

Miethe, Jakob

Article

The storm-impervious financial sector: Offshore services likely booked abroad

DIW Weekly Report

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Miethe, Jakob (2020) : The storm-impervious financial sector: Offshore services likely booked abroad, DIW Weekly Report, ISSN 2568-7697, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 10, Iss. 43/45, pp. 435-443, https://doi.org/10.18723/diw_dwr:2020-43-1

This Version is available at:

<https://hdl.handle.net/10419/226716>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

AT A GLANCE

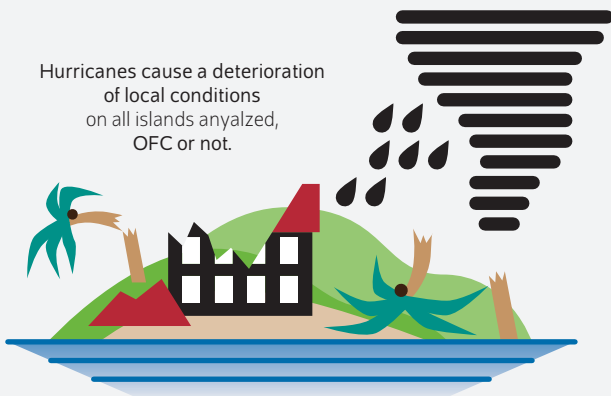
The storm-impervious financial sector: offshore services likely booked abroad

By Jakob Miethe

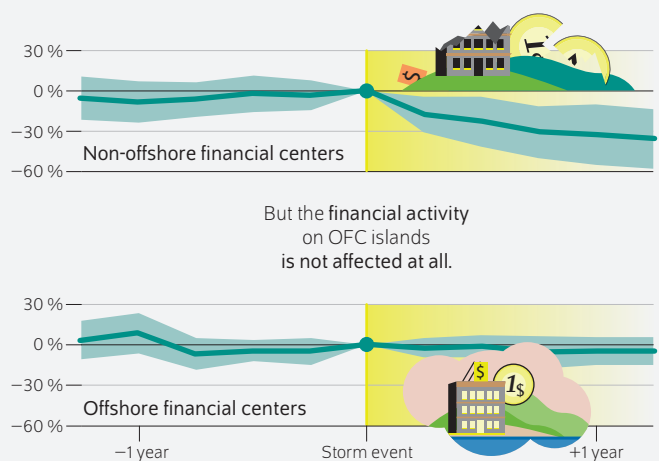
- The reaction of financial activity to extreme storm events on offshore financial centers (OFCs) provides evidence that the financial industry is operating remotely
- New data sources allow insights into changes of local conditions as well as local financial activity
- Storm events create deteriorations in local conditions for OFC islands and non-OFC islands
- However, financial activities on OFCs do not react to storm events
- Therefore, financial services are likely booked elsewhere; regulations and tracing should take place where the services are carried out

The financial industry likely does not carry out offshore services locally

Hurricanes cause a deterioration of local conditions on all islands analyzed, OFC or not.



Source: Author's own depiction and calculations.



© DIW Berlin 2020

FROM THE AUTHORS

“The results of this study are a new opportunity to reconsider previous approaches to tracing and regulating offshore financial activities. Investigations should take place where the services are carried out. This study indicates that services are only booked through OFCs.”

— Jakob Miethe —

MEDIA



Audio Interview with Jakob Miethe (in German)
www.diw.de/mediathek

The storm-impervious financial sector: offshore services likely booked abroad

By Jakob Miethe

ABSTRACT

The high international capital positions of offshore financial centers (OFCs) have led to increasing research in the area. However, many unanswered questions remain, as OFC activities are secretive by nature and data is sparse. It is, for example, not even clear whether the financial industry actually physically operates on OFCs or if it artificially books services from other countries. Using a new research approach that examines the effects of extreme storm events such as Hurricane Irma on local conditions and financial service activities on small islands, this paper shows that offshore services are likely booked primarily from other countries. If this is the case, the current approach of regulating offshore financial services through regulation targeting the offshore financial center is inherently limited.

While the Wirecard scandal is still ongoing, the publication of the leaked FinCEN files on September 20, 2020, attracted worldwide attention and created yet another scandal for the financial industry. Once again, offshore financial centers (OFCs) play a central role in this scandal by enabling illegally acquired funds and assets to flow into the global financial system and appear legal. OFCs (also known as tax havens) are defined as jurisdictions with high secrecy regulations or weak transparency laws and low to zero tax rates for foreigners (Box 1).¹ More recent scientific research shows that the financial services provided in such OFCs are used by tax evaders,² profit shifting multi-national enterprises (MNEs),³ or corrupt businessmen and even officials.⁴

This paper investigates the question if financial services are carried out locally on OFCs, which would explain their high capital positions. This is in contrast with the hypothesis that financial services are booked through OFCs but carried out elsewhere. To answer this question, this paper uses a research approach that analyses the effects of extreme storm events occurring on many OFCs, comparing the effect on local conditions and financial service activity. The necessary data was

¹ This report uses the lists in the following articles when classifying islands as OFCs or not. Jane G. Gravelle, "Tax havens: International tax avoidance and evasion," *National Tax Journal* 7 (2015): 727–753 as well as Niels Johannesen and Gabriel Zucman, "The end of bank secrecy? An evaluation of the G20 tax haven crackdown," *American Economic Journal Economic Policy* 6, no. 1 (2014): 65–91. However, the results can also be reproduced using other lists, cf. Jakob Miethe, "The elusive banker. Using hurricanes to uncover (non-)activity in Offshore Financial Centers," Unpublished working paper (2020).

² Cf. Niels Johannesen and Gabriel Zucman, "The end of bank secrecy? An evaluation of the G20 tax haven crackdown," *American Economic Journal: Economic Policy* 6, no. 1 (2014): 65–91; Lukas Menkhoff and Jakob Miethe, "Tax evasion in new disguise? Examining tax havens' international bank deposits," *Journal of Public Economics* 176 (2019): 53–78 as well as Jost H. Heckemeyer and Aaron K. Hemmerich, "Information exchange and tax haven investment in OECD securities markets," *National Tax Journal* 73, no. 2 (2020): 291–330.

³ Cf. Joel Slemrod, "Tax compliance and enforcement: New research and its policy implications," *Ross School of Business Paper* 1302 (2015); Nadine Riedel, "Quantifying international tax avoidance: A review of the academic literature," *Review of Economics* 2, no. 69 (2018): 169–181 as well as Sebastian Beer, Ruud De Mooij, and Li Liu, "International corporate tax avoidance: A review of the channels, magnitudes, and blind spots," *Journal of Economic Surveys* 34, no. 2 (2020): 660–688.

⁴ Cf. Jørgen Juel Andersen et al., "Petro rents, political institutions, and hidden wealth: Evidence from offshore bank accounts," *Journal of the European Economic Association* 15, no. 4 (2017): 818–869 as well as Niels Johannesen, Jørgen Juel Andersen, and Bob Rijkers, "Elite capture of foreign aid: Evidence from offshore bank accounts," *World Bank Policy Research Paper* 9150 (2020).

Box 1

Offshore financial centers (OFCs)

A little over 1.8 percent of the global population lives in offshore financial centers. On paper, these same countries account for about 40 percent of all international financial flows. Many of these jurisdictions are small island countries. For example, the Cayman Islands, which was incomprehensibly removed by the EU from its tax haven blacklist on October 6, 2020, has only five inhabitants per registered mutual fund and 33 million US dollars of international bank positions per person. There are 373,917 companies and 1,499 mutual firms registered in the British Virgin Islands, a country with a population of 35,015.¹ Offshore financial institutes provide services such as setting up shell companies and managing offshore trusts and bank accounts and support their customers in finding new ways to avoid new regulatory measures in their home countries.² While it is indisputable that tax evaders or profit shifting firms³ do not need to be located locally on OFCs to use such financial services, it is not clear where exactly such services physically take place.

¹ The financial statistics cited here come from bank data used for the empirical analysis in the main text. Population data is from the CIA World Factbook and is based on estimates for small islands (7,323,187,457 global population; 136,046,983 in tax havens). For the data on the British Virgin Islands, cf. Q1,2020 BVI Statistical Bulletin (available online; accessed on August 17, 2020).

² Cf. Niels Johannesen, "Tax evasion and Swiss bank deposits," *Journal of Public Economics* 111 (2014): 46-62 as well as James D. Omartian, "Do banks aid and abet asset concealment: Evidence from the Panama Papers," Unpublished working paper (2017).

³ Banks do this as well in their function as multinational firms. Cf. Dominika Langenmayr and Franz Reiter, "Trading Offshore: Evidence on Banks' Tax Avoidance," *CESifo Working Paper* 6664 (2017).

generated using NASA satellite data and data from the Bank for International Settlements (BIS).⁵

Physical location of financial services relevant for regulation

There are good reasons why it is beneficial to determine the physical location where international financial services are carried out. First, the websites of financial service providers registered in OFCs suggest that their services are carried out by well-educated local personnel on the OFCs.⁶ It is therefore useful to review the data to see if this is actually the case. Second, where the activity physically occurs matters for regulative purposes. International regulatory approaches, such as those of the OECD, aim to obtain

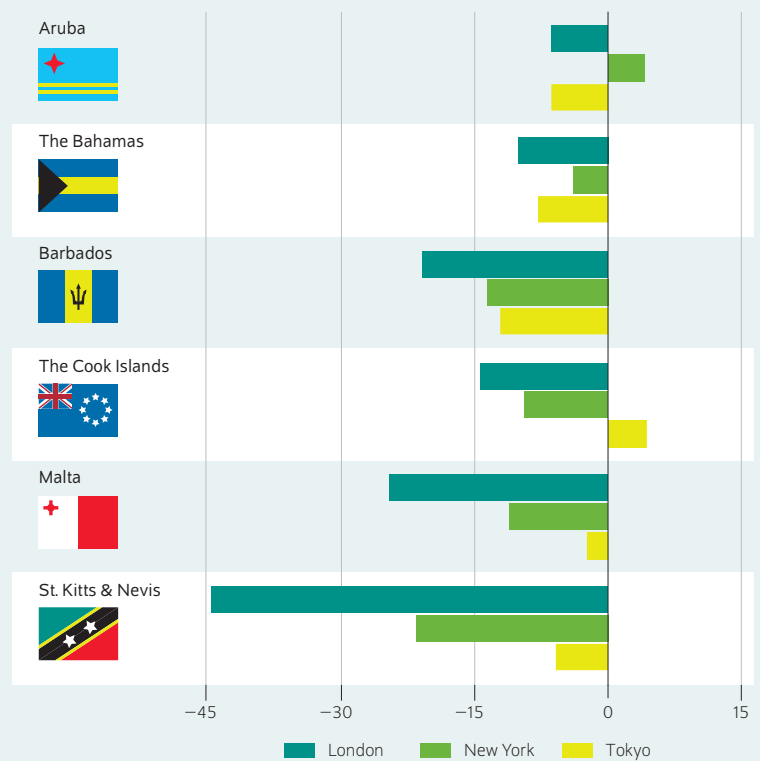
⁵ The results from this paper are based on the author's research during his time as a Ph.D. student at the DIW Berlin Graduate Center and were also presented in his job market paper.

⁶ For example, Eltoma (based in the British Virgin Islands) writes the following on its website (last accessed on September 28, 2020): "The BVI is committed to retaining an investor's right to privacy providing a professional banking sector with top quality legal, accounting and trust and management services." Regarding its dependency on the Cayman Islands, the Jersey Trust Company wrote the following on its website (last accessed on September 29, 2020): "JTC places a strong focus on ensuring its clients across the globe receive a reliable, flexible and professional service. With continual investment in specialist knowledge and innovation, we offer truly bespoke solutions."

Figure 1

Decline in incorporation activity

Standardized deviations in percent



Notes: Depicted are the standardized deviations of incorporation activity on days that are normal workdays on the islands but public holidays in London, New York, or Tokyo. Worldwide holidays such as New Year's or Christmas are excluded. Therefore, the comparison value is incorporation activity on days that are workdays both on the islands and the respective city.

Sources: ICU (incorporation activity); author's own calculations.

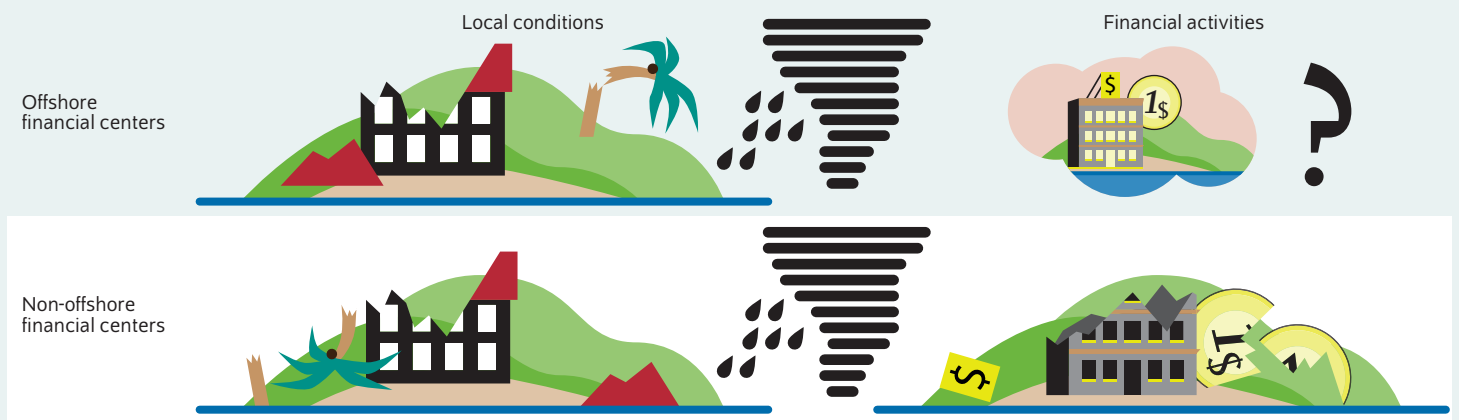
© DIW Berlin 2020

The decline in activity on public holidays indicate that activities on OFCs are not conducted locally.

information on financial activities in tax havens. This enables countries involved in tax information exchange agreements, like Germany, to request information on potential tax evaders from a small Caribbean island like the British Virgin Islands. Since 2017, bank account information is even increasingly being exchanged automatically.⁷ However, this is only promising when authorities on the tax havens actually have access to this information and can guarantee its quality, for example by subjecting banks to audits or a search of their premises by the police. If financial actors are not operating locally, local efforts and the island's obligation to provide information are inherently hindered from the very beginning. The question if international financial services are actually carried out locally on OFCs is therefore central for the success of such regulatory measures.

⁷ In addition to Menkhoff and Miethe, "Tax evasion in new disguise?" see Elisa Casi, Christoph Spengel, and Barbara Stage, "Cross-border tax evasion after the common reporting standard: Came over?" *Journal of Public Economics* 190 (2020): 104-240 and Pierce O'Reilly, Kevin Parra Ramirez, and Michael A. Stemmer, "Exchange of information and bank deposits in international financial centres," *OECD Taxation Working Papers* 46 (2019).

Figure 2

Possible effects of a storm event

Source: Author's own depiction.

© DIW Berlin 2020

What effects do storm events have on financial activity on OFCs?

Leaks suggest remote bookings

There are indications that financial service activity might not actually be taking place on tax havens. When the leaked documents from the Panama and Paradise Papers were published, parts of the local corporate registries of six island OFCs⁸ were made public. This data includes the incorporation dates of local firms, including shell companies. Almost no firms are founded over the weekend: rather, incorporations are evenly spread across the week, 20 percent per workday. If almost no firms are founded on weekends, are they also not founded on public holidays? And on whose public holidays? The indicative data from the leaks show that incorporation activity on the six islands declines on almost all islands in question on public holidays in London, New York, and Tokyo even though they are normal workdays on the islands (Figure 1). In individual cases, this decline is substantial. For example, during a public holiday in London that is a normal workday on St. Kitts and Nevis, incorporation activity on the islands is a good 40 percent lower than average; in Barbados, activity declines by 20 percent.

These declines suggest that services booked on OFCs are not necessarily carried out locally. However, because the available data does not enable any detailed statistical analyses, the hypothesis must be tested using another approach.

This situation illustrates how research in the field of offshore finance generally faces two central issues: One, activities that are either being purposefully hidden or at least deliberately obscured must be identified. Even if a firm is

operating legally, it likely has no interest in making its international tax-saving scheme public. Second, tax havens have poor data availability: Many of these islands only have the population of a small city and therefore have insufficient statistics. Ideas to combat both issues are presented in the following section: First a research approach that makes the potentially hidden behavior visible, followed by the data that make the approach possible.

A research approach to identifying financial activity in tax havens

About half of all offshore positions are booked via small islands in the Caribbean, the Indian Ocean, and the Pacific Ocean that regularly experience extreme storms (hurricanes, typhoons, or cyclones, depending on the region). For such islands, the effects of these natural disasters can be used to determine whether or not the international financial industry is actually operating locally or not. The hypothesis is quite straightforward: When storms, such as Hurricanes Irma and Maria in September 2017, hit small islands, negative effects on local conditions are to be expected. If this effect can be statistically substantiated, a decline in local international financial services provision is also expected (Figure 2). As only storms classified as local natural disasters are considered, their effects—such as power outages, evacuations, or flooding—should also have an impact on the financial sector. If financial services are actually conducted locally, there should be an observable, negative effect on the activity level of the financial sector following an extreme storm event. In contrast, there should be no observable negative effect on financial services booked in tax havens but carried out in other locations.

⁸ Aruba, the Cook Islands, the Bahamas, Barbados, Malta, St. Kitts and Nevis, and Samoa.

The size of the effect is not decisive; it is possible that the financial sector would be less affected than other sectors. The primary goal is to determine if an effect exists at all.

Effects on non-OFC islands in the same region impacted by the same storm event can be used to determine that the financial sector is affected by tropical cyclones on average. Additionally, each tropical cyclone only hit some of the islands in the sample; others were passed by or are located in a completely different region. To establish storm effects causally, a control group that is not affected by the respective storm can thus be used both within the OFC sample and within the non-OFC sample.

This approach allows the financial sector in OFCs to be investigated without having information about specific activities. However, a disadvantage of this approach is that sufficiently prepared data is unavailable both for local conditions and for financial services for the islands observed here.

The data: satellite data and international bank claims as indicators

Various sources are used to address the data issue. First, the effects of local storm events on small islands, like Montserrat (population 5,000), must be measured. To do this, new satellite data from NASA is used that makes it possible to calculate the average nightlight intensity on an island. Nightlight has long been used in development economics as an indicator for the economic activity of a region for which little or no economic data is available.⁹ For the present study, however, nightlight intensity is only used as a measure of the local shocks resulting from storm events. If an island is hit hard by a hurricane, according to the hypothesis, its nightlight intensity will decrease in the post-storm period.

A time series for nightlights from April 2012 to December 2018 can be constructed for each island using the nightlight intensity of the respective islands within their borders. For especially catastrophic storms, the decline in nightlight intensity is visible to the naked eye in satellite data. This is the case, for example, for the British Virgin Islands before and after Hurricanes Irma and Maria (Figure 3).

To fill the data gap on financial flows in tax havens, the second part of the research approach draws on information on cross-border transactions of financial institutions reported by other countries. For example, if a Spanish bank lends to a bank in the Bahamas, potentially even its own subsidiary, it reports this claim to the Bank of Spain. Spain's central bank, the Bank of Spain, collects this data for all banks with reporting obligations in Spain. It can then construct a time series that displays all positions of Spanish banks against the Bahamas. The data are sent to the Bank for International

⁹ Cf. J. Vernon Henderson, Adam Storeygard, and David N. Weil, "Measuring economic growth from outer space," *American Economic Review* 102, no. 1 (2012): 994–1028. However, this literature mostly uses older data sources with poorer quality and only annual frequency, but significantly longer availability. For comparisons, see John Gibson, Susan Olivia, and Geua Boe-Gibson, "Night lights in economics: Sources and uses," Unpublished working paper (2020).

Figure 3

Nightlight before and after a storm event Nightlight intensity



Note: This figure shows the average nightlight intensity on the British Virgin Islands in August 2017 (top image) and in October 2017 (bottom image). The British Virgin Islands were hit by Hurricanes Irma and Maria in September 2017. The gray lines indicate the borders of the British Virgin Islands; the nightlight intensity of the American Virgin Islands is shown without the country's borders. Averages are depicted within country borders. Thus, the raw data used in the time series in this study is visible in this figure.

Sources: NOAA; GADM; author's own depiction.

© DIW Berlin 2020

The local shocks to the British Virgin Islands caused by Irma and Maria are visible to the naked eye via satellite data.

Settlements (BIS). If the data for all reporting central banks (so, for the German Bundesbank, Bank of France, or the Bank of England) are aggregated, a data series of claims against the Bahamas is created without having to rely on data from the island. It shows the funding channel of the international banking sector to the Bahamas and thus reflects the activities of the local financial sector in the Bahamas as well.

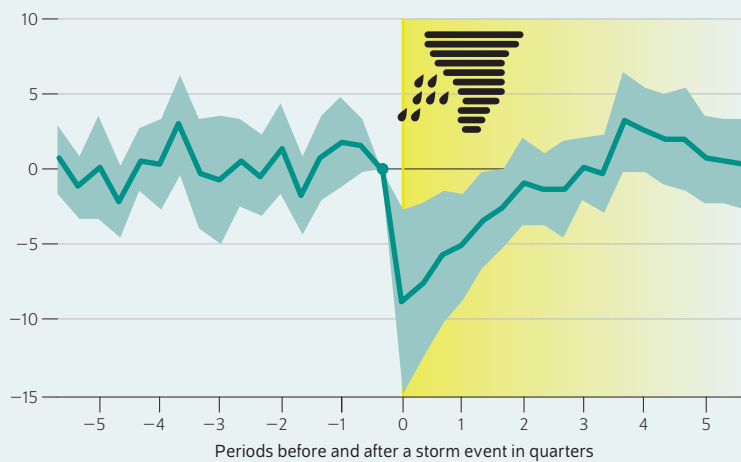
Empirical results support hypothesis

An event study is conducted to analyze the effects of hurricanes on local economic activity (Box 2). The main results

Figure 4

Effects of a storm event on local conditions

In percent relative to the baseline scenario



Notes: Results of an event study on small islands in the Caribbean, Pacific Ocean, and Indian Ocean. This figure shows the impact of storm events on the nightlight intensity using an event study. An effects window of one and a half years before and after the storm event is used for the entire sample. The point indicates one month before the storm event. The method used artificially sets the difference between the islands that were hit in the following month by a hurricane and those that were not hit to zero. To the left, it can be compared visually how much the two groups differ at respective times. When the effects significantly deviate from zero (so as the zero line is no longer contained in the light-green confidence interval), it is with 95 percent probability that the two groups differ (Box 1).

Source: Author's own calculations.

© DIW Berlin 2020

The local shocks caused by storms are statistically visible as negative effects.

are displayed in two datasets: one for islands classified as OFCs and one for islands not classified as OFCs.¹⁰ In this event study, the date of a specific storm event as well as the nightlight and bank data trends are observed and compared with those of the control group.

Storm events lead to deterioration of local conditions

The nightlight data shows that islands affected by a storm event are statistically indistinguishable from the control group for at least one and a half years until the time of the storm. A direct and sustained decline in nightlight data is

¹⁰ Of the 104 islands on Earth, the ones included in the sample had to fulfill the following criteria: (1) they are in locations that can be affected by hurricanes, (2) have geospatial data (or an official iso3 code), (3) they have no parts connected to land, (4) they are populated beyond a military base, (5) they are smaller or the same size as Cuba, and (6) they do not belong to widely distributed groups of islands. For further details, see Miethe, "Tax evasion in new disguise?" Thus, 56 island (groups) were included in the sample. Twenty-seven were classified as offshore financial centers: Anguilla, Antigua & Barbuda, Aruba, the Bahamas, Barbados, Bermuda, the British Virgin Islands, the Cayman Islands, Curaçao, Dominica, Grenada, Mauritius, Montserrat, Nauru, Niue, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines, Samoa, Seychelles, Sint Maarten, Tonga, Trinidad & Tobago, Turks & Caicos Islands, U.S. Virgin Islands, and Vanuatu and 29 as non-offshore financial centers: American Samoa, Caribbean Netherlands, Christmas Island, Cocos (Keeling) Islands, Comoros, Cuba, Dominican Republic, Fiji, Guadeloupe, Guam, Haiti, Jamaica, Martinique, Mayotte, New Caledonia, Norfolk Island, Northern Mariana Islands, Palau, Pitcairn Islands, Puerto Rico, Réunion, St. Barthélemy, Saint Martin (French part), Solomon Islands, Sri Lanka, Taiwan, Tokelau, Tuvalu, and Wallis & Futuna. For further details on classifying offshore financial centers, cf. Gravelle, "Tax havens: International tax avoidance and evasion," and Johannesen and Zucman, "The end of bank secrecy?"

Box 2

Event study with binned end points

The present study uses an event study with binned end points. This way, effects can be shown even though storms hit islands at different times.¹ Therefore, all event are shown in "event time" and not according to calendar date. The effects window begins one and a half years before the storm and ends one and a half years after the storm, independent from which year the storm took place, in all specifications. However, it is controlled for calendar date-specific effects. The underlying variables are the nightlight intensity and international bank claims. The empirical specification can be expressed as:

$$ihs(y_{it}) = \sum_{j=-J}^J \beta^j b_{it}^j + \mu_i + \theta_t + \varepsilon_{it},$$

where ihs is the the log equivalent inverse hyperbolic sine transformation, b_{it}^j collects event study dummies and end points, μ_i is an island-specific intercept, θ_t calendar time fixed effects, and ε_{it} idiosyncratic errors. In the nightlight data (monthly frequency) the effects window runs from $j_- = -18$ to $j_+ = 18$ and the month of the storm is artificially set to zero as a comparison month to compare differences between affected and non-affected islands before or after the storm. In the bank data (quarterly frequency), the effects window runs from $j_- = -6$ to $j_+ = 6$ and the quarter of the storm is artificially set to zero as a comparison quarter. The binned end points then compare the difference of both groups before and after the effects window. The final pre- and post-storm points are included in the binned endpoints and therefore not shown in the figures.² The bands around the effect indicate the 95 percent confidence intervals. They are based on heteroskedasticity and autocorrelation robust standard errors at the country level.

¹ Kurt Schmidheiny and Sebastian Sieglöcher, "On event study designs and distributed-lag models: Equivalence, generalization and practical implication," *CESifo Working Paper* No. 7481 (2019).

² With the exception of the long-term effect of storm events on bank liabilities against non-OFC islands, the coefficients for all binned endpoints are statistically insignificant and close to zero. This is very direct identification. See Miethe, "Tax evasion in new disguise?" cited above.

visible only after a storm event, indicating a marked decrease in local conditions on the affected island. It takes about three quarters of a year for this effect to be completely compensated for (Figure 4).

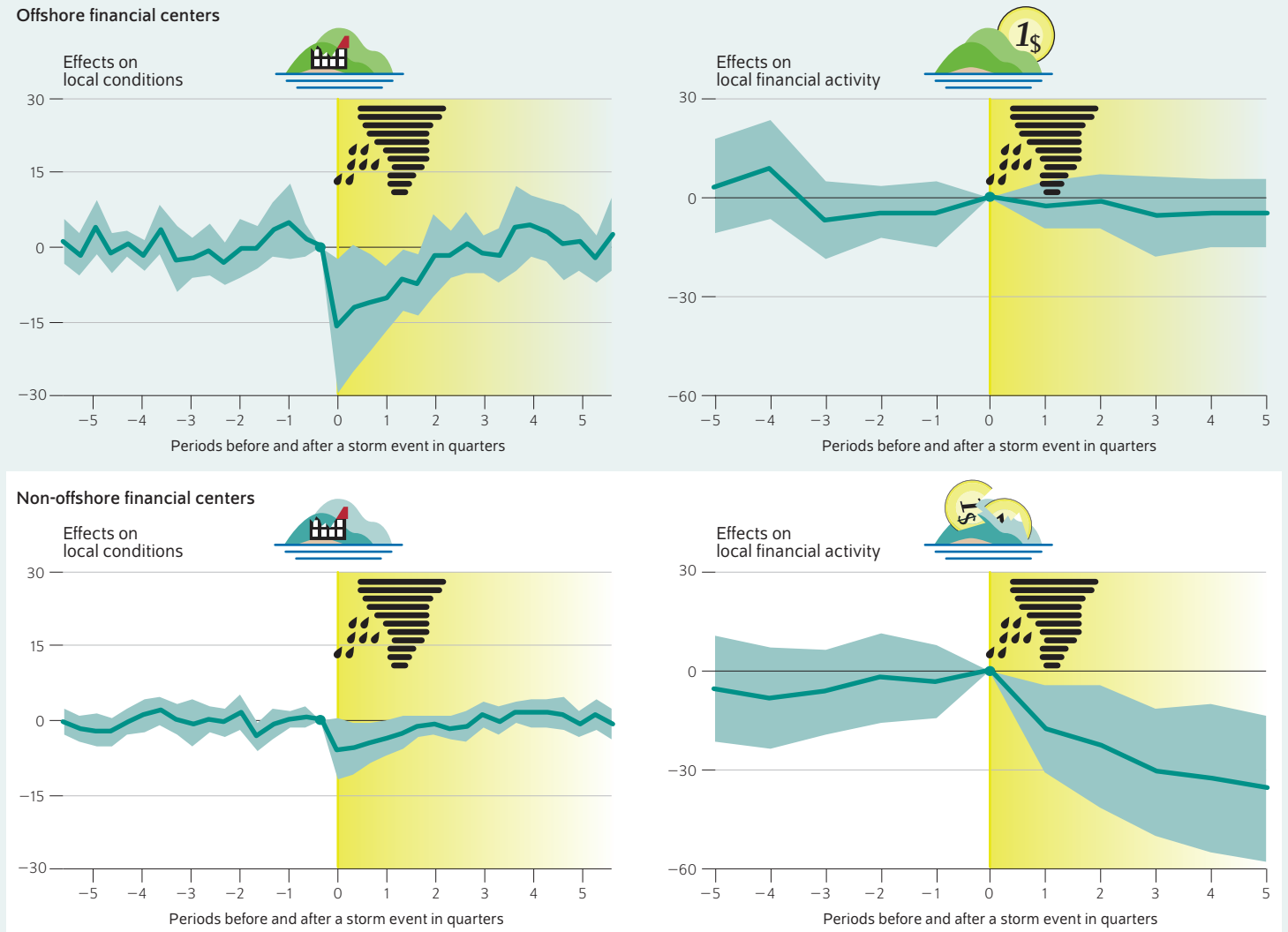
Financial activities on OFCs do not react to storm events

There are significant and lasting shocks due to storm events for the OFC islands as well as the non-OFC islands (Figure 5). In contrast, the activities in the financial sector, measured by international bank claims, are not affected. Here, no effect can be determined for the group of non-OFCs for the entire observation period. The coefficients are statistically

Figure 5

Effects of storm events on local conditions and financial activity

In percent, relative to the baseline scenario



Notes: Results of an event study on small islands in the Caribbean, Pacific Ocean, and Indian Ocean. This figure shows all four specifications of the event study necessary to carry out the research approach. The green point marks the month before the storm event (local conditions) or the quarter before the storm event (local financial activity).

Source: Author's own calculations.

© DIW Berlin 2020

The fact that no effect on financial activity on OFCs can be found indicates remote bookings.

insignificant and near zero. This fact on its own could indicate that the financial sector is generally not affected by storm events.

However, the reaction of the financial sector on non-OFC islands shows that this is by no means the case. In these counties, immediate and strong slumps in the international positions of banks are visible. Following a storm event, claims against affected islands decrease by about a third. Unlike the nightlight data, this drop grows gradually, as the bank data is a stock measure, not a flow measure.

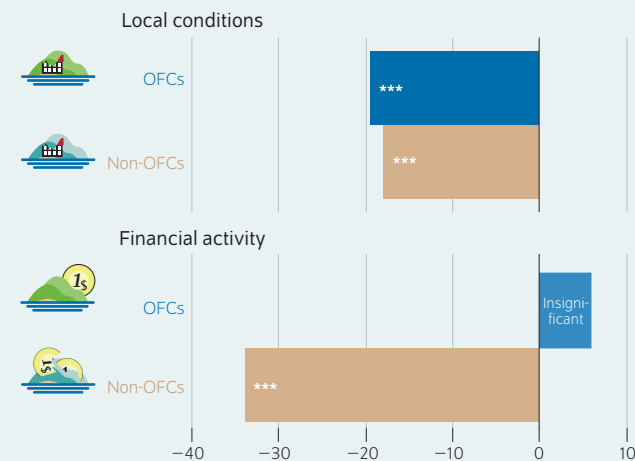
Analysis of the effect size confirms previous results

It is difficult to make exact statements about changes in the effect size for the present event study. Therefore, both average nightlight data and the average financial activity level from the post-storm period are compared with the averages from the pre-storm period.

Three quarters of a year after the storm events, the night-light intensity is almost 20 percent lower than in the three

Figure 6

Quantification of storm events In percent



Notes: Results of a difference-in-differences estimation for four model specifications. The coefficients show the effect of storm events compared with the period before the storm event. Nightlight data from nine months before and after the storm event are compared. Bank data is compared for six quarters before and after the event.

*** indicates a significance level of one percent.

Source: Author's own calculations.

© DIW Berlin 2020

Here, too, there is no significant effect on the financial activity on OFCs.

quarters of the year before in both OFCs and in the comparison group (Figure 6). At first glance, this long-lasting impact seems dramatic. However, other studies on the effects of hurricanes on coastal regions and on islands find similar effects.¹¹

Looking at the financial sector, a storm event has no lasting effect on the financial activities in the OFC group. Comparing the year and a half before and after a hurricane shows statistically insignificant coefficients close to zero. At no time does the dataset indicate that storm events affect the activity of the financial sector on OFCs. A completely different effect is visible for the non-OFC islands. For this sample and in the same period, there is a significant decrease of 33 percent in international financial positions. Moreover, the negative impact of the storm event lasts longer than the observation period: Over the long term, an effect of 17 percent is still visible.¹² This shows that islands hit by storms recover somewhat, but they do not reach pre-storm levels compared to the control group.

¹¹ Cf. Luisito Bertinelli and Eric Strobl, "Quantifying the local economic growth impact of hurricane strikes: An analysis from outer space for the Caribbean," *Journal of Applied Meteorology and Climatology* 52, no. 8 (2013): 1688–1697; Preeya Mohan and Eric Strobl, "The short-term economic impact of tropical cyclone Pam: An analysis using VIIRS nightlight satellite imagery," *International Journal of Remote Sensing* 38, no. 21 (2017): 5992–6006; Eric Strobl, "The economic growth impact of hurricanes: Evidence from US coastal counties," *Review of Economics and Statistics* 93, no. 2 (2011): 575–589 as well as Eric Strobl, "The economic growth impact of natural disasters in developing countries: Evidence from hurricane strikes in the Central American and Caribbean regions," *Journal of Development Economics* 97, no. 1 (2012): 130–141.

¹² See Miethe, "Tax evasion in new disguise?"

These results are contradictory. Nightlight data shows marked, long-lasting, and well-identified effects of storm events on small islands in the Caribbean as well as in the Pacific and Indian Oceans. On non-OFC islands, the storm events are also visible in the subsequent changes in the local financial sector's activity. However, the financial sector does not react to storm events at all on OFC islands.¹³ Other methodologies and other data—such as stock prices of financial service providers—can be used to confirm the unaffected financial activity in the OFCs as well as the declines in the comparison group.¹⁴

The reaction of the international financial sector is not consistent with that of local financial services, which might explain the capital positions booked in OFCs. Setting up shell companies, managing offshore trusts, or organizing bank accounts require local human capital, which is affected by power outages, evacuations, or the collapse of local infrastructure if this activity is carried out locally.

Conclusion: Previous regulation approaches should be reconsidered

The research approach used in this study suggests that financial services that are booked through small OFC islands in the Caribbean and Pacific and Indian Oceans are most likely not carried out locally. This is evidenced by the fact that storm events, such as Hurricane Irma, create long-lasting deteriorations in local conditions on this island but do not affect financial service activities. On non-OFC islands, such storm events cause general deteriorations as well as a decline in financial sector activity. These findings provide empirical evidence supporting the indicative evidence for remote bookings in OFCs using leaked data and holidays. However, the bilateral correlations between financial centers such as London, New York, or Tokyo and OFCs still require further research.

If future research confirms the results of this study, the OECD's impressive measures to combat tax evasion could be inherently handicapped. Even if the relevant authority in the OFC is willing to forward data to the requesting entity, local authorities on the island can neither verify nor enforce that the data transmitted by the financial service provider is truthful, as the service was most likely not even provided on their territory. Put simply, German clerks, for example, will attempt to get information about financial arrangements—which may be designed and maintained in Frankfurt—with the help of the authorities on a small island on the other side of the globe.

The Wirecard case is a prime example of the arising difficulties: Although extensive information on those involved and their offenses were made public, it is still not possible to trace the relevant financial flows via OFCs. The potential offenders, the auditing law office, and the authorities

¹³ The results are insignificant and all associated coefficients are very low and show no effect over the entire observation period.

¹⁴ For details, see Miethe, "Tax evasion in new disguise?"

responsible for regulating both, are not in Mauritius, where capital was booked according to some reports, but are all located in Germany.

From this perspective, it is more promising to target regulation attempts directly at the international financial sector, as has been successfully demonstrated by the USA in Switzerland, for example. The American government gave Swiss banks the choice of either forwarding data on American investors or to be excluded from US capital market. Due to

this pressure, Switzerland and the USA concluded agreements wherein Swiss banks agreed to report previously hidden positions of American citizens to the USA. Eighty-four banks have since signed up for this program.¹⁵ Considering the success of this approach, a similar approach may be a solution for Germany and the EU.

15 Cf. with the information on the website of the United States Department of Justice (accessed on October 8, 2020).

Jakob Miethe is a postdoc at the Center for Economic Studies at LMU Munich and a DIW Berlin research alumnus. As a graduate of the DIW Graduate Center, he was previously a research associate in the International Economics Department. | jmiethe@diw.de

JEL: H 26, G15

Keywords: Offshore finance, international capital flows, natural disasters, tax havens

LEGAL AND EDITORIAL DETAILS



DIW Berlin — Deutsches Institut für Wirtschaftsforschung e. V.

Mohrenstraße 58, 10117 Berlin

www.diw.de

Phone: +49 30 897 89-0 Fax: -200

Volume 10 October 21, 2020

Publishers

Prof. Dr. Tomaso Duso; Prof. Marcel Fratzscher, Ph.D.; Prof. Dr. Peter Haan;
Prof. Dr. Claudia Kemfert; Prof. Dr. Alexander S. Kritikos; Prof. Dr. Alexander
Kriwoluzky; Prof. Dr. Stefan Liebig; Prof. Dr. Lukas Menkhoff; Dr. Claus
Michelsen; Prof. Karsten Neuhoff, Ph.D.; Prof. Dr. Carsten Schröder;
Prof. Dr. C. Katharina Spieß; Dr. Katharina Wrohlich

Editors-in-chief

Dr. Gritje Hartmann

Reviewer

Dr. Franziska Bremus

Editorial staff

Rebecca Buhner; Claudia Cohnen-Beck; Dr. Anna Hammerschmid;
Petra Jasper; Sebastian Kollmann; Bastian Tittor; Sandra Tubik;
Dr. Alexander Zerrahn

Sale and distribution

DIW Berlin Leserservice, Postfach 74, 77649 Offenburg

leserservice@diw.de

Phone: +49 1806 14 00 50 25 (20 cents per phone call)

Layout

Roman Wilhelm, DIW Berlin

Cover design

© imageBROKER / Steffen Diemer

Composition

Satz-Rechen-Zentrum Hartmann + Heenemann GmbH & Co. KG, Berlin

ISSN 2568-7697

Reprint and further distribution—including excerpts—with complete
reference and consignment of a specimen copy to DIW Berlin's
Customer Service (kundenservice@diw.de) only.

Subscribe to our DIW and/or Weekly Report Newsletter at

www.diw.de/newsletter_en