SECTOR RESEARCH

# Sinks and Conduits: Identifying Offshore Financial Centres by using Big Data

*By Javier Garcia-Bernardo, Jan Fichtner, F.W. Takes and E.M. Heemskerk, CORPNET, Amsterdam Institute for Social Science Research, University of Amsterdam*

*This article is based on J. Garcia-Bernardo, J. Fichtner, F.W. Takes and E.M. Heemskerk, 'Uncovering Offshore Financial Centers: Conduits and Sinks in the Global Corporate Ownership Network', Scientific Reports 7, article 6246, 2017. The research illustrates that 'offshore' jurisdictions are much more complex than the traditional notion of an island state secreting away cash. The University of Amsterdam researchers found that the offshore industry is in fact a complex network of financial conduits, which involve many of the traditional 'onshore' centres.*

**Multinational corporations use highly complex corporate structures of parents and subsidiaries to organise their global operations and ownership structure. For example, the Britain-based banking and financial services company HSBC is composed of at least 828 legal corporate entities in 71 countries. The largest brewing company in the world, Anheuser-Busch InBev, consists of at least 680 corporate entities involving 60 countries. These complex corporate structures purposefully span across countries and jurisdictions in order to increase competitive advantage by minimising costs and accountability.**

Corporations create complex corporate ownership structures for at least three reasons. First, corporations seek to increase legal protection. By organising parts of their corporate structure in certain trusted territories with favourable legal conditions they can increase legal certainty for their operations or for joint-ventures. And by setting up subsidiaries in specific jurisdictions and using such subsidiaries to invest in other countries, multinationals can hedge their investment against decisions of governments. Second, favourable regulatory regimes in OFCs can be used by companies to avoid corporate accountability and public scrutiny of their operations, i.e. regulatory arbitrage. Third, complex corporate ownership structures help to minimise tax payments – especially for corporations that have many intangible assets, such as intellectual property rights.

Thus, OFCs are popular instruments for multinational corporations to (legally) reduce their tax bill by moving wealth across borders in form of dividends, royalties and interests and taking advantage of loopholes in the legislation. By playing out one state against another, corporations reduce their tax rate from around 35 per cent to 15–25 per cent (and some much lower). For instance, Apple used a combination of subsidiaries in Ireland, the Netherlands and Bermuda to strongly reduce its tax payments in Europe to a stunning 0.005 per cent in 2014 according to the European Commission.

If profits would be accounted where the economic activity takes place, multinationals would pay at least US$500–650 billion more on taxes, according to estimates by the Tax Justice Network and the International Monetary Fund. From this, around US$200 billion relate to developing countries, which means that developing countries may be losing more wealth in tax avoidance than they receive in development aid (US$142.6 billion).

**"18 out of 24 sink-OFCs have a current or past dependence to the United Kingdom, which highlights the central role of London in offshore finance."**

## Which Countries are Offshore Financial Centres?

Given this contested role of OFCs it is surprising that we still lack a broadly accepted definition of what makes a country an OFC. Instead, the identification of OFC jurisdictions has become a politicised and contested issue. International organisations such as the OECD or the IMF have published lists of alleged tax havens (OECD list, IMF list), but the chosen criteria remained heavily influenced by politics.

To remedy this lack of transparency, we developed a novel, data-driven approach that identifies OFCs. We simply asked which countries or jurisdictions play a role in corporate ownership chains that is incommensurate with the size and the financing of their domestic economies (see Zoromé 20071). Hence, we study how OFCs cater to the needs of multinational corporations. Private individuals and private wealth structures such as trusts are therefore not covered by our study. Our results show that offshore finance is not the exclusive business of exotic, small islands far away. Countries such as the Netherlands and the United Kingdom play a crucial yet previously hidden role as conduits to more specialised offshore financial centres.

## Using Big Data to Find OFCs

Early attempts at OFC identification have resulted in, for instance, the Tax Justice Network's 'Financial Secrecy Index' and Oxfam's list of the worst corporate tax havens. Jan Fichtner's 'Offshore-intensity Ratio' provides a helpful, rough yardstick to judge which jurisdictions act as OFCs by describing the proportion between foreign capital (such as FDI) and the size of the domestic economy. However, these measures are not able to identify whether foreign investment reported by Bermuda originates in the Netherlands, or if in contrast, it originates in Germany and is routed through the Netherlands. We still don't know how offshore finance flows across the globe.

To overcome these problems we move from country level statistics to large scale company data. The coming together of political economists and computer scientists in the CORPNET research group at the University of Amsterdam made it possible to study how corporations make use of particular countries and jurisdictions in their international ownership structures.

We analyse the entire global network of ownership relations, with information of over 98 million firms and 71 million ownership relations. We consider that OFCs are not only places where wealth is 'stored', but that they act as nodes in a complex network of international capital flows. We suggest a novel approach for identifying and classifying offshore financial centres based on the underlying large-scale granular firm level ownership data.

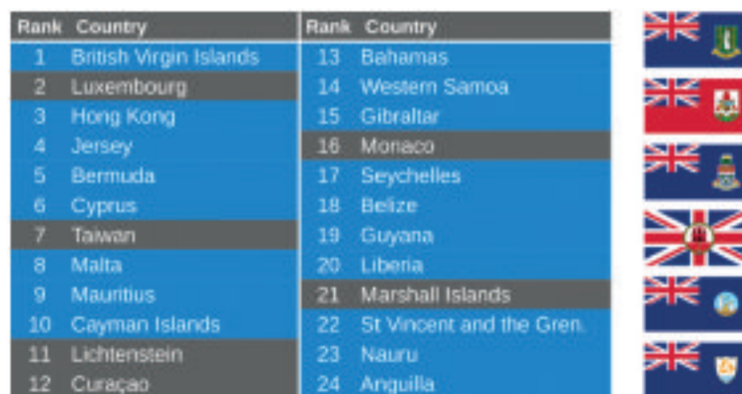
The building blocks of our method for identifying OFCs are what we call global ownership chains, in which a series of companies are connected in a chain if for each two directly subsequent entities A and B, it holds that firm A is owned by firm B, i.e., there is a link between them in the ownership network. Transfers of returns without taxation are typically only allowed through ownership links from subsidiaries to parents, meaning that value can flow from A to B. Based on the value (we use revenues as a proxy) going through these international ownership chains, we propose two new centrality measures specifically aimed at measuring the extent to which a jurisdiction is a sink-OFC or conduit-OFC. We furthermore introduce an entropy-based metric that can characterize the specialization of an OFC in terms of which countries it services.

The proposed network analytic approach to identifying OFCs has a number of advantages. First, it makes no a priori assumptions about the global economy and the countries involved; the possible identification of a country as an OFC is purely data-driven. Second, it does not rely solely on aggregated macroeconomic indicators that may introduce significant noise and deviations, but on fine-grained data of firm-level corporate ownership. Third, this firm-level data allows us for the first time to quantitatively identify and distinguish between both, what we call sink-OFCs, and conduit-OFCs – with some surprising results.

## Introducing Sinks and Conduits

Sink-OFCs attract and 'retain' returns from foreign investments. Our approach identifies 24 sink-OFCs, including Luxembourg, Hong Kong, the British Virgin Islands, Bermuda, Jersey and the Cayman Islands – the largest sink-OFCs in terms of non-normalised sink-OFC

**"The developed method to identify OFCs improves previous attempts such as the list of alleged tax havens published by the EU in 2015 ..."**



| Rank | Country | Rank | Country |
|---|---|---|---|
| 1 | British Virgin Islands | 13 | Bahamas |
| 2 | Luxembourg | 14 | Western Samoa |
| 3 | Hong Kong | 15 | Gibraltar |
| 4 | Jersey | 16 | Monaco |
| 5 | Bermuda | 17 | Seychelles |
| 6 | Cyprus | 18 | Belize |
| 7 | Taiwan | 19 | Guyana |
| 8 | Malta | 20 | Liberia |
| 9 | Mauritius | 21 | Marshall Islands |
| 10 | Cayman Islands | 22 | St Vincent and the Gren. |
| 11 | Lichtenstein | 23 | Nauru |
| 12 | Curaçao | 24 | Anguilla |

*Figure 1: Sink Offshore Financial Centres (jurisdictions in blue have been under British sovereignty in the past or are still UK dependencies*

[1] *A. Zoromé (2007), Concept of Offshore Financial Centers: In Search of an Operational Definition, IMF Working Paper*

centrality. Indeed this replicates earlier lists of supposed offshore financial centres. But, in addition, our method confirms for example that Taiwan is an 'un-noticed tax haven.' See Figure 1.

Using our method we can now also investigate which jurisdictions are used by corporations en route to sinks. These conduit-OFCs are attractive intermediate destinations and enable the transfer of returns without taxation. In other words, while sink-OFCs are the source of investments, conduit-OFCs facilitate the movement of capital and returns between sink-OFCs and other countries.

Surprisingly, we found that only five big countries act as conduit-OFCs. Together these five conduits canalise 47 per cent of corporate offshore investment from offshore financial centres, according to the data we analysed. The two largest conduits by far are the Netherlands (23 per cent) and the United Kingdom (14 per cent). They are followed by Switzerland (6 per cent), Singapore (2 per cent) and Ireland (1 per cent). Importantly, these countries are also used extensively as conduits to non-OFCs, indicating that conduit-OFCs are not used exclusively for the transfer of value to sink-OFCs. In our detailed research article, "Uncovering Offshore Financial Centres: Conduits and Sinks in the Global Corporate Ownership Network" we also show that each conduit jurisdiction is specialised geographically and in industrial sectors.

## Conclusion

Prior work on OFC identification used either qualitative assessments of policies and regulations or a quantitative approach based on ratios of foreign investment to GDP. We have developed a novel method for OFC identification by analysing the large transnational ownership network based on global corporate ownership chains. Offshore financial centres are often portrayed as small, exotic, far away islands that are difficult if not impossible to regulate. We show that many OFCs are in fact highly developed countries. This is particularly true for the five conduit-OFCs that we identified, led by the Netherlands and the United Kingdom.

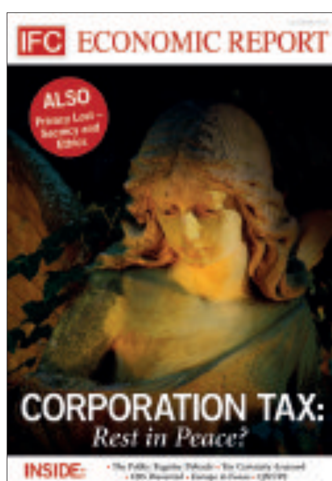
18 out of 24 sink-OFCs have a current or past dependence to the United Kingdom, which highlights the central role of London in offshore finance. The finance minister of the United Kingdom has speculated that the UK may become a tax haven of Europe after Brexit if not offered a good deal by the EU. Yet today, many of the UK overseas dependencies (such as the Cayman Islands, Bermuda, the British Virgin Islands or Jersey) already act as large offshore financial centres.

Our approach identifies, characterizes and ranks OFCs and as such helps to increase transparency of and insight in highly complex international corporate financial structures. The developed method to identify OFCs improves previous attempts such as the list of alleged tax havens published by the European Union in 2015, where countries such as Luxembourg or the Netherlands – the most prominent sink-OFC and conduit-OFC – were not included. The European Union list also does not rank jurisdictions, giving the same status to the British Virgin Islands and to Anguilla, while in fact 170 times more value ends in the former than in the latter. IFC

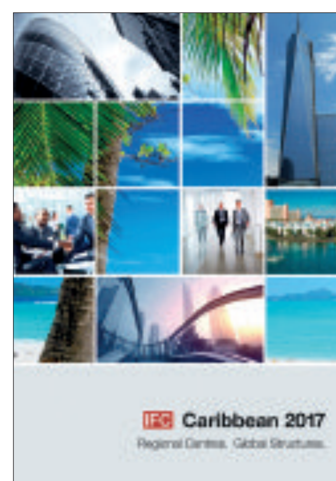
***Results and details are available on the dedicated website www.ofcmeter.org***

IFC Media

IFC Review



IFC Economic Report



IFC Caribbean

... PLUS a complete archive on www.ifcreview.com