, Puerto Rico and the Northern Mariana Islands. In the *TH_{broad}* tax haven grouping, we additionally include Belgium, Chile, Malaysia, and Uruguay. IGA is an indicator variable that captures whether a jurisdiction has signed an IGA with the IRS. The sample of locations includes 57 host countries, including tax havens. Data are available annually for 1990–2017. * denotes 10% significance, ** 5% significance, and *** 1% significance.

implementation an indicator variable that equals one from 2014 onwards and zero otherwise (*Post_FATCA_{14,17}*). It is in fact from 2014 that the FATCA withholding and registration obligations were fully enforced on concerned financial institutions. As expected, over this restricted period, the DiD estimate is even larger than that capturing the post-2011 period. In all cases, the first hypothesis is empirically verified across the different specifications. The estimated coefficients for the treatment groups, $\hat{\beta}_2$, are overall positive and significant, suggesting that before the FATCA, branches located in tax havens had higher deposits than those observed in branches located elsewhere (control group). The positive and significant estimated coefficients of the *Post_FATCA* variable, $\hat{\beta}_1$, reveal that average deposits in branches located in the control group countries (non-tax havens) increased both after the FATCA

introduction and full implementation. As in Eq. (1), the control group includes both countries that have signed an IGA and those that have not, this result may be driven by an augmentation of deposits in the latter group.

In Table 2, we leverage the fact that while deposits in tax haven jurisdictions have decreased post-FATCA, this effect is more pronounced under the signature of a bilateral IGA. Only a handful of tax havens did not have an effective IGA in place in 2014; this was most notably the case of Jordan and all of the unincorporated US territories. The latter, indeed, are not subject to information-sharing agreements as they are not located on US territory.¹⁵ We augment our baseline model to include a triple-difference interaction term *IGA*Post_FATCA*TH*, as well as cross interactions among these variables, to capture the differential effect of the FATCA on bank deposits due to the IGA signature, to provide eventual empirical support to our second proposition. Our results (column 1) indicate that branches located in IGA-signing tax havens (narrow definition) experienced a significant fall in post-FATCA deposits when compared to their non-tax haven counterparties. These results are robust to the broader definition of tax havens (column 3) and the narrower post-FATCA period (column 2). This fall is the largest after 2014, the date in which IGAs are signed with the counterparty countries.¹⁶ Overall, these results support the predictions advanced by Hypothesis 2.

As discussed above, the predictions advanced by Hypothesis 3 are tested by investigating whether the FATCA has resulted in US tax evaders' deposits being transferred to related branches located in non-IGA signing locations. To this extent, we exploit information regarding interoffice inbound and outbound transactions available for 2003 onwards from the FFIEC 030 report. The estimated models take the following form:

$$deposits_{i,t} = \alpha_0 + \alpha_1 inbound_{i,t} * TH_i * Post_{FATCA_t} + X\theta + W\delta + \gamma_t + \epsilon_{i,t} \quad (2)$$

$$deposits_{i,t} = \alpha_0 + \alpha_1 outbound_{i,t} * TH_i * Post_{FATCA_t} + X\theta + W\delta + \gamma_t + \epsilon_{i,t} \quad (3)$$

The dependent variable is *deposits_{i,t}* as considered above. The variable *inbound* refers to liabilities foreign branches of US banks located in country *i* have vis-à-vis related branches located elsewhere (all other

¹⁵ See for instance the Bloomberg report focusing on Puerto Rico: "Could Puerto Rico be the next hot tax haven?" 22 August 2017 discussing the extent to which FATCA may increase deposits in foreign banks located in unincorporated US territories

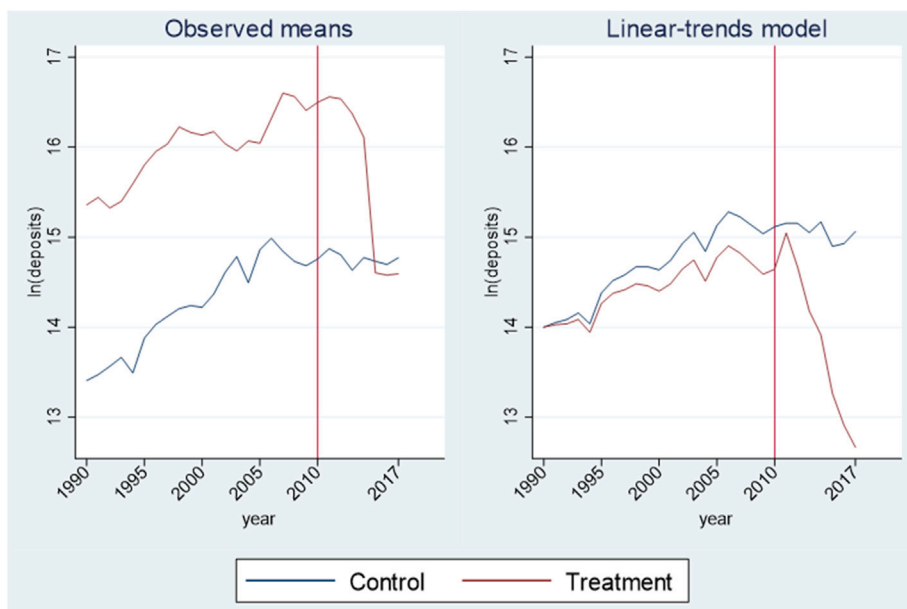
¹⁶ The only exception is Vietnam, which signed an IGA effective in 2016.

Table 3
Deposit transfers within the global banking network of US banks.

	Dependent variable: ln (deposits)			
	(1)	(2)	(3)	(4)
<i>sample</i>	<i>non-IGA signing</i>		<i>IGA signing</i>	
Inbound*Post_FATCA*TH	0.276 *** (0.047)			
Inbound*Post_FATCA*TH _{broad}		0.313 *** (0.088)		
Outbound*Post_FATCA*TH			-0.317 *** (0.081)	
Outbound*Post_FATCA*TH _{broad}				-0.248 *** (0.077)
Controls	Yes	Yes	Yes	Yes
Post_FATCA and TH indicators	Yes	Yes	Yes	Yes
Full-set of cross-interactions	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	255	255	600	600
R-squared	0.8707	0.6995	0.7585	0.7554

Notes: Autocorrelation and heteroscedasticity robust standard errors are shown in parentheses. *Post_FATCA* takes a value of 1 from 2011 onwards. *TH* captures the following tax havens: the Bahamas, Bahrain, the British Virgin Islands, the Cayman Islands, the Channel Islands, Hong Kong, Ireland, Jordan, Macao SAR, Panama, Singapore, Switzerland, the US Virgin Islands, Guam, Puerto Rico and the Northern Mariana Islands. In the *TH_{broad}* tax haven grouping, we additionally include Belgium, Chile, Malaysia, and Uruguay. Included controls (unreported) are the natural logarithm of GDP (in million US\$), the total tax and contribution rate (as a percentage of profit), and the natural logarithm of population. The sample of locations includes 57 host countries, including tax havens. IGA-signing countries include 40 jurisdictions, and non-IGA signing countries include 17 jurisdictions. IGA-signing countries are captured by an indicator of equal to 1 over the whole sample period if the country has signed an IGA at any time since 2011. Data are available annually for 2003–2017, as outbound and inbound data are only available from 2003. * denotes 10% significance, ** 5% significance, and *** 1% significance.

a. Visual diagnostics



b. Linear-trend model Wald test

H0: Linear trends are parallel pre-treatment	
	Prob>F
Model 1	0.3542
Model 2	0.1733

Fig. 2. Diagnostics for the parallel trend, Notes: In panel a) we report the plots of the mean outcome for the treatment and control groups and the results of the linear trend model based on the DiD specification as in (1). In panel b) Model 1 refers to the specification reported in Eq. (1) while model 2 refers to the specification reported in Table (2) column (2).

locations confounded) and *outbound* refers to claims of foreign branches of US banks located in country *i* have vis-à-vis related branches located elsewhere (all other locations confounded). The vector **X** contains time-varying host country controls as defined above and the vector and **W**

includes indicator and interaction variables as required in the triple-difference estimation. We estimate (2) using the sample of non-IGA signing jurisdictions. A positive and significant estimated coefficient for our variable of interest $inbound_{i,t} * TH_i * Post_{FATCA,t}$ suggests a post-

Table 4
Summary of the results.

Hypothesis	Empirical Confirmation	Details
The FATCA leads to a decrease in deposits held in foreign branches of US banks located in tax havens.	✓	Overall post-FATCA fall in deposits held in foreign branches located in tax havens, regardless of whether they have signed an IGA with the IRS.
Foreign branches of US banks located in tax havens that sign an IGA will experience a more significant decline in deposits.	✓	Among tax havens, those that have signed an IGA experienced a more dramatic drop in deposits held in foreign branches of US banks.
Following the FATCA, US global banks have shifted tax evaders' deposits from foreign branches in IGA-signing countries to those in non-IGA countries.	✓	Increase in foreign branches' flows from IGA-signing tax havens' branches to branches in other locations reducing deposit liabilities in the former locations.

FATCA surge in deposits in branched located in non-IGA signatory tax-havens attributable to funds received from related offices. That is, the liquidity received by branches located in non-IGA signing jurisdictions from other offices have increased deposits after the FATCA implementation, consistent with a deposit-shifting effect. We estimate (3) using the sample of IGA-signing jurisdictions. A negative and significant effect of the variable of interest $outbound_{i,t} * TH_t * Post_{FATCA_t}$ supports a post-FATCA flight in deposits in those tax-haven locations which have signed an IGA which can be explained by the increase in liquidity sent to related office though internal capital markets. This effect is also consistent with deposit-shifting thesis as the liquidity sent to other offices post-FATCA and in IGA-signing jurisdictions is matched with a fall in deposits.

Table A1
Country list.

Country	IGA	Tax haven narrow	Tax haven broad	Country	IGA	Tax haven narrow	Tax haven broad
Algeria	1	0	0	Japan	1	0	0
Argentina	0	0	0	Jordan	0	1	1
Australia	1	0	0	Kenya	0	0	0
Bahamas	1	1	1	Korea (South)	0	0	0
Bahrain	1	1	1	Macao SAR	1	1	1
Bangladesh	1	0	0	Malaysia	1	0	1
Belgium	1	0	1	Netherlands	1	0	0
Brazil	1	0	0	New Zealand	1	0	0
British Virgin Islands	1	1	1	Northern Mariana Islands	0	1	1
Brunei	0	0	0	Pakistan	0	0	0
Canada	1	0	0	Panama	1	1	1
Cayman Islands	1	1	1	Paraguay	1	0	0
Channel Islands	1	1	1	Philippines	1	0	0
Chile	1	0	1	Puerto Rico	0	1	1
China	1	0	0	Singapore	1	1	1
Dominican Republic	1	0	0	South Africa	1	0	0
Ecuador	0	0	0	Spain	1	0	0
Egypt	0	0	0	Sri Lanka	0	0	0
England	1	0	0	Switzerland	1	1	1
France	1	0	0	Taiwan	1	0	0
Germany	1	0	0	Thailand	1	0	0
Guam	0	1	1	Tunisia	0	0	0
Guatemala	0	0	0	Turkey	1	0	0
Hong Kong	1	1	1	UAE	0	0	0
India	1	0	0	Uruguay	0	0	1
Indonesia	1	0	0	Venezuela	0	0	0
Ireland	1	1	1	Vietnam	1	0	0
Israel	1	0	0	Virgin Islands (U.S.)	0	1	1
Italy	1	0	0				

Notes: Table A.1 lists all countries considered in the empirical analysis. IGA-signing countries are captured by an indicator of equal to 1 over the whole sample period if the country has signed an IGA any time since 2011. The tax haven narrow group follows the tax haven's identification found in Hines (2010) to which we add the US unincorporated territories of Guam, Puerto Rico and the Northern Marana Island. The tax haven broad group is based on the list provided by Johannesen and Zucman (2014) and Menkhoff, and Miethe (2019) and adds Belgium, Chile, Malaysia, and Uruguay to the narrow listing.

In Table 3, we report several specifications that allow us to test for these effects by including triple-difference interactions on the sample of jurisdictions split according to their IGA signatory status. In columns (1) and (2), we find that the post-FATCA increase in inbound transactions in non-IGA signing tax havens (narrow and broad definitions respectively) significantly and positively explains deposits held by foreign branches of US banks. For the sample of IGA signatory locations considered in specifications (3) and (4), we find a negative and significant effect of outbound interoffice transactions on deposits held in foreign branches of US banks in tax havens. This evidence suggests that an increase in foreign branches' interoffice outbound transactions from IGA-signing tax havens to other locations reduces deposits in these locations. These results, supporting the predictions advanced by Hypothesis 3, also suggest that albeit the FATCA has increased the cost of tax evasion, some tax evaders prefer to opt for a shift of funds to related offices of the same banks rather than repatriating funds back to the US. Also, the movement of funds to a related office implies that tax evaders do not have to face the costs of finding another financial institution with which they would not have an established relationship of trust.

3.3. Additional results

The DiD research design relies on the parallel-trend assumption for the pre-treatment periods. We formally test for the validity of this assumption by estimating a linear-trends model, consisting in augmenting the DiD model with interaction variables that capture the differences in slopes between treated and control groups. A Wald test is then carried out on the estimated coefficient capturing the difference in slope between the treatment and control groups pre-treatment, equivalent to testing the null hypothesis of linear parallel trends before the treatment. Fig. 2 below (top panel) reports the visual diagnostics for the parallel trend for our benchmark DiD specification consisting of plots of the means of the outcome overtime for both the control and the treated

Table A2
Data sources and descriptive statistics.

Variable	Description	Mean	Standard deviation	Source
Deposits	Deposits liabilities held at foreign branches of US banks	36 \$billion	147 \$billion	FIIEC030 report
Weight	Claims of foreign branches located in given country and a given year divided by the total claims of all branches in that year	0.018	0.052	FIIEC030 report
GDP	GDP (current US\$)	509 \$billion	1100 \$billion	World Development Indicators
Population	Population, total	77 million	220 million	World Development Indicators
Tax	Total tax and contribution rate (% of profit)	40%	20%	World Development Indicators
Inbound	Gross due to head office, U.S. branches, and other foreign branches of this bank	26 \$billion	78 \$billion	FIIEC030 report
Outbound	Gross due from head office, U.S. branches, and other foreign branches of this bank	6 \$billion	28 \$billion	FIIEC030 report

Notes: The descriptive statistics in table A.2 refer to the mean and standard deviations calculated for the whole sample of 57 countries over the available sample periods. Inbound and outbound variables are available for the 2003–2017 sample (annual) while all the other variables are available for the 1990–2017 sample.

group (left-hand side) and of the results of the linear-trends model (right-hand side). Both graphs seem to support the validity of the parallel-trend assumption as deposits in both tax havens and non-tax havens followed parallel paths before the FATCA. In particular, the observed means pre-treatment deposits follow similar and parallel trajectories for non-tax havens and tax haven host country jurisdictions. The plot of the linear trends model also seems to show that the trend trajectories of both groups are parallel. To further confirm this visual inspection, the bottom panel of Fig. 2 reports the results of the Wald test on the pre-FATCA slope between treated and control groups on the linear-trend models based on the two benchmark DiD specifications used in the empirical analysis. In both cases, the null hypothesis of parallel trends is not rejected.

Figure A.1 in the Appendix reports the plots of the time-specific treatment effects to have a dynamic view of the trend of the treatment effects estimates post-FATCA. We fit to the benchmark specification in (1) a model including leads and lags of an indicator capturing the timing in which the treatment started. The plots, which consider the narrower and broader grouping of tax havens for the computation of the treatment interaction variable, reveal that the negative post-FATCA effect on deposits held by tax havens is observed in the 2014–17 period, in which the full implementation took effect. Over this restricted period, the coefficients of the leads are rather stable and relatively larger, when the treatment variable is constructed using the narrower definition of tax havens. In the year preceding the FATCA implementation, the lagged effect is close to zero suggesting that there is no considerable adaptation in the pretreatment period.

To conclude, Table 4 below reports a summary of the testable hypotheses and the related empirical results described above.

4. Conclusions

Countering offshore tax evasion is one of the most significant challenges faced by governments around the world. The global value of hidden assets by households in tax havens, including securities and bank deposits, is estimated at \$5.8 trillion (Zucman, 2013). Understanding the extent to which regulation aimed to counteract offshore tax evasion affects the behavior of economic agents is relevant for the Law and Economics audience given the normative implications and the interdisciplinary scope of the research. This paper has provided an assessment of the effects on deposit liabilities of foreign branches of US banks of the latest offshore tax enforcement regime, the FATCA. Uncovering how banks and depositors act under the new US legal framework for offshore tax evasion is important for policy evaluation underpinning the normative branch of the field.

Our results point to a post-FATCA flight of US taxpayers' deposits held in US global banks located in tax havens, particularly in those jurisdictions signing an IGA with the US tax authority. Finding evidence of an implication of US banks in offshore asset shielding is important evidence per se, as very little is known about the institutions facilitating asset shielding (Chernykh and Mityakov, 2017), even if tax havens are well documented to host tax evasion (Eden and Kudrle, 2005; Masciandaro, 2008). We also find evidence of cross-border deposit transfer within the US banking system to branches located in non-signing IGA countries. Proactive deposit shifting across related branches, consistent with regulatory arbitrage, can be interpreted as an attempt by US global banks to contain the loss of deposits and to maintain a level playing field in offshore banking services with their foreign competitors.

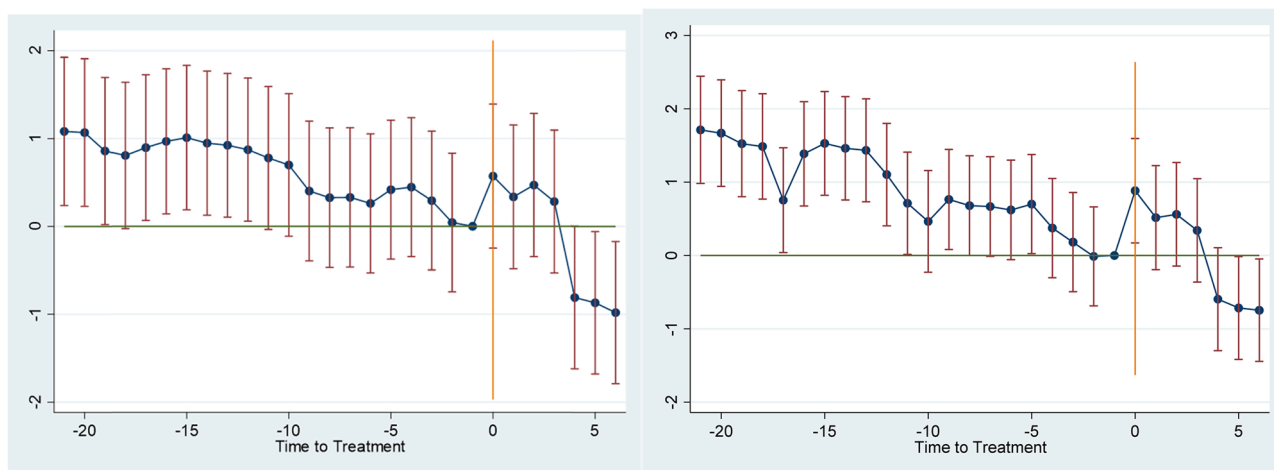


Fig. A1. Estimated treatment effects, event study, Notes: The event study plots refer to specification (1) considering the narrow (left) and the broader (right) definition of tax havens. 90% confidence intervals.

Conflict of interest

I, the Author, declare that there are no conflicts of interest related to the writing of the paper “*Counteracting offshore tax evasion: Evidence from the Foreign Account Tax Compliance Act*”.

Data Availability

The authors do not have permission to share data.

Appendix A

See Appendix Table A1 and A2, and Fig. A1 here.

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