From tax evasion to tax planning[*]

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Abstract

This paper analyzes within a simple model how a removal of bank secrecy can impact tax revenues and banks'profitability, assuming that offshore centers are able to offer sophisticated but legal, tax planning. Two alternative regimes are considered. A first, in which there is strict bank secrecy and a second, where there is international information exchange for tax purposes. In particular, we show that sharing tax information with onshore countries can be a dominant strategy for an OFC if there is enough scope for providing tax planning. Moreover, a partial reduction of tax liabilities can already prompt OFCs to voluntarily exchange relevant tax information. We also discuss the conditions under which the possible removal of bank secrecy may reduce or increase the onshore country's tax revenue.

KEY words: offshore centers, tax planning, tax evasion

JEL classifications: F21, H26, H87

1   Introduction

Since the mid-1990s, there have been numerous attacks against bank secrecy and opaque financial structures that have been accused of extensive tax evasion (OECD 1998, FSF 2000). In the wake of the financial crisis of 2008, an anti-evasion action was re-launched by the G-20 that urges approximately 100

OECD and non-OECD countries (including most Offshore Financial Centers - OFCs) to sign "Tax Information Exchange Agreements" (TIEAs).[1] Actions were also taken unilaterally by US authorities after they accused Swiss banks (UBS and Credit Suisse Group) of aiding tax evasion schemes. With the Foreign Account Tax Compliance Act (FATCA) of March 2010 and an initial agreement signed between the US and Switzerland in February 2013, events are speeding up. The FATCA agreement requires that foreign institutions report information about financial accounts held by US taxpayers directly to the US tax authorities. Since April 2013, five European governments have promoted FATCA models as "the new international standard" and have envisaged their implementation as the basis for a multilateral exchange of information. These actions have prompted some sizeable OFCs (e.g., Luxembourg, BVI, Bermudas) to announce their willingness to introduce an automatic information exchange. Will these actions be the end of OFCs' business? Will this approach substantially mitigate tax leakages experienced by countries pressing for more tax transparency? Which economic forces encourage OFCs to accept the abrogation of bank secrecy on non-resident deposits? In this paper, we use a simple model of international banking competition to address these questions while highlighting that alternative legal pathways, specifically tax planning, may undermine or at least reduce the effectiveness of removing banking secrecy.

In a recent report (2009), the OECD expresses concern about High Net Worth Individuals (HNWIs) posing particular challenges to tax administrations because of the complexity of their affairs, the amounts of tax revenue that are at stake, and, especially, the opportunity to undertake aggressive tax planning. Ten years ago, noting that the attractiveness of Switzerland for tax evasion was declining, Geiger and Hürzeler (2003) explained that Swiss banks were adapting to this development by improving, among other abilities, expertise in international tax and estate planning instruments. The Economist notes that Liechtenstein "is one of the more proactive" to rethink its strategy. "It signs as many tax treaties as possible [...] and offering

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[1]More than 700 agreements were signed on August 10, 2011 (OECD 2011) between OFCs and OECD countries. These agreements require jurisdictions to exchange information on request without restrictions due to bank secrecy or domestic tax interest requirements.

a tempting array of vehicles, including trusts".[2]

Interestingly, bank secrecy seems to be inessential for tax mitigation. The financial press abounds with statements by bankers, tax lawyers, and tax advisers praising the various sophisticated structures that legally lower tax bills in taxpayers' home countries without depending on bank secrecy. According to Kenneth Rubinstein (2010), a New Yorker lawyer, "secrecy has no place in proper tax planning"; "rather than falling for promises of secrecy from unscrupulous marketers, investors should seek guidance from qualified tax counsel and ensure that their international assets are structured in a tax-compliant manner". Individual investors are also inclined to use more and more sophisticated methods that were initially created for the tax planning of Multi-National Enterprises (MNEs). A legal means of international tax planning for individual investors can be achieved by using special entities in international financial centers. In this case, we are confronted with tax planning rather than tax evasion, although the dividing line is not always clear (Slemrod and Yitzhaki, 2001). According to the OECD (2009, p.26), "Wealthy investors are often highly mobile and may be attracted to countries perceived as offering a favorable taxation environment. This may include such factors as no or low capital gains tax on the disposition of privately held assets and the presence of a good treaty-network. Rather than changing their tax residence, wealthy investors may hold investments through no or nominally taxed offshore entities with a view to mitigate tax on foreign source income or gains".

Among the various international tax planning strategies, the holding corporation is an interesting vehicle used by individuals and MNEs (Gravelle 2009, Mc Cann 2006, Mintz and Weichenrieder 2010). For example, Schmidt and Lady (2007) explain in detail how US HNWIs use holding companies and the corresponding tax rules. In particular, OFCs have designed holding companies to exploit Double Tax Treaties (DTTs) [3] and the EU Directive "Parent-Subsidiaries"(1990)[4] that have encouraged extensive treaty shopping (Avi-Yonah and Panayi 2010). Interestingly, there has recently been a proliferation of DTTs. Rawling (2007) argues that the recent initiatives of the

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[2] "Leaky devils. Tax havens start to reassess their business models", The Economist, April 13, 2013.

[3] DTTs are agreements between two states (since the 1920s) designed to protect investors against the risk of double taxation. DTT networks have increased in parallel with the development of foreign direct investments.

[4] Modified in 2003.

OECD, the EU, and the IMF for information exchange agreements have encouraged bilateral DTTs as part of or separate from TIEAs, and many OFCs have concluded DTTs that they did not previously have. Indeed, more than 3000 bilateral tax treaties connecting approximately 180 countries are in force today (Rixen 2010, Rixen 2011). The OECD treaty model represents the general consensus on international taxation, but the rules have become more sophisticated and complex over time (Rixen 2010), creating loopholes that are exploited by low-tax jurisdictions. The EU Directive "Parent-Subsidiaries" intends to eliminate tax obstacles to profit distribution between groups of companies in the EU by abolishing the withholding of taxes on dividends between subsidiaries and parents.[5] To benefit from these exemptions, the parent and subsidiaries must be fully taxable, and a minimum of permanent shareholding is required. Special entities called "conduit companies" that exploit DTTs and the Parent-Subsidiaries Directive have seen exponential growth during the last decade, reflecting the development of tax planning. The number of Luxembourg financial companies, called SOPARFI [6](see Appendix), increased from 2800 in 2000 to 55 000 in 2011. Dutch financial holding companies were evaluated at 42 072 in 2007, and similar or comparable legal vehicles exist in Cyprus, Malta, Switzerland, and Caribbean OFCs (often called International Business Companies).

The aim of this paper is to address an issue that has attracted little attention in the current debate. If onshore countries' foremost aim is to increase their tax revenue, it is legitimate to question whether the removal of bank secrecy can achieve this aim given that there exist alternative, albeit sophisticated, ways to mitigate the tax burden. To this end, we develop a simple model to analyze how removing bank secrecy may affect tax revenues and banks' profitability, assuming that offshore centers are able to offer sophisticated but not illegal tax planning. The focus is on a small OFC that is able to attract investors located in the rest of the world. Two regimes are considered. In the first scenario, we assume that the OFC enjoys strict bank secrecy and is thus attractive to tax evaders. However, the onshore economy is able to pressure the tax haven by shaming and blaming it. This pressure damages its reputation in the hope of limiting tax evasion. In the second case, we consider a scenario in which the OFC agrees to share information with

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[5]This double taxation represented discrimination compared with a situation in which the two entities were located in the same country.

[6]SOciété de PArticipation FInancière

the onshore economy for tax purposes. Sophisticated tax planning appears as an alternative to tax evasion. By accepting the information exchange, the reputation of OFCs remains sound, and the onshore countries are deprived of one weapon in the fight against tax leakages caused by legal offshoring practices. In the following, we adopt a positive approach rather than a normative one by assuming that the competing jurisdictions are self-interested. The OFC is motivated by maximizing its banks' profits, whereas the onshore government is concerned with maximizing its net tax revenue. [7]

The main results obtained in this paper can be summarized as follows. We first show that sharing tax information with onshore countries can be a dominant strategy for an OFC if there is enough scope for providing tax planning to its clientele without infringing tax laws. It follows that the willingness of an OFC to provide tax information does not necessarily lead to its closure. Furthermore, we show that partial tax saving resulting from offshore investments may prompt OFCs to voluntarily exchange relevant tax information. The required share of tax mitigation leading to this cooperative behavior depends on exogenous parameters, such as the level of international financial integration. Finally, we highlight a surprising result. We show that the removal of bank secrecy may, under some conditions, reduce the onshore country's tax revenue.

Our paper is related to the recent literature on tax avoidance through tax havens, although these contributions are mainly focused on tax planning strategies implemented by MNEs. In this context, Slemrod and Wilson (2009) demonstrate the parasitic effect of tax havens on other countries' welfare. In their setting, tax havens waste resources by providing tax evasion services to firms, and tax administrations incur expenditures to limit tax evasion. Other authors (Hong and Smart, 2010; Desai, 2006), however, highlight the beneficial effects of tax havens. For example, by reducing their tax burdens through the use of offshore entities, MNEs may enhance their activity in non-tax havens. Johannesen (2010) analyzes the effect of tax havens on low and high tax jurisdictions within a framework of imperfect competition. In particular, he shows that an equilibrium may arise in which the tax rate of the low tax country is increased, whereas the tax bases of non-tax havens decrease. Elsayyad and Konrad (2012) analyze how fighting tax havens, particularly by imposing tax information exchange agreements, modifies the

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[7]This is a suitable way to characterize the objective of onshore governments given the current economic situation, as noted by Nicodème (2009).

competition pattern between tax havens. If initiatives are adopted in a sequential way, they show that the resulting exit of some tax havens increases the market concentration among the remaining tax havens, which become more profitable and more resistant to complying; thus, actions taken against tax havens may be welfare reducing for the OECD. Our paper also examines the possible adverse effects caused by the reaction of tax havens to initiatives against them. However, contrary to Elsayyad and Konrad (2012), our paper focuses on changes within a tax haven that are more or less able to substitute (legal) tax planning activities for traditional tax evasion services rather than on changes in competition between tax havens. The offshore business does not necessarily disappear with official compliance with information exchange agreements, but its nature may change. Therefore, in contrast to Johannesen (2010) and Elsayyad and Konrad (2012), we do not focus on competition between different tax havens.

The work of Bacchetta and Espinoza (2000) bears some resemblance to our paper. These authors derive general conditions under which two possibly asymmetric countries may add a bilateral information-exchange clause in a tax treaty. Analogously, our model attempts to identify conditions under which an OFC is (unilaterally) willing to transmit tax information to a high-tax country. Their model is based on bilateral exchange and necessitates repeated games to make information exchange sustainable. In our paper, however, the willingness of the OFC to cooperate can be reached in a one-shot game because giving up bank secrecy can, under specific conditions, make legal tax planning more profitable than pure tax evasion.

The paper is organized as follows. In Section 2, we model how an OFC competes with the onshore world by providing tax benefits. Within this context, we successively consider strict bank secrecy and information sharing. Section 3 discusses the conditions under which the OFC may voluntarily agree to give up bank secrecy. Then, we analyze how the possible decision of the OFC to comply with international tax exchange rules can affect the onshore tax revenue. Section 4 concludes.

2   Model setting

Consider an OFC located in country F competing with a financial center located in country H. We assume that banks located in a jurisdiction compete

in unison with banks located in another country.[8] The OFC attracts investors living in country H, whereas the reverse does not occur. Investors who reside in the OFC are supposed to keep their capital in the OFC. This assumption emphasizes that OFCs generally have very low populations and offer intermediation services predominantly to large foreign (onshore) economies. Investors of the onshore country H are heterogeneous and uniformly distributed, with unit density on the interval $[0, 1]$ according to their attachment to home, indexed by x. The closer an individual is to the origin, the more she is attached to her home country. Each individual is endowed with one unit of capital she can invest in the home banking system or in the OFC.

An individual of type $x \in [0, 1]$ who offshores her money incurs a cost equal to a moving cost $k > 0$ times x. The coefficient k can be viewed as a measure of the degree of international financial integration. The government of country H taxes capital according to the home country principle, whereas the OFC does not impose a tax on capital. To analyze how the OFC and the onshore economy compete for investors, we consider two alternative regimes: strict bank secrecy and information sharing. Under strict bank secrecy, the OFC does not share any type of information about its clientele with country H, whereas under the second scenario, information sharing takes place. Importantly, in the second regime, legal tax planning can emerge as an alternative to tax evasion, as detailed in Section (2.2). In each regime, investors can invest their money either at home or in the OFC. If they opt for the second choice, two asset types are available: one in which sophisticated tax mitigation strategies are not needed and one that involves tax planning techniques. Note that we only focus on the tax motive when investors are supposed to offshore their money. Consequently, the ordinary asset will dominate the sophisticated asset in the case of pure bank secrecy, whereas tax planning will dominate the ordinary asset when there is automatic information sharing for tax purposes.

The onshore region and the OFC interact at different levels. First, investors from the onshore economy are enticed to avoid taxes by offshoring their money. The ensuing tax loss induces the onshore economy to react by setting an appropriate tax rate and deciding on actions to damage the OFC's reputation. Second, there is competition between the banks of both countries.

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[8]The aim is to neglect competition among banks within a joint location to focus exclusively on the interaction between banking centers. Consequently, only one representative bank for each jurisdiction will be considered.

In this context, we assume that the interest rates offered to investors result endogenously from a non-cooperative game between both banking systems. The consequence is that these rates reflect the relative tax attractiveness of the OFC, which, in turn, depends on the possible existence of bank secrecy and the ease with which tax planning opportunities can be provided. [9] The onshore government is assumed to maximize its tax revenues while anticipating (i) how investors react to differences in taxes and to reputational costs when investing in the OFC and (ii) how banks compete to attract investors.

2.1 Strict bank secrecy

Under this regime, the OFC provides strict bank secrecy to its investors while the onshore center does not. Offshore tax dodgers are thus supposed to be perfectly sheltered from their home tax administration. This perfect opacity allows tax evasion by investing in non sophisticated assets like riskless deposits.[10] Because strict bank secrecy makes tax evasion difficult to detect, authorities of onshore countries try to make OFCs less attractive for tax evasion by actions[11] intended to disparage their reputation. Consequently, the tax evaders will endure a premium that increases with the loss of reputation (Picard and Pieretti, 2011) of the non-cooperative tax haven in which they invest.[12]

Two options are then available to the H country's resident. Either the

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[9]That interest rates reflect international taxation conditions is consistent with English and Shahin (1994), who find that, following the passage in the late 1980s of two laws that effectively removed banking secrecy for cases of insider trading and money laundering, Swiss banks raised deposit rates by 53 and 105 basis points, respectively. According to Besson (2004, p.64), Swiss banks can afford to charge higher-than-average fees by virtue of their high-end image, their reputation for financial strength, and, finally, banking secrecy. In addition to fees, banking secrecy affects deposits rates.

[10]Investments in risky financial assets could be considered. Because the focus of the paper is exclusively on the tax aspect of offshore investments we shall avoid this complication.

[11]Recently, the fight against tax evasion has become a major priority in developed countries and pressure (like blacklisting or blame and shame campaigns) against tax havens has increased. These actions are intended to entice the OFC to exchange tax information.

[12]Indeed, Sharman (2001 p.12) observes that, "investors tend to avoid or leave jurisdictions with bad reputations not only out of concern that their money will be misappropriated, but also because firms risk harming their own reputations, as reflected in their share prices."

investor puts her money in the home bank where she incurs a tax or she evades taxes by investing in the OFC. One unit of wealth invested at home by an individual of type $x \in [0, 1]$ yields

$$V_H = r_H - t,$$

where r_H is the rate of return and t the tax rate. If the same individual invests in the OFC, she avoids the home tax but has to incur in addition of a reputation cost, a moving cost which reflects her attachment to home and the ease with which money can be transferred abroad.

It follows that one unit of wealth invested by the individual of type x in the offshore financial center yields a return r_F diminished by the mobility cost kx and a reputation harm α. The corresponding indirect utility is given by

$$V_F = r_F - kx - \alpha$$

Given the utility of the different options, the individual of type $x \in [0, 1]$ chooses to invest in the country which offers the highest net return. It follows that the individuals of type $x \in [0, \bar{x})$ where

$$\bar{x} = \frac{r_F - r_H + t - \alpha}{k}$$

opt for tax evasion and those of type $x \in [\bar{x}, 1]$ decide to invest at home. As a result, the investment supply to the home banking place equals to $D_F = \bar{x}$ and the supply to the tax haven equals $D_H = 1 - \bar{x}$.

International banking competition   The banking systems of countries H and F raise funds from investors and offer respectively the interest rates r_H and r_F. The collected funds by the banks are invested into risk-free assets that yield a given (world) rate of return r. The banks' profit functions in the countries H and F are given as follows

$$\Pi_H = (r - r_H)D_H \quad \text{and} \quad \Pi_F = (r - r_F)D_F.$$

Each banking center selects its return rate supposing that the rate of its rival is given. The equilibrium rates are

$$r_H = r - \frac{2k - t + \alpha}{3} \quad \text{and} \quad r_F = r - \frac{k + t - \alpha}{3}.$$

The corresponding deposits supplied at home and abroad are respectively

$$D_H = \frac{2k - t + \alpha}{3k} \quad \text{and} \quad D_F = \frac{k + t - \alpha}{3k}.$$

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Onshore government decision We suppose that the investor's reputation harm is a policy variable that depends on the pressure that the onshore jurisdiction is able to exert place on the OFC, for example, by blacklisting or campaigning about the risks of tax evasion. We further consider that the cost of exerting pressure is given by a quadratic function $C(\alpha) = \alpha^2/2$. The convexity of the cost function may reflect the increasing difficulty to exert pressure which can in particular rely on the existence of institutional limitations. For example, a successful crackdown on bank secrecy requires collective action of onshore jurisdictions which can be hard to sustain or can lead to unacceptable infringement on the sovereignty of other states. Finally, we assume that policy makers of the home country maximize their net tax income $T_H^E(t, \alpha) = tD_H - C(\alpha)$ with respect to the tax rate t and the pressure variable α. This way to characterize the onshore government's objective is consistent with the current period of global crisis forcing countries to fix their fiscal imbalances (Nicodème, 2009). Solving the maximization problem yields the equilibrium values

$$\alpha^* = \frac{2k}{6k - 1} \tag{1}$$

and

$$t^* = k + \frac{\alpha^*}{2} = \frac{6k^2}{6k - 1} \tag{2}$$

with $t^* < 1 \Leftrightarrow 1/5 < k < 3/4$, which guaranty the positivity of α^* and t^*. Financial integration, captured by k, impacts the optimal tax rate directly and indirectly through its effect on α^*. More precisely, two opposing forces are at play. An increasing mobility cost k augments directly taxation because taxpayers become more captive, but it lowers indirectly taxation because a higher cost to offshore savings implies lower international pressure. This explains why the effect of k on t^* is not monotone. A higher k yields a higher tax rate if $k > 1/3$, whereas a higher k induces lower taxation if $k < 1/3$. In the first case, the direct effect dominates, while the indirect effect dominates in the second case. The two forces equalize at $k = 1/3$.

Using (1) and (2), the equilibrium deposit supplies become

$$D_H^* = \frac{2k}{6k - 1} \text{ and } D_F^* = \frac{4k - 1}{6k - 1}.$$

The supplies are positively signed if $k > 1/4$. It follows that if $k \leq 1/4$ there is no tax evasion ($D_F = 0$). The reason is that capital mobility in this

interval encourages the onshore government to pressure the uncooperative tax haven to such an extent that investors apprehend tax evasion because of very high reputation costs. The equilibrium interest rates are

$$r_H^* = r - \frac{2k^2}{6k-1} \text{ and } r_F^* = r - k\frac{4k-1}{6k-1}.$$

Because the OFC offers tax shelter, one could expect that the interest rate is always higher in the onshore banking center. This is however not always the case. Indeed, we have $r_H^* < r_F^*$ if $k < 1/2$ and $r_H^* > r_F^*$, if $k > 1/2$. When financial integration is high , i.e. $k < 1/2$, international pressure α is high to counteract tax evasion and thus investors become more reluctant to offshore their money. This prompts the onshore bank to offer a lower interest rate than its offshore rival.

The corresponding equilibrium profits are given by

$$\Pi_H^* = \frac{4k^3}{(6k-1)^2} \text{ and } \Pi_F^* = \frac{k(4k-1)^2}{(6k-1)^2}$$

The net tax income $B_H = T_H - \alpha^2/2$ of the onshore country is

$$B_H^* = \frac{2k^2}{6k-1}$$

It is straightforward to show that $B_H^* = \frac{1}{3} t^*$. This implies that at equilibrium, the net tax revenue of the onshore country B_H^* increases with the mobility cost if $k > 1/3$ but decreases with k if $\frac{1}{4} < k < \frac{1}{3}$.

The equilibrium global income of the onshore country is

$$B_H^* + \Pi_H^* = B_H^* \frac{8k-1}{6k-1}$$

2.2 Tax information sharing

Now, consider that the OFC provides tax information exchange to the onshore economy according to internationally accepted standards.[13] Conse-

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[13]Due to the OECD, information exchange "on request" remains the "internationally agreed standard". However, the G20 leaders at their June 2012 summit in Mexico committed to lead by example in implementing the practice of the automatic exchange of tax information. In April 2013, five European governments decided to impose the automatic exchange.

quently, sophisticated tax planning is an alternative to tax evasion. It follows that strict bank secrecy is no longer necessary for tax mitigation. In addition to the existence of home investments, we assume there are two ways of placing savings offshore. One way is a riskless offshore-deposit subject to residence-based taxation, and the second is opting for a complex investment strategy that allows tax to be saved.

In the first case, an individual of type x living in country H earns a rate of return r_F^l. After taking into account of a moving cost kx and a unit tax rate of t due to her home country according to bilateral agreements, the net return equals $V_F^l = r_F^l - kx - t$.

In the second case, the investor can benefit from a tax reduction equal to b $(0 < b < 1)$ times the tax rate t imposed by the (onshore) country of residence. It follows that the closer b to its upper limit, the more effective the tax planning . Simultaneously, we assume that b is increasing with the degree of sophistication of tax planning. In fact, effectiveness and sophistication are both dependent on the level of accounting skills and the quality of legal and financial advice provided to investors as well as the ability and competence to manage mobile capital inflows (McLaren and Passant, 2010). However, benefiting from sophisticated tax planning techniques is not risk free for investors. The more complex these structures are, the more difficult it is to draw a dividing line between abusive tax avoidance and acceptable tax planning or tax minimization (Duff, 2009).[14] Consequently, the legal uncertainty we have highlighted creates a risk specific to tax planning that rises as sophistication increases. It follows that the return of complex investment structures can be considered a random variable $\widetilde{r}_F^s$. For reasons of tractability, we assume that the investor has an exponential utility [15] over

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[14]It follows that investors choosing highly complex tax planning structures are likely to be exposed to courts that may view these practices as abusive. However, the limits of the legality of tax planning are not invariably provided. According to Duff (2009), the increase of tax avoidance activity over the past decades has prompted governments to adopt legislative and administrative measures to discourage this phenomenon. Nevertheless, the legality of these anti-avoidance rules is questionable. As Kessler and Eicke (2007) note, the issue of whether anti-treaty-shopping and anti-avoidance rules are in accordance with EC law remains open. Evers and de Graaf (2009), analyzing the decisions of the European Court of Justice, show that European Member States have substantial discretion with regard to combating artificial arrangements that are intended to minimize taxation on capital payments and/or capital gains.

[15]Investors are risk-averse and their utility is given by $U(\tilde{r}) = 1 - e^{-x\widetilde{r}^s}$, where x is the constant absolute risk aversion coefficient.

the return $\widetilde{r}^s_F$ which is normally distributed .[16] We also consider that the investors in the home country are ranked uniformly with unit density on the interval $[0, 1]$ according to their risk aversion. For the sake of simplicity, we assume that this risk is ranked in the same manner as the home attachment. In other words, the variable x can also be used to define investors' risk aversion. Consequently, the expected utility of an investor of type x who opts for tax planning is given by $E\left[U(\widetilde{r}^s_F)\right] \backsim r^s_F - \frac{1}{2}\sigma^2 x$. Note that the variance σ^2 represents the risk associated with tax planning, which, as we explained, increases with its level of sophistication. As highlighted above, the parameter b is also supposed to increase with the complexity of tax planning. It follows that the parameters σ^2 and b move in the same direction. We therefore write $\sigma^2 = 2\theta b$ where θ is a policy parameter which reflects in particular how robust and resolute anti-tax haven regulations are.

Hence, the indirect utility can be written as follows

$$V^s_F = r^s_F - b\theta x - kx - (1 - b)t$$

Being confronted with different alternatives, the individual of type $x \in [0, 1]$ chooses to invest in the country which offers the highest net return. It follows that the individuals of type $x \in [0, x_1)$, where

$$x_1 = \frac{r^s_F - r^l_F + bt}{\theta b}$$

opt for tax planning. Individuals of type $x \in (x_2, 1]$ where $x_2 = \frac{r^l_F - r_H t}{k}$ invest their money in their home country. Finally, individuals of type $x \in [x_1, x_2)$ offshore their money and pay taxes in their home country. Country F investors place a share $\widehat{D}_H$ of their savings at home. The rest is invested abroad in non risky assets D^l_F and/or sophisticated assets D^s_F :

$$D^s_F = x_1, \ D^l_F = (x_2 - x_1) \text{ and } \widehat{D}_H = 1 - x_2$$

We now derive the equilibrium interest and tax rates when the OFC complies to international accepted information exchange standards.

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[16]More exactly, the investors' gross return follows a normal distribution of mean $r^s_F = E(\widetilde{r}^s_F)$ and variance σ^2.

International banking competition The onshore bank maximizes its profit by choosing r_H and considers its rival's rate as given. Its profit equals

$$\Pi_H = (r - r_H) \times \widehat{D}_H.$$

The offshore banking center maximizes its profit by choosing r_F^l and r_F^s ,while considering r_H as given. Its profit function is

$$\Pi_F = (r - r_F^l)D_F^l + (R - r_F^s)D_F^s,$$

where R is the bankers' rate of return for the sophisticated type of investment. We assume that R equals the basic world interest rate r augmented by a fee which is proportional to the complexity of tax planning. In other words, we write $R = r + \gamma b$ where $\gamma > 0$.

The onshore government' decision The onshore government chooses the tax rate t that maximizes

$$T_H = t \left[\widehat{D}_H + D_F^l + (1 - b) D_F^s \right]$$

This yields the equilibrium tax rate

$$\bar{t} = \frac{\theta}{b} - \frac{\gamma}{2} \tag{3}$$

It follows that the equilibrium tax rate decreases with b and γ. The intuition is straightforward. If tax planning becomes more attractive (b increases) and/or the rate of return of sophisticated assets improves following an increase in γ, the onshore administration will react by reducing the tax burden to reduce capital outflows. It also appears that the tax rate increases with θ. The reason is that a tougher anti tax haven policy (increased θ) which increases the risk associated with tax planning raises the onshore jurisdiction's power to tax. Note also that the condition $1 > \bar{t} > 0$ is satisfied if $\theta \in \left(b\frac{\gamma}{2}, b\frac{\gamma}{2} + b \right)$. The equilibrium return rates offered to the investors in their in the OFC and in their home country are

$$\bar{r}_F^s = R - \left(\frac{\theta}{2} + \frac{k}{3} + \frac{1}{4}b\gamma \right), \; \bar{r}_F^l = r - \frac{k}{3} \text{ and } \; \bar{r}_H = r - \frac{2k}{3}$$

We assume that r is high enough so that the margins of the different types of investments are always positive. Surprisingly the interest rate offered by the

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offshore center decreases with the risk parameter θ. As highlighted above, an increase in θ raises the tax rate t which makes tax planning more attractive. This finally explains why the offshore financial center is able to lower its interest rate. The equilibrium investments choices are

$$\overline{D}_F^s = \frac{1}{3}, \ \overline{D}_F^l = 0 \text{ and } \ \overline{D}_H = \frac{2}{3}.$$

The banks' equilibrium profits are

$$\overline{\Pi}_F = (R - \bar{r}_F^s)\,\overline{D}_F^s = \frac{4k + 6\theta + 3b\gamma}{36} \text{ and } \ \overline{\Pi}_H = \frac{4k}{9}.$$

The equilibrium tax income of the onshore economy equals

$$\overline{T}_H = \frac{(2\theta - b\gamma)\,(3 - b)}{6b}$$

Notice the tax revenue in the onshore country augments with θ. It follows that making tax planning more risky improves the onshore country's tax revenue.

3   Removing bank secrecy

In the following we analyze the incentives of an OFC to voluntarily disclose tax information. Then we focus on how the removal of bank secrecy impacts the tax revenue in the onshore country.

3.1   Incentives to provide tax information

In this section, we consider the conditions under which the offshore center has an incentive to abandon bank secrecy and to comply with international information sharing rules. We assume that the OFC chooses the regime that entails the highest bank profitability. For this reason, we focus on the difference $\overline{\Pi}_F - \Pi_F^*$ which equals

$$\Psi(b, k, \theta) = \frac{1}{12}\gamma b + \left(\frac{1}{9}k + \frac{1}{6}\theta - \Pi_F^*\right)$$

It follows that $\Psi(b, k, \theta) > 0$ if $b > \widehat{b}$ where $\widehat{b} = \frac{12}{\gamma}\Pi_F^* - \frac{2}{3\gamma}(2k + 3\theta)$. We can state the following proposition.

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Proposition 1 *If the share of tax benefit b is high enough $(b > \widehat{b})$, the OFC has an incentive to accept information sharing for tax purpose only.*

A direct implication of this proposition is that the willingness of an OFC to provide tax information does not necessarily lead to its closure. This is because the OFC may be able to set up legal structures designed to provide tax planning as an alternative to illegal tax evasion. However, the threshold beyond which the OFC agrees to comply with tax information regulations is not immutable. In particular, it changes with the risk parameter θ, which is particularly influenced by anti-avoidance tax rules designed by onshore governments and k, the level of international financial integration.

First, we see that the threshold value $\widehat{b}$ decreases with θ. In other words, it is more likely that the OFC will cooperate by exchanging tax information when tax planning becomes riskier. This is a surprising result because one would expect that riskier tax planning would decrease the willingness of the OFC to give up bank secrecy. This issue becomes clearer, however, if we bear in mind that an increase in θ makes investors more reluctant to offshore their money, which, in turn, gives the onshore government more power to tax and the onshore banks more liberty to lower interest rates. As a result, the OFC also has an incentive to lower the return it offers to tax planners if the elasticity of the investment supply it faces is sufficiently low, as is the case in our model[17]. Finally, tax planning becomes more profitable for offshore banks, and the OFC is thus more inclined to opt for information sharing.

Corollary: *The riskier the tax planning, the likelier the offshore center will agree to share tax information.*

How does increasing capital mobility affect the OFC's decision to abandon bank secrecy? Because increasing financial openness (lower k) decreases banks' profits in each scenario, it follows that the total effect of k on the difference $\overline{\Pi}_F - \Pi_F^*$ and, hence, on the threshold value $\widehat{b}$ is ambiguous. Indeed, when $k > \overline{k}$ we have $\frac{\partial \widehat{b}}{\partial k} > 0$, and $\frac{\partial \widehat{b}}{\partial k} < 0$ otherwise. This means that decreasing mobility costs (higher mobility) make the OFC more willing to abandon bank secrecy when mobility costs are high ($k > \overline{k}$). However, when mobility costs are low ($k < \overline{k}$), we have the opposite effect. In the first case ($k > \overline{k}$), more intense international competition forces banks to increase their

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[17]Remember that in our model the equilibrium demand for tax planning is independent of the offered return.

interest rates, which damages the profitability of the offshore banks relatively more when they provide strict bank secrecy. However, when capital mobility is high $(k < \overline{k})$, the onshore jurisdiction exerts considerable effort to damage the OFC's reputation. As we saw above, this raises the onshore tax rate significantly. Accordingly, the OFC can maintain its attractiveness without significantly increasing its interest rate. Consequently, higher capital mobility damages its profitability comparatively less in the case of bank secrecy. The OFC is therefore less willing to lift its bank secrecy.

3.2 Does information sharing always improve onshore tax revenue ?

Before analysing how a possible removal of bank secrecy affects the tax revenue of the onshore country, it is interesting to highlight some surprising results. Our model shows that the regime of information sharing compared with strict bank secrecy may be consistent with higher offshore investments $(\overline{D}_F^s > D_F^*)$ if capital mobility is high enough $(k < 1/3)$, and with a lower tax rate for appropriate parameter values.[18] Hence, switching to information sharing can entail ambiguous effects on the onshore country's budget. Let us now analyze in more detail the highlighted effects. Toward this end, we define the following $\Phi(b, k, \theta) = \overline{T}_H - B_H^*$, which equals

$$\Phi(b, k, \theta) = \frac{(2\theta - b\gamma)(3 - b)}{6b} - B_H^* = \frac{1}{6b}\left(\gamma b^2 - (6B_H^* + 2\theta + 3\gamma) b + 6\theta\right).$$

Solving the equality $\Phi(b, k, \theta) = 0$ for b, we show in Appendix 2 that there is only one real root denoted by $\overline{b}$ that satisfies the condition $\overline{b} \in [0, 1]$. It follows that $\Phi(b, k, \theta) > 0$ for $b \in [0, \overline{b}]$. In other words, if the tax benefit measured by b exceeds the threshold $\overline{b}$, we obtain $\Phi(b, k, \theta) < 0$.

This leads us to the following proposition

Proposition 2 *Information sharing increases onshore tax revenues if and only if the tax benefit resulting from tax planning is not too high $(b < \overline{b})$.*

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[18]Indeed, direct comparison (3) and (2) shows that the difference $t^* - \overline{t} = 6\frac{k^2}{6k-1} - \overline{t}$ has two complex roots if $\frac{2\theta - b\gamma}{b} < \frac{4}{3}$.

The above analysis shows that the effectiveness of tax planning for reducing tax liabilities is crucial in gauging the success of the regime of information exchange. In particular, if tax havens are sufficiently skilled at setting up legal structures for tax optimization purposes, pushing for the removal of bank secrecy with the aim of maximizing tax income may be inconsistent. This aspect has been neglected in the current scientific and political debate. However, the threshold value $\bar{b}$ can be increased if the onshore world is able to augment the risk parameter θ, because $\frac{\partial \bar{b}}{\partial \theta} > 0$. This can occur if onshore governments are able to improve international tax legislation to deter the use of increasingly sophisticated forms of tax avoidance.

It is also interesting to observe how financial integration modifies the threshold $\bar{b}$ beyond which the regime of information sharing is not desirable for a tax-maximizing country. To this end, we calculate the derivative of $\bar{b}$ with respect to k. This yields $\frac{\partial \bar{b}}{\partial k} > 0$ if $\frac{1}{4} < k < \frac{1}{3}$ and $\frac{\partial \bar{b}}{\partial k} < 0$ if $k > \frac{1}{3}$. In other words, when mobility costs are "low" ($\frac{1}{4} < k < \frac{1}{3}$), greater financial integration makes the regime of information exchange less attractive to the onshore country. However, when mobility costs are "high" ($k > \frac{1}{3}$), we observe the opposite effect. How can we explain this result ? Because $\overline{T}_H$ does not depend on k, changes in capital mobility only impact tax revenue in the bank secrecy regime. In Section 2.1., we saw that a change in mobility costs has an ambiguous effect on the tax rate and thus on the tax revenue of the onshore county. When capital mobility is high ($\frac{1}{4} < k < \frac{1}{3}$), a further decrease in moving costs improves tax revenue in the bank secrecy regime[19], but the opposite effect occurs when capital mobility is low ($k > \frac{1}{3}$). Consequently, increased capital mobility makes the information exchange regime less attractive from the point of view of tax revenue in the first case and more attractive in the second case. That the onshore country may be worse off in terms of tax revenue is initially surprising. However, it is important to keep in mind that by agreeing to exchange information, the OFC is no longer exposed to international pressures aimed at damaging its reputation. Accordingly, the onshore country lacks an important weapon in the fight against tax leak-

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[19]In Section 2.1., we saw that in the case of bank secrecy, the tax rate and, thus, the tax revenue are subject to two opposing forces when mobility costs change. When capital mobility increases (k decreases), there is a first action that lowers tax revenue because taxpayers become less captive. In addition, there is a second action that raises tax revenue because onshore governments strengthen their campaign against tax havens and make investors more reluctant to offshore their money. The second force is dominant when capital mobility is high ($\frac{1}{4} < k < \frac{1}{3}$).

ages caused by legal offshoring practices. As noted by Rawlings (2007, p.58), "Through complying with these initiatives OFC states have reinscribed their reputation and political soundness in the eyes of investors and have become jurisdictions characterized by 'good governance' meeting the highest international standards [....] These multilateral initiatives have had the reverse effect of what they originally intended: through allowing OFCs to demonstrate their good governance to the world they maintain their client base and sustain an ongoing fiscal competition between states for tax revenues".

4 Conclusion

We observe that although there is a crackdown on bank secrecy that favors tax evasion, tax planning using sophisticated legal structures continues to prosper. Most of these techniques, which were initially designed for multinational corporations, are generally based on a network of international tax treaties. Thus, they allow wealth management, which utilizes large groups of tax consultants, to mitigate tax liabilities without bank secrecy.
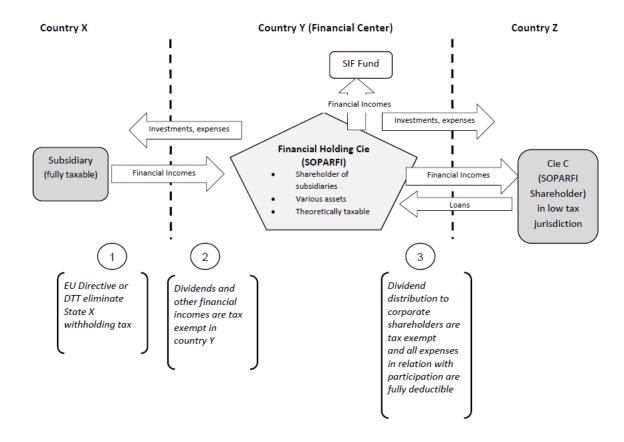
Our paper models competition between OFCs and onshore banking centers by considering, successively, strict bank secrecy with pure tax evasion and tax information exchange with tax planning. Two interesting results are highlighted. First, an OFC can voluntarily abandon strict bank secrecy without closing down its activity. This decision hinges on the ability of the OFC to offer tax benefits by legal but sophisticated means. The model defines a parameter to capture this ability that must exceed a given level. In particular, this threshold depends on the legal uncertainty resulting from efforts deployed by onshore countries and/or international bodies to refine and implement anti-avoidance regulations. Surprisingly, the model shows that under conditions of high capital mobility, these attempts can make OFCs less prone to abandon strict bank secrecy. Second, it may occur that tax revenue earned by onshore countries shrinks with the removal of strict bank secrecy if OFCs are able to sufficiently and legally reduce the tax liabilities of their customers. This threshold can be increased, but not necessarily eliminated, by strengthening international regulations. This surprising result indicates a possible inconsistency in the effort of onshore countries pushing tax havens to exchange relevant tax information for exclusively fiscal goals.

It follows that solely targeting the abolition of strict bank secrecy may not be enough. Combating bank secrecy policy is a complex task that requires a

clear understanding of modern OFCs and their capacity to adapt their tax minimization strategies to ever-changing regulatory environments. However, this ability to implement increasingly sophisticated tax planning devices is not shared equally. Thus, there is scope for vertical differentiation among the various OFCs with the eventual possibility that some of them will have to close. Our model does not account for this extension, which should be addressed in a future work. Furthermore, the objectives that guide onshore countries in their fight against tax havens should be clarified. Are tax equity considerations the only intentions pursued? Or, as the facts suggest, do onshore countries primarily want to increase their tax revenue? Addressing this second objective is likely to impact important strategic variables such as taxes and, in turn, to induce the types of results highlighted in our paper.

Appendix 1: Example of international tax planning

Here, we show how tax planning is made possible without the existence of bank secrecy. To this end, we illustrate (see Figure below) how tax structuring can be achieved within the Luxembourg financial holding company SOPARFI (Société de participation financière). Similar or comparable legal vehicles exist in Cyprus, Switzerland, the Netherlands, the UK, Malta, the Netherlands Antilles, and Barbados. The SOPARFI is basically a taxable Luxembourg company and is thus eligible to benefit from DTTs and the EU Parent-Subsidiaries directive. The main activity of a SOPARFI is to acquire and hold shares of other companies.

Let us envisage a simplified example of tax planning for an individual investor. An individual investor founds a SOPARFI in Luxembourg that acquires corporate shares owned by the founding investor in an onshore country (France, for example). The corporate income of the French company is taxed at a normal rate (34.4%, including social contributions). If the investor perceives dividends directly in France, he will be subject to a withholding tax on dividends (31.5%, including social contributions). In our case, the dividend is perceived by the Luxembourg SOPARFI, which benefits from an extensive network of double-taxation treaties and from the EU Parent-Subsidiary directive. Consequently, the dividends must be paid in Luxembourg, where the normal withholding tax rate equals 15%.

Country X

Country Y (Financial Center)

Country Z

SIF Fund

Financial Incomes

Investments, expenses

Investments, expenses

Financial Holding Cie (SOPARFI)
- Shareholder of subsidiaries
- Various assets
- Theoretically taxable

Subsidiary (fully taxable)

Financial Incomes

Financial Incomes

Loans

Cie C (SOPARFI Shareholder) in low tax jurisdiction

① *EU Directive or DTT eliminate State X withholding tax*

② *Dividends and other financial incomes are tax exempt in country Y*

③ *Dividend distribution to corporate shareholders are tax exempt and all expenses in relation with participation are fully deductible*

Further tax mitigation options are available in Luxembourg. For example, the dividends can be invested in a "Special Investment Fund" (SIF) dedicated to professionals and other well-informed investors. The SIF is entitled to full-tax exemption, except that it must pay a small subscription fee and an annual charge of 0.01% on all its assets. Another possibility for a SOPARFI to avoid withholding taxation is to transfer the dividend income to a financial company in another low-tax jurisdiction. In this case, the Luxembourg tax authorities require that the foreign tax rate be at least 11%. Furthermore, the SOPARFI can avoid the withholding tax by indebting itself to another financial company owned by the founder of the SOPARFI. This avoidance scheme is facilitated by the fact that a high debt-equity ratio (85/15) is generally acceptable to the Luxembourg tax authorities for a shareholding activity. It follows that high debt contracting is allowed, and the resulting interest paid is tax deductible without being subject to a withholding tax. Finally, the financial profits of the SOPARFI can be invested in real estate or used for various purchases in another country or in the origin country.

Appendix 2

Solving $\Phi(b, k, \theta) = 0$ with respect to b yields the real roots of $\Phi(b, k, \theta) = \frac{1}{6b}\left(\gamma b^2 - (6B_H^* + 2\theta + 3\gamma)b + 6\theta\right) = 0$ are

$$\overline{b} = \frac{1}{2\gamma}\left(6B + 2\theta + 3\gamma - \sqrt{24B\theta + 36B\gamma + 36B^2 + (2\theta - 3\gamma)^2}\right)$$

$$\overline{\overline{b}} = \frac{1}{2\gamma}\left(6B + 2\theta + 3\gamma + \sqrt{24B\theta + 36B\gamma + 36B^2 + (2\theta - 3\gamma)^2}\right)$$

It is easy to check that $\overline{\overline{b}} > 1$ since B_H^* and γ are strictly positive. It also appears that $\overline{b} > 0$. In addition, we have $\overline{b} \leq 1$ if $B_H^* \geq \left(\frac{2\theta - \gamma}{3}\right)$, which is always the case since we assume that $\theta \in \left(b\frac{\gamma}{2}, b\frac{\gamma}{2} + b\right)$. It follows that $\overline{b}$ is the only admissible root of $\Phi(b, k, \theta) = 0$ satisfying the condition $\overline{b} \in [0, 1]$. As a consequence, $\Phi(b, k, \theta) > 0$ if $b < \overline{b}$ and $\Phi(b, k, \theta) < 0$ otherwise.

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