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Offshore financial centers in the Caribbean: An overview[1]

Michael Brei [a]

Abstract

This paper investigates offshore financial centers in the Caribbean from the perspective of offshore economies, onshore economies, and international investors. Using multilateral data on the international positions of banks, we analyze the flow of funds that has been transferred from the major banking systems to offshore financial centers located in the Caribbean and vice versa. We highlight that Caribbean offshore financial centers have been predominantly used by persons, resident in the United States, which send and receive most of the offshore funds, a process called round-tripping. For the major player in the Caribbean, the United States, we find that increases in offshore funds have been associated with reductions in corporate income tax revenues. These costs, however, have to be put into relation with the potential benefits, in the form of higher lending by commercial banks located in the United States.

Along with the empirical analysis, we analyze the advantages and disadvantages of offshore financial centers from the perspective of offshore and onshore governments, and international corporations and investors. In particular, we provide a review of the international tax legislation, focusing on activities and investments in traditional offshore centers, treaty heavens, and special concession havens. Although the vast majority of offshore transactions seem to be perfectly legal, there exist concerns that particular corporations and individuals might misuse offshore financial centers. For this reason, we discuss as well the major international initiatives on countering the harmful practices in offshore centers and tax havens.

Keywords: Offshore financial centers, international finance, Caribbean
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1. INTRODUCTION

With the onset of the global financial crisis in 2008, the debate about offshore financial centers and tax havens has gained once again more attention. Over the past decades, a number of working groups have been formed by fiscal authorities and international institutions alike, with the objective of identifying and analyzing offshore jurisdictions and tax havens (see, amongst others, Gordon (1981), Edwards (1998), OECD (1987, 1998, 2001, 2009a, 2011), FATF (2000a, 2000b), FSF (2000a, 2000b), IMF (2000), US (2008a, 2008b)).

A long-standing concern has been that offshore financial centers and tax havens facilitate tax avoidance and evasion. Onshore governments have also been concerned that offshore centers amplify the opacity of financial institutions, building the ground for risk-shifting incentives. A number of international initiatives have been launched in the late 1990s, with the objective of improving the information exchange between offshore and onshore authorities. More recently these initiatives have been intensified in response to the financial and sovereign crises in the advanced economies (OECD (2012b)). Nevertheless, the use of offshore financial centers and tax havens appears to be highly demanded by international corporations, banks, investment funds, and individuals.

The decision of a country not to tax financial transactions, or to attract businesses by more favorable taxation, is a legitimate policy choice. Supporters of offshore centers argue that international tax competition is vital for the global economy, by providing companies an alternative to high-tax/high-spending regimes. In this regard, governments compete with each other and attract corporations and individuals by offering them a more business-friendly environment. The opponents argue that tax competition can be harmful, especially, when favorable fiscal and regulatory frameworks are coupled with strict secrecy provisions, and the unwillingness of an offshore center, or tax haven to cooperate with onshore governments in the identification of fraudulent transactions. Such a setting would inevitably favor the abuse of offshore centers and tax havens. It is thus essential that onshore and offshore authorities cooperate efficiently, and it is the key to success and sustainability of an offshore financial center.

It appears that the authorities of the major advanced economies tolerate the use of offshore financial centers and tax havens. In principle, national tax policies are against the use of offshore centers and tax havens. In practice, however, this policy is ambivalent, resulting from a conflict of the following objectives (Gordon (1981)): tax authorities try to (i) minimize unjustifiable tax avoidance and evasion; (ii) maintain the international competitiveness of domestic corporations; and (iii) preserve tax equity between investments at home and abroad. A potential erosion of

income taxes in the onshore economies, therefore, has to be related to the potential benefits of the use of offshore centers, which might include higher after-tax profits of corporations, more favorable and flexible business conditions, and/or increased bank lending at home. Indeed, much of the funds that are sent offshore are channeled back to the country of origin, allowing financial and non-financial firms to offer their products in the onshore jurisdictions at lower costs (McCauley and Seth (1992), IMF (2005), Rose and Spiegel (2007)).

Against these backdrops we investigate in this paper those offshore financial centers that are located in the Caribbean from the perspective of the offshore economies, onshore economies, and international investors. Using information on the international positions of banks, we analyze empirically the flow of funds across Caribbean offshore centers and the major banking systems. We shed light on several interrelated topics.

First, we discuss the identification of offshore financial centers and tax havens and quantify regulatory and fiscal differences for a number of offshore and onshore jurisdictions. Along we compare major macroeconomic indicators across Caribbean offshore centers and the other jurisdictions in the region, which do not host an offshore financial center. Not surprisingly, we find that offshore centers offer more favorable taxation to non-resident corporations and individuals, compared to our sample of onshore jurisdictions, with an average corporate income and capital gain tax rate for non-residents of 1% in the offshore centers, compared to tax rates that range from 25 to 35% in the onshore economies. Moreover, offshore centers provide stronger bank secrecy implied by fewer bilateral tax treaties and tax information exchange agreements. The differences in bank regulation are much less important. From a comparative perspective in the Caribbean, it appears that offshore centers have benefited from the presence of the financial center relative to non-offshore jurisdictions. For example, over the period 1997-2010, their average annual GDP per capita amounted to close to 21,000 US dollars, compared to an average of 4,000 dollars in the other small island economies, being highest in the Bahamas (70,000 US dollars) and the Cayman Islands (51,000 US dollars).

Second, we investigate the flow of funds that has been channeled through five Caribbean offshore centers (Bahamas, Bermuda, Cayman Islands, Netherland Antilles and Panama) over the period 1983-2010, using information from the locational international banking statistics of the Bank for International Settlements (BIS). As a matter of fact, we examine the origins and destinations of the flow of funds, and we identify net sending and receiving regions. We focus our analysis on round-tripping, a process during which funds from one country are sent abroad, to be subsequently re-invested in the origin country. It has been documented that multinational enterprises increasingly use round-tripping for different reasons, being it Indian multinationals in Mauritius, or US banks in

the Cayman Islands. From a global perspective, we highlight that the Caribbean offshore financial centers host the majority of international funds located in traditional offshore financial centers. Out of the approximately 4.6 trillion US dollars of BIS-reported international bank claims, located in offshore financial centers at end-2010, a significant share of 38% has been on the books of banks that are resident in the Cayman Islands, followed by the Bahamas with a share of close to 10%.[2] The United States have been the main user of the Caribbean offshore facilities, sending and receiving the majority of Caribbean offshore funds.

Third, we investigate how an onshore economy might be affected when domestic corporations conduct businesses offshore, by quantifying the impact of the transfer of funds, from the United States to the Caribbean, on corporate income tax revenues and commercial bank lending in the United States. It appears that the use of offshore financial centers has been associated with reductions in US corporate income tax revenues. This negative effect for the onshore economy, however, has to be related to the positive effect, namely, the increase in commercial bank lending.

And lastly, we discuss in detail the advantages that are offered by offshore financial centers to international corporations and individuals, making a distinction between tax motivated and non-tax motivated offshore transactions. The discussion focuses as well on international differences in the taxation of repatriated foreign-source income in onshore economies. Although the vast majority of offshore transactions seem to be perfectly legal, we discuss a number of anti-abuse measures, introduced in onshore jurisdictions, aimed at countering the unacceptable use of offshore centers. Along we provide some case studies of how corporations have used existing loopholes in the international tax system to avoid, or to evade the payment of income taxes.

The paper is organized as follows. Section 2 identifies those jurisdictions that are classified as offshore financial centers and tax havens, and it compares a number of indicators on tax and regulatory systems across offshore and onshore economies. Section 3 quantifies some of the offshore financial activity from a global perspective and, for the Caribbean, from a multilateral perspective. Section 4 investigates the potential effects of round-tripping on corporate tax revenues and bank lending in the United States, and Section 5 examines the transactions that take place offshore from a qualitative perspective. The final section concludes.

[2] The numbers presented here are based on the offshore financial centers that report to the BIS: Bahamas, Bermuda, Cayman Islands, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Netherlands Antilles, Panama, and Singapore.

2. OFFSHORE FINANCIAL CENTERS – DEFINITION AND IDENTIFICATION

Tax competition between jurisdictions has been used for centuries (Gordon (1981)). For example, in the middle age, the City of London exempted Hanseatic traders that became residents from income taxes. In the 18th century, the American colonies shifted trade to Latin America in order to avoid the payment of the excessive duties imposed by the United Kingdom. Today, many tax havens have become offshore centers with important international financial activity. Offshore centers gained importance in the 1960s with emergence of the Eurodollar market in London for offshore transactions across non-residents in foreign currencies (Einzig (1970), He and McCauley (2010)).

The concepts of offshore centers and tax havens are closely related, but they are not necessarily the same. Offshore financial centers, most often, share the following characteristics (Gordon (1981), OECD (1998), FATF (2000a), FSF (2000a), Zoromé (2007)): (i) low rates of taxes and milder regulation; (ii) a high level of bank or commercial secrecy; (iii) a high importance of banking and similar financial activities; (iv) availability of modern communication infrastructure; and (v) no currency controls on non-resident deposits in foreign currency. Opposed to the traditional type of tax havens, which might be used for trade or shipping purposes, offshore financial centers are characterized by an important international banking center, in which much of the transactions are executed in one of the major currencies.

The first offshore operations in the Caribbean have been established in the Bahamas in 1936, with the objective of providing investment services to wealthy international clients, an initiative supported by the British and Canadian governments (Suss et al (2002)). Within a few years, other British overseas territories, such as Anguilla, British Virgin Islands, and the Cayman Islands, started specializing in the provision of financial services to non-residents, and they developed laws which exempted non-resident persons (corporations, banks, institutional investors, individuals) from income and other forms of taxes. It appears that successive British governments encouraged their overseas territories and dependencies to establish offshore centers, in order to reduce their dependence on the United Kingdom (Hampton and Christensen (2002)). By the 1960s, the Bahamas and the Cayman Islands moved from poor subsidized economies to flourishing offshore financial centers (Owens and Sanelli (2008), Palan et al (2010)). Over time, other countries in the region followed this development strategy, including Antigua and Barbuda, Aruba, Barbados, Belize, Bermuda, Costa Rica, Dominica, Netherlands Antilles, Panama, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.

Table 1 provides a list of jurisdictions, classified by the OECD in 2009 as *tax havens* and *other financial centers,* which have to improve their international corporation in tax matters (OECD (2009b)). While 30 jurisdictions have been classified as tax havens, based on the OECD (1998) criteria, eight countries have been classified as financial centers, among which there are the regional financial centers hosted by the smaller European economies, such as Austria, Belgium, Luxembourg, and Switzerland. While the latter group of financial centers has agreed to the implementation of the international tax information exchange agreements in 2009, the five Caribbean offshore centers, covered in this study, have committed to the agreements already during 2000-02.[3] By 2012, all but three jurisdictions listed in Table 1 (Guatemala, Nauru, Niue) have been removed from this list (OECD (2012b)).

[- TABLE 1 ABOUT HERE -]

Table 2 compares a number of financial, fiscal, and regulatory indicators across a sample of offshore centers and advanced economies. Offshore centers have on average a population of 1.5 million permanent inhabitants, compared to a population of more than 80 million in the advanced economies. Accordingly, their international positions per inhabitant are much higher, with 3.4 million US dollars per capita, compared to 40 thousand dollars in the advanced economies. The majority of offshore centers offer non-resident persons exemptions from corporate income, capital gains, branch, and withholding taxes, while the advanced economies impose higher taxes, often in the range from 25 to 35%.[4] Instead of applying income taxes, offshore financial centers tend to charge fees for bank licenses, renewals, company registrations, and other services.

[- TABLE 2 ABOUT HERE -]

It appears that offshore centers tend to be less transparent, with an average of 10 bilateral tax information exchange agreements (TIEA), or double tax conventions that are in force (relying on the OECD criteria), compared to 16 of such agreements in the advanced economies. Withholding tax treaties are much more common in the advanced economies, which have on average 75 bilateral tax treaties in place, compared to an average of 12 treaties in offshore centers. In terms

[3] Between 2009 and 2012, more than 700 bilateral agreements have been signed, although many of them are not yet in force (see OECD (2012a) and Table 2).

[4] Where bilateral tax treaties across countries exist, the effective tax rates might be lower (Rohatgi (2007), Dharmapala (2008), Saunders (2010)). For instance, non-resident corporations that operate in advanced economies are often attracted by lower taxes on foreign-source income, such as the participation exemptions in Belgium and the Netherlands, or the tax-free zones in France. Similar, some countries exempt wealthy non-residents from taxes, when they move to that country, such as the City of London.

of bank regulation (capital and supervision), the difference between the offshore centers and the advanced economies appears less important.

Establishing offshore financial centers - a development strategy?

The fiscal and regulatory scheme, offered to non-resident persons, is often part of a policy to attract banking and other types of businesses that generate employment, growth, and revenues. In the case of small island economies, the provision of offshore facilities and services might be an important development strategy to generate growth and diversify exports. Indeed, small island economies face important comparative disadvantages relative to the large and advanced economies, including high transportation costs, limited natural resources, no bargaining power on global markets, and small labor markets (Srinivasan (1986), Briguglio (1995), Hampton and Christensen (2002), Woodard (2006), Owens and Sanelli (2008)). Their main advantage is their legal and fiscal independence allowing them to offer a more business-friendly environment (Rose and Spiegel (2007)). This is in line with the related theoretical literature, which suggests that, since small states do not have much other comparative advantages, they might have incentives to attract mobile capital, by offering lower tax rates to non-residents than those offered by large economies (Dharmapala and Hines (2006), Slemrod and Wilson (2006)).

The presence of an offshore center tends to have spillovers to the domestic economy (Hampton (1994)). The domestic financial sector benefits from networking, technology transfers, and better access to international capital (Higgins (2000)). While at the beginning, the offshore industry tends to demand low-skilled labor, over time, offshore centers tend to develop and attract an important network of accountants, advocates, and fund managers. The presence of offshore businesses typically generates the development of other sectors in the field of services (hotels and restaurants), infrastructure (telecommunication and transport), and tourism.

It is crucial for offshore centers to invest the offshore revenues in other exporting sectors to prevent that the economy becomes too dependent on the offshore business. In absence of a currency peg with a major currency, an independent currency would tend to appreciate in both real and nominal terms, resulting from the increased demand that originates in the financial center, and from a potential wage-price spiral - a modern type of Dutch disease. Note, however, that all Caribbean offshore financial centers either use the US dollar, or are pegged to the US dollar (Lane and Milesi-Ferretti (2010)). There is also a risk that the offshore sector becomes too dominant, in the sense that it might crowd out the more traditional sectors, as a result of inflation caused by demand pressures from the booming leading sector, and from shortages of labor supply in the other sectors (Hampton and Christensen (2002)).

[- TABLE 3 ABOUT HERE -]

In terms of macroeconomic performance, Caribbean offshore centers appear to have outperformed their neighbors over the period 1997-2010, see Table 3. We confirm that offshore centers in the region are typically small jurisdictions with on average less than 1 million permanent residents, compared to 7 million in the neighboring countries. In terms of GDP per capita, offshore financial centers outperform the region, with an annual average of 21,000 US dollars compared to 4,000 dollars in the other jurisdictions, although this does not necessarily imply that the local population earns that money, since much of the contribution to GDP tends to be accounted for by non-residents. It appears that there are two groups of offshore centers, i.e. those that are longer established and more recognized financial centers with high GDP per capita levels but lower growth rates (Bahamas, Bermuda, Cayman Islands), and those with a lower GDP per capita but that are catching up (Belize, Costa Rica, Panama, St. Vincent and the Grenadines).

In terms of public debt, there are no significant differences across offshore and non-offshore economies, with an average public debt of 40% of GDP. However, the lowest levels of public debt are recorded by the two major Caribbean offshore financial centers, Bermuda and the Cayman Islands, with ratios of less than 10% of GDP (see also Hines (2006)). Interestingly, offshore center governments appear to face lower interest rates on debt and to be better rated, possibly reflecting the higher expected future revenues and political stability. Inflation and the monetary policy rate have also been more moderate in offshore centers. Finally, there is evidence of positive spillovers to the domestic banking system, as indicated by important shares of domestic credits relative to GDP (71% in offshore centers compared to 38% in the other countries).

3. OFFSHORE FINANCIAL CENTERS – STYLIZED FACTS

In this section, we discuss from a historical point of view the flow of funds that has been routed through offshore financial centers, focusing on the multilateral flows across banks, located in the major banking systems, and banks that are resident in the Caribbean offshore financial centers. To this purpose, we use data from the Bank for International Settlements on the locational international banking statistics, which allow disentangling the international positions of headquarters, located in the onshore economies, and their bank offices located in offshore jurisdictions.

The locational concept is based on the residency of the reporting bank, i.e. headquarters report unconsolidated international positions in the home country, and their foreign offices report in the host country (BIS (2008)). Accordingly, a loan transaction financed by Citigroup's headquarter in

the United States, which is granted by its office in the Cayman Islands, to a corporation headquartered in the United States, shows up as an international claim (liability) of the Cayman Islands (United States) vis-à-vis the United States (Cayman Islands). This transaction would not show up in the consolidated banking statistics since, on an ultimate borrower/lender basis, the funds are granted by the US headquarter (Citigroup) to a company located in the United States, and as such the transaction never left the country.

For the current study, we obtained aggregate information on the international positions of banks located in the Bahamas, Bermuda, Cayman Islands, former Netherlands Antilles, and Panama over the period 1983Q4-2010Q3. Opposed to the publicly available data, our data allow for a disaggregation of the international positions of banks, located in the mentioned group of *Caribbean offshore centers,* vis-à-vis counterparties that are located in the following countries or regions: Africa and Middle East, Asia and Pacific, Australia, Canada, Emerging Europe, Euro Area, international institutions, Japan, Latin America and the Caribbean, New Zealand, other offshore centers (Bahrain, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Singapore), Sweden, Switzerland, United Kingdom, and the United States. Moreover, we have information on the currency breakdown of these transactions into the US dollar, Euro, Japanese Yen, and a residual category (other currencies than the mentioned ones).

One should note that our measure of international financial activity, i.e. BIS-reported international banking claims and liabilities, includes both interbank and non-bank positions, and that we do not have separate information on each of these categories. While the interbank positions should mainly capture the activity of multinational banks using offshore branches and subsidiaries, the non-bank positions tend to reflect the activity of commercial multinationals, which operate, for example, in the aircraft or shipping businesses, or in the field of intangibles. Moreover, it should be clear that the international bank positions, reported to the BIS locational banking statistics, do not only reflect the positions held by banks and corporations, but also by other non-bank investors, such as households, institutional investors, and/or mutual or hedge funds. And finally, our measure represents a lower bound for the total offshore activity that takes place in our sample of Caribbean offshore financial centers, since not all flows necessarily go through the banking system, but are done by other means, such as issues of securities and commercial credits.

The global perspective

In our study we refer to the following group of 12 *offshore financial centers*, based on coverage and classification of the BIS international banking statistics: Bahamas, Bahrain, Bermuda, Cayman Islands, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Netherlands Antilles, Panama, and

Singapore. It is important to note that our sample of jurisdictions focuses on *traditional* offshore financial centers, defined as small jurisdictions with an important financial activity of non-residents, and that we do not cover all small jurisdictions with offshore facilities, such as Monaco or Mauritius, due to data availability. Neither, we included in our sample the regional financial centers in Europe, such as Cyprus, Ireland or Switzerland, nor the international financial centers located in London, New York, and Tokyo, which host as well important offshore activities.[5]

At end-2010, the major offshore financial center has been the Cayman Islands, where there are 1.76 trillion US dollars of international claims, or 6% of the total of international claims, reported to the BIS. This makes the Cayman Islands the 6th largest international financial center world-wide, following the banking systems of the United Kingdom, United States, Japan, Germany, and France. Notably, more international funds are routed through the Cayman Islands than, for example, through the Netherlands or Switzerland.[6]

Out of the 4,585,031,000,000 US dollars of international bank claims (15% of the total), which have been on the books of banks, resident in offshore financial centers at end-2010, the majority of 38% has been located in the Cayman Islands, followed by Hong Kong and Singapore, with shares of close to 18%. To a smaller but still significant degree, the Bahamas, Jersey, and Guernsey complete the picture, with shares in the range from 5 to 10%. In terms of international claims per capita, the major offshore financial center are the Cayman Islands, with a population of close to 56,000 permanent residents and 31 million dollars of international claims per resident (Table 2), followed by the European offshore centers in Jersey and Guernsey, with approximately 3 million dollars of international claims per capita. Compared to that, there are only 10,000 dollars of international claims per inhabitant in the United States.

The flow of funds routed through offshore centers located in Asia, Europe, and the Caribbean for the period 1983-2010 is shown in Figure 1. In all regions, international offshore claims increased substantially, particularly in the period 2005-07 (BIS (2007)). Prior to the Asian crisis and Hong Kong's transition from a British colony to a Chinese province in 1997, the majority of international bank claims has been channeled through the Asian offshore centers, while, after that, offshore centers located in the Caribbean started attracting most of the funds. The global financial crisis of 2008-09, generally had a negative impact on international bank claims located in offshore

[5] As will be discussed in Section 5, many advanced economies offer non-residents similar offshore facilities to those that prevail in traditional offshore financial centers (Altman (1969), Burn (2005), Hampton and Christensen (2002), Hutton (2002), Rohatgi (2007)).

[6] In the past, the Netherlands have been considered as a tax (or treaty) haven, albeit their relatively high taxes rates, because of the large network of tax treaties and the presence of legislations that favor non-resident investments (Gordon (1981), Rohatgi (2007)).

jurisdictions. It seems however that this decrease is only temporary, notably in the Caribbean and in Asia.

[Figure 1 about here]

The multilateral perspective

We now turn to a more detailed analysis of the international financial activity that takes place in the Caribbean, and analyze the origins and destinations of the international funds. As can be seen in Figure 2, the raise in international bank claims and liabilities is strongly correlated over time, indicating that the funds, sent to banks resident in the Caribbean offshore centers, are invested abroad. Apart from some milder year-to-year reductions in the flow of funds in 1992, 1999, 2004, and 2008, international claims increase steadily from 294 billion in 1983 to 2,319 billion US dollars in 2010.[7] The largest surge in international claims occurred during 2005-07, when offshore funds nearly doubled.

[Figure 2 about here]

From a multilateral perspective, it appears that the United States are the main user of Caribbean offshore financial centers, as they appear to send and receive the majority of international funds, followed by the Euro Area, the United Kingdom, other offshore centers, and Japan (see Figures 3a and 3b, upper panels). Overall, the developed countries send and receive the majority of international funds. Historically, the Latin American and Caribbean region appears to have benefited from the presence of offshore financial centers in the Caribbean. As can be seen in Figure 3a for 1987, the region received more funds than it sent abroad. This finding is in line with the view that emerging market economies with less developed financial markets use offshore financial centers to issue international bonds, or alternatively, that offshore centers are used by international investors as a vehicle, or stepping-stone, when they invest in underdeveloped and sometimes less politically stable economies (Black and Munro (2010)). In other words, it seems that Caribbean offshore centers have played the role of a gateway for international investors who invest in Latin America.

[Figures 3a and 3b about here]

It appears that Caribbean offshore financial centers are used predominantly for *round-tripping*: funds located in one country (here, the United States) are sent offshore and, in return, the same

[7] Note that Bermuda and Panama started reporting only in 2001, however, their international positions are relatively small.

funds are re-invested in that country, as indicated in the network graphs shown in Figures 3a and 3b (upper panels).[8] It is important to note that round-tripping per se does not imply that corporations and individuals engage in transactions that are not in line with the law. In some sectors, such as in banking or international commerce, firms' profit margins and internal growth might increase, when they use perfectly legal offshore vehicles for their investments (McCauley and Seth (1992), IMF (2005), Rose and Spiegel (2007), US (2008a)). For instance, many US banks that operate through the Cayman Islands provide overnight accounts through offshore branches (sweep accounts). The de-location of overnight liquidity allows banks to save on costs, related to lower reserve requirements, and to pay clients more favorable interest rates (IMF (2005)). Finally, the vast majority of the incoming and outflowing funds are denominated in US dollars, as can be seen in the lower panels of Figures 3a and 3b, which show a breakdown of international claims and liabilities by major currency. Almost all funds are denominated in dollars, followed by the Euro and the Japanese Yen.

It is interesting to investigate the net positions, that is, to examine whether a particular country received or sent out, on net, funds from Caribbean offshore centers. In particular, it allows us to net out the international transactions, related to round-tripping, and to focus on the use of Caribbean offshore centers in the re-location of international funds from one country to another. In the same vein, it is interesting to analyze whether the international transactions have been associated with currency transformation. For instance, a dollar loan might be financed in Euros. At their peak in 2006-07, net claims (international claims minus international liabilities) represented close to 300 billion USD annually (13% of total claims). The major part of these net flows has been invested in the United States. This becomes apparent in Figures 3a and 3b (upper panels), since the United States appear to record higher levels of international claims, reported by banks located in the Caribbean, compared to the levels of international liabilities that originate in the United States (represented by larger nodes in the network graphs). It appears that a part of this net inflow to the United States in 2007 (Figure 3b) can be attributed to funds that originate in Switzerland, since banks located in Switzerland have sent more funds to the Caribbean than they have received. This is, however, again a tentative conclusion, since the incoming funds from Switzerland are not tracked, when they are in turn invested abroad. The currency transformation has been limited as indicated in Figures 3a and 3b (lower panels).

[8] This conclusion is only tentative, since we only know the location of funds, but not where a particular liability from one country is invested.

4. OFFSHORE FINANCIAL CENTERS – THE ONSHORE PERSPECTIVE

From the perspective of an onshore economy, there are many channels through which the use of offshore centers by domestic corporations affects the economy. Some sectors will benefit, other sectors not. Much of the existing literature on this topic focuses on the costs of offshore centers in the form of tax losses at home (US (2008b)), without sufficiently analyzing the benefits that arise, when domestic corporations use offshore financial centers. For instance, a tax loss might be more than mitigated, when corporations translate the regulatory and fiscal advantages into profitable investments at home.

The merits and pitfalls of round-tripping

In this section, we elaborate quantitatively, whether the funds, transferred from the United States to the Caribbean, have had an impact on government tax receipts and bank lending from a macroeconomic perspective. To this purpose, we merge the data from the BIS locational banking statistics with data on US government revenues and commercial bank assets. Although we experimented with different categories of bank assets and government tax receipts, we will focus here on commercial bank credits and corporate income taxes. Figure 4 shows a decomposition of US commercial bank assets (left-hand panel) and government tax receipts (right-hand panel) for the period 1983-2010.[9] While bank assets increased steadily, except in 2009, from close to 3 to 12 trillion US dollars (or 80% of GDP), tax receipts experienced two major drops in 2001-02 and 2008-09, principally explained by declines in personal current taxes. As of end-2010, tax revenues represented close to 4 trillion dollars (or 27% of GDP). On the other hand, Caribbean offshore claims vis-à-vis the United States made up approximately 1.5 trillion dollars (or 10% of GDP) in 2007.

[Figure 4 about here]

The correlation between corporate income taxes, bank credits, and international bank claims of banks, resident in the Caribbean, is significant, as can be seen in Figure 5. A higher growth rate in offshore funds tends to be followed by significant increases in bank credits (see, left-hand panel). At the same time, however, it appears that corporate income tax revenues tend to decrease, when funds are sent offshore (right-hand panel).

[9] The data on commercial banks is taken from Table H8 on assets and liabilities of US commercial banks, published by the Board of Governors of the Federal Reserve System, while the information on corporate income taxes comes from Table 3.1 on government current receipts and expenditures, published by the US Bureau of Economic Analysis.

[Figure 5 about here]

At this point, we cannot draw any conclusion about causality, since there might be other common determinants, such as GDP growth or unobserved factors, which are not taken into account in the scatter plots. There is as well a problem of reverse causality: do banks increase loans because they route beneficially some transactions through an offshore center, or do transactions to offshore centers increase because there is a lending boom, and loan books are securitized and send to offshore vehicles? In the case of corporate income taxes, one would expect that domestic tax receipts decrease, when more funds are sent offshore, as banks might save on non-repatriated income taxes, generated in offshore subsidiaries. It might be, however, that the relation between offshore funds and tax revenues is positive. To be more precise, if the use of an offshore entity implies that the onshore corporation has higher repatriated profits, the tax base might increase and, therewith, corporate income tax receipts. Indeed, the overall effect only realizes over time. On the other hand, there could be a positive (inverse) causality from taxes to offshore funds, since the relative advantage of using offshore centers increases with higher tax burdens at home.

To disentangle the effects of offshore funds on US corporate tax revenues and banks credits, we estimate the following regressions on a quarterly frequency:

$$\textit{Bank credit}_t = F(\textit{OFC Funds}_{t-j}, \textit{Macro Controls}_{t-1}, \textit{Banking Sector Controls}_{t-1}, \textit{Crisis}_t)$$

$$\textit{Corporate income tax}_t = F(\textit{OFC Funds}_{t-j}, \textit{Tax Base \& Rate Controls}_{t-1}, \textit{Crisis}_t),$$

where *Bank credit* denotes the annual growth rate of bank credit, granted by FDIC-insured commercial banks, and *Corporate income tax* represents the annual growth rate of current corporate income tax receipts.[10] The variable *OFC Funds* is the annual growth rate of international claims of bank offices, resident in the Caribbean vis-à-vis the United States. The subscript *t-j* indicates that we vary the lag structure of offshore funds, since it might take time until the entire effect realizes. Finally, the control variables include a parsimonious set of control variables that are potentially important determinants of bank lending and corporate income tax receipts, respectively. To prevent the mentioned endogeneity problems, caused by reverse causality, we use predetermined explanatory variables in the regressions, and we check whether the results are robust to the inclusion of deeper lags of offshore funds. For each dependent variable, we estimate six specifications, starting from a small set of control variables, to which we gradually add more

[10] Our measure of bank credit is defined by the sum of commercial, industrial, real estate, and consumer loans plus securities in bank credit, including mortgage backed securities, while interbank loans are excluded. The annual growth rates are seasonally and break adjusted.

explanatory variables. The regression results, estimated by OLS for the period 1984Q4-2010Q3, are shown in Tables 4 and 5.

For commercial bank lending, we estimate a dynamic specification and include the annual loan growth, lagged by one quarter, as explanatory variable. In the first specification, shown in column 1 of Table 4, we include as well the growth rate of annual real GDP and the federal funds rate, to control for loan demand and the stance of monetary policy. It appears that bank lending is significantly autocorrelated, and that a higher growth in GDP is associated with higher bank lending. The coefficient associated with the federal funds rate is insignificant. The introduction of Caribbean offshore funds, shown in the second column, reveals that a higher growth rate of offshore funds is followed by significant increases in bank lending. More specifically, a 10% higher growth rate of offshore funds is followed, after one quarter, by a 0.7% higher growth rate in lending, the long-run effect being 0.7%/(1-0.5)=1.4%. We next include, in columns 3 and 4, a crisis dummy and its interactions with GDP, the policy rate, and offshore funds to take into account the effects of the recent financial crisis, and the possibility that the relationships between bank lending and the explanatory variables might have changed. Focusing on specification 4, we find that the crisis had a significant negative impact on the growth rate of bank lending in the order of 9%. While the coefficient associated with offshore funds remains significant, this is not the case for GDP growth. The only significant interaction term is the one associated with the federal funds rate. Contrary to our expectation, the relation between the interest rate and bank lending has been positive during the crisis, which might be due to the fact that banks shied away from lending, despite the decrease in the Federal Reserve Bank's policy rate.

[Table 4 about here]

In the final two specifications, we add other aggregate banking sector-specific variables, which have proven to be important determinants of banking lending. To be more precise, we include the ratio of commercial bank deposits, borrowed funds (non-deposit funding net of trading liabilities and hybrid debt instruments), and liquid assets (cash assets and Fed funds & reverse repos) over total assets.[11] As a measure for capitalization, we include the total risk-based capital ratio.[12] Focusing on the final specification, we find that a higher level of deposits relative to total assets is associated with higher lending, as is the case with a higher risk-based capital ratio, which seems intuitive and in line with the bank lending channel literature. Most importantly, the results

[11] The variables are, as in the case of bank credits, taken from Table H8 on banks' assets and liabilities, published by the Board of Governors of the Federal Reserve System.

[12] Because there is no information on bank capital in Table H8, we resort to the Quarterly Banking Profiles, provided by the Federal Deposit Insurance Corporation. We use the regulatory total risk-based capital with the caveat that it is only available from 1990 onwards.

concerning offshore funds are robust across all specifications. As a final check, we re-estimate the final specification, using each time a different lag, *t-j*, for offshore funds. Figure 6 plots the estimated OFC coefficients as a function of j=1, …, 12 quarters. The results suggest that bank lending increases significantly, when funds are sent offshore in the first two quarters. The relation then inverts during the fifth and sixth quarters, before becoming positive again in the 10th quarter. Based on our dynamic specification, we calculate the long-term effect on bank lending, by summing up the long-run effects of the significant coefficients. It appears that the accumulative effect is positive and equal to 0.08, which implies that a 10% higher growth rate of offshore funds increases the growth rate of commercial bank lending by 0.8%.

[Figure 6 about here]

As for corporate income taxes, we estimate a regression that has been used in the literature on the estimation of tax revenue elasticities (see, amongst others, Koester and Priesmeier (2012)). Basically, the econometric model explains changes in tax revenues by changes in the tax base, where the estimated coefficient can be interpreted as the short-term tax base elasticity of tax revenues. As a measure for the tax base, we use gross domestic business value added, defined as GDP net of the gross value added by households, institutions, and general government, where we distinguish between the non-farm and farm sectors. As before, we estimate six specifications in which we gradually increase the number of explanatory variables. The regression results are shown in Table 5. We do not interpret the first two specifications, because they do not take into account the important effects of the crisis periods on corporate tax revenues. In column 3, we control for these extreme events and include crisis dummies for 1991, 2001, and 2008-10, along with various one-quarter dummies during 2009-10, when the growth rate of tax revenues exhibited important instability. As can be seen, the short-run elasticity of tax revenues for business value added is significant only in the case of the non-farm sector, which is not surprising, since the farm sector makes up less than 2% of the value added by businesses. The short-run elasticity is equal to 1.58, indicating that on average a 1% higher growth rate in business value added increases the growth rate of corporate income tax receipts by 1.58%, a magnitude in the upper range of previous estimates (Bruce et al (2006)).[13] The coefficient of offshore funds is significantly negative, implying that a 10% higher growth rate of offshore funds is associated with a 2% lower growth rate in corporate tax revenues.

[13] We experimented also with another measure of the tax base, namely, the corporate income, subject to tax, from Table 15 of the Statistics of Income published by the Internal Revenue Service, with the caveat that we had to interpolate the annual series to the quarterly frequency. In this case, the elasticity was close to 0.7. Our main results, however, remained unchanged.

[Table 5 about here]

The econometric results are robust to the inclusion of the crisis interactions and the statutory corporate tax rate, see columns 4-6.[14] The economic downturns, especially those in 2001 and 2008-10, had a significant negative impact on the growth in corporate tax revenues, in the range of 30 to 40%, explained by important drops in corporate profits. Most importantly, the coefficient associated with offshore funds remains significant and negative, however, only during normal times, as suggested by the positive and significant interaction term with the crisis dummy. The statutory tax rate is only significant in the final specification, in which we restrict the sample period to 1990-2010. As for bank credits, we re-estimate the final specification (column 6), using each time a different lag, *t-j*, for offshore funds, and we plot the coefficients in Figure 6 for j=1, …, 12 quarters. The offshore coefficients are stable and significant in the first two quarters and in the fourth to sixth quarters, suggesting that the accumulative effect is somewhat higher.

It is important to note that our findings do not imply that the reduction in corporate income taxes is necessarily associated with illegitimate tax avoidance and/or evasion. Rather, it might be a form of tax advantage, the United States are offering to international banks and multinational enterprises relative to other immobile corporations. As we will discuss in more detail below, the corporate income tax rate in the United States is, with 35 to 39%, relatively high compared to international standards. Allowing domestic banks and corporations to conduct some of their businesses offshore might very well be related to the government's objective of increasing their international competiveness, by reducing their tax burden, while maintaining a relatively high corporate income tax for the other businesses at home.

Overall we have identified a positive and negative effect of the offshore activity on the US economy. The analysis represents a first step in understanding why onshore economies seem to tolerate that domestic corporations conduct parts of their businesses offshore. While the government tends to lose some corporate income tax revenues, the economy benefits indirectly from a higher availability of bank credits. At this point, we cannot draw any welfare implications, since one would have to include other effects into the analysis, and compare those to an unknown counterfactual, i.e. having no offshore funds in the Caribbean.

[14] The statutory tax rate is taken from Table 24 of the Statistics of Income, published by the Internal Revenue Service. Note that we use the tax rate for the highest level of income.

5. OFFSHORE CENTERS – THE INVESTOR PERSPECTIVE

Offshore financial centers provide a wide range of financial services to international corporations and individuals. The decision of a corporation to manage some of its activity and investments in offshore centers depends primarily on commercial, economic, and political factors. Onshore companies are typically interested in stable political and economic environments, business-friendly regulatory and fiscal frameworks, the presence of specialized advisors, and strong legal systems, which guarantee property rights and bank secrecy. Other factors that determine the choice for an offshore center include the existence of a modern business infrastructure, the geographical location and time zone, and the official language spoken in the offshore center.

Although tax mitigation is not the main objective, many offshore financial centers provide important tax benefits on offshore transactions and activities, defined as operations that are carried out abroad (Table 2). Given the variety of factors that influence the decision to go offshore, it is difficult to identify a single reason for which a company has decided to shift certain activities to an offshore financial center. In some cases, the decision might be tax-motivated. In other cases, it might be the political stability of the offshore center, or the presence of a highly skilled and specialized labor force. Another difficulty in this context is the identification of legitimate and illegitimate, or desired and undesired offshore activities from the perspective of onshore economies. The identification problem is related to the bank secrecy and client confidentiality, offered by offshore centers and other jurisdictions, under which banks are not allowed to provide the authorities information about their customers, unless there is, for example, a criminal offense. The strict application of bank secrecy has in some cases created incentives to conceal the ownership of assets, with the aim to save on income taxes at home. The mitigation of this problem requires, foremost, an efficient cooperation of the onshore and offshore authorities in the exchange of bilateral information on tax purposes.

In the following, we will discuss the major categories of offshore transactions and activities, which range from non-tax to tax motivated operations, and from legitimate to illegitimate activities (Gordon (1981)).

Non-tax motivated transactions

The *non-tax motivated use* of offshore centers involves transactions and operations that do not have, or only a marginally have an impact on tax payments in the onshore economy. An example would be the establishment of an offshore branch, which is fully taxable in the home jurisdiction of the holding company. The onshore company would still benefit from certain regulatory and legal advantages of the offshore center, or from the offshore center's specialization, and/or the

presence of peers, other multinational corporations, and investors. Offshore financial centers are also used by holding companies for efficiency reasons. For instance, operating costs might be reduced through the centralization of group services in an offshore entity, or through its assistance in the efficient movement of capital and resources across borders (Rohatgi (2007)). It appears that onshore residents, often from smaller markets, use the presence of international investors in offshore centers to issue internationally corporate bonds, and to attract other forms of capital (Black and Munro (2010)). In other words, both the issuers and investors benefit from the liquidity, diversification, and specialization of the offshore market.

International corporations might use offshore financial centers to manage different types of risks, associated with their international scope. An early example is the Eurodollar market in London, which allowed non-residents to separate country risk from currency risk, using US dollar deposits that are placed outside the United States (He and McCauley (2010)). Offshore companies are also used to manage businesses in unstable countries, by having offshore any profits and assets that do not need to be physically in a country (see, amongst others, Feist et al (1999)). For global players, offshore centers provide other convenience factors, such as the presence of international accounting standards and language, or the geographical location.

Wealthy individuals might transfer parts of their assets to offshore jurisdictions, by establishing asset management funds, or trusts, which manage, protect, and distribute an arranger's assets. The settler of an offshore trust, typically, transfers parts of his/her wealth to a trustee, who in turn manages the investment and distribution of capital gains to the beneficiaries (fixed interest trusts), or at his/her discretion (discretionary trusts), either during his/her lifetime (inter vivos trusts), or after death (testamentary trusts), see Ramjohn (2013). Moreover, individuals who face unlimited liability in the home jurisdiction may restructure the ownership of their assets, through offshore trusts to protect those assets from domestic lawsuits (Suss et al (2002)).

Transactions with a tax effect in line with the law

Many corporations and individuals are interested in the tax advantages provided by offshore centers, as they tend to offer low income taxes for non-resident persons, see Table 2. Tax advantages, however, depend to a large extent on how onshore economies tax foreign income of domestic persons. In this respect, it is important to distinguish between the taxation of foreign corporate income from *active* business activity, and *passive* income generated from foreign capital investments. For example, the United States themselves do not tax most of the passive income that is generated in the United States, such as dividends on US stocks, when the income is gained by non-residents in an attempt to attract foreign investments (US (2008b)).

As such, we will first discuss how income from active business activities of international corporations is taxed, and then turn to a discussion of how the taxation changes, when non-residents receive passive capital gains from abroad. It has to be noted that tax advantages depend on other factors such as the nature of income (dividends, interests or royalties), the corporate structure (holding, subsidiary, partnership, trust …), and the existence of bilateral or multilateral tax treaties.

Corporate taxes on foreign dividend income

The majority of governments apply taxes to income that is generated within their borders, independent of whether the income is generated by domestic or foreign corporations. This implies that foreign income of a domestic firm is already taxed by a foreign government. To avoid double-taxation, two alternative approaches are used: the world-wide system and the territorial, or source-based system (Dharmapala (2008), Saunders (2010), Huizinga et al (2011), Barrios et al (2012)).

The *world-wide system* of taxation is used by few countries such as the United States, the United Kingdom prior to 2009, Greece, and Mexico. Under this approach, foreign income of *controlled foreign corporations* is taxed, once it is repatriated, such as a dividend paid by a foreign subsidiary to a parent company. To circumvent the double-taxation of this income, home country governments distribute tax credits on foreign income in the magnitude of the taxes that have already been paid. To be more precise, assume that t_i denotes the *corporate income tax* of a domestic corporation, located in jurisdiction *i*. For instance, a French bank would pay currently t_{FR} = 33% of taxes on income generated in France, and a US bank would pay t_{US} = 39% of taxes on US-based income.[15] If this was the whole story, a US bank would get a tax credit of 33% on the repatriated income from France, and it would have to pay the difference of $t_{US} - t_{FR}$ = 39% - 33% = 6% to the US authorities.

The corporate income tax of foreign entities might, however, differ from the tax rate for domestic institutions, as countries apply *bilateral non-resident (dividend, …) withholding taxes*, once foreign institutions repatriate their income (Huizinga et al (2011), Barrios et al (2012)). Let us denote by w_i^p the bilateral withholding tax, levied by country *i,* on repatriated income of a subsidiary, located in country *i*, but headquartered in country *p*. For example, France does not levy any dividend withholding taxes on EU corporations, w_{FR}^{EU} = 0%. It does, however, levy withholding taxes on US corporations, w_{FR}^{US} = 5%, or on Australian corporations, w_{FR}^{AU} = 15%. Withholding taxes are often the result of the reciprocity principle (what you do, I do as well), or they can be used as an entry

[15] Note that 39% is the maximal corporate income tax rate in the United States, which applies to annual income from 100,000 to 335,000 US dollars. Lower or higher incomes are taxed at lower and varying rates.

barrier for corporations from particular countries. Moreover, such withholding taxes provide non-resident companies an incentive not to repatriate income, but rather to re-invest it in the source country.

The *effective income tax rate* of a foreign entity, headquartered in country *p*, that repatriates its after-tax income from country *i,* is therefore $T_i^p = t_i + w_i^p * (1-t_i)$. For example, a US bank operating in France pays to the French tax authority T_{FR}^{US} = 33% + 5%*(100-33%) = 36.35% of repatriated income, while it pays in Cyprus T_{CY}^{US} = 10% + 0% = 10%, since Cyprus levies a 10% domestic income tax, and it does not levy a withholding tax vis-à-vis the United States.

Under the world-wide system of international taxation, the domestic tax authority would net out the effective tax rate, the domestic corporation has paid to the foreign government, before applying the domestic tax (foreign tax credits). For example, a US bank would get a tax credit of T_{FR}^{US} = 36.35% on French income, and it would have to pay the difference between the domestic corporate income tax and the foreign effective income tax, 39% - 36.65% = 2.35%, at home. Or, it would get a tax credit of T_{CY}^{US} = 10% on income from Cyprus and pay 29% on the foreign income to the US tax authority. If, in any case, the foreign effective income tax rate is higher than the domestic income tax, then, on the other hand, the institution does not have to pay domestic income tax on foreign income. Rather, the company gets additional (unused) foreign tax credits, which can be used to reduce domestic taxes on repatriated foreign income from other countries (Huizinga et al (2011)).

The *territorial or source-based system* of taxation is used by most other advanced economies. It effectively exempts foreign income of domestic corporations from home country taxation, as long as this income stems from *active* and normal business operations, rather than from *passive* income generated by, for example, portfolio investments. Under this system, the *effective income tax rate* for a corporation, headquartered in country *p,* on its repatriated income from country *i* is equal to the sum of the domestic corporate income tax rate, which prevails in the host country, and the withholding dividend income tax on repatriated after-tax income for foreign institutions, $T_i^p = t_i + w_i^p * (1-t_i)$. For example, a French bank would pay to the US tax authorities an income tax on repatriated US-based income of T_{US}^{FR} = 39% + 5% * (100-39%) = 42.05%, and it would pay nothing at home. Similar, it would pay an effective income tax on Cyprus-based income abroad, in the magnitude of T_{CY}^{FR} = 10% + 0% = 10%, and nothing at home.

It appears that corporations from countries with the territorial system have stronger incentives to shift their activities offshore, since offshore centers tend to provide more favorable taxation schemes for non-resident corporations than at home. In theory, such an incentive would not exist

in countries that apply the world-wide system. In practice, however, prior to the repatriation and taxation, firms might prefer to re-invest foreign income in (active or passive) assets that are held abroad (Dharmapala (2008)). If the repatriations are strategically made, they can give rise to a tax deferral advantage, by reducing the present value of tax liabilities at home (Hines (1994)), or by allowing to repatriate foreign income, when a company reports high losses at home, such as in the case of a large acquisition or investment. Similar, corporations might wait for *repatriation holidays,* such as the American Job Creation Act of 2004, which enabled US corporations to repatriate foreign profits at a reduced tax rate during 2004-06 (Blouin and Krull (2009), US (2011)).

More recently, a debate emerged in the United States on whether to continue the world-wide system of international taxation, and whether to reduce corporate tax rates (Gravelle (2012, 2013)). Both, the Bush and Obama administrations seem to have favored a move to the territorial system. Under a territorial system, the income from low tax countries would be more likely repatriated and invested in the United States. The opponents however argue that the territorial system could generate incentives for US corporations to shift their activities abroad and save on income taxes, because the repatriation of income from low-tax countries is less costly.

Taxes on foreign interest income

Interest payments on capital are taxed according to the *residence principle,* under which passive interest income is taxable in the residence country of the investor, regardless of where it is earned. Most countries impose, however, withholding taxes on income from certain passive investment activities, gained by non-residents (Gustafson (2006)). Given that corporations and individuals have to self-report foreign source interest income, the effectiveness of the residence principle depends to a large extent on the exchange of tax-relevant information across countries. If individuals, or corporations choose not to report foreign passive income, and the jurisdiction in which the assets are placed does not report the income to the source country authorities, some persons might have incentives to conceal, or to understate their assets, held abroad. As such, different anti-avoidance measures have been put in place across jurisdictions, which aim at circumventing such illegal activities (discussed below).

Examples of offshore activities with tax effects

Activities that have a tax effect in line with the law include the formation of a stand-alone offshore subsidiary for banking, shipping, or aircraft and construction businesses. Ideally for taxation purposes, all major activities would be performed by the offshore entity (services, management etc.), which would have a *physical presence* in the offshore economy. Because many offshore centers offer low corporate taxes coupled with low withholding taxes, the tax advantage arises

either because home countries do not levy income taxes on foreign-source income (territorial system), or, they allow its deferral (world-wide system).

Traditional offshore centers

Companies established in traditional offshore centers are most often structured as intermediate entities in the form of subsidiaries, or parallel companies, which are controlled by an onshore corporation (see, amongst others, EBA (2013)). The offshore companies are useful for the tax-friendly administration of income-generating assets and a group's financial management. They may also engage in service activities, such as copyright ownership and distribution, co-ordination services, overseas commercial activities, or insurance services.

A wide range of services has been created in the traditional offshore centers over the last decades, using a variety of offshore entities, such as offshore banks, international business corporations, investment funds (hedge or private-equity funds), special purpose vehicles, and captive insurance companies (FSF (2000b)).[16] For instance, businesses in the Cayman Islands are primarily focused on banking (interbank booking, private banking, overnight accounts, securitization), insurance (health care captives, worker compensation insurance, product liability), and trust management (asset, mutual, and hedge funds), see Suss et al (2002), IMF (2005), Owens and Sanelli (2008), and US (2008a). Apart from offering non-resident companies no direct taxes on non-resident income, the Cayman Islands attract a large volume of US-related financial activity due to regulatory advantages, a sound and reliable legal system, and the possibility to manage the offshore entities from abroad (US (2008a)). Bank claims represent the major part of the financial flows between the United States and the Cayman Islands, as many US banks provide overnight accounts through offshore branches (sweep accounts), see IMF (2005) and US (2008a).[17] The de-location of overnight liquidity allows banks in turn to save on costs, related to lower reserve requirements, and to pay clients more favorable interest rates (IMF (2005)). The second largest group of financial institutions in the Cayman Islands is related to the mutual funds industry, composed of hedge funds, private-equity funds, and special purpose vehicles, engaged in portfolio investment and securitization. Other traditional offshore centers have specialized in complementary areas, such as captive insurance in the Bahamas, or protected cell companies in Jersey and Guernsey.

[16] Box 1 in the Appendix provides more details on these vehicles.

[17] US persons seem to be attracted by the presence of foreign investors, the insolvency laws, and the tax advantages offered by Cayman entities, which might earn income from active business transactions with unrelated persons. Moreover, US tax-exempt entities, such as university endowments and pension funds, may invest in Cayman hedge funds. In 2008, close to 300 banks have been licensed in the Cayman Islands, of which one third were based in the United States, holding approximately 2 trillion US dollars of assets (US (2008a)).

Treaty havens

Multinational companies route particular activities through non-traditional offshore jurisdictions, such as *treaty havens,* which allow non-residents to manage in- and outflowing foreign income, using intermediary companies. The holding company itself benefits from the large network of bilateral tax treaties of the treaty haven. While tax treaties reduce withholding taxes on inbound income, the treaty havens themselves tend to exempt the qualifying entities from corporate income and capital gain taxes, and they levy only marginal withholding taxes on outbound payments (Rohatgi (2007)). Treaty havens, such as the Netherlands, Cyprus, or the State of Delaware are often used as *direct* or *stepping-stone conduits* for *flow-through income*. Intermediate companies in treaty havens also help reducing international taxes, by allowing for changes in the nature of income, as, for example, receiving interests or royalties and paying out dividends, or, profits might be extracted from high-tax jurisdictions and transferred through a treaty haven, prior to the repatriation.

[Figure 7 about here]

An example of a stepping-stone conduit is provided in Figure 7, which illustrates how an offshore company can save on withholding taxes. Instead of repatriating the income directly from the country in which the profit has been generated, a company might route the income through a subsidiary, located in a treaty haven. Let us assume that an offshore company grants a loan of 100 dollars to an onshore country A, yielding an after-tax profit of 10% in country A.[18] Moreover, country A levies a withholding tax of 30% on repatriated profits, sent to the offshore center. Thus, if the offshore company would repatriate the 10 dollars of interests directly, it would earn an after-tax profit of 7 dollars, given the offshore center does not levy taxes on corporate income. Now assume that there exists a treaty haven, which has a tax treaty with country A, guaranteeing that no withholding tax is levied on repatriated profits from country A to the treaty haven. In this case, the offshore company can lend the 100 dollar loan to its subsidiary, located in the treaty haven, at an interest rate of 10%, which in turn can lend the loan to country A. In principle, the subsidiary would have to pay income taxes in the treaty haven, however, profits are reduced to zero, since the outgoing interest payments, transferred to the parent company, can be deducted from the incoming profits from country A. The offshore company uses the treaty haven as a stepping stone to receive the income of 10 dollars from country A, without paying the withholding tax.

[18] The example is adapted from Rohatgi (2007).

Special concession havens

The role of traditional offshore centers in hosting large holding companies is usually limited, because international holdings are interested in large treaty networks. In addition to the business-friendly environment (taxes, regulation, specialized labor force) in the base country, holding companies are interested in the treaty provisions, as they tend to reduce withholding taxes on dividends, royalties, and interests received from other countries (Rohatgi (2007)). Holding-friendly provisions are increasingly offered by the advanced economies, such as the *participation exemption* rules in Belgium and the Netherlands, or the *tax-free zones* in France. Such *special concession havens* appear to act as low-tax jurisdictions for non-resident companies, providing special tax regimes on international business activities.

Tax avoidance versus tax evasion

Tax avoidance and tax evasion are difficult to distinguish. Tax evasion is a situation, in which a person intends to avoid tax payments, where there is knowledge of a liability (Gordon (1981)). It usually involves the intentional concealment of facts from the tax authorities, and it is illegal. Intended tax evasion is considered as a criminal offence, while unintended evasion, unless due to gross negligence, typically implies the payment of past unpaid taxes (Rohatgi (2007)). Tax evasion includes the non-reporting of taxable activities, the concealment of the beneficial ownership, deductions of expenses that have not been incurred, or excessive deductions.

Unlike tax evasion, tax avoidance is not a criminal violation. It includes transactions with the purpose of gaining a tax advantage, or avoiding paying taxes. Generally, tax avoidance is legal, but it is disliked by the authorities. Many countries make a distinction between unacceptable and acceptable tax avoidance (Rohatgi (2007)). Unacceptable tax avoidance represents an improper use of tax laws and/or tax treaties, and it often involves the creation of complex structures, by which the taxpayer claims a gain, or an expenditure, which otherwise would not have existed (Rogathi (2007)). Acceptable tax avoidance reduces the tax liability through the movement of persons or funds, intended by legislation. For example, a business might be financed with debt, and not with equity, to take advantage of higher interest payment deductions. Or, an activity might be set up as a corporate entity, rather than as a partnership.

Aggressive tax planning methods

Aggressive tax planning takes advantage of unintended legal or administrative loopholes, and most often, such transactions fall into the category of tax evasion (Gordon (1981)). An example would be a multinational corporation that artificially shifts income from onshore markets to an offshore entity, using transfer pricing methods not subject to the *arm's length principle* (for example, inflating the price for services). Aggressive tax planning relies on difficulties in the

information gathering across different jurisdictions, and it is often intended to reduce home country taxation by avoiding, or excessively postponing, the payment of taxes. In some cases, aggressive tax planning involves *inflating the price* for inter-subsidiary debts (lend at expensive rates to subsidiaries in high-tax countries, since they can deduct interest payments from income tax), or *shifting profits* from a subsidiary, located in a high-tax country, to a subsidiary in a low-tax country, although no active business has taken place there. Some offshore users might as well try to create *complex ownership structures,* or transfer funds via several offshore corporations, to avoid that the foreign income is classified as income of a controlled foreign cooperation.

Some multinational companies have used, what is called *thin capitalization,* to avoid the payment of taxes. The process involves the use of interest-bearing debt, rather than equity, for financing purposes (see, amongst others, Misey (1991) and Gravelle (2013)). The main objective is to benefit from tax advantages of external debt, since interest expenses are deductible from income taxes, and often subject to lower withholding taxes than dividend payments. Although the loan might be provided at the market interest rate, the size of the loan might not be justified by normal business considerations.[19]

Another form of tax avoidance involves *transfer pricing,* which refers to the valuation process for transactions between related entities. Improper or aggressive transfer pricing leads to unjustified profit transfers across subsidiaries in different jurisdictions, by artificially inflating or deflating prices for services to increase, or to reduce taxable profits of the involved companies (Rohatgi (2007), Dharmapala (2008)). Transfer pricing problems are not always associated with unjustifiable tax avoidance, as they sometimes involve the exchange of goods and services, which is hard to value (such as transfers of intangible property rights, or services in the form of managerial assistance). As mentioned before, pricing rules should follow the arm's length principle, which states, that a company should charge the same price for a transaction to a related company, as it would charge to an unrelated company (IDFB (2005)).

Perhaps the most important tool in the process of tax evasion is the non-reporting, or concealment of the *beneficial ownership* of a controlled foreign cooperation. Although national tax legislations differ remarkably across jurisdictions, holding companies have to include in their taxable income, a part of the income, they earn in controlled foreign corporations. In response, some companies have tried to structure their foreign entities in such a way, so that it is difficult to

[19] To create incentives that non-resident companies finance themselves with equity, rather than with external debt, Belgium has introduced the concept of *notional interests* (Saunders (2010)). Under this system, equity is treated as external debt, with a notional interest rate equivalent to that of 10-year government bonds, and it is deductible from Belgian-source income.

identify their ultimate ownership (see, amongst others, Gravelle (2013)). It appears that tax evaders have used some particular jurisdictions that offer the required secrecy space for such purposes, including offshore and onshore economies. Fraudulent schemes often combine the avoidance of being classified as a related company and improper transfer pricing (Gordon (1981)).

Case studies of fraudulent activities

The example, illustrated in Figure 8, involves aggressive transfer pricing and the non-reporting of the beneficial ownership.[20] Imagine that a company X (from country X) plans to license a patent from an unrelated foreign investor Y (from country Y). Let us assume that the royalties will be 100 dollars per year, implying for company X an after-tax cost of 61 dollars, assuming that deductions are made at a tax rate of 39%. Instead, company X and the investor Y set up a seemingly independent offshore corporation Z, which is used as an intermediary. The investor Y licenses, in turn, the patent to the offshore corporation, which itself sub-licenses the patent to company X, for 200 dollars. While X pays now 200 dollars, its after-tax cost is 22 dollars (200 minus 78 of tax deductions minus 100 dollars of artificial *markup*). The company X owns now 100 dollars in the offshore company Z.

[Figure 8 about here]

Another example of a sequence of illegal transactions is known as the *daisy chain* scheme, which has been used to avoid energy price controls in the United States (Gordon (1981)). In one case, a US company bought domestic oil, and sold it to a seemingly unrelated offshore entity at a low price. The oil was then sold through a number of companies, before, being purchased by a foreign subsidiary of the original corporation, which itself then sold the original oil back to its parent company at a high price. The substantial *markup* was left in an offshore company.

Some major corporate scandals involved the use of a large network of offshore vehicles to circumvent regulation and taxation. In the early 1990s, the *Bank of Credit and Commerce International* (BCCI), once a major international bank, had to be intervened by a number of national regulators, because it was involved in criminal activities. The bank's global reach and corporate structure was designed, with two holding companies in different jurisdictions, to circumvent that one single authority was in charge of the consolidated supervision of the group (Herring (2005)). The *Enron* scandal, from the early 2000s, highlighted that a major and well-established corporation has misused certain offshore centers and onshore-offshore facilities in Delaware to avoid tax payments and to conceal debts and losses. Another anecdotal evidence suggests that, prior to its merger with Arcelor, Mittal Steel has been involved in investments,

[20] The example is adapted from Gordon (1981).

routed from an European country to Liberia, using several secrecy and treaty havens as conduits, so as to avoid the payment of income taxes in Liberia, and to reduce taxes on repatriated profits in Europe (Siakor et al (2006)).

Filling the loopholes

The advanced economies have repeatedly taken steps to deal with the illegitimate use of offshore centers. Such *anti-abuse measures* include changes in tax legislation, currency controls, and tax information exchange agreements (Gordon (1981), Christensen and Hampton (2000), Keen and Ligthart (2006), Johannesen and Zucman (2012)). Some of these measures are unilateral, and they correct deficiencies in the legal system and fill unintended loopholes. Other provisions are multilateral with a focus on the improvement of transparency, and the sharing of tax-relevant information across a number of countries.

The earliest anti-abuse measure in the United States is the *accumulated earnings tax,* which imposes penalties on corporations that have excessively high accumulated earnings abroad (Gordon (1981)). The accumulated earnings tax is a measure to discipline corporations that try to avoid, or to defer shareholder income tax on foreign income. Another anti-deferral measure has been to require that shareholders of US *passive foreign investment companies*, such as mutual funds, have the obligation to include foreign income and/or capital gains into their taxable income at home. Over time, governments have introduced other provisions, with the objective to improve the ability of the tax authorities to detect and circumvent illegitimate tax practices, by providing local tax commissioners the authority to impose auditing on short notice, or, to consolidate the accounts of related businesses that have not accurately distributed, or priced, their income.

The Qualified Intermediary program

The United States do not impose taxes on particular US-source income, gained by non-residents, such as capital gains on stocks and real estate, in an effort to attract foreign investment. When the income, however, is earned by an US resident person, it is taxable. This legislation obviously creates incentives for some US persons to conceal their ownership, before investing in the United States. In response, the US legislation has introduced the Qualified Intermediary (QI) program in 2001, which obliges domestic and foreign banks to either provide the identity of account holders that invest in the United States, or, to withhold a certain amount of taxes on income earned by US residents, see US (2008b).

The QI program applies to financial institutions established in the United States, and to foreign financial institutions, when they buy, or sell securities through accounts at banks, resident in the United States. The procedure applies, when an investment is executed in US dollars. In order to

become a qualified intermediary, the institutions have to agree to follow a set of rules, such as accepting external audits, following the know-your-costumer principle, and providing tax-relevant information on the accounts of US persons. If the application is rejected, the foreign institution is classified as a non-QI institution. It can still engage in deals with US securities, however, the foreign bank has the obligation to share the information on the identity of the investor, with the US bank through which the transaction is routed. An institution with the QI status, on the other hand, has the choice: it can either report the identity of the investor, or withhold 30% of the income paid to the accounts of US residents. In other words, the QI status allows foreign institutions to preserve bank secrecy and client confidentiality.

There is evidence that certain QI institutions have not applied the QI rules, although they committed to follow them. It seems that some banks have not reported US client accounts, while others did not withhold enough income taxes of US residents (US (2008b)). One loophole appears to have been at the center: the concealment of ownership using offshore trusts and/or foundations. Under the current US tax law, a corporation is treated as the tax payer and owner of assets and income. Coupled with the fact that there is no requirement to publicly report the beneficial owner of a corporation in certain onshore and offshore jurisdictions, the establishment of corporations in those countries is one possibility to conceal an identity (US (2008b)). While the account holders at QI institutions are asked to fill out certificates on the beneficial ownership, the QI institutions are committed, and not obliged by law, to verify the validity of the received information (US (2008b)). However, if a US client account holder does not to provide this information correctly, and if the QI institution does verify the information (know-your-costumer principle), then it becomes difficult to track back the true ownership.

More recently, the United States have intensified their efforts in combating the illegitimate use of offshore centers and introduced the Foreign Account Tax Compliance Act (FATCA), which takes effect in July 2014. The FATCA establishes a process for foreign financial institutions to report information about sizable accounts of US citizens. To ensure that the rules are effectively implemented, the Internal Revenue Service and US Treasury have offered other jurisdictions to enter into intergovernmental agreements (IGAs), which reduce the reporting and compliance burdens on the financial institutions from countries that have entered into an IGA. Amongst other things, the provisions ensure that foreign financial institutions have to provide identifying information on US account holders by 2014, while, by 2016, they will have to provide as well information on the income earned.

Tax treaties and tax information exchange agreements

Many countries have entered into bilateral, or multilateral tax treaties and tax information exchange agreements (TIEAs) to mitigate the risks of tax evasion. Bilateral *tax treaties* are provisions negotiated across two jurisdictions, with the aim of preventing double taxation and improving the exchange of information on tax purposes. Usually, tax treaties reduce tax rates of one treaty country, applied to residents of the other treaty country, and vice versa. While in the 19th century very few bilateral tax treaties existed, there are nowadays more than 2,500 bilateral tax treaties in place (Uckmar (2006)).[21]

Tax information exchange agreements are more common than tax treaties between onshore and offshore jurisdictions, because they are easier to implement (US (2008b)). Several international initiatives have encouraged the implementation of TIEAs across onshore and offshore jurisdictions (OECD (1998, 2000, 2001, 2009a,b, 2011, 2012b)). There are basically two types of agreements: *automatic* and *upon request* (see, amongst others, Keen and Ligthart (2006), Johannesen and Zucman (2012)). Automatic exchange of information seems to be the most effective solution, because the involved tax authorities share routinely information on income earned by taxpayers, present in both jurisdictions (US (2008b)). More common, however, are tax information exchange agreements upon request. The weakness of the latter is that a country has to ask for information on specific taxpayers, for which there is strong evidence that they are trying to evade taxes. In other words, a tax authority must have prior knowledge of a tax abuse.

In an attempt to improve the transparency of certain jurisdictions, the OECD has, in 2001, published a list of 35 jurisdictions, which would be included in a *black list* of harmful jurisdictions, if they do not commit to sign a minimum number of bilateral tax information exchange agreements, within two years (OECD (2001)). While most jurisdictions agreed to implement the standards, the OECD pointed out that certain jurisdictions have not improved transparency standards, among which there were three OECD countries and a number of non-OECD countries. Three jurisdictions remained on that list by 2008, all of which are located in Europe. In response to the global financial crisis and the need of governments to increase tax revenues, the OECD has reinforced its initiative in 2009, asking a number of jurisdictions to sign at least 12 TIEAs, to be removed from a black list, see Table 1 and OECD (2009a,b). In response, a large number of agreements have been signed, however, mostly agreements upon request (Johannesen and Zucman (2012)).

[21] For example, Austria and Hungary established a tax treaty in 1869.

The EU savings tax directive

The EU Savings Tax Directive focuses on the improvement of information exchange on tax purposes across the member states of the European Union. The directive was put in place in 2005, and it applies to the EU member states and their associated territories, such as the Commonwealth-related British Virgin Islands, Cayman Islands, and Channel Islands (Woodward (2006)). While some important non-EU jurisdictions have agreed to participate in the program, other jurisdictions have declined to participate.

The directive puts forth that tax authorities exchange automatically information on interest paid to non-residents. The information specifies the identity and country of residence of individuals, who receive an interest payment, the amount of income, and the type of investment (US (2008b)). Out of the 27 members of the European Union, 24 countries have agreed to exchange information automatically. Those countries that declined to implement the automatic procedure have been offered instead, the option of withholding taxes on non-resident income, with a tax rate that gradually increases from 15 to 35% in 2011. The implied revenues are shared between the foreign jurisdiction (1/4) and the resident country of the investor (3/4). In total, the EU savings directive currently covers 42 jurisdictions.

It has been pointed out that the EU savings directive gives rise to some loopholes (US (2008b), Johannesen and Zucman (2012)). Most obvious is the possibility of transferring income-generating assets to jurisdictions not covered by the directive. Moreover, since the directive applies to interest payments on only certain types of passive investments, such as cash deposits, corporate and government bonds, and negotiable debt securities, and not to capital gains, such as stock dividends, or income derived from insurance or pension products, individuals might invest in the latter group of assets. And third, the directive applies to individuals and not to accounts held by corporations, trusts, or foundations and, thus, certain individuals might have an incentive to conceal their ownership behind a corporate structure.

6. CONCLUDING REMARKS

The present work has investigated offshore financial centers in the Caribbean from the perspective of offshore economies, onshore economies, and international investors. Our view is that the establishment of offshore financial centers is a legitimate policy choice, and that offshore financial centers offer international corporations and investors an alternative to high-tax/high-spending regimes. We emphasize, however, that an efficient cooperation across onshore and offshore tax authorities is the key to success and sustainability of an offshore financial center.

In the first part, we have compared a number of financial, fiscal, and regulatory indicators across offshore financial centers and onshore economies. Unsurprisingly, we find evidence that offshore centers are characterized by a much higher proportion of international banking activity relative to their size, lower corporate tax rates applied to non-residents, and fewer bilateral tax information exchange agreements and tax treaties, compared to the advanced economies. We have also analyzed a number of macroeconomic indicators across Caribbean offshore and non-offshore jurisdictions and find that offshore jurisdictions are on average smaller, having five times higher GDP per capita, and a more stable macroeconomic and developed financial environment. In other words, there exist remarkable spillovers from the offshore financial sector to the domestic economy.

In the second part, we have analyzed the flow of funds, transferred through the Caribbean in the period 1983-2010, using information on the international positions of banks, resident in five Caribbean offshore financial centers, vis-à-vis banks from a number of onshore banking systems. We highlight that Caribbean offshore centers have been predominantly used by corporations, resident in the United States, which have sent and received most of the funds - a process called round-tripping. For the major player in the Caribbean, the United States, we find econometric evidence that the offshore activity has been associated with reductions in corporate income tax revenues. This cost, however, has to be related to the benefits associated with increases in commercial bank lending in the United States. Although we do not provide a complete cost-benefit analysis for the onshore economy, the findings provide a first attempt to explain why onshore economies seem to tolerate the use of offshore centers by domestic corporations.

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Tables and Figures

Table 1: Tax havens and financial centers committed to collaborate[1]

Jurisdiction	Year of commitment	Number of agreements	Jurisdiction	Year of commitment	Number of agreements
Tax havens					
Andorra	2009	0	Liechtenstein	2009	1
Anguilla	2002	0	Marshall Islands	2007	1
Antigua/Barbuda	2002	7	Monaco	2009	1
Aruba	2002	4	Montserrat	2002	0
Bahamas	2002	1	Nauru	2003	0
Bahrain	2001	6	Netherlands Antilles	2000	7
Belize	2002	0	Niue	2002	0
Bermuda	2000	3	Panama	2002	0
British Virgin Islands	2002	3	St Kitts and Nevis	2002	0
Cayman Islands	2000	8	St Lucia	2002	0
Cook Islands	2002	0	St Vincent & Gr.	2002	0
Dominica	2002	1	Samoa	2002	0
Gibraltar	2002	1	San Marino	2000	0
Grenada	2002	1	Turks and Caicos	2002	0
Liberia	2007	0	Vanuatu	2003	0
Other financial centers					
Austria	2009	0	Guatemala	2009	0
Belgium	2009	1	Luxembourg	2009	0
Brunei	2009	5	Singapore	2009	0
Chile	2009	0	Switzerland	2009	0

[1] The table includes jurisdictions that have committed to incorporate the internationally agreed tax standards, endorsed by the G20 Finance Ministers in 2004 and the UN Committee of Experts on International Cooperation in Tax Matters in 2008, but that have not substantially implemented them by April 2009. See OCED (2009b).

Source: OECD Global Forum - Progress Report on implementing the international agreed tax standards, April 2009

Table 2: Corporate taxes, transparency, and regulation in offshore and onshore jurisdictions[1]

Country	*Population*	*International claims, end-2010*	*International claims per capita*	*Corporate income tax*	*Capital gains tax*	*Branch tax*	*Withholding tax*	*(1) Tax information exchange agreements*	*(2) Double taxation conventions*	*(1)+(2) in force*	*Withholding tax treaties*	*Capital regulation*	*Supervisory power*
	thousand	*billion USD*	*million USD*	*percent*	*percent*	*percent*	*percent*	*number of countries*	*number of countries*	*number of countries*	*number of countries*	*Index*	*Index*
Bahamas	342	487	1.42	0	0	0	0	29	0	14	0	n.a.	n.a.
Bahrain	791	176	0.22	0*	0	0	0	8	30	15	21	5	10
Barbados	284	n.a.	n.a.	1*	0	0*	15	4	34	11	21	n.a.	n.a.
Bermuda	65	11	0.17	0	0	0	0	33	2	11	n.a.	n.a.	n.a.
Cayman Islands	56	1,761	31.45	0	0	0	0	26	1	8	1	6	n.a.
Guernsey	61	192	3.15	0*	0	0	0	35	3	14	2	6	6
Hong Kong	7,026	830	0.12	0*	0	0*	0	0	24	7	18	4	4
Isle of Man	80	75	0.94	0*	0	0	0	25	6	5	3	8	11
Jersey	90	298	3.31	0*	0	0*	0	27	7	8	3	3	8
Macau	542	45	0.08	0*	0	0	0	9	5	6	2	4	4
NL Antilles	198	20	0.10	2*	2*	2*	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Panama	3,476	40	0.01	0*	10	0*	0*	1	12	3	0	8	11
Singapore	4,987	825	0.17	5 or 12*	0	5 or 12*	0*	0	71	13	66	7	8
Average	**1,476**	**412**	**3.43**	**0.9**	**0.9**	**0.8**	**1.2**	**16.4**	**16.2**	**9.6**	**12.5**	**5.9**	**7.5**
Denmark	5,534	176	0.03	25	25	25	25-28	46	69	15	76	7	10
Finland	5,359	320	0.06	26	26*	26	0-28	42	66	17	73	8	7
Germany	81,757	2,687	0.03	28*	15*	15	15-25	22	100	18	91	6	8
Sweden	9,349	365	0.04	26.3	26.3	26.3	0-30	43	76	22	77	4	7
United States	309,212	3,582	0.01	35*	35*	35*	30	30	60	8	58	6	14
Average	**82,242**	**1,426**	**0.04**	**28.1**	**25.5**	**25.5**	**21.1**	**36.6**	**74.2**	**16**	**75**	**6.2**	**9.2**

[1] Offshore centers include those jurisdictions that report to the BIS locational banking statistics (http://www.bis.org/statistics/bankstats.htm) plus Barbados. 'International claims' denote international claims of bank offices resident in each jurisdiction. 'Withholding tax' includes taxes on dividends, interest, royalties, and branch remittance tax. '(1)+(2) in force' indicates the number of bilateral tax information exchange agreements, or double tax conventions, that are in force, according to the OECD in June 2012. 'Capital regulation' and 'Supervisory power' are indices, which take on values between 1 (low) and 10 (high), calculated by Rose and Spiegel (2007), based on information from Barth et al (2001).

(*) **Bahrain**: income in the oil sector is taxed at a rate of 46%; **Barbados**: tax rates apply only to companies operating in the International Business and Financial Sector Services; **Guernsey**: profits derived from regulated deposit taking institutions are instead taxed at a rate of 10%; **Hong Kong**: applies to most transactions of non-

resident corporations (such as investment funds), otherwise the tax rate is 16.5%; **Isle of Man**: profits derived from certain banking businesses are taxed at a rate of 10%; **Jersey**: profits derived from regulated financial services companies are taxed at a rate of 10% (same applies to the branch tax rate); international business companies are taxed at a rate of 2% or less; **Macau**: applies to Macau offshore companies, other companies pay a progressive tax rate with a maximum of 12**%; Netherlands (NL) Antilles**: applies to offshore companies, otherwise the tax rate is 34.5%.; certain financial activities are exempt from taxes; **Panama**: applies to income generated abroad, otherwise the tax rate is 25%; certain interest income is exempt from withholding tax, otherwise it is 15%; **Singapore**: applies to income derived from activities by approved financial sector incentive companies, otherwise the tax rate is 17%; **Germany**: the Business Tax Reform of 2008 reduced the corporate income tax rate from 25% to 15%, but taking into account the trade tax and solidarity surcharge, the total tax rate ranges from 27.5 to 37.5% depending on the municipality; capital gains of corporations, except those derived from sales of shares, are taxed at 15%; **Finland**: Capital gains of corporations, except those derived from certain sales of shares, are exempt from tax; **United States**: a rate of 15 or 25% applies to the first 75,000 dollar of income, above that, the tax rate ranges from 34 to 39%; capital gain tax is a maximum rate.

***Source*:** BIS locational banking statistics; Ernst & Young Worldwide Corporate Tax Guide 2011; OECD - Exchange of Tax Information Portal (June 2012, (http://www.eoi-tax.org); author's own calculations.

Table 3: Macroeconomic indicators in the Caribbean, 1997-2010[1]

Country	*Status*	*Population*	*Nominal GDP*	*GDP per capita*	*Real GDP growth*	*Public debt/ GDP*	*Interest payments/ revenue*	*Public FX debt/ debt*	*External debt/ GDP*	*Annual inflation rate*	*Monetary policy rate*	*Domestic credit/ GDP*	*Sovereign rating, 2010*
		million	*billion USD*	*USD*	*percent*	*percent*	*percent*	*percent*	*percent*	*percent*	*percent*	*percent*	*Moody rating*
Cuba	no OFC	11.2	43.7	3,907	4.8	30	4	100	28	1.7	n.a.	n.a.	Caa1
Dominican Republic	no OFC	9.2	29.5	3,139	6.1	26	8	84	25	11.0	20.9	34	B1
El Salvador	no OFC	6.1	16.2	2,666	2.3	38	12	95	47	3.1	5.4	48	Ba2
Guatemala	no OFC	12.3	27.0	2,146	3.6	18	11	75	28	6.6	6.4	29	Ba1
Honduras	no OFC	6.8	9.3	1,350	3.8	49	8	94	57	8.9	19.3	39	B2
Jamaica	no OFC	2.6	10.3	3,919	0.5	107	48	52	63	10.6	15.1	50	B3
Trinidad and Tobago	no OFC	1.3	13.9	10,528	5.8	33	13	43	31	5.9	6.8	26	Baa1
Average	**no OFC**	**7.1**	**21.4**	**3,950**	**3.9**	**43**	**15**	**77**	**40**	**6.8**	**12.3**	**38**	B1
Bahamas	OFC	0.3	6.1	19,109	1.6	35	11	11	7	2.0	5.3	87	A3
Barbados	OFC	0.3	3.2	12,639	1.8	59	16	31	40	3.8	7.6	86	Baa3
Belize	OFC	0.3	1.0	3,651	4.9	68	17	79	69	1.8	10.0	57	B3
Bermuda	OFC	0.1	4.5	70,117	2.1	7	2	100	27	2.9	n.a.	67	Aa2
Cayman Islands	OFC	0.1	2.4	51,124	1.6	10	3	100	13	2.6	n.a.	n.a.	Aa3
Costa Rica	OFC	4.2	20.7	4,876	4.8	36	19	36	32	10.4	10.5	41	Baa3
Panama	OFC	3.1	15.8	4,998	6.0	61	16	100	55	2.4	8.3	88	Baa3
St. Vincent and G.	OFC	0.1	0.5	4,380	2.8	66	9	58	46	3.3	6.6	70	B1
Average	**OFC**	**1.0**	**6.8**	**21,362**	**3.2**	**43**	**12**	**64**	**36**	**3.6**	**8.1**	**71**	Baa1

[1] Annual averages are shown for the period 1997-2010. 'OFC' denotes selected offshore financial centers in the Caribbean, identified by the Financial Stability Forum (FSF (2000b)). '*Average*' indicates unweighted averages over groups of countries (OFC versus no OFC).

***Source*:** Moody's Statistical Handbook 2011; author's own calculations.

Table 4: Regression results for commercial bank lending[1]

Y(t): Annual growth in lending	(1)		(2)		(3)		(4)		(5)		(6)	
	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.
Y(t-1)	0.55***	0.13	0.50***	0.14	0.32***	0.12	0.24*	0.13	0.24*	0.13	0.29**	0.12
GDP(t-1)	0.28**	0.13	0.33**	0.13	0.13	0.14	0.07	0.20	0.09	0.21	0.03	0.20
Fed-rate (t-1)	0.20	0.15	0.17	0.18	-0.07	0.16	-0.14	0.17	-0.17	0.19	0.09	0.23
OFC funds (t-1)			0.07*	0.03	0.08***	0.03	0.09***	0.03	0.09**	0.03	0.10***	0.03
Crisis dummy: 2008-2010					-6.29***	1.84	-9.28***	2.16	-8.64***	2.99	-7.96***	2.82
GDP(t-1)*Crisis dummy							0.11	0.29	0.07	0.30	-0.15	0.29
Fed-rate (t-1)*Crisis dummy							2.37**	0.92	2.15*	1.17	2.04*	1.16
OFC funds (t-1)*Crisis dummy							-0.12	0.14	-0.12	0.14	-0.15	0.16
Deposits/Assets (t-1)									0.13	0.18	0.47**	0.21
Borrowed funds/Assets (t-1)									0.02	0.26	0.08	0.34
Liquid assets/Assets (t-1)									-0.15	0.34	-0.32	0.41
Risk-based capital/Assets (t-1)											2.31**	1.04
Constant	0.90	1.27	0.57	1.33	3.86***	1.19	4.92***	1.31	4.89***	1.67	3.86**	1.54
Observations	103		103		103		103		103		82	
Sample period	1984-2010		1984-2010		1984-2010		1984-2010		1984-2010		1990-2010	
R^2	0.44		0.45		0.53		0.55		0.56		0.69	
Durbin Watson	2.17		2.19		2.12		1.98		2.00		1.97	
Breusch Pagan (p-value)	0.48		0.11		0.45		0.96		0.97		0.82	

[1] The sample period goes from 1984Q4 to 2010Q3. The dependent variable is the annual growth rate of commercial bank credits. 'GDP' denotes the annual growth rate of real GDP, 'Fed-rate' the federal funds rate, and 'OFC funds' the annual growth rate of claims of bank offices, resident in the Caribbean offshore financial centers, vis-à-vis the United States. The remaining variables are quarterly aggregates for US commercial banks: 'Deposits' denotes total deposits, 'Assets' are total assets, 'Borrowed funds' is non-deposit funding net of trading liabilities and hybrid debt instruments, 'Liquid assets' the sum of cash assets, Fed funds and reverse repos, and 'Risk-based capital' is the total risk-based capital ratio. 'R^{2}' denotes the coefficient of determination, 'Durbin Watson' the Durbin-Watson statistic on first-order autocorrelation, and 'Breusch Pagan' the Breusch-Pagan test on heteroskedasticity. Robust standard errors are reported. (***, **, *) denote significance on the 1%, 5%, and 10% significance level.

Source: BIS locational international banking statistics; US Department of Commerce; Board of Governors of the Federal Reserve System; Federal Deposit Insurance Corporation; author's own calculations.

Table 5: Regression results for corporate income tax receipts[1]

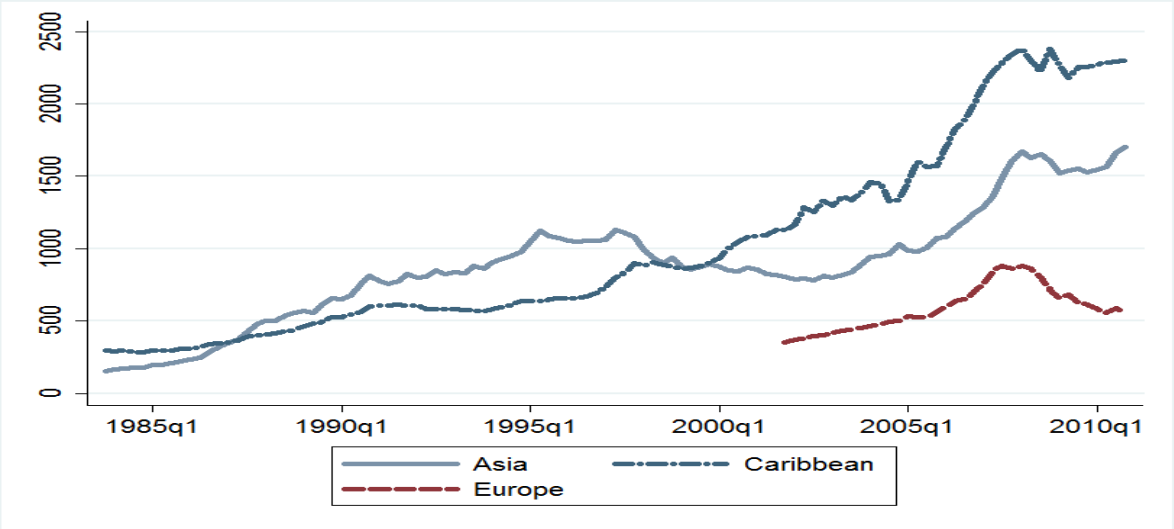
Y(t): Annual growth in corp. taxes	(1)		(2)		(3)		(4)		(5)		(6)	
	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.	Coeff.	Std. dev.
GDP, non-farm(t-1)	1.14	1.45	1.43	1.41	1.58**	0.66	1.32*	0.75	1.35*	0.76	2.15**	0.92
GDP, farm (t-1)	0.02	0.10	-0.02	0.09	0.02	0.08	0.02	0.08	0.03	0.08	0.05	0.09
OFC funds (t-1)			-0.46***	0.17	-0.20*	0.12	-0.23**	0.12	-0.24**	0.12	-0.23*	0.12
Crisis dummy 1: 2008-2010					-32.5***	5.32	-41.5***	6.56	-41.5***	6.60	-38.3***	7.27
Crisis dummy 2: 2001					-30.7***	3.10	-31.3***	3.35	-31.3***	3.38	-31.3***	3.51
Crisis dummy 3: 1991					-8.66***	3.14	-9.34***	3.48	-9.49***	3.54	-0.54	3.71
GDP, non-farm(t-1)*Crisis dummy 1							1.79	1.42	1.76	1.43	0.95	1.54
GDP, farm (t-1)*Crisis dummy 1							-0.58***	0.22	-0.58***	0.22	-0.61***	0.22
OFC funds (t-1)*Crisis dummy 1							0.86*	0.45	0.87*	0.45	0.86*	0.46
Statutory tax rate									-0.12	0.40	7.48**	3.07
Dummy: 2009Q4					64.2***	7.13	61.3***	8.18	61.4***	8.24	68.9***	9.86
Dummy: 2010Q1					105.2***	4.39	103.0***	4.99	102.9***	5.03	106.6***	5.94
Dummy: 2010Q2					64.2***	3.53	62.9***	3.77	62.8***	3.79	64.0***	4.55
Dummy: 2010Q3					37.3***	2.61	36.7***	2.67	36.7***	2.68	35.9***	3.20
Constant	1.90	8.85	5.05	9.28	3.08	3.92	4.92	4.48	9.32	14.7	-260.0**	105.1
Observations	103		103		103		103		103		82	
Sample period	1984-2010		1984-2010		1984-2010		1984-2010		1984-2010		1990-2010	
R^2	0.02		0.07		0.74		0.75		0.75		0.81	
Durbin Watson	0.37		0.40		0.73		0.73		0.72		0.78	
Breusch Pagan (p-value)	0.00		0.00		0.94		0.60		0.61		0.45	

[1] The sample period goes from 1984Q4 to 2010Q3. The dependent variable is the annual growth rate of corporate income tax revenues. 'GDP, (non-) farm denotes the annual growth rate of GDP of (non-)farm businesses excluding gross value added of households, institutions and the government, 'OFC funds' the growth rate of claims of bank offices, resident in the Caribbean offshore financial centers, vis-à-vis the United States, and 'statutory tax rate' the statutory corporate income tax rate for the highest income category. '$R^{2,}$' denotes the coefficient of determination, 'Durbin Watson' the Durbin-Watson statistic on first-order autocorrelation, and 'Breusch Pagan' the Breusch-Pagan test on heteroskedasticity. Robust standard errors are reported. (***, **, *) denote significance on the 1%, 5%, and 10% significance level.

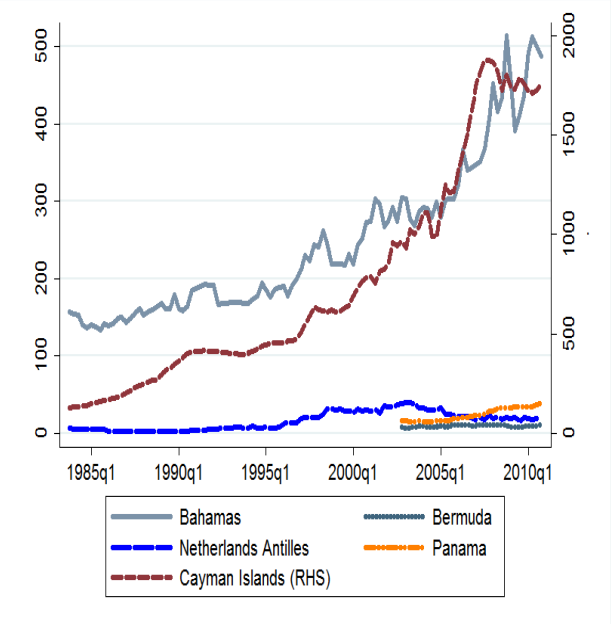
Source: BIS locational international banking statistics; Bureau of Economic Analysis; Internal Revenue Service Tax Statistics; author's own calculations.

Figure 1: International bank claims in offshore financial centers[1]

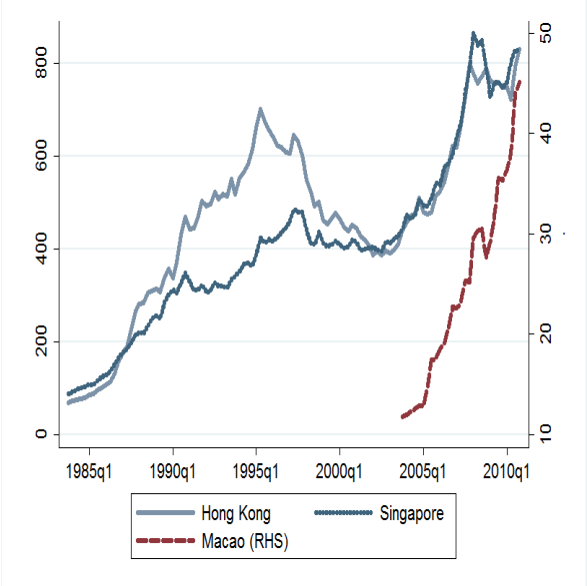
By region[2]



By country, Caribbean



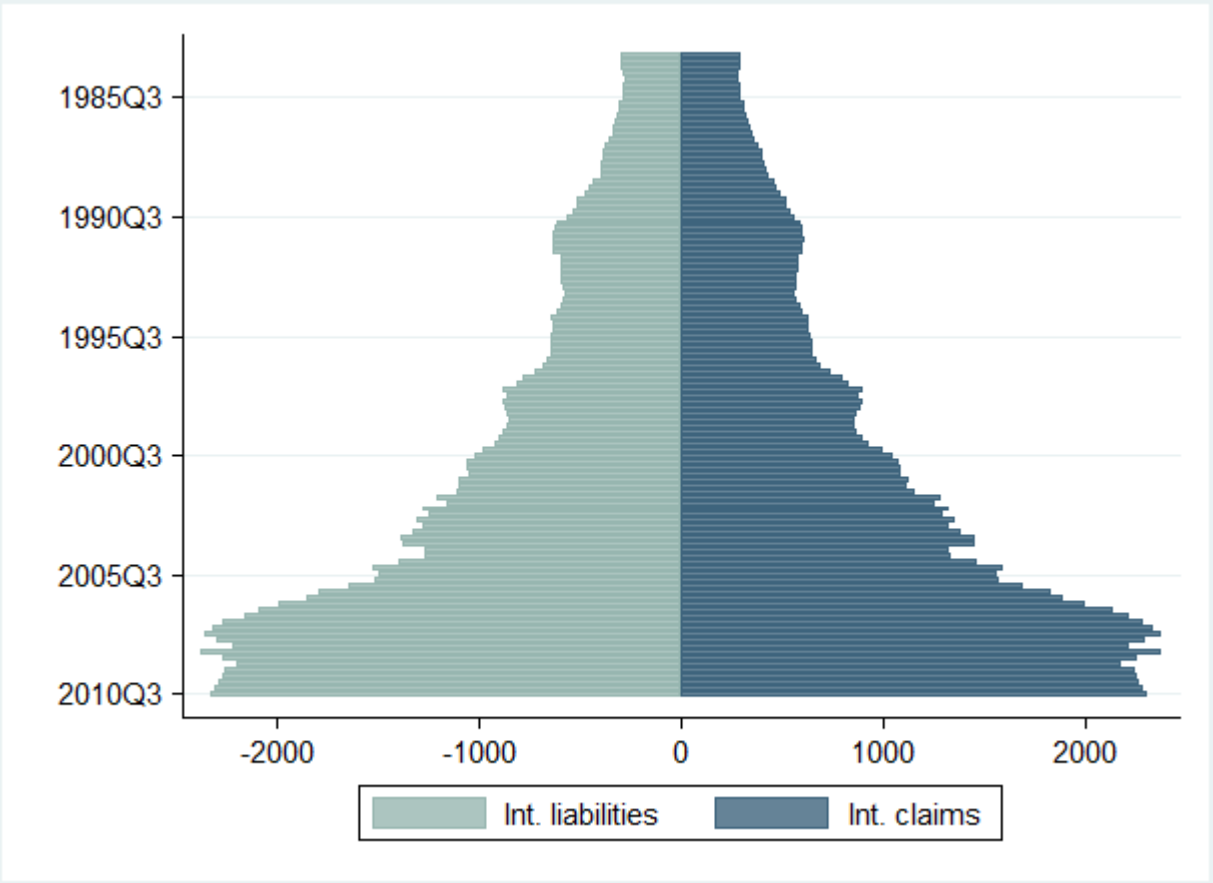
By country, Asia



[1] In billions of US dollars, exchange rate adjusted. 'International bank claims' denotes international bank claims of bank offices, resident in the reporting region or country. [2] 'Caribbean' includes: Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, and Panama; 'Asia' includes Hong Kong, Macao, and Singapore; and 'Europe' includes Guernsey, Isle of Man, and Jersey.

Source: BIS locational international banking statistics; author's own calculations.

Figure 2: International bank claims and liabilities located in the Caribbean[1]

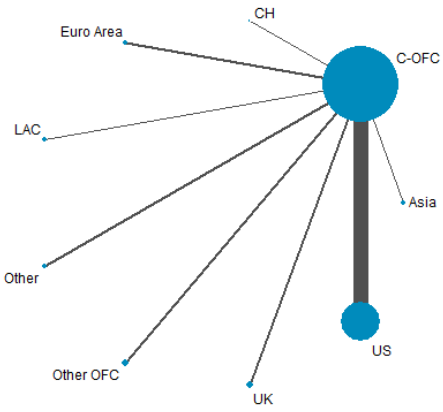


[1] In billions of US dollars, exchange rate adjusted. Caribbean offshore financial centers include: Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, and Panama. "Int. liabilities" denotes international bank liabilities of bank offices, resident in Caribbean offshore financial centers, and "Int. claims" are international bank claims of bank offices, resident in Caribbean offshore financial centers.

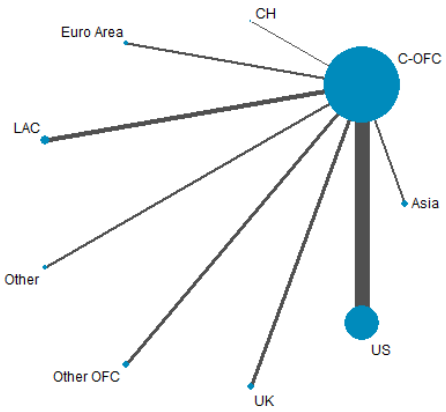
Source: BIS locational international banking statistics; author's own calculations.

Figure 3a: International positions of banks in the Caribbean, end-1987[1]

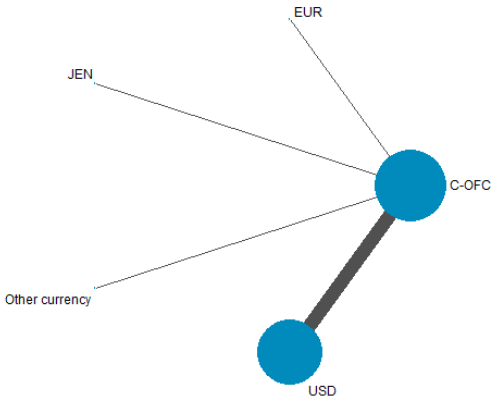
International bank liabilities, by location



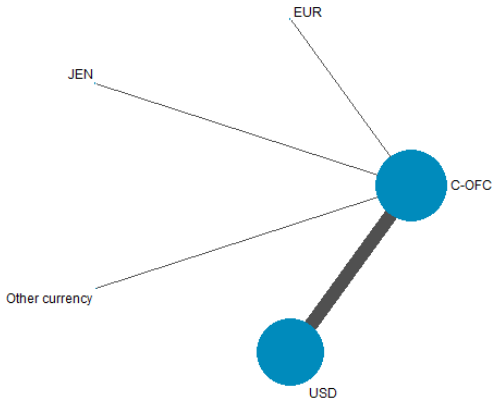
International bank claims, by location



International bank liabilities, by currency



International bank claims, by currency

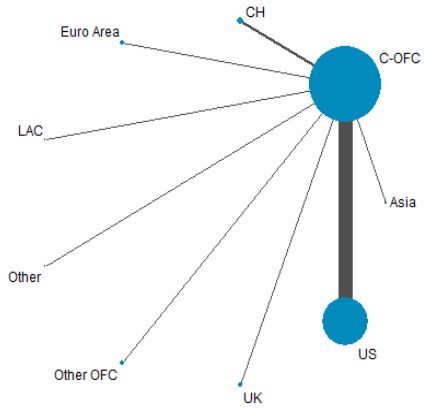


[1] The nodes and edges of the network graphs are proportional to the total of the bilateral positions (0.35 trillion US dollars in 1987). Upper panels: Asia: Emerging Asia, Japan, Australia; C-OFC: Caribbean offshore centers (Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, Panama); CH: Switzerland; LAC: Latin America and the Caribbean; Other OFC: other offshore centers (Bahrain, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Singapore); Other: Residual category; UK: United Kingdom; US: United States. Lower panels: USD: US dollar; EUR: Euro; JEN: Japanese Yen; Other currency: other currencies than the mentioned ones.

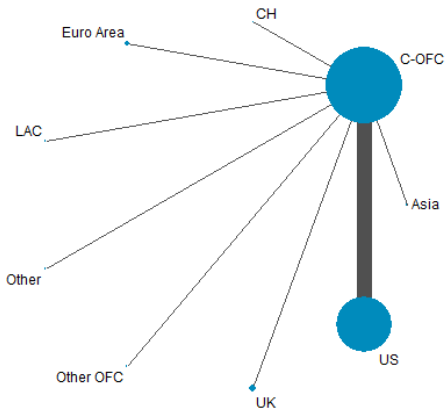
Source: BIS locational international banking statistics; author's own calculations.

Figure 3b: International positions of banks in the Caribbean, end-2007[1]

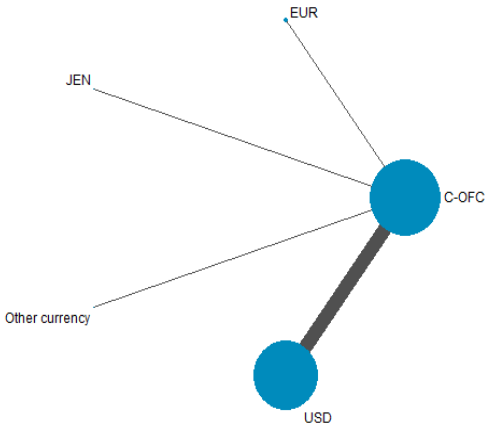
International bank liabilities, by location



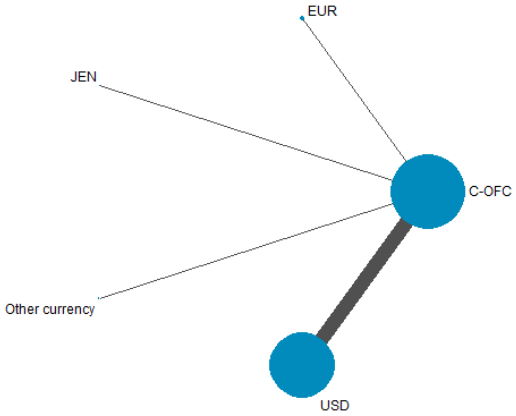
International bank claims, by location



International bank liabilities, by currency



International bank claims, by currency

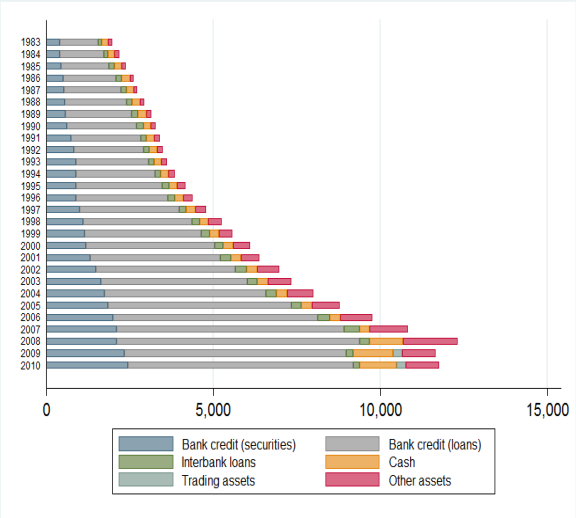


[1] The nodes and edges of the network graphs are proportional to the total of the bilateral positions (2.3 trillion US dollars in 2007). Upper panels: Asia: Emerging Asia, Japan, Australia; C-OFC: Caribbean offshore centers (Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, Panama); CH: Switzerland; LAC: Latin America and the Caribbean; Other OFC: other offshore centers (Bahrain, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Singapore); Other: Residual category; UK: United Kingdom; US: United States. Lower panels: USD: US dollar; EUR: Euro; JEN: Japanese Yen; Other currency: other currencies than the mentioned ones.

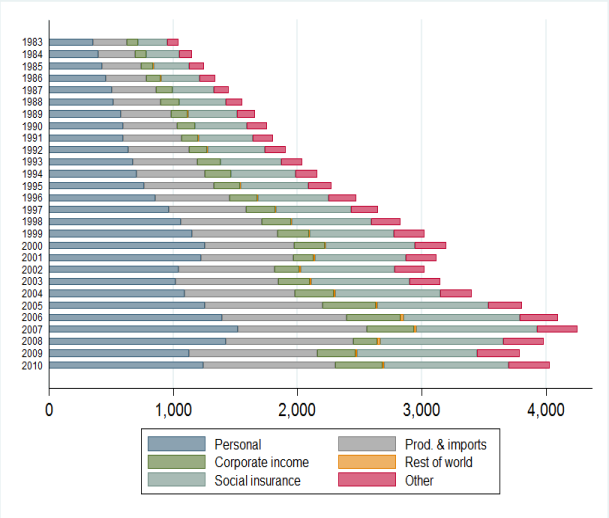
Source: BIS locational international banking statistics; author's own calculations.

Figure 4: Commercial bank credits and government revenues in the U.S.[1]

Bank assets[2]



Tax receipts[3]

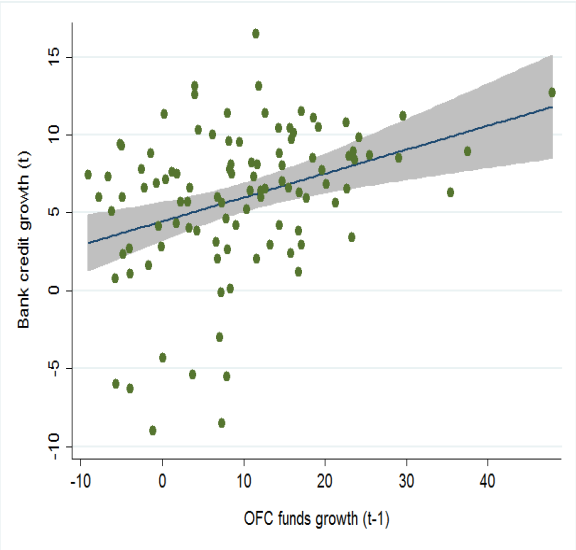


[1] In billions of US dollars. [2] 'Bank assets' refers to the sum of total assets of all commercial banks located in the US. Assets are decomposed into securities in bank credit ('Bank credit (securities)'), loans and leases in bank credit ('Bank credit (loans)'), interbank loans, cash, trading assets, and a residual category ('Other assets'). [3] 'Personal' indicates personal current taxes, 'Prod. & imports' taxes on production and imports, 'Corporate income' taxes on corporate income, 'Rest of world' are taxes from the rest of the world, 'Social insurance' are contributions for government social insurance, and 'Other' is a residual category, i.e. the difference of total receipts and the mentioned sources of tax revenue.

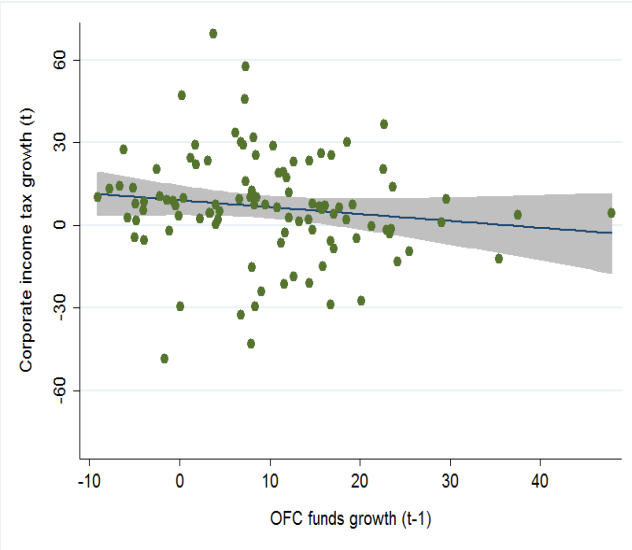
Source: US Department of Commerce (Bureau of Economic Analysis); Board of Governors of the Federal Reserve System; author's own calculations.

Figure 5: US bank credit, corporate income tax and offshore funds[1]

Bank credit and offshore funds



Corporate income taxes and offshore funds

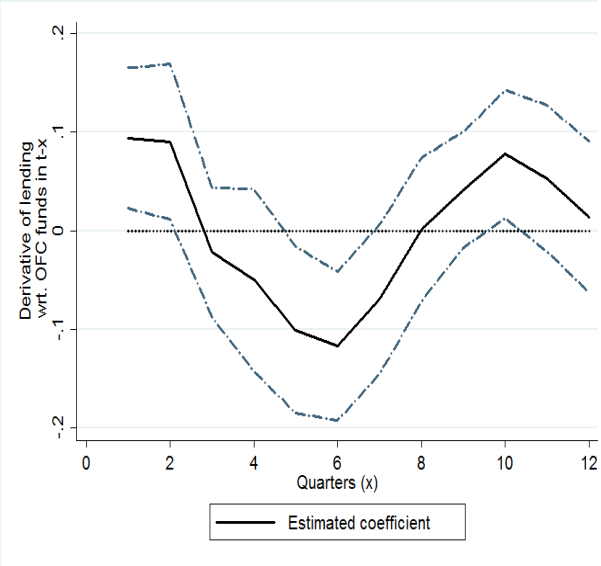


[1] Annual growth rates, seasonally adjusted, in percentage points. 'Bank credit' denotes the annual growth rate of commercial bank credits, 'Corporate income taxes' the annual growth rate of corporate income tax revenues, and 'OFC liabilities' the growth rate of claims of bank offices, resident in the Caribbean offshore financial centers, vis-à-vis the United States.

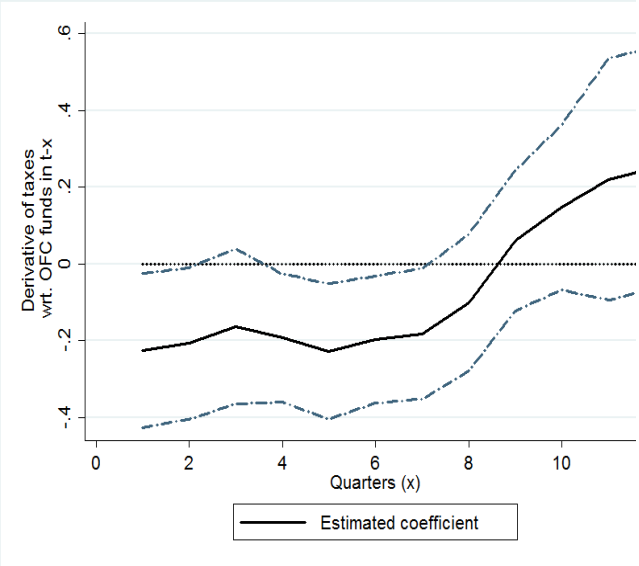
Source: BIS locational international banking statistics; US Department of Commerce; Board of Governors of the Federal Reserve System; author's own calculations.

Figure 6: Dynamic OFC coefficients in the regressions[1]

Bank credits of commercial banks

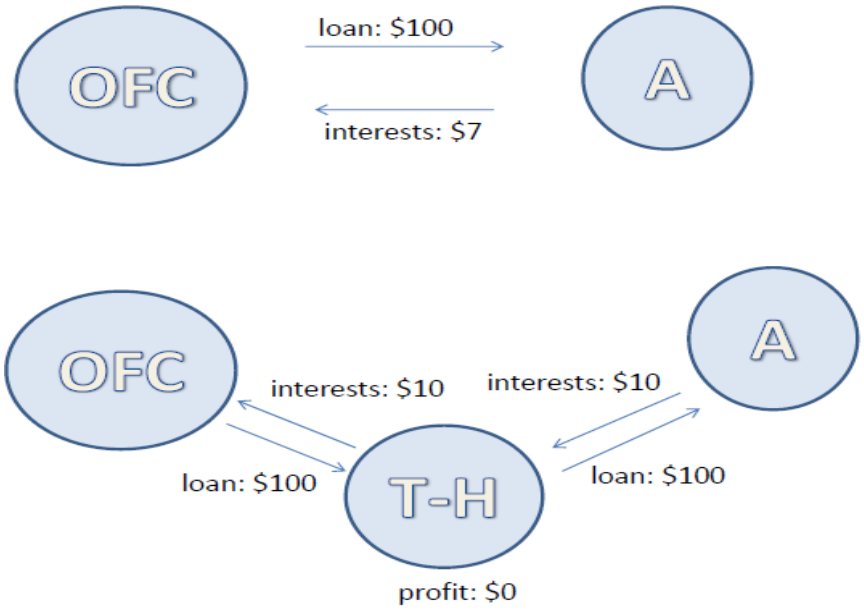


Corporate income tax revenues



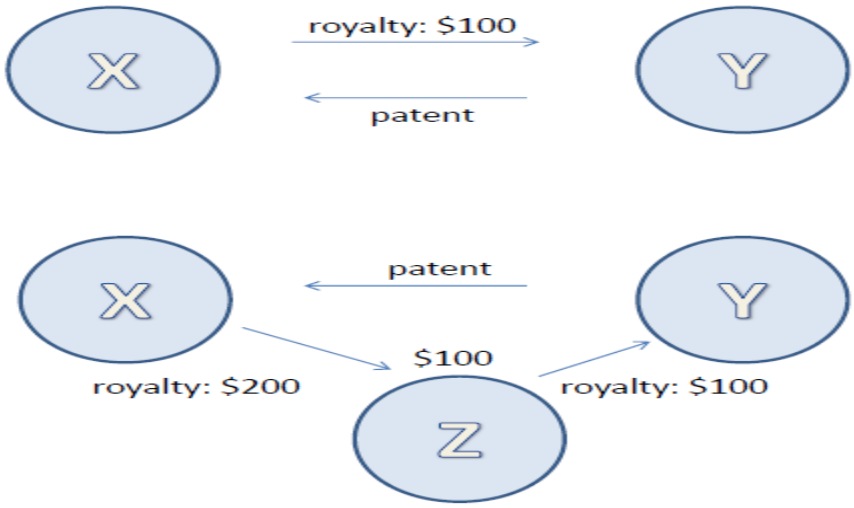
[1] The figures show the estimated coefficients of Caribbean offshore claims vis-à-vis the United States, lagged by t-x quarters. The underlying specifications are those used in columns 6 of Table 4 and 5. The dotted lines represent 90% confidence intervals.

Figure 7: Stepping stone conduits[1]



[1] The example is discussed in the subsection on treaty havens in Section 5, see also Roghati (2007). OFC denotes offshore financial center, A is an onshore economy, and T-H a treaty haven. The assumptions are: the loan generates an after-tax return of 10% in country A and there is a withholding tax on repatriated profits in country A of 30%. The offshore financial center does not have a tax treaty with country A, however, the treaty haven has tax treaties with both, the offshore center and country A, which allow the repatriation of profits free of withholding taxes.

Figure 8: Aggressive transfer pricing[1]



[1] The example is discussed in the subsection on case studies of fraudulent activities in Section 5, see also Gordon (1981). Basically, corporation X inflates the price of a patent from 100 to 200 dollars in order to keep 100 dollars in the offshore company Z, and to reduce after-tax costs from 61 to 22 US dollars, assuming that the royalty expenses are deductible from profits at a rate of 39 percent.

Appendix

Box 1: Common offshore companies

Offshore banks are used by corporations for foreign exchange operations, or to facilitate the financing of international joint ventures. Onshore banks often establish offshore subsidiaries that provide fund administration services, or securitization services. The attractions of offshore banking may include no capital tax, no withholding tax on dividends or interest, no capital gains tax, no exchange controls, and lighter regulation and supervision (see Table 1).

International business corporations are limited liability companies (LLCs), or vehicles registered offshore. They may be used to own and operate businesses, issue shares, bonds, or raise capital in other ways. They may be set up with one director only. In some cases, residents of offshore centers may act as nominee directors. Most often the costs of setting up such vehicles are minimal, and they are exempt from taxes. International business corporations are a popular vehicle for managing investment funds.

Special purpose vehicles (SPVs) are often established as an international business corporation to engage in a specific activity, such as the issuance of asset-backed securities. Onshore banks transfer bundles of particular assets (such as mortgages) to offshore SPVs, before selling them as securities with different risk categories. Onshore parents benefit from favorable tax regimes and less restrictive regulations on their activities. Banks use them to raise Tier 1 capital in lower tax environments. SPVs are also set up by non-bank financial institutions to take advantage of more liberal netting rules than at home, reducing their capital requirements.

Asset holding trusts: A variety of trust companies exist, which specialize in portfolio holdings of stocks and bonds, FX and hedging instruments. They are as well used to protect wealth in circumstances such as protection from political instability at home, real estate planning, tax saving, and forced heirship. Asset holding trusts can also provide anonymity, and they are used to manage wealth down the generations.

Captive insurance companies are established with the objective of financing risks that originate from a parent company or a group's customers. Using a captive insurer is a risk management technique by which a business forms its own insurance company subsidiary to finance its retained losses in a formal structure. The attractions include more favorable tax regimes and regulation in the form of actuarial reserve requirements and capital standards.

Source: Financial Stability Forum (2000b)