Key Corporate Tax Haven Indicators

Haven Indicator 20:

Double Tax Treaty Aggressiveness

What is measured?

This indicator analyses the aggressiveness of a jurisdiction in their double tax agreements with other countries, as revealed by the withholding tax rates that apply to the payment of dividends, interests or royalties.

Aggressiveness is understood as the ability of country A to secure lower withholding taxes from country B in a double tax agreement.

The text of a double tax agreement only includes the applicable withholding tax rates but not which country secured it from the other one. As such, the withholding tax rate itself does not reveal whether country A secured it from country B, or the other way around. In order to evaluate that, we apply the following steps.

Step 1. Defining comparable rates to assess dividends, interests and royalties withholding rates

To determine if country A secured lower withholding tax rates from country B, this indicator compares the withholding tax rate present in the double tax agreement between country A and country B, with the withholding tax rates available in country B's treaties with other countries.

For example, in the double tax agreement between country A and country B the withholding tax rate on dividends is 5%. However, in all other double tax agreements country B has signed the average withholding tax rate on dividends is 20%. That is, the tax rate is 20% in the agreements between country B and county C, country B and country D, and country B and country E, and so on.

Given that there is a withholding tax rate on dividends of 20% on average in country B's treaties with countries C, D and E, while the withholding tax rate is 5% with country A, the underlying assumption is that country A was the one to secure lower withholding tax rates from country B. As a result, this indicator reflects that country A was aggressive towards country B in determining the withholding tax rates.

Step 2. Calculating the aggressiveness for each type of payment (dividends, interests and royalties)

To determine how aggressive country A was against country B, this indicator subtracts the reference rate (the average rate in all other treaties of country B) from the rate in the assessed treaty of country B with country A. In other words, country A's aggressiveness against country B in relation to dividends will be calculated in the following way: 5% - 20%= -15. So, the result is, that country A's aggressiveness on withholding tax on dividends is -15.

This above calculation – the withholding tax rate available in the assessed treaty minus the average withholding tax rate in all other treaties – is then repeated for each type of payments: dividends, interests and royalties.

The aggressiveness on withholding tax on interests is calculated in the same way. For example, in the double tax agreement between country A and country B the withholding tax rate on interest is 5%. However, in all other double tax agreements country B has entered (i.e. with country C, D and E, and so on), the average withholding tax rate on interest is 10%.

Country A's aggressiveness against country B in relation to interests will be calculated in the following way: 5% - 10% = -5. Therefore, country A's aggressiveness on withholding tax on interests is -5.

The aggressiveness of country A in the case of withholding tax on royalties is also calculated in the same way. For example, in the double tax agreement between country A and country B the withholding tax rate on royalties is 5%. However, in all other double tax agreements has entered (i.e. with country C, D and E, and so on), the average withholding tax rate on royalties is 2%.

Thus, in the case of withholding tax on royalties, country A is not considered aggressive towards country B because country B's average withholding tax rate on royalties with other countries is actually lower than the withholding tax rate that applies with country A. However, this indicator only considers "aggressive" values. Given that country A was not aggressive against country B in relation to royalties, country A's aggressiveness on withholding tax royalties is 0.

Step 3. Calculating the aggressiveness of each treaty

To calculate the total aggressiveness of country A in the double tax agreement with country B, the aggressiveness of the withholding tax on each payment is simply added together in the following way:

= Aggressiveness on dividends + aggressiveness on interests + aggressiveness on royalties

$$= -15 + (-5) + (0)$$

$$= -20$$

Country A's total aggressiveness against country B = -20.

Step 4. Calculating the total aggressiveness of each country (the aggressiveness of all of a country's treaties)

The next step would be to repeat the calculations for each of country A's double tax agreements, for example with countries F, G and H.

The total aggressiveness of country A will be the sum of the aggressiveness of all its treaties.

For example:

1) country A's total aggressiveness against country B = -20
2) country A's total aggressiveness against country F = -10
3) country A's total aggressiveness against country G = 0
4) country A's total aggressiveness against country H = -30

Country A's total aggressiveness = -60

Step 5. Transforming a country's total aggressiveness into a country's haven score for Indicator 20

The last step is to transform a country's aggressiveness into a haven score for indicator 20. For this purpose, out of the 64 jurisdictions assessed by this indicator, the country with the highest level of aggressiveness (mathematically, the country with the lowest "negative" value, given that aggressiveness always refers to values below zero) will be given a haven score of 100 (the maximum haven score). All other countries will receive a haven score in proportion to that value.

For example, if country Z had an aggressiveness of −2000, and this was the highest available aggressiveness when comparing all countries, then country Z will receive a haven score of 100 (the maximum haven score). Then, if country Y had an aggressiveness score of −500, it will receive a haven score of 25 because its aggressiveness is equal to one quarter of country Z's aggressiveness.

In addition, countries that have no corporate income tax rate or the statutory corporate income tax is zero (see Haven Indicator 1) will also obtain a haven score of 100 under indicator 20, regardless of the number of double tax agreements and their aggressiveness. This is because indicator 20 on treaty network aggressiveness focuses on the network of double tax agreements which enables income to be shifted without any (tax) obstacles. However, one of the reasons that double tax treaties enable jurisdictions to become conduits is to ultimately terminate at a tax favourable jurisdiction. Otherwise there would be

no incentive for companies to engage in profit shifting among many countries' double tax agreements only to terminate at a high tax jurisdiction.

Jurisdictions with nil corporate income tax or with a statutory corporate tax rate of zero per cent constitute an end-point for the network of double tax agreements. As such, even if a nil tax jurisdiction itself is a party to only one double tax treaty, it is likely to become the destination of profit shifting either through its sole tax treaty, or through the use of hybrids elsewhere (e.g. in the "Double Irish Dutch Sandwich" tax planning the use of Irish hybrid entities enable the shift of profits to Bermuda) or simply because some of these conduit countries that are party to many tax treaties do not withhold any tax on dividends, interest and/or royalties, so they could easily become the last link in a chain that ends in a zero tax jurisdiction.

Table 20.1. Scoring Matrix Haven Indicator 20

Regulation	Haven Score [100 = maximum risk; 0 = minimum risk]
A jurisdiction has a statutory corporate income tax rate of zero per cent **or** it has the highest available value of aggressiveness	100
A jurisdiction has a value of aggressiveness which is higher than zero per cent and lower from the highest available level of aggressiveness	Proportionate, based on the value of aggressiveness
A jurisdiction has no double tax agreements **or** it has an aggressiveness of zero	0

All underlying data can be accessed freely in the CTHI 🖥 database.[1] To see the sources we are using for particular jurisdictions please consult the assessment logic in Table 20.4 below and search for the corresponding info ID 571 in the database report of the respective jurisdiction. You may download the sources for this indicator here.

A detailed step-by-step guide for calculating the haven scores for this haven indicator 20 is found in Annex A.

Why is this important?

For more than a century, countries have entered bilateral tax treaties that distribute taxing rights between nations. This has significant implications for worldwide inequality. In recent decades, these treaties have increasingly become the bedrock of "treaty shopping", enabling tax avoidance strategies by multinational companies. As part of cross-border economic activity, legal

provisions and lower tax rates of a particular set of treaties are often exploited for shifting income away from its source, where such income could otherwise be taxed or reinvested. Jurisdictions have been central actors in driving the race to the bottom in the taxation of passive income (dividends, interests and royalties) by conceding lower withholding rates during treaty negotiations or by lowering or abolishing their domestic withholding rates in treaties, or both.

In this section, we first discuss the current function and content of double tax treaties. Then, we explore how jurisdictions are driving a race to the bottom in corporate taxation before analysing how multinationals exploit tax treaties for tax avoidance and the implications of "treaty shopping" for domestic resource mobilisation and global development.

(1) The function and content of double tax treaties

The prevailing justification for bilateral tax treaties is that they are the most effective way to prevent the double taxation of the same income by two jurisdictions that have a trade or investment relationship. Preventing double taxation is essentially achieved by limiting the taxing rights of the country where profits are sourced. Because tax treaties are integrated into the national laws of the two jurisdictions, the common framework provided by the treaty is meant to provide a fixed legal environment creating certainty for companies engaging in business in both places. However, to avoid double taxation, countries can also choose to provide a unilateral tax credit in the destination country for tax paid in the source country. This can be done without having to expressly limit the right of the source country to tax domestic revenue.[2]

Until the recent development of multilateral tax conventions by the Organisation for Economic Co-operation and Development (OECD), key terms like "company", "permanent establishment" or "dividend" were defined in bilateral treaties for a pair of jurisdictions. The lack of globally agreed standards was attenuated by the relative success of "model" treaties; most prominently, the OECD model[3] and to a lesser extent the United Nations[4] model. As legal scholar Sol Picciotto found, the widely followed OECD model treaty gives "virtually all the exclusive rights to tax […] to the state of residence".[5] That is, exclusive rights to tax are assigned to the state where the investor company resides, as opposed to the state where profits are generated. In the context of today's investment dynamics, the "state of residence" is often a tax haven or a developed "capital exporting" country. With respect to passive investment income – dividends, interest and royalties – the OECD model treaty defines maximum tax rates that the source state can charge on passive income. For dividends, 5% or 15% (the lower rate applies to substantial holdings); for interests, 10%; and for royalties 0%.[6] In the UN model, rates are not specified, and thus left for negotiation between potential treaty partners. Overall, it appears that the taxing rights of source jurisdictions are better secured in the United Nations model treaty.[7]

(2) The race to the bottom

Tax war[8] dynamics have led to a wide diversity of loopholes and increasingly lower rates, which the more aggressive jurisdictions have secured through negotiations.[9] Apart from very low withholding rates, some tax treaties also include provisions like the "management and control" clause, allowing a company that is resident in two countries at the same time to only be considered tax resident in the jurisdiction where "effective management" is undertaken.[10] Other treaties exclude key activities from the definition of a "permanent establishment", allowing substantial economic activities to be carried out in a jurisdiction without triggering taxation.[11] Importantly, vague definitions of "dividend" and "interest" within a bilateral treaty may give rise to hybrid treatment of investment income, which may result in negative tax rates.[12]

Historical evidence from 1960 to 1980 indicates that European countries, such as the United Kingdom, insistently pushed developing countries to sign double tax treaties in order to secure a "competitive advantage" for UK businesses in those countries.[13] Frequent interactions with public officials, lobbyists and private sector tax experts were found to be very influential in ensuring negotiating priorities and securing advantages.[14] Research shows that the power imbalance between negotiating countries, through unequal technical expertise or higher dependence on foreign investment, result in treaties that are more favourable to the capital exporting country, which are usually developed countries and tax havens.[15]

Yet the idea that bilateral treaties increase foreign direct investment is not always supported by empirical evidence.[16] On the contrary, the International Monetary Fund's 2018 working paper finds that signing treaties with investment hubs is not associated with increased investment, and that those treaties "tend to come with non-negligible revenue losses".[17]

Pursuant to the dynamics of tax-war high income countries and jurisdictions with big "financial centres" have driven the treaty-making process with the objective of securing the lowest possible rates for resident investors.[18] The outcome of decades of tax treaty war is apparent with regards to withholding rates.

Table 20.2. Evolution of Average Withholding Rates[19]

The evolution of WHT [Withholding] rates					
Time Period	Dividend	Participating Dividend	Interest	Royalty	
Year	Average Domestic Law WHT Rates				No. Countries
2000	15.2	14.1	15.1	17.2	107
2013	13.1	10.7	14.0	15.7	179
Treaty Age	Average Treaty WHT Rates				No. Treaties
0-5 years	10.1	5.6	7.9	8	533
5-10 years	11.7	6.9	9.1	9.3	635
10-20 years	12.4	8.1	9.6	9.8	1554
20-30 years	14.2	11.2	10.8	11.5	529
>30 years	14.6	11.1	11.7	11.3	328

Source: International Bureau of Fiscal Documentation database, 2011.

According to the International Monetary Fund, since 1980 average withholding tax rates have fallen by 30% for most types of income, while the average rates on qualifying dividends has fallen by almost 50%.[20] The 2014 report points out that European Union directives have been a key driver of this change, eliminating dividend withholding tax within the European Union member states and limiting taxes on interest and royalty payments.[21] To a large extent, governments are responsible for negotiating and signing bilateral treaties that contribute to the race to the bottom in withholding taxes.

Haven Indicator 20 serves as a proxy to assess a country's role in pushing for lower withholding tax rates and reducing the taxing rights of source countries. This indicator measures the comparative aggressiveness of each jurisdiction's treaty network. By comparing each treaty rate to the average rate otherwise available at the partner jurisdiction, we measure the spillover effect that a jurisdiction creates when systematically agreeing to low or zero withholding tax rates with its treaty partners.

The assessment of whether a specific country should sign a tax treaty with another jurisdiction is beyond the scope of this indicator and would otherwise require a detailed analysis of the bilateral economic relations and potential treaty provisions. However, this Haven Indicator enables a comparison of different jurisdictions' tax treaty networks in relation to withholding rates for dividends, interest and royalty payments. Indicator scores measure the aggregate aggressivity of a country's treaties. Both this metric and the average aggressivity provide useful insights for civil society and government negotiating teams when considering prospective treaties (For more details see Table 20.3 (A) and (B)).

(3) How multinationals avoid taxation through treaty shopping

In addition to treaty shopping, multinational companies have been engaging in "jurisdiction shopping" where they choose the most convenient countries or territories to minimise their tax. Google, for example, chose to set up a Bermuda resident holding company to receive royalty payments from a range of companies resident in higher tax countries,[22] draining the profits from places where employees or users generated value. Both Google and Apple use Ireland to shift offshore profits made in the European Union by taking advantage of Ireland's laws and its extensive network of bilateral treaties.[23] The fact that outbound royalty payments amount to 26.39% of Ireland's gross domestic product between 2010 and 2015[24] shows the extent to which certain jurisdictions are used as conduits for profit shifting. For comparison, the average of outbound royalty payments in the European Union for the same period is just 2.16%.[25]

The importance of tax treaties in the context of aggressive tax planning is evident by looking at statistics prepared by European Commission staff: for income from intangible assets, the Effective Average Tax Rate (EATR) resulting from profit shifting strategies that use royalty payments to offshore jurisdictions is 40.7% in the absence of treaty; however, the EATR goes down to 2% where tax-treaties are available.[26] In other words, if a multinational company would like to shift intellectual property profits offshore, doing so in the absence of treaty is more than 20 times more "costly". With regards to offshore profit shifting via interest payments, the effective tax rate is more than two times higher if there is no treaty.[27]

For instance, the treaty between France and Vietnam, signed in 1993, secures a 0% withholding rate for interest payments. This means that even if Vietnam wants to reduce dependence on foreign creditors by increasing domestic withholding rates on interests, French lenders will still be able to repatriate interest tax free. On average, the other treaties signed by Vietnam set withholding tax rates of about 10% with respect to interests.[28] Yet it may be the case that profits shifted from Vietnam through interest payments do not end up in France but are again shifted to lower tax countries like Switzerland, with which France has favourable treaties. The fact that France has negotiated these rates reveals an aggressive stance towards Vietnam that most likely benefits French banks and corporate investors.

Recently developed offshore financial centres like Mauritius have also been negotiating very aggressive treaties. For example, Senegal's treaty withholding tax rates are above 10% on average for all types of income, but Mauritius and Senegal have signed a treaty ensuring 0% withholding tax in all cases.[29] With these very aggressive treaty rates, Mauritius reduces the tax base of Senegal and sends a signal to multinational corporations that Mauritius is an advantageous destination to shift profits away from Senegal.

(4) Untaxed investment income, offshore accumulation and shortfalls in domestic revenue

The distributional conflict inherent in the allocation of taxing rights in double tax treaties goes back to the League of Nations when the first model for a double tax treaty was negotiated.[30] With the propagation of stateless international finance, tax treaties have become a tool to set up artificial economic relations in order to minimise tax on economic rents.

Although preventing double taxation has been the declared objective, double non-taxation has often been the result. Sharply declining withholding rates[31] together with widespread tax exemptions on investment activities[32] and falling statutory corporate income tax rates[33] have undoubtedly contributed to increasing global inequalities. The race to the bottom in corporate income tax rates harms virtually all countries with the exception of a few tax havens where most profits end up accumulating.[34]

With double tax treaties, the tax losses to developing countries are most problematic.[35] Even a single treaty can greatly affect a country's tax base,[36] as network externalities can arise when the treaty partner has various low or no tax treaties. More specifically, when double tax treaties are signed between a developed country (or a tax haven) and a developing country, the latter is usually the capital-importing party to the bilateral agreement. In other words, capital is expected to flow into the developing country as investment and the income resulting from the investment is expected to mostly flow out from the developing country to a tax haven or a developed country. Given that the function of double tax treaties in relation to dividends, interest and royalty payments is to restrict the tax that the source country can withhold on the outflows, then almost by definition developing countries will forego substantially more revenue than their capital-exporting counterparty.[37] The following graph (Graph 20.1) illustrates the strikingly different foreign direct investment (FDI) positions of G20 countries.

Graph 20.1. Comparison of G20 inward and outward FDI stock, 2012. (Lips 2019)[38]
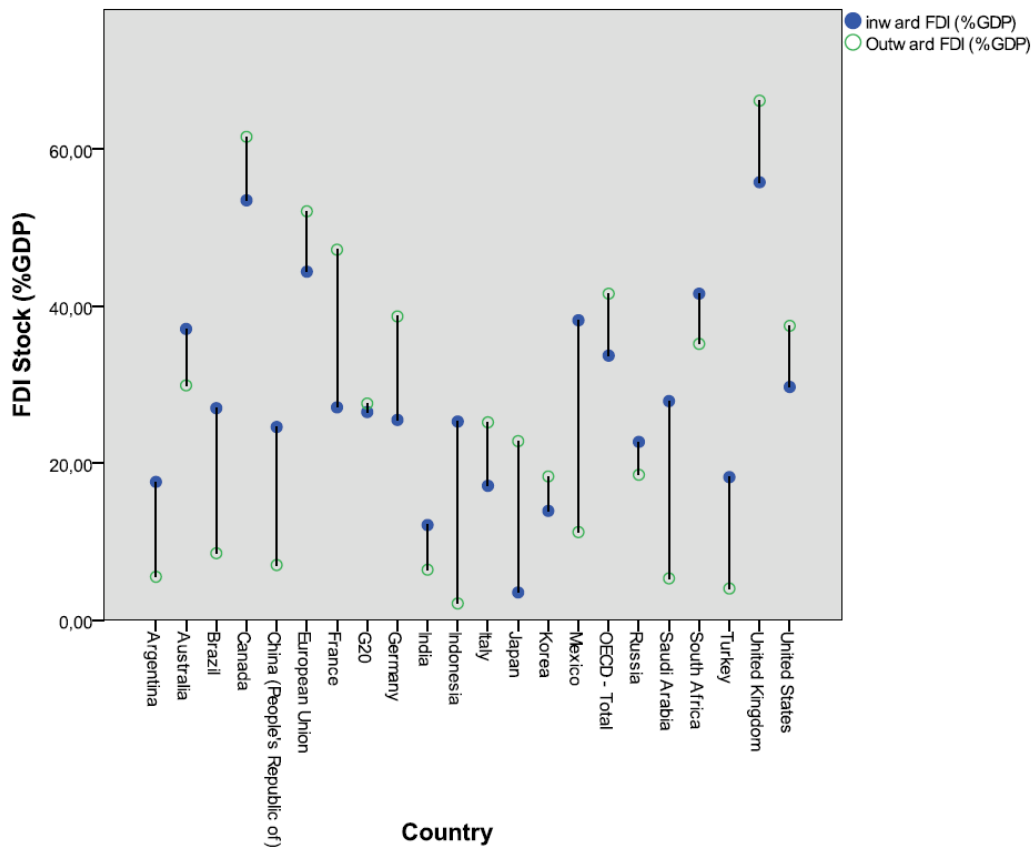
Source: OECD (2015), FDI flows (indicator). Retrieved from https://data.oecd.org/fdi/fdi-flows.htm

The graph above sheds light on the countries that may suffer greater losses from low or no withholding taxes in treaties. For more accurate estimates in developing countries, a 2018 study finds that the potential revenue loss from lower treaty withholding tax rates can be significant. For the Philippines, Pakistan and Bangladesh alone, these losses amounted to almost US$800m in just one year.[39] A 2013 study found that the treaties Netherlands signed with developing countries led to more than €770m in lost revenue.[40]

Thus, by allowing a race to the bottom in terms of taxation of dividends, interest and royalties and by promoting "jurisdiction shopping", we consider that tax treaties with low or no withholding taxes are systemically harmful, predominantly for developing countries.

Haven Indicator 20: Double Tax Treaty Aggressiveness

Results Overview

Graph 20.2. Double Tax Treaty Aggressiveness Overview
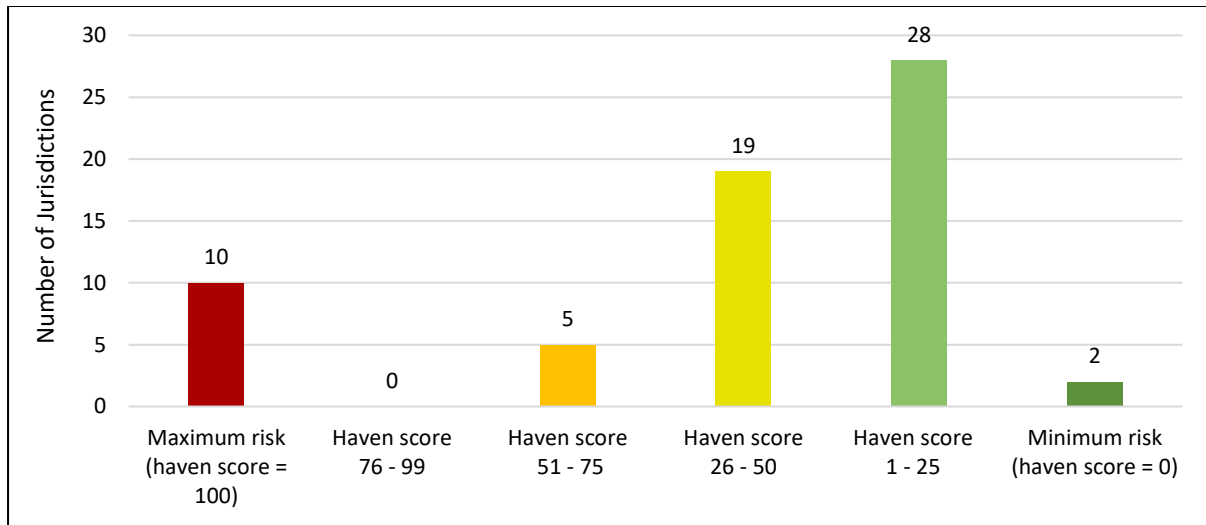
Results Detail

Table 20.3. Double Tax Treaty Aggressiveness – Haven Indicator Scores

ISO	Country Name	(A) Score	(B) Average by treaty Aggressivity (for jurisdictions with 3 treaties or more)
AD	Andorra	5	-8.9
AI	Anguilla	100	N/A
AW	Aruba	1	N/A
AT	Austria	47	-6.6
BS	Bahamas	100	N/A
BE	Belgium	28	-3.7
BM	Bermuda	100	N/A
BW	Botswana	2	-1.9
VG	British Virgin Islands	100	N/A
BG	Bulgaria	22	-4.1
KY	Cayman Islands	100	N/A
CN	China	25	-3.1
HR	Croatia	28	-5.4
CW	Curacao	2	-9.2
CY	Cyprus	48	-9.8
CZ	Czech Republic	34	-4.7
DK	Denmark	40	-6.5
EE	Estonia	18	-3.8
FI	Finland	41	-6.6
FR	France	63	-6.5
GM	Gambia	1	-1.1
DE	Germany	47	-6.0

Haven Indicator 20: Double Tax Treaty Aggressiveness

ISO	Country Name	(A) Score	(B) Average by treaty Aggressivity (for jurisdictions with 3 treaties or more)
GH	Ghana	1	-1.2
GI	Gibraltar	0	N/A
GR	Greece	10	-2.3
GG	Guernsey	100	-10.0
HK	Hong Kong	24	-7.6
HU	Hungary	43	-6.6
IE	Ireland	49	-8.3
IM	Isle of Man	100	-10.2
IT	Italy	27	-3.3
JE	Jersey	100	-10.3
KE	Kenya	1	-1
LV	Latvia	15	-3
LB	Lebanon	17	-8
LR	Liberia	0	N/A
LI	Liechtenstein	15	-10
LT	Lithuania	8	-2
LU	Luxembourg	40	-6
MO	Macao	1	-3
MT	Malta	39	-7
MU	Mauritius	33	-9
MC	Monaco	7	-9
MS	Montserrat	0	N/A
NL	Netherlands	53	-7
PA	Panama	5	-3
PL	Poland	20	-3
PT	Portugal (Madeira)	10	-2
RO	Romania	19	-3
SM	San Marino	16	-9
SC	Seychelles	14	-6
SG	Singapore	34	-5
SK	Slovakia	24	-4
SI	Slovenia	19	-4
ZA	South Africa	33	-5
ES	Spain	48	-6
SE	Sweden	51	-7
CH	Switzerland	59	-7
TW	Taiwan	7	-3
TZ	Tanzania	1	-1
TC	Turks and Caicos Islands	100	N/A
AE	United Arab Emirates (Dubai)	100	-13
GB	United Kingdom	65	-7

Haven Indicator 20: Double Tax Treaty Aggressiveness

ISO	Country Name	(A) Score	(B) Average by treaty Aggressivity (for jurisdictions with 3 treaties or more)
US	USA	34	-7

Final Score					
Maximum Risk (Haven Score 100)	Haven Score 76 - 99	Haven Score 51 - 75	Haven Score 26 - 50	Haven Score 1 - 25	Minimum Risk (Haven Score 0)

| Average by treaty aggressivity (for jurisdictions with 3 treaties or more)			
-10 or less	-10 to -5	-5 to -3	-3 to 0

Table 20.4. Assessment Logic

Info_ID	Text_Info_ID	Answers (Codes applicable for all questions: -2: Unknown; -3: Not Applicable)	Valuation Haven Score
571	Haven Indicator 100 score: Result from the normalisation of total aggressiveness.	Score from 0 to 100	Please see above, and here.

Annex 1. Detailed methodology

In order to assess the relative aggressiveness of a jurisdiction's (J_1) double tax agreement (DTA) treaty network, we compare the rates that a jurisdiction (J_1) has accorded bilaterally with a DTA partner (J_2, for example) with the average rates which that partner jurisdiction (J_2) has agreed with all its other DTA partners – that is, the jurisdictions (J_3, J_4, J_5, …) with which J_2 has concluded DTAs, excluding J_1.

This comparison is made separately within each type of income covered: Dividends, Interest and Royalty (D/I/R) payments. If the rates between J_1 and J_2 are lower than the average rates available in J_2's DTA network (excluding the DTA between J_1 and J_2), then the difference between these rates is treated (and measured) as an indication of J_1 treaty aggressiveness. The differential will thus increase the haven score of J_1. Figure 20.1 (below) provides an example of the analytical logic.

Figure 20.1. Assessment of the aggressivity of a jurisdiction's DTA withholding practices
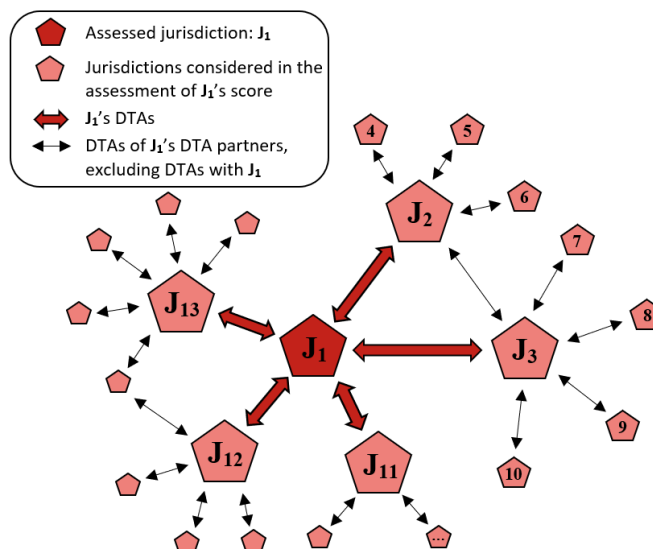
The theoretical example on the left presents a situation where the assessed jurisdiction (arbitrarily, 'J_1') has five DTAs in force with jurisdictions J_2, J_3, J_{11}, J_{12} and J_{13}. Each of these five jurisdictions has, respectively, the following number of DTAs with partners other than J_1: 4, 5, 2, 4, and 5. J_2, for example, has treaties with J_1, J_3, J_4, J_5 and J_6. Thus, excluding J_1; J_2 has four DTAs in its network.

For each of the three types of income covered (D/I/R), the rate in the DTA between J_1 and J_2 is compared to the average of the withholding tax rates in the DTAs that J_2 has with J_3, J_4, J_5 and J_6.[41] Thus, in the case of J_1–J_2 and with respect to dividends, we compare the treaty rates of J_1–J_2 DTA, to the average of the rates accorded in the DTAs between J_2 and J_3, J_4, J_5 and J_6.

For each partner jurisdiction J_p in J_1's DTA network ($p \in \{2; 3; 11; 12; 13\}$), we compare the two measures by calculating the difference between them as follows: withholding rate in J_1–J_p DTA, *minus* average withholding rate in J_p's other DTAs. If the difference is negative, it means that the DTA between J_1 and J_p offers rates that are lower than the average of rates available through J_p's other DTAs. Thus, the J_1–J_p treaty creates a downward pressure for lower rates.

Finally, for each type of income and for each of **J₁**'s DTAs, we determine the sum of the *negative differences* to assess the jurisdiction's overall aggressiveness. The above process is executed for every jurisdiction in our sample to determine the *aggregate negative pressure* that each jurisdiction effects on its DTA partners. The results are then rescaled from 0 to 100, 100 being the score of the jurisdiction with the largest negative effect on its partners. The precise steps of the computation are presented below.

<u>First</u>, we consider the **a**ssessed jurisdiction J_a with respect to a **p**artner jurisdiction J_p. The score is calculated for the **a**ssessed jurisdiction. In the example above, $a = 1$ and $p \in P_1 = \{2; 3; 11; 12; 13\}$, a set of $t_1 = 5$ jurisdictions. If J_a has a total of t_a treaties, then p can take t_a different values.

As mentioned above, we define a "DTA rate" with respect to a bilateral relation (and for a specific type of income) as the **average of the applicable rates** under the DTA in force, as amended by subsequent protocols, if any. With regards to dividends (Div), for example, the treaty rate between J_x and J_y is noted as follows:

Step A: defining average 'DTA rates', dividend example

Table 20.5. Double taxation agreement rates

DTA rate R (average within treaty)	$$R_{(Div;\ J_x, J_y)} = \frac{\sum_{i=1}^{k} r_{i\ (Div;\ J_x, J_y)}}{k} \qquad \textbf{(1)}$$
	▶ k is the total number of available rates under the applicable DTA and protocols in force between J_x and J_y , with respect to dividends. ▶ r_i refers to the ith applicable **r**ate, with the subscript in parentheses indicating the type of income and the two jurisdictions to the bilateral relation.

Subsequently, we will refer to this average of available (treaty and/or protocol) rates as the '**DTA rate**' with respect to dividend ($R_{(Div;\ J_x, J_y)}$), interest ($R_{(Int;\ J_x, J_y)}$) or royalty ($R_{(Roy;\ J_x, J_y)}$) payments.

Step B: defining the two comparable metrics (A and P) each of the assessed jurisdictions

Table 20.6.1. defining comparable metrics

Type of income	A is the *DTA rate* of Assessed jurisdiction (J_a) with regards to a Partner jurisdiction (J_p)	P is the average of DTA rates otherwise (excluding J_a) available at a Partner jurisdiction (J_p)
Dividend	$A_{(Div;\ J_a, J_p)} = R_{(Div;\ J_a, J_p)} \qquad \textbf{(2a)}$	$P_{(Div;\ J_p, J_O)} = \dfrac{\sum_{i=1}^{l} R_{(Div;\ J_p, J_{o(i)})}}{l} \qquad \textbf{(3a)}$

Interest	$A_{(Int; J_a, J_p)} = R_{(Int; J_a, J_p)}$ **(2b)**	$P_{(Int; J_p, J_O)} = \dfrac{\sum_{i=1}^{l} R_{(Int; J_p, J_{o(i)})}}{l}$	**(3b)**
Royalty	$A_{(Roy; J_a, J_p)} = R_{(Roy; J_a, J_p)}$ **(2c)**	$P_{(Roy\ J_p, J_O)} = \dfrac{\sum_{i=1}^{l} R_{(Roy; J_p, J_{o(i)})}}{l}$	**(3c)**
Definitions	▶ With, l referring to the total number of DTAs in force at J_p, *excluding J_a–J_p DTA.* ▶ Since J_p has l treaties with jurisdictions *other than J_a,* and the summations (3a), (3b) and (3c) consider sequentially the DTA rates between J_p and those **o**ther jurisdictions; we use the indicator i to refer to each of those l jurisdictions. We use J_O to designate the **o**ther jurisdictions having concluded DTAs with J_p, and $o(i)$ refers to the jurisdiction number corresponding to the ith DTA partner of J_p, *excluding J_a.* Thus, J_O and $o(i)$ are defined as follows: $\qquad J_O = \{J_{o(i)}\} \qquad$ With $i \in \{\ 1, 2, \dots l\ \}$ Or $\qquad J_O = \{J_{o(1)}, J_{o(2)}, \dots, J_{o(l)}\}$		

Table 20.6.2. Comparable metrics - example

Example: assessing a DTA network such as the one shown in <u>Figure 20.1</u> $J_a = J_1 ;\ J_p = J_2$	
Calculation of $A_{(Div; J_1, J_2)}$ Equation **(2a)**	Assuming J_1-J_2 DTA provides two applicable rates with respect to dividends; for example: a default rate of **10%**, and a reduced rate of **5%** if the payor company is 10% controlled by the payee company. Then, $A_{(Div; J_1, J_2)} = R_{(Div; J_1, J_2)}$ $= \dfrac{\sum_{i=1}^{2} r_{i\ (Div;\ J_1, J_2)}}{2}$ $= \dfrac{r_{1\ (Div;\ J_1, J_2)} + r_{2\ (Div;\ J_1, J_2)}}{2}$ $= \dfrac{0.10 + 0.05}{2}$ $A_{(Div; J_1 J_2)} = \mathbf{0.075}$
Calculation of $P_{(Div; J_2, J_O)}$ Equation **(3a)**	J_2 has **4** DTA partners (**excluding J_1**): J_3, J_4, J_5 and J_6. Thus $l = \mathbf{4}$ and $i \in \{\ 1;\ 2;\ 3;\ 4\ \}$. In this case: $o(1) = 3$, $o(2) = 4$, $o(3) = 5$ and $o(4) = 6$. The group of **o**ther (than J_1) DTA partners of J_2 is then: $J_O = \{J_3, J_4, J_5, J_6\} \Leftrightarrow J_O = \{J_{o(1)}, J_{o(2)}, J_{o(3)}, J_{o(4)}\}$ We thus have: $P_{(Div; J_2, J_O)} = \dfrac{\sum_{i=1}^{4} R_{(Div;\ J_2, J_{o(i)})}}{4}$ **(i)** We further assume that the **DTA rates** (average within treaty) between J_2 and its **o**ther partners take the following values: $R_{(Div;\ J_2, J_3)} = 0.0125 ;\ R_{(Div;\ J_2, J_4)} = 0.10 ;\ R_{(Div;\ J_2, J_5)} = 0.075 ;\ R_{(Div;\ J_2, J_6)} = 0.15$ Continuing from above **(i)**:

$$= \frac{R_{(Div;\ J_2, J_3)} + R_{(Div;\ J_2, J_4)} + R_{(Div;\ J_2, J_5)} + R_{(Div;\ J_2, J_6)}}{4}$$

$$= \frac{0.0125 + \ 0.1 + 0.075 + 0.15}{4}$$

$$P_{(Div;J_2, J_O)} = \ \mathbf{0.1125}$$

Notice that the value of $P_{(Div;J_2, J_O)}$ will be different depending on the assessed jurisdiction J_a, because the group J_O of DTA partners "**o**ther than J_a" will be different in each case. In the example above, $J_a = \ J_1$ and $J_p = \ J_2$, thus we have: $P_{(Div;J_2, J_O)}$ **with** $J_O = \{J_3, J_4, J_5, J_6\}$

However, if we were assessing J_3's aggressivity with regards to J_2 ($J_a = \ J_3$ and $J_p = \ J_2$), then we would have: $P_{(Div;J_2, J_O)}$ **with** $J_O = \{J_1, J_4, J_5, J_6\}$

Thus, we must understand equations **(3a)**, **(3b)** and **(3c)** as functions of both J_a and J_p

Step C: comparing the withholding tax rates agreed between a jurisdiction and its treaty partner, to the average withholding tax rates available through the partner's other treaties

Then, within each type of income and for each partner jurisdiction J_p in J_a's DTA network (**p** has as many different values as J_a has DTAs), we compare the withholding rate in $J_a - J_p$ DTA ($A_{(J_a, J_p)}$), to the average withholding rate in J_p's other DTAs ($P_{(J_a, J_p)}$), as follows:

Table 20.7. Calculating differentials

$Df_{(Div;\ J_a, J_p)} = \ A_{(Div;\ J_a, J_p)} - P_{(Div;\ J_p\ \ J_O)}$	**(4a)**	$\forall\, a\,;\, \forall\, p \in P_a\,;$ where P_a is the group of jurisdictions that are J_a's DTA partners
$Df_{(Int;\ J_a, J_p)} = \ A_{(Int;\ J_a, J_p)} - P_{(Int;\ J_p, J_O)}$	**(4b)**	$\forall\, a\,;\, \forall\, p \in P_a$
$Df_{(Roy;\ J_a, J_p)} = \ A_{(Roy;\ J_a, J_p)} - P_{(Roy;\ J_p, J_O)}$	**(4c)**	$\forall\, a\,;\, \forall\, p \in P_a$

For each of the three types of income, the assessment of J_a results in as many Df values as the number DTA partners of J_a (a set of T partners). Thus, for example, if J_a has T=5 DTA partners, there will be 15 Dfs. If a particular DTA does not impose a limit on withholding rates with regards to a specific type of income (Div, for example), then we cannot define $A_{(Div;\ J_a, J_p)}$, since there is no withholding rate limitation applicable to dividends and instead, domestic rates of J_a or J_p apply alternatively. In these cases, we consider that $Df_{(Div;\ J_a, J_p)} = 0$.

As explained above, the differentials (Df) resulting from the assessment of a jurisdiction's DTA network (J_a) can be either positive or negative (or null, if no limitation applies). If the differential is negative ($Df < 0$) for any type of income and in relation to a DTA partner J_p; then $J_a - J_p$ DTA will be considered aggressive to the extent of such differential.

Step D: Aggregating negative differentials, by treaty

Importantly, in order to assess the overall aggressiveness of J_a's DTA network, only the negative differentials are considered. The choice **not** to balance out positive and negative differentials in the assessment of a jurisdiction's DTA network aggressiveness is because the use of relatively high DTA withholding tax rates by a jurisdiction does not push other jurisdictions (DTA partners) to adopt higher rates in their DTAs with third parties. In other words, there can be no 'race to the top' in DTA rates within the current function of DTAs. Since DTAs set maximum rates chargeable by contracting states on outflows, if the maximum rate is high, this does not mean that the tax rate will indeed be high, just that the contracting jurisdictions will have the option to raise rates up to that higher limit under domestic law. Conversely, if the maximum tax rate under a DTA is low, the actual tax rate on outflows is automatically lowered.

Thus, because positive differentials do not have a clear mitigating effect with regards to the impact of negative differentials (e.g. jurisdiction shopping, race to the bottom), we disregard positive differentials in the assessment of a jurisdiction's score. We separate negative differentials and aggregate as follows:

Table 20.8. Aggregating negative differentials

$$Df^-_{(Div;J_a)} = \sum_{\forall\, p\, \in\, D_a} Df^-_{(Div;J_a,J_p)}$$	**(5a)**	▶ With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Div) and the assessed jurisdiction (J_a). ▶ D_a is the group of partner jurisdictions p where J_a effects a downward pressure in **D**ividend DTA WHT rates. All p for which $Df_{(Div;J_a,J_p)} < 0$.
$$Df^-_{(Int;J_a)} = \sum_{\forall\, p\, \in\, I_a} Df^-_{(Int;J_a,J_p)}$$	**(5b)**	▶ With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Int) and the assessed jurisdiction (J_a). ▶ I_a is the group of partner jurisdictions p where J_a effects a downward pressure in **I**nterest DTA WHT rates. All p for which $Df_{(Int;J_a,J_p)} < 0$.
$$Df^-_{(Roy;J_a)} = \sum_{\forall\, p\, \in\, R_a} Df^-_{(Roy;J_a,J_p)}$$	**(5c)**	▶ With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Roy) and the assessed jurisdiction (J_a). ▶ R_a is the group of partner jurisdictions p where J_a effects a downward pressure in **R**oyalty DTA WHT rates. All p for which $Df_{(Roy;J_a,J_p)} < 0$.

It may be the case that $D_a = \emptyset$, $I_a = \emptyset$, **or** $R_a = \emptyset$ because with regards to dividends, interest or royalties, the assessed jurisdiction J_a systematically accords DTA WHT rates that are higher than those otherwise applied by each of its DTA partners. **If** $D_a = \emptyset$, $I_a = \emptyset$, **or** $R_a = \emptyset$; **then**, respectively, we consider that: $Df^-_{(Div; J_a)} = 0$; $Df^-_{(Int; J_a)} = 0$; **or** $Df^-_{(Roy; J_a)} = 0$.

The intermediate metrics presented above {**(5a)**, **(5b)**, **(5c)**} will allow us to determine if a jurisdiction has a particularly aggressive DTA network for the different types of income. This will be the case for jurisdictions 'marketing' themselves as hubs for shareholding (Div), financing (Int) or IP-holding (Roy) activities since they typically set particularly low rates in one or more types of income in its DTAs with other jurisdictions. Of course, in addition to the tax-limitation incentives provided through its DTA network, a jurisdiction can also offer a range of other incentives, such as no/low taxation of foreign D/I/R income, or secrecy. These metrics are available in <u>Annex 2</u>.

Step E: aggregating intermediate metrics, and normalising to obtain final score

Table 20.9. Normalisation of aggregate negative differentials

$$Df^-_{(J_a)} = Df^-_{(Div; J_a)} + Df^-_{(Int; J_a)} + Df^-_{(Roy; J_a)}$$	**(6)**	► Where $Df^-_{(J_a)}$ is the aggregate value of negative differentials with for the assessed jurisdiction (J_a).
$$HI20_{(J_a)} = \frac{Df^-_{(J_a)}}{Df^-_{(J_m)}} \times 100$$	**(6')**	► Where, J_m represents the jurisdiction with the largest aggregate negative differential among those jurisdictions included in our sample. i.e.: **m** for which $\left|Df^-_{(J_m)}\right| > \left|Df^-_{(J_a)}\right|$; $\forall\, a \neq$ **m**

Annex 2. DTA aggressivity by type of income – normalised scores

Table 20.10. Normalisation by income type (formulas)

$$KI20_{(Div;J_a)} = \frac{Df^-_{(Div;J_a)}}{Df^-_{(Div;J_{mD})}} \times 100$$	**(6a')**	► With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Div) and the assessed jurisdiction (J_a, J_{mD}) ► J_{mD} is the jurisdiction with the largest aggregate negative differential with respect to dividends. i.e.: $\left\|Df^-_{(Div;J_{mD})}\right\| > \left\|Df^-_{(Div;J_a)}\right\|$; $\forall\, a \neq$ **mD**
$$KI20_{(Int;J_a)} = \frac{Df^-_{(Int;J_a)}}{Df^-_{(Int;J_{mI})}} \times 100$$	**(6b')**	► With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Int) and the assessed jurisdiction (J_a, J_{mI}) ► J_{mI} is the jurisdiction with the largest aggregate negative differential with respect to interest. i.e.: $\left\|Df^-_{(Int;J_{mI})}\right\| > \left\|Df^-_{(Int;J_a)}\right\|$; $\forall\, a \neq$ **mI**
$$KI20_{(Roy;J_a)} = \frac{Df^-_{(Roy;J_a)}}{Df^-_{(Roy;J_{mR})}} \times 100$$	**(6c')**	► With Df^-, the aggregate value of negative differentials. The subscript indicates the type of income covered (Roy) and the assessed jurisdiction (J_a, J_{mR}) ► J_{mR} is the jurisdiction with the largest aggregate negative differential with respect to royalties. i.e.: $\left\|Df^-_{(Roy;J_{mR})}\right\| > \left\|Df^-_{(Roy;J_a)}\right\|$; $\forall\, a \neq$ **mR**

Table 20.11. Normalisation of total aggressiveness by income type (for jurisdictions with 3 treaties or more)

Colour scales from **Red** (100) to **Yellow** (50) to **Green** (0).

HI20 rank	Country Name	Dividends	Interests	Royalties
1	Anguilla	N/A	N/A	N/A
1	Bahamas	N/A	N/A	N/A
1	Bermuda	N/A	N/A	N/A
1	British Virgin Islands	N/A	N/A	N/A
1	Cayman Islands	N/A	N/A	N/A
1	Guernsey	9	8	10
1	Isle of Man	6	6	7
1	Jersey	9	8	11

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HI20 rank	Country Name	Dividends	Interests	Royalties
1	Turks and Caicos Islands	N/A	N/A	N/A
1	United Arab Emirates	100	100	64
2	United Kingdom	31	55	96
3	France	25	55	100
4	Switzerland	22	48	98
5	Netherlands	19	61	67
6	Sweden	24	47	71
7	Ireland	31	46	59
8	Spain	26	46	61
9	Cyprus	35	38	61
10	Austria	22	47	62
11	Germany	8	54	69
12	Hungary	16	45	58
13	Finland	19	41	54
14	Denmark	14	44	54
15	Luxembourg	13	45	54
16	Malta	30	34	43
17	Singapore	42	21	29
18	Czech Rep.	21	49	18
19	United States	10	33	51
20	South Africa	11	35	44
21	Mauritius	31	24	35
22	Belgium	11	13	60
23	Croatia	23	24	29
24	Italy	8	24	44
25	China	38	12	17
26	Slovak Rep.	15	29	19
27	Hong Kong	22	19	23
28	Bulgaria	15	22	23
29	Poland	14	19	19
30	Slovenia	14	17	21
31	Romania	20	13	18
32	Estonia	18	10	21
33	Lebanon	13	14	20
34	San Marino	12	13	20
35	Latvia	16	7	20
36	Liechtenstein	11	14	17
37	Seychelles	16	12	10
38	Greece	10	5	14
39	Portugal	8	8	13
40	Lithuania	11	4	7
41	Monaco	4	7	8

HI20 rank	Country Name	Dividends	Interests	Royalties
42	Taiwan	8	6	4
43	Andorra	2	4	8
44	Panama	3	6	3
45	Curacao	1	2	3
46	Botswana	4	1	0
47	Macau	0	1	1
48	Ghana	2	1	0
49	Aruba	N/A	N/A	N/A
50	Kenya	2	0	0
51	Tanzania	1	1	0
52	Gambia	1	0	0
53	Montserrat	N/A	N/A	N/A
54	Gibraltar	N/A	N/A	N/A
54	Liberia	N/A	N/A	N/A

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[12] Assuming that a "dividend" flow is subject to withholding tax in country A when paid to a parent company in country B. Hybrid treatment may occur when the flow is considered "interest" in country A (deductible), potentially subject to no withholding tax, and then considered "dividend" income in country B, where such income is tax-exempt. As a result, not only can hybrid treatment result in non-taxation of certain amount of income, but it can also result in having that amount considered deductible (interest); effectively lowering the tax paid on other income.

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[18] Within our sample of 64 jurisdictions, just 13 jurisdictions are responsible for more than 50% of measured aggressiveness. All of them are categorised as High Income Countries by the World Bank, and at least 9 out of 13 can be considered financial centres: United Arab Emirates (Dubai), France (Paris), United Kingdom (London), Switzerland (Zurich), Germany (Frankfurt), Ireland (Dublin), Netherlands (Amsterdam), Luxembourg and Cyprus.

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[32] See Haven Indicator 5.

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[41] There are often cases where a DTA contains various withholding rates for the same type of income, attributing lower rates to qualifying situations. In such cases, we take the average of the withholding rates applicable in a DTA for a specific type of income to refer to the withholding rate of a DTA between two jurisdictions (for D, I or R). By taking the *average* within treaty rates for a specific type of income to define the 'DTA rate' between two jurisdictions (instead of the *lowest* rate (D, I or R) available under the treaty), we are taking a cautious approach in determining the effective treaty aggressiveness. This is because of the possibility that the lower qualifying rates are often those systematically used by large multinational corporations. Thus, our estimate of treaty aggressiveness results in a conservative measure of treaty aggressiveness in absolute terms.