Abstract

Using data on Foreign Portfolio Investment (FPI), we find a positive relationship between higher tax burden and OECD residents’ tax evasion, especially via tax havens. Contrary to established investor preference for certain country characteristics, we find they are less important to tax evaders who value privacy and want to remain undetected by their home tax authorities. We find very limited evidence that OECD Tax Information Exchange Agreements (TIEAs) reduce tax evasion, controlling for other determinants of overall OECD FPI. Without the US in the OECD sample, tax havens play a lesser role and OECD policies appear to make a marginal impact.

Keywords: tax haven, tax evasion, foreign portfolio investment, tax information exchange agreements, OECD

JEL classification: F38, G38, H26

We thank John Doukas and an anonymous referee for very helpful comments and suggestions on an earlier draft.

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1. Introduction

With an estimated USD 190 billion per year in lost revenues, tax evasion via offshore tax havens challenges tax authorities of many nations.\(^1\) We provide empirical evidence of OECD country residents’ tax evasion using the concept of round tripping, i.e., when OECD residents funnel money through an undeclared offshore account and, unbeknownst to their local tax authorities, subsequently reinvest back into their home country’s capital market posing as a foreign investor.\(^2\) Thus, as a result these OECD residents (typically) pay a lower tax rate on their investment returns. For the period 2002–2013 we find that foreign portfolio investment (FPI) flows increase with tax benefits from round tripping, which is an indirect measure of tax evasion.\(^3\) For the entire OECD sample we also find that higher tax savings result in more FPI flows from tax havens. This finding appears to be driven by US flows.

In addition to tax savings, what other factors might tax evaders value? We argue that certain country characteristics make collaboration between tax authorities more challenging, and are therefore desirable for evasion. Genuine investors want to reduce information costs and prefer investing in close-by countries with which they are familiar in terms of language, legal system and corruption oversight (Chan et al., 2005; Gaston et al., 2005; Grinblatt and Keloharju, 2001; and Wei and Shleifer, 2000). In the case of round tripping via tax havens, we find opposite results where FPI flows are positively related to greater distance, different legal systems and greater corruption. Different legal systems and higher potential corruption likely result in less efficient information sharing and subsequent detection of tax evasion by the tax authorities. This new finding adds to the existing literature by highlighting the tenacity and persistence of tax evaders.

The Organisation for Economic Co-operation and Development (OECD) addressed its members’ call for measures against harmful tax competition in its 1998 report, *Harmful Tax Competition: An Emerging Global Issue* (OECD, 1998), with recommendations for legislation, tax treaties and intensified international cooperation.\(^4\) Subsequently, the OECD developed a standard for Tax Information Exchange Agreements (TIEAs), of which more than 800 were signed by 2013.\(^5\) In addition to TIEAs, the Council of the European Union introduced information exchange for taxation of interest income between member states in 2003 (Council Directive 2003/48/EC), and the European Union Savings Tax Directive (STD) implemented in 2005 provided a multilateral institutional means of collecting taxes and exchanging information.

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\(^1\) See Griffith (2015). Approximately half of the global flows of foreign direct investment are routed through offshore financial centres (Palan et al., 2010; Palan and Nesvetailova, 2013), and the accumulated private financial wealth in registered offshore tax havens was estimated to be between USD 21 and USD 32 trillion in 2010 (Henry, 2012).

\(^2\) A more in-depth explanation of round tripping is provided in the Background section below.

\(^3\) See Hanlon et al. (2015).

\(^4\) See also Dermine (1996).

\(^5\) Oversight of Tax Co-operation and Information Exchange is currently facilitated by the OECD’s Global Forum, consisting of 126 member jurisdictions and the European Union. See http://www.oecd.org/tax/transparency and http://www.oecd.org/tax/exchange-of-tax-information/.
regarding foreign deposit accounts. This directive supplements double taxation avoidance agreements (DTAA), which have been in place since the 1950s and are generally designed to encourage foreign investment (Barthel et al., 2010) and harmonise tax rules between two countries (Dagan, 2009). DTAAAs may contain tax information sharing provisions between the treaty countries (Bacchetta and Espinosa, 2000).

While Rixen and Schwarz (2012) and Johannesen (2014), among others, examine the STD and tax evasion via foreign bank deposit accounts, we focus on OECD countries’ tax evasion via capital market investments. Focusing on just the US, Hanlon et al. (2015) examine capital market flows and find that tax evasion by US residents increases when US tax rates increase, and decreases with the implementation of TIEAs. Given the economic importance of the OECD, whose countries combined produce 63% of global gross domestic product (GDP) and 75% of global trade, we provide empirical feedback on tax evasion of OECD country residents and the efficacy of OECD policies. This is important because compliance and enforcement costs are not trivial. We investigate the deterrence of tax evasion for OECD residents following implementation of information sharing agreements and compare the benefits of tax evasion to its risks. Similar to Johannesen and Zucman (2014), we find mixed evidence for the effectiveness of TIEAs between OECD countries and tax havens. Controlling for country characteristics beyond size of economy, information sharing agreements do not deter FPI from tax havens. Further, tax evasion via round tripping from tax havens persists even when TIEAs are signed between OECD countries and tax havens. However, focusing only on OECD countries excluding the US, TIEAs do reduce flows from tax havens and tax savings with tax havens no longer induce round tripping. TIEAs appear effective for OECD countries if the US is excluded from the sample.

We also examine other country-specific factors considered in the literature. We find that, in general, FPI increases with the existence of double taxation avoidance agreements and when the currency of the source country (equity origin) is stronger than the currency in the host country (equity destination). In line with the literature, we further

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*6 Austria, Belgium and Luxembourg were exempted from automatic information exchange due to ‘structural differences’. Instead, those countries were tasked to collect and transfer withholding taxes. Belgium and Luxembourg discontinued their participation in 2010 and 2015, respectively (European Community, 2003). Also see Rixen and Schwarz (2012) and Johannesen (2014).*

*7 In terms of what taxes are imposed and how tax revenues are distributed. In some cases tax information exchange has been incorporated into these agreements.*

*8 Household offshore wealth may be in securities accounts holding bonds and equities (FPI) or in bank deposits. We focus on FPI because it accounts for approximately 75% of the total household offshore wealth, as of 2008 (Zucman, 2013, Table III, p. 1345).*

*9 See http://usoecd.usmission.gov/mission/overview.html.*

*10 Costs of compliance with tax evasion laws would be in the magnitude of costs of compliance with anti-money laundering laws, such as the Foreign Account Tax Compliance Act, and the Foreign Corrupt Practices Act in the US. These are estimated to be USD 10 billion per year for US banks (KPMG, 2015). Halliday et al. (2014) examine the IMF programme on anti-money laundering and combating the financing of terrorism, which has similar objectives as tax evasion efforts, and find that they have not been effective despite their high costs. In addition, these laws raise the costs of legitimate transfers (Coats, 2016).*
find that more developed countries attract more investments (Chan et al., 2005), evidenced by more FPI flowing into countries with greater GDP (as a share of total OECD GDP) and GDP per capita relative to the source country. Our results are robust for the entire OECD sample, controlling for source country and year fixed effects, and for the global financial crisis.

Section 2 of this paper provides background on tax evasion and hypotheses development. Section 3 describes the data. Section 4 presents the model and empirical analysis. Section 5 presents the empirical results, and section 6 concludes.

2. Background on Tax Evasion and Hypotheses

2.1. Background

Since individuals engaging in tax evasion naturally keep transaction information private to avoid detection and prosecution, direct assessment of the magnitude and significance of such tax evasion is difficult. Nonetheless, two recent studies of the EU Savings Tax Directive (STD) provide valuable insights. The Directive focuses on interest earned on foreign savings deposits and requires either automatic information exchange (rather than on request) or tax withholding. Johannesen (2014) examines the impact of the STD on Swiss bank deposits held by EU residents. Using non-EU residents as a benchmark, he finds that deposits of EU members declined 30–40% immediately prior to the Directive’s implementation. Individuals moved their deposits from Switzerland to other jurisdictions not subject to the Directive. Rixen and Schwarz (2012) focus on investors in four source countries (France, Italy, Sweden and Spain). They find that investors adapted to the Directive well before it was implemented, and switching from debt to equity products in the same country was more prevalent than moving portfolio capital to other tax havens. However, countries that opted for tax information sharing rather than withholding did experience an outflow. Notably, the response of investors in each of the four countries was quite different. There were strong effects for French investors, less so for those in Sweden and Spain, and virtually no response in Italy.

These results, while based on a few countries and only for deposit accounts,11 may be indicative of a general phenomenon. Zucman (2013) offers an excellent discussion of anomalies in the international investment position of balance of payments accounts and provides aggregate estimates of ‘missing wealth’ due to tax evasion.12 We use Foreign Portfolio Investment (FPI) flows from tax havens to assess round tripping in the OECD as an indirect measure of tax evasion.13 The IMF (2004) defines round tripping as channeling private local funds into foreign Special Purpose Entities and then reinvesting those funds back into the local economy via direct investment; motivations for round tripping include confidentiality and tax advantages. Therefore, local tax haven residents

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11 STD does not apply to brokerage accounts or other assets held abroad.
12 He examines the External Wealth of Nations dataset constructed by Lane and Milesi-Ferretti (2007), which covers 178 economies. Our dataset covers a later period.
13 See Hanlon et al. (2015) for the arguments regarding the importance and significance of such flows and the underlying theory and identification strategy, which we employ. Also, see Slemrod (2007) for an insightful review of tax evasion issues in general and Dharmapala (2008) for a review of the literature on tax havens.
are not the primary source of capital inflows from these countries. Most countries welcome foreign investments to support their economy, and they tax foreign investors at a lower rate than domestic investors. The US, for example, frequently imposes a lower dividend income tax on foreign investors and exempts them from taxes on capital gains and interest income earned in the US, and other OECD countries provide similar incentives to many foreign investors. Thus, when investors round trip, they evade taxes by taking advantage of tax savings equal to the difference in taxes charged to local and foreign investors. Although tax evasion is illegal, it is difficult for tax authorities to identify tax evaders. Despite efforts by the OECD and others to establish information sharing agreements between countries, such as Tax Information Exchange Agreements (TIEAs) and Double Taxation Avoidance Agreements (DTAAs), information under such agreements is typically shared only upon request by the inquiring country (Barber, 2007).

Lost tax revenues are significant and cover a wide range of countries. For example, Canadians for Tax Fairness reported that CAD 170 billion are held in ten offshore tax havens. The UK Guardian revealed that more than 100 of Britain’s richest individuals are protecting billions of pounds in undisclosed offshore accounts. And Italy is losing 91 billion Euros in tax revenues annually due to tax evasion (Reuters.com). Nonetheless, uncovering tax evasion schemes is no small task. According to US tax authorities, ‘IRS Criminal Investigation coordinates its efforts with other countries to counteract tax schemes, and money laundering. Worldwide, many countries have agreed to adopt international tax standards on exchanging information and, as a result, the age of bank secrecy might seem to be coming to an end’. However, this appears wildly optimistic as the scale, determinants of evasion, and effectiveness of new information exchanges are not yet well quantified or understood, and there is no shortage of media reports of continuing tax evasion. Empirical evidence is scant and mixed. Hanlon et al. (2015) report that the signing of TIEAs between the US and tax havens decreases

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14 Again, approximately half of the global flows of foreign portfolio investment are routed through offshore financial centres (Palan et al., 2010; Palan and Nesvetailova, 2013).  
15 The US does not tax foreign investors, non-resident aliens, on capital gains and interest income Internal Revenue Service (2016).  
16 We focus on tax savings rather than the magnitudes of the home country tax rates as in Johannesen (2014), who finds no correlation between the home tax rates of EU countries and the size of the response to the Savings Tax Directive.  
17 They have also noted that federal and provincial governments lose about CAD 8 billion per year in tax revenues. See The Canadian Press (2014). Recently the Canadian Revenue Agency took action against KPMG and HSBC for designing and implementing schemes purposely to avoid taxes for over a thousand Canadians (see CBC News, 2015a, 2015b, inter alia).  
18 See Ball and Neate (2013).  
19 In 2015 Italy signed a tax information sharing agreement with Switzerland, where Italians stored much of their wealth Fonte and Trevelyan (2015). Italians who voluntarily disclosed their Swiss holdings paid a penalty between 7 and 12% of their holdings, Logutenkova and Vogeli (2015).  
20 See IRS (2015), http://www.irs.gov/uac/International-Investigations-Criminal-Investigation-(CI).
evasion, while Johannesen and Zucman (2014) find that TIEAs have only a modest negative effect on tax evasion. To expand the literature and gain a deeper understanding of international tax evasion and the effectiveness of information agreements, we now turn to our specific hypotheses.

2.2. Hypotheses

Following Becker’s (1968) theory of crime, investors’ engagement in tax evasion depends heavily on their perceived costs and benefits. The benefits of tax evasion can be measured by tax savings to the investor. We focus on the difference between tax rates a domestic investor pays on dividend income and tax rates a foreign investor pays (via withholdings) on the same dividend income, since most countries offer lower dividend income tax rates to foreign investors.\(^{21}\) As the differences in tax rates increase, it becomes more beneficial for domestic investors to invest in their local capital market by posing as a foreign investor via an offshore account. In other words, as tax savings via round tripping schemes increase, investors might be more tempted to evade taxes. Such tax evasion might be more pronounced when investors round trip via a tax haven with greater levels of perceived privacy. We also control for other country specific variables that affect FPI flows. Thus,

**H1a:** The relationship between tax savings and FPI flows, an indicator of round tripping, is positive in general for OECD host countries.

**H1b:** The relationship between tax savings and FPI flows is also positive for OECD host countries and even larger when FPI originates from tax haven source countries.\(^{22}\)

In addition to tax savings, tax havens also offer protection from investors’ domestic tax authorities due to lack of effective exchange of information and transparency between countries (OECD, 1998). This lack of transparency originates predominately with the laws and regulations of the tax havens (Hines and Rice, 1994), but might be augmented by other country characteristics. Specifically, investors might be attracted to countries that make communication with the home authorities more difficult. Previous studies show that investors, in general, prefer geographic closeness (Grinblatt and Keloharju, 2001) as well as countries that speak the same language (Aggarwal \textit{et al.}, 2012; Grinblatt and Keloharju, 2001), share the same legal system (Guiso \textit{et al.}, 2009)

\(^{21}\) Instead of using tax rates on dividend income, Hanlon \textit{et al.} (2015) focus on differences in long-term capital gains tax rates. This required the collection of US long-term capital tax rates by year applied to domestic investors. Since foreign investors do not pay any withholding taxes on long-term capital gains in the US, the tax benefits of a foreign investor relative to a US investor is easily computed. However, other OECD countries do impose withholding taxes on foreign investors, and the required information to obtain tax savings is only available for 2012; OECD (2002) and as confirmed by Mr. Michael Sharratt, OECD. For this reason, we focus on the differences in tax rates on dividend income, which are available for the countries and timeframe in our analysis.

\(^{22}\) Source countries are countries from where the foreign equity flows originate and host countries are the final destination countries of the foreign equity flows.
and offer a strong governance system (Abdioglu et al., 2013). We contend that this is not true for tax evaders as the benefits of tax evasion outweigh these desirable characteristics. Tax havens are known for their strict privacy policies and therefore better protect the evader from detection. Investors who engage in offshore tax evasion presumably value privacy rather than proximity, or similarity in language, legal and governance system.

Thus, the hypotheses regarding country specific determinants may be summarised as:

**H2:** FPI into the OECD from tax haven source countries is positively related to geographic distance (H2a), and negatively related to common language (H2b), identical legal system (H2c), or control for corruption (our measure of governance) (H2d).

The possible negative consequences from engaging in unlawful practices are a clear cost to be considered. Applying this logic to the situation of round tripping, we consider the costs of setting up the legal structure as sunk costs, and the probability of being caught and prosecuted as the costs of round tripping. The signing of an OECD incentivised tax information exchange agreement (TIEA) between countries is a reasonable proxy for an increase in enforcement efforts and thereby an increase in the probability of getting caught evading home country taxes. TIEAs are bilateral agreements that allow information sharing upon request for civil and legal tax purposes (OECD, 2002a). Alternatively, information exchange can be also incorporated in DTAAs (OECD, 2002b). We focus on the effectiveness of such agreements as a deterrent to tax evasion for OECD member investors.

Equity flows, in general, should increase when the host country has signed DTAAs since those agreements simplify tax rules for foreign investors and reduce double taxation. The genuine investor views DTAAs positively. However, we should not find any positive relationship between DTAAs and information exchange agreements and FPI if the equity originates from a tax haven. If TIEAs and DTAAs with tax havens have no impact on FPI, we conclude that these agreements pose no real deterrent effect. On the other hand, OECD efforts are effective if TIEAs and DTAAs with tax havens reduce FPI.

Thus,

**H3:** DTAAs, in general, are positively related to FPI (H3a). TIEA and DTAA agreements with tax havens either have no impact on FPI if tax evaders are not sufficiently deterred by OECD policy (H3b), or they have a negative impact if OECD policy is effective (H3c).

Lastly, we directly test the interplay between benefits and costs in determining tax evasion. If benefits outweigh costs, then the coefficient for the interaction between TIEAs and tax savings is positive when the FPI originates from a tax haven. If the costs outweigh the benefits, we expect the interaction term coefficient to be negative, and if cost and benefit neutralise each other, the coefficient should be insignificant. We effectively test whether round tripping exists even if a TIEA is signed with a tax haven.

Thus, while policy-makers expect TIEAs to reduce round tripping we consider three possibilities:

**H4a:** If the benefit from tax evasion outweighs the potential cost, the relationship between FPI flows and the interaction between Tax Savings and TIEAs is positive for OECD host countries when FPI originates from tax haven source countries.

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H4b: If the benefit from tax evasion does not outweigh the potential costs, the relationship between FPI flows and the interaction between Tax Savings and TIEAs is negative for OECD host countries when FPI originates from tax haven source countries.

H4c: If the benefit from tax evasion approximately equals its potential costs, the relationship between FPI flows and the interaction between Tax Savings and TIEAs is insignificant for OECD host countries when FPI originates from tax haven source countries.

3. Data

Our final sample consists of 18,279 foreign portfolio investment flow (FPI) observations from 160 source countries into 34 OECD host countries between 2002 and 2013. Table A1 in the Appendix lists names of host and source countries, as well as tax havens. We classify a country as a tax haven if it was included in the Harmful Tax Competition report (OECD, 1998).23 Twenty-five of our source countries (16%) are considered tax havens. We retain country pairs with at least three observations and equity flows of at least USD 1 million.

Table A2 in the Appendix provides variable names, definitions and sources for all variables. Our dependent variable is Log (FPI), the common logarithm of the foreign portfolio investment a host country receives from each foreign source country in a given year. We obtain foreign portfolio income (FPI) from the IMF Co-ordinated Portfolio Flows Investment Survey Database (CPIS).

ΔTax Savings is the annual percentage change of tax savings computed for each host-source country pair. Tax Savings is the difference between net dividend taxes and the dividend withholding tax. Net dividend taxes are imposed by the host country on its residents when a corporation declares dividends, and are based on corporate income taxes and personal income taxes. Dividend withholding tax applies to foreign investors and depends on whether a double taxation avoidance treaty exists or not. This variable is computed for each host-source country pair for each year we observe this variable. We obtain tax data from the American Enterprise Institute (AEI) International Tax Database and KPMG Individual Tax Rate Survey.24

Distance is the geographic distance in kilometres (km) between two countries. Common Language is a dummy variable equal to one if the source and host country speak the same official language, and zero otherwise. The Distance parameter is obtained from Mayer and Zignago (2011) and Common Language data are obtained from Melitz and Toubl (2014). Legal systems for host countries and source countries are identified as common law, civil law, Scandinavian law or German law (as in La Porta et al., 1998). Identical Law System is a dummy variable equal to one if the host and source country share the same legal system, and zero otherwise.

For Corruption, we use the Kaufmann et al. (2011) Worldwide Governance Index. Specifically, we use Control of corruption, which captures perceptions of the extent to

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23 Note, Hines and Rice (1994) also provide a similar list of tax havens.
24 To verify data accuracy, we compare similar tax rate data from other accounting firm publications and find that our tax rates are consistent across these publications.
which public power is exercised for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state by elites and private interests. The values for these indicators range from −2.5 (an indication of low control for corruption) to 2.5 (strong control for corruption), and are available annually in the World Bank database.

TIEAS is a dummy variable equal to one if the OECD source country has a TIEA signed with a source country in a particular year and one year prior to signing, and zero otherwise. The year prior to official signage is included in the signed group because investors are already aware of upcoming new TIEAs when the agreement process is started (Rixen and Schwarz, 2012). We obtain information on TIEAs from the OECD. DTAA is a dummy variable equal to one if the OECD host country has a double taxation avoidance agreement signed with the source country, and zero otherwise. DTAA information is obtained also from the OECD Exchange of Information Portal.

We further control for the size of the economy since level of economic development and population size also influence FPI. Numerous studies, e.g., Alfaro et al. (2004) and Amaya and Rowland (2004), find foreign direct investments tend to move to large and developed markets. We include Share of GDP, the host country’s GDP as a share of total OECD GDP to measure the size of economy. We also control for the relative size between source and host country. Relative GDP per Capita is the GDP per capita in the host country relative to GDP per capita in the source country. GDP and population data are obtained from the World Bank database.

Lastly, a country’s exchange rate also influences FPI. Prior literature shows that a weaker US dollar is positively related to an increase in foreign direct investment into the US. Non-US investors can reduce investment risk via international diversification, and if the US currency is relatively cheap, the purchasing power of their home currency allows them to purchase relatively more assets in the US. In our analysis, we expect that FPI is positively related to relatively stronger currencies in the source countries. We measure Relative Exchange Rate as host country exchange rate with respect to the US dollar, relative to source country exchange rate with respect to the US dollar. Exchange rate information is obtained from Thomson Reuters DataStream.

4. Model and Empirical Analysis

Our initial specifications to identify the round tripping effect are similar to Hanlon et al. (2015). The main dependent variable is the equity flow from the source country to the host country as measured by log (FPI). Since we are interested in the effects of the OECD’s host country tax policy on equity flows to measure tax evasion, the main

25 See http://info.worldbank.org/governance/wgi/index.aspx#doc.
26 See http://www.oecd.org/tax/exchange-of-tax-information/taxinformationexchangeagreements.htm.
27 See http://eoi-tax.org/jurisdictions/#default.
28 We considered several alternative measures of the size of the economy including log(GDP) and log(GNI). These had very high variance inflation factors indicating multicollinearity with other variables in the model. We also used host country’s GDP as a share of global GDP. The results are comparable to those we report.
29 See Froot and Stein (1991), Klein and Rosengren (1994) and Dewenter (1995) for the US, and Johannesen (2014) for European countries.
independent variable for H1a is $\Delta Tax Savings$, and for H1b it is $\Delta Tax Savings$ with tax haven source countries. This interaction term is denoted as $Source Tax Haven * \Delta Tax Savings$. We expect a positive sign for $\Delta Tax Savings$ if round tripping exists (H1a), and a positive sign for $Source Tax Haven * \Delta Tax Savings$ if round tripping is more pervasive via tax havens (H1b).

To test H2, $Distance$, $Common Language$, $Identical Law System$ and $Corruption$ are the variables of interest when the equity flows originate from a tax haven. Therefore, we interact each of these country characteristics with the source tax haven dummy variable.

The basic regression model, with additional variants reported below, is:

$$
\log(FPI)_{ij,t} = \beta_1 \Delta Tax Savings_{i,t} + \beta_2 Source Tax Haven_j * \Delta Tax Savings_{i,t} \\
\quad \quad \quad + \beta_k X_{i,j,t} + \beta_L Source Tax Haven_j * X_{i,j,t} \\
\quad \quad \quad + Source Country Fixed Effects_j + Year Fixed Effects_t + \epsilon_{i,j,t}
$$

(1)

All variables are defined as above and $X_{i,j,t}$ is a vector of other determinants of FPI flows ($Share of GDP$, $Relative GDP per Capita$, $Relative Exchange Rate$, $Distance$, $Common Language$, $Identical Law System$ and $Corruption$). $\beta_k$ and $\beta_L$ are vectors of the corresponding coefficients of the variables in $X_{i,j}$. Here and henceforth, as indicated in equation (1), we also add source country fixed effects and year fixed effects as a proxy for unmeasured country and time characteristics and also to account for other potential omitted variable bias.\(^{30}\) We estimate the model with source country and year fixed effects and clustered standard errors to provide unbiased and consistent estimated standard errors and appropriate coefficient test statistics.\(^{31}\)

In addition to identifying the significant determinants of investment flows, we also examine the impact of bilateral agreements on FPI in equation (2). We include $DTAA$ to test H3a, and we interact $TIEA$ and $DTAA$ with the source country tax haven dummy variable to test H3b. Although Barber (2007), Sheppard (2009) and Kudrle (2008) are sceptical of the usage of TIEAs as an effective mechanism of exchange of information between a non-tax haven and a tax haven, Hanlon \emph{et al.} (2015)\(^{32}\) find that TIEAs do reduce FPI flows to the US from tax havens once they have been signed and ratified. We add the interaction term $TIEAS * Source Tax Haven * \Delta Tax Savings$ to test if benefits of tax evasion are more pronounced than the associated costs (H4a), benefits are less pronounced than costs (H4b), or if benefits and costs cancel each other out (H4c). The dependent variable remains $\log(FPI)$. All other variables in equation (2) are as discussed above. The basic regression equation is:

\(^{30}\)We considered including both source and host country fixed effects but this resulted in significant multicollinearity problems. Since all host countries are OECD members and thereby relatively homogeneous, we control for the fixed effects of the more heterogeneous set of 160 source countries.

\(^{31}\)Clustered standard errors in the panel data setting yield unbiased and asymptotically (in the number of cross sections) efficient standard errors (Peterson, 2009; Thompson, 2011). In a previous version of this paper we also used Prais Winston and the results were similar.

\(^{32}\)Note that Hanlon \emph{et al.} (2015) find significance for $Tax Haven * TIEAS$ for their US source country sample. However, since our source country sample is expanded to include all 34 OECD countries, there might be significant differences from country to country. We add source country fixed effects to control for these and isolate the TIEAs impact.

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\[
\text{Log}(FPI)_{jt} = \beta_1 \text{TIEAS}_{ij,t} + \beta_2 \text{Source Tax Havens}_{ij,t} \times \text{TIEAS}_{ij,t} + \beta_3 \text{DTAA}_{ij,t} \\
+ \beta_4 \text{Source Tax Havens}_{ij,t} \times \text{DTAA}_{ij,t} + \beta_5 X_{i,j,t} + \beta_6 \Delta \text{Tax Savings}_{i,t} \\
+ \beta_7 \text{Source Tax Havens}_{ij,t} \times \text{TIEAS}_{ij,t} \times \text{Tax Savings}_{i,t} \\
+ \text{Source Country Effects}_{j} + \text{Year Fixed Effects}_{t} + \epsilon_{i,j,t} \quad (2)
\]

All variables and \(X_{i,j,t}\) are defined above and we use the same estimation technique.

5. Results

5.1. Round tripping and country characteristics

Table 1 reports the regression results for equation (1). The dependent variable is \(\text{Log (FPI)}\), capturing equity flows from source country to host country. The primary variable of interest for H1a is \(\Delta \text{Tax Savings}\). If H1a holds and FPI increases with more tax savings, then we expect this variable to have a positive coefficient. For H1b we focus on the interaction between changes in tax savings and source country tax havens. If H1b holds and FPI from tax havens increases with more tax savings, then we expect this interaction term to have a positive coefficient. Specifications I-III in Table 1 indicate that the coefficients for \(\Delta \text{Tax Savings}\) and the interaction term \(\text{Source Tax Haven} \times \Delta \text{Tax Savings}\) are consistently positive and statistically significant at the 5% or 1% level. This result provides evidence for the existence of round tripping for OECD countries, i.e., investors utilise offshore accounts for undetected reinvestment into the home capital market more heavily as the home country’s tax burden increases. Round tripping is even more pronounced via tax havens. Therefore, we find evidence supporting both H1a and H1b.

Further, Relative Exchange Rate is negatively related to FPI, and statistically significant for all models. This result implies that, in general, the stronger the source country currency relative to the host country, the more FPI flows into the host country. This makes sense as the FPI becomes less expensive for the source country when its currency is stronger. Share of GDP and Relative GDP per Capita are positive and statistically significant across all specifications. Therefore, the larger the economy and the greater GDP per capita in the host country relative to the source country, the higher is the level of FPI.

To expand our test for tax evasion and evaluate how important country characteristics are for tax evaders, we examine the impact of Distance, Common Language, Identical Law System and Corruption on the level of FPI. Confirming prior empirical studies, Specifications II and III show that Distance is significantly negatively related to FPI overall, while Common Language, Identical Law System and Corruption are significantly positively related to FPI. However, Specification III shows that these country characteristics are less important when equity flows originate from tax havens, as Distance, Identical Law System and Corruption interacted with Source Tax Haven have coefficients with the opposite sign and are statistically significant. We therefore confirm H2a, H2c and H2d. For H2b, the interaction of Tax Haven and Common Language is not statistically significant. These results provide new insights, clearly illustrating that tax evaders differ from genuine investors by focusing on tax benefits, greater physical distance, as well as legal differences and more corruption which makes collaboration between tax authorities more challenging.

33 The variance inflation factors indicate our results are not due to multicollinearity.
Table 1
Regression analysis for round tripping

This table reports the analysis for round tripping. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between source tax haven and percentage changes in tax savings. Specification I presents the analysis for our base case, Specification II introduces important shared macroeconomic variables between the host and the source country, and Specification III interacts each of the control variables with source tax haven to distinguish features of source countries, which are classified as tax haven and non-tax havens. All the variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. Standard errors are clustered by source countries. Standard errors are in parentheses. ***, **, * indicates statistical significance at 1%, 5% and 10% level, respectively.

| Variables                        | I       | II      | III     |
|----------------------------------|---------|---------|---------|
| Δ Tax Savings                    | 0.0001** | 0.0001*** | 0.0001*** |
|                                 | (0.000) | (0.000) | (0.000) |
| Source Tax Haven * Δ Tax Savings | 0.0091** | 0.0095*** | 0.0092*** |
|                                 | (0.004) | (0.003) | (0.003) |
| Relative Exchange Rate           | -0.0002*** | -0.0002** | -0.0002*** |
|                                 | (0.000) | (0.000) | (0.000) |
| Share of GDP                     | 11.4239*** | 12.9199*** | 13.0141*** |
|                                 | (0.172) | (0.179) | (0.178) |
| Relative GDP per Capita          | 0.0190*** | 0.0096*** | 0.0102*** |
|                                 | (0.001) | (0.001) | (0.001) |
| Distance (KM)                    |         | -0.0120*** | -0.0125** |
|                                 |         | (0.000) | (0.000) |
| Common Language                  | 0.7763*** | 0.8267*** |         |
|                                 | (0.000) | (0.137) |         |
| Identical Law System             | 0.4936*** | 0.5882*** |         |
|                                 | (0.033) | (0.035) |         |
| Corruption                       | 1.4606*** | 1.5061*** |         |
|                                 | (0.024) | (0.026) |         |
| Source Tax Haven * Distance      |         | 0.0025** |         |
|                                 |         | (0.001) |         |
| Source Tax Haven * Common Language |       | 0.0232 |         |
|                                 |         | (0.103) |         |
| Source Tax Haven * Identical Law System |      | -0.6151*** |         |
|                                 |         | (0.098) |         |
| Source Tax Haven * Corruption    |         | -0.2243*** |         |
|                                 |         | (0.056) |         |
| Source Fixed Effects             | Yes     | Yes     | Yes     |
| Year Fixed Effects               | Yes     | Yes     | Yes     |
| No. of Observations              | 18,279  | 18,279  | 18,279  |
| Adjusted R Square                | 0.9887  | 0.9915  | 0.9915  |

5.2. Tax information exchange agreements and double taxation avoidance agreements

Table 2 reports the results for equation (2) related to tax information exchange agreements. For H3a, the results confirm that double taxation agreements between countries are attractive for investors, in general, and therefore positively related to FPI.
Table 2
Regression Analysis for Tax Information Exchange Agreement (TIEAS) and Double Taxation Avoidance Agreements (DTAA)

This table reports the analysis for effects of equity flows between host and source country due to the signing of tax agreements between host and source countries. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between Source Tax Haven and TIEAS, and Source Tax Haven and DTAA. Specification I presents the analysis for our base case, Specification II introduces some important shared macroeconomic variables between the host and the source country, and Specification III adds the importance of round tripping and signing of TIEAs. All variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. The standard errors are clustered by source countries. Standard errors are in parentheses. ***, **, * indicates statistical significance at 1%, 5% and 10% level, respectively.

| Variables                      | I       | II      | III     |
|--------------------------------|---------|---------|---------|
| TIEAS                          | 1.5568*** | -0.1687 | -0.1700 |
| Source Tax Haven * TIEAS       | -1.0172*** | -0.2410 | -0.2642 |
| DTAA                           | 0.4414*** | 0.4349*** | 0.4671*** |
| Source Tax Haven * DTAA        | -0.0007  | -0.0123 | 0.0009  |
| Relative Exchange Rate         | -0.0016*** | -0.0001*** | -0.0009*** |
| Share of GDP                   | 11.2577*** | 13.0347*** | 13.0347*** |
| Relative GDP per Capita        | 0.0195*** | 0.0099*** | 0.0098*** |
| Distance                       | -0.0119*** | -0.0119*** | (0.000) |
| Common Language                | 0.7499*** | 0.7505*** | (0.043) |
| Identical Law System           | 0.5107*** | 0.5117*** | (0.033) |
| Corruption                     | 1.4923*** | 1.4926*** | (0.023) |
| TIEAS * Source Tax Haven * Δ Tax Savings | 0.0238*** | 0.0001*** | (0.005) |
| Δ Tax Savings                  | 0.0001*** | (0.000) |
| Source Tax Haven * Δ Tax Savings | 0.0037 | (0.005) |
| Source Fixed Effects           | Yes     | Yes     | Yes     |
| Year Fixed Effects             | Yes     | Yes     | Yes     |
| No. of Observations            | 18,276  | 18,276  | 18,276  |
| Adjusted R Square              | 0.9888  | 0.9916  | 0.9922  |
Specification II, which is most similar to Hanlon et al.’s (2015), confirms their result that FPI flows from tax havens decrease when TIEAs are signed. However, neither TIEAs nor DTAs influence FPI flows that originate from tax havens once we control for other determinants of FPI flows. Therefore, our findings support H3b, suggesting that information exchange agreements do not deter investors from evading taxes. Similar to Johannesen and Zucman (2014), we find that OECD policy is not effective.

Specification III allows us to test H4, where we examine the interplay between the risk and benefit of tax evasion by adding the interaction term \( \text{TIEAs} \times \Delta\text{Tax Haven} \times \Delta\text{Tax Savings} \). We find that although the signing of TIEAs with tax havens has no impact on FPI flows to OECD countries, this impact becomes significantly positive when tax savings is included. The evidence therefore suggests that equity flows from tax havens increase with greater tax savings even if TIEAs are signed with tax havens. In support of H4a, we conclude that round tripping exists despite TIEAs, and that investors therefore perceive potential gains from tax evasion to outweigh potential costs from being caught.

5.3. Additional robustness checks

The US is an OECD member and prior research has indicated that there is round tripping for US investors. To ensure that the US does not dominate the results in our OECD host country sample, we repeat the regression analysis excluding the US from the OECD host country sample in Tables 3 and 4. This isolates the effects of FPI into the US to ensure that our findings are not influenced by the largest economy in the OECD group. Table 3 indicates that round tripping exists for the remaining OECD countries. In support of H1a the coefficient for \( \Delta\text{Tax Savings} \) continues to be positive and statistically significant for all specifications. H1b, greater round tripping from tax havens, is supported in specification I only. Once we control for other country characteristics, in specifications II and III, round tripping via tax havens is no longer more pronounced than round tripping for the overall sample. The preference for tax havens, therefore, was mainly driven by the US as a host country. Also controlling for other country variables, we still find support for H2c and H2d, indicating that different legal systems and greater corruption increase FPI flows from tax havens. However, distance no longer has a different impact on tax havens as was the case for the entire sample.

With regard to TIEAs and DTAs, Table 4 shows continued support for H3a, whereby DTAs increase FPI flows. Table 4 further provides evidence (10% level of significance) that TIEAs reduce FPI flow from tax havens once we control for country characteristics (specifications II and III). Therefore, the results provide evidence for H3b that OECD policies might be effective for their member states when the US is excluded. Also consistent with the earlier findings, when the US is excluded and controlling for other determinants, we find no statistically significant effect of signing a TIEA on round tripping. Without the US we still find evidence that supports H4b. TIEAs reduce FPI flows from tax havens, and this result is not different even if the investor could benefit from tax savings. We conclude, that the cost of detection must still be perceived to be greater than the benefits from tax savings.

Since our sample includes the global recession years of 2008–2009, we want to confirm that our results are not sensitive to the unique macroeconomic conditions of that
This table reports the analysis for round tripping excluding the US as a host country. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between Source Tax Haven and Δ Tax Savings. Specification I presents the analysis for our base case. Specification II introduces some important shared macroeconomic variables between the host and the source country. And Specification III interacts each of the control variables with Source Tax Haven to distinguish features of source countries, which are classified as tax havens and non-tax havens. All the variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. The standard errors are clustered by source country. Standard errors are in parentheses. ***, **, * indicate statistical significance at 1%, 5% and 10% levels, respectively.

| Variables                          | I          | II         | III        |
|------------------------------------|------------|------------|------------|
| Δ Tax Savings                      | 0.0001**   | 0.0001***  | 0.0001***  |
|                                    | (0.000)    | (0.000)    | (0.000)    |
| Source Tax Haven * Δ Tax Savings   | 0.0058*    | 0.0043     | 0.0040     |
|                                    | (0.003)    | (0.003)    | (0.003)    |
| Relative Exchange Rate             | −0.0016*** | −0.0001    | −0.0001    |
|                                    | (0.000)    | (0.000)    | (0.000)    |
| Share of GDP                       | 14.5662*** | 18.2560*** | 18.2972*** |
|                                    | (0.338)    | (0.302)    | (0.302)    |
| Relative GDP per Capita            | 0.0214***  | 0.0126***  | 0.0131***  |
|                                    | (0.001)    | (0.001)    | (0.001)    |
| Distance                           | −0.0132**  | −0.0133**  |            |
|                                    | (0.000)    | (0.000)    |            |
| Common Language                    | 0.9924***  | 1.0894***  |            |
|                                    | (0.044)    | (0.048)    |            |
| Identical Law System               | 0.4918***  | 0.5678***  |            |
|                                    | (0.033)    | (0.036)    |            |
| Corruption                         | 1.5178***  | 1.5588***  |            |
|                                    | (0.022)    | (0.025)    |            |
| Source Tax Haven * Distance        |            |            | 0.0006     |
|                                    |            |            | (0.001)    |
| Source Tax Haven * Common Language | −0.16380   |            |            |
|                                    | (0.107)    |            |            |
| Source Tax Haven * Identical Law System | −0.5079*** |            |            |
|                                    | (0.099)    |            |            |
| Source Tax Haven * Corruption      | −0.2121*** |            |            |
|                                    | (0.054)    |            |            |
| Source Fixed Effects               | Yes        | Yes        | Yes        |
| Year Fixed Effects                 | Yes        | Yes        | Yes        |
| No. of Observations                | 17,215     | 17,215     | 17,215     |
| Adjusted R Square                  | 0.9887     | 0.9920     | 0.9920     |

period when there was a major selloff of equities. We re-estimate all specifications from Tables 1 and 2 without these two years. Tables 5 and 6 report that our findings for round tripping and TIEAs, respectively, remain valid.
Table 4
Regression analysis for Tax Information Exchange Agreement (TIEAS) and Double Taxation Avoidance Agreements (DTAA) without US host country observations

This table reports the analysis for effects of equity flows between host and source country due to signing of tax agreements between host and source countries. We remove observations pertaining to US as a host country. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between Source Tax Haven and TIEAS, and Source Tax Haven and DTAA. Specification I presents the analysis for our base case, Specification II introduces some important shared macroeconomic variables for the host and the source country, and Specification III introduces the importance of round tripping and TIEAs. All variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. The standard errors are clustered by source country. Standard errors are in parentheses. ***, **, * indicates statistical significance at 1%, 5% and 10% levels, respectively.

| Variables                     | I          | II         | III         |
|-------------------------------|------------|------------|-------------|
| TIEAS                         | 2.0160***  | 0.1516     | 0.1509      |
|                               | (0.157)    | (0.125)    | (0.125)     |
| Source Tax Haven * TIEAS      | –1.3824*** | –0.3035*   | –0.3134*    |
|                               | (0.206)    | (0.175)    | (0.176)     |
| DTAA                          | 0.3333***  | 0.3109***  | 0.3108***   |
|                               | (0.058)    | (0.050)    | (0.050)     |
| Source Tax Haven * DTAA       | 0.0771     | 0.0768     | 0.0764      |
|                               | (0.135)    | (0.115)    | (0.116)     |
| Relative Exchange Rate        | –0.0016*** | –0.0001    | –0.0001     |
|                               | (0.000)    | (0.000)    | (0.000)     |
| Share of GDP                  | 14.9496*** | 18.1415*** | 18.1346***  |
|                               | (0.337)    | (0.461)    | (0.301)     |
| Relative GDP per Capita       | 0.0222***  | 0.0129***  | 0.0129***   |
|                               | (0.001)    | (0.001)    | (0.000)     |
| Distance                      | –0.0130*** | –0.0129*** |             |
|                               | (0.000)    | (0.000)    |             |
| Common Language               | 0.9648***  | 0.9645***  |             |
|                               | (0.044)    | (0.044)    |             |
| Identical Law System          | 0.4900***  | 0.4906***  |             |
|                               | (0.034)    | (0.034)    |             |
| Corruption                    | 1.5325***  | 1.5326***  |             |
|                               | (0.023)    | (0.023)    |             |
| TIEAS * Source Tax Haven      |             | 0.0087     |             |
| ∆ Tax Savings                 |             | (0.008)    |             |
| Source Tax Haven * ∆ Tax Savings |         | 0.0001***  |             |
|                               |             | (0.000)    |             |
| Source Fixed Effects          | Yes        | Yes        | Yes         |
| Year Fixed Effects            | Yes        | Yes        | Yes         |
| No. of Observations           | 17,212     | 17,212     | 17,212      |
| Adjusted R Square             | 0.9889     | 0.9920     | 0.9920      |
Robustness analysis for round tripping without recession year (2008 and 2009) data

This table reports the analysis for round tripping after removing observations belonging to global recession years 2008 and 2009. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between Source Tax Haven and $\Delta$ Tax Savings. Specification I presents the analysis for our base case. Specification II introduces some important shared macroeconomic variables between the host and the source country, and Specification III interacts each of the control variables with Source Tax Haven to distinguish features with source countries, which are classified as tax haven and non-tax haven. All variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. The standard errors are clustered by source country. Standard errors are in parentheses. ***, **, * indicates statistical significance at 1%, 5% and 10% levels, respectively.

| Variables                     | I     | II    | III   |
|-------------------------------|-------|-------|-------|
| $\Delta$ Tax Savings          | 0.0001*** | 0.0001*** | 0.0001*** |
|                               | (0.000) | (0.000) | (0.000) |
| Source Tax Haven * $\Delta$ Tax Savings | 0.0086** | 0.0098*** | 0.0092*** |
|                               | (0.004) | (0.003) | (0.003) |
| Relative Exchange Rate        | -0.0017*** | -0.0002*** | -0.0003*** |
|                               | (0.000) | (0.000) | (0.000) |
| Share of GDP                  | 11.3896*** | 12.7918*** | 12.8867*** |
|                               | (1.888) | (1.968) | (1.958) |
| Relative GDP per Capita       | 0.0182*** | 0.0090*** | 0.0097*** |
|                               | (0.001) | (0.001) | (0.001) |
| Distance                      | -0.0121** | -0.0125** |     |
|                               | (0.000) | (0.001) |     |
| Common Language               | 0.7637*** | 0.8237*** |     |
|                               | (0.048) | (0.053) |     |
| Identical Law System          | 0.4840*** | 0.5762*** |     |
|                               | (0.037) | (0.039) |     |
| Corruption                    | 1.4712*** | 1.5225*** |     |
|                               | (0.026) | (0.029) |     |
| Source Tax Haven * Distance   | 0.0026** |     |     |
|                               | (0.001) |     |     |
| Source Tax Haven * Common Language | -0.0182 |     |     |
|                               | (0.114) |     |     |
| Source Tax Haven * Identical Law System | -0.5900*** |     |     |
|                               | (0.109) |     |     |
| Source Tax Haven * Corruption | -0.2560*** |     |     |
|                               | (0.063) |     |     |
| Source Fixed Effects          | Yes   | Yes   | Yes   |
| Year Fixed Effects            | Yes   | Yes   | Yes   |
| No. of Observations           | 15,048 | 15,048 | 15,048 |
| Adjusted R Square             | 0.9886 | 0.9914 | 0.9914 |
### Table 6
Robustness analysis for Tax Information Exchange Agreement (TIEAS) and Double Taxation Avoidance Agreement (DTAA) without recession year (2008 and 2009) data

This table reports the analysis for effects of equity flows between host and source country due to signing of tax agreements between host and source countries. We remove the observations belonging to year 2008 and 2009, which coincides with the global recession period. The dependent variable is the logarithm of equity flows and our main independent variable is the interaction between Source Tax Haven and TIEAS, and Source Tax Haven and DTAA. Specification I presents the analysis for our base case, Specification II introduces some important shared macroeconomic variables between the host and the source country, and Specification III introduces the importance of round tripping over signing of tax agreements. All variables are defined in Table A2 of the Appendix. Estimation is with source fixed effects and year fixed effects. The standard errors are clustered by source country. Standard errors are in parentheses. ***, **, * indicates statistical significance at 1%, 5% and 10% levels, respectively.

| Variables                              | I            | II           | III           |
|----------------------------------------|--------------|--------------|---------------|
| TIEAS                                  | 1.5258***    | –0.1992      | –0.2010       |
|                                        | (0.150)      | (0.135)      | (0.135)       |
| Source Tax Haven * TIEAS               | –1.0628***   | –0.2519      | –0.2838       |
|                                        | (0.203)      | (0.191)      | (0.192)       |
| DTAA                                   | 0.4391***    | 0.4250***    | 0.4248***     |
|                                        | (0.062)      | (0.055)      | (0.055)       |
| Source Tax Haven * DTAA                | 0.0117       | 0.0118       | 0.0108        |
|                                        | (0.143)      | (0.123)      | (0.123)       |
| Relative Exchange Rate                 | –0.0017***   | –0.0002***   | –0.0002***    |
|                                        | (0.000)      | (0.000)      | (0.000)       |
| Share of GDP                           | 11.2302***   | 12.9107***   | 12.9154***    |
|                                        | (0.187)      | (0.194)      | (0.194)       |
| Relative GDP per Capita                | 0.0188***    | 0.0093***    | 0.0092***     |
|                                        | (0.001)      | (0.001)      | (0.001)       |
| Distance                               | –0.0119***   | –0.0119***   | –0.0119***    |
|                                        | (0.000)      | (0.000)      | (0.000)       |
| Common Language                        | 0.7381***    | 0.7389***    | 0.7389***     |
|                                        | (0.114)      | (0.048)      | (0.048)       |
| Identical Law System                   | 0.5008***    | 0.5021***    | 0.5021***     |
|                                        | (0.037)      | (0.037)      | (0.037)       |
| Corruption                             | 1.5030***    | 1.5034***    | 1.5034***     |
|                                        | (0.026)      | (0.026)      | (0.026)       |
| TIEAS * Source Tax Haven * Δ Tax Savings| 0.0188**     |              |               |
|                                        |              | (0.005)      |               |
| Δ Tax Savings                          | 0.0001***    |              |               |
|                                        |              | (0.000)      |               |
| Source Tax Haven * Δ Tax Savings        | 0.0036       |              |               |
|                                        |              | (0.005)      |               |

Source Fixed Effects: Yes, Yes, Yes
Year Fixed Effects: Yes, Yes, Yes
No. of Observations: 15,045, 15,045, 15,045
Adjusted R Square: 0.9887, 0.9915, 0.9915
6. Conclusion

Our findings add to both the tax haven and investments literature. We shed light on tax havens and their significant role in foreign portfolio investment flows. Specifically, we provide empirical evidence that OECD residents are more inclined to preserve wealth when the amount of tax savings via round tripping increases. Round tripping via a tax haven is even more pronounced. This result suggests that OECD residents value the confidentiality of tax havens, as suggested by the IMF (2004), which makes detection of the sheltered wealth by the home tax authorities more challenging. Interestingly, once the US is removed from the OECD sample, the general round tripping evidence persists but the effect of tax havens on round tripping is no longer significant.

In line with the investment literature, we find that investors, in general, value close proximity and similarity in language, legal systems and country governance when investing overseas. While these country characteristics reduce costs for the genuine investor, they are not desirable for tax evaders who want to increase the level of difficulty of detection. We therefore find that distance, identical legal system and control of corruption are significantly less important when foreign portfolio investment originates from tax havens. Without the US flows, distance is no longer significant when FPI originate from tax havens. However, the other country characteristics remain significant even after excluding the US from the OECD sample.

We also investigate the effectiveness of OECD policy in preventing tax evasion. In their battle against government revenue losses, the OECD is committed to compel countries to sign Tax Information Exchange Agreements (TIEAs). TIEAs are intended to overcome bank secrecy laws and other obstacles that prevent home tax authorities from collecting information on law breaking residents. Alternatively, tax information sharing may also be negotiated in double taxation avoidance agreements (DTAAs). We find that, in general, investors value DTAAs, and more FPI flows into the OECD when such agreements are signed. More importantly though, we show that both TIEAs and DTAAs do not prevent tax evasion. The signing of either agreement with a tax haven has no impact on overall OECD FPI flows. This potential ineffectiveness of OECD policy is further illustrated when we examine the impact of TIEAs on round tripping directly. We find that tax evaders continue to view tax saving benefits as more rewarding than the potential costs of detection. However, once the US is removed from the OECD sample, we find weak evidence (10% level of significance) that OECD policies might be effective for the rest of the OECD, as signing of TIEAs is now related to less FPI flows from tax havens even if tax saving benefits exist.

Our findings remain valid and are robust controlling for country and year fixed effects, cross-sectional source country correlation, as well as potential effects of the global financial crisis.

Our results suggest that varying tax policies, which yield significant tax savings for capital income based on host country domicile, provide strong incentives for tax evasion via tax havens. These incentives remain so large that policies designed to thwart evasion, such as TIEAs, have little effect on deterrence. Even without the US in the sample, benefits of TIEAs are only marginally significant. Given the limited effectiveness and potentially significant compliance costs the natural course would be to harmonise tax policies to eliminate the tax savings from such behaviour.
Appendix

Table A1
Host countries, source countries and tax haven countries in our sample

| Host Countries          | Source Countries                                                                 |
|-------------------------|----------------------------------------------------------------------------------|
| Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, South Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States | Afghanistan, Albania, Algeria, Andorra, Angola, Anguilla, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Bermuda, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Cape Verde, Cambodia, Cameroon, Canada, Cayman Islands, Chile, Hong Kong, China, Colombia, Democratic Republic of Congo, Republic of Congo, Costa Rica, Cote d’Ivoire, Croatia, Curacao, Cyprus, Czech Republic, Denmark, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equator Guinea, Estonia, Ethiopia, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea – Bissau, Guyana, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, South Korea, Kuwait, Republic of Kyrgyz, Laos, Latvia, Lebanon, Liberia, Libya, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Qatar, Romania, Russia Federation, Rwanda, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, St Kitts and Nevis, St Vincent and Grenadines, Swaziland, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe |

| Tax Havens           |                                                                                   |
|----------------------|----------------------------------------------------------------------------------|
| Anguilla, Antigua and Barbuda, Bahamas, Bahrain, Barbados, Belize, Bermuda, Cayman Islands, Hong Kong, Cyprus, Dominica, Grenada, Ireland, Jordan, Lebanon, Liberia, Luxembourg, Maldives, Mauritius, Panama, Seychelles, Singapore, St. Kitts and Nevis, St. Vincent and Grenadines, Switzerland |                                                                                   |

Table A2
Description of Variables and Sources

| Variable          | Description                                                                                                                                                                                                 | Source      |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Ln (Equity Flows) | Logarithm of equity flow from source country, which is the country of origin, to a host country, which is the intended destination. It is in millions of USD.                                               | IMF (2014)  |

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Table A2
Continued

| Variable             | Description                                                                 | Source                                                                 |
|----------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------|
| **Tax Savings**      | The difference between the host country net dividend taxes and dividend withholding taxes which is applicable to foreign investors based on whether a double taxation treaty exists or not. | OECD, AEI, KPMG, Deloitte                                               |
| **$\Delta$Tax Savings** | The percentage change in tax savings over the previous year.                  |                                                                        |
| **TIEAS**            | Tax Information Exchange Agreement (TIEAs) dummy taking the value 1 when an agreement exists between host and source country. It also takes the value 1 in the year prior to signing of the agreement. | OECD                                                                   |
| **DTAA**             | Double taxation avoidance agreement dummy taking the value 1 when an agreement exists, and 0 otherwise. | OECD                                                                   |
| **Common Language**  | Dummy variable taking the value 1 when both host and source countries share a common language, and 0 otherwise. | Melitz and Toubal (2014)                                               |
| **Identical Law System** | Dummy variable taking the value 1 when both host and source countries follow a similar law system; common law, civil law, Scandinavian law or German law. | La Porta et al. (1998)                                               |
| **Distance**         | Distance between two capital cities or two financial centres measured in km. | Mayer and Zignago (2011)                                              |
| **Relative Exchange Rate** | The ratio of host country exchange rate measured in dollars to source country exchange rate measured in dollars. | Thomson Reuters Datastream                                           |
| **Relative GDP per Capita** | The ratio of GDP per capita of host country over the GDP per capita of source country. | Worldbank                                                          |
| **Share of GDP**     | The ratio of host country GDP to total GDP of all OECD economies              | Worldbank                                                          |
| **Corruption**       | Extent to which elites and private interests exercise public power for private gain, including both petty and grand forms of corruption, as well as ‘capture’ of the state. The score ranges between 2.5 and $-2.5$. | Kaufmann et al. (2011)                                              |
| **Source Tax Haven** | Dummy variable taking the value of 1 if country of origination of flows is considered a tax haven, and 0 otherwise. | Hines and Rice (1994) and Harmful Tax Competition report (OECD, 1998) |
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