Offshore wealth reconsidered

The development of offshore wealth in the face of increasing international financial transparency

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Content

Introduction

The Foreign Account Tax Compliance Act (FATCA) adopted by the United States and the subsequently rising number of bilateral tax information agreements with the United States have paved the way for unprecedented multilateral action. With their recent initiative to tackle international tax evasion, the OECD/G20 have signaled broad international commitment to cooperate on tax transparency in the form of automatic exchange of information. In September 2013, the G20 endorsed the OECD's proposal to develop a global model for the automatic exchange of information. In October 2014, 51 jurisdictions signed the multilateral competent authority agreement to automatically exchange information under the Common Reporting Standard (the CRS MCAA). By February 2016 80 jurisdictions had signed. The automatic exchange of information will facilitate the effective taxation of capital income of individuals in accordance with the residence principle of taxation. It is assumed to be much more effective than exchange of information on request because the latter often requires previously collected information which might not be available to the respective authorities (Ötsch 2012, p. 37). However, the CRS MCAA is a framework agreement and subsequent bilateral exchanges will come into effect only between those signatories that file the subsequent notifications under Section 7 of the CRS MCAA.

The European Union will implement the automatic exchange of information on financial account information coming into effect on 1 January 2017. Member states will share information about interest, dividends and similar types of income, gross proceeds from the sale of financial assets and other income, and account balances (EC 2016a). Notably, also Austria and Luxembourg gave up their resistance against the automatic exchange of information so that all member states of the European Union now seem to cooperate on the issue. So far, the European Union has also been successful in reaching agreements to exchange information with European financial secrecy jurisdictions such as Switzerland (May 2015), Liechtenstein (October 2015), San Marino (December 2015), and Andorra (February 2016) (EC 2016b). An agreement with Monaco is envisaged for the summer of 2016 (EC 2016c). This will significantly improve the member states' capacity to detect tax evasion by individuals.

However, it remains to be seen to what extent these measures will be effective in curbing international tax evasion as tax evaders might find new loopholes or shift their fortunes to less compliant jurisdictions. For example, Johannesen and Zucman (2014) have seriously questioned the so-called "end of bank secrecy" as proclaimed by policy-makers after a supposedly ground-breaking meeting of the G20 in 2009. In their study, they evaluate the effect of the G20 urging tax havens to sign at least 12 information exchange treaties. Their evidence suggests that "treaties have led to a relocation of bank deposits between tax havens but have not triggered significant repatriation of funds" (p. 89). Substantial loop holes remained, so the effort cannot be considered successful.

By now, significant steps towards multilateral action have been taken and most of the tax havens have signed the CRS MCAA, which suggests that the tax haven crackdown might be more successful, this time. The aim of this paper is to review recent developments of offshore wealth by means of descriptive statistics, and to evaluate whether the recent international activities to increase financial account transparency have, so far, led to a visible decline of funds in offshore centers.[1]

1 Please note that our analysis remains descriptive at all stages, i.e. we do not claim to draw causal statistical inference.

The international investment statistics comprise different categories of cross-border wealth[2]. According to the IMF (2016), portfolio investment made up for about 40 percent of total cross-border liabilities, foreign direct investment for about 28 percent, and other investment (including loans, deposits and other) made up for about 24 percent of total cross-border liabilities in 2014. In comparison to 2008, the share of portfolio investment has increased significantly, while that of "other investment" has declined.

Zucman (2015), estimates global offshore financial wealth held by individuals as composed of portfolio securities and deposits. He estimates that it amounted to 7.6 trillion USD in 2014, of which 1.6 trillion deposits and 6.1 trillion portfolio investment. Accordingly, portfolio investment is estimated to account for about 80 percent of global offshore wealth and can thus be regarded as its most relevant component.

Following Zucman (2013a, S. 1325), we consider these two categories of cross-border investment most relevant for tax evasion by individuals, i.e. we exclude foreign direct investment and financial derivatives[3].

- Portfolio Investment
    - Equity securities
    - Debt securities
- Loans and deposits

Section 1 provides an analysis of cross-border loans and deposits in offshore centers as provided by the Bank of International Settlements. Section 2 is dedicated to the development of equity and debt securities, building on the method developed by Zucman. Section 3 concludes.

1. Development of cross-border deposits

1.2. Data availability and methodological remarks

The Bank for International Settlements (BIS) provides data on foreign bank deposits aggregated at the country level. The "Cross-border positions, by location of reporting bank and sector of counterparty" capture outstanding claims and liabilities of banks located in BIS reporting countries. For our analysis, we rely on the cross-border liabilities of reporting banks vis-à-vis the non-bank sector. Over 90 percent of these represent loans and deposits.

Interpretation of this time series has some limitations. As pointed out by Johannesen and Zucman (2014, p. 9), it is not possible to know exactly what fraction of the reported deposits belong to households. The BIS decomposes the data into bank accounts held by banks and by non-banks. "Non-banks" is a sectoral classification comprising non-bank financial corporations and the non-financial sector (BIS 2015, S. 293). The deposits of private households are part of the non-banks' deposits but

2 Direct Investment, Portfolio Investment, Financial Derivatives, and other investment

3 A cross-border investment qualifies as „foreign direct investment", if the investor owns at least 10 percent of the voting shares of the company. "Financial derivatives are financial instruments that are linked to a specific financial instrument or indicator or commodity, and through which specific financial risks can be traded in financial markets in their own right." (IMF 1998: Financial Derivatives, BOPCOM98/1/20. Financial derivatives data is only available for a limited number of countries. According to Zucman (2015, 97 f.), there is currently no comprehensive register of financial derivatives. This not only hampers possibilities to fight tax dodging with a global financial registry, as he proposes, but also poses important risks to financial stability

so are deposits of multinational corporations. On the basis of central bank data from Switzerland and the UK, Johannesen and Zucman estimate that "at least 50 percent of haven deposits likely belong to households." (Ibid., p. 10)

Unfortunately, deposits and loans are only available as an aggregate. Deposits are more likely to represent private households' wealth. However, analyzing the aggregate time series should allow inference with regard to the development of deposits, rather than estimating their nominal level, under the assumption that the ratio of deposits to loans in the aggregate does not change by too much.

For their study, Johannesen and Zucman rely on deposit data on the bilateral level which provides information on the residence of deposit owners. This data would allow us to understand how much money for example German residents hold in deposits in Luxembourg. Unfortunately, this data is not available to the public.

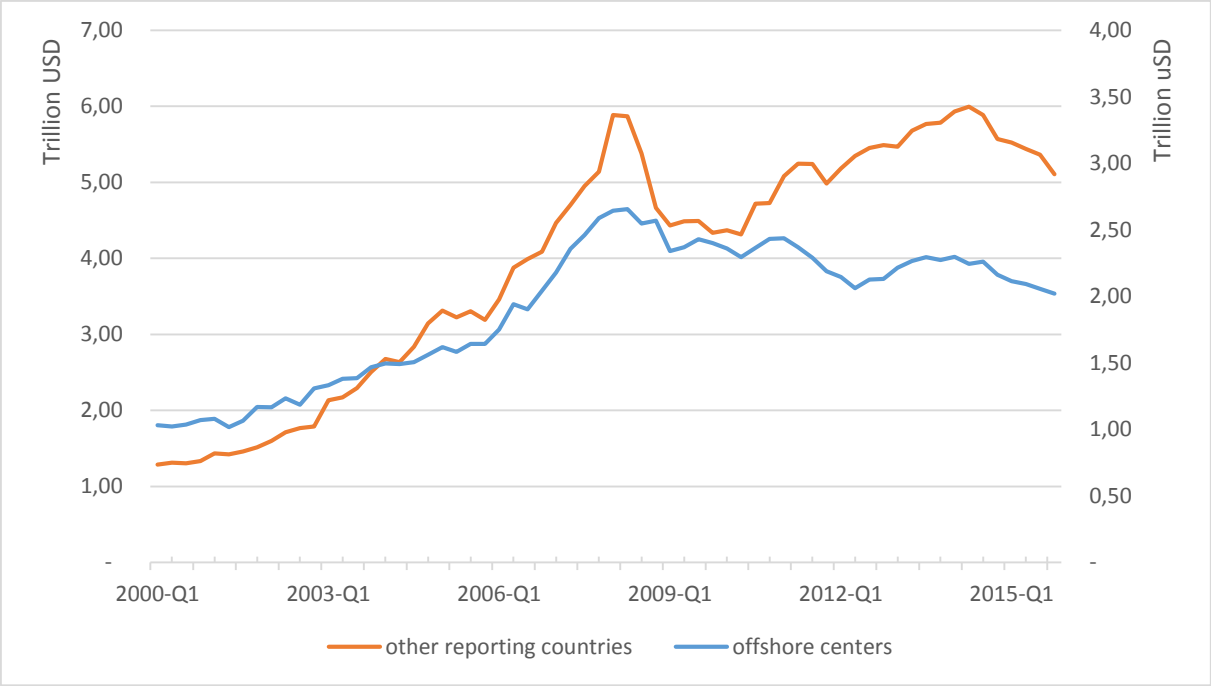
1.2. Descriptive analysis

With regard to the location of reporting banks, the BIS offers the category "offshore financial centers" including Aruba, Bahamas, Bahrain, Barbados, Bermuda, Cayman Islands, Curacao, Gibraltar, Guernsey, Hong Kong SAR, Isle of Man, Jersey, Lebanon, Macao SAR, Mauritius, Panama, Samoa, Singapore, and the British West Indies. However, data is only available for a limited number of these jurisdictions, namely, Bahamas, Bahrain, Bermuda, Cayman Islands, Curacao, Guernsey, Hong Kong, Isle of Man, Jersey, Macao, Panama, Singapore. We add Austria, Luxembourg and Switzerland to the BIS category. In contrast to section 2, we do not consider Ireland, the United Kingdom, and the United States, as offshore centers here, although they play a dubious role in the international financial system. This is because we think it would be misleading to classify 50 percent of cross-border deposits in these countries as deposits of tax evading individuals as there may be other reasons to hold deposits in these countries for business purposes. We consider this less of a problem in the case of Austria and Luxembourg because of their (former) distinct specialization as financial secrecy jurisdictions. Unfortunately, no data is available for the other prominent European financial secrecy jurisdictions Andorra, Liechtenstein, Monaco and San Marino.

In nominal values, the cross-border liabilities of the reporting offshore jurisdictions vis-à-vis the non-bank sector have risen from about 1 trillion USD in the beginning of 2000 to about 2 trillion USD in the end of 2015. Assuming that 50 percent of those can be regarded as deposits of private households, this would imply that the latter hold about 1 trillion USD in offshore deposits. This estimate is lower than the 1.6 trillion USD estimate by Zucman for 2014. However, due to the described data limitations and excluded offshore centers, we would focus on the development of deposits over time rather than on the nominal level of deposits.

If we compare the cross-border liabilities (loans and deposits) in offshore centers to those in the rest of the world we can see that both are subject to the same fluctuations, i.e. probably driven by economic cycles. Both increased sharply in the pre-crisis boom and started falling in 2008. After this marked decline in 2008 and 2009 cross-border liabilities in offshore centers and in the rest of reporting countries show divergent patterns. While liabilities in the other reporting countries have recovered and continued their upward trend since 2010, liabilities reported by offshore centers have stagnated and even slightly declined (figure 1). This might indicate a trend reversal with regard to deposits held in offshore centers.

Figure 1: Cross-border deposits held in offshore financial centers and in the rest of the world, 2000-2015



Source: BIS (2016): Locational Banking Statistics, own calculations

On average, cross-border liabilities reported by offshore centers have declined by 2.7 percent annually between 2010 and 2015 whereas cross-border liabilities reported by the other countries have increased by about 3.2 percent annually and thus recovered from the marked drop in 2008 (table 1).

Table 1: Post-crisis recovery - offshore centers lag behind

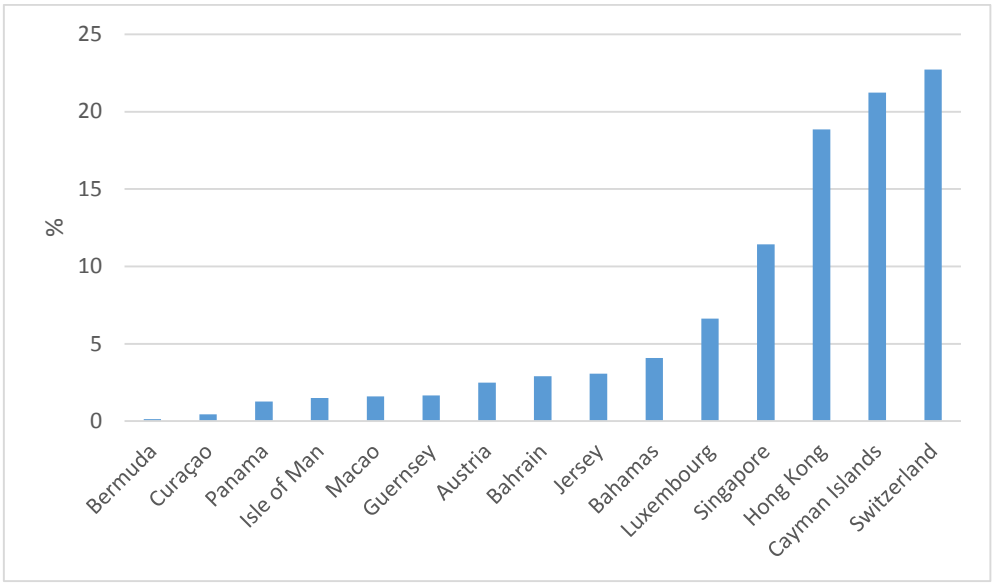
Percentage growth of cross-border liabilities		
	Offshore	Rest of World
2008-2015	-21 %	-2,7 %
2010-2015	-13 %	17 %

Source: BIS (2016): Locational Banking Statistics, own calculation

When we look at the financial offshore centers individually, we find that they differ substantially with regard to their relative financial weight and the developments since the financial crisis.

The most important financial offshore centers in terms of cross-border liabilities are Switzerland (449 bn. USD), Cayman Islands (429 bn. USD), Hong Kong (381 bn. USD), Singapore (231 bn. USD), and Luxembourg (134 bn. USD) (figure 2).

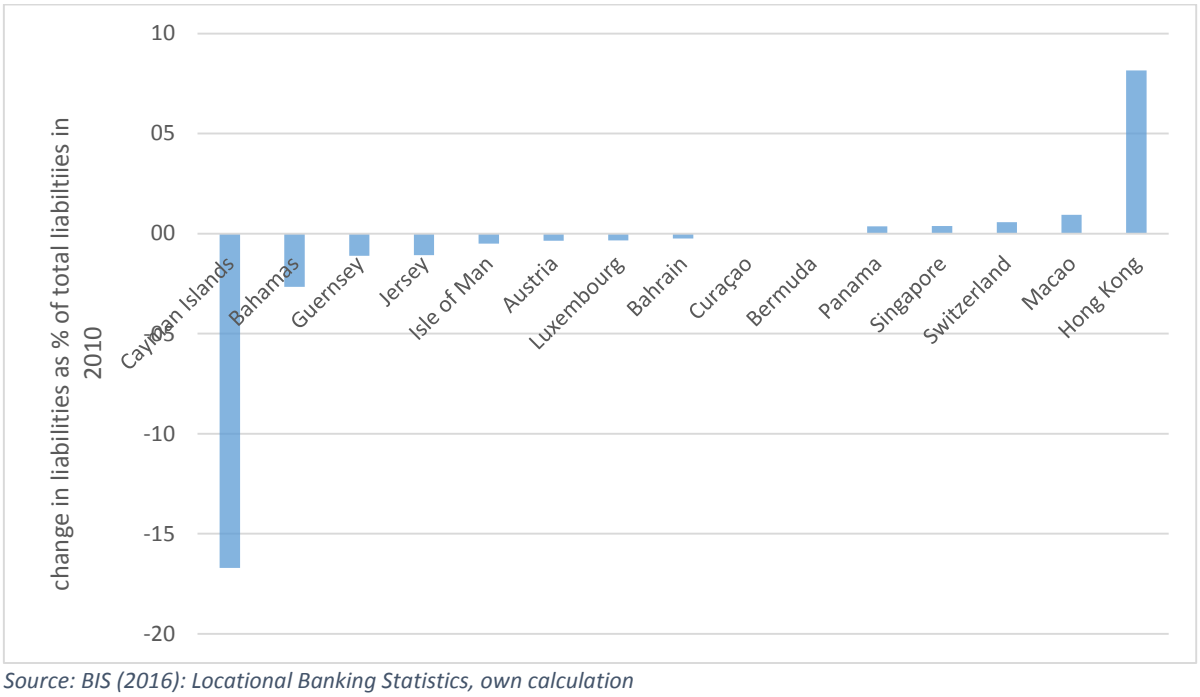
Figure 2: Share of total cross-border liabilities reported by offshore centers, 2015-Q4



Source: BIS (2016): Locational Banking Statistics, own calculations

With regard to the development of cross-border liabilities after the financial crisis slump, we can see that few centers, namely Hong Kong, Macao, Switzerland, Singapore, and Panama, have recovered to the extent that their level of deposits is higher than in 2010 (figure 3). These jurisdictions thus contrast with the average slightly negative trend after 2010. The overall negative tendency is to a large extent caused by the developments reported by Cayman Islands.

Figure 3: Evolution of cross-border liabilities reported by offshore centers, 2010-2015

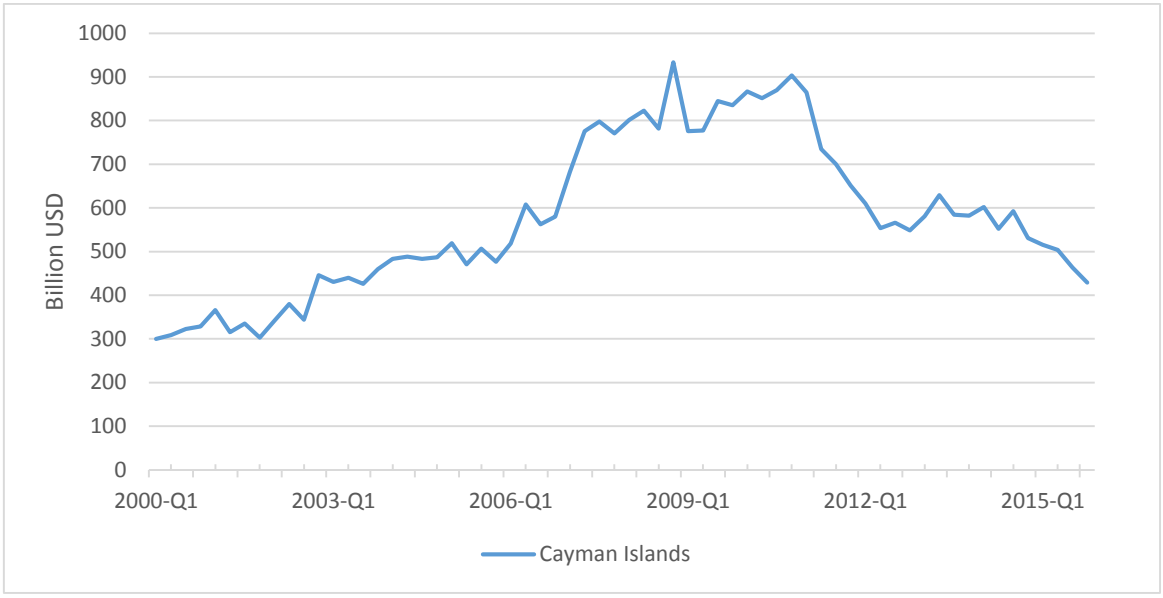


Source: BIS (2016): Locational Banking Statistics, own calculation

Different groups of offshore centers can be distinguished with respect to the trend after 2008.

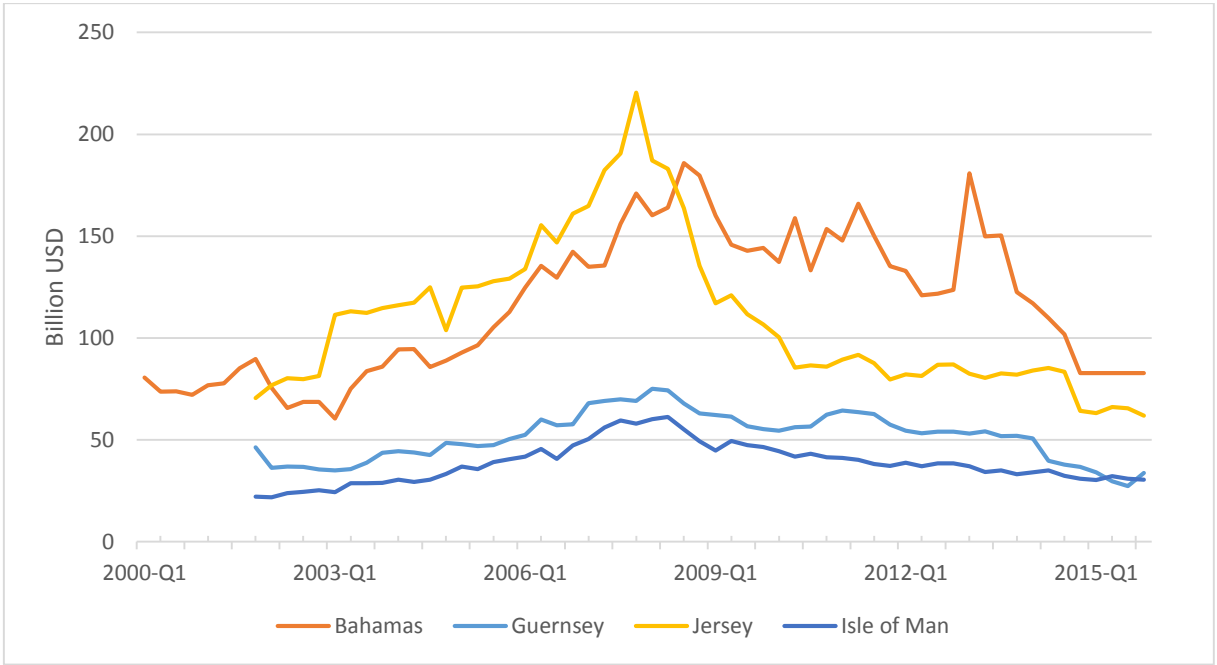
Cross-border liabilities reported by Cayman Islands declined significantly since the end of 2010 (figure 4). Similar downward patterns emerge in Bahamas, Guernsey, Jersey, and Isle of Man (figure 5) but these started already in 2008.

Figure 4: Strong decline of cross-border liabilities in Cayman Islands



Source: BIS (2016): Locational Banking Statistics

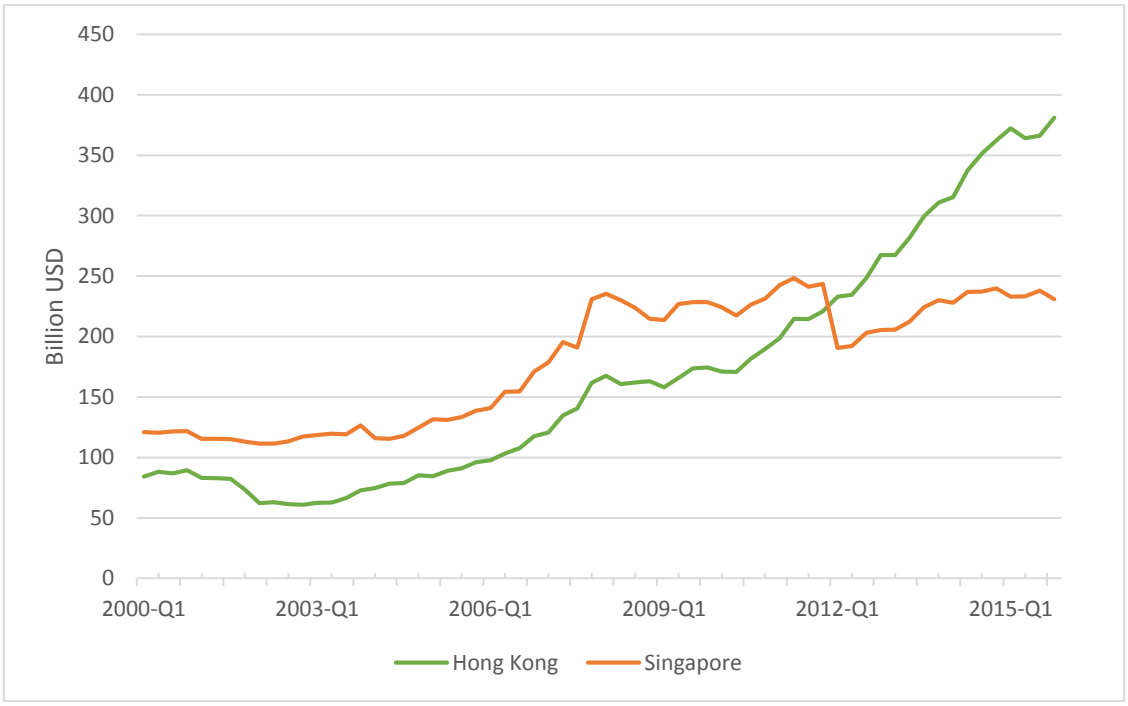
Figure 5: Decline of cross-border liabilities in Bahamas, Guernsey, Jersey, and Isle of Man



Source: BIS (2016): Locational Banking Statistics

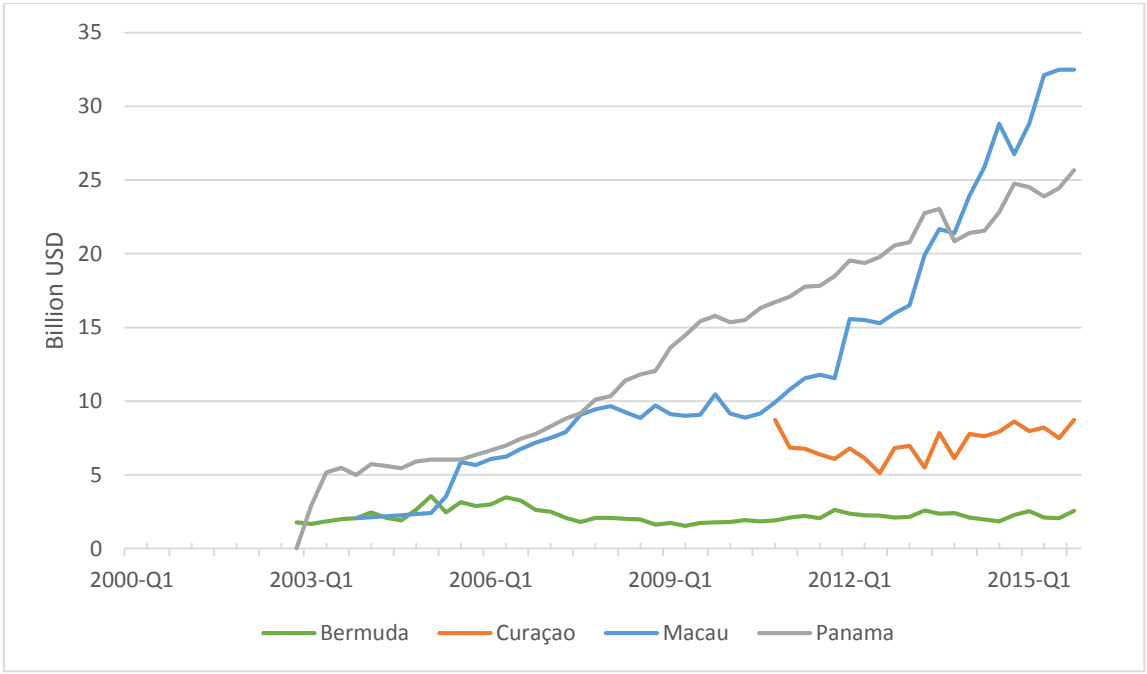
In contrast, clear upward trends emerge in Hong Kong, and the relatively small offshore centers Macao and Panama. In Singapore, and the smaller offshore centers Bermuda and Curacao, cross-border liabilities have barely reached their pre-crisis levels. Still, they seem to follow an upward tendency in recent years (figures 6 and 7) whereas they stagnate without noticeable tendency in Bahrain (figure 8).

Figure 6: Continued growth of cross-border liabilities in Hong Kong and recovery in Singapore



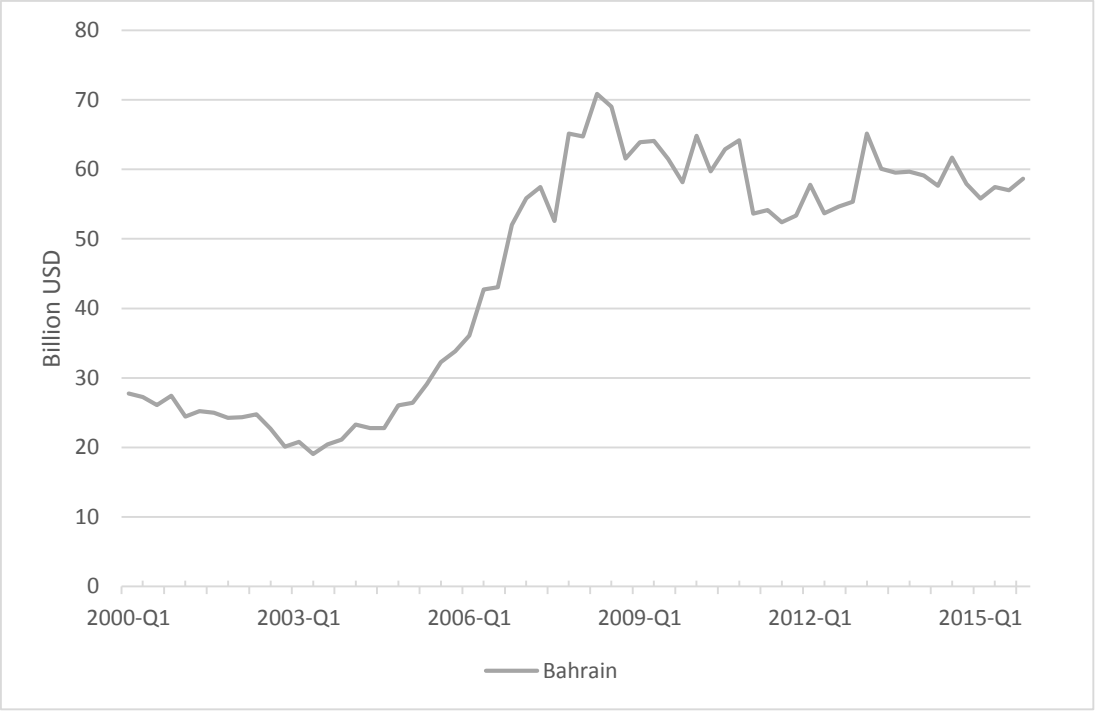
Source: BIS (2016): Locational Banking Statistics

Figure 7: Unprecedented increase of cross-border deposits in Panama and Macau, recovery in Bermuda and Curacao



Source: BIS (2016): Locational Banking Statistics

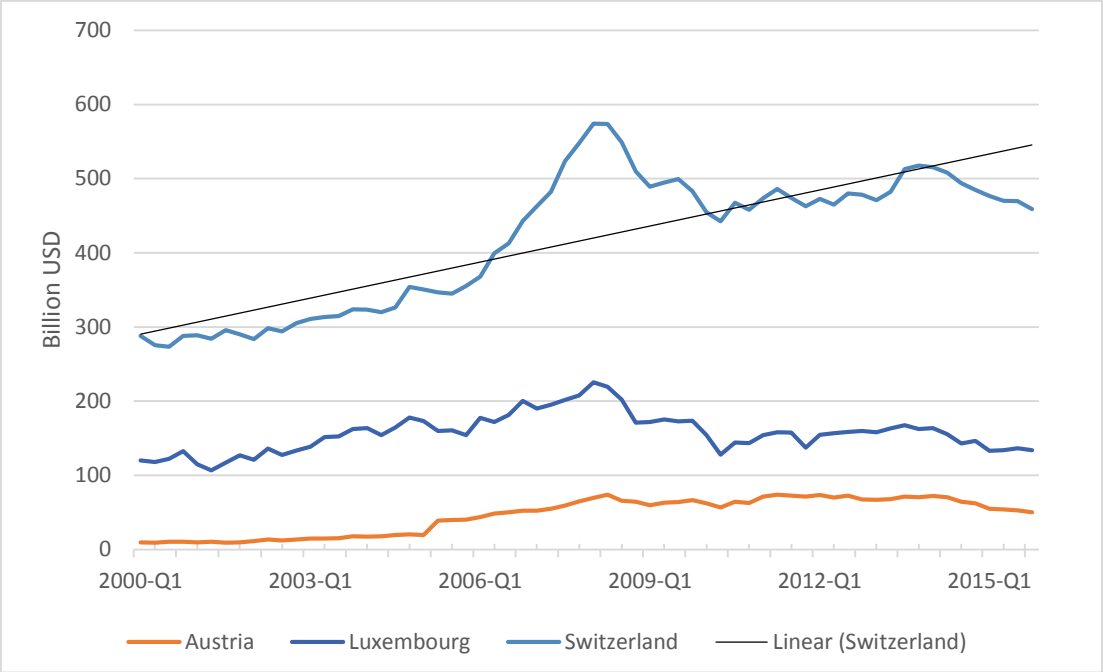
Figure 8: Stagnating cross-border liabilities in Bahrain



Source: BIS (2016): Locational Banking Statistics

In Austria, Luxembourg and Switzerland, the development is not quite clear, yet. Cross-border liabilities are still below their 2008 levels. But even though Switzerland has not yet recovered to pre-crisis highs, a slight upward tendency can be observed between 2010 and 2013. Until the end of 2013 this could have been considered a continuation of a general upward trend only interrupted by boom and bust around 2008. In contrast, Austria and Luxembourg seem to be truly stagnating. Since the beginning of 2014 a downward tendency emerges in Austria, Luxembourg, and Switzerland, which seemingly breaks with the former development (figure 9). However, this tendency can also be observed in the aggregate cross-border liabilities of the rest of the world and may thus represent a cyclical swing rather than a reaction to an anti-tax haven policy event (e.g. the G20 endorsement of the OECD proposal for automatic exchange of information in September 2013).

Figure 9: Increasing cross-border liabilities in Switzerland, stagnation in Austria and Luxembourg



Source: BIS (2016): Locational Banking Statistics

In summary, cross-border deposits in offshore centers seem to have been driven by the same cycles as cross-border deposits in the rest of the world. However, since 2010 divergent patterns have emerged. In aggregate, cross-border deposits reported by offshore centers have declined or at best stagnated since 2010. In contrast, cross-border deposits reported in other countries have on average recovered from the crisis slump of 2009 and continued their upward trend.

At first sight, the average stagnation as from 2010 coincides with important initiatives to increase international financial transparency, starting with FATCA in 2010, the OECD report on automatic exchange of information in 2012 and leading to further important steps in the following years. However, this view is challenged by the fact that patterns diverge across offshore jurisdictions. In this regard, especially the strong divergence between Cayman Islands and Hong Kong is remarkable as both have committed to FATCA and the CRS. It is remarkable that Hong Kong, Macao, Panama, Singapore and Switzerland – the jurisdictions with a positive development of cross-border liabilities since 2010 - belong to the group of late adopters and will only start exchanging information in 2018. Would only the time lag explain such different developments? There is indication that Cayman Islands changed its business model moving away from private client business towards more institutional investors. Accordingly, Cayman Islands have improved on the financial secrecy index since 2013 as bank secrecy was not excessively high anymore in 2015. In contrast, corporate transparency regulation was still very poor (Tax Justice Network 2015).

More research would be needed to identify other factors affecting the offshore centers in differential ways. For example, different patterns of regional orientation or changing business models of offshore centers may lead to differential effects of current transparency initiatives pushed by OECD countries.

Our results would be consistent with predictions that the current initiatives will principally deter small-scale tax evaders. The private wealth management business seems to concentrate increasingly on the very rich who are more likely to invest their fortunes in securities rather than accumulating bank

deposits. Furthermore, Zucman observes a rising share of wealth held through shell companies and other legal structures, such as family wealth holdings, in Switzerland and Luxembourg (Zucman 2015, p. 46 f.) These complex structures of ownership are predominantly used by very wealthy individuals.

To sum up, the results indicate that the recent initiatives on international financial transparency are on average accompanied by a decline of cross-border deposits in the reporting offshore centers. The trend of stagnation applies to the majority of offshore centers in the sample. In contrast, some offshore centers still record rising external liabilities. Unfortunately, we cannot exclude that deposits were shifted to other jurisdictions that do not report to the BIS.

2. Development of cross-border portfolio securities

2.1. Zucman's Methodology

In his 2013 QJE-article "The Missing Wealth of Nations", as well as in subsequent calculations for his 2015 book "The Hidden Wealth of Nations", Gabriel Zucman uses an indirect method to calculate the amount of offshore wealth hidden in tax havens. It builds on official statistics and exploits anomalies that were well-known for a long time: Globally, there are more cross-border portfolio liabilities than assets on record, which is due to the way the statistics are gathered.

International investment positions (IIP) in the international balance of payment statistics are based on the residence principle. I.e., a security issued by a UK bank which is held by a German resident through a bank in Liechtenstein, should be recorded as an asset to Germany on the UK and as a liability for the UK vis-à-vis Germany. The residence of the custodian, in this case the Liechtensteinian bank, does not matter. This is where a blind spot is generated: The German household's securities can neither be recorded by surveying German custodians, nor are they captured in the IIP of the offshore custodian. Liechtensteins central bank observes UK securities owned by German residents in custody of a domestic bank, and in accordance with the residence principle they are excluded from the IIP of Liechteinstein. However, they finally do appear in the UK's IIP, as liabilites vis-à-vis Liechtenstein. As a consequence, more portfolio liabilities than assets are recorded globally. So far, only the Swiss National Bank does publish information about the portfolios held by foreign clients in domestic banks, which is the obvious remedy for the problem. Other secrecy jurisdictions abstain from such a practice.

Therefore, Zucman estimates unrecorded wealth in all tax havens by taking the difference between globally identifiable portfolio liabilities and assets. He motivates at length how and why his method is appropriate, which data is required and which corrections and robustness checks are to be made (for details, see Zucman 2013a, 2013b). Especially, he conducts a comprehensive model-based estimation that imputes missing data for offshore financial centers (OFCs) and corrects for holdings of special countries (China, Middle Eastern Oil Exporters), which makes his output superior to just looking at the raw data.

For the global picture, he mostly uses the "External Wealth of Nations" database (EWN II) collected by Lane/Milesi-Ferretti (2007) in its August 2009 version, with numbers up to the year of 2008. Additionally, he considers the IMF's Coordinated Portfolio Investment Survey (CPIS), the US Treasury International Capital system (TIC), BIS Quarterly Reviews and other data sources. For instance, for the Cayman Islands, substantial efforts were necessary to estimate its holdings of foreign securities, which

are severely underreported in the CPIS. These efforts include the use of two different methods, one based on an econometric estimation (using a gravity model of bilateral holdings, for details see Zucman 2013b, pp. 10-13), the other one based on a survey conducted by Cayman Island authorities. Another problem concerns many small offshore financial centers which are neither included in EWN II nor in the CIPS. For these tax havens, Zucman indirectly infers their holdings from the claims that CPIS-reporting countries report on them, assuming a zero net portfolio position for them. Hence, his dataset is more comprehensive than its parts, and it is made internally consistent, such that for instance the higher amount of Cayman holdings (compared to the "official" figures in the CPIS) also affects estimates of British Virgin Island foreign assets. Additional corrections were applied to the liability side of the picture. Most notably, figures had to be approximated for offshore financial centers, which are not included in EWN II. Various sources for fund liabilities, and in turn equity and debt liabilities are used, for details see Zucman (2013b, pp. 41-48).

To find out where the missing wealth is invested, he creates comprehensive bilateral asset matrices, both for equity and debt for the years 2001-2008. The data is mainly taken from the CPIS, for 74 source countries and jurisdictions to 237 host countries and jurisdictions. He makes a number of corrections to account for unallocated or confidential claims in these data (1-2% of assets) and to deal with countries that did not participate every year. Moreover, to allocate the private holdings of countries that do not participate in the CPIS, he uses predicted shares from the gravity model of bilateral holdings he estimates. Additional corrections pertain to central bank reserve assets and the holdings of Middle East Oil Exporters.

When comparing figures from the IIP with those from the CPIS, one can calculate the difference between debtor-reported liabilities (IIP liabilities on a country) and creditor-derived liabilities (CPIS assets of a country) for the jurisdictions that are covered. To understand why the CPIS assets of a country can be interpreted as "creditor-derived liabilities", remember the way these figures are collected: In principle, assets and liabilities should be equal, but through the underreporting of assets via tax havens, there are too many liabilities reported for them. This leads to debtor-reported liabilities from the IIP being systematically lower than creditor-derived liabilities (CPIS assets). For the 2015 publication of his book in English, he updated the figures about this gap for three countries (Luxembourg, Ireland and the US) up until 2013. For this purpose, he applies the rate of change of this gap in official IMF statistics, to the data series he had established before.

In the paper's appendix, he states that "half of the missing wealth has been invested in mutual funds incorporated in Luxembourg, Ireland and the Cayman Islands" in recent years (Zucman 2013b, p. 55). In personal correspondence as of March 2016, he confirmed that "2/3 of the assets-liabilities gap comes from Luxembourg + Cayman + Ireland + US". This explains the choice for updating selected countries only. Therefore, he has also updated the figures for the Cayman Islands until 2013, but without rerunning the estimations done with the gravity model of bilateral holdings. Instead, he uses the following numbers on the asset side:

- averages of the share of U.S. securities among the holdings of the Cayman Islands from his 2001-2008 calculations, which are in turn applied on TIC data about these holdings
- both for equity and debt assets
- consistency checks are done until 2010 with data from the Cayman Islands Monetary Authority (CIMA)

The asset figures are mostly used to update the global amount of offshore wealth. They also enable to show the net portfolio position of a country, but not the assets-liabilities gap which allows to determine where the "missing" wealth is invested.

For this purpose, Zucman looks at the liability side:

- the maximum of either international debt securities collected by the BIS, or of creditor-derived debt liabilities (i.e., CPIS debt securities assets) is taken for debt securities
- for equity securities, CIMA data on mutual fund shares are combined with TIC data about U.S. equities on the non-fund sector as one source, an alternative are creditor derived equity liabilities (i.e., CPIS equity securities assets) -> the maximum of either one is taken (see footnote 2 for a caveat)

Finally, for both equity and debt, the creditor-derived liabilities are subtracted from the maximum of the two figures. This gives the assets-liabilities gap which represents an estimate of the wealth hidden offshore.

2.2. Our data update

We stick to the updating method Zucman has followed. Hence, we obtained data from two IMF sources: The International Investment Positions (IIP) and Coordinated Portfolio Investment Survey (CPIS). From the former, we take portfolio security liabilities (equity and debt), from the latter portfolio security assets (equity and debt). In turn, the former can be interpreted as "debtor-reported liabilities" and the latter as "creditor-derived liabilities". The gap between the two is calculated, and the rate of change of the gap is applied to the last value in Zucman's data (2008), then subsequently to the following value and so forth.

So essentially, we are not using the gap in the data itself, but just the rate of change applied to Zucman's data. We do this firstly, because we stick to what he has done for the update for his book. Secondly, the rationale behind it is that Zucman's data are superior to the raw official statistics, because he had imputed missing data with sophisticated modelling for the period 2001-2008. Inter alia, it is corrected for the bad quality of the Cayman Island's official numbers, and the resulting higher amounts also affect figures for other OFCs. Applying the rate of change gives an acceptable first order approximation, which does not require to estimate the missing years with the econometric model. On the other side, it raises the problem that some OFCs are not included in one of the two or in both sources.

We also update the data for the Cayman Islands in the same way and with the same data sources (CPIS equity + debt assets, TIC foreign holdings of U.S. securities, BIS international debt securities) he has done the post-2008 update. We correct older values in his update with later released data4. For three Caribbean OFCs, we update the debt side using the BIS data, too.

4 A caveat applies: Zucman doubts that the mutual fund share figures from CIMA are correct from 2009 onwards. The creditor-derived data show a bounce-back of almost 50% for 2009, but the official CIMA figures stagnate so they are probably too low. Therefore, he directly applies the rate of change of U.S. equity securities holdings (TIC data) to the equity liabilities figure of 2008 to get the values for 2009 and 2010. But for 2011-2013 he uses the rate of change of the derived liabilities on the beforehand discarded CIMA values to estimate the evolution of mutual fund shares. These are combined with the U.S. equities on the non-fund sector (TIC data) according to his standard method, to get the total equities liabilities. This is a problematic approach, because it i) creates a break in the data for which there is no plausible economic interpretation and ii) implies that the relative gap between reported and derived liabilities stays constant, given that the (much smaller) U.S.

We do not replicate the whole estimation and extend it to the period until 2014, because this would be clearly beyond the scope of this report. It would require much more data from a diverse range of sources, an exact understanding of the applied econometric model, substantial data preparation and programming.

We have complete data until 2014 at our disposal. There is 2015 data to update the Cayman Islands, but not for other small OFCs. Concerning the CPIS, preliminary data for June 2015 have been released, but the IIP data for 2015 are only available for very few unimportant countries. Hence, at this point in time we can only provide numbers until 2014.

We have data for the following relevant countries:

Country	Debt securities	Data used for updating	Equity securities	Data used for updating
Aruba	yes	IIP liabilites – CPIS assets	no	-
Austria	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Bahamas	yes	BIS intl' debt liabilities – CPIS assets	no	-
Bahrain	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Bermuda	yes	BIS intl' debt liabilities – CPIS assets	no	-
British Virgin Islands	yes	BIS intl' debt liabilities – CPIS assets	no	-
Cayman Islands	yes	BIS intl' debt liabilities – CPIS assets	yes	Varying, see text.
Hong Kong	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Ireland	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Luxembourg	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Mauritius	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Panama	yes	IIP liabilites – CPIS assets	no	-
Singapore	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
Switzerland	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
United Kingdom	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets
United States	yes	IIP liabilites – CPIS assets	yes	IIP liabilites – CPIS assets

Obviously, many offshore financial centers are missing5. Nevertheless, if we can believe the 2001-2008 estimations of Zucman and if there has been no miraculous ascend of a formerly insignificant haven to

equities on the non-fund sector do not change dramatically. This runs counter to our goal of determining how the gap evolves. Therefore, we calculated two 'extreme' scenarios with different assumptions. Substantial uncertainty remains nevertheless. Zucman (personal correspondence) thinks that "this will continue as long as the Cayman does not provide better data to the CPIS, but the order of magnitude is likely to be correct."

5 Of the ones we consider relevant after checking several lists with tax havens, those with missing data are: Andorra, Barbados, Curacao (because in Zucman's 2001-2008 data, there is only an estimate for the Netherlands Antilles, which ceased to exist in 2010 and of which Curacao was a part), Gibraltar, Guernsey, Isle of Man, Jersey, Lebanon, Liechtenstein,

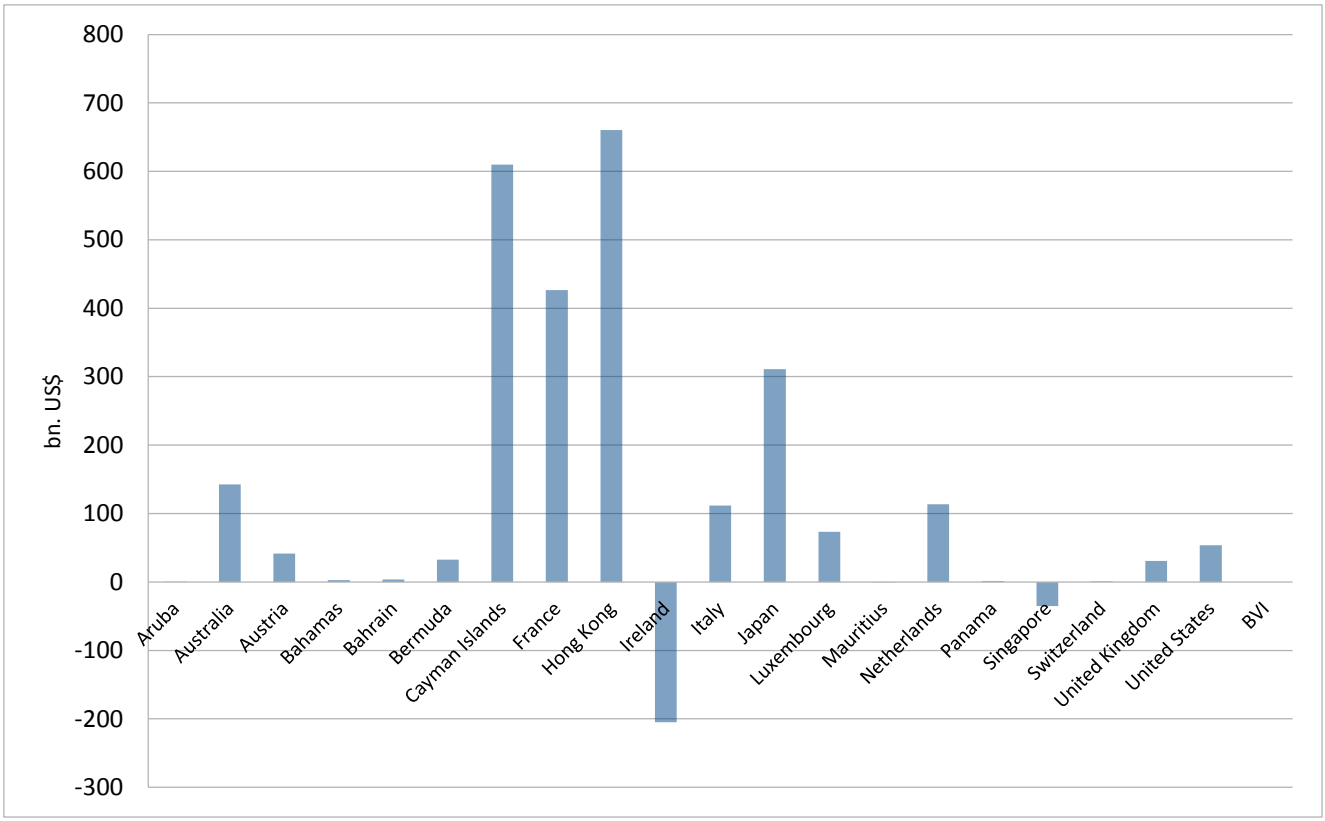
a new global player since 2008, the list still captures the most important destinations of offshore wealth. Moreover, these dimensions are in line with BIS data on deposits.

2.3. Results

2.3.1. Overall picture for the two asset classes

To get a sense for the magnitudes among different jurisdictions, it is useful to first have a look at the gap between debtor-reported and creditor-derived liabilities. For debt securities, we can see that the Cayman Islands, Hong Kong, France and Japan account for a large part of the missing wealth in 2014. Ireland and Singapore show a negative gap, i.e. they appear to have larger creditor-derived than debtor-reported liabilities. However, this snapshot picture should be treated with caution, as the figures for the Caymans, Hong Kong, Ireland and Luxembourg change quite a lot in the years before.

Figure 10: Reported debt liabilities minus creditor-derived liabilities, 2014

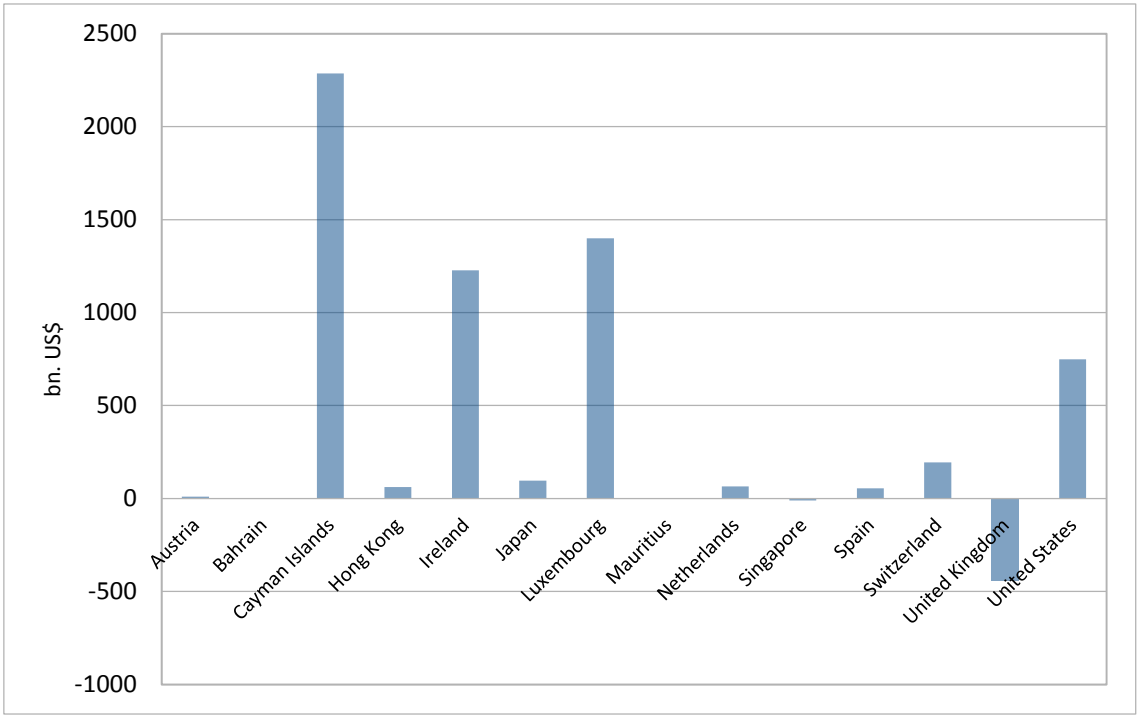


Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

For equity securities, which are quantitatively more important, the picture is much clearer. As before, the Caymans, Ireland, Luxembourg and the United States account for the largest part of the gap between debtor-reported and creditor-derived liabilities.

Macao, Monaco, Samoa, San Marino.

Figure 11: Reported equity liabilities minus creditor-derived liabilities, 2014



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

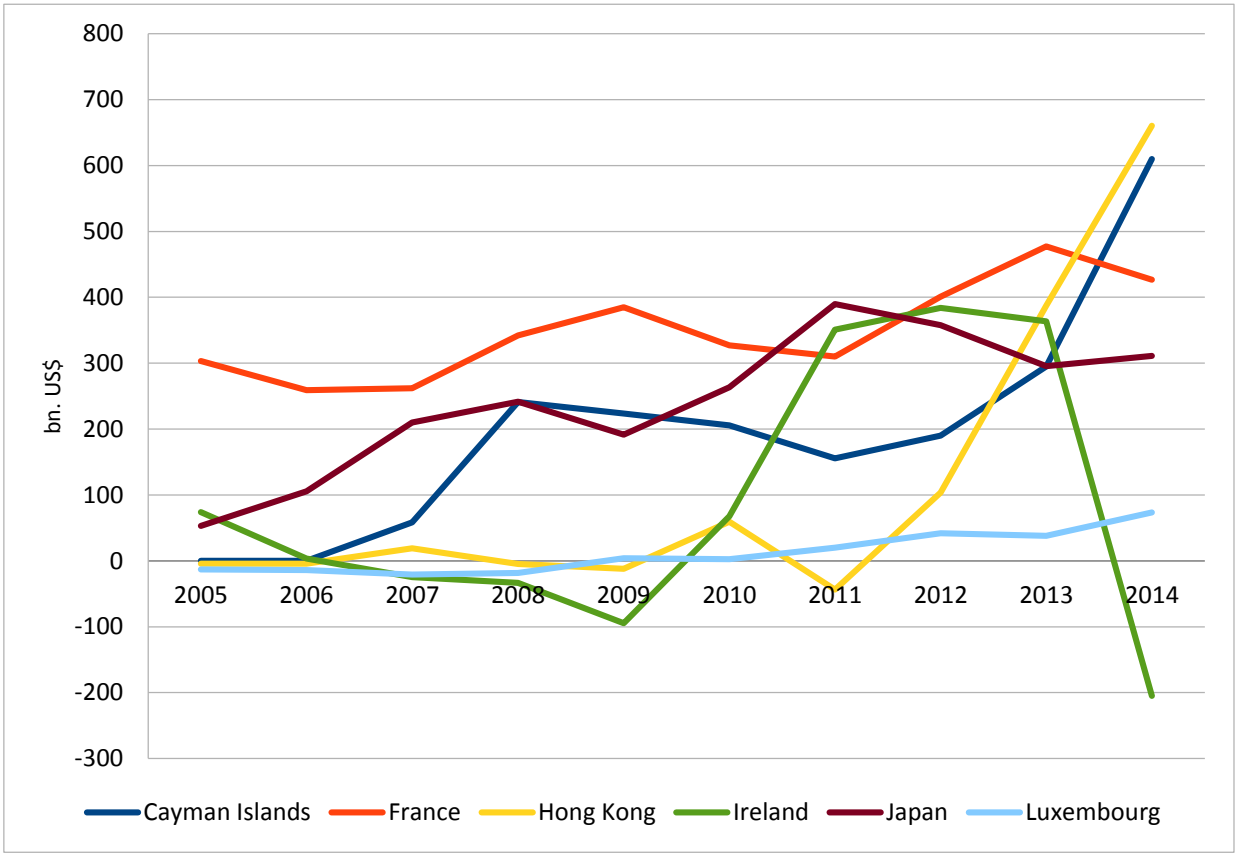
2.3.2. Evolution of debt securities

The outcomes of our calculations are subject to some uncertainty. Especially concerning debt securities, the rate of change for a number of countries is somewhat volatile. Zucman did put in the value for the US in his updated table (A.14), but he did not use the numbers for Luxembourg and Ireland, even though he had collected the data in the file. Luxembourg in particular is subject to methodological issues[6]. Nevertheless, we are confident that the data series we have produced establish a sensible estimation.

The most important countries for debt securities are the Cayman Islands, France, Hong Kong, Ireland and Japan. Notice that while the gap for Hong Kong and the Caymans rises fast since 2011, it declines sharply for Ireland in 2014. This is indeed puzzling. However, Ireland is known to have substantial multinational corporation activities, so that debt can be very volatile over time. This may also affect our calculated gap.

6 In the raw data, the gap for Luxembourg turns from a negative to a positiv figure around 2008/2009, which then rises quickly. Zucman's last estimated value for 2008 is still negative, while in the raw data it is already slightly positive. If we were to take Zucman's 2008 value as the starting point (which is our standard method), we would finally get a very large negative gap (around -1.5 tn. USD in 2014), which we find at odds with the evolution of the raw data. Therefore, we calculate the 2008 value as follows: We take the gap for 2009 from the raw data and add Zucman's estimated negative gap of 2008, which yields a slightly positive value. For the following years, we proceed according to the standard method, i.e. we apply the rate of change of the gap in the raw data to the previous year. This dampens the rise to an extent which we find approximately adequate, when comparing Zucman's estimate for 2001-2008 with the evolution of the raw data during the same time span. Of course, the margin of error is potentially large.

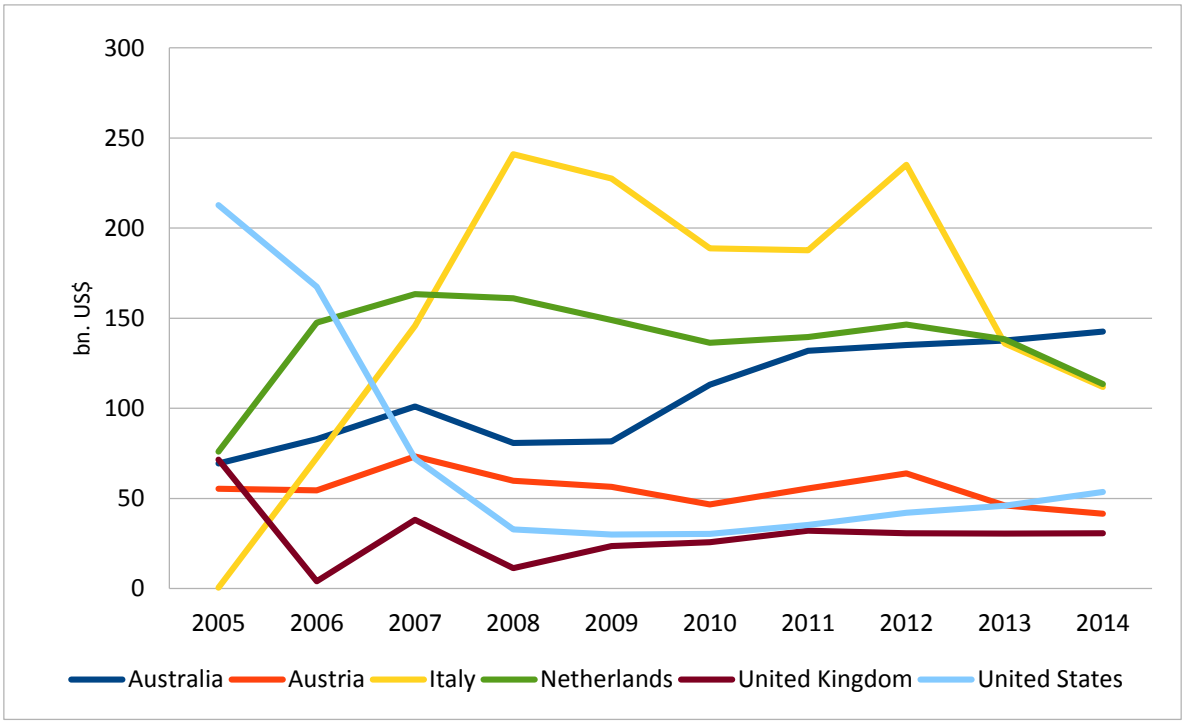
Figure 12: Reported debt liabilities minus creditor-derived liabilities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

The next sample of quantitatively somewhat important countries is shown mostly for comparison. It is apparent that the gap stays rather constant for most countries. For Austria, which we deem relevant in the context of our analysis, it shrinks.

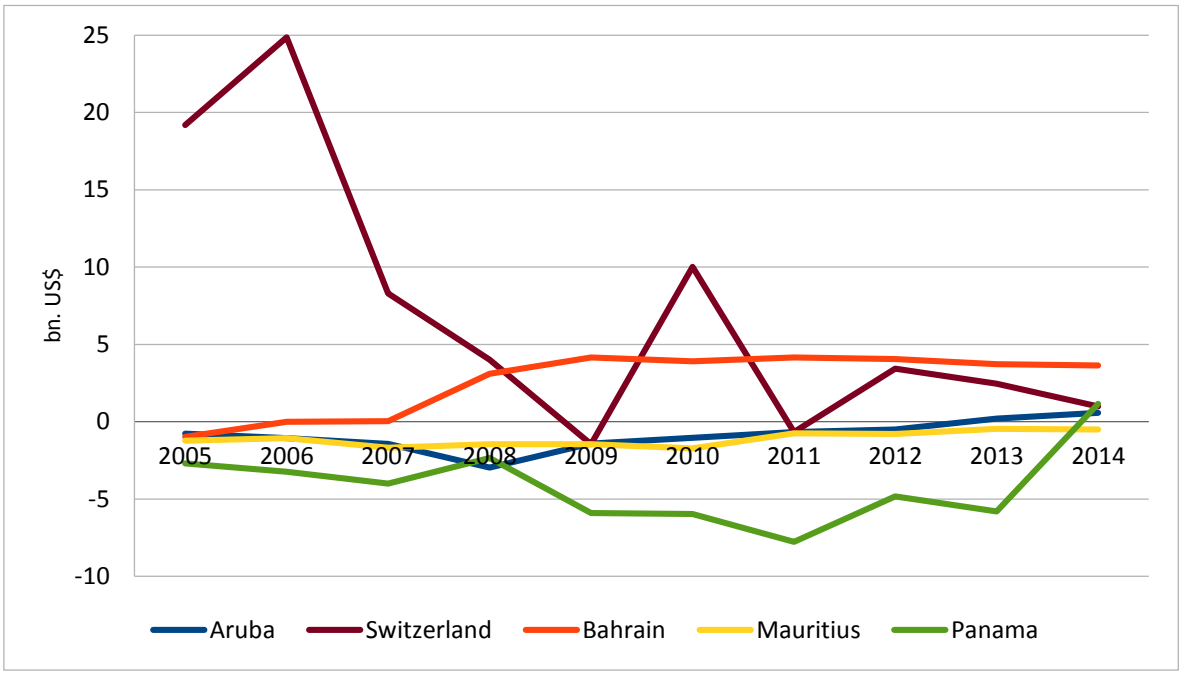
Figure 13: Reported debt liabilities minus creditor-derived liabilities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

The next selection shows tax havens that are of less quantitative importance. The development is not very interesting, especially in recent years.

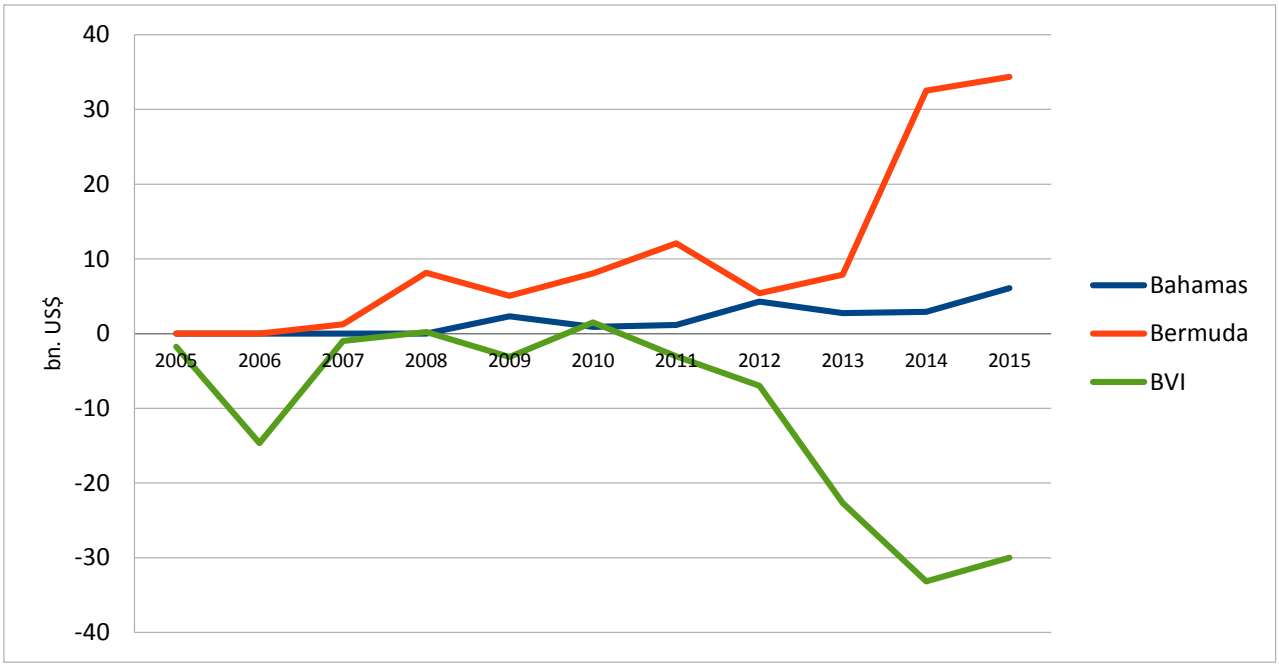
Figure 14: Reported debt liabilities minus creditor-derived liabilities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

Adding to this, also the development of the gap for some small Caribbean OFCs is not spectacular, as the numbers are comparatively small. These are jurisdictions where the debt liabilities gap is calculated using BIS International debt securities statistics, because they do not provide IIP data.

Figure 15: Reported debt liabilities minus creditor-derived liabilities

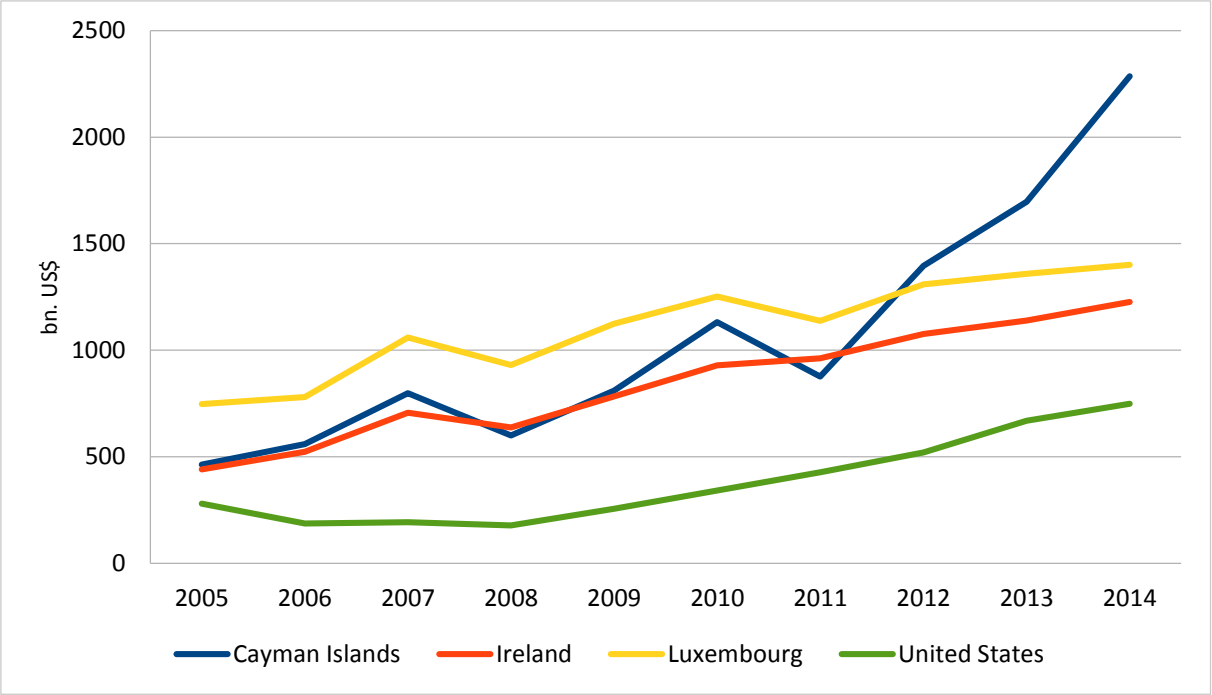


Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

2.3.3. Evolution of Equity securities

For equity securities, the interpolation yields results of a sensible magnitude. Unfortunately, there is data for less countries than for debt securities. The most important ones are depicted in figure 16, note that the numbers of all four countries are rising.

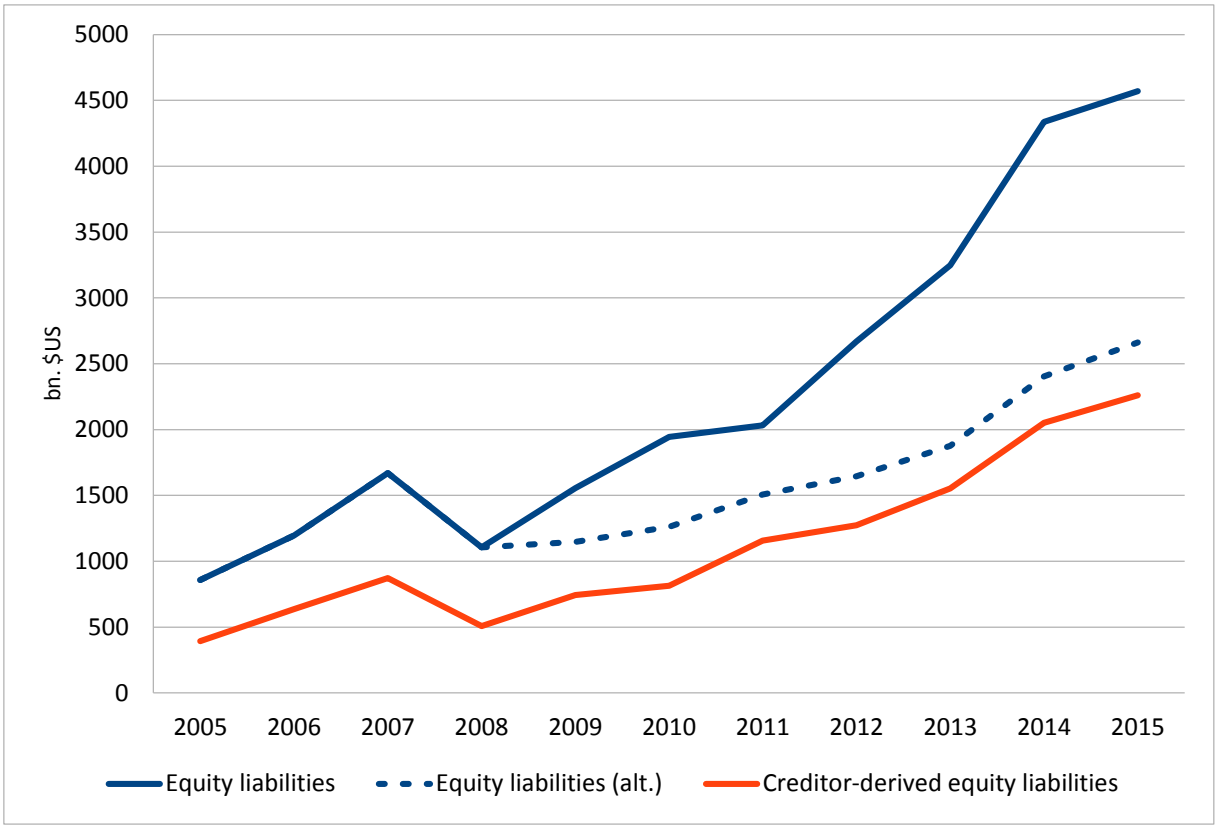
Figure 16: Reported equity liabilities minus creditor-derived liabilities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

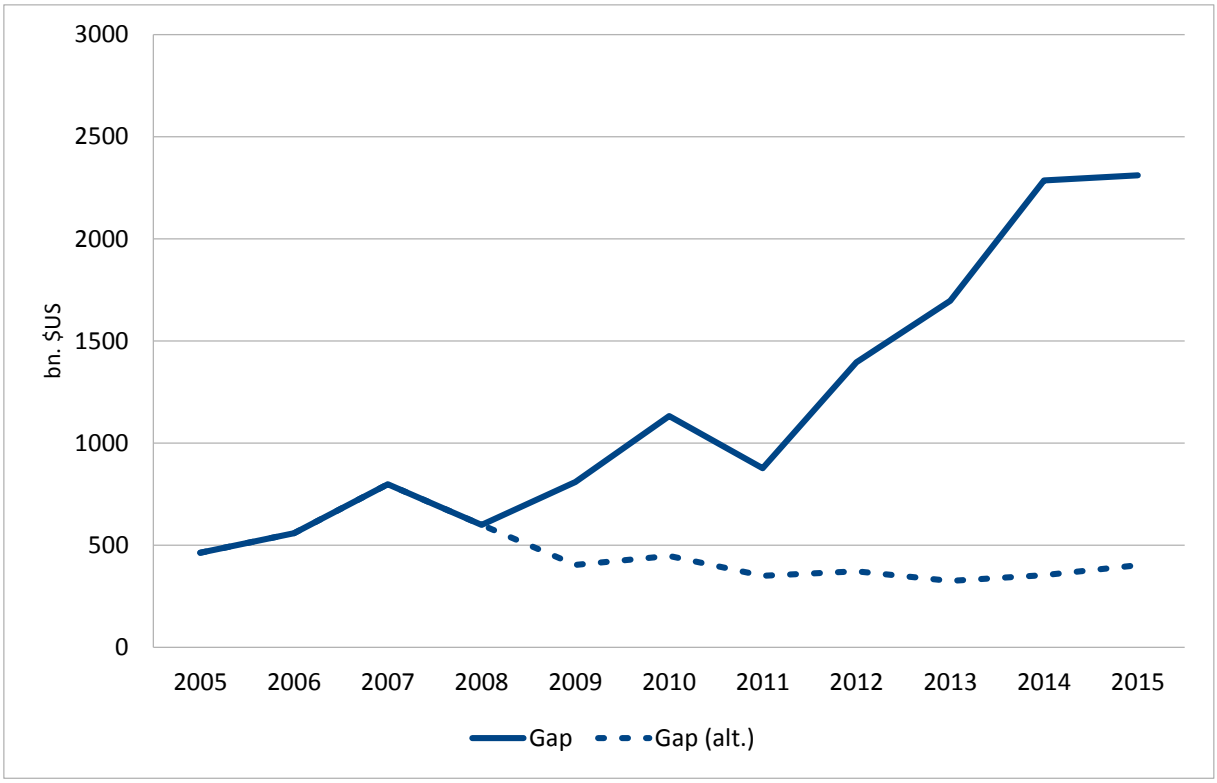
However, for the Cayman Islands extensive data gathering efforts and difficult decisions concerning the choice of data were necessary (for problems with Zucman's approach, see footnote 2). We have decided to offer two scenarios: First, we let the equity liabilities change at the pace of the holdings of U.S. equity securities by the Caymans (taken from the TIC) from 2009 onwards. This is depicted in the graphs as the straight blue line. Second, we keep the estimate for equity liabilities according to Zucman's standard methodology, i.e. by taking CIMA mutual fund shares plus U.S. equities on the non-fund sector (TIC). Mutual fund shares are available until 2013, then we extrapolate them using the same rate of change as for creditor-derived equity liabilities. U.S. equities on the non-fund sector are available from the U.S. Treasury until 2014, the 2015 value is extrapolated assuming the same rate of change as the year before. This is depicted in the graphs as the dashed blue line. Consequently, we get a lower and an upper bound for estimating the equities gap for the Cayman Islands. Our preferred estimate is the higher value, as there is no intuitively plausible economic argument that would explain why the CIMA figures are rising so much slower than the creditor-derived ones. Further research would be required for this point.

Figure 17: Equity securities liabilities, Cayman Islands



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

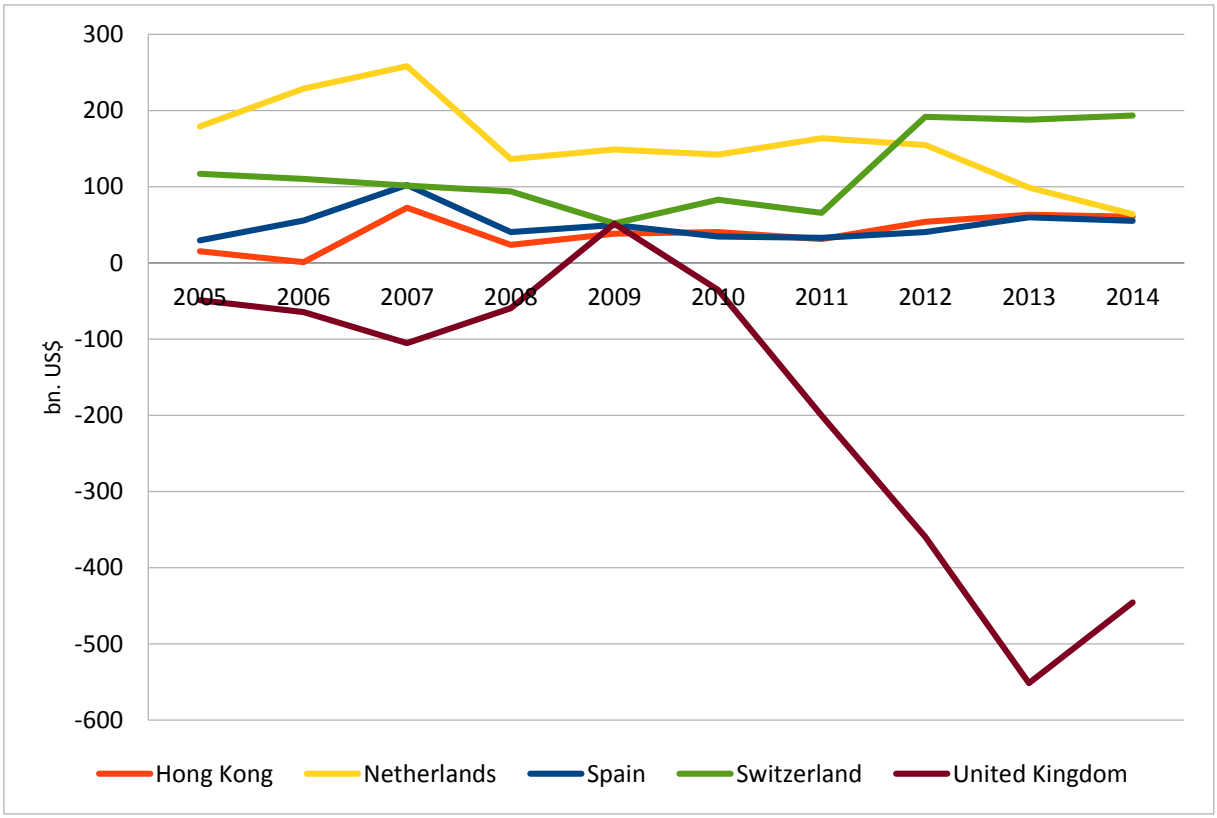
Figure 18: Reported/estimated equity liabilities minus creditor-derived liabilities, Cayman Islands



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

Another group of quantitatively somewhat important countries is shown in figure 19. The equities gap stagnates for most of them, we are not sure how to interpret the constant decline and the subsequently negative gap for the UK since 2009. For Switzerland, the gap seems to rise since 2011, possibly indicating an increasing importance as a destination for offshore wealth that takes the form of equities.

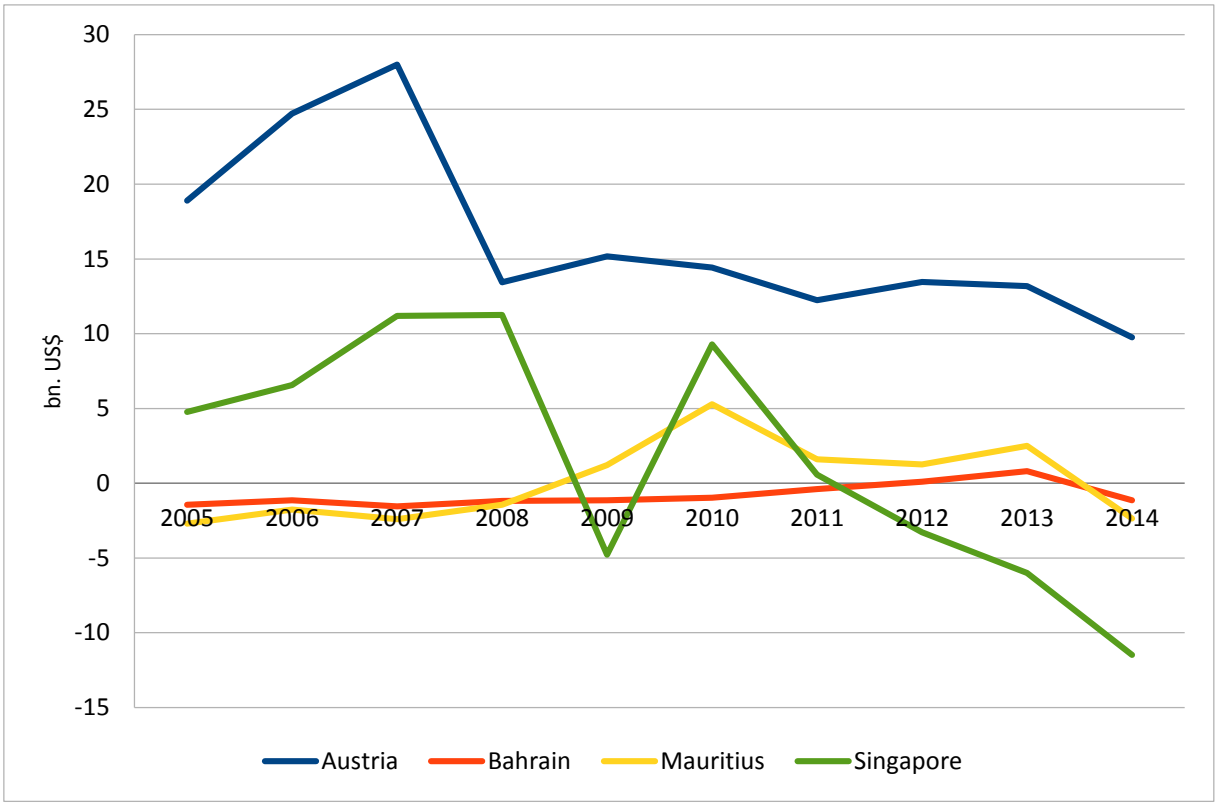
Figure 19: Reported equity liabilities minus creditor-derived liabilities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

Figure 20 depicts some relevant jurisdictions which are quantitatively less important. Moreover, the gap seems to decline or stagnate for all of them.

Figure 20: Reported equity liabilities minus creditor-derived liabilities



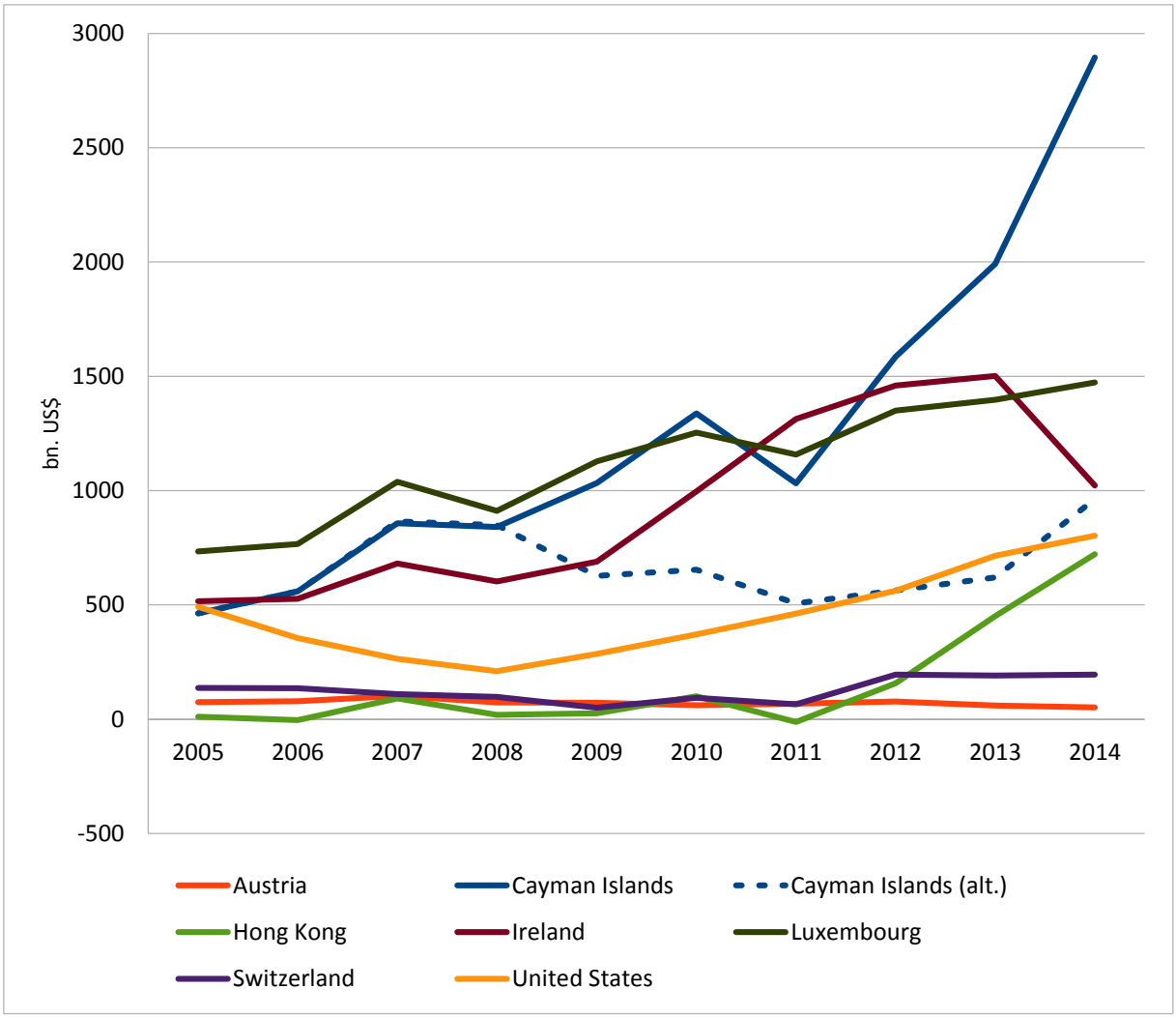
Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

2.4. Interpretation

Overall, there is no evidence that the portfolio investments in offshore jurisdictions are on the decline, at least until 2014. Looking at the Cayman Islands, a conservative estimate for the gap between debtor-reported and creditor-derived equity plus debt liabilities is established at $1 trillion, but it could well be up to $2.9 trillion in 2014. The same gap reaches $1.5 trillion in Luxembourg, $1 trillion in Ireland, $0.8 trillion in the US, $0.7 trillion in Hong Kong. The global gap is estimated at $6.5 to $8.4 trillion, depending on the Caymans. This would constitute a further rise of 27-46 percent with respect to 2010.

If we take the preliminary values for the Cayman Islands for 2015 as an indicator, this trend seems unbroken. In line with the evolution of deposits, the gap between debtor-reported and creditor-derived liabilities seems to rise for Hong Kong and Bermuda. A rising trend can also be shown for Cayman Islands, Luxembourg, Ireland and the United States. This becomes clear when looking at the total gap (debt + equity securities) for the respective countries (figure 21). In contrast, the gap in quantitatively important non-havens such as France and Japan does not change much. Therefore, our update confirms the trends identified by Zucman (2015): Offshore jurisdictions continuously seem to be attractive as locations for private wealth management, acting as custodians of securities invested mostly elsewhere. So far, no reversal of this pattern can be found in the data.

Figure 21: Reported minus creditor-derived liabilities, equity + debt securities



Source: Own calculations, based on the online appendix of Zucman (2015), IMF CPIS and various other data sources

Conclusion

Several findings from our analysis should be noted:

- The Cayman Islands, Luxembourg, Hong Kong and Switzerland remain important offshore financial centers. The increasing importance of Hong Kong can be shown both in terms of deposits and debt and equity securities. In Switzerland, deposits have risen again since 2010 and there seems to be a significant upward trend in the gap between reported and creditor-derived equity securities. Deposits seem to have declined in Cayman Islands and Luxembourg but debt and equity securities - which are the more important components of offshore wealth – have increased in these jurisdictions.
- Among the smaller havens, Bermuda and Panama have gained in terms of deposits and debt securities, Bermuda in terms of debt securities, only. For Macao and Curaçao an upward trend is only visible in terms of deposits, as no data is available for the other wealth components.
- In terms of portfolio investments, also the United States and Ireland play an important role, as they explain a substantial part of the gap between debtor-reported and creditor derived liabilities.
- In Bahrain all offshore wealth components seem to stagnate whereas all components seem to be on a decline in Austria. For Andorra, Gibraltar and Liechtenstein data is not available.

As a final conclusion, we observe an average decline of cross-border deposits in reporting offshore centers. This is contrasted by rising debt and equity securities hidden in offshore centers. As these represent the more important share of offshore wealth, we cannot speak of a general decline in the funds which are likely attracted by tax havens. So far, the most important offshore financial centers seem to be alive and well despite recent international efforts to increase financial transparency. However, some reorganization seems to have taken place in the offshore world since 2010. The decline of average cross-border deposits may be a reaction to recent anti-secrecy initiatives.

Our results are consistent with predictions that the current initiatives will principally deter small-scale tax evaders, while leaving high-net worth clients untouched, who are able to use more sophisticated methods of tax dodging and are more likely to invest in securities.

Unfortunately, we cannot exclude that the decline might be caused by other unobserved economic factors or just represent a shift to non-reporting offshore centers.[7]

Little time has passed since the CRS MCAA has been concluded. Moreover, the CRS MCAA sets the standard but actual automatic exchange of information remains a declaration of intent. Therefore, future research is needed to evaluate its effects.

Of course, our results are subject to a substantial margin of error, because they mostly build on descriptive statistics. They represent a third best: First best would be figures about offshore wealth supplied by OFCs themselves. Second best would be an estimation built on rigorous econometric models, both for the evolution of deposits and portfolio investments. However, performing such estimations along the lines of Johannesen and Zucman (2014) or Zucman (2013) is beyond the scope of this report. Nevertheless, we judge our results to be an acceptable first-order approximation.

7 Besides the non-reporting offshore centers, the role of the United States and United Kingdom should not be underestimated.

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List of abbreviations

BIS – Bank for International Settlements

CIMA – Cayman Islands Monetary Authority: Produces inter alia a Statistical Digest with figures about the asset value of the funds registered in the country.

CPIS – Coordinated Portfolio Investment Survey: A data set compiled by the IMF, contains inter alia cross-border securities holdings.

CRS – Common Reporting Standard

CRS MCAA – Multilateral Competent Authority Agreement to automatically exchange information under the Common Reporting Standard

EWNII – External Wealth of Nations Mark II: A data set with international investment data, compiled by Lane and Milesi-Ferretti (2007).

IIP – International Investment Position: Part of the balance of payment statistics compiled by the IMF, contains inter alia portfolio investment figures. Usually, these derive from the CPIS.

OFC – Offshore financial center

TIC – Treasury International Capital System: A data set compiled by the U.S. Treasury, which inter alia contains data on U.S. securities held abroad and holdings of foreign securities by U.S. residents.