EUTAX Observatory

Have European Banks Left Tax Havens?

Evidence from Country-by-Country Data

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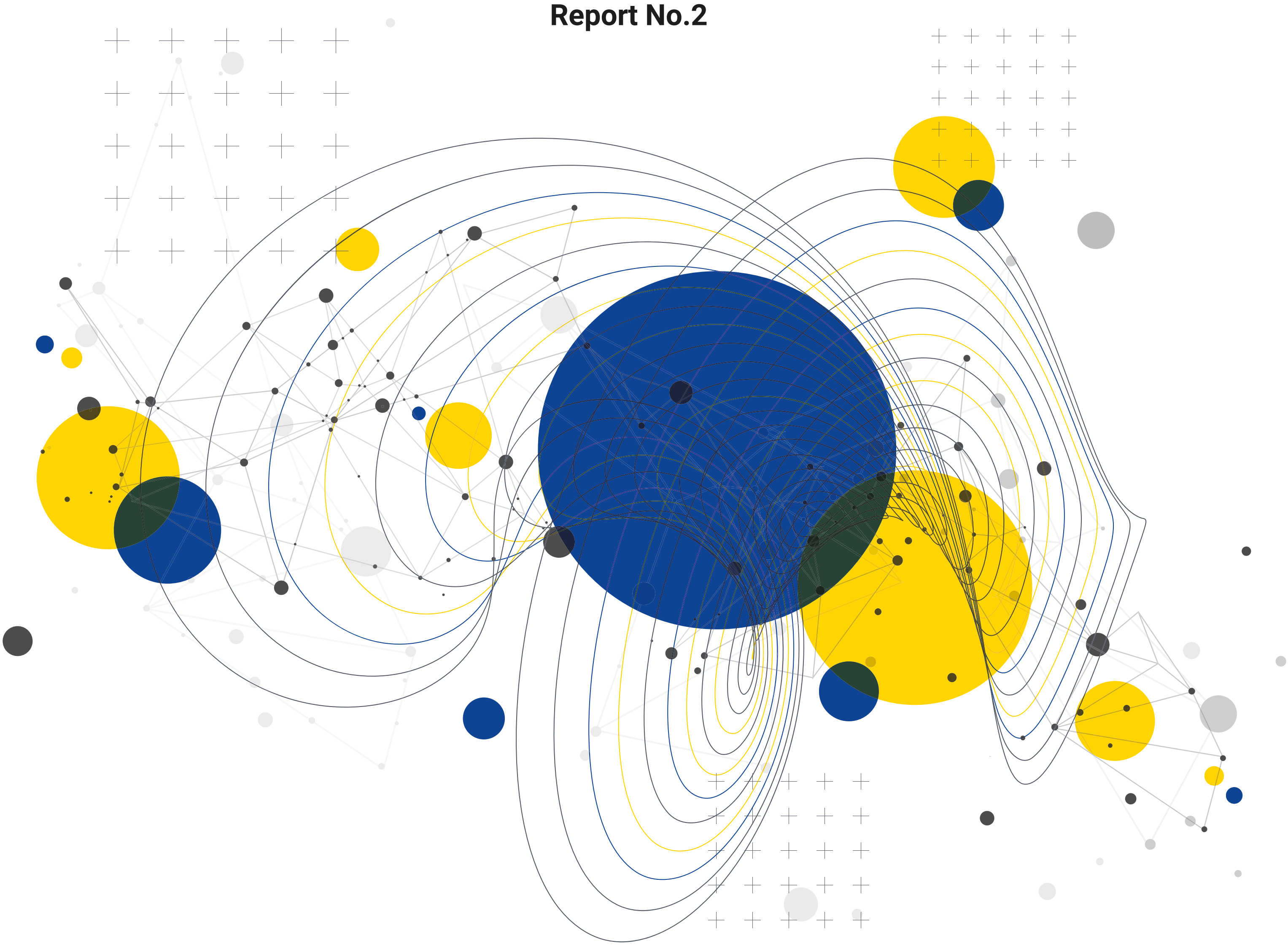

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EXECUTIVE SUMMARY

This study documents the activity of European banks in tax havens and how this activity has evolved since 2014. The analysis covers 36 systemic European banks that have been required to publicly report country-by-country data on their activities since 2015. We study the level and evolution of the profits booked by these banks in tax havens over the 2014-2020 period. We also compute their effective tax rates and their tax deficit—defined as the difference between what these banks currently pay in taxes and what they would pay if they were subject to a minimum effective tax rate in each country.

We start by **creating a list of tax haven jurisdictions used by the banking sector.** We combine two indicators to identify tax havens: the effective tax rate on bank profit and the amount of bank profit per employee. Overall, 17 jurisdictions feature in our list: Bahamas, Bermuda, the British Virgin Islands, Cayman Islands, Guernsey, Gibraltar, Hong Kong, Ireland, Isle of Man, Jersey, Kuwait, Luxembourg, Macao, Malta, Mauritius, Panama, and Qatar.

Using this list, we show that European banks use tax havens significantly, with no trend during the 2014–2020 period. **The main European banks book EUR 20 billion (or 14% of their total profits) in tax havens each year. This percentage has been stable since 2014** despite the introduction of mandatory information disclosure. Bank profitability in tax havens is abnormally high: EUR 238 000 per employee, as opposed to around EUR 65 000 in non-haven countries. This suggests that the profits booked in tax havens are primarily shifted out of other countries where service production occurs. Around 25% of the profits made by the European banks in our sample are booked in countries with an effective tax rate lower than 15%.

The use of tax havens varies considerably from bank to bank. **The mean percentage of profits booked in tax havens is about 20% and ranges from 0% for nine banks to a maximum of 58%.** The mean effective tax rate paid by the banks in our sample is 20%, with a minimum of 10% and a maximum of 30%. Seven banks exhibit a particularly low effective tax rate, below or equal to 15%. To better understand this heterogeneity, we analyse the use of tax havens by three banks with a relatively high presence in tax havens: HSBC, Deutsche Bank, and Société Générale. We observe a diversity of situations: for HSBC, the bulk of haven profits come from just one haven (Hong Kong), while in other cases multiple tax havens are involved.

We estimate the amount of revenues that could be collected by applying a minimum tax rate on the profits of banks. We simulate a tax similar to the G20/OECD minimum tax proposal ,which the majority of the Inclusive Framework jurisdictions supported in July 2021. In this proposal each parent country would collect the tax deficit of its own banks. For instance, if the internationally agreed minimum tax rate is 15% and a German multinational bank has an effective tax rate of 10% on the profits it books in Singapore, Germany would impose an additional tax of 5% on these profits to arrive at an effective rate of 15%. We consider three minimum tax rates—15%, 21%, and 25%—and in each case compute the extra tax owed per bank and tabulate results by headquarter country.

Our findings show that a minimum tax has significant revenue potential. **With a 25% minimum tax rate, our sample of European banks would have to pay EUR 10-13 billion in additional taxes annually.** Lower tax rates reduce the gains to EUR 6-9 billion for the 21% tax rate and EUR 3-5 billion for the 15% tax rate. Banks with low effective tax rates—which tend to make use of tax havens to shift profits and lower their tax liability—would be particularly affected.

Our findings illustrate the usefulness of country-by-country reporting, a vital piece of information to track profit shifting and corporate tax avoidance. They also suggest that **despite the growing salience of these issues in the public debate and in the policy world, European banks have not significantly curtailed their use of tax havens since 2014.** More ambitious initiatives—such as a global minimum tax with a 25% rate—may be necessary to curb the use of tax havens by the banking sector.

1 Introduction

Recent empirical research in taxation documents the use of tax havens by banks (Bouvatier et al., 2018; Dutt et al., 2019; Janský, 2020). This use sometimes takes the form of intermediation for clients (Gallemore et al., 2018), but banks also use tax havens for their own benefit—to shift profits to low-tax jurisdictions and reduce their tax liabilities (Fatica and Gregori, 2020). With the implementation of the 2013/36/EU - Capital Requirements Directive IV, the public disclosure of activities for systemic banks in the EU became mandatory, thus obliging annual reporting on key information by country of operation (or country-by-country reporting, thereafter). In this report, we use country-by-country reporting data published by 36 EU banks from 2014 to 2020 to analyse the presence of banks in tax havens during this period and to estimate the annual tax revenue loss involved for European countries.

Specifically, we ask: To what extent do banks use tax havens? How did this use change over the past 7 years of mandatory country-by-country reporting? And by how much do European countries stand to gain in tax revenue from the banking sector if a global minimum tax was introduced?

We find that the presence of European banks in tax havens has been stable over the 2014-2020 period. The use of tax haven is heterogenous: some banks are absent from tax havens; others present in just one, and others present in multiple tax havens. We also find that the tax revenues that could be gained by European countries from the introduction of a minimum tax rate are substantial—in excess of EUR 10 billion annually with a 25% minimum tax rate.

Our analysis relies on hand-collected data from 36 European banks that operate in 11 European countries.[1] The data include net banking income, profits before tax, taxes paid and number of staff, in each country where a bank has an affiliate. The data are the latest available, covering the entire reporting period, from 2014 (when the reporting requirement began) to 2020. Using these data, we propose a bank-specific list of 17 tax haven jurisdictions where the 36 banks in our sample have tax planning activities. This list is based on two criteria: the effective tax rate and the ratio of reported profits to the number of employees.[2]

By grouping banks' operations in tax havens (for countries that appear on the tax haven list) non tax havens (for other operations abroad) and domestic (for market operations in headquarter countries), we document the following. First, banks report about 65% of their profits as made abroad through affiliates. Second, around EUR 20 billion (or 14% of total profits) are booked each year in tax havens. Importantly, we note that this percentage has been stable over the reporting period, despite the introduction of mandatory disclosure of information. Third, we document a misalignment between the countries where profits are booked and those where employees are located. Profits per employee are far larger in tax havens than in other countries. Fourth, tax havens subsidiaries have high profitability, with profit margins (profits divided by net banking income) between 52 to 58%. Last, we document that 25% of the profits of banks are booked in countries with an effective tax rate lower than 15%. Taken together, this evidence indicates a significant presence and stable use of tax havens by European banks over the years.

In addition, we examine the dynamics and heterogeneity of tax haven use across banks. The mean effective tax rate paid by banks in our sample is 20%, with minimum (maximum) values of 10% (30%). Seven banks in our sample exhibit a particularly low effective tax rate—15% or less.

[1] The data are based on Barake (2021), with a further addition of 2020 data.

[2] We also cross-check our analysis using the list of tax havens compiled by Tørsløv et al. (2019).

At the same time, profits booked in tax havens range from a minimum of (or close to) 0% for 9 banks in our sample to a maximum of 58% for a particular bank (HSBC). To better understand this heterogeneity, we analyse the use of tax havens by three banks in our sample with relatively high presence in tax havens (HSBC, Deutsche Bank and Société Générale) and find differences in the use of single or multiple tax haven locations to book profits.

In the final step of our analysis, we simulate the revenues that could be collected from the introduction of a minimum tax on the banks' profits, such as in the context of the agreement reached in July 2021 by more than 130 members of the OECD / G20 Inclusive Framework on Base Erosion and Profit Shifting.

Our analysis closely follows the methodology used in Barake et al. (2021) and applies it to the banks in our sample. We present annual revenue gains for European countries using three minimum tax rates: 15%, 21% and 25%. We present breakdowns of revenue by bank, by headquarter country, and by year. The findings indicate that tax revenue increases vary from country to country. The largest revenue gain is achieved with a 25% tax rate at about EUR 10-13 billion annually, whilst lower tax rates reduce the gains to EUR 6-9 billion for the 21% tax rate, and to EUR 3-5 billion for the 15% tax rate.

Our report contributes to the corporate tax avoidance literature. Firstly, it builds on other studies using country-by-country reporting data to reveal the presence of multinationals in tax havens, and in particular, banks' presence as in Bouvatier et al. (2018), Dutt et al. (2019), Janský (2020) and Fatica and Gregori (2020). Secondly, it adds to a growing literature of estimating the revenue potential in response to a minimum tax rate at a global level, such as in OECD (2020), Devereux et al. (2020), Clausing et al. (2021) and Barake et al. (2021). Our study follows a sectoral perspective to offer insides for revenue gains from the financial sector for European countries.

The report is organised as follows. Section 2 describes the data and methodology used to determine the tax haven list. Section 3 provides a descriptive analysis, documenting the presence of banks in tax havens. Section 4 presents tax deficit simulations and Section 5 concludes.

2 Methodology and Data

2.1 Background

Since 2015, country-by-country reporting became obligatory for financial institutions operating in EU countries.[3] EU Member States require financial institutions to disclose publicly information on a consolidated basis for the financial year. This includes the activity of all their affiliates (subsidiaries and branches) on a country-by-country basis for the following items: turnover (net banking income), number of employees (on a full-time equivalent basis), profit or loss before tax, tax on profit or loss, and public subsidies received.

Our analysis uses information made available by this reporting obligation for systemically important banks in Europe.[4] This includes all reported information by 36 multinational banks headquartered in eleven European countries (i.e. Austria (1), Belgium (1), Denmark (1) France (6), Finland (1), Germany (7), Italy (3), Netherlands (3), Spain (5), Sweden (4), and the United Kingdom (6)), and operating in up to 90 jurisdictions worldwide.[5] A detailed list of the banks can be seen in **Table 2.1.1.**

Table 2.1.1

List of European Banks

In-sample banks		
Abn Amro	Danske Bank	Monte dei Paschi
Banco Sabadell	Deutsche Bank	Nationwide
Banco Santander	DZ Bank	Nord LB
Bankia BFA	ERSTE	Nordea
Barclays	Handelsbanken	Nykredit Realkredit
Bayern LB	Helaba	Rabobank
BBVA	HSBC	RBS
BNP Paribas	ING	SEB Bank
BPCE	Intesa Sanpaolo	Société Générale
Commerzbank	KBC Bank	Standard Chartered
Crédit Agricole	LBBW	Swedbank
Crédit Mutuel	Lloyds	Unicredit

[3] See Article 89 of the 2013/36/EU - Capital Requirements Directive IV.

[4] The list is updated by the European Banking Authority and can be found at the Authority's website: https://www.eba.europa.eu/risk-analysis-and-data/global-systemically-important-institutions.

[5] From our sample we exclude: (a) DNB, which started reporting in 2017; (b) Banque Postale, which operates only in France and Monaco; (c) La Caixa because of the limited coverage of their report.

2.2 Data

The data have been collected manually either from annual reports or from country-by-country reports filed separately by banks each year. They were then compiled in a unified dataset. Overall, the analysis spans all years of obligatory reporting, 2014 to 2020. The 2014 to 2019 data have been obtained from Barake (2021), whilst an additional year of data (2020) was collected for the purpose of this report. Thus, the dataset includes the latest publicly available information.

Since reporting by banks takes place at the national level, it implies that in each year we record one observation for each country in which a bank has at least one affiliate. This makes up a total of 6,584 observations in our sample. Basic summary statistics are shown in Table B.1, in Appendix B. Our sample represents the majority of European banking operations. On average over the 2015-2020 period, the total net banking income reported by the 36 financial institutions in our sample accounts for about 75% of the total net operating income of all banks in Europe. Additionally, our sample covers slightly less than 80% of total after-tax profits made by banks in European countries.[6] In-sample banks display an above-average profitability, compared with the rest of the sector.

The data are reported on a consolidated basis and present a satisfactory level of homogeneity across banks and years for the purpose of our analysis. However, some limitations stem from the primary data reporting process, which relies on the banks themselves. Firstly, depending on the banks' operational structure, some banks include intracompany dividends, especially for parent jurisdictions. Secondly, some reporting excludes intracompany transactions, whilst other includes only cross border and yet other excludes them entirely. Thirdly, the dataset is almost balanced but exhibits only a few omissions. We mitigate these using adjustments and imputations were necessary. All adjustments are described in Appendix F.

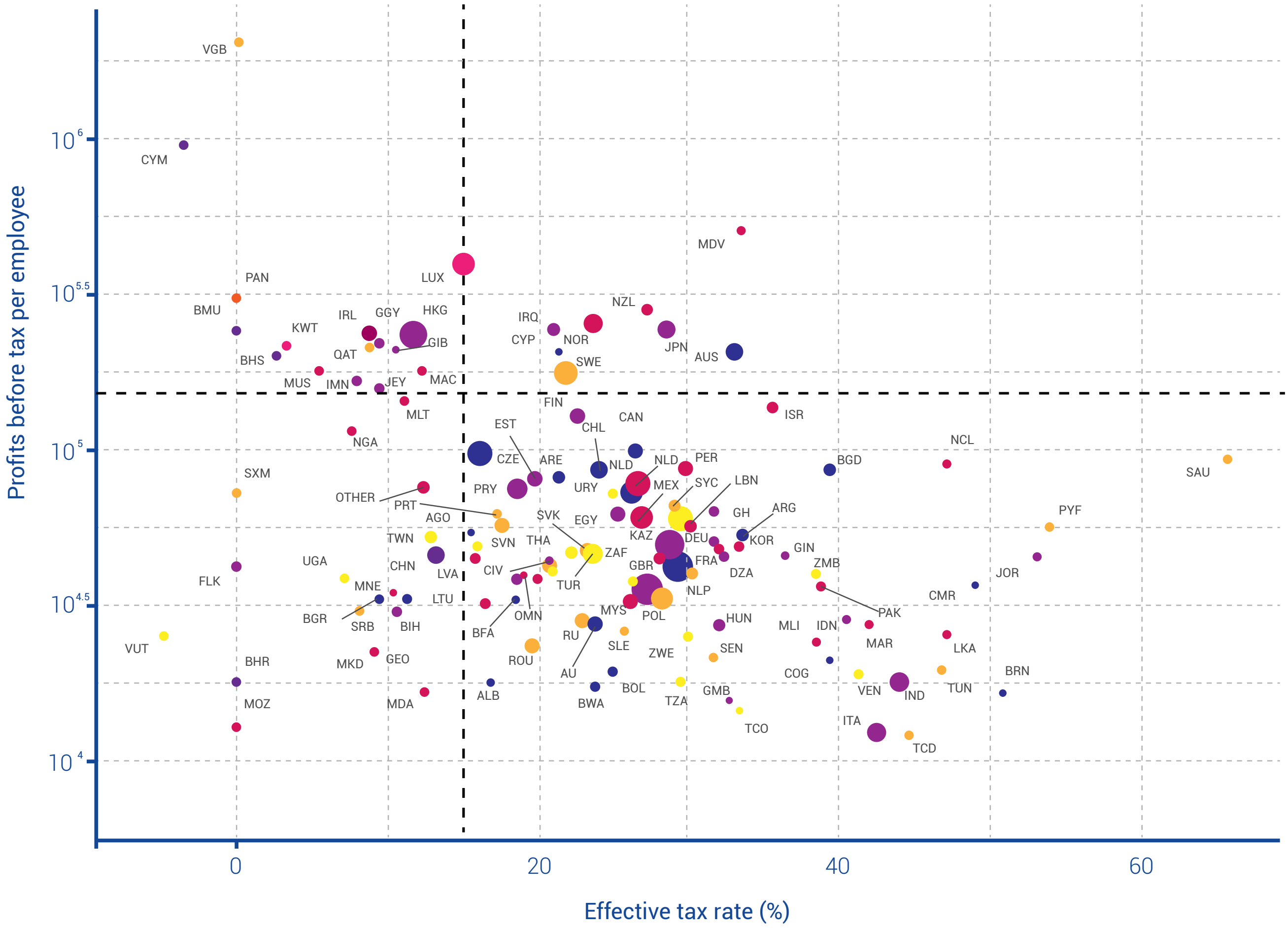
2.3 Selection of tax haven countries

The analysis of bank's profit shifting behaviour relies crucially on identifying countries with the potential of receiving profits from banks' operations, which are then taxed at a low effective tax rates. We establish a list of such jurisdictions (or tax haven country list thereafter), by identifying them empirically from our dataset. This allows us to capture specificities related to the banking sector, which might differ from tax behaviour of other sectors. **Table 2.3.1** presents the list of tax havens identified.

[6]These computations are based on the Consolidated Banking Data of the European Central Bank (ECB). We consider EU domestically controlled banks of any size (three categories are distinguished in the database) and using any technical standard for their reporting to regulatory bodies. We focus on consolidated indicators, encompassing the domestic and foreign activities of EU banks. We compare the total net banking income reported by in-sample banks over the period to the net total operating income in the ECB's database. The after-tax profits available in the database are compared with the pre-tax profits reported by banks on a country-by-country basis, to which we subtract income taxes paid.

Figure 2.3.1

Identifying Tax Havens



Notes: The graph plots countries using profits (before tax) per employee and effective tax rates. The x-axis displays effective tax rates as a percentage. For each jurisdiction, the effective tax rate is calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction across all banks and years. The y-axis presents mean profits before tax per employee in each jurisdiction in logarithmic form. Profit per employee is calculated as the ratio of overall profits booked to the overall number of employees employed in the jurisdiction across all banks and years. The dashed vertical line marks an effective tax rate of 15%: among the top 20% countries with the highest profit per employee (those above the horizontal dashed line), only those with an effective tax rate below this threshold are considered as tax havens.

Table 2.3.1

List of the 17 Tax Havens

Tax Havens used by Banks		
Bahamas	Hong Kong	Macao
Bermuda	Ireland	Malta
British Virgin Islands	Isle of Man	Mauritius
Cayman Islands	Jersey	Panama
Gibraltar	Kuwait	Qatar
Guernsey	Luxembourg	

Methodologically, the identification of countries in the tax haven list relies on two parameters. Firstly, we calculate an indicator for low activities in proportion to profits, using country-specific profit per employee. This captures jurisdictions with low substantial activities in proportion to their profits. Secondly, we use country-specific effective tax rates, measuring the tax rate applied on profits. Jurisdictions are categorised as tax havens based on the combination of the two parameters in an inversely proportional relationship, as shown in **Figure 2.3.1**. More specifically, the higher the profit per employee and the lower the effective tax rate, the higher the chance of a country being on the tax haven list. These countries exhibit a higher chance of being used by banks as a means of avoiding taxation, rather than having real production activities in the country.

The two parameters are calculated as follows. Firstly, we deflate the financial variables, expressing them in absolute terms (at constant values). Secondly, we sum the profit, the tax paid and number of employees recorded in each jurisdiction across years and banks to calculate our two indicators. Profit per employee is calculated for each jurisdiction as the ratio of aggregated profit and aggregated number of employees, while the effective tax rate is calculated as the ratio between aggregated tax paid and profit.

Our selection of the tax haven list relies on a pre-defined cut-off; the top 20% of countries with the highest profit per employee and among these those with an effective tax rate lower than 15%. Whilst this cut-off is endogenously determined, it does include most jurisdictions that often appear on similar lists.[7] However, other countries which are frequently categorised as tax havens do not make the cut-off (for instance this is the case for The Netherlands, and Switzerland). A graph illustrating the cut-off and the countries is shown on **Figure 2.3.1.**

[7]Compared with other tax haven lists commonly used in the literature, ours is substantially narrower: it covers 17 jurisdictions versus 41 for the one compiled by Tørsløv et al. (2019) and 45 for that of Hines and Rice (1994). Tailored to reflect European banks' profit shifting and aggressive tax planning practices, our list excludes certain countries traditionally classified as tax havens (such as Switzerland, the Netherlands or Singapore for the largest economies of this group). These satisfy only one or none of the profits per employee and effective tax rate criteria. However, most jurisdictions included in our list are usually classified as tax havens: only Qatar and Kuwait are not listed as such in Tørsløv et al. (2019); Qatar, Kuwait and Mauritius are absent from Hines and Rice (1994).

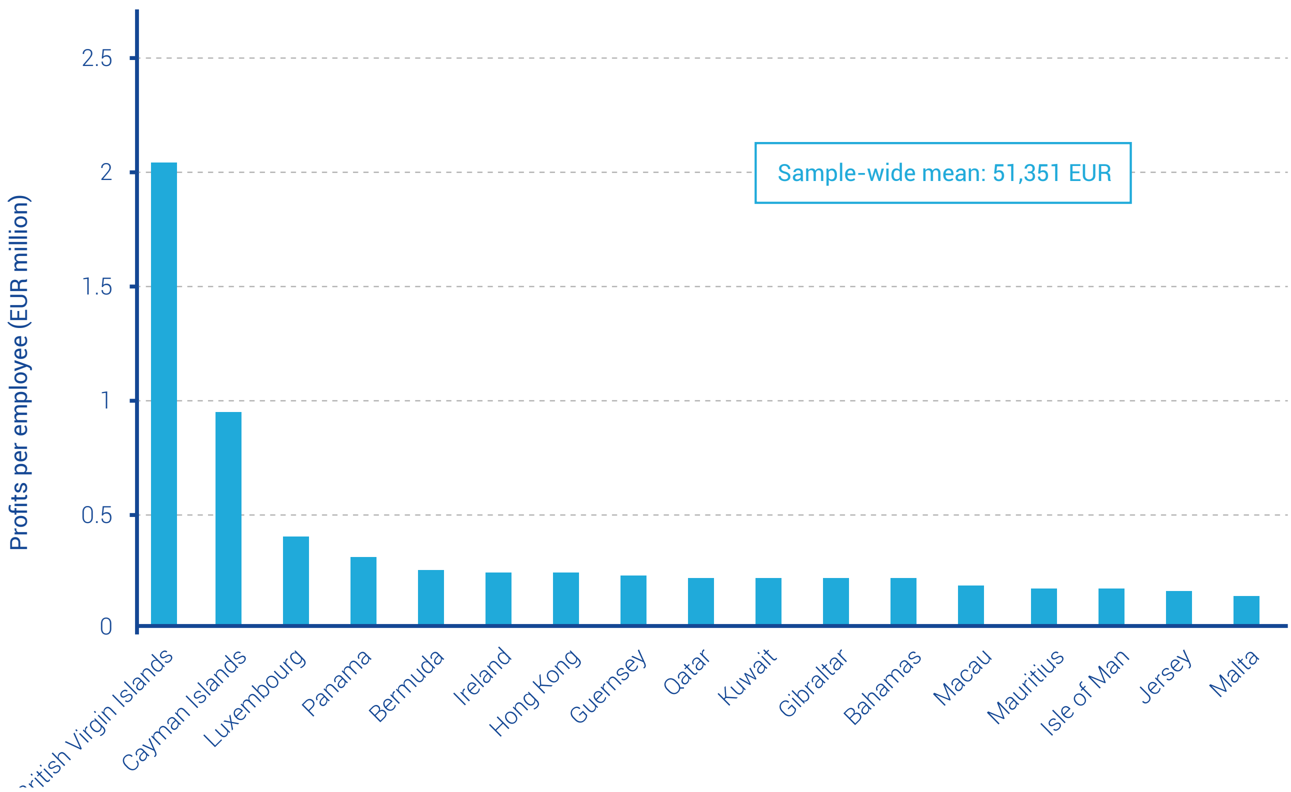
Overall, 17 jurisdictions appear in our tax haven list; Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Guernsey, Gibraltar, Hong Kong, Ireland, Isle of Man, Jersey, Kuwait, Luxembourg, Macao, Malta, Mauritius, Panama and Qatar. **Figure 2.3.2** shows the calculated profit per employee for these jurisdictions compared to the sample mean. The mean profit per employee is about 7 times higher than that of the entire sample; EUR 382,700 compared to EUR 51,400. Some heterogeneity is observed with very high values for the British Virgin Islands and Cayman Islands of over EUR 2 million and EUR 953,000, respectively, and relatively lower values in Jersey; at EUR 155,000.

Effective tax rates for countries appearing in our list are shown in **Figure 2.3.3**. For all countries effective tax rates are substantially lower than the sample mean (25%). Similar to profit per employee, heterogeneity in effective tax rates is also observed among countries: the highest rate is in Luxembourg (15%), while Bermuda, Panama and the British Virgin Islands have a zero rate. Cayman Islands exhibit a negative effective tax rate.

Some methodological limitations stem from data being secondary collected, with the primary process taking place at the level of banks. Not all banks disclose their activities in their jurisdictions fully, hence the classification of a jurisdiction in the list might rely on activities in a restricted number of banks making it less representative of the entire sample. In some instances where banks aggregate the activities taking place in several countries in a single category, it is not possible to clearly disaggregate activities across jurisdictions. Lastly, the list might be sensitive to the size of banks. Largest banks accounting for a large part of the overall activities might be overrepresented in our sample compared to smaller banks. Thus, the list depends on the banks' choice to locate activities in certain jurisdictions.

Figure 2.3.2

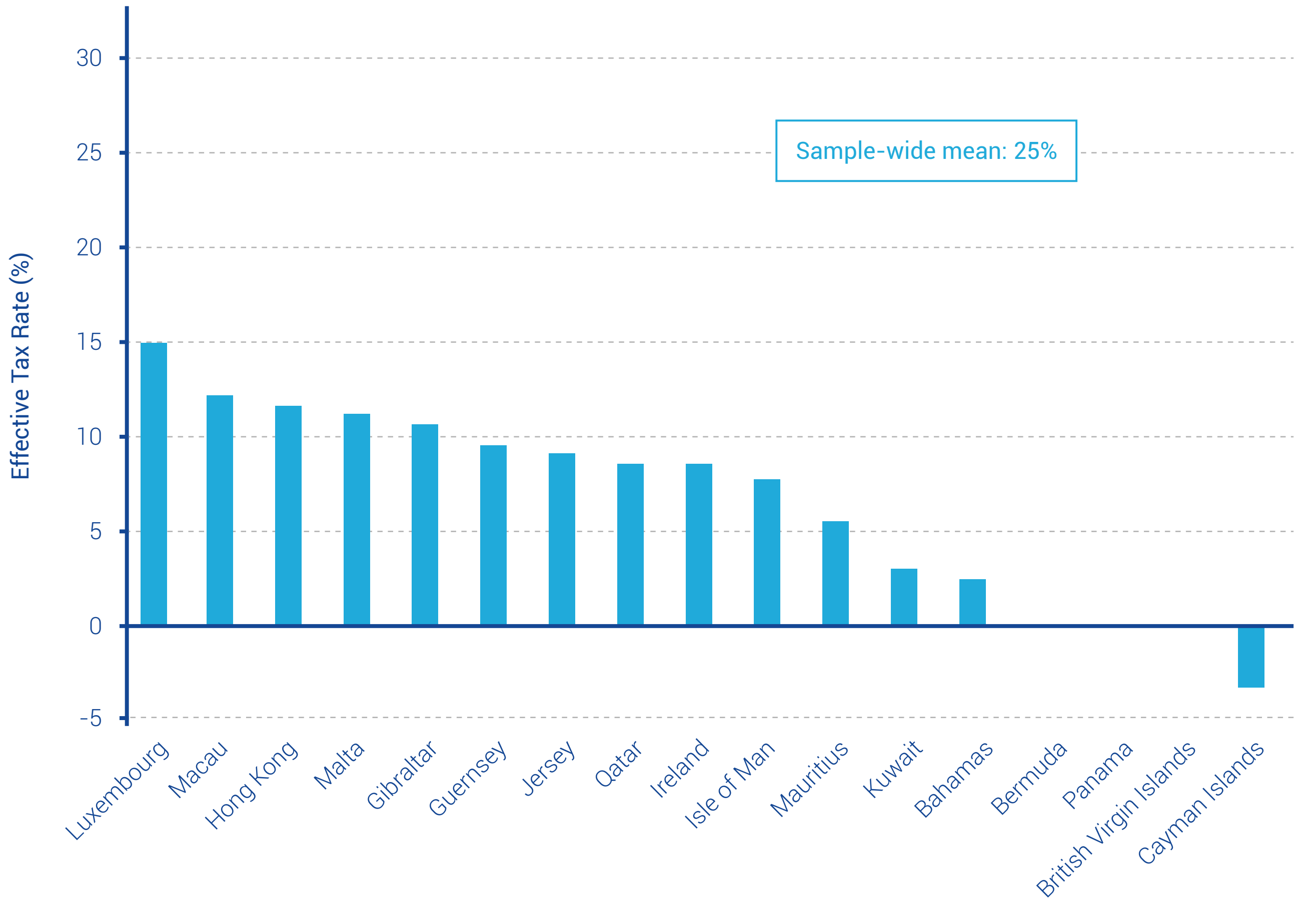
Pre-tax Profit per Employee



Notes: This figure presents the mean pre-tax profit per employee in each of the 17 tax havens identified from our sample based on the combination of effective tax rates and profits per employee. The horizontal dashed line represents the sample-wide mean pre-tax profit per employee. Figures are expressed in EUR million.

Figure 2.3.3

Effective tax rates in Tax havens



Notes: This figure presents the effective tax rate observed in each of the 17 tax havens identified in our sample based on the combination of effective tax rates and profits per employee. For each jurisdiction, the effective tax rate is calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction across all banks and years.
The horizontal dashed line represents the sample-wide mean effective tax rate. All tax rates are expressed in percentage.

Overall, our sample and years of study offer a good source of analysis for banking activities in tax havens. The data cover the largest banks in Europe and can reveal trends of their presence in tax havens over the years. The identification of a list of bank-specific tax havens allows for a comparison of these activities vis-à-vis activities in non tax haven countries and headquarter (or domestic) countries. We proceed with such an analysis in Section 3.

3 Descriptive Analysis: Documenting the Presence of Banks in Tax Havens

This section provides a descriptive analysis of the presence of banks in tax havens from 2014 to 2020 separated in four parts. First, it calculates profitability statistics (pre-tax profits, employees and profit margins) to compare the activities of banks in domestic, tax haven and non tax haven jurisdictions. Second, the same comparison takes place with jurisdictions separated according to their effective tax rates. Third, the analysis proceeds by examining the heterogeneity and dynamics in banks' use of tax havens. To assess the former, it presents differences in effective tax rates and pre-tax profits across banks, whilst for the latter, it calculates changes in pre-tax profits booked in tax havens for each bank in our sample. The final part focuses in more detail on the heterogeneity in the use of tax havens, by studying three examples of banks with significant presence.

3.1 Profitability by Country Group

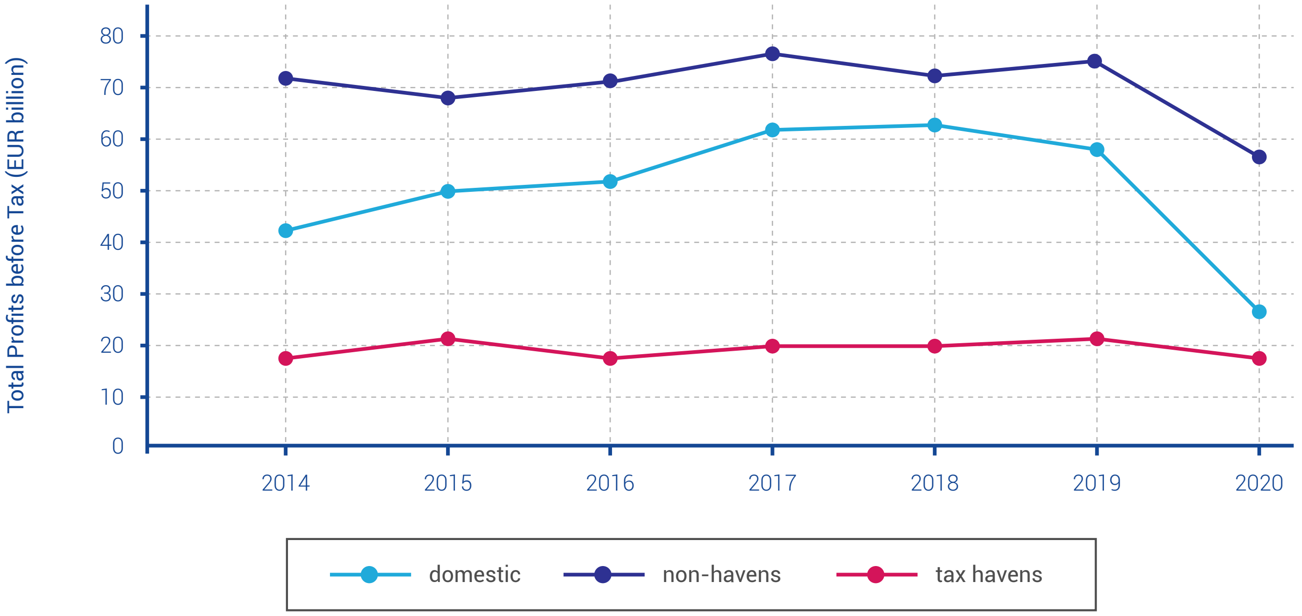
Out of EUR 144 billion in profit by European banks each year, 65% (about EUR 94 billion) stem from activities abroad through their affiliates, and 35% (about EUR 50 billion) from operations in their domestic market. The former originates both from activities in non-tax haven countries and tax haven countries. Except for the year of the pandemic in 2020, (where world economic activity was subdued) profits from activities in domestic markets and in non-tax havens have been steadily increasing.[8] In tax havens, the share of profits had been stable over the past 7 years, at about 14% (about EUR 20 billion) of total profits.[9] The trends of profits in absolute terms and in percentage of overall profit are shown in **Figures 3.1.1** and **3.1.2** respectively.

[8]The pandemic reduced the profits of banks in the different country groups, especially in the domestic market. However, the share of profits in tax havens decreased less than in non-havens and domestic market.

[9]Taking the tax haven list by Tørsløv et al., the profits in tax havens are also stable over time at about 17% of total profits (around 24 billion euros). For comparison purposes, banks' profits using the Tørsløv et al. tax haven list are shown in Figures C.3 to C.7 in appendix. It should be noted that the presence of banks in tax havens is similar to the one of oil and gas companies and multinational companies from country-by-country data when using the tax haven list of Tørsløv et al. About 16% of profits are booked in tax havens with the three different data sources. Focusing on the bank's list, this percentage remains around 20% for the banks but drops with the oil companies to 4% and the multinationals from the OECD's country-by-country data to 7%. This suggests that some countries are more profitable for banks and that banks might have certain preferred countries. Even though the banks have 14% of their profits booked in tax havens, the percentage of staff employed there is only 4% (Figure 3.1.3). This percentage is 6% with the Tørsløv et al. tax haven list (Figure A5). In non-havens, the percentage of staff is 53% and in the domestic (domestic) market it is 41% on average.

Figure 3.1.1

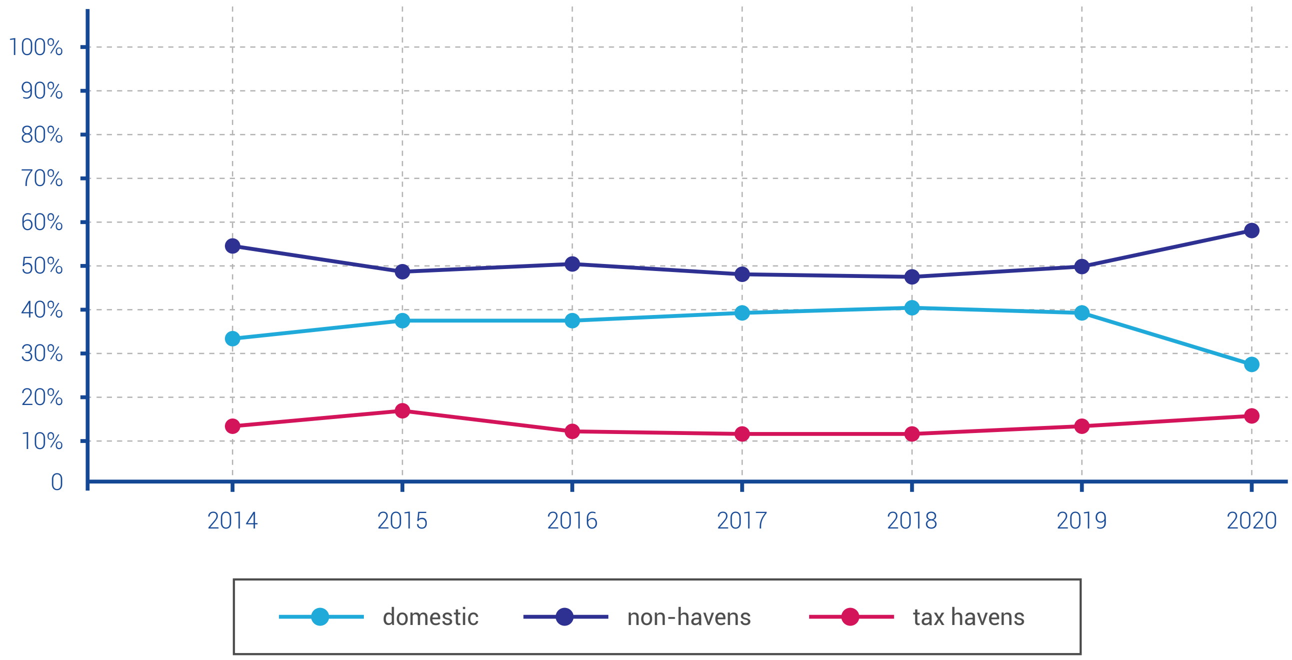
Total Profits before Tax



Notes: This figure presents the aggregated pre-tax profits of banks by year and country group. The line of "domestic" profits corresponds to the headquarter activities of banks. The lines "non-havens" and "tax havens" profits correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not. Total profits are expressed in EUR billion.

Figure 3.1.2

Percentage of Pre-tax Profits

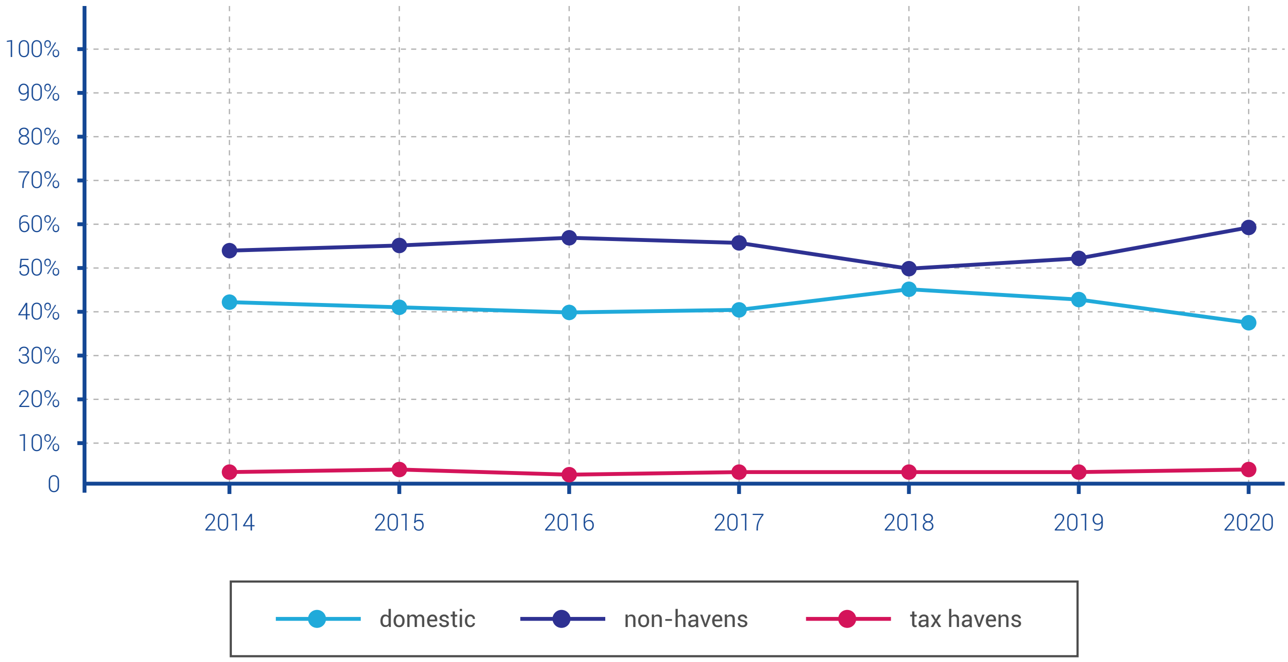


Notes: This figure presents, for each year and each country group, pre-tax profits expressed as a share of the annual total (in percentage form). The line "domestic" profits corresponds to the headquarter activities of banks. The lines "non-havens" and "tax havens" profits correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

Moreover, a significant mismatch between the percentage of profits and the percentage of employees is documented in tax haven countries. As shown in **Figure 3.1.3**, even though banks book 14% of their profits in tax havens, the percentage of staff employed is only 4%. A comparison between percentage of profits and percentage of employees in the three country categories is shown in **Figure 3.1.4**. For domestic markets and non tax haven countries, the percentage of employees is slightly higher than the percentage of profits.

Figure 3.1.3

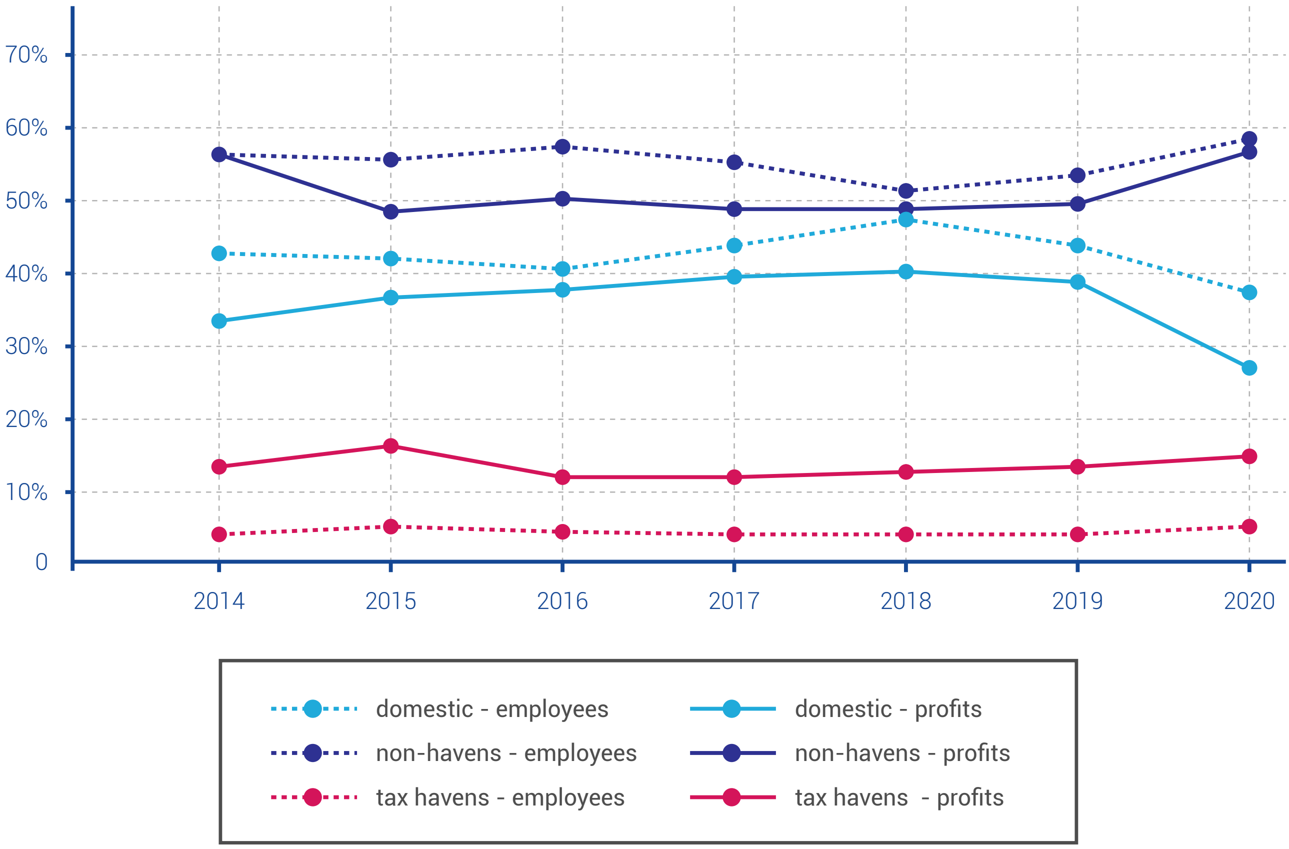
Percentage of Employees



Notes: This figure presents, for each year and country group, the banks' number of employees expressed as a percentage of the annual total. The line "domestic" corresponds to the headquarter activities of banks. The lines "non-havens" and "tax havens" correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

Figure 3.1.4

Percentage of Profits and Employees

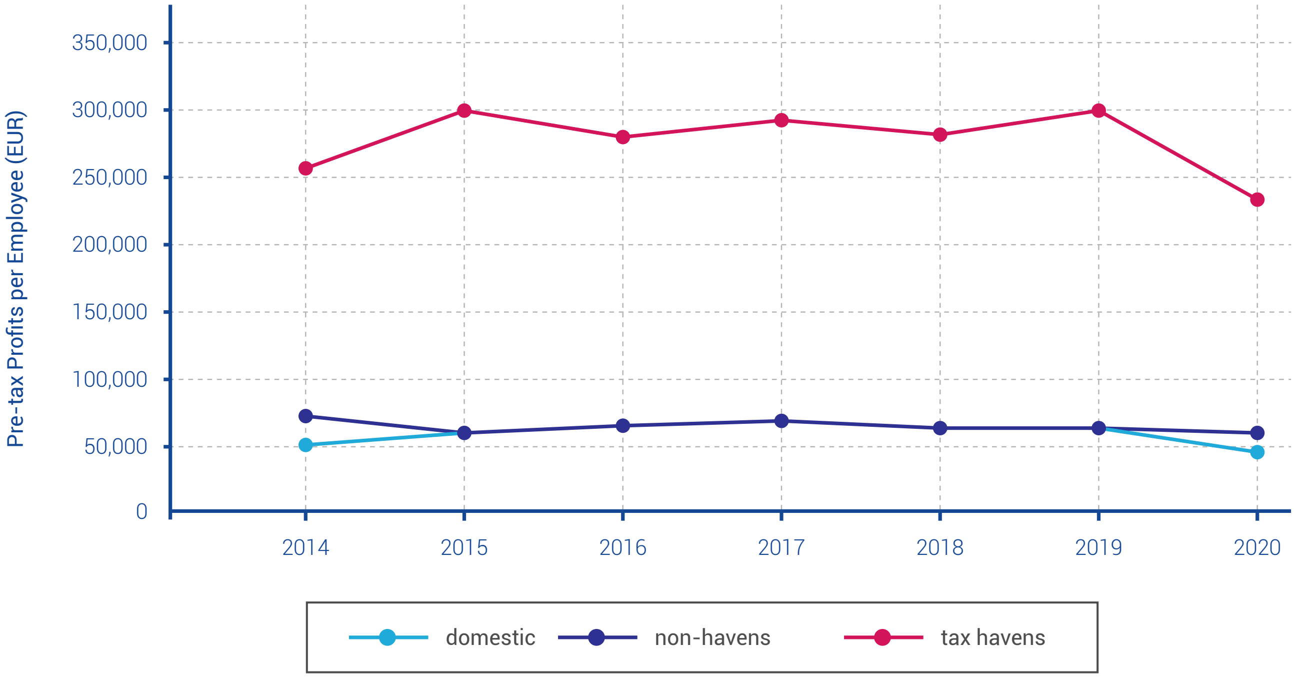


Notes: This figure presents, for each year and country group, the banks' number of employees and aggregated pre-tax profits expressed as a percentage of their respective annual totals. Solid lines plot profits and dashed lines the number of employees. The line "domestic" profits and employees correspond to the headquarter activities of banks.
The lines "non-havens" and "tax havens" profits and employees correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

This mismatch is even greater when comparing the profitability per employee in the different country groups. Figure 3.1.5 documents a profitability ratio per year and country group by taking profits before tax divided by the number of employees for each year and partner country. The profitability per employee is about EUR 283,000 in tax havens, compared to EUR 68,000 in non-havens and EUR 63,000 in the domestic market.

Figure 3.1.5

Profitability per Employee

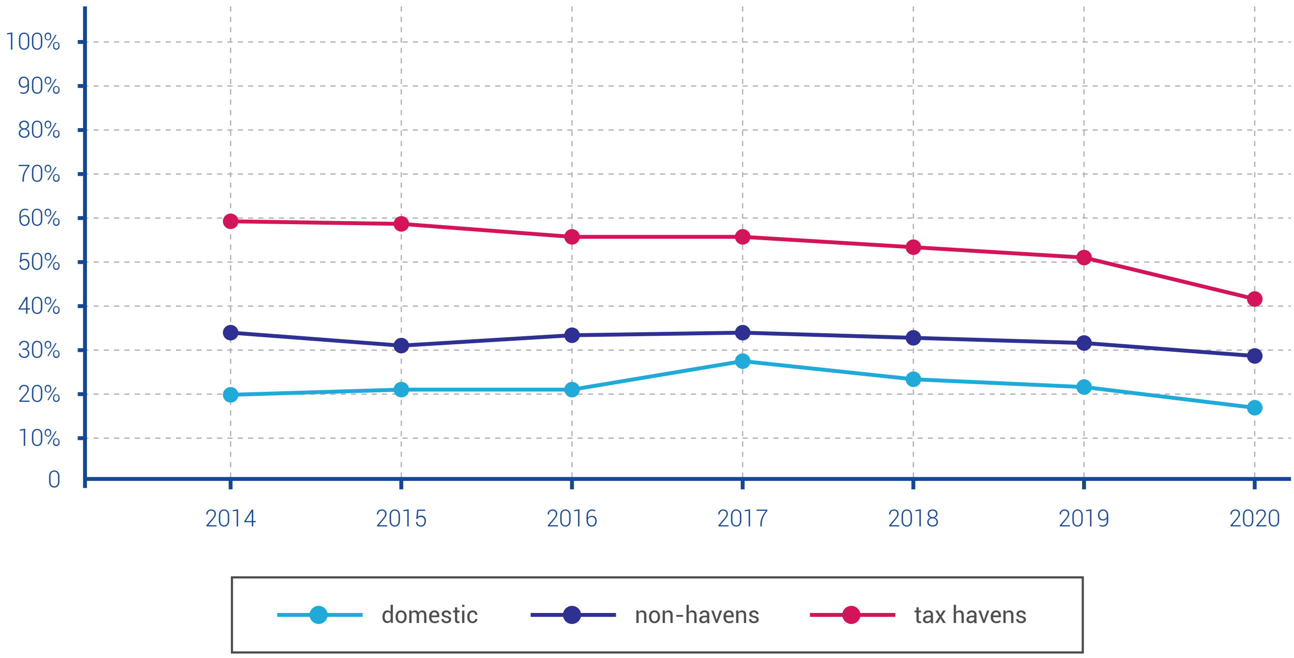


Notes: This figure presents the profitability of banks' staff by country group over time. It is calculated as the ratio of profits before tax aggregated across all banks in each country group to the number of employees in each country group. The line "domestic" corresponds to the headquarter activities of banks. The lines "non-havens" and "tax havens" correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not. Profitability ratios are expressed in EUR.

An additional profitability statistic which reveals the use of tax havens by banks is the pre-tax profit margin percentage. This is defined as the profits before tax divided by the net banking income and reflects the degree to which a company or a business activity is generating profits. **Figure 3.1.6** documents an economically significant higher percentage in tax havens than in other country groups. Over the 7 years examined, banks exhibit a profit margin ranging from 20% to 26% in the domestic country and 34% to 35% abroad in non tax haven countries. This percentage is much higher in tax havens and ranges from 52 to 58% over the years. The observed discrepancy can be explained by the fact that banks benefit from high deposits in tax havens or by the fact that they might be engaging in profit shifting. The banks' country-by-country data do not provide the amount of assets, which limits evidence of profit shifting.

Figure 3.1.6

Profit Margins



Notes: This figure presents banks' profit margin by year and country group. The margin is calculated as the ratio of profits before tax aggregated across all banks to the net banking income, also aggregated across banks. The line "domestic" margin corresponds to the headquarter activities of banks. The lines "non-havens" and "tax havens" margin corresponds to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

3.2 Profitability by Effective Tax Rate

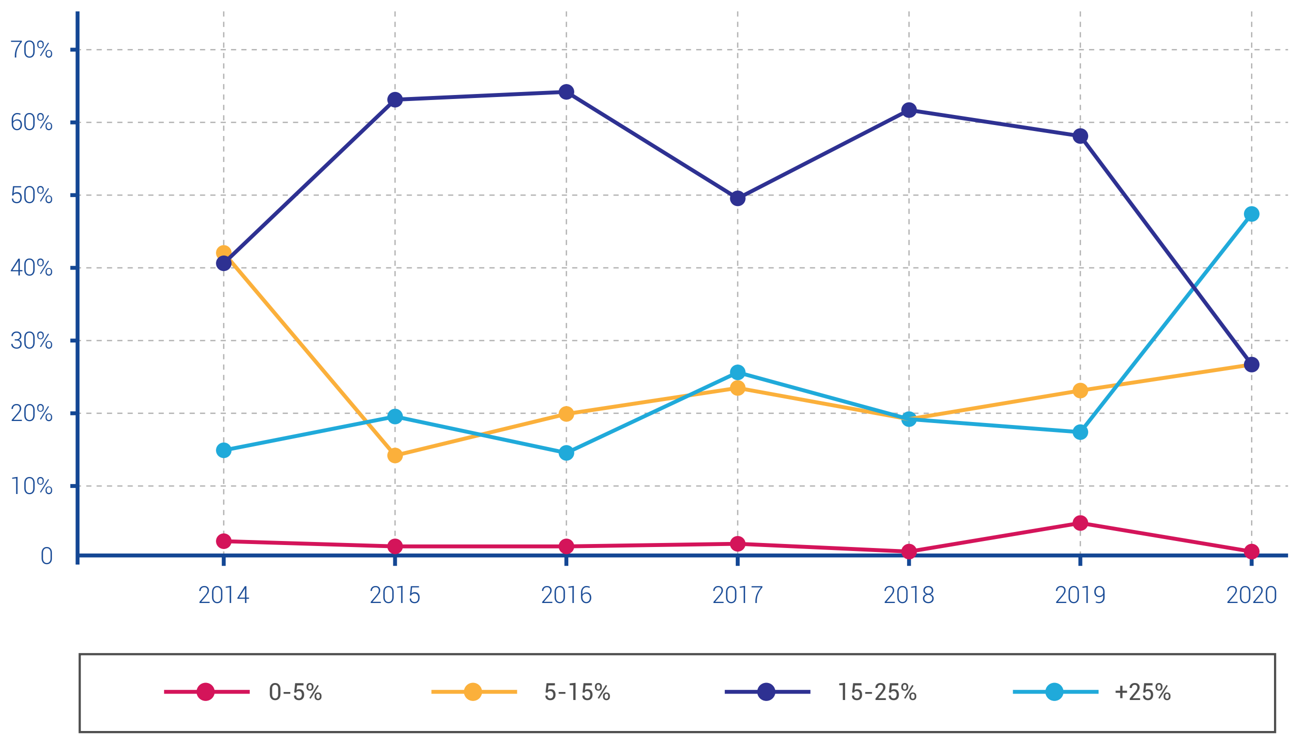
We consider next a grouping of countries according to their effective tax rates rather than a binary separation between tax havens and non tax havens. For this analysis, we define four tax rate brackets; 0-5%, 5-15%, 15-25% and over 25%. These represent extremely low, low, below average, and moderate effective tax rates respectively.

Figure 3.2.1 documents that most the profits are in the 15-25% group, ranging from 40-60% of total profits. Importantly, around 25% of profits of banks are booked in countries with an effective tax rate that is lower than 15%, while only 3% of these profits are booked in countries with a statutory rate lower than 15% (Figure 3.2.2). This suggest that banks might be receiving some preferential treatment in the payment of their taxes by certain countries.

Finally, we consider the level of effective tax rates in non tax havens, tax havens and in the headquarter country. This is shown in Figure 3.2.3. As expected, the effective tax rate in tax havens is the lowest with respect to the other country groups and is stable at around 12%. The rate is higher at 21% in the domestic country and 23% in non-tax haven countries. Overall, the average effective tax rate of the banks is about 20%, which is very close to the average EU statutory tax rate in 2020.[10]

Figure 3.2.1

Percentage of Pre-Tax Profits (by Effective Tax Rate)

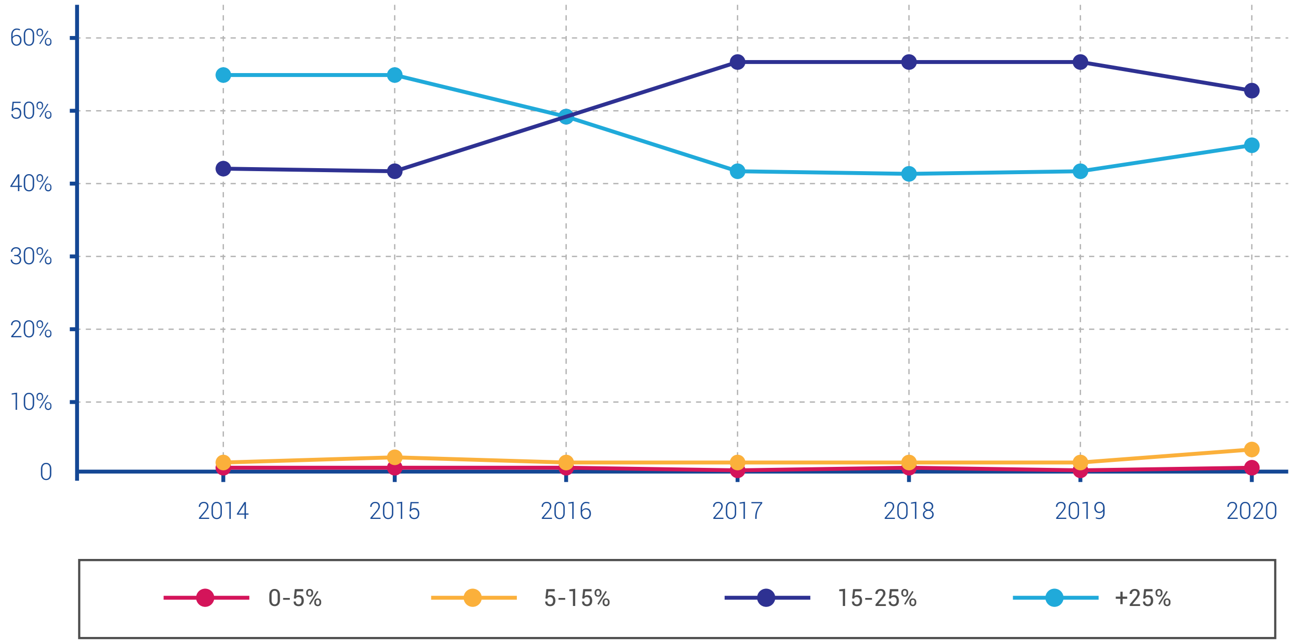


Notes: This figure presents, for each effective tax rate group and each year, the banks' pre-tax profits expressed as a percentage of the annual total. Partner jurisdictions are distributed among the four different tax brackets (from 0% to 5%; between 5% and 15%; between 15% and 25%; 25% or higher) based on the effective tax rate observed there.

[10] Compared to other companies, banks' effective tax rate is higher than that of the multinationals in the OECD's country-by-country reporting data (14%) but lower than that of oil companies (30%).

Figure 3.2.2

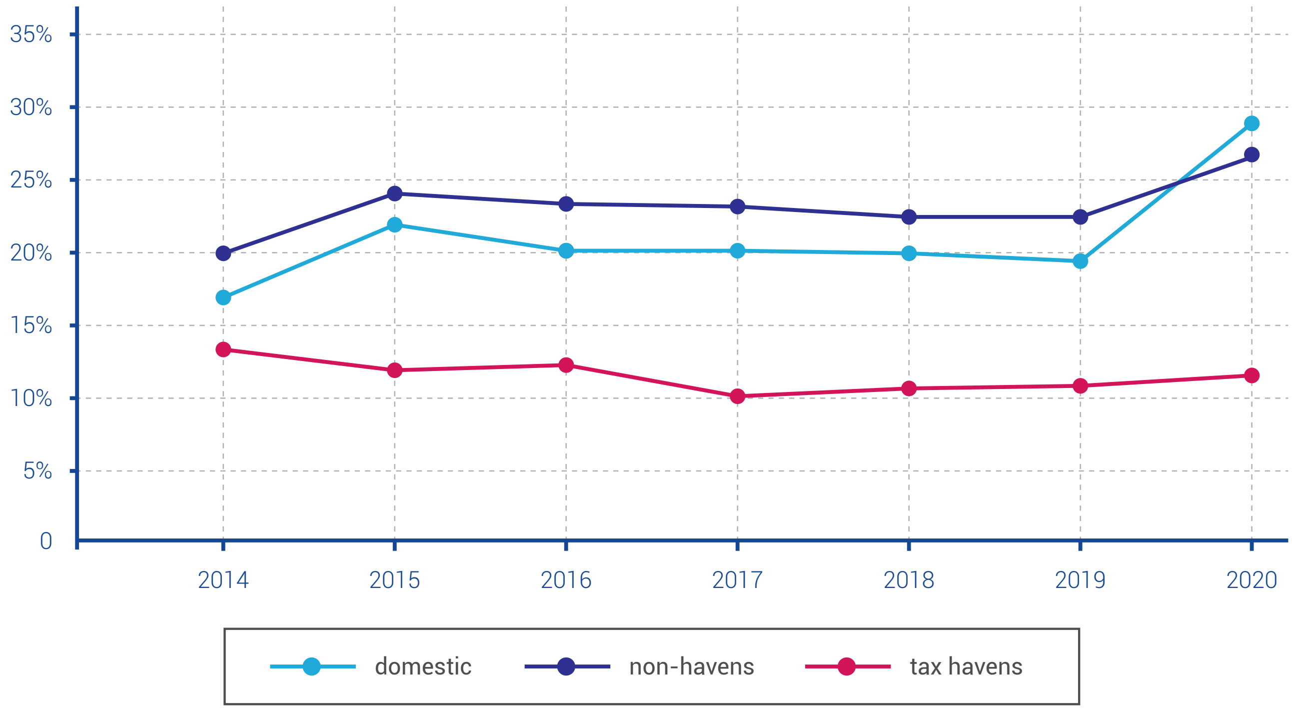
Percentage of Pre-Tax Profits (by Statutory Rate)



Notes: This figure presents, for each statutory corporate income tax group and each year, the banks' pre-tax profits expressed as a percentage of the annual total. Partner jurisdictions are distributed among the four different tax brackets (from 0% to 5%; between 5% and 15%; between 15% and 25%; 25% or higher) based on their statutory tax rate.

Figure 3.2.3

Effective Tax Rates



Notes: This figure shows the effective tax rate (in percentage) imposed upon banks in each country group over time. It is calculated within each country group as the ratio of income taxes paid aggregated across all banks to pre-tax profits, also aggregated across banks. The line "domestic" effective tax rate corresponds to the one faced by banks in their headquarter country. The lines "non-havens" and "tax havens" effective tax rates instead correspond to their activities in any foreign country, depending on whether the latter is classified as a tax haven or not.

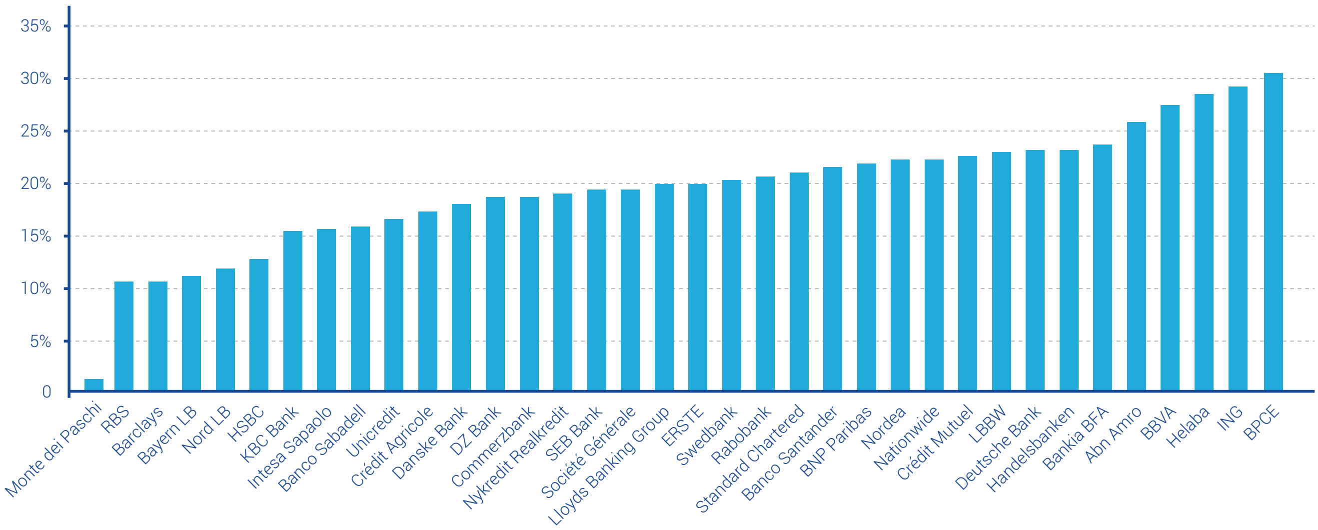
3.3 Heterogeneity and Dynamics in Tax Haven Presence

Evidence so far have highlighted the use of tax havens by banks and they have also indicated the existence of a stable percentage of profits booked in tax havens during the time period we examine. Since aggregated trends might conceal the activity of large banks, in this section we provide a breakdown of their behaviour at the bank's level. The analysis reveals heterogeneity in banks' behaviour and in their use of tax havens for profit-shifting and tax avoidance practices. We explore this heterogeneity by comparing two main indicators; the overall mean effective tax rate and the share of profits booked in tax haven countries.

The heterogeneity in banks' effective tax rates is documented in **Figure 3.3.1**. The figure ranks the banks in our sample by their effective tax rate, calculated as the ratio of the total tax paid and total profits summed over the available years. Averaging across years can account for possible time mismatches (for instance, due to losses carryovers) that might occur when evaluating the effective tax rates of a single year. The mean effective tax rate in our sample is 20%, with minimum (maximum) values of 10% (30%). Seven banks in our sample exhibit a particularly low effective tax rate, lower or equal to 15%. These are RBS, Barclays, Bayern LB, Nord LB, HSBC, KBC and Intesa Sanpaolo.

Figure 3.3.1

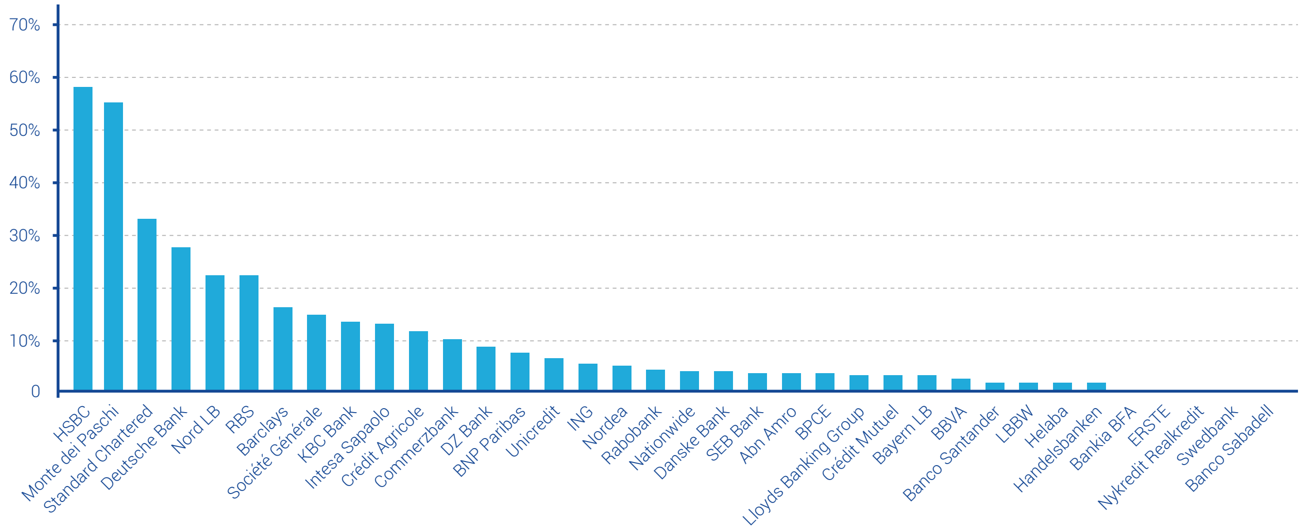
Mean Effective Tax Rate (by Bank)



Notes: In this figure, banks are ranked according to their mean effective tax rates in percentage form. These are calculated as the ratio of the sum of taxes paid over all years to the sum of pre-tax profits, also aggregated across years. Foreign and domestic activities are included and observations with nonpositive profits are omitted.

Figure 3.3.2

Mean Pre-tax Profits in Tax Havens (Percentage)



Notes: In this figure, banks are ranked according to the share of their pre-tax profits that they book in tax havens. The share of profits is obtained for each bank as the ratio of pre-tax profits booked in tax havens to all pre-tax profits, both quantities being aggregated across years. Observations at the bank-year-partner jurisdiction level with negative profits before tax are excluded from these computations. Shares of profits before tax booked in tax havens are expressed in percentage.

We then turn to the heterogeneity in the mean share of profits booked in tax havens, shown in Figure 3.3.2. Like effective tax rates, these are averaged over the years. We observe that the mean percentage of profits booked in tax havens is about 20%. This ranges from a minimum of (or close to) 0% for to 9 banks in our sample to a maximum of 58% for HSBC.

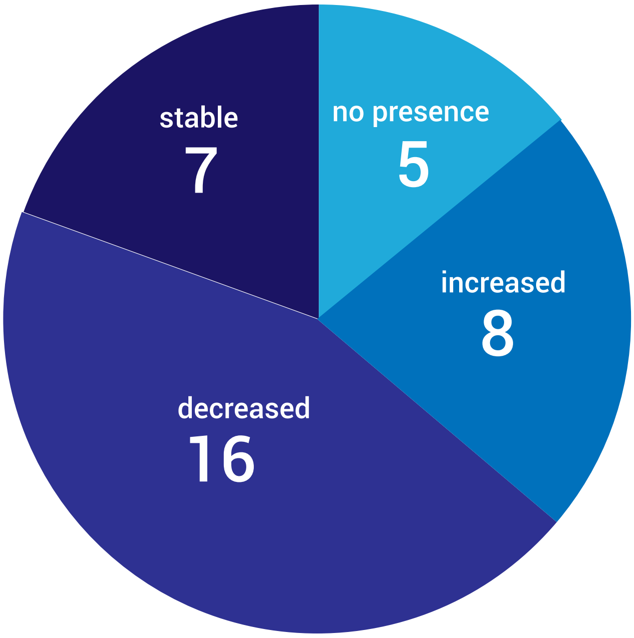
In addition to heterogeneity in the use of tax havens by banks, we examine how their use changes during the 7 years covered in our sample. The requirement for public disclosure of country-by-country reporting aimed at increasing transparency and scrutiny from the public. One should expect that the changes to the use of tax havens could take place because of its introduction. To examine the dynamics in our sample of 36 banks, we compare the mean percentage of positive profits booked in tax havens at the beginning and the end of sample period. This reveals banks that increased or decreased the amount of profits booked in tax havens.

Overall, we find that 16 banks in our sample decreased their presence in tax havens during this period by an average of 7 percentage points. Despite the decrease in profits booked in tax havens, presence continues to be high in a number of banks. A detailed per bank breakdown of the percentage changes in tax haven use over the period is shown in Table 3.3.1. For the banks that decreased their presence, note in particular that most of the decreases were small, in single digit percentages. Deutsche Bank continued to report on average 21% of profit in tax havens between 2018 and 2020, Standard Chartered almost 30% and Société Générale about to 14%, all of them with very small decreases during this period.

By contrast, we document 8 banks with increased tax haven presence during this period, increasing by 6 percentage points on average. Some notable increases took place in the case of HSBC and Barclays, where the presence in tax havens was already high, while other banks had a relatively low presence in tax havens and the increase is relatively small (0.7-2 percentage points increase).

Lastly, 7 banks with a small presence in tax havens kept a stable percentage with a change smaller than 0.5 percentage points. However, note that from those banks with a stable percentage, Nord LB records a high presence at around 27% of profits during this period.

Figure 3.3.3
Change of Presence in Tax Havens



Notes: This figure shows an overview of the number of banks that increased, decreased, maintained a stable presence and no presence in tax havens over the sample period. For instance, 8 banks out of the 36 banks in our sample increased their presence in tax havens. A further, 5 banks did not book any positive pre-tax profits in tax havens throughout the sample period. Similar to Table 3.3.1, the criterion used to assess the evolution is the change in the share of pre-tax profits booked by each bank in tax havens from the beginning to the end of the sample period, excluding observations with negative profits.

Table 3.3.1

Changes in Pre-Tax Profits booked in Tax Havens

Presence in Tax Havens	Bank	Average percentage of profits between 2014 and 2016	Average percentage of profits between 2018 and 2020	Change
Increasing	Monte dei Paschi	30.3%	49.8%	19.4%
	Intesa Sanpaolo	12.5%	24.6%	12.2%
	HSBC	54.4%	62.3%	7.9%
	Barclays	16.4%	20.7%	4.3%
	Nordea	4.2%	6.3%	2.1%
	BBVA	0.9%	1.9%	1.0%
	Banco Santander	0.5%	1.3%	0.8%
	Rabobank	3.9%	4.5%	0.7%
Stable	Nord LB	27.2%	27.6%	0.4%
	Handelsbanken	0.1%	0.4%	0.2%
	SEB Bank	2.8%	3.0%	0.2%
	Crédit Mutuel	1.9%	1.8%	-0.1%
	Helaba	0.7%	0.5%	-0.2%
	BPCE	2.2%	2.0%	-0.2%
	Danske Bank	2.7%	2.1%	-0.5%
Decreasing	LBBW	0.9%	0.1%	-0.8%
	Lloyds Banking Group	3.8%	2.1%	-1.7%
	Abn Amro	3.0%	0.8%	-2.2%
	KBC Bank	15.1%	12.7%	-2.4%
	BNP Paribas	9.4%	6.9%	-2.5%
	Société Générale	16.5%	13.8%	-2.7%
	Bayern LB	3.5%	0.0%	-3.5%
	Crédit Agricole	15.1%	11.5%	-3.6%
	ING	8.1%	4.3%	-3.8%
	Standard Chartered	33.9%	29.8%	-4.1%
	Nationwide	4.7%	0.0%	-4.7%
	DZ Bank	10.8%	6.0%	-4.9%
	Unicredit	11.0%	4.1%	-6.9%
	Commerzbank	15.3%	6.5%	-8.8%
	Deutsche Bank	32.0%	21.1%	-10.9%
	RBS	71.8%	14.0%	-57.8%

Notes: This table classifies banks based on the changes in their presence in tax havens. Three groups are defined, depending on whether each bank increased, decreased or maintained its presence in tax havens over the sample period. Presence in tax havens is assessed via the share of each bank's pre-tax profits that is booked in tax havens at the beginning and at the end of the sample period. This share is first computed for each year, as the ratio of the bank's profits booked in tax havens to the bank's total profits. Observations at the bank-year-partner jurisdiction level with negative profits before tax are excluded from these computations. From there, we determine the mean of each bank's 2014 to 2016 and 2018 to 2020 shares of tax haven profits. The last column displays the difference between the previous two columns in percentage points. Note that, for Intesa Sanpaolo, the observed increase is driven by the 2020 fiscal year, during which the bank experienced heavy losses in Italy, its main market and headquarter country. Since we exclude observations with negative profits, the foreign activities of Intesa Sanpaolo and especially those conducted in tax havens gained more weight. Similarly, at the beginning of the sample period, RBS displays losses in its most important non-haven markets (especially in the UK or the US) and these observations being excluded, more weight is given to tax havens such as Ireland, the Channel Islands, the Isle of Man or Gibraltar.

3.4 Results of Tax Haven Use: Selected Examples

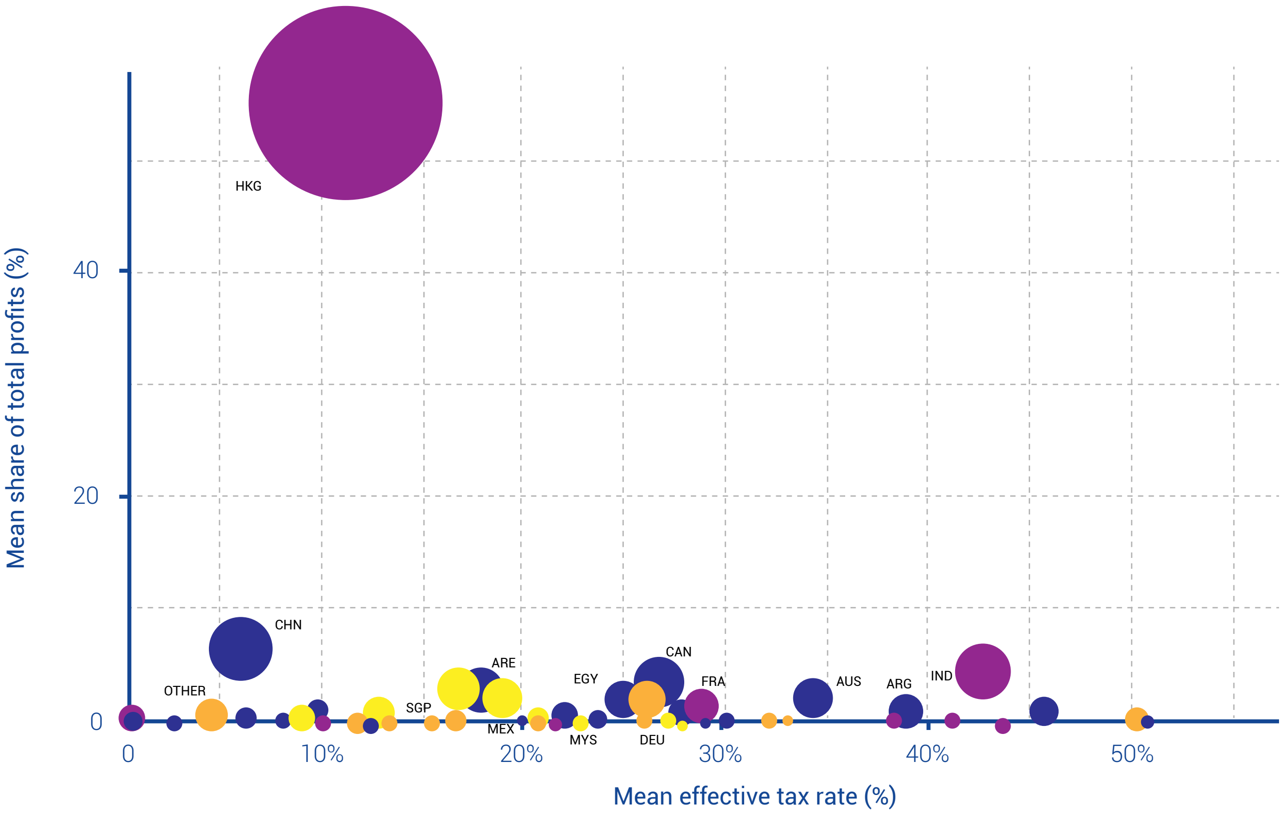
This subsection examines the results that banks use in selected examples of banks. Specifically, we focus on HSBC, Deutsche Bank, and Société Générale. These three cases exhibit high use of tax havens as evidenced by the high percentage of profits booked in tax havens and low effective tax rates. In all three cases, the structure used by banks differs, which makes drawing conclusion on common practices difficult. Instead, we analyse the structure of these cases to shed light on some of the determinants of low effective taxation and to point out the potential consequences of presence in low tax jurisdictions.

Firstly, consider the case of the HSBC Group. It accounts for about 10% of turnover, profits, and employees from the overall sample, making it one of the largest banking institutions in the world. Compared to other banks in our sample, HSBC is characterised by one of the lowest mean effective tax rates (13%) and the highest mean percentage of total profits booked in tax haven jurisdictions (58%).

Figure 3.4.1 plots the mean percentage of profits booked in each jurisdiction against the corresponding effective tax rate. Comparing the weight of each jurisdiction, we document that the concentration of HSBC activities in Hong Kong is the main determinant behind a low effective tax rate and high percentage of profits booked tax havens. HSBC books almost 60% of its overall profits in Hong Kong with an effective tax rate of 11%.

Figure 3.4.1

HSBC Effective Tax Rates and Profits

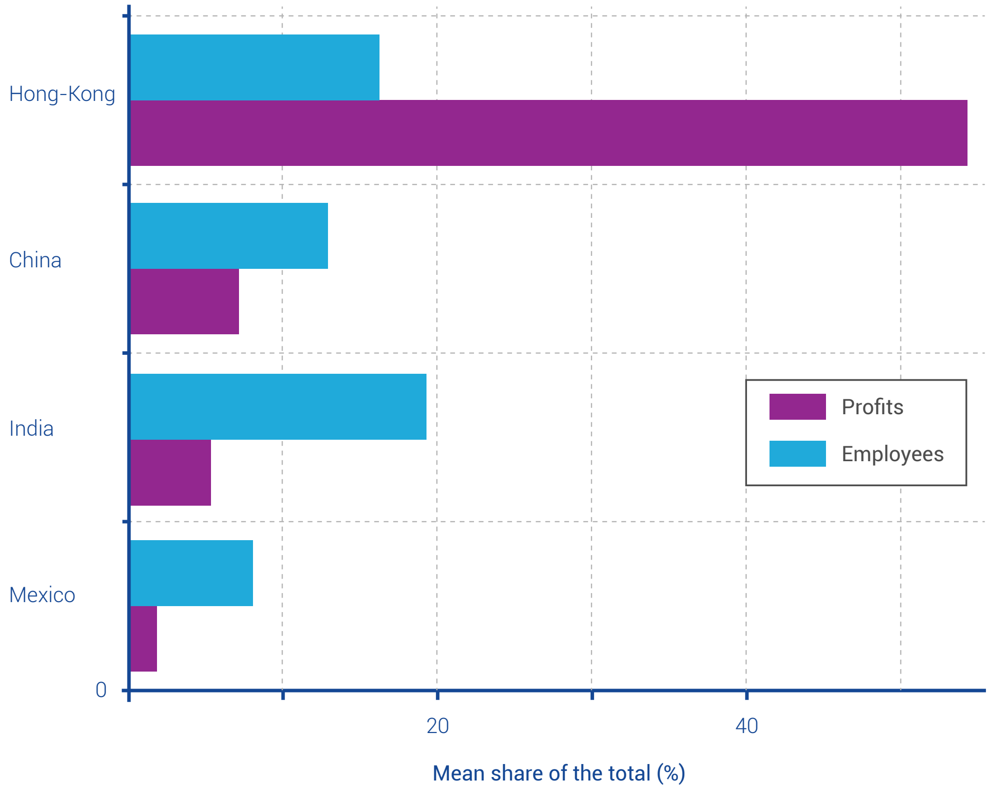


Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by HSBC's overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of HSBC's aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of HSBC's aggregated pre-tax profits.

We then analyse how profits booked in the different jurisdiction relate to the underlying production factors, in particular the number of employees. Figure 3.4.2 plots the percentage of overall employees recorded in a jurisdiction against the percentage of profits. In the case of Hong Kong, the percentage of employees is particularly lower than the profits recorded, averaging 15% across the years we examine. In contrast, China accounts on average for 13% of total employees and 6% of total profits while India accounts for 19% of total employees and 5% of total profits. One of the possible explanations is that Hong Kong is characterised by a favourable tax system and is often used as an investment hub to route investments in Asia, especially from China.[11]

Figure 3.4.2

HSBC Pre-Tax Profits and Employees



Notes: The figure presents HSBC's pre-tax profits and employees in its main partner jurisdictions. For each jurisdiction, the percentage share of profits is calculated as the ratio of profits booked by HSBC in the country aggregated over the sample period to HSBC's total profits similarly aggregated across years. The percentage share of employees is calculated as the ratio of the sum of HSBC's number of employees in the country through the sample period to the total number of employees observed across all years. Observations with negative profits are excluded from these computations. The chart focuses on the countries that account for minimum 5% of either total profit or employees.

Secondly, we consider the case of the Deutsche Bank, one of the largest banks headquartered in Germany employing over 90 000 employees and operating in 59 countries in 2020. As seen in Section 3.3, Deutsche Bank is characterised by an average effective tax rate of 24% and one of the highest percentages of profits booked in tax haven countries (27%).

[11]Standard Chartered has similar structure with an important presence in Hong Kong. See Appendix D.

Figure 3.4.3, plots the average effective tax rate and percentage of total profits booked across jurisdictions for Deutsche Bank. We document that the largest portion of profits is booked in Germany; 34% of total profits are taxed at an effective tax rate of 16%. One explanation of the lower effective tax rate is intracompany dividends, which might not be eliminated when computing country-by-country report figures. As the headquarter company is at the top of the ownership chain, it often receives a substantial amount of intracompany dividends which usually receive a favourable tax treatment.

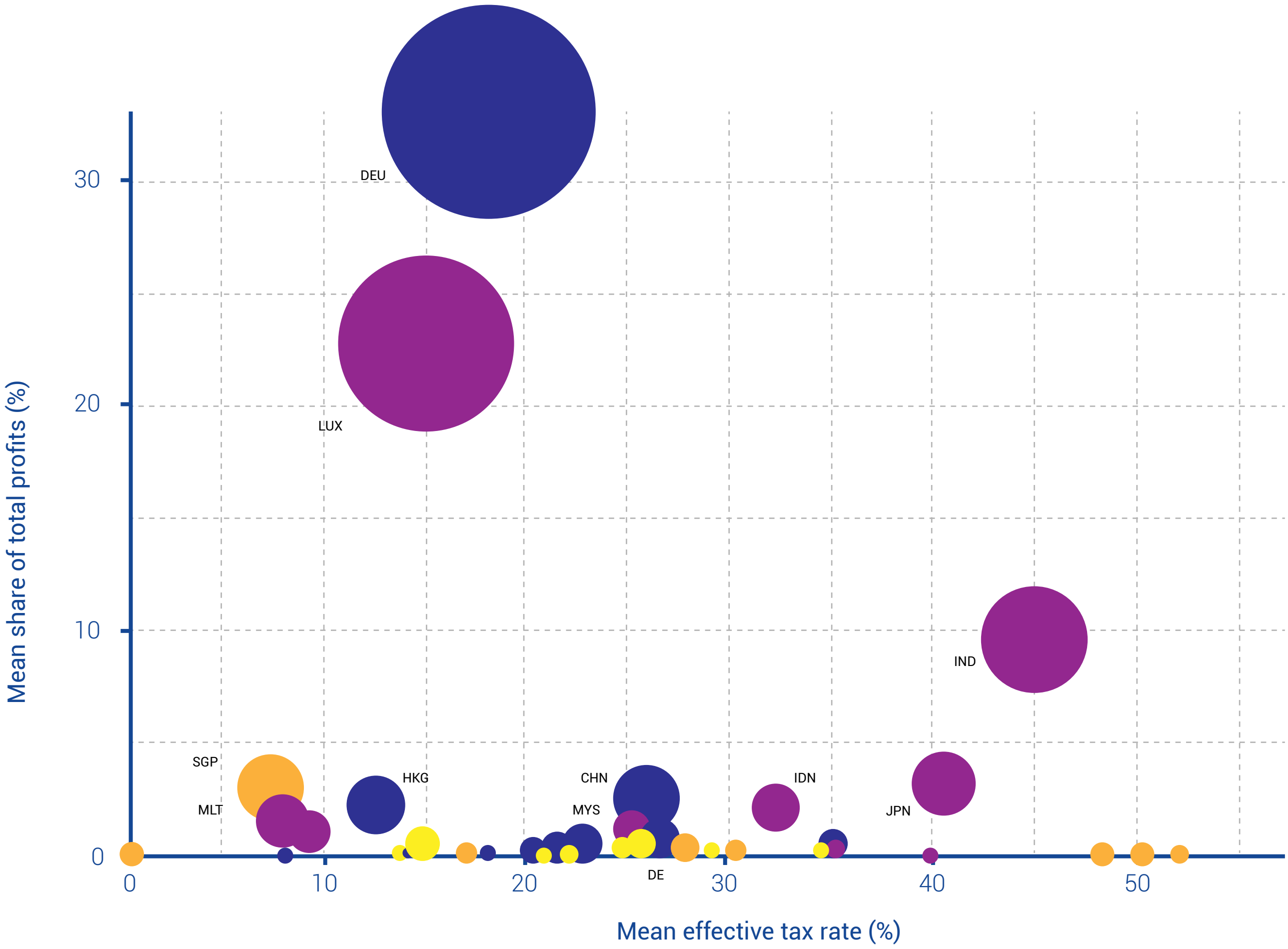
Moreover, we consider its foreign activities. **Figure 3.4.3** shows that Luxembourg is one of the drivers of the high percentage of profits booked in tax havens. Deutsche Bank books on average 22% of total profits in this jurisdiction, taxed at an effective tax rate of 14%. In addition, a substantial portion of profits are booked in Hong-Kong, Malta, Mauritius and Singapore with effective tax rates below 15%. Lastly, note that some portion of profits receives a higher-than-average effective tax rate (larger than 30%), such as for activities reported in India, Indonesia and Japan.

When considering a similar comparison of profits to employees as in the case of HSBC, activities in Luxembourg appear to be particularly disconnected from the underlying production factors. For Deutsche Bank, the number of employees recorded in Luxembourg is less than 1% of the total, as shown in **Figure 3.4.4**. We document a significant mismatch between the number of employees and the profits recorded in this jurisdiction. For comparison, in Germany the bank reports more than 50% of its labour force; a higher percentage than the portion of profits (34%). These figures might indicate profits being shifted from the headquarter country to Luxembourg.[12]

[12]Other banks featuring a similar structure are Barclays and Commerzbank, where a relatively high portion of foreign profits is recorded in Luxembourg, further information can be found in Appendix D.

Figure 3.4.3

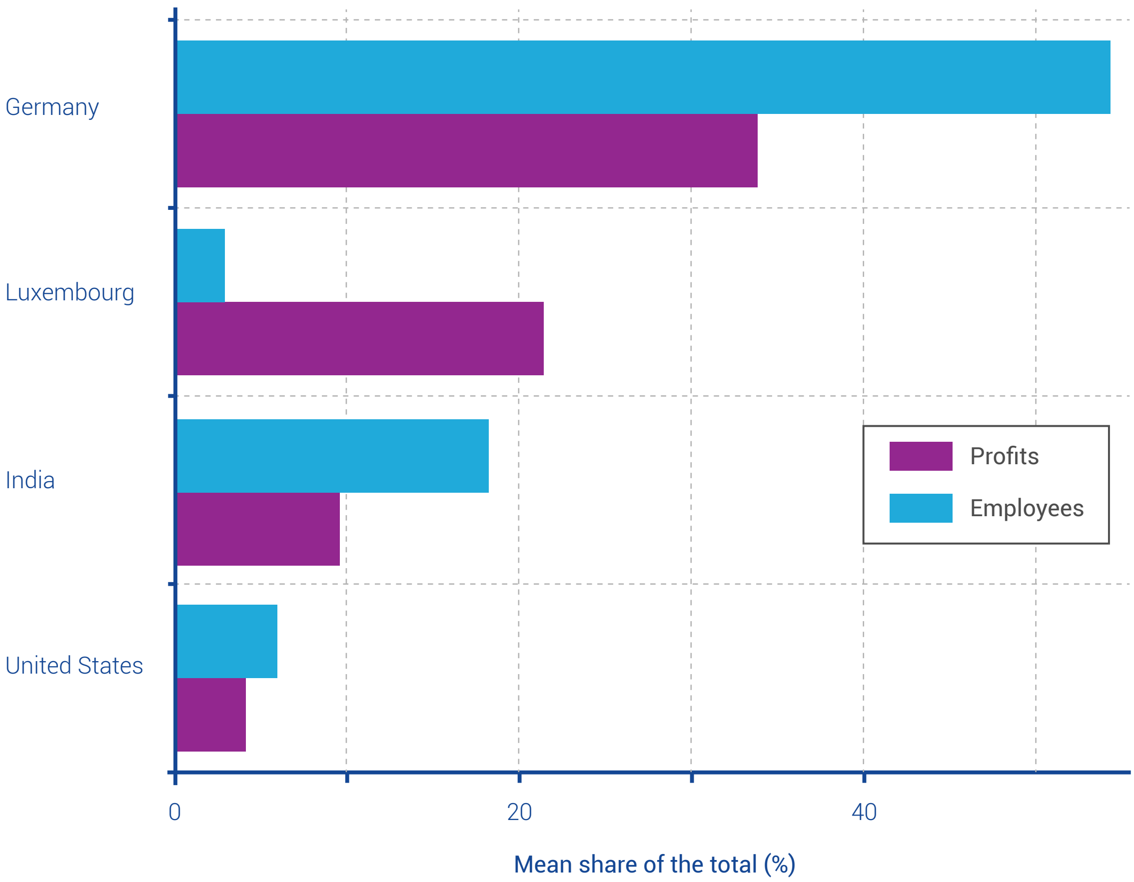
Deutsche Bank Effective Tax Rates and Profits



Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by Deutsche Bank's overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of Deutsche Bank's aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of Deutsche Bank's aggregated pre-tax profits.

Figure 3.4.4

Deutsche Bank Pre-Tax Profits and Employees



Notes: For each jurisdiction, the percentage share of profits is calculated as the ratio of profits booked by Deutsche Bank in the country aggregated over the sample period to Deutsche Bank's total profits similarly aggregated across years. The percentage share of employees is calculated as the ratio of the sum of Deutsche Bank's number of employees in the country through the sample period to the total number of employees observed across all years. Observations with negative profits are excluded from these computations. The chart focuses on the countries that account for minimum 5% of either total profit or employees.

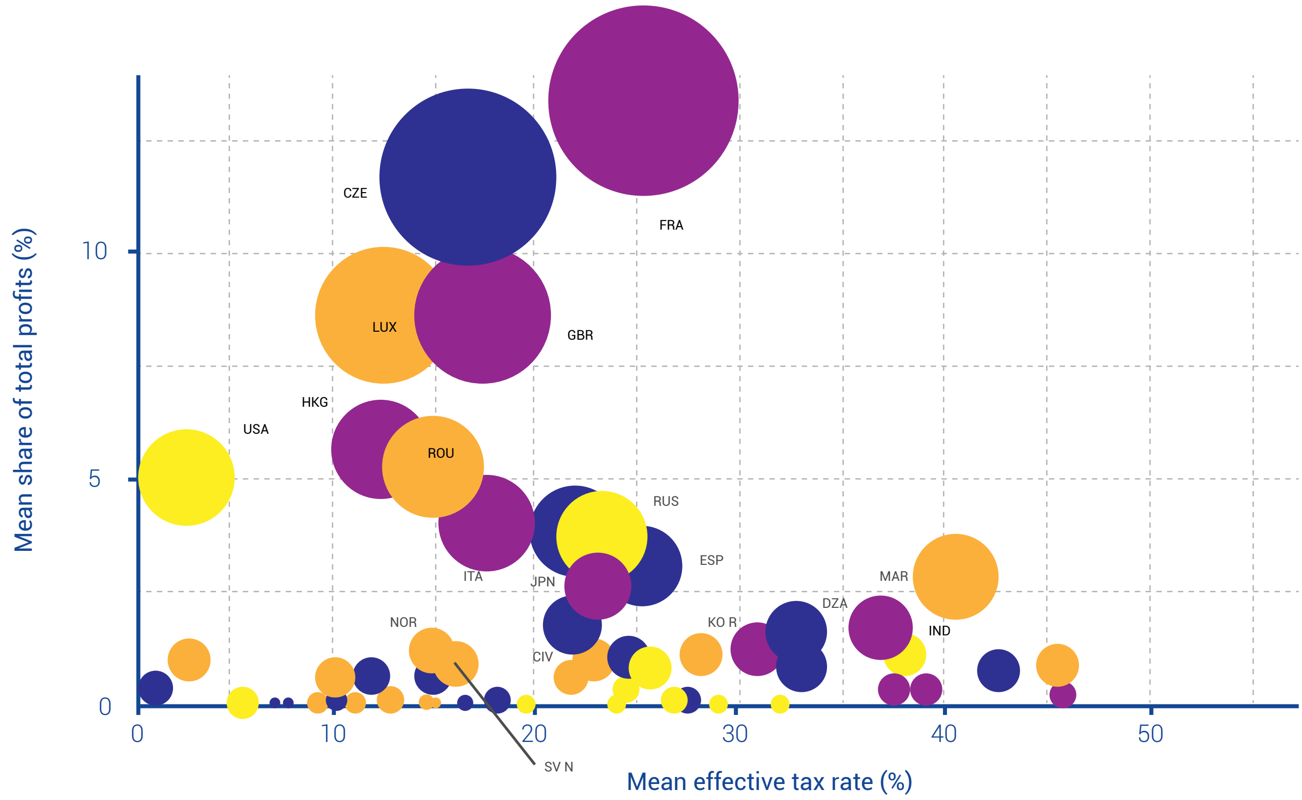
Lastly, we consider Société Générale, a French group having more than 138 000 employees, operating in 62 countries as of 2020. As shown in Section 3.3, Société Générale has an average effective tax rate of 20% and books around 15% of its profits in tax haven countries.

Figure 3.4.5 plots the percentage of profits booked in different jurisdictions against their effective tax rates. Compared to HSBC and Deutsche Bank, profits for Société Générale are less concentrated. For the former, more than 50% of profits are concentrated in a few jurisdictions, whilst for the latter, profits are spread over several jurisdictions. We document that Sociate Générale books 13% of its profits in France, the headquarter country, taxed at an average effective tax rate of 26%. A further 11% of profit is booked in the Czech Republic but taxed at a lower rate of 17%. High portions of profits are also recorded in Luxembourg and the United Kingdom, accounting for 8% in each jurisdiction, and receiving a 12% and 17% respectively. In addition, 4% of profits are recorded in the USA, with a very low effective tax rate of 2.3%.[13]

[13]Footnotes in the Country-by-Country Report state that income "from entities located in Cayman Islands is taxed in the United States", which might be an explanation for the low effective tax rates.

Figure 3.4.5

Société Générale's Effective Tax Rates and Profits

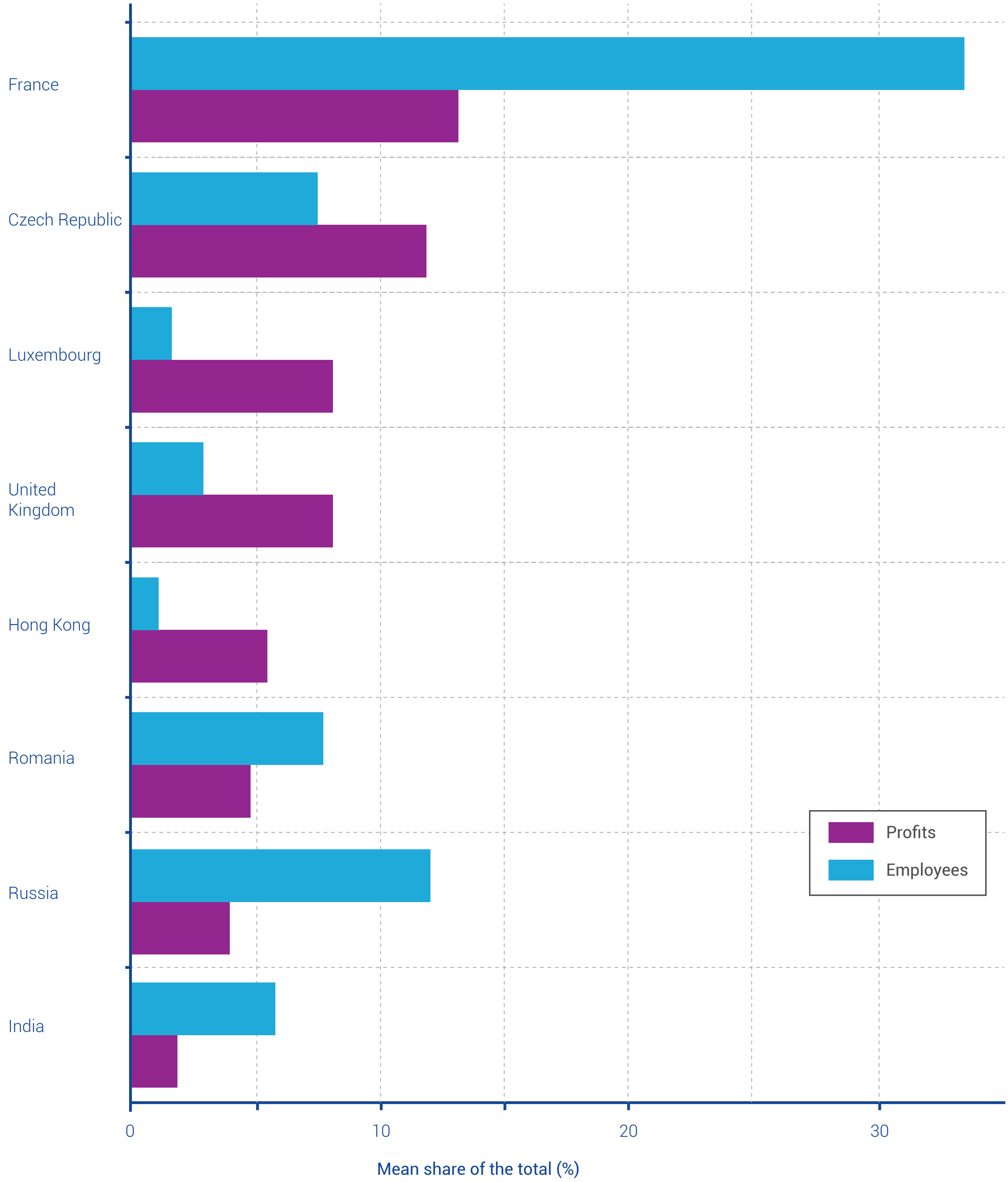


Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by Société Générale's overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of Société Générale's aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of Société Générale's aggregated pre-tax profits.

Finally, we compare employees and profits booked in the most relevant jurisdictions. Figure 3.4.6 documents a mismatch between the distribution of employees and profits. As it was the case for Deutsche Bank, in the domestic jurisdiction the percentage of total employees is higher than the percentage of profits (33% for employees and 13% for profits). The opposite is observed for Luxembourg and Hong Kong. As shown in the cases of HSBC and Deutsche Bank, these jurisdictions account for a high share of profits and low shares of total employees (1.2% for Luxembourg and 0.9% for Hong Kong). The mismatch in even more pronounced in the Czech Republic with the percentage of profits being close that of France, whilst employees account for only 7% of the total labour force. The use of the Czech Republic as a tax destination in the case of Société Générale, indicates that banks might take advantage of other European countries with a relatively low corporate taxation, beyond the usual list of tax haven countries, in order to shift their profits and resources accordingly.

Figure 3.4.6

Société Générale's Pre-Tax Profits and Employees



Notes: For each jurisdiction, the percentage share of profits is calculated as the ratio of profits booked by Société Générale in the country aggregated over the sample period to Société Générale's total profits similarly aggregated across years. The percentage share of employees is calculated as the ratio of the sum of Société Générale's number of employees in the country through the sample period to the total number of employees observed across all years. Observations with negative profits are excluded from these computations. The chart focuses on the countries that account for minimum 5% of either total profit or employees.

4 Estimation: Tax Revenue from the Introduction of a Minimum Tax Rate

4.1 Methodology

In the first part of our analysis, we documented the use of tax havens by banks. Evidence shows that banks make extensive use of certain jurisdictions with low effective tax rates. By focusing on three cases, we showed that the ways used in shifting profits differ across banks. In addition, we documented that the overall share of profits booked in tax havens has remained stable over the past 7 years.

This section quantifies the increase in tax revenue from the introduction of a minimum global tax rate on the profits of banks. These revenues are estimated as the difference between what banks currently pay in taxes and what they would have to pay if they were subject to a minimum tax rate in each country where they operate. In other words, if a bank has its profits taxed at an effective rate of less than 15% in at least one of the countries where it operates, then this bank will have to pay the difference. Our methodology follows closely Barake et al. 2021, but applied instead to a specific sector.

We present estimates of country revenue at 15%, 21% and 25% minimum effective tax rate. The effective tax rate is calculated as taxes paid over the profits before tax, for each bank affiliate. Any negative profits are dropped from our sample; thus, we focus only on affiliates generating positive profits. We provide estimates at three levels: tax revenues by year, by headquarter country and by bank. Lastly, we present these in aggregate form as well as split into the country groups we used previously in our study: non tax haven countries, tax haven countries and domestic markets.

Our choice for a global minimum effective tax rate is guided by recent developments at G20 and the Inclusive Framework on Base Erosion and Profit Shifting of the OECD. In July 2021, the G20 endorsed the agreement of the Inclusive Framework for a minimum tax rate of "at least 15%" globally.[14] Financial institutions have been explicitly excluded from Pillar 1; however, Pillar 2 reforms (minimum taxation) will apply, resulting in additional tax obligations on affiliates with lower effective tax rate than the agreed level. We provide a quantification of the revenue potential of this measure, conditional on the minimum tax rate decision that is expected in the coming months.

4.2 Results

Using the 36 largest European banks, we estimate that the introduction of a 15% minimum tax rate will generate EUR 3-5 billion annually. This represents roughly an additional 13% of the tax revenue currently paid by banks. The overall revenue is shown in the "Total" row of **Table 4.2.1**. Firstly, note that revenue vary from year to year because of changes in economic activity and profitability. Secondly, that revenue is generated from all three country groups, a breakdown of which is shown in the different rows. On average, about EUR 800 million annually originate from tax havens. A further EUR 1.5 billion come from non tax haven countries. Revenue from domestic headquarter countries are about EUR 900 million on average. The tax revenues appear stable over time in non tax havens and in the home country but increasing in tax havens.

[14]Note that the minimum tax proposal includes carve outs based on tangible assets and payroll. However, our data do not provide information on the assets held in each affiliate nor the compensation of employees to allows such calculation. At an aggregate level carve outs, if applied, would reduce revenues of a 15% minimum tax by 15% (Barake et al, 2021).

Table 4.2.1

Banks' Tax Deficit by Year and Partner Country Group (in EUR m)

	2014	2015	2016	2017	2018	2019	2020
15% minimum tax							
Non-havens	2,412	1,528	1,466	1,861	1,121	1,539	900
Tax havens	560	934	662	1,120	1,135	896	603
Domestic	1,405	403	721	1,728	815	1,375	198
Total	4,377	2,864	2,849	4,708	3,071	3,810	1,701
21% minimum tax							
Non-havens	4,369	2,931	2,902	3,605	2,853	3,054	1,951
Tax havens	1,458	2,026	1,587	2,194	2,195	2,080	1,349
Domestic	2,418	1,397	1,485	3,001	2,527	2,496	467
Total	8,246	6,354	5,974	8,801	7,576	7,631	3,767
25% minimum tax							
Non-havens	6,083	4,270	4,382	5,541	4,562	4,478	3,047
Tax havens	2,098	2,834	2,256	2,953	2,942	2,887	1,915
Domestic	3,582	2,533	2,812	4,466	4,360	3,931	921
Total	11,763	9,638	9,450	12,959	11,864	11,296	5,882

Notes: This table presents estimates of banks' tax deficit for three different minimum effective tax rates. Estimates are broken down by year and country group, depending on the kind of partner jurisdictions considered. The "Non-havens" tax deficit is drawn from the undertaxed profits booked by banks in foreign non-haven countries; the "Tax havens" tax deficit is collected upon banks' undertaxed profits in foreign tax havens; the "Domestic" tax deficit is related to banks' activities in their headquarter country. The "Total" row corresponds to the sum of these three tax deficits. All figures are expressed in current million EUR.

The revenues collected are higher with a 21% minimum tax rate, ranging between EUR 6-9 billion annually. This represents an additional 26% of the taxes paid by banks in our sample. The increase reflects the fact that the tax rate becomes more binding for more destinations and that low tax destinations are subject to a higher tax rate as a result. For the same reason, a 25% minimum tax rate would generate even higher revenues that range from EUR 10 to 13 billion annually. This represents about 40% of the taxes paid by banks in our sample. Almost half of the revenues collected are generated abroad from foreign non-havens countries. The remaining revenues are collected almost equally from tax havens (around 27% on average of the total tax deficit) and from the home country of the bank (26% on average of total tax deficit).

In comparison to the overall tax deficit of EU multinationals, the tax deficit for the 36 banks is around 6-10% of total. Using the 15% tax rate, the overall tax deficit is estimated at EUR 48.3 billion in Barake et al. (2021). The percentage of the tax revenues to be collected with the 15% minimum tax rate for the banks are around 9-18%. This percentage is comparable with the 15% extra revenue that would be collected for the EU. For comparison, the oil industry exhibits percentages of revenue at around 9% with a 15% minimum tax rate, which is of a similar scale to the banking sector.

Table 4.2.2

Banks' Percentage Tax Deficit by Year and Partner Country Group

	2014	2015	2016	2017	2018	2019	2020
15% minimum tax							
Non-havens	10.2%	5.1%	5.0%	5.9%	3.6%	5.1%	3.7%
Tax havens	2.4%	3.1%	2.3%	3.5%	3.7%	3.0%	2.5%
Domestic	6.0%	1.3%	2.5%	5.5%	2.6%	4.6%	0.8%
Total	18.6%	9.5%	9.8%	15.2%	9.7%	12.7%	7.1%
21% minimum tax							
Non-havens	18.5%	9.7%	10.0%	11.4%	9.2%	10.2%	8.1%
Tax havens	6.2%	6.7%	5.4%	6.9%	7.1%	6.9%	5.6%
Domestic	10.3%	4.6%	5.1%	9.5%	8.2%	8.3%	1.9%
Total	34.9%	21.1%	20.5%	28.4%	23.9%	25.4%	15.6%
25% minimum tax							
Non-havens	25.8%	14.2%	15.0%	17.5%	14.7%	14.9%	12.7%
Tax havens	8.9%	9.4%	7.7%	9.3%	9.5%	9.6%	8.0%
Domestic	15.2%	8.4%	9.7%	14.1%	14.1%	13.1%	3.8%
Total	49.9%	32.0%	32.5%	41.9%	37.4%	37.7%	24.4%

Notes: This table presents estimates of banks' tax deficit for three different minimum effective tax rates. Tax deficit is expressed as a percentage of the total corporate income taxes paid by banks each year. Estimates are broken down by year and country group, depending on the kind of partner jurisdictions considered. The "Non-havens" tax deficit is drawn from the undertaxed profits booked by banks in foreign non-haven countries; the "Tax havens" tax deficit is collected upon banks' undertaxed profits in foreign tax havens; the "Domestic" tax deficit is related to banks' activities in their headquarter country. The "Total" row corresponds to the sum of these three tax deficits.

To estimate the effect on tax revenue by country, we present country-level estimates in **Table 4.2.3.** The table shows the tax deficit in EUR accruing per country and per year with a 15% minimum tax. Note that the United Kingdom stands to gain the most from revenue of European banks, since the largest banks in Europe (like HSBC) are headquartered in the United Kingdom. The second highest gain in absolute terms is France with also a number of large banks headquartered there (for instance BNP Paribas and Société Générale). Tax revenue would increase for other countries in the EU, such as Italy, Germany and Spain, but to a lesser extent. Most headquarter countries would generate more tax deficit from non-havens than tax havens, as shown in **Table E.7** in Appendix E.

Table 4.2.3

Total Collectible Tax Deficit by Headquarter Country and Year (in EUR m)

	2014	2015	2016	2017	2018	2019	2020
United Kingdom	875	939	796	1,549	1,099	1,471	940
France	490	525	524	476	356	314	343
Italy	68	194	139	366	268	156	69
Germany	277	179	283	198	172	95	49
Sweden	38	28	73	18	9	14	29
Spain	1,074	363	133	138	224	287	27
Netherlands	120	141	47	89	47	43	26
Austria	10	43	75	77	6	21	10
Belgium	17	30	58	53	58	8	5
Finland	.	.	.	.	7	18	4
Denmark	2	20	2	17	10	9	2

Notes: This table presents the foreign tax deficit that can be drawn from banks' undertaxed profits by in-sample headquarter countries each year. Only the tax deficit generated abroad, in non-haven partner countries and in tax havens, is considered. A minimum tax rate of 15% is assumed. All figures are expressed in current million EUR.

Lastly, at the level of the banks, we find that most tax revenues with a minimum tax will originate from British banks. This is shown in **Table 4.2.4** in absolute terms and **Table 4.2.5** in percentages, where a ranking of banks is presented per year, indicating those with the highest additional tax revenue. HSBC, Barclays, Standard Chartered and RBS are on top of the list in most of the years. BNP Paribas also appears among the top of list in additional revenue. Note that these results can be driven by the size of the banks. If we consider the percentage of taxes to be collected with respect to the taxes paid, it is mostly Italian banks (Monte Paschi, Unicredit), British banks (RBS, HSBC, Standard Chartered) and a French bank (Société Générale) that make it to the list. Finally, more detailed bank level tax deficit estimations are presented in **Tables E.1** to **E.6** in Appendix E.

Table 4.2.4

Top 5 Largest Collectible Tax Deficits by Year

2014	2015	2016	2017	2018	2019	2020
Banco Santander 984	**HSBC** 465	**Barclays** 428	**HSBC** 821	**HSBC** 614	**HSBC** 745	**HSBC** 510
HSBC 425	**Banco Santander** 345	**BNP Paribas** 273	**Barclays** 501	**Standard Chartered** 242	**Barclays** 515	**Barclays** 346
BNP Paribas 265	**BNP Paribas** 256	**Deutsche Bank** 193	**BNP Paribas** 339	**BNP Paribas** 197	**Banco Santander** 253	**BNP Paribas** 208
Barclays 215	**RBS** 226	**HSBC** 156	**Unicredit** 251	**Banco Santander** 190	**BNP Paribas** 126	**Société Générale** 97
RBS 141	**Barclays** 169	**Crédit Agricole** 133	**Standard Chartered** 180	**Barclays** 177	**Unicredit** 115	**Standard Chartered** 66

Notes: This table ranks banks based on their foreign tax deficit in absolute terms. Only the tax deficit generated abroad, in non-haven partner countries and in tax havens, is considered. For each year in the sample period, the five largest tax deficits and the associated banks are displayed. A minimum effective tax rate of 15% is assumed. All figures are expressed in million EUR.

Table 4.2.5

Top 5 Largest Percentage Tax Deficits by Year

2014	2015	2016	2017	2018	2019	2020
Bayern LB 1218%	**RBS** 162%	**Crédit Agricole** 283%	**Monte dei Paschi** 414%	**Monte dei Paschi** 2081%	**RBS** 36%	**Barclays** 73%
Monte dei Paschi 375%	**Unicredit** 59%	**Barclays** 51%	**Barclays** 105%	**Barclays** 53%	**HSBC** 26%	**HSBC** 24%
RBS 111%	**Banco Sabadell** 46%	**RBS** 38%	**HSBC** 36%	**Standard Chartered** 46%	**Unicredit** 13%	**RBS** 12%
Lloyds 95%	**Lloyds** 21%	**Deutsche Bank** 23%	**Unicredit** 36%	**HSBC** 23%	**Société Générale** 11%	**Société Générale** 12%
Banco Santander 73%	**Nord LB** 21%	**Standard Chartered** 21%	**Standard Chartered** 25%	**Unicredit** 16%	**Crédit Agricole** 10%	**Standard Chartered** 10%

Notes: This table ranks banks based on their foreign tax deficit, expressed as a percentage of the corporate income taxes that they actually paid. Only the tax deficit generated abroad, in non-haven partner countries and in tax havens, is considered. For each year in the sample period, the five largest percentage tax deficits and the associated banks are displayed. A minimum effective tax rate of 15% is assumed.

5 Conclusion

In this report we presented evidence of the presence of banks in tax havens and provided estimates of revenues for European countries from the introduction of a minimum tax rate. Using country-by-country reporting data from 2014 to 2020, we documented the latest trends in banks' presence in tax havens.

More specifically, our analysis documented a stable presence over the past 7 years, with around 14% of their profits (or EUR 20 million) on average across these years, being booked in tax havens. The effective tax rate paid by the 36 banks in our sample is on average 20%. In addition, we documented a higher profitability of employees in tax havens than in non-havens; the mean profitability per employee is about EUR 283,000 in tax havens, compared to EUR 68,000 in non-havens and EUR 63,000 in the domestic market. We also showed that banks' profit margins are much higher in tax havens (52-58%) than profit margins in non-havens (20-35%).

Considering the latest G20/OECD agreement, even though financial institutions have been exempted from Pillar 1, a minimum corporate tax through Pillar 2 will be binding for a number of banks, especially those with strong presence in tax havens. Our analysis provided estimates on the potential revenue for European countries, using minimum tax rates at 15%, 21% and 25%. Importantly, the analysis showed that the revenue potential from banks' profits depends on the minimum tax rate choice; a 15% minimum tax rate would generate EUR 3-5 billion annually for countries in Europe, while revenue doubles at EUR 6-9 billion with a 21% minimum tax rate and triples at EUR 10-13 billion with a 25% minimum tax rate. Finally, our findings signify the importance of implementing additional measures that complement the public disclosure requirement, to address the profit shifting and tax planning behaviour of multinational enterprises.

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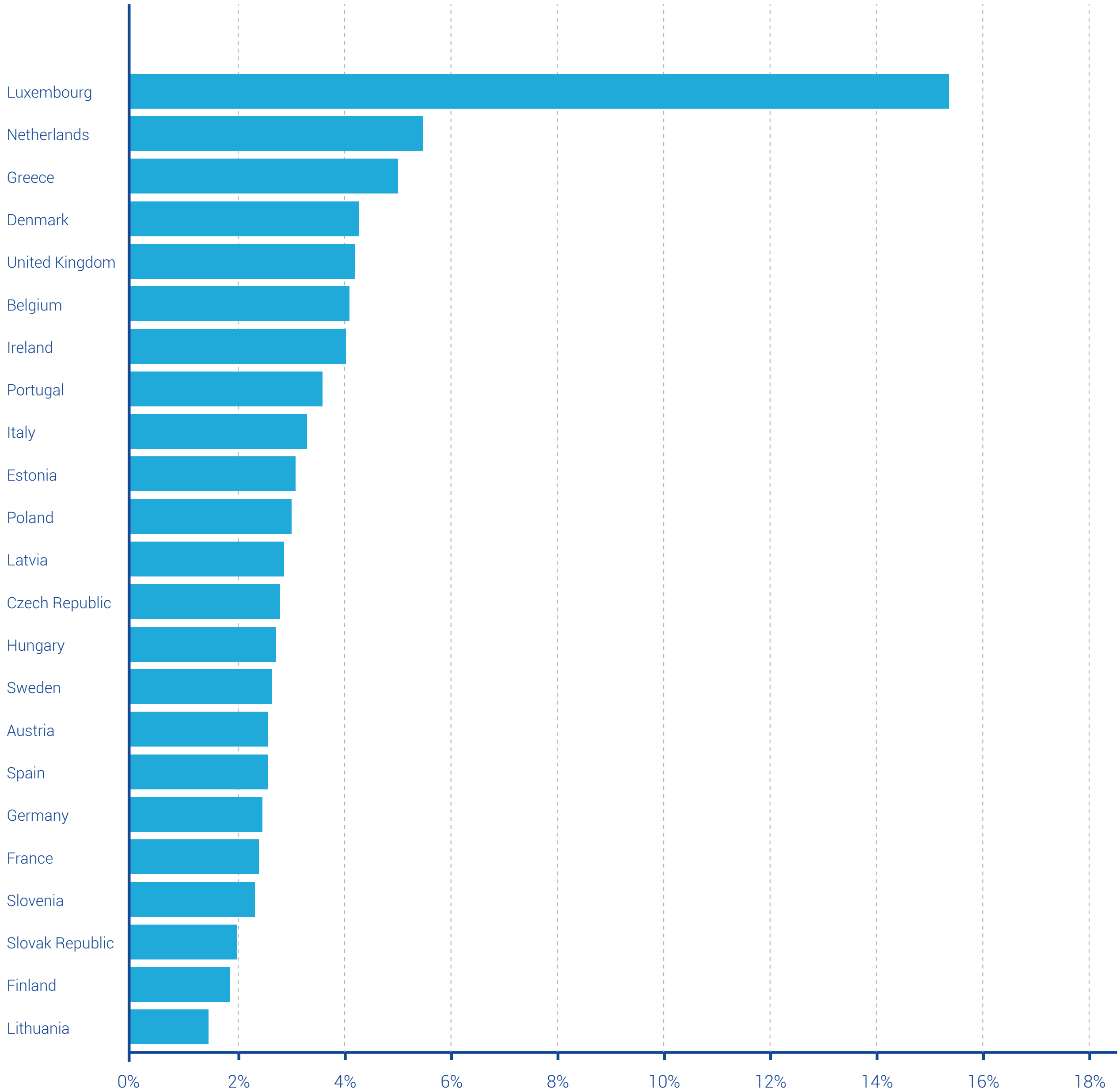
Appendix A – Importance of the Financial Sector in Europe

Figure A.1

Weight of Financial Services in Total Value-Added (by EU28 Country)



Notes: This figure presents the percentage share of financial services in the total value-added of EU28 countries. Computations are based on the STructural ANalysis (STAN) database of the OECD for the financial year 2017. We present the ratio of the value-added of "Financial service activities, excluding insurance and pension funding" to each country's total value-added. Resulting ratios are expressed in percentage.

Appendix B – Summary Statistics

Table B.1

Summary Statistics (by Bank)

Bank	Unique partner jurisdictions	Net banking income (EUR million)	Pre-tax profits (EUR million)	Income taxes paid (EUR million)	Number of employees
BNP Paribas	65	42236	8855	2255	187972
Crédit Agricole	44	18077	4271	823	71957
BPCE	54	22833	5433	1682	101107
Crédit Mutuel	18	16689	7322	1694	81246
Société Générale	69	23854	4846	1050	133194
Annual average - FRA	97	123689	30726	7504	575476
Average % of total - FRA	..	23	27	26	26
HSBC	61	58595	12286	2706	242010
Barclays	33	32362	5898	701	104788
RBS	36	15026	-96	276	75950
Lloyds Banking Group	8	20415	4021	821	72375
Nationwide	2	3800	1123	250	16852
Standard Chartered	58	13815	2639	862	84100
Annual average - GBR	88	144013	25870	5616	596074
Average % of total - GBR	..	26	23	20	27
Abn Amro	16	8341	2330	645	20440
ING	36	17040	5688	1714	53381
Rabobank	36	24586	2706	597	41060
Annual average - NLD	49	49966	10723	2956	114882
Average % of total - NLD	..	9	9	10	5
Bankia BFA	3	3326	839	204	15309
BBVA	30	23110	5635	1706	125967
Banco Santander	35	47227	10612	2839	189088
Banco Sabadell	4	5139	611	88	23530
Annual average - ESP	45	78802	17698	4837	353893
Average % of total - ESP	..	14	16	17	16
Bayern LB	6	2284	555	87	6893
Commerzbank	12	9290	1191	399	43376
Deutsche Bank	48	27482	1114	1178	90960
DZ Bank	20	7489	2996	616	28641
Helaba	8	1998	510	148	5717
LBBW	9	2825	507	119	9479
Nord LB	6	2283	-446	71	5797
Annual average - DEU	54	53650	6427	2619	190862
Average % of total - DEU	..	10	6	9	9
Danske Bank	15	10655	2198	471	20238
Nykredit Realkredit	2	4247	836	165	3655
Annual average - DNK	15	14901	3034	635	23893
Average % of total - DNK	..	3	3	2	1

ERSTE	8	6757	1536	391	44696
Annual average - AUT	8	6757	1536	391	44696
Average % of total - AUT	..	1	1	1	2
Handelsbanken	15	4177	2070	498	12055
Nordea	18	10626	4395	947	30392
SEB Bank	18	7806	2158	431	16129
Swedbank	8	2705	2247	460	14935
Annual average - SWE	22	20760	8987	1930	60485
Average % of total - SWE	..	4	8	7	3
Intesa Sanpaolo	30	22934	7054	1010	91180
Monte dei Paschi	7	3661	-2676	-349	23491
Unicredit	30	18612	760	518	97850
Annual average - ITA	39	45208	5137	1179	212520
Average % of total - ITA	..	8	5	4	10
KBC Bank	17	6131	2298	357	28465
Annual average - BEL	17	6131	2298	357	28465
Average % of total - BEL	..	1	2	1	1
Nordea	19	9158	2885	684	28939
Annual average - FIN	19	9158	2885	684	28939
Average % of total - FIN	..	1	1	1	1
Annual average - All	**136**	**547803**	**113673**	**28317**	**2213648**

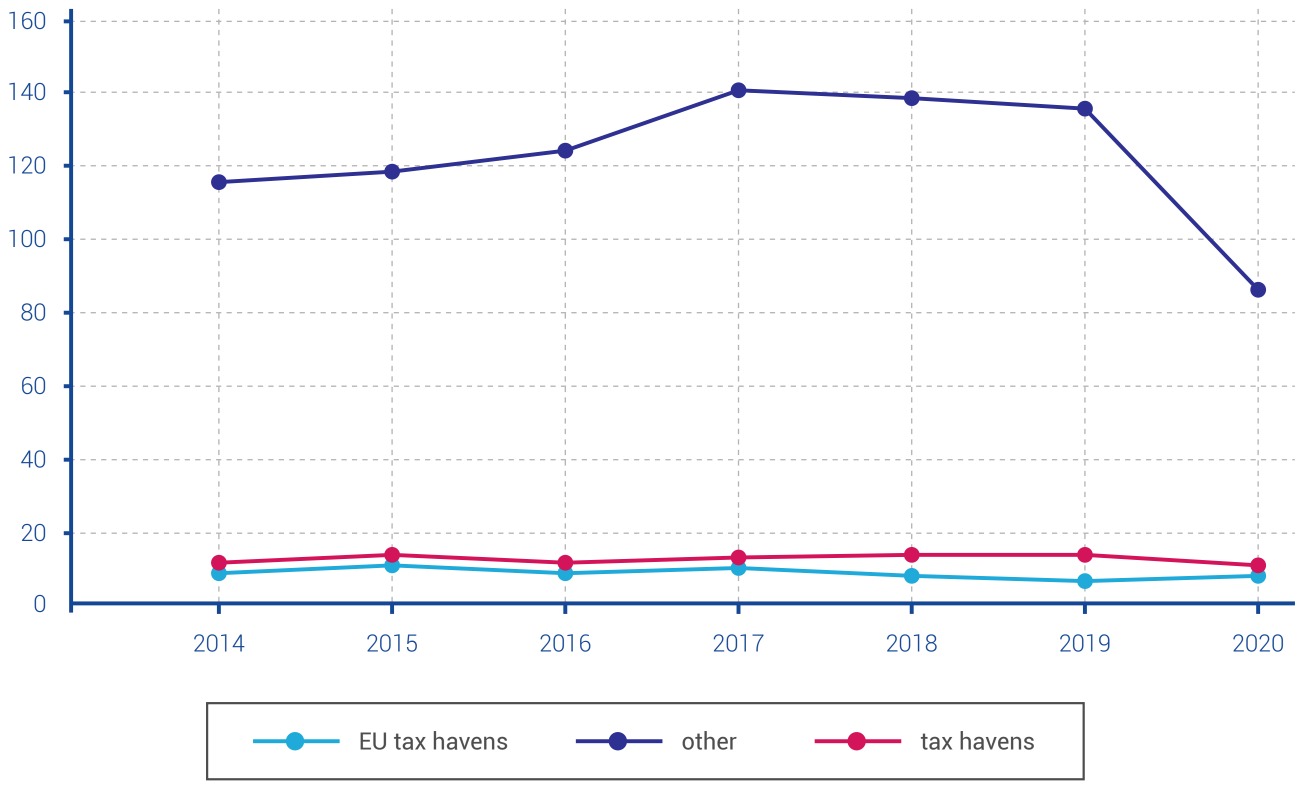
Notes: This table presents basic summary statistics for our compiled database of banks' country-by-country reports. For each bank, we show the mean number of partner jurisdictions it reports each year, as well as its mean annual net banking income, pre-tax profits, income taxes paid and number of employees. Home country sub-totals are also presented that show the mean number of partner jurisdictions reported each year by banks headquartered in each of these countries and the annual mean of the four financial variables, summed across banks. The results obtained for each headquarter country are also expressed as a percentage of overall totals.

Appendix C – Additional Descriptive Analysis

Alternative country group definitions

Figure C.1

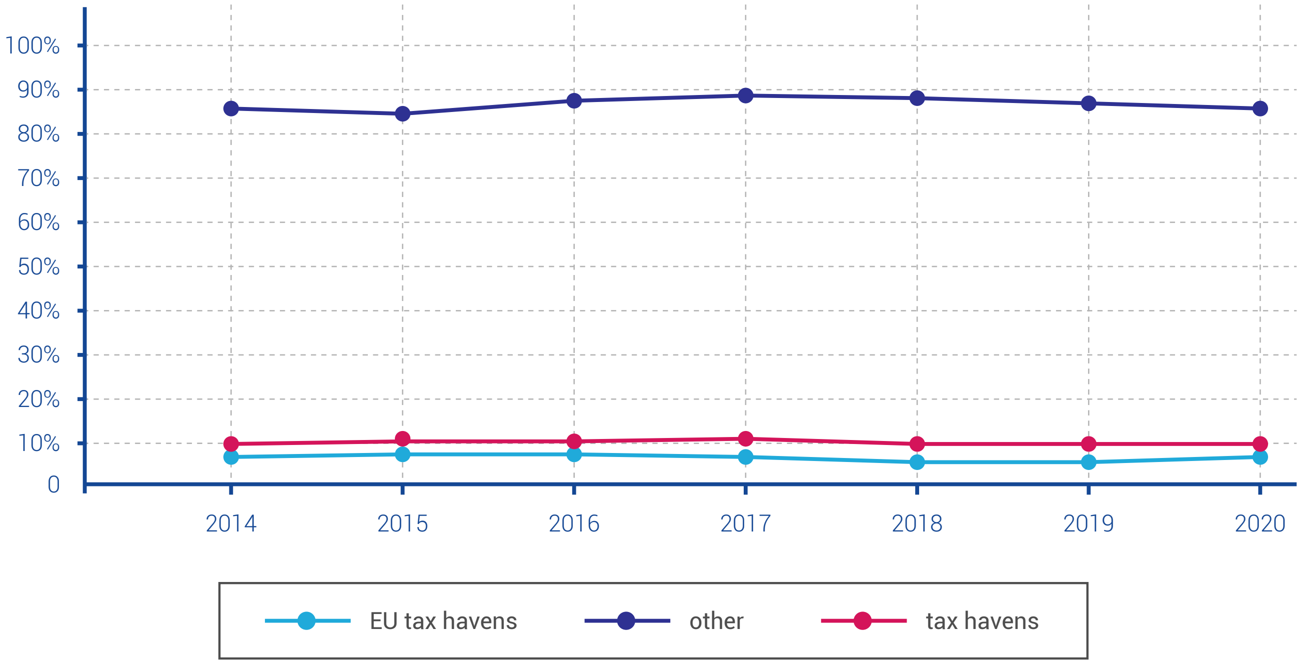
Total Profits before Tax (EUR billion)



Notes: This figure presents the aggregated pre-tax profits of banks by year and country group. The line of "EU tax havens" profits corresponds to the activities of banks in EU tax havens and that of "tax havens" profits is associated with banks' activities in non-EU tax havens. The line of "other" profits corresponds to their operations in any other partner jurisdiction. Total profits are expressed in EUR billion.

Figure C.2

Percentage of Pre-Tax Profits

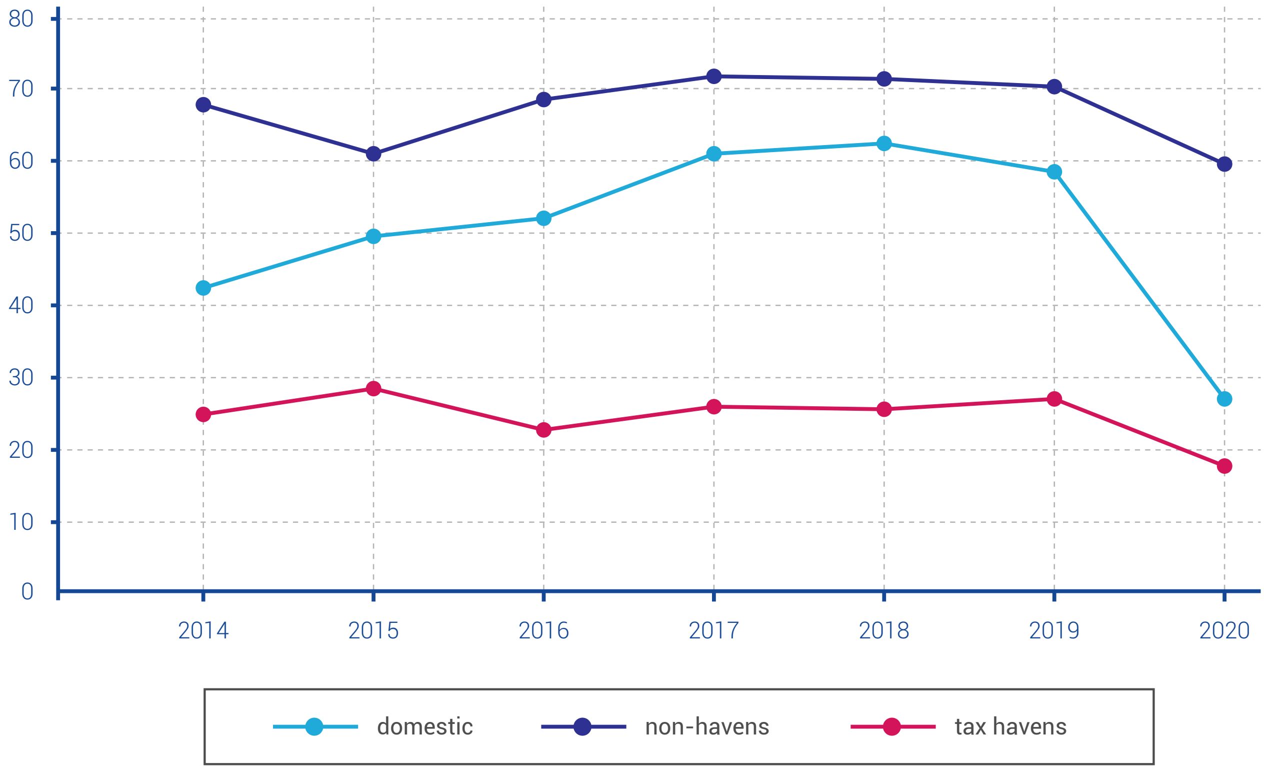


Notes: This figure presents, for each year and each country group, pre-tax profits expressed as a share of the annual total (in percentage form). The line of "EU tax havens" profits corresponds to the activities of banks in EU tax havens and that of "tax havens" profits is associated with banks' activities in non-EU tax havens. The line of "other" profits corresponds to their operations in any other partner jurisdiction.

Comparison with the tax haven list of Tørsløv et al. (2019)

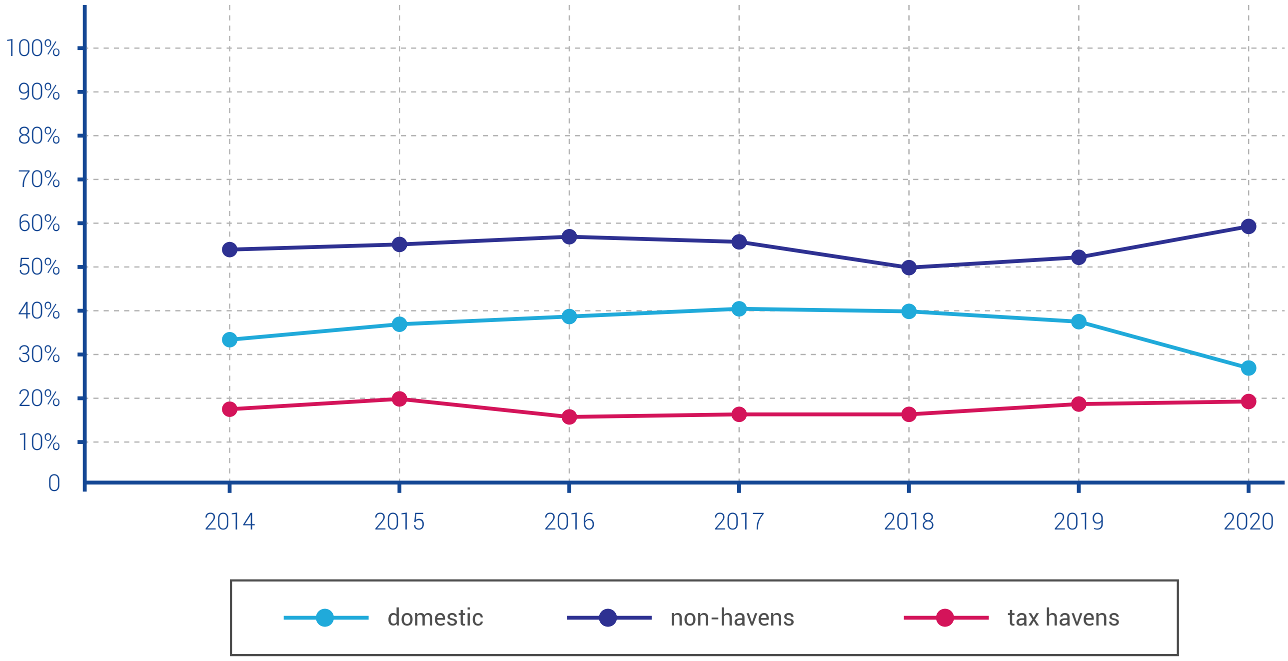
Figure C.3

Total Profits Before Tax (EUR billion)



Notes: This figure presents the aggregated pre-tax profits of banks by year and country group. The line "domestic" corresponds to the domestic activities of banks, i.e., operations conducted in their headquarter country. The lines "non-havens" and "tax havens" correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not. Total profits are expressed in EUR billion.

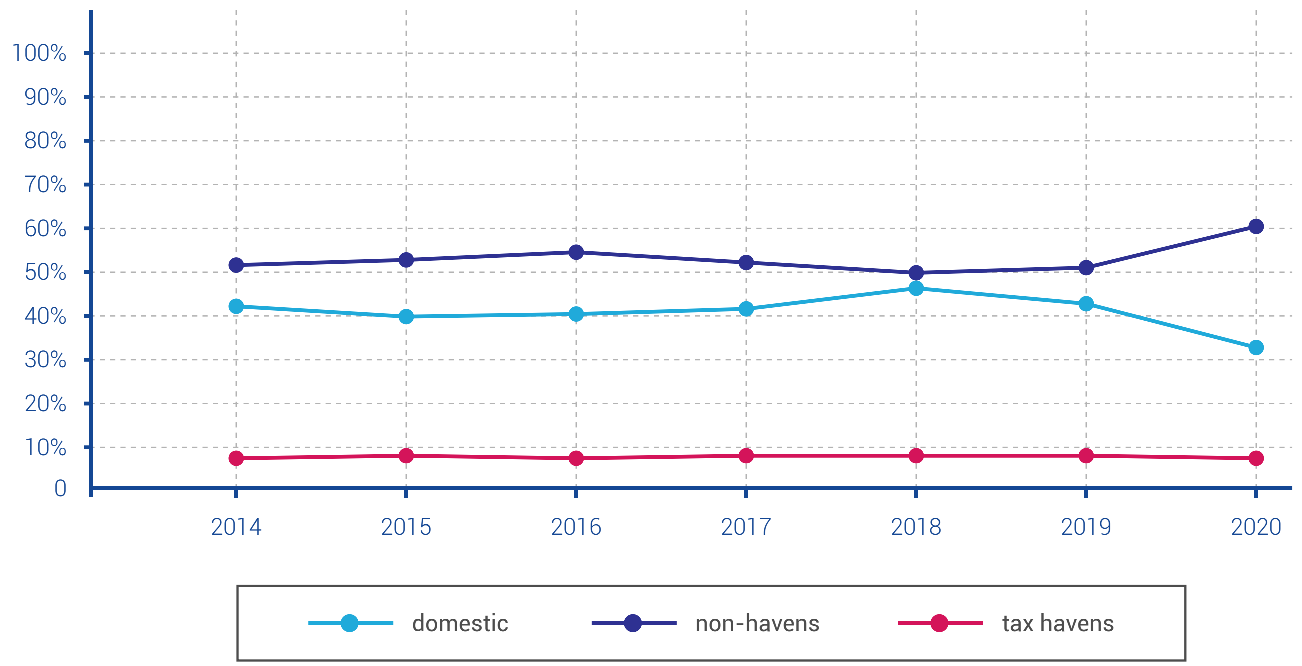
Figure C.4
Percentage of Pre-Tax Profits



Notes: This figure presents, for each year and each country group, pre-tax profits expressed as a share of the annual total (in percentage form). The “domestic” line corresponds to the headquarter activities of banks.The “non-havens” and “tax havens” lines correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

Figure C.5

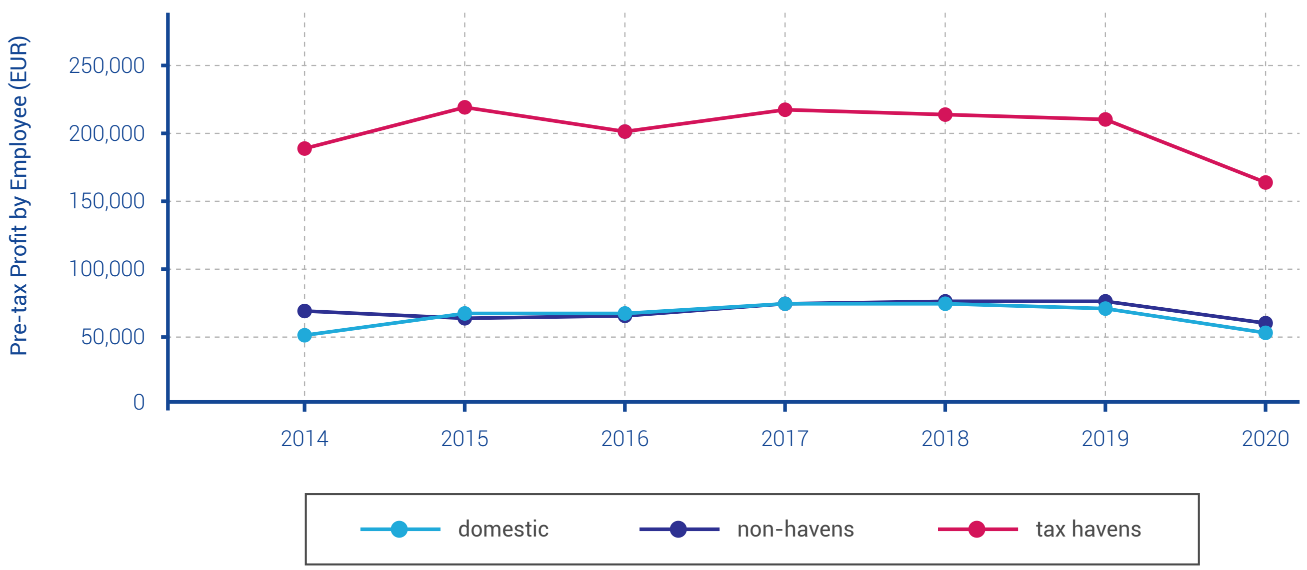
Percentage of Employees



Notes: This figure presents, for each year and country group, the banks' number of employees expressed as a percentage of the annual total (in percentage form). The "domestic" line corresponds to the domestic activities of banks, i.e., operations conducted in their headquarter country. The "non-havens" and "tax havens" lines correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not.

Figure C.6

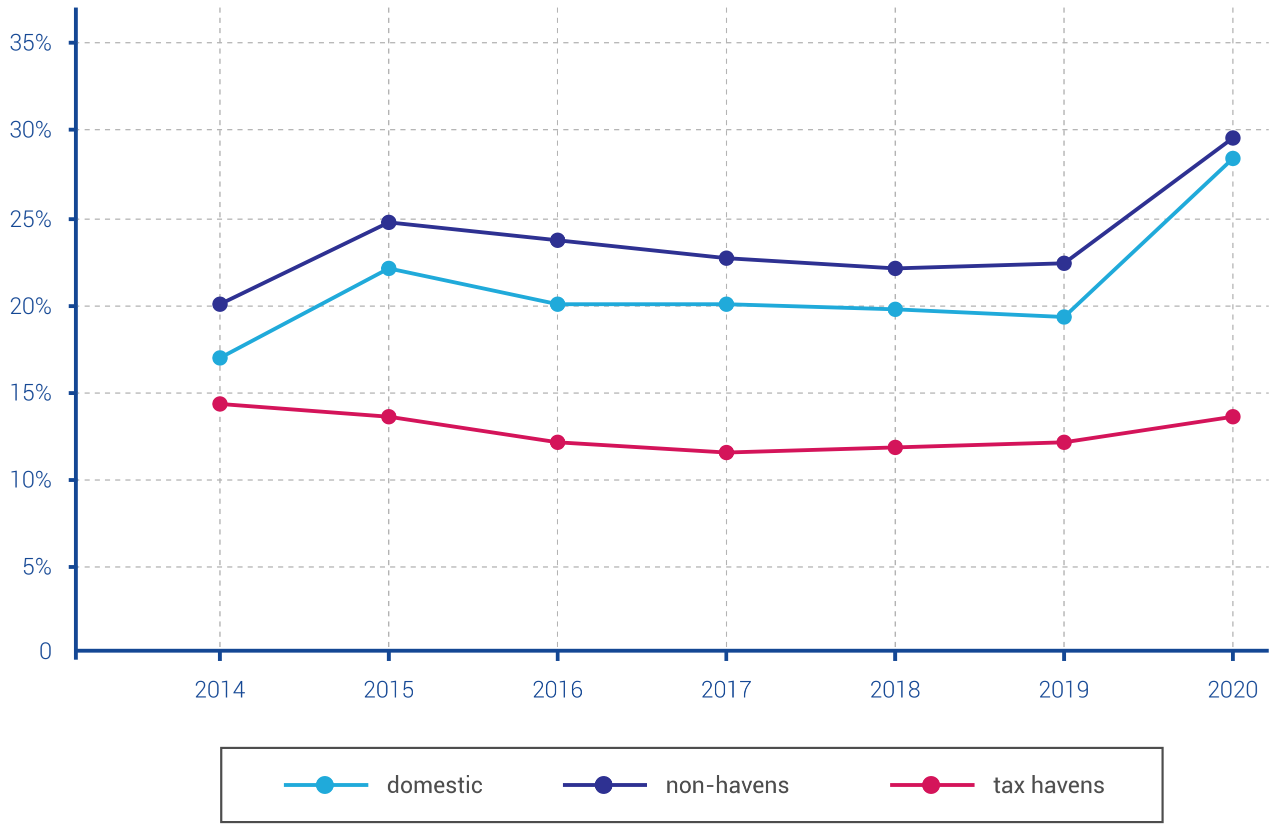
Profitability per Employee



Notes: This figure presents the profitability of banks' staff by country group over time. It is calculated as the ratio of profits before tax aggregated across all banks in each country group to the number of employees in each country group. The "domestic" line corresponds to the domestic activities of banks, i.e., operations conducted in their headquarter country. The "non-havens" and "tax havens" lines correspond to their activities in any foreign jurisdiction, depending on whether the latter is classified as a tax haven or not. Profitability ratios are expressed in EUR.

Figure C.7

Effective Tax Rates

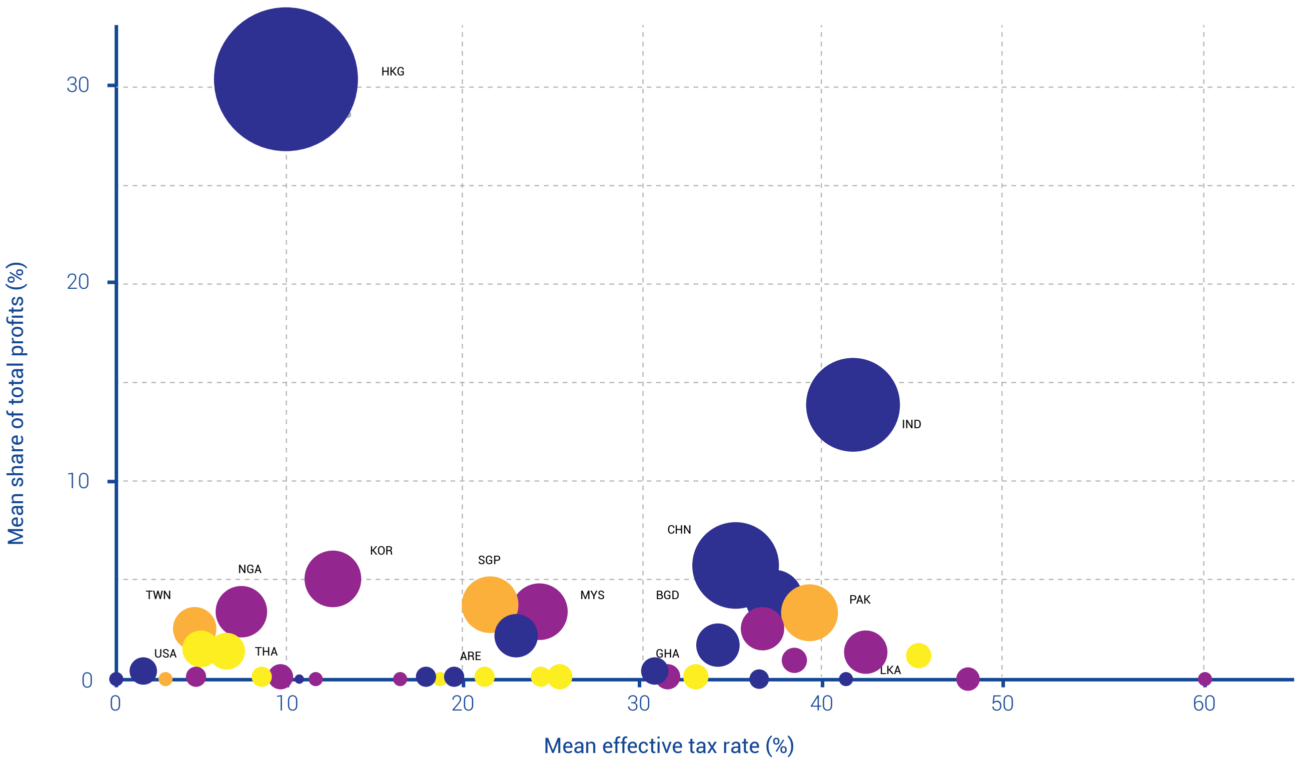


Notes: This figure shows the effective tax rate (in percentage) imposed upon banks in each country group over time. It is calculated within each country group as the ratio of income taxes paid aggregated across all banks to pre-tax profits, also aggregated across banks. The "domestic" line corresponds to the one faced by banks in their headquarter country. The "non-havens" and "tax havens" lines instead correspond to their activities in any foreign country, depending on whether the latter is classified as a tax haven or not.

Appendix D – Additional Examples of Banks

Figure D.1

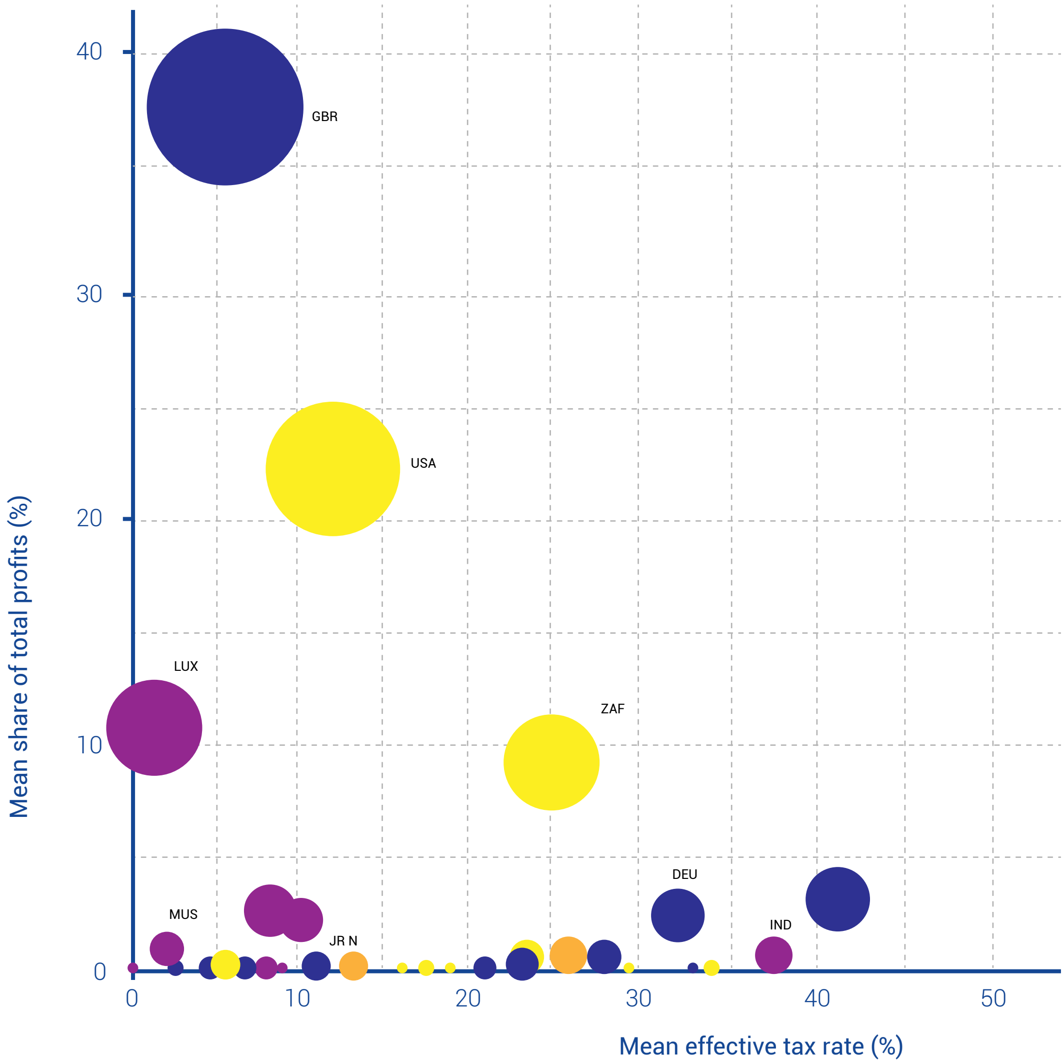
Standard Chartered Effective Tax Rates and Profits



Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by Standard Chartered's overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of Standard Chartered's aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of Standard Chartered's aggregated pre-tax profits.

Figure D.2

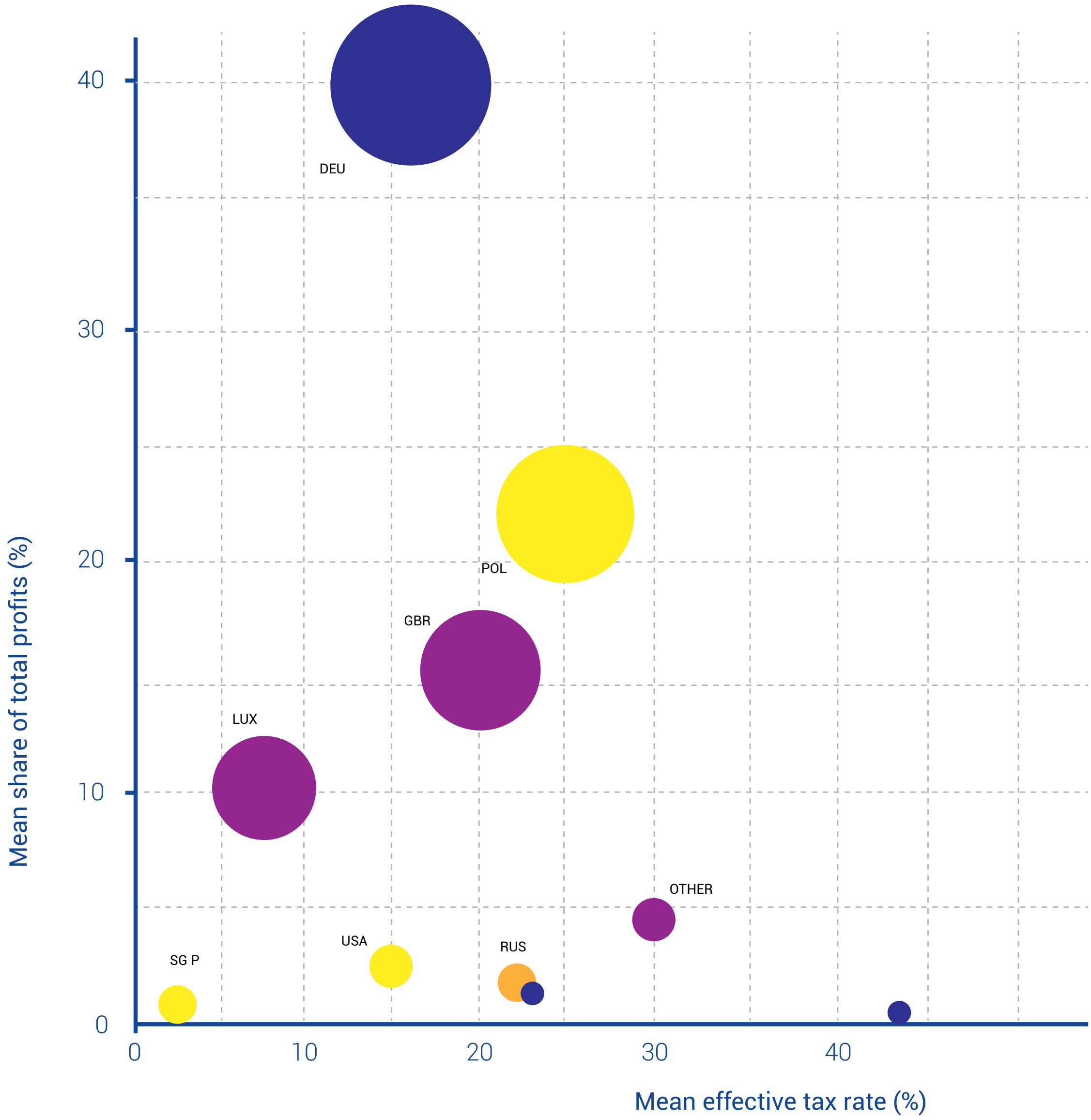
Barclays Effective Tax Rates and Profits



Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by Barclays' overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of Barclays' aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of Barclays' aggregated pre-tax profits.

Figure D.3

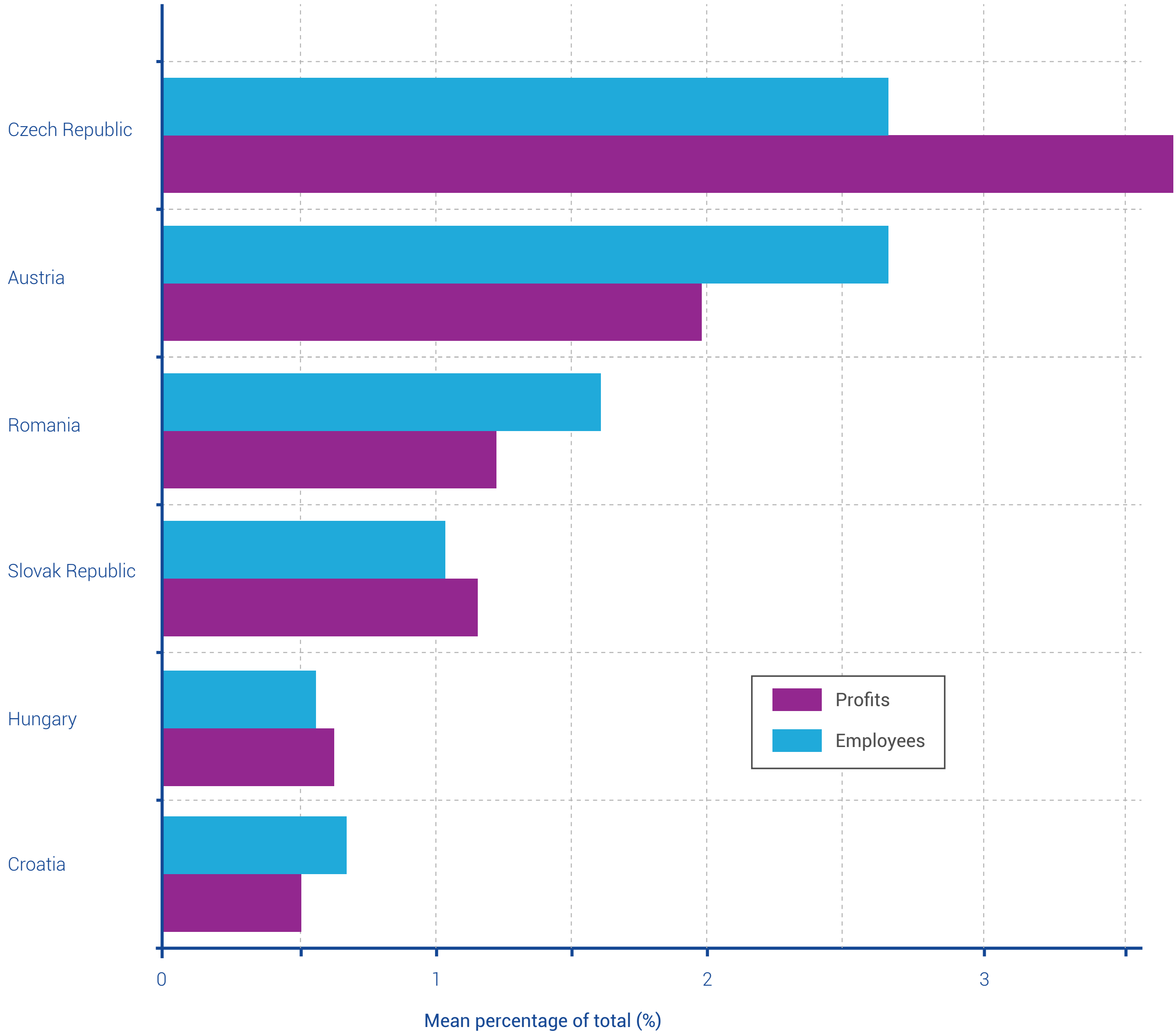
Commerzbank's Effective Tax Rates and Profits



Notes: For each jurisdiction, the percentage share of total profits is calculated as profits before tax aggregated over the years divided by Commerzbank's overall pre-tax profits aggregated over the years. Effective tax rates are calculated as the ratio of overall tax paid to overall profits booked in the jurisdiction. In both computations, observations with negative profits are excluded. Country codes are shown for jurisdictions that account for at least 1% of Commerzbank's aggregated pre-tax profits. The size of bubbles is determined by each jurisdiction's share of Commerzbank's aggregated pre-tax profits.

Figure D.4

Erste Bank's Pre-Tax Profits and Employees



Notes: For each jurisdiction, the percentage share of profits is calculated as the ratio of profits booked by Erste Bank in the country aggregated over the sample period to Erste Bank's total profits similarly aggregated across years. The percentage share of employees is calculated as the ratio of the sum of Esrte Bank's number of employees in the country through the sample period to the total number of employees observed across all years. Observations with negative profits are excluded from these computations. The chart focuses on the countries that account for minimum 5% of either total profit or employees.

Appendix E – Tax Deficit Estimations

Table E.1

Tax Deficit in Tax Havens (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	3.6	4.1	1.9	21.6	1.2	2.0	0.0
Banco Sabadell	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Banco Santander	10.7	5.0	8.1	12.9	6.6	21.8	0.7
Bankia BFA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barclays	167.5	125.7	174.8	82.7	67.7	133.1	211.1
Bayern LB	8.8	2.4	.	0.5	.	.	.
BBVA	0.4	2.1	10.9	21.4	18.0	13.4	1.9
BNP Paribas	18.2	35.6	9.0	21.8	13.1	6.2	15.1
BPCE	12.1	2.2	4.1	4.7	0.0	2.7	5.5
Commerzbank	35.1	1.2	11.2	0.0	32.9	19.2	0.0
Crédit Agricole	14.7	27.5	10.2	7.4	16.8	25.5	4.0
Crédit Mutuel	1.5	0.0	0.0	0.3	0.3	0.0	0.0
Danske Bank	0.0	18.7	0.0	16.5	3.2	0.0	0.2
Deutsche Bank	3.1	4.1	116.5	91.3	33.8	5.4	15.7
DZ Bank	13.1	15.9	6.1	6.8	5.3	0.0	0.0
ERSTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Handelsbanken	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Helaba	1.5	0.3	0.0	0.0	0.0	0.0	0.2
HSBC	44.5	379.5	64.5	564.2	541.6	510.6	288.9
ING	39.7	63.8	5.9	2.3	1.9	0.7	1.9
Intesa Sanpaolo	8.8	10.3	9.9	32.8	9.2	21.2	12.9
KBC Bank	5.2	15.9	50.0	36.8	32.5	1.4	0.7
LBBW	0.2	0.0	0.0	1.4	0.2	0.2	0.0
Lloyds	15.3	11.2	14.6	15.7	0.0	20.0	1.0
Monte dei Paschi	10.6	0.1	0.2	0.1	69.6	0.0	0.0
Nationwide	0.7	12.3	10.4	2.4	0.0	0.0	0.0
Nord LB	0.0	0.0	15.2	0.0	0.3	0.0	0.0
Nordea	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nykredit	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rabobank	2.1	1.9	13.8	14.1	17.0	8.4	15.6
RBS	100.8	164.6	21.2	3.5	31.1	40.0	0.0
SEB Bank	0.1	0.6	1.0	2.8	0.9	7.5	0.9
Société Générale	25.7	16.0	22.9	26.5	21.6	36.4	16.9
Standard Chartered	12.7	13.0	77.3	103.6	198.8	14.7	3.8
Swedbank	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unicredit	3.3	0.0	2.3	25.5	12.1	5.7	5.6
Total	**560.0**	**933.9**	**661.7**	**1,119.5**	**1,135.3**	**896.0**	**602.8**

Notes: This table presents, for each bank and year, the estimated tax deficit that would be collected upon undertaxed profits booked in foreign tax havens. A minimum effective tax rate of 15% is assumed. All figures are presented in million EUR.

Table E.2

Tax Deficit in Non-Havens (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	4.2	1.5	9.1	28.8	9.3	2.4	0.0
Banco Sabadell	0.0	14.8	2.1	3.0	4.9	0.6	0.5
Banco Santander	973.5	340.3	105.0	65.8	183.7	230.8	15.3
Bankia BFA	0.0	0.0	0.0	0.7	0.0	0.0	0.0
Barclays	47.7	43.1	253.2	418.0	109.5	381.6	135.2
Bayern LB	113.0	11.2	5.3	2.4	1.8	2.1	0.2
BBVA	89.3	1.2	6.8	34.7	11.1	20.2	8.3
BNP Paribas	246.4	220.8	263.5	316.9	183.4	119.3	192.9
BPCE	2.2	5.7	6.3	11.1	9.5	17.0	5.2
Commerzbank	45.5	7.2	11.5	33.7	6.8	13.9	6.4
Crédit Agricole	94.8	82.1	123.0	13.7	12.3	21.2	19.7
Crédit Mutuel	31.0	6.8	2.8	2.4	9.0	15.2	3.5
Danske Bank	2.2	1.0	1.9	0.0	6.4	9.4	1.4
Deutsche Bank	3.0	41.6	76.0	40.8	61.3	26.3	15.8
DZ Bank	47.3	67.6	10.8	1.1	19.9	17.7	7.5
ERSTE	9.7	43.1	74.5	77.2	5.8	20.7	10.4
Handelsbanken	0.7	1.9	0.0	3.6	0.3	0.0	1.0
Helaba	0.0	0.2	0.2	0.2	3.2	0.6	1.2
HSBC	380.4	85.1	91.2	256.6	72.8	234.0	221.3
ING	57.5	59.6	14.7	17.6	10.0	22.1	7.3
Intesa Sanpaolo	29.2	47.9	70.0	78.5	109.6	19.0	11.6
KBC Bank	12.0	13.7	8.4	16.5	25.5	6.2	3.8
LBBW	3.6	9.7	6.0	19.5	7.0	9.9	1.1
Lloyds	21.1	40.4	27.2	13.1	11.4	0.0	4.8
Monte dei Paschi	2.7	1.6	0.6	3.5	0.0	0.0	0.0
Nationwide	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nord LB	3.2	18.2	23.9	0.2	0.0	0.0	1.1
Nordea	20.5	0.1	39.9	1.4	7.1	17.9	4.4
Nykredit	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Rabobank	13.2	9.9	1.9	4.7	7.8	7.4	1.7
RBS	40.1	61.2	12.7	13.0	23.5	74.4	11.5
SEB Bank	11.4	17.7	20.3	7.0	8.1	6.8	10.0
Société Générale	43.8	128.2	82.3	70.8	90.2	70.3	79.8
Standard Chartered	44.4	3.1	48.4	76.1	42.8	62.4	62.4
Swedbank	5.5	7.7	11.4	2.9	0.0	0.0	16.4
Unicredit	13.6	133.7	55.7	225.7	67.3	109.7	39.1
Total	**2,412.3**	**1,527.5**	**1,466.1**	**1,860.6**	**1,121.3**	**1,538.9**	**900.2**

Notes: This table presents, for each bank and year, the estimated tax deficit that would be collected upon undertaxed profits booked in foreign non-haven partner countries. A minimum effective tax rate of 15% is assumed. All figures are presented in million EUR.

Table E.3

Domestic Tax Deficit (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Banco Sabadell	0.0	55.4	0.0	96.5	0.0	15.6	14.7
Banco Santander	438.9	0.0	0.0	0.0	0.0	0.0	0.0
Bankia BFA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barclays	382.3	48.0	480.9	175.8	196.0	233.7	170.7
Bayern LB	0.0	0.0	26.0	47.1	2.3	116.8	0.0
BBVA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BNP Paribas	0.0	0.0	0.0	0.0	106.5	0.0	0.0
BPCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commerzbank	0.0	61.3	0.0	0.0	93.0	0.0	0.0
Crédit Agricole	25.1	0.0	11.7	0.0	0.0	345.9	0.0
Crédit Mutuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Danske Bank	0.0	0.0	0.0	0.0	0.0	138.2	0.0
Deutsche Bank	0.0	0.0	120.2	78.5	0.0	0.0	0.0
DZ Bank	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERSTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Handelsbanken	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Helaba	0.0	0.0	0.0	0.0	0.0	38.0	12.7
HSBC	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ING	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intesa Sanpaolo	0.0	0.0	0.0	1,157.3	82.3	0.0	0.0
KBC Bank	90.8	5.2	82.2	64.7	0.0	0.0	0.0
LBBW	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lloyds	255.1	51.4	0.0	0.0	0.0	0.0	0.0
Monte dei Paschi	0.0	38.6	0.0	0.0	0.0	0.0	0.0
Nationwide	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nord LB	12.0	0.0	0.0	0.0	0.0	0.0	0.0
Nordea	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nykredit	1.4	0.0	0.0	0.0	0.0	0.0	0.0
Rabobank	27.8	91.0	0.0	0.0	0.0	0.0	0.0
RBS	0.0	0.0	0.0	20.0	231.1	308.3	0.0
SEB Bank	0.0	0.0	0.0	0.0	72.9	0.0	0.0
Société Générale	0.0	51.9	0.0	0.0	0.0	59.1	0.0
Standard Chartered	171.5	0.0	0.0	21.0	30.5	119.3	0.0
Swedbank	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unicredit	0.0	0.0	0.0	67.0	0.0	0.0	0.0
Total	**1,404.8**	**402.9**	**720.9**	**1,728.0**	**814.7**	**1,374.8**	**198.2**

Notes: This table presents, for each in-sample bank and year, the estimated tax deficit that would be collected upon banks' undertaxed profits booked in their headquarter country. A minimum effective tax rate of 15% is assumed. All figures are presented in million EUR.

Table E.4

Percentage Tax deficit in Tax Havens (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	0.9%	0.5%	0.3%	2.2%	0.2%	0.3%	0.0%
Banco Sabadell	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Banco Santander	0.8%	0.2%	0.2%	0.4%	0.2%	0.7%	0.0%
Bankia BFA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Barclays	13.8%	8.1%	20.9%	17.4%	20.2%	185.3%	44.5%
Bayern LB	88.0%	1.2%	0.0%	0.9%	0.0%	0.0%	0.0%
BBVA	0.0%	0.1%	0.6%	1.2%	0.7%	0.7%	0.1%
BNP Paribas	1.1%	1.5%	0.4%	1.1%	0.8%	0.2%	0.6%
BPCE	0.7%	0.1%	0.2%	0.3%	0.0%	0.2%	0.5%
Commerzbank	8.1%	0.2%	3.9%	0.0%	11.5%	4.7%	0.0%
Crédit Agricole	-10.6%	2.6%	21.7%	0.4%	1.3%	5.6%	0.3%
Crédit Mutuel	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Danske Bank	0.0%	3.1%	0.0%	2.3%	0.5%	0.0%	0.1%
Deutsche Bank	0.3%	0.5%	13.7%	5.1%	3.7%	0.9%	2.9%
DZ Bank	1.9%	2.4%	1.1%	1.0%	1.1%	0.0%	0.0%
ERSTE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Handelsbanken	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Helaba	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.4%
HSBC	1.8%	13.4%	2.4%	24.9%	20.4%	17.6%	13.9%
ING	3.4%	3.9%	0.4%	0.1%	0.1%	0.0%	0.1%
Intesa Sanpaolo	0.6%	0.8%	1.0%	7.2%	0.7%	1.3%	3.5%
KBC Bank	2.4%	5.1%	17.1%	10.1%	7.9%	0.3%	0.2%
LBBW	0.1%	0.0%	0.0%	1.4%	0.1%	0.1%	0.0%
Lloyds	39.8%	4.6%	1.4%	1.3%	0.0%	1.4%	0.1%
Monte dei Paschi	299.0%	-1.5%	1.4%	7.3%	2,080.5%	-20.9%	0.0%
Nationwide	0.4%	3.5%	2.9%	0.9%	0.0%	0.0%	0.0%
Nord LB	0.0%	0.0%	-26.6%	0.0%	2.1%	0.0%	0.0%
Nordea	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nykredit	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rabobank	-1.4%	0.4%	2.0%	1.5%	1.8%	1.0%	3.8%
RBS	79.7%	118.3%	23.5%	0.6%	6.5%	12.6%	0.0%
SEB Bank	0.0%	0.1%	0.2%	0.6%	0.2%	1.7%	0.2%
Société Générale	2.2%	1.6%	1.7%	2.8%	1.8%	3.8%	2.0%
Standard Chartered	1.4%	1.4%	12.7%	14.7%	38.0%	1.4%	0.6%
Swedbank	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unicredit	0.3%	0.0%	0.4%	3.6%	2.4%	0.6%	1.0%

Notes: This table presents, for each bank and year, the tax deficit that would be collected upon undertaxed profits booked in foreign tax havens. Tax deficit estimates are expressed as a percentage of the total corporate income taxes actually paid by banks each year. For instance, under a global minimum tax, the corporate income taxes due by HSBC in 2020 would increase by 13.9% because of the profits booked by the bank in foreign tax havens. A minimum effective tax rate of 15% is assumed. The percentage tax deficit can be negative when income taxes paid by the bank are negative due to tax refunds.

Table E.5

Percentage Tax Deficit in Non-Havens (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	1.0%	0.2%	1.4%	3.0%	1.2%	0.4%	0.0%
Banco Sabadell	0.0%	45.6%	0.7%	6.9%	2.9%	0.3%	-0.8%
Banco Santander	72.0%	16.2%	3.1%	2.3%	5.3%	7.2%	0.6%
Bankia BFA	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%
Barclays	3.9%	2.8%	30.2%	87.8%	32.6%	531.4%	28.5%
Bayern LB	1129.5%	5.7%	3.9%	4.4%	1.4%	2.6%	0.0%
BBVA	6.8%	0.1%	0.4%	1.9%	0.4%	1.1%	0.4%
BNP Paribas	14.8%	9.1%	11.5%	16.0%	10.9%	4.6%	8.1%
BPCE	0.1%	0.2%	0.3%	0.6%	0.6%	1.0%	0.5%
Commerzbank	10.5%	1.2%	4.1%	23.7%	2.4%	3.4%	3.9%
Crédit Agricole	-68.7%	7.7%	261.7%	0.8%	0.9%	4.6%	1.5%
Crédit Mutuel	2.2%	0.4%	0.2%	0.1%	0.5%	0.9%	0.2%
Danske Bank	0.8%	0.2%	0.2%	0.0%	1.0%	-6.0%	0.5%
Deutsche Bank	0.3%	4.6%	8.9%	2.3%	6.8%	4.2%	2.9%
DZ Bank	6.9%	10.3%	1.9%	0.2%	4.3%	2.1%	1.5%
ERSTE	4.5%	13.3%	18.2%	19.0%	1.3%	4.4%	3.2%
Handelsbanken	0.2%	0.4%	0.0%	0.7%	0.1%	0.0%	0.2%
Helaba	0.0%	0.1%	0.1%	0.1%	2.0%	0.8%	3.3%
HSBC	15.1%	3.0%	3.5%	11.3%	2.7%	8.1%	10.6%
ING	5.0%	3.6%	0.9%	0.8%	0.5%	1.1%	0.4%
Intesa Sanpaolo	1.9%	3.5%	6.8%	17.2%	8.0%	1.2%	3.2%
KBC Bank	5.4%	4.4%	2.9%	4.5%	6.2%	1.3%	0.9%
LBBW	2.9%	8.4%	4.7%	20.5%	5.0%	5.5%	1.3%
Lloyds	54.8%	16.6%	2.7%	1.1%	1.0%	0.0%	0.6%
Monte dei Paschi	76.2%	-17.4%	5.0%	406.6%	0.0%	-20.9%	0.0%
Nationwide	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nord LB	5.7%	20.6%	-41.8%	0.2%	0.0%	0.0%	-52.5%
Nordea	2.1%	0.0%	4.7%	0.1%	0.8%	3.1%	0.6%
Nykredi	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Rabobank	-8.7%	2.1%	0.3%	0.5%	0.9%	0.9%	0.4%
RBS	31.7%	44.0%	14.0%	2.2%	4.9%	23.5%	11.9%
SEB Bank	2.5%	3.8%	4.5%	1.5%	2.0%	1.5%	2.6%
Société Générale	3.8%	12.5%	6.3%	7.4%	7.5%	7.3%	9.5%
Standard Chartered	5.0%	0.3%	7.9%	10.8%	8.2%	5.9%	9.1%
Swedbank	1.2%	1.6%	2.5%	0.5%	0.0%	0.0%	4.5%
Unicredit	1.2%	59.1%	10.0%	31.9%	13.5%	12.2%	7.2%

Notes: This table presents, for each bank and year, the tax deficit that would be collected upon undertaxed profits booked in foreign non-haven partner countries. Tax deficit estimates are expressed as a percentage of the total corporate income taxes actually paid by banks each year. For instance, under a global minimum tax, the corporate income taxes due by HSBC in 2020 would increase by 10.6% because of the profits booked by the bank in foreign non-haven jurisdictions. A minimum effective tax rate of 15% is assumed. The percentage tax deficit can be negative when income taxes paid by the bank are negative due to tax refunds.

Table E.6

Domestic Percentage Tax Deficit (with a 15% Minimum Tax Rate)

Bank	2014	2015	2016	2017	2018	2019	2020
Abn Amro	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Banco Sabadell	0.0%	170.5%	0.0%	224.1%	0.0%	9.0%	-21.4%
Banco Santander	32.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bankia BFA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Barclays	31.6%	3.1%	57.4%	36.9%	58.4%	-325.5%	36.0%
Bayern LB	0.0%	0.0%	19.2%	85.5%	1.8%	145.9%	0.0%
BBVA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BNP Paribas	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	0.0%
BPCE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commerzbank	0.0%	9.9%	0.0%	0.0%	32.5%	0.0%	0.0%
Crédit Agricole	-18.2%	0.0%	24.9%	0.0%	0.0%	75.4%	0.0%
Crédit Mutuel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Danske Bank	0.0%	0.0%	0.0%	0.0%	0.0%	-88.4%	0.0%
Deutsche Bank	0.0%	0.0%	14.1%	4.4%	0.0%	0.0%	0.0%
DZ Bank	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ERSTE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Handelsbanken	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Helaba	0.0%	0.0%	0.0%	0.0%	0.0%	51.3%	36.3%
HSBC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ING	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Intesa Sanpaolo	0.0%	0.0%	0.0%	254.3%	6.0%	0.0%	0.0%
KBC Bank	41.3%	1.7%	28.1%	17.7%	0.0%	0.0%	0.0%
LBBW	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Lloyds	663.1%	21.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Monte dei Paschi	0.0%	-428.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Nationwide	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nord LB	21.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nordea	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nykredit	11.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rabobank	-18.4%	19.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RBS	0.0%	0.0%	0.0%	3.4%	48.7%	97.3%	0.0%
SEB Bank	0.0%	0.0%	0.0%	0.0%	18.0%	0.0%	0.0%
Société Générale	0.0%	5.1%	0.0%	0.0%	0.0%	6.1%	0.0%
Standard Chartered	19.4%	0.0%	0.0%	3.0%	5.8%	11.3%	0.0%
Swedbank	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unicredit	0.0%	0.0%	0.0%	9.5%	0.0%	0.0%	0.0%

Notes: This table presents, for each bank and year, the tax deficit that would be collected upon undertaxed profits booked domestically. Tax deficit estimates are expressed as a percentage of the total corporate income taxes actually paid by banks each year. A minimum effective tax rate of 15% is assumed. For instance, since the profits of BNP Paribas in France were taxed at a higher rate than 15% in 2020, there is no tax deficit to be collected from those and the corporate income taxes due by the bank remain unchanged. The percentage tax deficit can be negative when income taxes paid by the bank are negative due to tax refunds.

Table E.7

Tax Deficit by Headquarter Country

Headquarter	2014	2015	2016	2017	2018	2019	2020
Non-havens							
Austria	9.7	43.1	74.5	77.2	5.8	20.7	10.4
Belgium	12.0	13.7	8.4	16.5	25.5	6.2	3.8
Germany	215.5	155.5	133.6	97.8	100.0	70.5	33.0
Denmark	2.3	1.0	1.9	0.0	6.6	9.4	1.4
Spain	1,062.8	356.2	113.8	104.1	199.7	251.5	24.1
Finland	0.0	0.0	0.0	0.0	7.1	17.9	4.4
France	418.0	443.6	477.8	414.8	304.4	243.0	301.1
United Kingdom	533.7	232.9	432.7	776.9	260.0	752.4	435.1
Italy	45.5	183.2	126.3	307.7	176.9	128.7	50.6
Netherlands	74.9	71.0	25.6	51.0	27.1	31.8	8.9
Sweden	38.1	27.3	71.7	14.8	8.3	6.8	27.4
Total	2,412.3	1,527.5	1,466.1	1,860.6	1,121.3	1,538.9	900.2
Tax havens							
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	5.2	15.9	50.0	36.8	32.5	1.4	0.7
Germany	61.8	23.9	149.0	99.9	72.3	24.8	15.8
Denmark	0.0	18.7	0.0	16.5	3.2	0.0	0.2
Spain	11.1	7.1	19.0	34.3	24.6	35.2	2.6
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	72.1	81.3	46.1	60.7	51.7	70.8	41.4
United Kingdom	341.7	706.3	362.9	772.2	839.3	718.5	504.9
Italy	22.7	10.5	12.4	58.4	90.8	26.9	18.5
Netherlands	45.4	69.8	21.5	38.0	20.1	11.1	17.5
Sweden	0.1	0.6	1.0	2.8	0.9	7.5	1.3
Total	**560.0**	**933.9**	**661.7**	**1,119.5**	**1,135.3**	**896.0**	**602.8**
Domestic							
Austria		0.0	0.0	0.0	0.0	0.0	
Belgium	90.8	5.2	82.2	64.7	0.0	0.0	0.0
Germany	12.0	61.3	146.1	125.6	95.3	154.7	12.7
Denmark	1.4	0.0	0.0	0.0	0.0	138.2	0.0
Spain	438.9	55.4	0.0	96.5	0.0	15.6	14.7
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	25.1	51.9	11.7	0.0	106.5	405.0	0.0
United Kingdom	808.9	99.4	480.9	216.9	457.6	661.3	170.7
Italy	0.0	38.6	0.0	1,224.3	82.3	0.0	0.0
Netherlands	27.8	91.0	0.0	0.0	0.0	0.0	0.0
Sweden	0.0	0.0	0.0	0.0	72.9	0.0	0.0
Total	**1,404.8**	**402.9**	**720.9**	**1,728.0**	**814.7**	**1,374.8**	**198.2**

Notes: This table presents, for each year and headquarter country, a breakdown of the collectible tax deficit by partner jurisdiction group. The “Non-havens” tax deficit is drawn from the undertaxed profits booked by banks in foreign non-haven countries; the “Tax havens” tax deficit is collected upon banks’ undertaxed profits in foreign tax havens; the “Domestic” tax deficit is related to banks’ activities in their headquarter country. A minimum effective tax rate of 15% is assumed. All figures are expressed in million EUR.

Appendix F – Data Adjustments

The following imputations and adjustments took place in our dataset:

(a) The Standard Chartered 2014 report could not be retrieved. Data were imputed by multiplying by a bank specific growth factor using the 2013 data. A growth rate of 1.18 was used for the different variables.

(b) The RBS 2014 report could not be retrieved. Data were imputed by multiplying by a bank specific growth factor using 2015 data. This factor was calculated based on the growth rate for each variable. The pre-tax profits were calculated by multiplying by 1.45 and the other variables are calculated by multiplying by 1.1.

(c) The LBBW 2014 report was incomplete, reporting only the net banking income and number of staff. Data were imputed by multiplying by a bank specific growth factor. The profits before tax were imputed from the ratio between the net banking income and pre-tax profits using reporting in other available years. Specifically, an average ratio of 0.4 was used for profits before tax. For the corporate taxes paid, the mean effective tax rates for each partner countries were calculated, then multiplied by the imputed profits before tax.

(d) The payment of taxes for HSBC in Hong Kong in 2019 was reported in 2020. The taxes paid in 2019 and 2020 were readjusted to account for underreporting in the former and overreporting in the latter. These were readjusted by multiplying the earnings before tax by the average effective tax rate of 11%.

(e) Income from Joint Venture is subtracted where explicitly stated. This is the case for HSBC and RBS.

(f) Null values in reports. For some affiliates variables were left blank or reported with null values. To distinguish between null values and blanks, we drop observations that only report profits before tax and have all other fields blank or null.

About the EU Tax Observatory

The EU Tax Observatory is an independent research center that conducts and disseminate innovative studies on taxation and stimulates exchanges between the scientific community, civil society, and policy makers. The EU Tax Observatory aims to contribute to the development of knowledge and the emergence of new concrete proposals to address the tax and inequality challenges of the 21st century.

Its key missions are :

- to conduct and disseminate cutting-edge innovative research on taxation, with a focus on tax evasion and fraud, and potential solutions to these problems;

- to promote a democratic, inclusive, and pluralistic debate on the future of taxation by fostering dialogue between the scientific community, civil society, and policymakers in the European Union and worldwide;

- and to provide access to knowledge on taxation by making available to the general public a repository of data and analysis on our study topics, as well as interactive tools that allow them to easily understand and exploit them.

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