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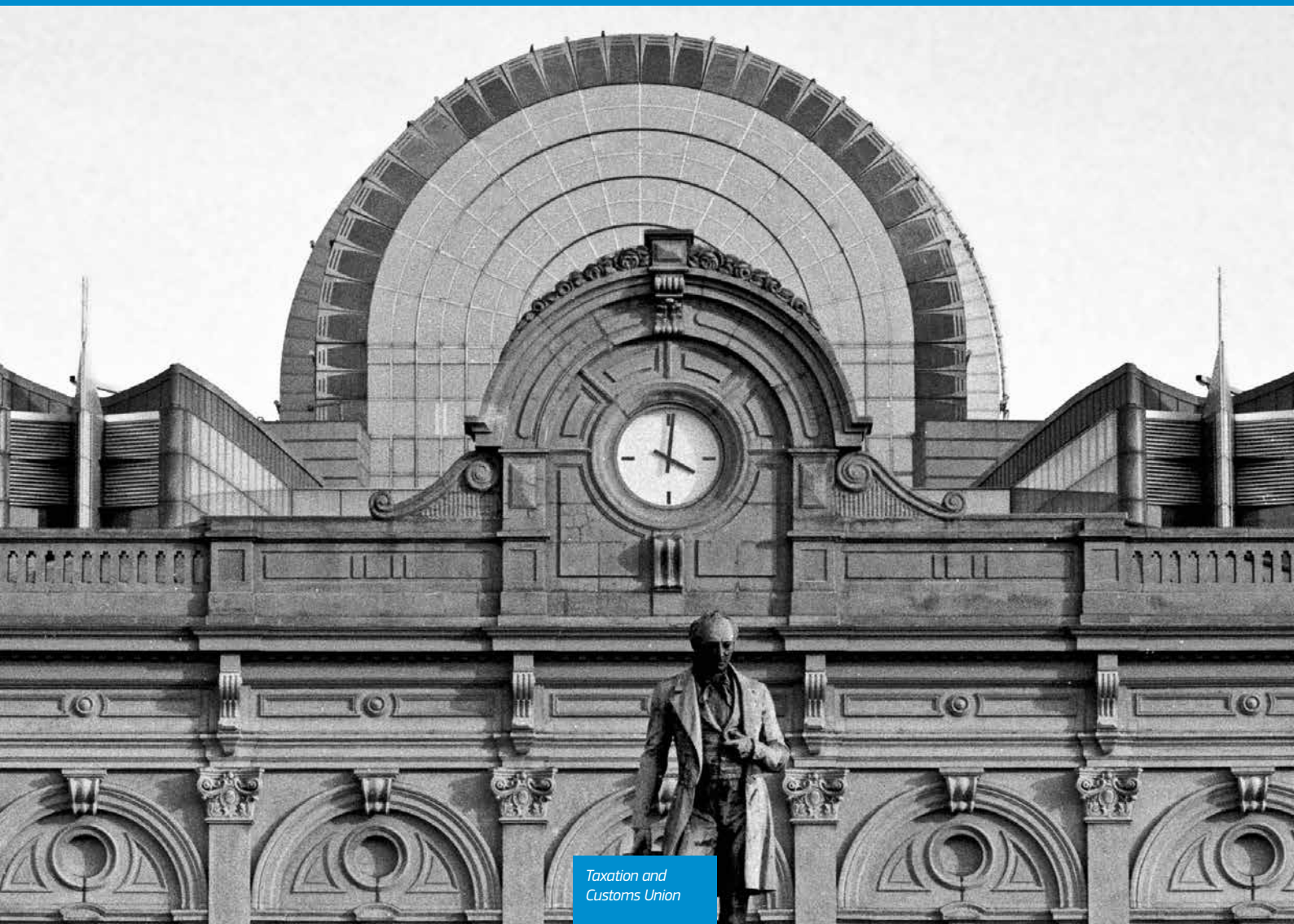
The Impact of Tax Planning on Forward-Looking Effective Tax Rates



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FINAL REPORT

THE IMPACT OF TAX PLANNING ON FORWARD-LOOKING EFFECTIVE TAX RATES

ON-DEMAND ECONOMIC ANALYSIS UNDER FRAMEWORK CONTRACT
TAXUD/2013/CC/120
FRAMEWORK CONTRACT FOR THE PROVISION OF EFFECTIVE TAX RATES IN THE CONTEXT OF AN ENLARGED EUROPEAN UNION AND RELATED SUPPORTING SERVICES

SUBMISSION BY THE
CENTRE FOR EUROPEAN ECONOMIC RESEARCH (ZEW) GMBH

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Table of Contents

Executive Summary

Multinational companies have the opportunity to apply profit shifting strategies to reduce their tax payments in high-tax countries and minimize the overall effective tax burden on their global profits. Both the European Commission and the OECD have taken action to counter such tax planning strategies. This study provides a general insight into the effect of different profit shifting strategies on effective tax rates for cross-border investments between the 28 EU member states and the US. In particular, this study enhances the baseline findings of ongoing research conducted by ZEW on behalf of the European Commission.[1]

Specifically, this report presents the cost of capital (CoC) and the effective average tax rates (EATR) for cross-border investments between the 28 EU member states and the US distinguishing between scenarios that involve seven different tax planning strategies. The calculations are based on tax law data for the year 2015. The tax planning strategies considered use different forms of profit shifting via interest and royalty payments. To put the effectiveness of these tax-driven indirect investment strategies into perspective, this study compares the resulting CoC and EATR to corresponding results for the most tax-efficient way of directly financing the cross-border investment.

The study considers the following seven tax planning strategies:

(1) Tax planning strategy 1 assumes that the subsidiary, which conducts the investment, is owned and financed by an intermediate company resident in a tax-exempt country. This company grants a loan to the subsidiary and the subsidiary pays interest on that loan.

(2) The second tax planning strategy replicates tax planning strategy 1 but assumes that the intermediate company is resident in a fictitious average EU country which has a corporate income tax rate of 23%.

(3) Tax planning strategy 3 replicates tax planning strategy 1 but assumes that the loan granted to the subsidiary has a hybrid element resulting in its classification as equity capital in the country of residence of the intermediate company.

(4) Tax planning strategy 4 replicates tax planning strategy 2 considering a hybrid loan.

(5) Tax planning strategy 5 assumes that the subsidiary invests in a bundle of assets (buildings, machinery, inventory, and a financial asset) whereas the intangible asset used in the production process is owned by a separate intellectual property (IP) holding company resident in a tax-exempt country. The intangible is licensed to the subsidiary which generates profits from the use of the intangible and forwards these profits to the IP holding company in the form of a royalty payment.

(6) Tax planning strategy 6 replicates tax planning strategy 5 but assumes that the IP holding company is resident in the fictitious average EU country.

(7) Tax planning strategy 7 replicates tax planning strategy 5 but assumes that the IP holding company is resident in one of the EU member states offering an IP-box regime.

The main findings of the study are as follows (also see Summary Table):

[1] See Spengel et al. (2015) and previous reports.

Summary Table: Mean CoC and EATR for different international tax planning strategies

	Mean CoC	Mean EATR
Baseline scenario	5.7	20.9
Profit shifting via interest payments		
Financing via Offshore treaty	4.1	16.2
Financing via Offshore no treaty	6.0	36.4
Financing via Average	5.8	21.6
Hybrid financing via Average	3.8	14.3
Profit shifting via royalty payments		
IP tax planning via Offshore treaty (only intangible)	4.7	2.0
IP tax planning via Offshore treaty (all assets)	5.6	17.5
IP tax planning via Offshore no treaty (only intangible)	11.4	40.7
IP tax planning via Offshore no treaty (all assets)	6.9	25.2
IP tax planning via Average (only intangible)	5.1	18.2
IP tax planning via Average (all assets)	5.7	20.7
IP tax planning using the most beneficial IP-box regime (only intangible)	2.4	-1.0
IP tax planning using the most beneficial IP-box regime (all assets)	5.1	16.9

(1) Baseline Results

For cross-border investments directly financed by the parent company, the most tax-efficient source of subsidiary financing primarily depends on the relationship between the tax rates applied in the parent and subsidiary country. For subsidiaries resident in high-tax countries, debt financing of the investment in the subsidiary is usually most attractive. For subsidiaries resident in low-tax countries, financing the investment with retained earnings of the subsidiary is generally tax optimal. Considering all parent-host-country investment combinations between the 29 countries considered, the mean CoC for the most-tax-efficient financing of direct investments amounts to 5.7%. The mean EATR is 20.9%. The study compares the effective tax levels that arise under seven alternative tax planning scenarios with these baseline results.

(2) Profit shifting via interest payments

If an intermediate financing company resident in a tax-exempt country is interposed between the parent and the subsidiary company, the mean CoC across all investment combinations decreases by 1.6 percentage points from 5.7% to 4.1% and the mean EATR decreases by 4.7 percentage points from 20.9% to 16.2%.

Using an intermediate financing company which resides in some fictitious EU member state featuring the EU average corporate income tax rate of 23%, is only an advantageous option if investment takes place between high-tax countries. On average, the CoC for cross-border investments increases by 0.1 percentage points from 5.7% to 5.8% and the EATR increases by 0.7 percentage points from 20.9% to 21.6%.

If the loan granted from the intermediate company resident in the average country to the subsidiary has a hybrid element, i.e. is treated as equity capital (debt capital) in the average country (subsidiary country), the mean CoC across all investment combinations decreases by 1.9 percentage points from 5.7% to 3.8%, and the mean EATR decreases by 6.6 percentage points from 20.9% to 14.3% as compared to the baseline of direct financing. If the intermediate financing company is resident in a tax-

exempt country, it is irrelevant whether the loan is hybrid given that a zero tax rate applies to both dividends and interest.

(3) Profit shifting via royalty payments

In the case of IP tax planning via an IP holding company resident in a tax-exempt country, the mean CoC decreases by 0.1 percentage points from 5.7% to 5.6% and the mean EATR decreases by 3.4 percentage points from 20.9% to 17.5%. However, IP strategies may allow shifting even larger shares of profit. With an increasing weight of IP in the asset mix of the multinational company, i.e. in the extreme case IP is the only productive asset the firm invests in, total profits may be shifted to the IP holding company. In this scenario, the mean CoC decreases to 4.7% and the EATR decreases to 2%.

If the IP holding company is resident in an EU member state offering an IP-box regime, the mean CoC and EATR likewise fall considerably below the baseline results for a directly financed investment. According to our model calculations which disregard the self-development criterion that some IP-box regimes apply, conducting IP tax planning via the country offering the most attractive IP-box regime reduces the mean CoC for cross-border investment in all asset types by 0.6 percentage points from 5.7% to 5.1%. For profitable cross-border investments, the results suggest that using the most attractive EU IP-box country for IP tax planning reduces the EATR on average by 4 percentage points to 16.9%.

Again, effective tax levels further decrease with an increasing weight of IP in the asset mix of the multinational company. Five of the eleven EU member states offer an IP-box regime that allows reducing effective tax rates to close to zero, and eight of the countries allow to reduce the EATR below 10% if the multinational invests exclusively in intangibles and, thus, is able to shift the full share of its profits. Hence, in particular for highly profitable multinationals that generate profits primarily from valuable intangibles IP tax planning strategies effectively provide the largest tax savings among all considered tax planning strategies.

Withholding taxes, switch-over clauses for dividends and other anti-avoidance measures, as e.g. thin capitalization and controlled foreign company rules, may significantly reduce the tax savings that result from international tax planning strategies and may potentially increase CoC and EATR up to levels even above the respective baseline results for a direct cross-border investment. This study provides an overview of the existence and effect of certain anti-avoidance measures. Withholding taxes, switch-over clauses for dividends and interest and royalty deduction restrictions that apply if the corresponding income is subject to low taxation are considered while thin capitalisation rules and CFC rules are disregarded in the effective tax rate calculations.

Overall, the model computations put forward in this study show that tax planning strategies built around indirect financing of investment or license agreements offer considerable leeway to multinational companies in optimizing their effective tax burden beyond what is possible under direct subsidiary financing.

1 Introduction

The tax planning strategies of multinational corporations have been a key issue on the international policy agenda for some years now. Both the European Commission[2] and the OECD[3] are currently working on anti-avoidance measures to curb international profit shifting of multinational companies.

These initiatives against so-called aggressive tax planning have mainly been pushed by anecdotal evidence on tax avoidance strategies of some of the currently most valuable and fast growing multinational companies such as Google[4], Apple[5], and Ikea[6]. These companies use tax planning structures reducing the effective tax burden on foreign income to close to zero. In addition to this anecdotal evidence, there is empirical evidence on profit shifting activities of multinational companies. Several studies suggest that both pre-tax profits[7] and leverage[8] are sensitive to statutory tax rate differentials.[9] The purpose of this study is to provide a more general insight into the impact of representative tax planning strategies on forward-looking effective tax rates considering cross-border investments between the EU member states and the US. We thereby complement the report on aggressive tax planning structures by Ramboll Management Consulting and Corit Advisory[10] prepared for the European Commission with information on the actual tax saving effects of typical tax planning strategies. As in the annually updated report on effective tax rates conducted by ZEW[11], we apply the Devereux/Griffith model to calculate cost of capital (CoC) and effective average tax rates (EATR). This allows us to compare the results for different tax planning structures to the results for direct cross-border investments known from the annual updates.

The report is structured as follows: In Section 2, we briefly describe the Devereux/Griffith model applied in this study to compute CoC and EATR. We also list the underlying economic assumptions of the model. Section 3 explains the design of the study. It gives an overview of the different tax planning strategies and countries considered in this report and summarizes relevant tax parameters. In Section 4, we explain which adaptions to the basic cross-border formula of the Devereux/Griffith model have been made to arrive at the results for CoC and EATR for the different tax planning strategies. Section 5 summarizes the baseline results that present the most tax-efficient way for a multinational parent company to directly finance an investment in a wholly-owned foreign subsidiary. Section 6 discusses the effective tax levels computed for all considered tax planning strategies and compares them to the baseline results. In Section 7, we refer to potential effects of anti-avoidance measures on our results. Finally, Section 8 concludes.

[2] See European Commission (2015).
[3] See OECD (2013).
[4] See Kleinbard (2011); Sandell (2012).
[5] See Ting (2014).
[6] See Auerbach (2015).
[7] See e.g. Hines/Rice (1994) and Huizinga/Laeven (2008). For a quantitative survey of the literature see Heckemeyer/Overesch (2013).
[8] See e.g. Desai et al. (2004); Buettner et al. (2012).
[9] A review on the empirical literature is given in Dharmapala (2014).
[10] See Ramboll Management Consulting and Corit Advisory (2015).
[11] See Spengel et al. (2015).

2 Methodology: The Devereux/Griffith model

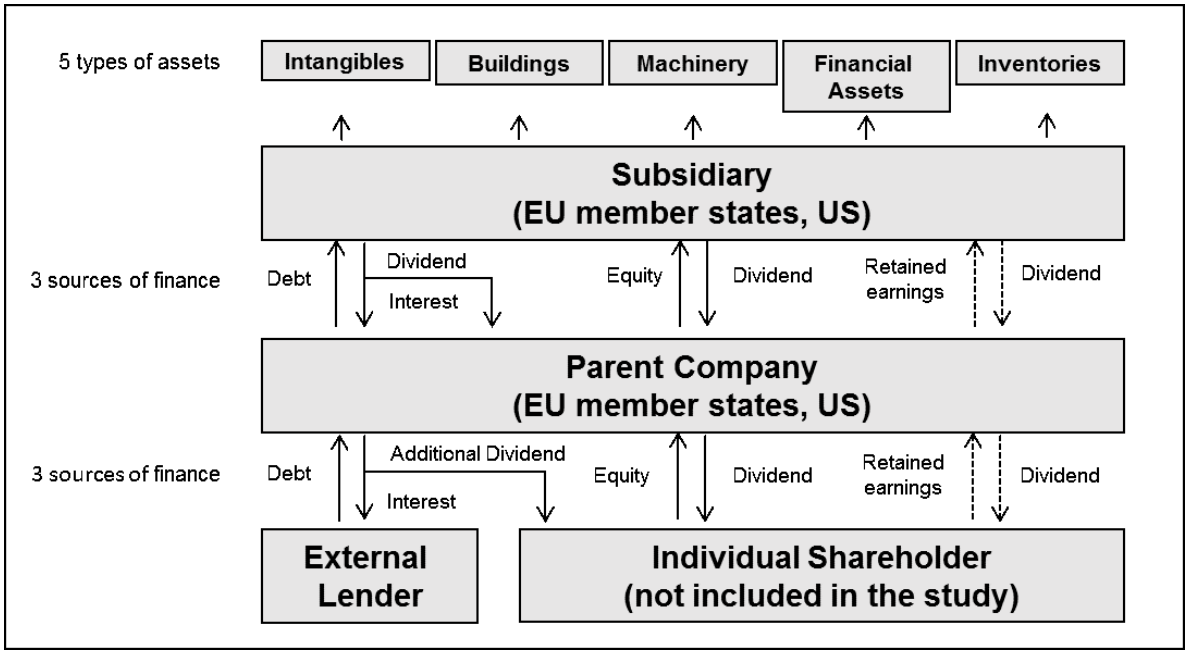
Our study on the impact of tax planning on forward-looking effective tax rates uses the Devereux/Griffith model, developed by Devereux and Griffith.[12] The model has already been used in several earlier studies on behalf of the European Commission such as the annual report on effective tax levels in the EU undertaken by ZEW.[13]

The basic approach proposed by Devereux and Griffith[14] is to consider a hypothetical incremental investment located in a specific country that is undertaken by a company resident possibly in the same country, but also possibly in another country. The hypothetical investment takes place in one period and generates a return in the next period.

Given a post-tax real rate of return required by the company's shareholder, it is possible to use the tax code to compute the implied required pre-tax real rate of return, known as the cost of capital (CoC). The proportionate difference between the cost of capital and the required post-tax real rate of return is known as the effective marginal tax rate (EMTR). This approach is based on the presumption that firms undertake all investment projects that earn at least the required rate of return. A complementary approach is to consider discrete choices for investment and in particular discrete location choices. Devereux and Griffith[15] proposed a measure of an effective average tax rate (EATR) to identify the effect of taxation on such discrete location choices.

The investment and financial structure of the model is illustrated in Figure 1.

Figure 1: Structure of the supposed investment



[12] See Devereux/Griffith (1999).
[13] See Spengel et al. (2015).
[14] See Devereux/Griffith (1999); Devereux/Griffith (2003).
[15] See Devereux/Griffith (1999); Devereux/Griffith (2003).

To define the hypothetical investment project analyzed in this report as well as the underlying economic conditions we rely on the assumptions in the annual report on effective tax levels in the EU prepared by ZEW[16]:

- The pre-tax rate of return on profitable investment projects is assumed to amount to 20%;
- the real interest rate of an alternative investment is assumed to be 5%;
- the inflation rate is assumed to be 2% in all countries;
- investments in five different assets, intangibles (purchase of a patent), industrial buildings, machinery, financial assets and inventories, are considered;
- the depreciation rates are 15.35% for intangibles, 3.1% for industrial buildings and 17.5% for machinery. Financial assets and inventories are not depreciated.
- there are three possible ways of financing the investment: retained earnings, new equity and debt;
- for representing averages over different forms of investment, we use equal weights for each asset type (20%). For the re-financing of the parent company financing weights are as follows: 55% retained earnings, 10% new equity and 35% debt financing.

3 Study design and tax planning strategies

The aim of this report is to show the impact of typical tax planning strategies on the cost of capital (CoC) for marginal investments and the effective average tax rates (EATR) for profitable investments in EU member states and the US which complement the results of the annual report on effective tax levels in the EU undertaken by ZEW.[17] The study considers cross-border investments of multinational (parent) corporations located in any of the EU28 member states and the US. Due to a lack of detailed information about relevant shareholders and the high mobility on the international capital market, personal taxes are of little importance for decision making in multinational enterprises.[18] Thus, our analysis will be limited to the corporate level (i.e. excluding shareholders' taxation). As our focus lies on multinational corporations, the case of incorporated SMEs and partnerships will be ignored.

In consequence of the complexity and diversity of international tax rules, multinationals face manifold tax planning opportunities. In this study we concentrate on basic strategies that play a central role in international tax planning and are generally available to all multinational corporations. The cases considered are simplified forms of the tax planning strategies discussed in the study on structures of aggressive tax planning conducted by Ramboll Management Consulting and Corit Advisory.[19] All tax planning strategies considered are variations of the fundamental tax planning tool of profit shifting from high-tax to low-tax countries.[20] Profits can either be shifted via interest payments, royalty payments, or transfer pricing of goods and services. Among those three profit shifting channels, the study of Ramboll Management Consulting and Corit Advisory[21], to which this study relates, focuses on the use of intra-group interest and royalty payments. Hence, we also concentrate on these two profit shifting strategies in our study. However, some of our results for

[16] See Spengel et al (2015).
[17] See Spengel et al. (2015).
[18] See European Commission.
[19] See Ramboll Management Consulting and Corit Advisory (2015).
[20] The terms high-tax and low-tax countries are used in relative terms and always refer to the tax level of a country relative to the tax level of other countries considered.
[21] See Ramboll Management Consulting and Corit Advisory (2015).

profit shifting via royalty payments, excluding those for tax planning via IP-box regimes, are transferable to other transfer pricing strategies.

3.1 Profit shifting via interest payments

Multinationals can reduce their global tax payments by shifting profits via intra-group interest payments from affiliates resident in high-tax countries to other affiliates resident in low-tax countries. The following four tax planning strategies using profit shifting via debt are considered in this study:

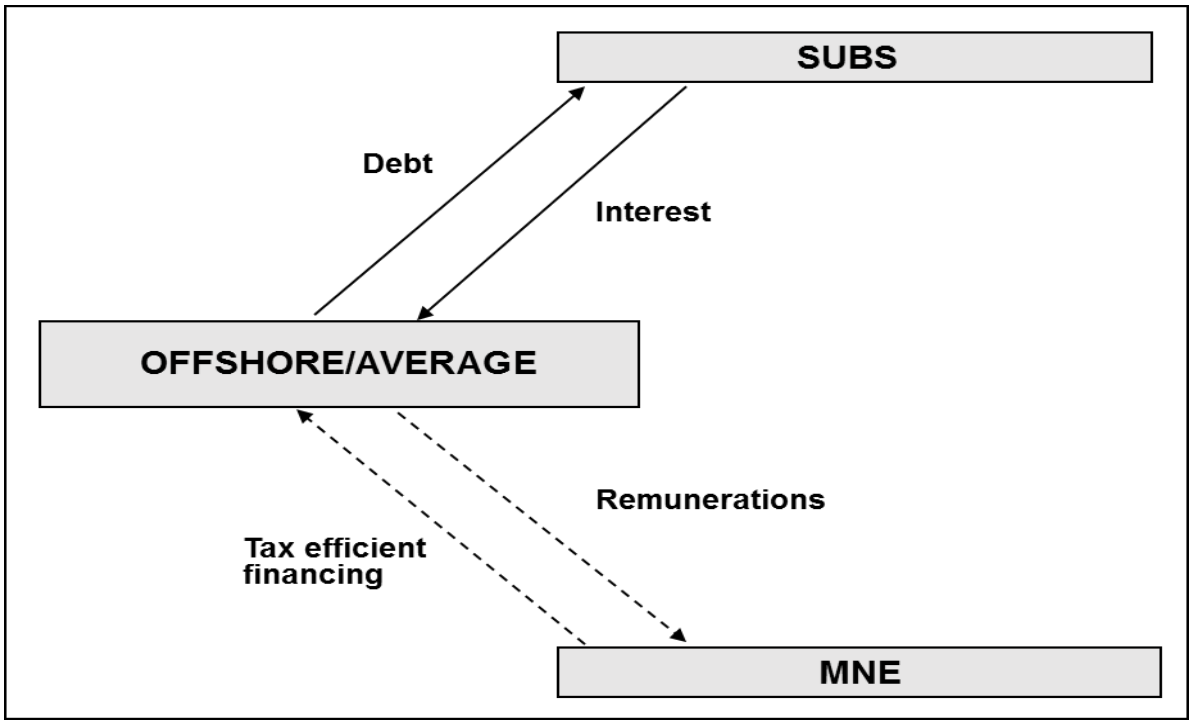
(1) "Financing via Offshore": Loan structure via tax-exempt country

The multinational parent company (MNE) located in an EU member state or the US indirectly owns a subsidiary (SUBS), located in another EU member state or the US, via an intermediate company (OFFSHORE), located in a non-EU tax-exempt country (referred to as Offshore). MNE provides funds via the most tax-efficient financing channel to OFFSHORE. OFFSHORE grants an interest-bearing loan to SUBS.

(2) "Financing via Average": Loan structure via average tax country

This case replicates the tax planning structure of "Financing via Offshore" but models an intermediate financing company AVERAGE located in a fictitious average EU member state (referred to as Average).

Figure 2: Tax planning strategies 1 and 2



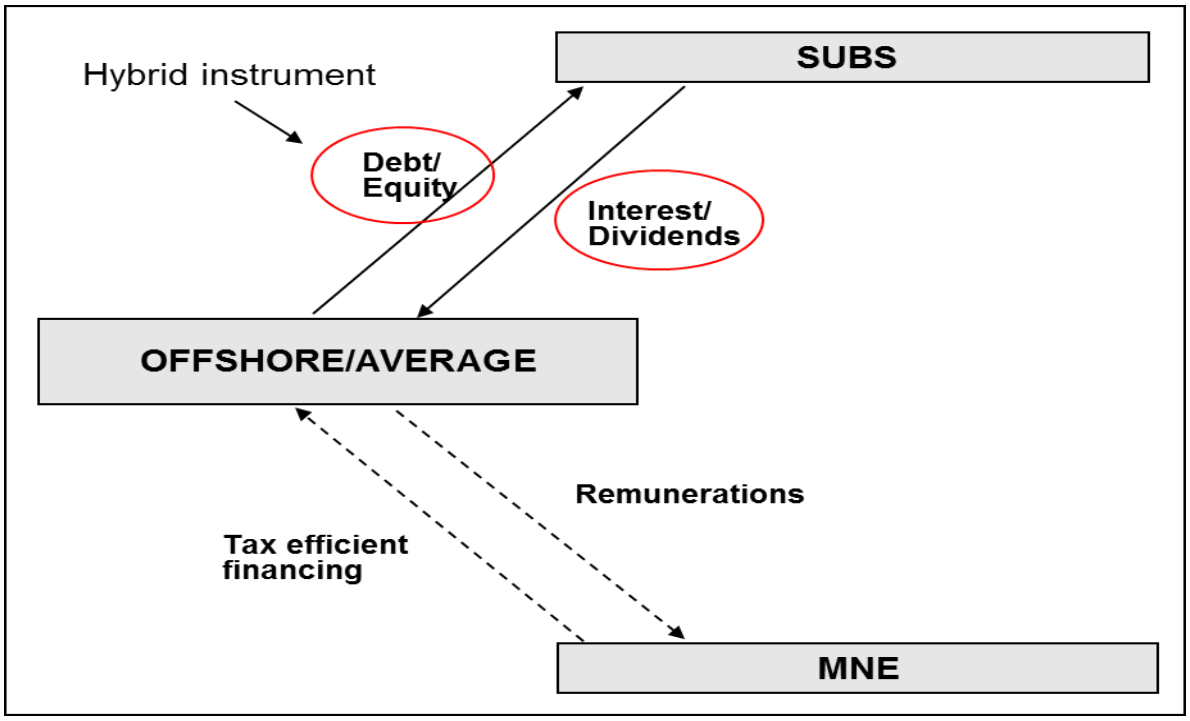
(3) "Hybrid financing via Offshore": Hybrid loan structure via tax-exempt country

This case also replicates "Financing via Offshore" with the difference that OFFSHORE gives a hybrid interest-bearing loan to SUBS, a subsidiary of OFFSHORE located in another EU member state or the US. The hybrid loan is considered equity by the country of residence of OFFSHORE and debt by the country of residence of SUBS.

(4) "Hybrid financing via Average": Hybrid loan structure via average tax country

The last case for debt shifting replicates the tax planning structure of "Hybrid financing via Offshore" but models an intermediate company AVERAGE located in a fictitious average EU member state.[22]

Figure 3: Tax planning strategies 3 and 4



3.2 Profit shifting via royalty payments

Another profit shifting channel can be intra-group licensing of intellectual property (IP). If IP is licensed from an affiliate resident in a low-tax country to an affiliate resident in a high-tax country, the corresponding royalty payments reduce the tax base in the high-tax country and shift the profits to the low-tax country. The following three tax planning strategies using profit shifting via royalty payments are considered in this study:

(5) "IP tax planning via Offshore": IP is owned in a tax-exempt country

The multinational parent company located in an EU member state or the US provides funds via the most tax-efficient financing channel to its subsidiary IPOFFSHORE located in a non-EU tax-exempt country. IPOFFSHORE uses these funds to invest in an intangible. IPOFFSHORE then licenses the IP to SUBS, which in turn pays royalties. SUBS, which is owned by MNE, invests in the remaining four assets considered in the Devereux/Griffith model and yields the same return as if it would have also invested in an intangible directly.

[22] Following an amendment of the EU parent subsidiary directive (Council Directive 2014/86/EU of 8 July 2014), EU member states had to implement an anti-avoidance rule against hybrid financing arrangements in their regulations for the taxation of dividends by the end of 2015. Hence, the tax planning strategy „Hybrid Financing via Average" should be more difficult to obtain in practice in the future.

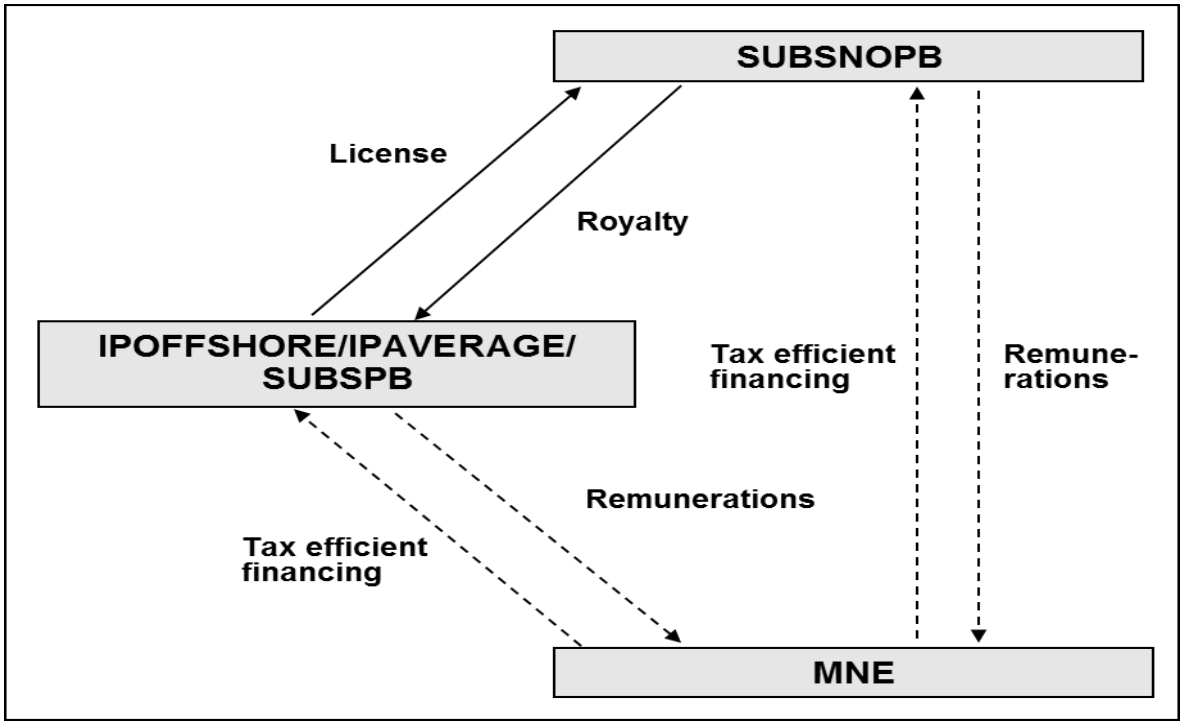
(6) "IP tax planning via Average": IP is owned in an average tax country

This case replicates the tax planning structure of "IP tax planning via Offshore" but models an IP holding company IPAVERAGE located in an average EU member state.

(7) "IP tax planning via IP-box countries": IP is owned in an EU member state offering an IP-box regime

This case replicates "IP tax planning via Offshore" but considers an IP holding company SUBSPB located in one of the 11 EU member states which offered an IP-box regime in 2015 (BE, CY, ES, FR, HU, IT, LU, MT, NL, PT, UK).

Figure 4: Tax planning strategies 5 to 7



We will compare the results for all seven tax planning strategies considering the most tax-efficient way of financing (retained earnings, new equity and debt) of the respective financing company (financing structures), the IP holding company and SUBS (IP structures) with the results for direct investments of SUBS considering the most tax-efficient way of financing from MNE.

3.3 Tax parameters for the "tax-exempt country" and the "average country"

Tax planning strategies 1, 3 and 5 defined in Sections 3.1. and 3.2. consider a fictitious "tax-exempt country". We make two different assumptions for this country:

(1) "Offshore treaty" is assumed to be a non-EU country that effectively does not levy profit or non-profit taxes on dividends, interest and royalties. "Offshore treaty" has concluded a tax treaty with all EU member states and the US reducing all withholding taxes to zero. Several EU member states generally exempt dividends from taxation but switch to taxation of the dividends if certain preconditions are not met (for an overview see Section 3.4.2). Examples for such preconditions are a minimum level of taxation of the distributed income or

economic substance of the distributing company. Upon assumption, such switch-over rules do not apply to dividends received from Offshore treaty in the 29 parent countries considered. Dependent on the specific requirements of the switch-over clause, this can for example be achieved if the general corporate income tax rate in Offshore treaty is above the required minimum tax level, other active business income is generated in Offshore treaty or the dividends are channeled via a high-tax country that fully exempts the dividends from taxation. For countries that generally apply the credit method to dividends from non-EU member states without exception, we consider the credit method to apply to dividends received from Offshore treaty. Some countries also deny the deduction of interest or royalties from taxable income if the corresponding income is subject to low taxation. We consider these rules only to be relevant for tax planning via Offshore treaty if they apply irrespective of the residence country of the company receiving the interest or royalty income as these rules are difficult to circumvent. Such a rule only exists in Austria.[23] Overall, tax planning via Offshore treaty reflects tax planning strategies that achieve non taxation of interest and royalty income while circumventing the application of anti-avoidance rules targeted at aggressive tax planning strategies using tax havens. We refer to the financing and IP holding company resident in Offshore treaty as OFFSHORE treaty.

(2) "Offshore no treaty" is assumed to be a non-EU tax-exempt country that does not levy any kind of profit or non-profit taxes and has not concluded any tax treaty with EU member states or the US. For withholding taxes on dividends, interest and royalties flowing into the tax-exempt country see Tables 2, 3 and 4 and the explanations in Section 3.4.1. Switch-over clauses for dividend taxation are assumed to apply to dividends received from Offshore no treaty (see Section 3.4.2). Anti-avoidance rules that deny the deduction of interest and royalty expenses from the tax base in case of low-taxation of the corresponding income are considered if they apply to payments to non-treaty countries and cannot simply be avoided by proofing economic substance of the transaction. For interest payments such rules exist in Austria, Sweden and Slovenia. The deduction of royalty expenses is only restricted in Austria.[24] We refer to the financing and IP holding company resident in Offshore no treaty as OFFSHORE no treaty.

Tax planning strategies 2, 4 and 6 defined in Sections 3.1. and 3.2. consider a fictitious "average country". We define this country to be an average EU member state and refer to it as Average. The relevant tax parameters for this country are the arithmetic means of the respective tax parameters across all 28 EU member states. The corporate income tax (CIT) rates and the capital allowances for intangibles in the EU member states are listed in Table 1. The respective rounded averages determine the relevant tax parameters of Average. Dividends are tax-exempt in Average. Alternative nominal statutory income tax rates which currently apply to certain types of income in four EU member states (CY, FR, IE, IT) are not considered. We assume that interest is fully deductible in the average country, which is in line with the rules in 23 of the 28 EU member states. Capital allowances for other assets than intangibles are irrelevant as the intermediate company either does not invest in any asset (tax planning strategies 1-4) or only invests in intangibles (tax planning strategies 5-7). For withholding taxes on in- and outbound dividends, interest and royalties from and

[23] For details see Peyerl (2014). The royalty deduction restriction is only taken into account for IP tax planning via Offshore treaty, as in case of payments to Offshore no treaty the withholding tax on royalties in Austria ensures a minumum taxation of 10%.
[24] The information is obtained from the ibfd tax research platform.

to Average see Tables 2, 3 and 4 in Section 3.4.1. As for tax planning via Offshore treaty, switch-over clauses for dividends in the parent country are assumed not to apply to tax planning via the average country. A restriction for the deduction of interest and royalties paid to an EU member state only exists in Austria. The required minimum tax rate is 10%. Hence, we consider this rule to apply to the tax planning strategy "Hybrid financing via Average" and IP tax planning using IP-box regimes which offer an effective tax rate below 10%. The IP-box regimes are discussed in detail in Section 3.4.3.

Table 1: Tax parameters for "Average" (in %)

%	corporate income tax rate (CIT)	capital allowances for intangibles	
		kind of allowance	allowance rate
Austria	25	SL	10
Belgium	33.99	SL	20
Bulgaria	10	SL	15
Croatia	20	SL	50
Cyprus	12.5	SL	20
Czech Republic	19	SL	16.66
Denmark	23.5	SL	100
Estonia	20		n.a.
Finland	20	SL	10
France	38.93	SL	20
Germany	30.95	SL	20
Greece	29	SL	10
Hungary	20.86	SL	50
Ireland	12.5	SL	10
Italy	31.3	SL	33.33
Latvia	15	SL	20
Lithuania	15	DB	66.66
Luxembourg	29.22	SL	20
Malta	35	SL	10
Netherlands	25	SL	20
Poland	19	SL	20
Portugal	29.5	SL	10
Romania	16	SL	5.55
Slovakia	22	SL	20
Slovenia	17	SL	10
Spain	33.4	SL	5
Sweden	21.48	DB	30
United Kingdom	20	SL	10
"Average"	23	SL	21

3.4 Relevant tax data

Most tax law information necessary for the calculation of CoC and EATR is taken from the tax database at ZEW, which is also used in the annual report on effective tax rates conducted for the EU Commission.[25] For all calculations, the tax law provisions of 1 July 2015 are taken into account. In the following, tax data not included in the annual report on effective tax rates is summarized.

3.4.1 Withholding tax rates on dividends, interest and royalties

Withholding taxes play an important role in international tax planning as they prevent the tax-free shifting of profits and reduce the tax advantage resulting from profit shifting activities. An overview of the relevant withholding tax rates on dividends, interest and royalties is given in Tables 2, 3 and 4.

The withholding tax rates on intra-group dividend, interest, and royalty flows between EU member states are zero due to the EU parent subsidiary directive and the EU interest and royalties directive. For payments between EU and US companies, the lower of the domestic and tax treaty rate applies.[26] For dividends, interest and royalties received by a company resident in Offshore no treaty, we assume that the general domestic withholding tax rates for corporations apply in the country of residence of the paying company. However, if existent, the higher withholding tax rates on intra-group payments to low-tax countries or listed tax havens in the 29 countries are considered. The withholding tax rates for payments from and to Average are calculated by taking the respective arithmetic means across all 28 EU member states.

Dividends distributed to US parent companies are subject to withholding tax in 11 EU member states at rates between 5% and 12%. We assume that the 3% average withholding tax rate for dividends paid from EU member state companies to US companies applies to dividend payments from Average to the US. The US levies withholding taxes on dividend payments to parent companies in most EU member states. The respective tax rates vary between 5% and 30%. The average value of 6% is assumed to apply for dividends distributed from a US company to its parent company resident in Average.

Table 3 shows that most (20) EU member states do not levy any withholding taxes on interest payments to 100% US-affiliated companies. In the other eight countries the withholding tax rates range from 5% to 15% and are always lower than the countries' corporate tax rates. On average, the withholding tax rate for interest payments from

[25] For an overview on the tax parameters, see Spengel et al. (2015).

[26] The domestic and treaty withholding tax rates are obtained from the ibfd tax research platform. Please note that some domestic withholding tax rates assumed in this study differ from the withholding tax rates reported by the study of Ramboll Management Consulting and Corit Advisory (2015). Differences result from specific assumptions underlying the tax planning structures considered in this study. For Cyprus, we assume a 10% domestic withholding tax on royalties as the IP rights in our tax planning structure are used within Cyprus and not abroad. For Ireland, a zero percent withholding tax rate on dividend payments to Offshore no treaty applies because in the tax planning strategies, the intermediary company is always controlled by persons who are resident in another EU Member State or in a tax treaty state. For Malta, we assume a zero percent withholding tax rate on interest and royalties because the recipient of the respective payments is not controlled by individuals resident in Malta. For Luxembourg, we consider a zero percent withholding tax rate on interest as higher withholding tax rates in Luxembourg only apply to special kinds of interest.

EU member states to the US amounts to 3%. This rate is assumed to apply to interest payments from the US to Average. Intra-group interest payments from the US to 16 EU member states are free of withholding tax. For intra-group payments to companies resident in the other 12 EU member states, the withholding tax rates range between 5% and 30%. The 30% US corporate income tax rate only applies for payments to Croatian related companies. This is due to a missing tax treaty between the US and Croatia. On average, the withholding tax rate for intra-group interest payments made from US companies to companies resident in EU member states is 5%. In our calculations, this value is considered for interest payments from Average to the US.

The US exempts royalty payments made by US companies to recipients in 14 EU member states. For the other countries the rates range between 5% and 30%. In total, the EU average value for intra-group royalty payments received from US companies is 5%. This rate is assumed to apply to royalty payments from the US to Average. Withholding taxes on royalties paid from Average to the US are not relevant for the tax planning strategies considered in this report.

Most of the 29 countries apply high withholding taxes on dividends, interest and royalties paid to specified low-tax countries or listed tax havens with which no tax treaty has been concluded. The rates for dividends range between 10% and 35% and the rates for interest and royalty payments range between 10% and 75%. Only Hungary, Luxembourg, Malta and the Netherlands do not levy withholding taxes on royalties irrespective of the recipient country. These countries also generally exempt interest. Additionally, Austria, Cyprus, Germany, Estonia, Finland and Sweden exempt interest from withholding taxes irrespective of the recipient country. Dividends distributed to countries with which no tax treaty has been concluded are only tax-exempt in Cyprus, Estonia, Hungary, Ireland, Malta, Slovakia and the UK. Hence, only in Hungary and Malta no withholding taxes apply to either type of the three different intra-group payments.

Table 2: WHT on dividends 2015 (in %)

From/to	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	US	Average	Offshore treaty	Offshore no treaty
AT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	25
BE	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
BG	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5
CY	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CZ	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	35
DE	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26.38
DK	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
EE	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EL	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
ES	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	19.5
FI	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
FR	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
HR	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12
HU	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	26
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	15
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	15
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	15
PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	5	0	0	19
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	5	0	0	35
RO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	10	0	0	16
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	30
SI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	5	0	0	15
SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
US	5	0	5	5	5	0	0	5	30	10	0	0	30	5	5	5	5	5	5	5	0	5	5	10	0	5	5	0		6	0	30
Average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
Offshore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Table 3: WHT on interest 2015 (in %)

From/to	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	US	Average	Offshore treaty	Offshore no treaty
AT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BE	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
BG	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	10
CY	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CZ	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
DE	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
EE	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EL	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15
ES	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	19.5
FI	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75
HR	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	20
HU	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
IT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	26
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	15
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	20
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	10	0	0	35
RO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	10	0	0	50
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0
SI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	5	0	0	15
SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	35
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	20
US	0	0	5	10	0	0	0	10	0	10	0	0	30	0	0	10	10	0	10	10	0	0	10	10	0	5	0	0		5	0	30
Average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
Offshore	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Table 4: WHT on royalties 2015 (in %)

From/to	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	US	Average	Offshore treaty	Offshore no treaty
AT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
BE	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
BG	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	10
CY	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
CZ	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	35
DE	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15.825
DK	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
EE	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
EL	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
ES	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	24
FI	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
FR	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75
HR	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	20
HU	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
IT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	22.5
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	10	0	0	10
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	15
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	10	0	0	20
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	10	0	0	35
RO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	15	0	0	50
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	21.48
SI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	5	0	0	15
SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	10	0	0	35
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	20
US	0	0	5	0	10	0	0	10	0	10	0	0	30	0	0	8	10	0	10	10	0	10	10	15	0	5	10	0		5	0	30
Average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			
Offshore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

3.4.2 Taxation of intercompany dividends

Table 5 gives an overview of the tax treatment of intercompany dividends in the EU member states and the US. Most countries considered in this study apply the exemption method to intercompany dividends. Only Ireland and the United States generally apply the credit method to all foreign intercompany dividends. Bulgaria, Greece and Poland restrict the application of the exemption method to dividends received from other EU member states and apply the credit method in all other cases. Finland and Romania exempt only dividends distributed by companies resident in EU member states and countries with which a tax treaty has been concluded. Moreover, most EU member states have implemented switch-over clauses that apply in case of low taxation, due to a lack of economic substance of the subsidiary or similar reasons.[27]

In the two countries that generally apply the credit method, Ireland and the United States, underlying corporate income tax paid by direct and lower tier subsidiaries can be credited. Poland credits underlying corporate income tax in case of dividends received from treaty countries. The other countries that generally apply the credit method to dividends received from companies not resident in the EU member states or treaty states do not credit underlying corporate income tax. Of the countries that apply a switch-over clause, only Austria, Spain and Portugal credit underlying corporate income tax paid abroad against domestic income tax.

Table 5: Taxation of dividends in the EU member states and the US 2015

	Credit method	Exemption method	Switch-over clause	Credit of underlying CIT
AT		x	x	x
BE		x	x	
BG	x (non-EU)	x (EU)		
CY		x	x	
CZ		x	x	
DE		x		
DK		x		
EE		x	x	
EL	x (non-EU)	x (EU)		
ES		x	x	x
FI	x (non-treaty)	x (EU + treaty)	x	
FR		x	x	
HR		x		
HU		x	x	
IE	x		x (higher tax rate)	x
IT		x	x	
LI		x	x	
LU		x	x	
LV		x	x	
MT		x		
NL		x	x	
PL	x (non-EU)	x (EU)		x (treaty)
PT		x	x	x
RO	x (non-treaty)	x (EU + treaty)	x	
SE		x	x	
SI		x	x	
SK		x		
UK		x		
US	x			

[27] For a detailed overview on these rules see Maisto (2012).

3.4.3 IP-box regimes in the EU member states

In 2015, 11 EU member states offered a preferential tax treatment of income from certain intangibles. The key element of these IP-Box regimes is an effective tax rate for specific types of IP income, which is significantly lower than the general corporate income tax rate in the respective countries. In the EU, the effective IP-box tax rates range from 0% in Malta to 21.9% in Italy.[28]

Besides the IP-box tax rates, the IP-box regimes also differ with respect to the types of qualifying IP, the types of qualifying IP income and the treatment of current and past IP-related expenses.

The Devereux-Griffith model considers intangibles in the form of patents acquired from third parties. To be in line with the basic assumptions of the model, we assume that SUBSPB acquires a patent which qualifies for beneficial treatment under all 11 EU IP-Box regimes. In nine of the 11 IP-Box countries, acquired IP in fact benefits from low-taxation under the IP-box regimes subject to certain conditions. Since considering self-developed IP would yield identical or even lower CoC and EATR and since there are usually possibilities to work around the self-development criterion, the assumption of a qualifying acquired patent in Portugal and Italy should not bias our results.

In all considered EU member states listed in Table 6, royalties qualify for the reduced effective tax rate of the IP-box regimes. Only five countries additionally include income from the sale of patented products or notional royalties. As SUBSPB receives royalty income, all IP-box regimes in EU member states are applicable to the income of SUBSPB.

Concerning the treatment of current and past expenses, the IP-box countries apply two different approaches, the net and the gross approach. In most countries current expenses can only be deducted at the IP-box tax rate, hence the net income is taxed at the favorable IP-box tax rate. On the contrary, some countries apply the IP-box tax rate to the gross IP income, allowing deducting current expenses at the general corporate income tax rate. In the Devereux/Griffith model, the only current expenses considered are interest payments. Four EU IP-box countries apply the gross approach to interest payments related to IP income. Concerning past expenses, all 11 countries require the capitalization of acquired IP. They differ, however, with respect to the treatment of the related depreciation expenses. While depreciation expenses are deductible from IP-box income in most countries (net approach), some countries allow the deduction of these expenses from other income taxed at the higher general corporate income tax rate (gross approach). Among the 11 EU IP-box countries, only Hungary and Portugal apply the gross approach to depreciation of the intangible asset. An asymmetric treatment of income and current and past expenses that applies under the gross approach further increases the attractiveness of IP-box regimes.

[28] The overview on IP-box-regimes is based on Evers (2014) and the country information available on the ibfd tax research platform. With respect to France, the IP-box tax rate of 18.34% results by cumulatively considering the 15% IP-box tax rate, the exceptional tax surcharge, the social surcharge and local taxes. For Italy, the IP-box tax rate is 70% of the corporate income tax and the local tax IRAP. With respect to Portugal, the IP-box tax rate is 50% of the corporate income tax increased by the state surtax and the municipal surtax. For Spain, the IP-box tax rate results from taking 40% of the corporate income tax rate and adding the effective tax rate for the local business tax IAE.

Table 6: IP-box regimes in the EU member states 2015

	IP-box tax rate (%)	Acquired IP	Royalties	Sales income/notional royalties	Gross approach for interest	Gross approach for depreciation
BE	6.8	x[a]	x	x	x	
CY	2.5	x	x			
ES	17.86	x[b]	x			
FR	18.34	x[c]	x			
HU	9.5	x	x		x	x
IT	21.9		x	x		
LU	5.84	x[c]	x	x		
MT	0	x[c]	x			
NL	5	x[a]	x	x		
PT	14.75		x		x	x
UK	10	x[a]	x	x	x	

a= under the condition of further development/improvement by the taxpayer;
b= 25% of the costs must have been borne by the taxpayer;
c= acquired from a third party

4 Adaption of the formulas of the Devereux/Griffith model

The starting point of the Devereux/Griffith model is the change in firm value in period t due to an increase in the capital stock of one unit in period t that is reversed in the next period (t+1). The basic formulas underlying the Devereux/Griffith model for cross-border settings with a parent company and its subsidiary located in different countries have been established in prior studies. Thereby the starting point is always the post-tax rent attributable to an investment of the subsidiary financed with retained earnings (R^{RE}). As the tax consequences differ with respect to different forms of company financing, the baseline formula has to be modified in case of equity or debt financing of the subsidiary by adding the present value of equity or debt financing, respectively ($R^{RE} + F$).

4.1 Necessary modifications for implementing tax planning strategies 1 to 4

The tax planning strategies 1-4 imply profit shifting via interest payments. Accordingly, the investment of SUBS is financed with debt received from OFFSHORE/AVERAGE. Therefore, the formula for the present value of debt financing has to be added to the basic formula for the post-tax rent attributable to an investment of the subsidiary financed with retained earnings to receive the total post-tax rent.

$$R = R^{RE} + R^{DE}$$

In scenarios 1-4, we assume that SUBS has no retained earnings but that all former marginal profits have been channeled to OFFSHORE/AVERAGE. As SUBS itself has no retained earnings and the funds for the investment, the interest payments and the

profits are channeled via a third company (OFFSHORE/AVERAGE), the basic formulas for both R^{RE} and R^{DE} have to be combined and modified.

4.1.1 Basic formulas

In a cross-border setting (MNE and SUBS are located in different countries) in the basic Devereux/Griffith model, the formula for retained earnings financing is defined as follows:

$$(1)\quad R^{RE} = -(1-\sigma_{SP})(1-A_S) + \frac{(1-\sigma_{SP})(p+\delta)(1-\tau_S)(1+\pi)}{(1+\rho)} + \frac{(1-\sigma_{SP})(1-\delta)(1-A_S)(1+\pi)}{(1+\rho)}$$

Term 1 of formula 1 depicts the waiver of dividends in period t at the level of MNE due to the earlier investment. The funds required for financing the investment are 1 less the present value of tax savings from depreciation of the acquired asset (A_S). σ_{SP} represents the tax burden on dividends paid by SUBS to MNE.

Term 2 models the additional dividends in period t+1 at the level of MNE arising from the after tax cash flow of the investment. p is the real return of the investment and δ denotes the economic depreciation, τ_S is the corporate income tax rate in the subsidiary country. ρ is the discount factor.

Term 3 of formula 1 measures the additional dividend in t+1 at the level of MNE that results from saving a substitute investment because the investment was preponed by one period.

The formula for the present value of debt financing of the subsidiary R^{DE} used in the Devereux/Griffith model reflects the tax savings from debt financing or alternative scenarios. In a cross-border setting (MNE and SUBS are located in different countries) the present value of debt financing of the subsidiary as currently implemented in the baseline scenario of the DG-model is

$$R^{DE} = -\sigma_{SP}(1-\tau_S\varnothing_{S0}) + \frac{\sigma_{SP}(1-\tau_S\varnothing_{S0})}{1+\rho} + \frac{i(1-\omega_{SP})(1-\tau_S\varnothing_{S0})}{1+\rho}$$

(2)

$$-\frac{(1-\sigma_{SP})i(1-\tau_S)(1-\tau_S\varnothing_{S0})}{1+\rho}$$

The funds required for financing the investment are one minus immediate depreciation of the acquired asset $(1-\tau_S\varnothing_{S0})$. These are provided via a loan from MNE to SUBS. In comparison to the case where the investment is financed with retained earnings of the subsidiary, the parent in period t pays an additional amount of $(1-\tau_S\varnothing_{S0})$ and receives an additional dividend of $(1-\tau_S\varnothing_{S0})(1-\sigma_{SP})$, resulting in a net extra cost of $-\sigma_{SP}(1-\tau_S\varnothing_{S0})$ (term 1 of formula 2). The repayment of the loan by the subsidiary in period t+1 results in a corresponding correction term of $\sigma_{SP}(1-\tau_S\varnothing_{S0})$ at the level of the parent company (term 2 of formula 2). In addition, the parent company receives

interest income from the loan (term 3 of formula 2). ω_{SP} denotes the tax burden on interest income at the level of the parent company. However, the interest payments reduce the dividend payment received from the subsidiary by $(1-\sigma_{SP})i(1-\tau_S)(1-\tau_S\varnothing_{S0})$ (term 4 of formula 2). τ_S captures the deductibility of interest payments from the subsidiary´s tax base.

4.1.2 RE-Financing of OFFSHORE/AVERAGE

In tax planning strategies 1-4 SUBS receives debt financing from OFFSHORE/AVERAGE instead of MNE. The funds given as debt from OFFSHORE/AVERAGE to SUBS may either be taken out of retained earnings of OFFSHORE/AVERAGE or may result from new equity or debt contribution from MNE. For the case of retained earnings financing of OFFSHORE/AVERAGE, we combine formulas 1 and 2 and modify them to

$$
\begin{aligned}
R^{REoff/avg} = & -(1-\sigma_{OP})(1-\tau_S\varnothing_{S0}) + (1-\sigma_{SO})(1-\sigma_{OP})(A_S-\tau_S\varnothing_{S0}) \\
& + \frac{(1-\sigma_{SO})(1-\sigma_{OP})(p+\delta)(1-\tau_S)(1+\pi)}{(1+\rho)} + \frac{(1-\sigma_{SO})(1-\sigma_{OP})(1-\delta)(1-A_S)(1+\pi)}{(1+\rho)} \\
& + \frac{(1-\sigma_{OP})(1-\tau_S\varnothing_{S0})}{(1+\rho)} - \frac{(1-\sigma_{SO})(1-\sigma_{OP})(1-\tau_S\varnothing_{S0})}{(1+\rho)} \\
& + \frac{i(1-\tau_S\varnothing_{S0})(1-\omega_{SO})(1-\sigma_{OP})}{(1+\rho)} - \frac{i(1-\tau_S\varnothing_{S0})(1-\tau_S)(1-\sigma_{SO})(1-\sigma_{OP})}{(1+\rho)}
\end{aligned}
\tag{3}
$$

The first difference compared to the basic formula for R^{RE} is that term 1 of formula 1 is now split up into two parts. Under tax planning strategies 1-4, opposed to our baseline scenario, OFFSHORE/AVERAGE instead of SUBS has retained earnings which are used to finance the investment and are forwarded to SUBS as debt. Thus, there is a reduction in dividends paid from OFFSHORE/AVERAGE to MNE in period t. The financial demand of SUBS for the investment equals one minus the tax savings from immediate depreciation $(1-\tau_S\varnothing_{S0})$. This amount is given to SUBS as debt and reduces the dividend payments from OFFSHORE/AVERAGE to MNE (term 1 of formula 3). The tax burden on dividends paid from OFFSHORE/AVERAGE to MNE is denoted by σ_{OP}.[29] The present value of tax savings from depreciation reduced by the tax savings from immediate depreciation, which are used for the investment, increases the firm value of SUBS and results in an additional dividend paid from SUBS to OFFSHORE/AVERAGE (term 2 of formula 3). All values of SUBS are first distributed to OFFSHORE/AVERAGE and then forwarded to MNE. Hence, different to the base case

[29] For credit countries, σ_{OP} depends on the taxation of distributed profits in OFFSHORE/AVERAGE. As distributed profits stem from both interest and dividends received by OFFSHORE/AVERAGE and these two types of income may be taxed differently, we simplifying assume that 90% of the distributed income of OFFSHORE/AVERAGE is attributable to interest and 10% is attributable to dividends received in case of marginal investments. For profitable investments, we assume that 35% of the distributed profit stems from interest and 65% stems from dividends.

scenario, those values are multiplied by $(1-\sigma_{SO})(1-\sigma_{OP})$, where σ_{SO} denotes the tax burden on dividends paid from SUBS to OFFSHORE/AVERAGE. Except for this different distribution factor, terms 2 and 3 of formula 1 remain unchanged (see terms 3 and 4 of formula 3).

In addition, similar to formula 2, the effects of the loan at the level of both SUBS and OFFSHORE/AVERAGE have to be taken into account. In period t+1, the loan payback to OFFSHORE reduces the firm value of SUBS measured at the level of MNE by $(1-\sigma_{SO})(1-\sigma_{OP})(1-\tau_S\varnothing_{S0})$ (term 6 of formula 3) and increases the firm value of OFFSHORE measured at the level of MNE by $(1-\sigma_{OP})(1-\tau_S\varnothing_{S0})$ (term 5 of formula 3). The effect of the interest payments on the loan is modelled by terms 7 and 8 of formula 3. Term 7 considers the interest income of OFFSHORE/AVERAGE after taxes. ω_{SO} denotes the tax burden on interest in OFFSHORE/AVERAGE. Term 8 refers to the decrease in dividends paid from SUBS via OFFSHORE/AVERAGE to MNE resulting from the interest payments. Here also the tax shield generated by the deductibility of interest payments from the tax base of SUBS is considered.

Formula 3 equally applies to tax planning strategies 1-4 for retained earnings financing of OFFSHORE/AVERAGE. If OFFSHORE/AVERAGE is financed with new equity or debt, $R^{NEoff/avg}$ and $R^{DEoff/avg}$ have to be added to $R^{REoff/avg}$.

4.1.3 NE-Financing of OFFSHORE/AVERAGE

If OFFSHORE/AVERAGE is financed with new equity from MNE, $R^{NEoff/avg}$ has to be added to formula 3. $R^{NEoff/avg}$ is given by:

$$(4) \qquad R^{NEoff/avg} = -\sigma_{OP}(1-\tau_S\varnothing_{S0}) + \frac{\sigma_{OP}(1-\tau_S\varnothing_{S0})}{1+\rho}$$

The first term takes account of the fact that different to retained earnings financing of the subsidiary, a dividend is distributed in period t. However, the equity financing reduces the income of the parent company compared to retained earnings financing by $(1-\tau_S\varnothing_{S0})$. Term 2 of formula 4 considers that MNE foregoes a dividend in period t+1 compared to retained earnings financing, as the new equity is paid back to MNE in t+1. The only change compared to the basic formula for R^{NE} is that MNE contributes capital to OFFSHORE/AVERAGE instead of SUBS and receives or foregoes dividends from OFFSHORE/AVERAGE. Hence, σ_{OP} applies instead of σ_{SP}.

4.1.4 DE-Financing of OFFSHORE/AVERAGE

If OFFSHORE/AVERAGE is financed with debt from MNE and forwards this debt as debt to SUBS, $R^{DEoff/avg}$ has to be added to $R^{REoff/avg}$. $R^{DEoff/avg}$ is given by:

$$R^{DEoff/avg} = -\sigma_{OP}(1-\tau_S \varnothing_{S0}) + \frac{\sigma_{OP}(1-\tau_S \varnothing_{S0})}{1+\rho} - \frac{(1-\sigma_{OP})i(1-\tau_O)(1-\tau_S \varnothing_{S0})}{1+\rho}$$

(5)

$$+\frac{i(1-\omega_{OP})(1-\tau_S \varnothing_{S0})}{1+\rho}$$

With respect to terms 1-2 the same applies as for equity financing (see Section 4.1.3). In addition, two more terms have to be added to the formula. Term 3 refers to the reduction of dividend payments due to interest payments made from OFFSHORE/AVERAGE to MNE. τ_O captures the deductibility of interest payments from the tax base of OFFSHORE/AVERAGE. Term 4 adds the interest income of MNE received from OFFSHORE/AVERAGE to the formula. The taxes on interest ω_{OP} reduce the interest income.

4.1.5 Additional modifications for tax planning strategies 3 and 4

For tax planning strategies 3 and 4 that consider a hybrid loan, the main difference to tax planning strategies 1 and 2 is that in term 7 of formula 3, ω_{SO} is replaced by σ_{SOhyb}, which denotes the combined tax burden on the interest payment from SUBS to OFFSHORE/AVERAGE, considering withholding taxes on interest in the country of SUBS and the taxation of dividend income in the country of OFFSHORE/AVERAGE.

4.2 Necessary modifications for implementing tax planning strategies 5 to 7

Under tax planning strategies 5 to 7, profits are not shifted via debt financing but via royalty payments. While SUBS continues to invest in four of the five assets considered in the Devereux/Griffith model, IPOFFSHORE/IPAVERAGE/SUBSPB invests in the intangible asset instead of SUBS. Hence, only the formulas for the investment in the intangible asset have to be modified.

For the investment in the intangible asset mainly the baseline net present value formula for R^{RE} (see formula 1) has to be adapted as follows:

$$R^{RE_{IP}} = -(1-\sigma_{OP})(1-A_O) + \frac{(1-\sigma_{OP})(p+\delta)(1-\tau_O)(1-\pi)x}{1+\rho}$$

(6)

$$+\frac{(1-\sigma_{SP})(p+\delta)(1-\tau_S)(1+\pi)(1-x)}{1+\rho} + \frac{(1-\sigma_{OP})(1-\delta)(1-A_O)(1+\pi)}{1+\rho}$$

While IPOFFSHORE/IPAVERAGE/SUBSPB invests in the intangible asset, SUBS generates profits using the asset. An amount x of this profit is shifted to IPOFFSHORE/IPAVERAGE/SUBSPB via royalty payments for the use of the intangible asset. In our calculations we assume that all profits arising from the use of the IP are paid out as royalties (x =100%). Thus the profit earned at the level of SUBS is split up into after royalty profits of SUBS and royalty income of IPOFFSHORE/IPAVERAGE/SUBSPB. Both after tax profits are distributed to the parent company (MNE). To model this, terms 1 and 3 of the baseline formula (formula 1)

remain basically unchanged (see terms 1 and 4 in formula 6). Term 2 is split up into two terms. Term 2 in formula 6 refers to the share of profit x that is shifted from SUBS to IPOFFSHORE/IPAVERAGE/SUBSPB via royalty payments. Term 3 in formula 6 refers to the after royalty profit that is distributed directly to MNE.

If IPOFFSHORE/IPAVERAGE/SUBSPB is financed with new equity or debt, the financing formulas for either new equity or debt have to be added to this modified $R^{RE_{IP}}$ to receive the total post tax rent. The baseline formulas for new equity and debt financing remain unchanged. However, different to the baseline scenario, the parameters for dividend and interest payments between IPOFFSHORE/IPAVERAGE/SUBSPB and MNE instead of SUBS and MNE apply.

5 Baseline results: Tax-efficient direct financing

To show the effects of the tax planning strategies covered in this study, we compare the resulting cost of capital (CoC) and effective average tax rates (EATR) to the cross-border results calculated in the 2015 effective tax rates report prepared for the European Commission.[30] As baseline results we take the minimum values of retained earnings (RE), new equity (NE) and debt financing (DE) of the subsidiary. In both the baseline calculations and the tax planning calculations we assume that the parent company is refinanced by a weighted average (i.e. 55% RE, 10% NE and 35% DF, see Section 2) across all three financing alternatives.

The tables summarizing the financing specific and the most tax-efficient CoC and EATRs for direct cross-border inbound and outbound investments for the 29 countries (baseline results without tax planning) are listed in Section A of the annex which can be found in a separate document.

From a theoretical perspective, the CoC of cross-border investment reflects the differences in the optimal investment volume conditional on location choice. In other words, the lower the CoC, the higher the investment volume of the respective subsidiary compared to other subsidiaries of the parent company. Moreover, CoC is an indicator for the competitiveness of companies producing in the host economy as they codetermine lower price limits of supplied goods and services. EATR on the other hand are relevant if companies have to make a discrete choice of where to allocate profitable investment. From a theoretical perspective, other things held constant, a parent company will invest in the subsidiary host country with the lowest EATR.

As a basic principle, the most tax-efficient source of financing of the subsidiary depends on the relation between the tax rates in the parent and in the subsidiary country. If the corporate income tax rate in the country of the subsidiary is higher than in the parent country, debt financing is the most favorable financing alternative. For marginal investments financed by debt, the tax level in the parent country is decisive as profits are shifted from the subsidiary country to the parent country. For profitable investments the effect is less pronounced since the positive net present value is not shifted via interest but is instead taxed at the level of the subsidiary and distributed as a dividend to the parent. Nevertheless, the advantage stemming from shifting part of the profit to the low-tax parent country usually still makes debt financing of high-tax country subsidiaries favorable compared to other financing alternatives.

If the corporate income tax rate in the country of the subsidiary is lower than in the parent country, financing the investment with retained earnings is usually the most tax-efficient alternative. In case of marginal investments financed by retained earnings, the tax burden is primarily determined by the corporate income tax rate in

[30] See Spengel et al. (2015).

the subsidiary country. For profitable investments financed by retained earnings, dividend taxes that potentially reduce the profit shifting advantage also play a role. Differences between retained earnings and new equity financing of the subsidiary arise if dividends are only partially tax-exempt in the parent country or if the parent country applies the indirect tax credit method to dividend income and at the same time, the tax level in the parent country is higher than the tax level in the subsidiary country. In these cases, the CoC and the EATR of new equity financing of the subsidiary exceed the CoC and EATR of retained earnings financing of the subsidiary. In the other cases, retained earnings and equity financing of the subsidiary result in the same CoC and EATR. If retained earnings and new equity financing of the subsidiary result in the same CoC and EATR, we refer to retained earnings financing as the most tax-efficient way of financing.

Table 7 lists the mean CoC and EATR for each country averaged over all partner countries for in- and outbound investments using the most tax-efficient way of financing the subsidiary.

Table 7: Mean CoC and EATR - Direct cross-border investment (in %)

Outbound						Inbound					
	CoC	CIT		EATR	CIT		CoC	CIT		EATR	CIT
US	5.3	37.9	**BG**	19.3	10.0	**EE**	4.4	20.0	**BG**	8.8	10.0
IT	5.3	31.3	**IT**	19.5	31.3	**IT**	4.9	31.3	**EE**	13.2	20.0
BG	5.3	10.0	**MT**	19.6	35.0	**BG**	5.0	10.0	**LT**	13.6	15.0
FR	5.5	38.9	**LV**	20.1	15.0	**HR**	5.2	20.0	**IE**	14.1	12.5
LV	5.5	15.0	**LT**	20.1	15.0	**BE**	5.3	34.0	**LV**	14.3	15.0
LT	5.5	15.0	**PT**	20.3	29.5	**LT**	5.4	15.0	**RO**	14.8	16.0
BE	5.6	34.0	**LU**	20.3	29.2	**CZ**	5.4	19.0	**CY**	15.3	12.5
MT	5.6	35.0	**UK**	20.4	20.0	**SI**	5.5	17.0	**SI**	15.5	17.0
SI	5.6	17.0	**ES**	20.4	33.4	**RO**	5.5	16.0	**HR**	16.4	20.0
RO	5.6	16.0	**BE**	20.5	34.0	**IE**	5.5	12.5	**CZ**	16.6	19.0
UK	5.7	20.0	**NL**	20.5	25.0	**LV**	5.5	15.0	**PL**	17.5	19.0
PL	5.7	19.0	**FI**	20.5	20.0	**LU**	5.5	29.2	**FI**	18.5	20.0
HU	5.7	20.9	**HU**	20.5	20.9	**SK**	5.6	22.0	**SE**	19.2	21.5
FI	5.7	20.0	**DK**	20.5	23.5	**PL**	5.6	19.0	**HU**	19.3	20.9
CY	5.7	12.5	**PL**	20.5	19.0	**SE**	5.6	21.5	**SK**	19.3	22.0
PT	5.7	29.5	**SE**	20.5	21.5	**CY**	5.6	12.5	**DK**	20.9	23.5
SE	5.7	21.5	**AT**	20.5	25.0	**NL**	5.7	25.0	**UK**	21.4	20.0
LU	5.7	29.2	**RO**	20.6	16.0	**DK**	5.7	23.5	**NL**	21.9	25.0
DK	5.8	23.5	**CY**	20.8	12.5	**FI**	5.7	20.0	**AT**	22.3	25.0
AT	5.8	25.0	**SI**	20.8	17.0	**PT**	5.8	29.5	**IT**	23.0	31.3
NL	5.8	25.0	**CZ**	21.0	19.0	**HU**	5.8	20.9	**LU**	24.2	29.2
HR	5.8	20.0	**HR**	21.1	20.0	**AT**	5.8	25.0	**PT**	25.2	29.5
ES	5.8	33.4	**DE**	21.3	31.0	**MT**	6.0	35.0	**EL**	25.8	29.0
DE	5.8	31.0	**EE**	21.4	20.0	**EL**	6.0	29.0	**BE**	26.7	34.0
CZ	5.8	19.0	**SK**	21.6	22.0	**DE**	6.0	31.0	**DE**	27.1	31.0
EE	5.9	20.0	**IE**	22.2	12.5	**FR**	6.3	38.9	**MT**	29.7	35.0
SK	6.0	22.0	**FR**	22.7	38.9	**UK**	6.4	20.0	**ES**	31.7	33.4
IE	6.1	12.5	**EL**	22.9	29.0	**US**	6.7	37.9	**FR**	35.2	38.9
EL	6.3	29.0	**US**	27.3	37.9	**ES**	7.6	33.4	**US**	36.2	37.9
Ø	**5.7**	**23.6**	**Ø**	**20.9**	**23.6**	**Ø**	**5.7**	**23.6**	**Ø**	**20.9**	**23.6**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; CIT = Corporate Income Tax Rate

The average values for inbound investments over all parent countries given in Table 7 illustrate that in general, low-tax countries are the most attractive investment locations, while high-tax countries such as France or the US are less attractive investment locations. For profitable inbound investments, the ranking of the countries is very similar to the ranking according to the countries' effective statutory profit tax rates (i.e. the statutory profit tax rate increased by surcharges and local profit taxes;

denoted as CIT in Table 7) as taxation in the country of residence of the subsidiary plays a decisive role for profitable investments. The country ranking with regard to the CoC for marginal inbound investments differs more from the respective ranking with regard to the CIT. Here, some high-tax countries like Italy and Belgium are among the countries with the lowest CoC for inbound investments. This is because in case of marginal investments the total profit (and not only part of the profit) can be allocated to the country with the lower tax rate, either by using retained earnings or debt financing which reduces the relevance of the level of taxation in the subsidiary´s country of residence. In addition, tax base effects in the subsidiary country have a strong effect on the CoC and thus marginal investments in high-tax countries that have favorable depreciation rules resulting in high tax savings are particularly attractive under the precondition that they are financed with debt. However, a total mitigation of taxes in high-tax subsidiary countries by means of debt financing is often not achieved due to restrictions for the deductibility of interest payments or the existence of non-profit taxes in the subsidiary country. Hence, also regarding marginal investments, low-tax countries are on average most attractive. With respect to Italy, the low average CoC results from the availability of an allowance for corporate equity (ACE), making retained earnings financing the most favorable source of finance despite Italy's comparably high corporate income tax rate.

Overall, Estonia features the lowest CoC for inbound investments. This implies that subsidiaries resident in Estonia usually have a competitive advantage compared to subsidiaries resident in all other countries. Under retained earnings financing of the Estonian subsidiary, profit taxes can be avoided for a marginal investment, as Estonia does not levy taxes on retained earnings. Only distributed dividends that do not stem from dividends received from qualifying subsidiaries are subject to the 20% corporate income tax rate. For retained earnings financing of profitable investments, dividend taxation also plays a role. Therefore, in case of profitable investments, Bulgaria is on average the most attractive investment location because it offers the lowest nominal corporate income tax rate on distributed profits within the EU (10%).

However, the detailed tables in the annex show that Estonia and Bulgaria are not always the most attractive subsidiary location for marginal and profitable investments, respectively. For US parent companies, investing in an Estonian subsidiary financed by retained earnings is the most attractive investment opportunity in case of both marginal and profitable investments. This is due to the application of the indirect tax credit method to foreign dividends in the US, which means that dividends are taxed at the US corporate income tax rate and underlying foreign income taxes of the subsidiary can be credited. Because of the high US corporate income tax rate, the income taxes levied in Bulgaria and Estonia are fully creditable. Hence, the advantage of the 0% tax rate levied on retained profits in Estonia is not relativized by a lower tax burden on distributed profits in case of an investment in a Bulgarian subsidiary.

For low-tax countries like Bulgaria the most attractive subsidiary country for marginal investments is Belgium under the precondition that the subsidiary is financed with debt. Debt financing of the Belgian subsidiary shifts profits to the low-tax country, while benefiting from tax base reduction effects at the high Belgium tax rate. Non-profit taxes, which cannot be reduced by debt financing, are comparatively low in Belgium and, different to other high-tax countries, do not have a significant effect on the CoC. In addition, the depreciation rates in Belgium are very favorable. In case of profitable investments, Lithuania is the most attractive subsidiary location for Bulgarian parent companies applying debt financing of the subsidiary. Lithuania has a low corporate income tax rate and attractive depreciation rules. As for profitable investments only part of the profits are shifted from the subsidiary to the parent via interest payments, investing in high-tax countries such as Belgium is less attractive

for Bulgarian parent companies in case of profitable investments compared to marginal investments.

For outbound investments, both low- and high-tax countries rank among the most attractive parent company locations. If investments in high-tax countries are considered, the most favorable parent location for both marginal and profitable investments is usually Bulgaria. If the Bulgarian parent company finances the high-tax subsidiary with debt, the full profit will be shifted to Bulgaria which among the countries considered has the lowest tax rate on interest income.

If we focus on marginal investments in low-tax countries, the most attractive parent location is the US. Under retained earnings financing the profits are only taxable in the respective low-tax countries. In addition to that, the advantage from interest deductibility in case of debt refinancing of the parent company is largest in the US, which has the second highest corporate income tax rate among all 29 countries while allowing full interest deduction for tax purposes. In case of a profitable investment, Malta is usually the most attractive parent location for investments in low-tax subsidiaries financed with retained earnings. Malta fully exempts dividends from taxation and thus profits are only taxable in the low-tax countries. Moreover, Malta has one of the highest corporate income tax rates among the 29 countries considered, which results in a significant advantage from debt refinancing of the parent company.

Taken as a whole, the baseline results show that under tax-efficient financing of the subsidiary, the tax burden of a cross-border investment is influenced by both the taxation at the level of the subsidiary and the taxation at the level of the parent company. For marginal investments, the CoC is particularly low if the parent company is subject to very high taxation and the subsidiary is subject to very low taxation. Using retained earnings financing of the subsidiary allows taxation of profits in the low-tax country whilst deducting re-financing costs of the parent at the high tax rate in the parent company's country of residence. Low CoC also results if the parent company is subject to very low taxation, while the subsidiary company is subject to very high taxation and offers favorable depreciation rules. In such a case profits can be shifted via debt to the low-tax parent country while depreciation is deductible in the subsidiary country at the high corporate income tax rate. Thus, there are both countries with very high-tax rates and very low tax rates among the countries with the lowest mean CoC for inbound and outbound investments. For profitable investments, the tax level in the subsidiary country is decisive and thus the attractiveness of countries as investment location generally decreases with an increasing corporate income tax rate.

6 CoC and EATR for different tax planning strategies

6.1 Profit shifting via interest payments

The first two tax planning strategies consider investments in SUBS financed via a loan granted by an intermediate holding company. The intermediate holding company can either be OFFSHORE treaty, OFFSHORE no treaty or AVERAGE. Tax planning strategies 3 and 4 additionally assume that the loan granted to SUBS has a hybrid element resulting in its classification as equity at the level of the intermediate company.

6.1.1 "Financing via Offshore treaty": Loan from OFFSHORE treaty

The first tax planning strategy involves an intermediate company (OFFSHORE treaty) resident in Offshore treaty. The fictitious country Offshore treaty does not levy taxes on dividends, interest and royalties and has concluded tax treaties with all 28 EU member states and the US reducing withholding taxes on these payments to zero. No switch-over clauses apply to dividends received from Offshore treaty. We assume that only in Austria interest payments are fully non-deductible if paid to Offshore treaty (see Section 3.4).

In case of a marginal investment, the investment return of SUBS is shifted to OFFSHORE treaty via interest payments. As the country Offshore treaty does not levy taxes on interest, the marginal return remains untaxed at the level of OFFSHORE treaty. Taxation of dividends or interest at the level of MNE is only relevant if OFFSHORE treaty is financed with new equity or debt. Thus, the advantage from the non-taxation of the marginal investment return is largest for retained earnings financing of OFFSHORE treaty. Table 8 lists the cost of capital (CoC) and effective average tax rates (EATR) for each country averaged over all parent countries for inbound and outbound investments under retained earnings financing of OFFSHORE treaty in comparison to the baseline results summarized in Section 5. The detailed results for all country combinations are included in Section B1 of the annex.

Table 8 shows that all mean CoC for outbound investments are below 5%. This implies that taxes under the considered tax planning strategy generally have a subsidizing effect. The reason for this is that the marginal return of the investment is effectively not taxed anywhere, while tax depreciation of the acquired assets that usually exceeds economic depreciation reduces other profits earned by SUBS. Re-financing costs at the level of MNE result in additional tax savings.

In comparison to direct cross-border outbound investments (baseline scenario), the mean CoC for outbound investments using the tax planning strategy "Financing via Offshore treaty" is lower for all countries because taxation of the marginal return cannot be completely avoided in case of direct investments. As outlined in Section 5, both low-tax and high-tax countries are among the most attractive locations for parent companies in case of direct outbound investments. For the respective high-tax countries the tax-efficient way of subsidiary financing is to make use of retained earnings; for the respective low-tax countries it is the use of debt financing. Opposed to the baseline scenario, the most attractive MNE locations in case of financing of SUBS via OFFSHORE treaty are all high-tax countries and the CoC for outbound investments via Offshore treaty increases with a decreasing corporate income tax rate of MNE. The reason for this difference to the baseline results is that retained earnings financing of OFFSHORE treaty is always most attractive irrespective of MNE´s country of residence. Hence, the differences in CoC for outbound investments only depend on the tax effects of re-financing costs at the level of MNE. The higher the corporate income tax rate and the less restricted interest deductibility in the parent country, the higher the tax advantage stemming from the deductibility of debt re-financing costs of MNE.

This finding can best be illustrated for MNEs resident in countries where interest payments related to tax-exempt dividends are not deductible from the tax base (Romania, the Czech Republic and Slovakia). These countries feature the highest CoC for outbound investments under the tax planning strategy "Financing via Offshore treaty", because re-financing costs for debt financing of MNE do not result in a tax advantage.

Table 8: Mean CoC and EATR - "Financing via Offshore treaty" (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
US	3.0	5.3	**MT**	12.5	19.6	**BE**	3.1	5.3	**BG**	6.4	8.8
EL	3.5	6.3	**ES**	13.3	20.4	**LU**	3.4	5.5	**LT**	9.8	13.6
FR	3.6	5.5	**PT**	13.3	20.3	**HR**	3.6	5.2	**IE**	10.3	14.1
MT	3.7	5.6	**LU**	13.4	20.3	**MT**	3.6	6.0	**LV**	10.5	14.3
BE	3.7	5.6	**AT**	13.6	20.5	**FR**	3.6	6.3	**RO**	10.7	14.8
ES	3.8	5.8	**BE**	13.7	20.5	**PT**	3.6	5.8	**SI**	11.1	15.5
PT	3.8	5.7	**NL**	14.0	20.5	**NL**	3.8	5.7	**CY**	11.2	15.3
LU	3.9	5.7	**DK**	14.2	20.5	**IT**	3.8	4.9	**HR**	11.4	16.4
DE	3.9	5.8	**IT**	14.3	19.5	**SK**	3.8	5.6	**CZ**	11.7	16.6
AT	3.9	5.8	**DE**	14.4	21.3	**CZ**	3.9	5.4	**PL**	12.5	17.5
IT	3.9	5.3	**SE**	14.5	20.5	**DK**	3.9	5.7	**FI**	13.6	18.5
NL	4.0	5.8	**UK**	14.6	20.4	**DE**	3.9	6.0	**SK**	13.8	19.3
DK	4.0	5.8	**FI**	14.7	20.5	**SE**	3.9	5.6	**SE**	13.9	19.2
PL	4.0	5.7	**HR**	14.8	21.1	**EL**	3.9	6.0	**EE**	14.3	13.2
SE	4.1	5.7	**HU**	14.8	20.5	**US**	4.0	6.7	**HU**	14.4	19.3
UK	4.1	5.7	**CY**	15.3	20.8	**PL**	4.1	5.6	**DK**	15.3	20.9
FI	4.1	5.7	**LV**	15.4	20.1	**SI**	4.1	5.5	**NL**	16.1	21.9
HR	4.2	5.8	**LT**	15.4	20.1	**LT**	4.1	5.4	**UK**	16.3	21.4
HU	4.2	5.7	**SI**	15.6	20.8	**FI**	4.1	5.7	**LU**	18.0	24.2
SI	4.2	5.6	**FR**	16.1	22.7	**RO**	4.2	5.5	**PT**	19.1	25.2
IE	4.2	6.1	**EE**	17.1	21.4	**BG**	4.2	5.0	**EL**	19.1	25.8
CY	4.3	5.7	**SK**	17.1	21.6	**HU**	4.2	5.8	**IT**	20.4	23.0
LV	4.3	5.5	**CZ**	17.2	21.0	**IE**	4.2	5.5	**BE**	20.8	26.7
LT	4.3	5.5	**RO**	17.2	20.6	**CY**	4.3	5.6	**DE**	21.1	27.1
BG	4.4	5.3	**IE**	18.0	22.2	**LV**	4.3	5.5	**MT**	23.2	29.7
EE	4.8	5.9	**PL**	19.2	20.5	**EE**	4.3	4.4	**AT**	25.0	22.3
RO	4.8	5.6	**BG**	21.9	19.3	**UK**	4.8	6.4	**ES**	25.4	31.7
CZ	4.8	5.8	**US**	25.0	27.3	**ES**	5.2	7.6	**US**	26.6	36.2
SK	4.8	6.0	**EL**	30.2	22.9	**AT**	6.2	5.8	**FR**	28.6	35.2
Ø	**4.1**	**5.7**	**Ø**	**16.2**	**20.9**	**Ø**	**4.1**	**5.7**	**Ø**	**16.2**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

The mean CoC for inbound investments into all countries, except for Austria and Spain, are also below 5% and, except for Austria, they are lower than the corresponding inbound CoC for direct financing from MNE to SUBS. Differences in the CoC for inbound investments via Offshore treaty arise because the tax effects of depreciation differ across source countries. In addition, a restricted deductibility of interest payments at the level of SUBS causes differences in the values of inbound CoC across countries. The high mean CoC for investments in Austria, which exceeds the mean CoC under optimal direct financing, stems from the application of an anti-avoidance rule that denies the deduction of interest expenses from the tax base, if the corresponding interest income is not subject to an effective taxation of at least 10%.

The ranking of countries according to their inbound CoC in case of financing the subsidiary via Offshore treaty again differs from the ranking according to the baseline results. If the tax planning strategy "Financing via Offshore treaty" is applied, the rank of a country according to inbound CoC values mainly indicates how beneficial tax base regulations in this country are. It shows that particularly high-tax countries with favorable depreciation rules and no interest deduction restrictions, such as Belgium, exhibit the lowest CoC for inbound investments. Consequently, for marginal investments, these countries are most attractive if tax planning via Offshore treaty is used. Low-tax countries, which have on average the lowest CoC for direct inbound investments (baseline scenario), are comparatively less attractive in case of financing the subsidiary via Offshore treaty. Thus, if companies use the tax planning strategy

"Financing via Offshore treaty", this should particularly increase the investment volume in high tax countries with favorable depreciation rules and no interest deduction restriction. In addition, the subsidiaries resident in such countries are likely to become more competitive compared to subsidiaries located in low-tax countries.

However, differences in the CoC only arise due to different effects of tax base reductions for other profits. If there are no other profits or only other marginal profits for which the same tax planning structure is applied, the CoC for marginal investments is even across different MNE and SUBS locations if interest is fully deductible in the country of residence of SUBS.

The EATR results depict that also for profitable investments, retained earnings financing of OFFSHORE treaty is the optimal strategy. Under retained earnings financing, dividend taxes only apply to the return in excess of the marginal return while they apply to the total profit in case of new equity and debt financing of OFFSHORE treaty.

For profitable investments, the tax reducing effect of the tax planning strategy "Financing via Offshore treaty" is less pronounced because only part of the profit escapes profit taxation at the level of SUBS. Nevertheless, the EATR for outbound investments is lower for most countries in case of tax planning compared to direct financing from MNE to SUBS. This stems from the fact that opposed to the baseline scenario, the marginal return is tax-exempt while the rest of the profit is taxed identically under the considered tax planning strategy and direct financing. Only outbound investments from countries that apply the credit method to dividends received from OFFSHORE treaty but do not credit underlying corporate income taxes of lower tier group companies yield higher mean EATRs compared to the baseline results. For MNEs resident in such credit countries (in our study Bulgaria and Greece), the advantage of low taxation of the marginal return is overcompensated by the additional tax payments on the excess return. Different to the case of a direct holding of SUBS by MNE, taxes paid at the level of SUBS cannot be credited in the country of MNE if dividends are received via OFFSHORE treaty. Hence, for MNEs resident in these two countries, shifting all profits via OFFSHORE treaty is no attractive alternative to direct financing. However, using a financing company resident in Offshore treaty while directly holding the participation in SUBS will also reduce the EATR for investments from these countries below the EATR under direct financing. This particular case is not modelled in this report.

Compared to the case of direct financing, major differences in terms of the attractiveness of countries as parent location for profitable outbound investments result for low-tax countries that apply the credit method to dividends received from Offshore treaty but not to dividends from EU countries, such as Bulgaria, Greece and Poland. Differences between the outbound EATRs in case of "Financing via Offshore treaty" for countries that generally exempt dividends from taxation arise from the potential inclusion of 5% of the dividends. In addition, low-tax countries usually face slightly higher mean outbound EATRs as more investments in countries with a high tax rate are considered when calculating the average across all subsidiary countries.

The mean EATRs for inbound investments imply that, except for Austria and Estonia, the attractiveness of countries for profitable inbound investments of foreign investors on average increases if the tax planning strategy "Financing via Offshore treaty" is used instead of direct financing of the investment. The lower mean EATRs are driven by the results for investments from MNEs residing in countries that exempt foreign dividends and countries that credit underlying corporate income taxes of lower tier subsidiaries. The ranking of the countries according to the mean EATR values for inbound investments and thus the location attractiveness of countries for profitable investments is similar to the baseline scenario. Opposed to marginal investments, the

attractiveness of high-tax countries as investment location decreases because the negative effect of high profit taxation cancels out the advantage from high tax depreciation.

Taken as a whole, tax planning via Offshore treaty reduces the mean CoC by 1.6 percentage points from 5.7% to 4.1% and the mean EATR by 4.7 percentage points from 20.9% to 16.2%. Hence, cross-border investments are on average taxed less when financed via Offshore treaty. For marginal investments, high-tax countries become more attractive as a location for both parent and subsidiary companies of multinational firms if the tax planning strategy "Financing via Offshore treaty" is applied. In case of profitable investments, similar to the baseline scenario, low-tax countries remain on average more attractive as an investment location compared to high-tax countries. For MNEs resident in countries that apply the credit method to dividends but do not credit corporate income taxes of lower tier subsidiaries, holding SUBS via OFFSHORE treaty generally increases the tax burden of profitable investments compared to the case of a direct investment from MNE in SUBS. For Austria, the non-deductibility of the interest payments due to the low effective taxation of the interest income in Offshore treaty also makes the tax planning strategy "Financing via Offshore treaty" unattractive. Hence, it depends on the profitability of an investment, the taxation of dividends in the country of residence of the parent company and the deductibility of interest in the subsidiary country whether the use of the tax planning strategy "Financing via Offshore treaty" results in a tax advantage and is thus beneficial.

6.1.2 "Financing via Offshore no treaty": Loan from OFFSHORE no treaty

In the following, the effects of withholding taxes on interest and dividends and switch-over clauses for dividends on the CoC and EATR for the tax planning strategy "Financing via Offshore" are discussed. In this variation of the first tax planning strategy, the intermediate company is resident in Offshore no treaty. Offshore no treaty does not levy any taxes on income and has not concluded tax treaties with the 28 EU member states and the US. Hence, withholding taxes on interest and dividends levied according to the domestic tax law in the country of residence of SUBS apply (see Section 3.4.1). In addition, switch-over clauses that trigger the inclusion of dividends in the taxable income are assumed to apply in case of tax planning via Offshore no treaty (see Section 3.4.2). Moreover, rules that deny the deduction of interest expenses from the tax base if the interest income is tax-exempt and which cannot be mitigated by proofing economic substance of the payments are considered under this tax planning strategy. Such rules apply in Austria, Slovenia and Sweden.

The first difference compared to the results described in Section 6.1.1 is that if the intermediate company is resident in Offshore no treaty, the marginal return usually cannot be shifted tax-free to the tax-exempt country. This is due to the withholding taxes that most considered countries of residence of SUBS levy on interest payments to non-treaty countries. Also the non-deductibility of interest payments in Slovenia and Sweden which is assumed to apply only under "Financing via Offshore no treaty" significantly increases the tax burden of the marginal return for investments in these countries. In addition, withholding taxes on dividends paid from SUBS to OFFSHORE no treaty and the switch-over to the credit method from the exemption method for dividends received by MNE which applies in many countries increase the tax burden of the excess return.

Table 9: Mean CoC and EATR - "Financing via Offshore no treaty" (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
FR	4.3	5.5	**MT**	28.4	19.6	**LU**	3.1	5.5	**CY**	19.9	15.3
BE	5.0	5.6	**DK**	29.3	20.5	**DE**	3.4	6.0	**BG**	21.5	8.8
US	5.1	5.3	**DE**	29.6	21.3	**MT**	3.4	6.0	**EE**	22.2	13.2
EL	5.5	6.3	**HR**	30.2	21.1	**NL**	3.5	5.7	**HU**	22.4	19.3
LU	5.5	5.7	**UK**	30.3	20.4	**FI**	3.8	5.7	**IE**	24.5	14.1
ES	5.5	5.8	**AT**	32.0	20.5	**HU**	4.1	5.8	**LT**	28.7	13.6
IT	5.5	5.3	**PT**	32.3	20.3	**CY**	4.1	5.6	**UK**	29.6	21.4
PT	5.6	5.7	**SK**	32.6	21.6	**EE**	4.1	4.4	**MT**	29.9	29.7
MT	5.8	5.6	**US**	33.1	27.3	**LT**	4.8	5.4	**NL**	30.5	21.9
NL	5.8	5.8	**IE**	33.9	22.2	**BG**	4.9	5.0	**LV**	30.5	14.3
AT	6.0	5.8	**ES**	34.1	20.4	**HR**	5.3	5.2	**FI**	31.2	18.5
SE	6.0	5.7	**BG**	36.1	19.3	**SE**	5.3	5.6	**HR**	31.2	16.4
DE	6.1	5.8	**CZ**	36.1	21.0	**EL**	5.3	6.0	**SK**	31.4	19.3
CZ	6.1	5.8	**LV**	37.2	20.1	**LV**	5.5	5.5	**LU**	31.9	24.2
DK	6.1	5.8	**LT**	37.3	20.1	**IE**	5.8	5.5	**EL**	34.8	25.8
PL	6.1	5.7	**SI**	37.6	20.8	**AT**	5.8	5.8	**SI**	35.3	15.5
FI	6.1	5.7	**PL**	38.2	20.5	**PL**	5.9	5.6	**PL**	35.4	17.5
HU	6.2	5.7	**CY**	38.3	20.8	**BE**	6.2	5.3	**DE**	39.7	27.1
SI	6.2	5.6	**FI**	38.7	20.5	**UK**	6.4	6.4	**SE**	41.0	19.2
UK	6.2	5.7	**HU**	38.7	20.5	**DK**	6.6	5.7	**RO**	41.2	14.8
HR	6.3	5.8	**SE**	38.8	20.5	**SI**	6.7	5.5	**AT**	41.4	22.3
CY	6.4	5.7	**RO**	39.0	20.6	**SK**	6.8	5.6	**DK**	43.1	20.9
LV	6.4	5.5	**NL**	40.2	20.5	**IT**	6.9	4.9	**ES**	45.0	31.7
IE	6.4	6.1	**IT**	40.5	19.5	**ES**	7.6	7.6	**BE**	45.5	26.7
LT	6.4	5.5	**EL**	41.3	22.9	**CZ**	8.0	5.4	**IT**	46.0	23.0
BG	6.7	5.3	**LU**	41.4	20.3	**US**	8.3	6.7	**CZ**	47.7	16.6
RO	7.0	5.6	**EE**	42.1	21.4	**PT**	8.4	5.8	**PT**	52.2	25.2
SK	7.0	6.0	**BE**	42.5	20.5	**RO**	8.9	5.5	**US**	53.2	36.2
EE	7.4	5.9	**FR**	44.8	22.7	**FR**	16.0	6.3	**FR**	67.9	35.2
Ø	**6.0**	**5.7**	**Ø**	**36.4**	**20.9**	**Ø**	**6.0**	**5.7**	**Ø**	**36.4**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

Section B2 of the annex contains the detailed results for the tax planning strategy "Financing via Offshore no treaty" for all parent-subsidiary-combinations. Table 9 shows that for inbound investments to nine of the ten countries that do not levy withholding taxes on interest irrespective of the recipient country the mean CoC are lower as for the tax planning strategy "Financing via Offshore treaty". The higher CoC for Sweden are attributable to the non-deductibility of interest payments to Offshore no treaty. Lower CoC result if any dividend taxes on distributions from SUBS to OFFSHORE no treaty and/or on distributions from OFFSHORE no treaty to MNE are levied, since in the Devereux/Griffith model, the value of re-financing costs at the level of MNE increases with the tax burden on the distributed return of the investment. This can be explained by the fact that the tax savings from tax-deductible re-financing costs of MNE associated with the incremental investment increase the company´s net present value as compared to the case of retained earnings financing of MNE. Due to this additional net present value resulting from the re-financing tax shield at the level of MNE, which is effectively attributed to the investment, the investor's required pre-tax rate of return decreases relative to the required pre-tax rate of return for the case of retained earnings financing of MNE. The higher the tax burden on returns of SUBS at the level of MNE, the higher is the decrease in the required pre-tax rate of return that corresponds to the additional firm value generated from tax savings associated with the deduction of re-financing costs. Withholding taxes on interest increase the CoC of investments above the CoC under "Financing via Offshore treaty".

The EATR for inbound investments into the countries that levy withholding taxes neither on interest nor on dividends (CY, EE, HU, MT) are equal to the respective EATR for the tax planning strategy "Financing via Offshore treaty" for all parent countries that treat dividends from Offshore treaty and Offshore no treaty the same way (DK, DE, HR, MT, SK, UK, US). For profitable investments into and from all other countries, withholding taxes on interest and/or dividends and the higher taxation of the dividends at the level of MNE due to the application of switch-over clauses increase the EATR above the level under "Financing via Offshore treaty".

Marginal investments from seven high-tax countries on average require lower CoC if tax planning via Offshore no treaty is used as opposed to directly investing in SUBS. As explained above, the lower mean CoC for investments from those parent countries compared to other parent countries mainly results from the relatively higher value of re-financing costs which increases with the tax burden on dividends.

For the investment constellations where the CoC and EATR are higher than in case of "Financing via Offshore treaty", it depends on the level of the withholding taxes on interest and dividends and the level of taxation of the dividends in the parent country whether "Financing via Offshore no treaty" yields lower CoC and EATR than direct financing. However, on average, the CoC and in particular the EATR for this tax planning strategy are higher than under optimal direct financing. The withholding taxes on dividends in many countries and the application of switch-over clauses for dividend taxation make tax planning for profitable outbound investments via Offshore no treaty rather unattractive. While it is advantageous in particular for investments from countries that exempt dividends received from Offshore no treaty into countries without withholding taxes on interest and dividends, on average, the tax planning strategy via Offshore no treaty is not recommendable as it increases the mean CoC by 0.3 percentage points from 5.7% to 6% and the mean EATR by 15.5 percentage points from 20.9% to 36.4% in comparison to the baseline results.

The tax planning strategy "Financing via Offshore no treaty" illustrates that withholding taxes on interest and dividends and switch-over clauses for intragroup dividends are, in principle, an effective tool to curb profit shifting activities of multinationals.[31] However, as long as intra-group payments between corporations resident in EU member states are exempt from withholding taxes while not all EU member states levy withholding taxes on payments to third countries, domestic withholding taxes can easily be avoided by channeling the respective payments to tax havens via other EU member states without triggering additional taxation. This strategy often also allows mitigation of switch-over clauses. Hence, multinationals are usually able to effectively achieve the outcome of tax planning via Offshore treaty even if their country has not concluded treaties with tax havens and levies high withholding taxes on interest payments. As a consequence, the tax planning strategy "Financing via Offshore treaty" should be more relevant in practice.

6.1.3 "Financing via Average": Loan from AVERAGE

The second tax planning strategy involving profit shifting via interest payments considers an intermediate company resident in Average, an EU member state which applies a corporate income tax rate of 23%.

This tax planning strategy is only attractive for investments between countries that both have a higher tax rate than the average country. If the profits either at the level of MNE or at the level of SUBS are subject to a lower income tax rate than 23%, using retained earnings financing of SUBS or direct debt financing from MNE, respectively results in a lower taxation of the returns. This can be seen from the overview on mean

[31] For withholding taxes see also Fuest et al (2013).

CoC and EATR for inbound investments in Table 10, where only high-tax countries exhibit lower mean values compared to direct financing.

Table 10: Mean CoC and EATR – "Financing via Average" (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
BG	5.3	5.3	**BG**	19.4	19.3	**BE**	5.2	5.3	**BG**	11.9	8.8
IT	5.4	5.3	**IT**	19.8	19.5	**HR**	5.3	5.2	**LT**	15.2	13.6
US	5.4	5.3	**MT**	20.3	19.6	**LU**	5.4	5.5	**IE**	15.6	14.1
FR	5.6	5.5	**LV**	20.4	20.1	**CZ**	5.6	5.4	**LV**	15.9	14.3
LV	5.6	5.5	**LT**	20.4	20.1	**PT**	5.6	5.8	**RO**	16.2	14.8
LT	5.6	5.5	**RO**	20.6	20.6	**SK**	5.6	5.6	**SI**	16.6	15.5
RO	5.7	5.6	**ES**	21.1	20.4	**NL**	5.6	5.7	**CY**	16.6	15.3
MT	5.7	5.6	**PT**	21.1	20.3	**SE**	5.7	5.6	**HR**	16.8	16.4
BE	5.7	5.6	**LU**	21.2	20.3	**DK**	5.7	5.7	**CZ**	17.3	16.6
SI	5.7	5.6	**HU**	21.2	20.5	**MT**	5.7	6.0	**PL**	18.1	17.5
PL	5.9	5.7	**PL**	21.2	20.5	**AT**	5.8	5.8	**FI**	18.9	18.5
HU	5.9	5.7	**CZ**	21.3	21.0	**SI**	5.8	5.5	**SE**	19.4	19.2
CZ	5.9	5.8	**UK**	21.3	20.4	**LT**	5.8	5.4	**SK**	19.4	19.3
CY	5.9	5.7	**SI**	21.3	20.8	**PL**	5.8	5.6	**EE**	19.9	13.2
ES	5.9	5.8	**CY**	21.3	20.8	**BG**	5.8	5.0	**HU**	19.9	19.3
UK	5.9	5.7	**BE**	21.3	20.5	**IT**	5.8	4.9	**DK**	20.8	20.9
PT	5.9	5.7	**EE**	21.4	21.4	**FI**	5.8	5.7	**NL**	21.6	21.9
EE	5.9	5.9	**FI**	21.4	20.5	**RO**	5.8	5.5	**UK**	21.8	21.4
LU	5.9	5.7	**HR**	21.5	21.1	**EL**	5.8	6.0	**AT**	22.1	22.3
FI	5.9	5.7	**SE**	21.7	20.5	**IE**	5.9	5.5	**LU**	23.6	24.2
HR	5.9	5.8	**AT**	21.7	20.5	**DE**	5.9	6.0	**PT**	24.6	25.2
DE	5.9	5.8	**NL**	21.8	20.5	**LV**	5.9	5.5	**EL**	25.2	25.8
SE	6.0	5.7	**SK**	21.9	21.6	**CY**	5.9	5.6	**IT**	26.1	23.0
AT	6.0	5.8	**DK**	22.0	20.5	**HU**	6.0	5.8	**BE**	26.5	26.7
NL	6.0	5.8	**DE**	22.1	21.3	**FR**	6.0	6.3	**DE**	26.7	27.1
SK	6.0	6.0	**EL**	23.2	22.9	**EE**	6.1	4.4	**MT**	29.0	29.7
DK	6.1	5.8	**IE**	23.2	22.2	**US**	6.3	6.7	**ES**	31.1	31.7
IE	6.4	6.1	**FR**	23.4	22.7	**UK**	6.6	6.4	**FR**	34.5	35.2
EL	6.5	6.3	**US**	27.7	27.3	**ES**	7.5	7.6	**US**	35.3	36.2
Ø	**5.8**	**5.7**	**Ø**	**21.6**	**20.9**	**Ø**	**5.8**	**5.7**	**Ø**	**21.6**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

The ranking of countries according to the results for inbound and outbound CoC and EATR for the tax planning strategy "Financing via Average" is very similar to the ranking according to the results for the case of direct financing. Tax planning via AVERAGE is only favorable for a few country combinations increasing the mean CoC across all country combinations by 0.1 percentage points from 5.7% to 5.8% and the EATR by 0.7 percentage points from 20.9% to 21.6% compared to the baseline scenario. The detailed results for the tax planning strategy "Financing via Average" for all country combinations are included in Section B3 of the annex.

6.1.4 Tax planning strategies 3 and 4: Hybrid Loan

For tax planning strategies 3 and 4, it is assumed that the loan given to SUBS by OFFSHORE treaty, OFFSHORE no treaty and AVERAGE is qualified as equity capital in the respective countries, while the countries of residence of SUBS consider the loan to be debt capital.

This hybrid classification of the loan does not change the CoC and EATR results calculated for the tax planning strategy "Financing via Offshore treaty" or "Financing via Offshore no treaty", where the intermediate company is resident in a country that

neither taxes dividends nor interest. As Offshore treaty and Offshore no treaty do not levy corporate income taxes on both types of income, it is irrelevant whether the remunerations resulting from the loan are treated as dividends or interest.

However, differences arise if we consider tax planning via the intermediate company AVERAGE. Section B4 of the annex includes the detailed results for the tax planning strategy "Hybrid financing via Average". The mean values across all parent-subsidiary-combinations for this tax planning strategy are summarized in Table 11.

Table 11: Mean CoC and EATR - "Hybrid financing via Average" (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
US	3.0	5.3	**BG**	11.8	19.3	**BE**	2.8	5.3	**BG**	4.3	8.8
BG	3.3	5.3	**IT**	12.3	19.5	**LU**	3.1	5.5	**LT**	7.6	13.6
IT	3.3	5.3	**MT**	12.6	19.6	**FR**	3.2	6.3	**IE**	7.9	14.1
LV	3.6	5.5	**LV**	12.8	20.1	**MT**	3.2	6.0	**LV**	8.2	14.3
LT	3.6	5.5	**LT**	12.8	20.1	**HR**	3.3	5.2	**RO**	8.5	14.8
FR	3.6	5.5	**RO**	13.0	20.6	**PT**	3.3	5.8	**SI**	8.9	15.5
RO	3.6	5.6	**ES**	13.4	20.4	**NL**	3.5	5.7	**CY**	8.9	15.3
MT	3.7	5.6	**PT**	13.5	20.3	**IT**	3.5	4.9	**HR**	9.2	16.4
SI	3.7	5.6	**LU**	13.5	20.3	**SK**	3.5	5.6	**CZ**	9.6	16.6
BE	3.7	5.6	**HU**	13.6	20.5	**DE**	3.6	6.0	**PL**	10.4	17.5
PL	3.8	5.7	**PL**	13.6	20.5	**EL**	3.6	6.0	**FI**	11.4	18.5
HU	3.8	5.7	**CZ**	13.6	21.0	**DK**	3.6	5.7	**SE**	11.7	19.2
CY	3.8	5.7	**UK**	13.7	20.4	**CZ**	3.6	5.4	**SK**	11.7	19.3
CZ	3.8	5.8	**CY**	13.7	20.8	**SE**	3.6	5.6	**EE**	12.2	13.2
UK	3.9	5.7	**SI**	13.8	20.8	**PL**	3.8	5.6	**HU**	12.2	19.3
ES	3.9	5.8	**EE**	13.8	21.4	**SI**	3.8	5.5	**DK**	13.1	20.9
PT	3.9	5.7	**FI**	13.8	20.5	**FI**	3.9	5.7	**NL**	13.9	21.9
EE	3.9	5.9	**AT**	13.8	20.5	**LT**	3.9	5.4	**UK**	14.1	21.4
FI	3.9	5.7	**BE**	13.8	20.5	**RO**	3.9	5.5	**LU**	15.9	24.2
LU	3.9	5.7	**HR**	13.9	21.1	**HU**	4.0	5.8	**PT**	16.9	25.2
HR	3.9	5.8	**SE**	14.1	20.5	**IE**	4.0	5.5	**EL**	17.4	25.8
DE	3.9	5.8	**NL**	14.1	20.5	**CY**	4.0	5.6	**IT**	18.4	23.0
AT	3.9	5.8	**SK**	14.2	21.6	**BG**	4.0	5.0	**BE**	18.7	26.7
SE	4.0	5.7	**DK**	14.3	20.5	**LV**	4.0	5.5	**DE**	18.9	27.1
NL	4.0	5.8	**DE**	14.6	21.3	**EE**	4.0	4.4	**MT**	21.2	29.7
SK	4.0	6.0	**EL**	15.6	22.9	**US**	4.2	6.7	**AT**	23.0	22.3
DK	4.1	5.8	**FR**	16.3	22.7	**UK**	4.5	6.4	**ES**	23.4	31.7
IE	4.3	6.1	**IE**	18.1	22.2	**ES**	4.8	7.6	**FR**	26.6	35.2
EL	4.4	6.3	**US**	25.1	27.3	**AT**	5.9	5.8	**US**	29.0	36.2
Ø	**3.8**	**5.7**	**Ø**	**14.3**	**20.9**	**Ø**	**3.8**	**5.7**	**Ø**	**14.3**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

If AVERAGE grants a hybrid loan to SUBS, the interest is deductible from the tax base of SUBS while it is taxed as dividends at the level of AVERAGE. In the average country, intra-group dividends are assumed to be tax-exempt. Therefore, using the tax planning strategy "Hybrid financing via Average", non-taxation of the marginal return is achieved. The results are thus very similar to tax planning strategy 1, "Financing via Offshore treaty". However, the fact that AVERAGE is an EU country and levies taxes at a rate of 23% on other income has several advantages compared to tax planning strategy 1. First of all, Bulgaria, Greece and Poland apply the credit method for dividends received by non-EU countries such as Offshore treaty, while they exempt dividends received from related companies resident in the EU. Hence, for these countries, the mean EATRs for outbound investments are significantly lower using tax planning strategy "Hybrid financing via Average" compared to tax planning strategy 1. Moreover, debt financing of AVERAGE offers additional tax saving potential

for MNEs resident in countries with a lower tax rate compared to Average. While the interest payments made to MNE reduce other taxable profits of AVERAGE, the corresponding interest income is taxed at a lower rate at the level of MNE. Consequently, the CoC and EATR for outbound investments are either almost the same as in the case of ”Financing via Offshore treaty” or lower. Slightly higher mean CoC and EATR are driven by the higher withholding taxes on interest and dividend payments from the US to Average and from Average to the US. For Greece, the higher CoC for the tax planning strategy “Hybrid financing via Average” compared to the strategy “Financing via Offshore treaty” result from a different treatment of dividends and in particular relating re-financing costs at the level of the parent company in the two scenarios. Concerning inbound investments, the mean CoC and EATR are always lower than for tax planning strategy 1. The only exception are inbound investments to the US due to the aforementioned higher withholding taxes on interest and dividends in case of “Hybrid financing via Average”.

In summary, it can be concluded that of the different strategies using profit shifting via interest payments, tax planning with a financing company resident in Average granting a hybrid loan to SUBS is on average most attractive for investments from and to the 29 countries considered. It reduces the mean CoC in comparison to direct financing by 1.9 percentage points from 5.7% to 3.8% and the EATR by 6.6 percentage points from 20.9% to 14.3%. Both using this tax planning strategy and tax planning via Offshore treaty results in very low CoC and EATRs and increases the attractiveness of cross-border investments in general. Comparing the ranking of countries with regard to CoC under both tax planning strategies to the country ranking in the baseline scenario, high-tax countries become relatively more attractive parent as well as subsidiary locations while the relative attractiveness of low-tax countries decreases for marginal investments. The inbound EATR for the two most favorable tax planning strategies indicate that for profitable investments, the relative attractiveness of different investment locations remains largely unaffected compared to direct investments from MNE to SUBS.

6.2 Profit shifting via royalty payments

Besides profit shifting via interest payments, profit shifting via royalties plays an important role in international tax planning. Tax planning strategies 5-7 deal with this tax planning opportunity. All three IP tax planning strategies have in common that an IP company invests in an intangible asset, while SUBS invests in the remaining four assets considered in the Devereux/Griffith model (i.e. buildings, machinery, inventories and financial assets). SUBS licenses the intangible asset from the IP company and generates income from the use of it. For the licensing arrangement, royalties are paid from SUBS to the IP company. The IP company can either be resident in Offshore treaty, Offshore no treaty, Average or any of the 11 EU member states that had an IP-box regime in place in 2015.

While the tax planning strategies based on intercompany financing only allow shifting the marginal return via interest payments to the financing company, we make the assumption that in the case of IP tax planning total profits earned from the use of the intangible can be shifted to the IP company via royalty payments. The returns generated from the use of the other four assets are not reduced by the royalty payments. With this assumption we intend to simulate the highest theoretically acceptable arm’s length price of the royalty payment. This takes account of the fact that most countries apply the arm’s length principle, which requires royalty payments between related persons to be priced comparable to similar royalty payments made between unrelated parties. We assume that concerning licensing arrangements between unrelated parties, the maximum price a company is willing to pay for an intangible is the share of profit that this intangible contributes to the company’s total

profit. However, finding comparable transactions between unrelated companies is particularly difficult for often unique intangible property so that there is considerable leeway in defining the arm's length price.[32] Moreover, the tax planning strategies of e.g. Google and Ikea indicate that especially companies with valuable intangibles are able to shift large parts of their profits to low-tax entities. To account for this, in addition to the results for an investment in all five assets, we provide CoC and EATRs for the case that IP is the only productive asset the multinational invests in and thus total profits of SUBS can be shifted via royalty payments.

In part C of the annex, the COC and EATR are reported separately for the investment in the four assets at the level of SUBS (Section C2 of the annex) and the investment in the intangible asset at the level of the IP company (Section C1 of the annex). The combined mean values for cross-border investments in all five assets are summarized in separate tables in the following sections.

6.2.1 "IP tax planning via Offshore treaty"

Similar to the tax planning strategy "Financing via Offshore treaty", the first IP tax planning case assumes that the IP company (IPOFFSHORE treaty) is resident in Offshore treaty.

If we consider that the multinational invests in an intangible asset only, the results for marginal investments are comparable to the results under tax planning strategy 1 ("Financing via Offshore treaty") because in both cases, the marginal return is shifted to the country Offshore treaty, where it remains untaxed. Hence, in line with our findings for tax planning strategy 1, it is always most tax-efficient to finance IPOFFSHORE treaty with retained earnings. Table 12 lists the mean CoC and EATR for all countries averaged over all possible parent-subsidiary combinations for an investment in the intangible asset by IPOFFSHORE treaty. The detailed results for an investment in an intangible conducted via OFFSHORE treaty are included in Section C1-1 of the annex.

Consistent with the results for tax planning strategy 1, the mean CoC are usually 5% or below for cross-border investments. The only exception are investments to Austria, as royalty payments are not deductible from the tax base in Austria if the corresponding royalty income is subject to an effective taxation of less than 10%. Deviations from the results for tax planning strategy 1 are due to the missing tax advantage from depreciation of the intangible asset, as the asset is owned by OFFSHORE treaty which is not subject to income taxation. As there is no tax base reducing effect, the inbound CoC are the same, i.e. 4.5%, for all countries except Austria. This implies that taxes do not influence the investor's decision on the location where the intangible is used for generating profits in case of "IP tax planning via Offshore treaty" as long as royalty payments are deductible in the residence country of SUBS. This also holds true for purely domestic investments, where SUBS and MNE are located in the same country but IP is licensed from IPOFFSHORE treaty. Hence, capital export neutrality applies with respect to the location of the use of intangibles in the production process if the strategy "IP tax planning via Offshore treaty" is used.

Different CoC for outbound investments across countries result from different tax consequences of re-financing of MNE. The higher the value of the tax savings from interest deduction at the level of MNE, the lower the outbound CoC. Due to missing tax advantages from depreciation, the CoC for inbound and outbound investments are slightly higher compared to the respective CoC for tax planning strategy 1.

[32] See also Evers (2014).

As opposed to cross-border tax planning strategies with debt financing, we assume that under tax planning with IP total profits, i.e. profits including economic rents that are attributed to the usage of the intangible, can be shifted. Thus, if we only consider the investment in the intangible, the EATR are notably lower compared to tax planning with debt financing of the subsidiary via Offshore treaty (tax planning strategy 1).

Table 12: Mean CoC and EATR – "IP tax planning via Offshore treaty" – Intangible (in %)

Outbound				Inbound			
CoC		EATR		CoC		EATR	
US	3.8	**AT**	-3.0	**CZ**	4.5	**US**	-0.2
EL	4.2	**MT**	-2.7	**EE**	4.5	**EL**	-0.1
FR	4.3	**PT**	-2.0	**RO**	4.5	**PL**	0.2
MT	4.4	**LU**	-2.0	**SK**	4.5	**IE**	0.3
BE	4.4	**ES**	-1.8	**BG**	4.5	**BG**	0.4
AT	4.4	**NL**	-1.5	**CY**	4.5	**FR**	0.6
PT	4.5	**BE**	-1.3	**IE**	4.5	**CZ**	0.6
LU	4.5	**DK**	-1.3	**LT**	4.5	**EE**	0.6
IT	4.5	**SE**	-1.0	**LV**	4.5	**RO**	0.6
ES	4.6	**FI**	-0.9	**SI**	4.5	**SK**	0.6
DE	4.6	**HR**	-0.9	**HU**	4.5	**SI**	0.6
NL	4.6	**UK**	-0.9	**FI**	4.5	**CY**	0.6
DK	4.7	**IT**	-0.8	**HR**	4.5	**LT**	0.7
PL	4.7	**HU**	-0.7	**UK**	4.5	**LV**	0.7
SE	4.7	**DE**	-0.6	**SE**	4.5	**DE**	0.7
FI	4.7	**LT**	-0.2	**PL**	4.5	**HU**	0.7
HR	4.7	**LV**	-0.2	**DK**	4.5	**IT**	0.7
UK	4.7	**CY**	0.1	**NL**	4.5	**UK**	0.7
HU	4.8	**SI**	0.1	**DE**	4.5	**FI**	0.7
SI	4.8	**CZ**	1.6	**ES**	4.5	**HR**	0.7
LT	4.9	**EE**	1.6	**IT**	4.5	**SE**	0.7
LV	4.9	**RO**	1.6	**LU**	4.5	**DK**	0.7
IE	4.9	**SK**	1.6	**PT**	4.5	**BE**	0.7
CY	4.9	**FR**	2.1	**BE**	4.5	**NL**	0.7
BG	5.0	**BG**	7.7	**MT**	4.5	**ES**	0.7
CZ	5.2	**IE**	9.2	**FR**	4.5	**LU**	0.7
EE	5.2	**PL**	13.2	**EL**	4.5	**PT**	0.7
RO	5.2	**EL**	19.3	**US**	4.5	**MT**	0.7
SK	5.2	**US**	22.7	**AT**	11.1	**AT**	43.0
Ø	**4.7**	**Ø**	**2.0**	**Ø**	**4.7**	**Ø**	**2.0**

CoC = Cost of Capital; EATR = Effective Average Tax Rate

Outbound investments from countries that fully exempt dividends from taxation and which have high corporate income tax rates that result in high tax savings from deductible re-financing costs of MNE yield the lowest EATR. The advantages from the deductibility of re-financing costs even lead to a negative outbound EATR for investments from most countries implying that the investment does not trigger any tax payments and is even subsidized by tax savings. Outbound investments to all countries except Austria from countries that do not allow the deduction of re-financing costs related to tax-exempt dividends, such as Slovakia or Romania, feature an EATR of 0%. For MNEs resident in credit countries fully taxing received dividends, outbound investments yield the highest EATR. Hence such countries are the least attractive parent company locations in case of "IP tax planning via Offshore treaty". Also for

profitable investments, the decision on the location of SUBS which uses the intangible to generate profits is generally unaffected by taxation. Differences in the mean EATR for inbound investments in intangibles only arise due to a different composition of included parent countries in the calculation of the mean values. For Austria, the inbound EATR are far higher than for the other subsidiary locations due to the non-deductibility of royalty payments from the tax base.

Overall, the comparison shows that for profitable investments in intangibles, using an IP company in Offshore treaty and shifting profits via royalty payments to the tax-exempt country results in tax burdens close to zero if profits are not subject to high dividend taxation in the parent country and royalty payments are deductible in the residence country of SUBS. Hence, for companies with valuable intangibles that are of outstanding importance for profit generation, tax planning via royalties offers far higher tax savings than tax planning via interest payments.

For companies that do not only rely on intangibles but rather derive profits from using a combination of several assets, the CoC and EATR calculated for the combined investment in all five assets as in case of tax planning with interest payments and the baseline scenario are more relevant. As SUBS invests in the remaining four assets, the tax-efficient financing strategy for the investment in these assets depends on the relative tax rate difference between the country of residence of MNE and the country of residence of SUBS. To illustrate the combined effect of the tax planning strategy in case of an investment in an asset mix, the results for optimally financing SUBS and optimally financing IPOFFSHORE treaty are weighted by 0.8 and 0.2 in line with the basic assumptions of the model defined in Section 2. The resulting mean values for all investment combinations between the 29 countries considered are given in Table 13.

As the marginal returns of the other four assets are subject to tax either at the level of SUBS (retained earnings or new equity financing of SUBS) or the level of MNE (debt financing of SUBS) and hence do not remain completely untaxed, the overall mean values for inbound and outbound CoC are higher than for the tax planning strategy "Financing via Offshore treaty". Nevertheless, the effect of the low taxation of profits from IP still reduces the mean CoC by 0.1 percentage points from 5.7% to 5.6% compared to an investment of SUBS in all assets directly financed by MNE (baseline results).

For profitable outbound investments in an asset mix, using "IP tax planning via Offshore treaty" compared to using the tax planning strategy "Financing via Offshore treaty" either increases or decreases the EATR. Independently, the mean EATRs for outbound investments are always below the mean EATRs for direct investments. For countries that apply the exemption method to foreign dividends, the EATRs are lower if the tax planning strategy "Financing via Offshore treaty" is used because under this strategy, a larger share of total profits (the marginal return of all five assets) is shifted to the tax-exempt country. For credit countries that do not allow to credit underlying corporate income taxes of lower tier subsidiaries, the EATRs are lower if "IP tax planning via Offshore treaty" is applied. This is due to the lack of double taxation avoidance in case of tax planning strategy 1, where profits above the marginal return are fully taxed both at the level of SUBS and the level of MNE. This negative effect overcompensates the advantage of a larger share of total profits that is tax-exempt at the level of OFFSHORE treaty under the tax planning strategy "Financing via Offshore treaty".

Overall, the outbound EATRs for "IP tax planning via Offshore treaty" considering all five assets vary less between different parent countries compared to the EATR calculated for the tax planning strategy "Financing via Offshore treaty". The ranking of the attractiveness of different countries as investment locations for profitable investments changes only slightly compared to the baseline scenario and tax planning

strategy 1. In all three cases, taxation in the source country remains decisive for profitable investments. Still, the mean EATR decreases by 3.4 percentage points from 20.9% to 17.5% compared to the baseline scenario making investments into 28 of the 29 countries more attractive if IP tax planning via Offshore treaty is used. Even lower CoC and EATR could be achieved if both tax planning strategies "IP tax planning via Offshore treaty" and "Financing via Offshore treaty" were combined.

Table 13: Mean CoC and EATR - "IP tax planning via Offshore treaty" – All assets (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
US	5.0	5.3	**MT**	15.4	19.6	**EE**	4.4	4.4	**BG**	7.2	8.8
IT	5.2	5.3	**IT**	15.7	19.5	**BG**	4.9	5.0	**EE**	10.7	13.2
BG	5.3	5.3	**PT**	16.1	20.3	**IT**	5.1	4.9	**LT**	11.6	13.6
FR	5.3	5.5	**AT**	16.1	20.5	**HR**	5.1	5.2	**IE**	11.9	14.1
BE	5.4	5.6	**LU**	16.2	20.3	**SI**	5.3	5.5	**LV**	11.9	14.3
MT	5.4	5.6	**LV**	16.3	20.1	**CZ**	5.3	5.4	**RO**	12.3	14.8
LV	5.5	5.5	**LT**	16.3	20.1	**LT**	5.3	5.4	**SI**	12.4	15.5
LT	5.5	5.5	**ES**	16.3	20.4	**IE**	5.3	5.5	**CY**	13.3	15.3
SI	5.5	5.6	**BE**	16.4	20.5	**RO**	5.4	5.5	**CZ**	13.6	16.6
PL	5.6	5.7	**NL**	16.4	20.5	**LV**	5.4	5.5	**HR**	13.6	16.4
AT	5.6	5.8	**UK**	16.4	20.4	**LU**	5.4	5.5	**PL**	14.4	17.5
PT	5.6	5.7	**DK**	16.4	20.5	**SK**	5.4	5.6	**FI**	14.9	18.5
UK	5.6	5.7	**SE**	16.5	20.5	**FI**	5.5	5.7	**SE**	15.8	19.2
LU	5.6	5.7	**FI**	16.5	20.5	**PT**	5.5	5.8	**SK**	15.9	19.3
HU	5.6	5.7	**HU**	16.6	20.5	**SE**	5.5	5.6	**HU**	16.0	19.3
FI	5.6	5.7	**CY**	16.9	20.8	**PL**	5.5	5.6	**UK**	17.8	21.4
DK	5.6	5.8	**SI**	17.0	20.8	**BE**	5.5	5.3	**DK**	17.8	20.9
SE	5.6	5.7	**HR**	17.0	21.1	**CY**	5.5	5.6	**NL**	18.1	21.9
NL	5.6	5.8	**RO**	17.1	20.6	**NL**	5.6	5.7	**IT**	19.3	23.0
DE	5.6	5.8	**DE**	17.2	21.3	**MT**	5.7	6.0	**LU**	19.8	24.2
ES	5.6	5.8	**BG**	17.3	19.3	**HU**	5.7	5.8	**PT**	20.1	25.2
CY	5.6	5.7	**CZ**	17.4	21.0	**DK**	5.7	5.7	**EL**	20.6	25.8
RO	5.6	5.6	**EE**	17.7	21.4	**EL**	5.7	6.0	**DE**	22.3	27.1
HR	5.7	5.8	**SK**	17.9	21.6	**DE**	5.9	6.0	**BE**	22.8	26.7
CZ	5.8	5.8	**FR**	18.8	22.7	**US**	6.1	6.7	**MT**	23.8	29.7
EE	5.9	5.9	**PL**	19.4	20.5	**UK**	6.2	6.4	**ES**	24.5	31.7
SK	5.9	6.0	**IE**	19.8	22.2	**FR**	6.3	6.3	**AT**	26.4	22.3
IE	5.9	6.1	**EL**	22.5	22.9	**ES**	6.6	7.6	**US**	28.4	36.2
EL	6.0	6.3	**US**	26.6	27.3	**AT**	6.9	5.8	**FR**	29.1	35.2
Ø	**5.6**	**5.7**	**Ø**	**17.5**	**20.9**	**Ø**	**5.6**	**5.7**	**Ø**	**17.5**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

6.2.2 "IP tax planning via Offshore no treaty"

While profits can be shifted to Offshore treaty via royalty payments without triggering tax consequences, most countries levy withholding taxes on royalty payments to Offshore no treaty. Consequently, "IP tax planning via Offshore no treaty" is most beneficial for inbound investments into the four countries that do not levy withholding taxes on royalties, i.e. Hungary, Malta, Luxembourg and the Netherlands. Table 14 illustrates this result. The four countries are particularly attractive for IP intensive multinational corporations, as royalty payments remain untaxed irrespective of the recipient country. The higher the withholding taxes on royalties, the higher the CoC and EATR and, consequently, the less attractive is using "IP tax planning via Offshore no treaty" for an investment into the respective country.

In addition, the full taxation of dividends received from Offshore no treaty in many EU member states due to switch-over clauses reduces the advantage of profit shifting via royalties for profitable investments. Hence, the most attractive parent locations for profitable investments under the strategy "IP tax planning via Offshore no treaty" are countries that generally exempt dividends and do not apply a switch-over clause to dividends from passive or low taxed income.

Table 14: Mean CoC and EATR - "IP tax planning via Offshore no treaty" – All assets (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
FR	6.2	5.5	**MT**	22.7	19.6	**EE**	4.8	4.4	**BG**	12.1	8.8
US	6.4	5.3	**DK**	23.4	20.5	**BG**	5.4	5.0	**EE**	15.5	13.2
IT	6.5	5.3	**UK**	23.5	20.4	**LU**	5.4	5.5	**LT**	16.5	13.6
BE	6.6	5.6	**BG**	23.7	19.3	**NL**	5.5	5.7	**HU**	18.1	19.3
BG	6.7	5.3	**HR**	24.1	21.1	**MT**	5.6	6.0	**LV**	18.2	14.3
MT	6.8	5.6	**DE**	24.2	21.3	**HU**	5.6	5.8	**CY**	18.2	15.3
LV	6.9	5.5	**PT**	24.5	20.3	**LT**	5.7	5.4	**SI**	18.7	15.5
PT	6.9	5.7	**LV**	24.6	20.1	**SI**	5.9	5.5	**IE**	19.6	14.1
LT	6.9	5.5	**AT**	24.6	20.5	**CY**	5.9	5.6	**NL**	20.2	21.9
LU	6.9	5.7	**LT**	24.6	20.1	**LV**	6.1	5.5	**HR**	21.3	16.4
SI	6.9	5.6	**IT**	24.6	19.5	**HR**	6.1	5.2	**LU**	21.9	24.2
PL	6.9	5.7	**SK**	24.7	21.6	**IT**	6.2	4.9	**PL**	22.2	17.5
ES	6.9	5.8	**RO**	25.0	20.6	**IE**	6.3	5.5	**FI**	22.6	18.5
RO	6.9	5.6	**CZ**	25.0	21.0	**FI**	6.4	5.7	**SE**	23.9	19.2
SE	6.9	5.7	**PL**	25.1	20.5	**PL**	6.5	5.6	**UK**	25.5	21.4
FI	6.9	5.7	**FI**	25.1	20.5	**AT**	6.5	5.8	**AT**	25.6	22.3
UK	6.9	5.7	**ES**	25.2	20.4	**SE**	6.5	5.6	**CZ**	25.7	16.6
NL	7.0	5.8	**SE**	25.2	20.5	**DE**	6.6	6.0	**MT**	26.0	29.7
DK	7.0	5.8	**HU**	25.3	20.5	**EL**	6.7	6.0	**DK**	26.9	20.9
AT	7.0	5.8	**SI**	25.3	20.8	**BE**	6.8	5.3	**IT**	27.6	23.0
HU	7.0	5.7	**CY**	25.3	20.8	**DK**	7.0	5.7	**SK**	28.0	19.3
CZ	7.0	5.8	**NL**	25.5	20.5	**UK**	7.2	6.4	**EL**	28.4	25.8
DE	7.0	5.8	**LU**	25.6	20.3	**CZ**	7.4	5.4	**DE**	28.8	27.1
CY	7.0	5.7	**BE**	25.7	20.5	**SK**	7.5	5.6	**RO**	29.0	14.8
HR	7.0	5.8	**IE**	26.1	22.2	**PT**	7.6	5.8	**BE**	31.8	26.7
SK	7.3	6.0	**EE**	26.6	21.4	**US**	7.8	6.7	**PT**	32.2	25.2
EL	7.3	6.3	**EL**	27.5	22.9	**ES**	7.9	7.6	**ES**	33.3	31.7
IE	7.3	6.1	**FR**	27.6	22.7	**RO**	9.3	5.5	**US**	39.2	36.2
EE	7.3	5.9	**US**	30.4	27.3	**FR**	18.1	6.3	**FR**	53.6	35.2
Ø	**6.9**	**5.7**	**Ø**	**25.2**	**20.9**	**Ø**	**6.9**	**5.7**	**Ø**	**25.2**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

If we consider only the investment in the intangible, the CoC and EATR are exceptionally high for some countries (see Table 15). These high CoC and EATR result from the combination of withholding taxes levied on the total incoming cash flow (including the remuneration for economic depreciation) and the missing tax saving from depreciation of the intangible which is held in the tax-exempt country Offshore treaty. For profitable inbound investments into the two countries levying the highest withholding tax rates on royalties, namely France and Romania, this interaction reduces the net present value after taxes of the investment in the intangible below zero. In the case of France, taxation reduces the cash inflows resulting from the investments in the intangible to less than the value required for reinvestment due to economic depreciation, which yields a mean EATR for inbound investments into France of above 100%. For the detailed results for an investment in an intangible using IP tax planning via Offshore no treaty see Section C1-2 of the annex.

Table 15: Mean CoC and EATR - "IP tax planning via Offshore no treaty" – Intangible (in %)

Outbound				Inbound			
CoC		EATR		CoC		EATR	
FR	8.6	**DK**	33.7	**HU**	4.3	**LU**	11.2
BE	10.6	**MT**	33.9	**NL**	4.3	**NL**	11.3
US	10.7	**DE**	34.4	**MT**	4.3	**HU**	11.4
EL	11.0	**HR**	34.4	**LU**	4.4	**MT**	12.0
PT	11.0	**UK**	34.4	**EE**	6.5	**EE**	24.9
IT	11.0	**SK**	35.9	**BG**	6.5	**CY**	25.0
ES	11.1	**AT**	39.1	**CY**	6.5	**LT**	25.1
LU	11.1	**CZ**	39.5	**LT**	6.5	**BG**	25.1
MT	11.3	**PT**	39.8	**LV**	7.8	**SI**	31.9
CZ	11.4	**BG**	40.0	**SI**	7.8	**LV**	32.0
NL	11.4	**IE**	40.6	**DE**	8.1	**DE**	33.4
SE	11.4	**LV**	41.0	**IE**	9.3	**EL**	38.8
AT	11.4	**LT**	41.3	**HR**	9.3	**FI**	38.9
DE	11.5	**RO**	41.4	**UK**	9.3	**PL**	38.9
DK	11.5	**SI**	41.5	**PL**	9.3	**IE**	39.1
FI	11.5	**US**	41.6	**FI**	9.3	**AT**	39.1
PL	11.5	**PL**	41.8	**AT**	9.3	**HR**	39.2
HR	11.7	**FI**	42.0	**EL**	9.3	**UK**	39.2
UK	11.7	**ES**	42.3	**SE**	9.8	**SE**	41.0
SI	11.7	**CY**	42.3	**IT**	10.1	**IT**	42.4
HU	11.7	**SE**	42.4	**ES**	10.6	**ES**	44.8
RO	11.8	**HU**	42.8	**DK**	11.0	**BE**	46.0
LV	11.8	**IT**	43.8	**BE**	11.0	**DK**	46.3
LT	11.8	**NL**	44.3	**US**	12.9	**US**	53.7
IE	11.9	**EL**	44.4	**SK**	15.0	**SK**	61.1
CY	11.9	**LU**	45.3	**CZ**	15.0	**CZ**	61.1
BG	12.1	**BE**	45.5	**PT**	15.0	**PT**	61.2
SK	12.1	**EE**	45.7	**RO**	24.1	**RO**	84.0
EE	12.6	**FR**	46.1	**FR**	63.7	**FR**	122.9
Ø	**11.4**	**Ø**	**40.7**	**Ø**	**11.4**	**Ø**	**40.7**

CoC = Cost of Capital; EATR = Effective Average Tax Rate

The comparison of the results for "IP tax planning via Offshore no treaty" with the baseline scenario shows that investing in intangibles in a tax-exempt country and licensing them to a foreign subsidiary is only an attractive tax planning strategy if no or low withholding taxes are levied in the subsidiary country.

6.2.3 "IP tax planning via Average"

Another variation of IP tax planning considers that a company resident in Average (IPAVERAGE) invests in the intangible. Consistent with tax planning strategy 3, Average is assumed to have a corporate income tax rate of 23%. Intangibles are depreciated at an annual rate of 21%.

Table 16: Mean CoC and EATR – "IP tax planning via Average" – all assets (in %)

Outbound						Inbound					
CoC			EATR			CoC			EATR		
	TP	BL		TP	BL		TP	BL		TP	BL
IT	5.2	5.3	**BG**	18.9	19.3	**EE**	4.5	4.4	**BG**	10.8	8.8
BG	5.2	5.3	**IT**	19.2	19.5	**BG**	5.1	5.0	**EE**	14.2	13.2
US	5.2	5.3	**MT**	19.4	19.6	**IT**	5.2	4.9	**LT**	15.1	13.6
FR	5.4	5.5	**LV**	19.7	20.1	**HR**	5.3	5.2	**IE**	15.4	14.1
LV	5.5	5.5	**LT**	19.7	20.1	**SI**	5.4	5.5	**LV**	15.5	14.3
LT	5.5	5.5	**PT**	20.1	20.3	**CZ**	5.4	5.4	**RO**	15.8	14.8
BE	5.5	5.6	**LU**	20.1	20.3	**LT**	5.4	5.4	**SI**	15.9	15.5
MT	5.5	5.6	**RO**	20.1	20.6	**IE**	5.5	5.5	**CY**	16.9	15.3
RO	5.6	5.6	**UK**	20.2	20.4	**RO**	5.5	5.5	**CZ**	17.1	16.6
SI	5.6	5.6	**HU**	20.2	20.5	**LV**	5.5	5.5	**HR**	17.1	16.4
PL	5.6	5.7	**PL**	20.3	20.5	**LU**	5.5	5.5	**PL**	18.0	17.5
HU	5.6	5.7	**BE**	20.3	20.5	**SK**	5.6	5.6	**FI**	18.4	18.5
UK	5.6	5.7	**FI**	20.3	20.5	**FI**	5.6	5.7	**SE**	19.3	19.2
CY	5.7	5.7	**ES**	20.3	20.4	**PT**	5.6	5.8	**SK**	19.4	19.3
FI	5.7	5.7	**NL**	20.3	20.5	**SE**	5.6	5.6	**HU**	19.5	19.3
PT	5.7	5.7	**SE**	20.4	20.5	**PL**	5.6	5.6	**UK**	21.3	21.4
LU	5.7	5.7	**DK**	20.4	20.5	**BE**	5.7	5.3	**DK**	21.3	20.9
SE	5.7	5.7	**CY**	20.4	20.8	**AT**	5.7	5.8	**AT**	21.4	22.3
DK	5.7	5.8	**AT**	20.4	20.5	**CY**	5.7	5.6	**NL**	21.6	21.9
HR	5.7	5.8	**SI**	20.5	20.8	**NL**	5.7	5.7	**IT**	22.8	23.0
NL	5.7	5.8	**CZ**	20.7	21.0	**MT**	5.8	6.0	**LU**	23.3	24.2
AT	5.7	5.8	**HR**	20.8	21.1	**HU**	5.8	5.8	**PT**	23.6	25.2
CZ	5.7	5.8	**EE**	21.0	21.4	**EL**	5.8	6.0	**EL**	24.3	25.8
DE	5.8	5.8	**DE**	21.1	21.3	**DK**	5.8	5.7	**DE**	25.8	27.1
ES	5.8	5.8	**SK**	21.2	21.6	**DE**	6.0	6.0	**BE**	26.3	26.7
EE	5.8	5.9	**IE**	22.0	22.2	**US**	6.2	6.7	**MT**	27.3	29.7
SK	5.9	6.0	**FR**	22.5	22.7	**UK**	6.3	6.4	**ES**	28.0	31.7
IE	6.1	6.1	**EL**	22.6	22.9	**FR**	6.4	6.3	**US**	32.0	36.2
EL	6.3	6.3	**US**	27.1	27.3	**ES**	6.7	7.6	**FR**	32.6	35.2
Ø	**5.7**	**5.7**	**Ø**	**20.7**	**20.9**	**Ø**	**5.7**	**5.7**	**Ø**	**20.7**	**20.9**

CoC = Cost of Capital; EATR = Effective Average Tax Rate; TP = Tax planning strategy; BL = Baseline scenario

Whether this tax planning strategy is attractive or not depends on the corporate income tax rate and tax depreciation schedule for intangibles in the country of residence of SUBS relative to the country of residence of IPAVERAGE. If the corporate income tax rate is higher and the depreciation rules are less attractive in the country of SUBS, tax planning via IPAVERAGE reduces the CoC and EATR. If an investment in a country with a lower tax rate than Average and faster tax depreciation of intangibles is considered, investing in IP in Average and licensing out the IP to SUBS is not recommendable. Table 16 summarizes the mean CoC and EATR for the investment in all five assets for "IP tax planning via Average". It shows that for marginal investments, mainly the relation between depreciation rates in Average and the residence country of the subsidiary is relevant while for profitable investments the tax rate difference is decisive. The detailed results for an investment in intangibles using IP tax planning via Average are listed in Section C1-3 of the annex.

6.2.4 "IP tax planning via IP-box countries"

The last tax planning strategy assumes that the intangible is acquired by SUBSPB, a company resident in one of the 11 EU member states offering an IP-box regime. SUBSPB licenses the intangible to SUBS.

Table 17: Mean CoC - Outbound – "IP tax planning via IP-box countries" – Intangible (in %)

CoC - Outbound - Intangible											
	IP-box country										
	Portugal	**Hungary**	**Belgium**	**Italy**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**France**	**Spain**
BG	1.7	2.6	3.3	4.4	5.1	5.1	5.2	5.2	4.6	4.9	7.1
IT	1.7	2.6	3.3	3.8	4.6	4.6	4.7	4.8	4.7	4.9	7.1
LT	2.0	2.8	3.5	4.2	5.0	5.0	5.1	5.1	4.9	5.2	7.4
LV	2.0	2.8	3.5	4.2	5.0	5.0	5.1	5.1	4.9	5.2	7.4
RO	2.0	2.9	3.6	4.7	5.3	5.3	5.5	5.5	4.9	5.2	7.5
SI	2.1	2.9	3.6	4.2	4.9	4.9	5.0	5.0	5.0	5.3	7.5
US	2.2	2.1	3.1	3.1	3.8	3.9	4.0	4.1	4.3	4.4	6.7
CZ	2.2	3.0	3.7	4.7	5.3	5.3	5.5	5.5	5.1	5.4	7.6
PL	2.2	3.0	3.7	4.1	4.9	4.9	5.0	5.0	5.1	5.2	7.5
HU	2.2	3.0	3.7	4.1	4.9	4.9	5.0	5.0	5.1	5.2	7.5
CY	2.2	3.0	3.7	4.3	5.0	5.0	5.1	5.2	5.1	5.4	7.7
EE	2.3	3.1	3.8	4.7	5.3	5.3	5.5	5.5	5.1	5.5	7.7
FI	2.3	3.0	3.8	4.1	4.8	4.8	4.9	5.0	5.1	5.2	7.5
HR	2.3	3.0	3.8	4.1	4.8	4.8	4.9	5.0	5.1	5.2	7.5
UK	2.3	3.0	3.8	4.1	4.8	4.8	4.9	5.0	5.1	5.2	7.5
SE	2.3	2.9	3.8	4.0	4.8	4.8	4.9	4.9	5.1	5.2	7.4
SK	2.4	3.2	3.9	4.7	5.3	5.3	5.5	5.5	5.2	5.6	7.8
DK	2.4	2.9	3.9	4.0	4.7	4.8	4.8	4.9	5.0	5.1	7.4
AT	2.5	2.6	3.8	3.9	4.5	4.5	4.6	4.6	5.0	5.1	7.3
NL	2.5	2.9	4.0	3.9	4.7	4.7	4.8	4.8	5.0	5.1	7.3
FR	2.6	2.5	3.8	3.6	4.4	4.4	4.5	4.5	4.7	4.7	7.0
MT	2.6	2.6	3.8	3.6	4.5	4.5	4.5	4.6	4.7	4.7	7.0
BE	2.6	2.6	3.8	3.6	4.5	4.5	4.6	4.6	4.7	4.8	7.0
EL	2.7	3.5	4.2	4.7	5.3	5.3	5.5	5.5	5.6	5.8	8.1
LU	2.7	2.7	4.0	3.8	4.6	4.6	4.7	4.7	4.9	4.9	7.2
PT	2.8	2.7	4.0	3.8	4.6	4.6	4.7	4.7	4.9	4.9	7.2
ES	2.8	2.8	4.0	3.8	4.6	4.6	4.7	4.8	4.9	5.0	7.2
DE	2.8	2.8	4.0	3.8	4.6	4.6	4.7	4.8	4.9	5.0	7.2
IE	2.9	3.2	4.4	4.3	5.0	5.0	5.1	5.1	5.3	5.4	7.7
Ø	**2.4**	**2.8**	**3.8**	**4.1**	**4.8**	**4.8**	**4.9**	**5.0**	**5.0**	**5.1**	**7.4**

Table 18: Mean EATR - Outbound – "IP tax planning via IP-box countries" – Intangible (in %)

EATR - Outbound - Intangible											
	IP-box country										
	Hungary	**Portugal**	**Belgium**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**Italy**	**France**	**Spain**
AT	-3.7	0.5	-0.7	-2.4	-0.7	1.6	2.4	7.5	12.2	16.2	19.0
BG	-3.4	-2.9	-2.5	1.0	2.7	5.0	5.8	5.9	14.1	15.5	19.1
MT	-3.3	0.8	0.1	-2.1	-0.3	2.0	2.8	6.3	11.0	15.0	17.8
PT	-2.7	1.5	0.8	-1.4	0.3	2.7	3.4	7.0	11.7	15.7	18.4
LU	-2.6	1.4	0.8	-1.4	0.4	2.7	3.5	7.0	11.7	15.7	18.5
ES	-2.5	1.7	0.9	-1.2	0.5	2.8	3.6	7.2	11.9	15.9	18.6
LT	-2.3	-1.8	-1.4	0.4	2.1	4.4	5.2	7.0	13.5	16.7	20.2
LV	-2.3	-1.8	-1.4	0.4	2.1	4.4	5.2	7.0	13.5	16.7	20.2
IT	-2.3	-1.8	-1.4	-0.2	1.5	3.8	4.6	6.9	12.7	16.4	19.4
NL	-2.1	0.5	0.9	-0.8	0.9	3.2	4.0	7.5	12.2	16.2	19.0
RO	-2.1	-1.6	-1.1	2.2	3.9	6.3	7.0	7.2	15.3	16.9	20.4
BE	-2.0	2.1	1.4	-0.7	1.0	3.3	4.1	7.5	12.1	16.1	18.8
DK	-1.9	0.1	0.6	-0.7	1.1	3.4	4.2	7.7	12.4	16.4	19.2
SE	-1.7	-0.3	0.1	-0.4	1.3	3.6	4.4	7.9	12.7	16.7	19.4
FI	-1.5	-0.7	-0.2	-0.2	1.5	3.8	4.6	8.1	12.8	16.8	19.6
HR	-1.5	-0.7	-0.2	-0.2	1.5	3.8	4.6	8.1	12.8	16.8	19.6
UK	-1.5	-0.7	-0.2	-0.2	1.5	3.8	4.6	8.1	12.8	16.8	19.6
PL	-1.4	-0.9	-0.5	-0.1	1.6	3.9	4.7	7.9	13.0	17.0	19.7
HU	-1.4	-0.9	-0.5	-0.1	1.6	3.9	4.7	7.9	13.0	17.0	19.7
CZ	-1.4	-0.9	-0.5	2.2	3.9	6.3	7.0	7.9	15.3	17.6	21.1
CY	-1.3	-0.8	-0.4	0.7	2.4	4.7	5.5	8.0	13.8	17.6	20.5
DE	-1.2	2.9	2.1	0.0	1.7	4.0	4.8	8.2	12.8	16.8	19.5
EE	-1.2	-0.7	-0.2	2.2	3.9	6.3	7.0	8.1	15.3	17.8	21.3
SI	-1.2	-0.7	-0.2	0.8	2.4	4.8	5.5	8.1	13.7	17.6	20.4
SK	-0.7	-0.2	0.2	2.2	3.9	6.3	7.0	8.6	15.3	18.3	21.8
EL	0.9	1.4	1.8	2.2	3.9	6.3	7.0	10.2	15.3	19.3	22.0
FR	1.5	5.4	4.7	2.7	4.3	6.5	7.2	10.5	14.8	18.6	21.2
IE	1.8	2.0	7.0	9.6	9.7	10.2	10.3	10.8	13.8	17.8	20.5
US	17.2	17.1	20.3	22.7	23.0	23.4	23.5	23.8	20.0	24.3	28.5
Ø	**-1.0**	**0.7**	**1.0**	**1.3**	**2.9**	**5.1**	**5.8**	**8.4**	**13.5**	**17.1**	**20.1**

Table 19: Mean CoC - Inbound – "IP tax planning via IP-box countries" – Intangible (in %)

CoC - Inbound - Intangible											
	IP-box country										
	Portugal	**Hungary**	**Belgium**	**Italy**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**France**	**Spain**
IE	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
DE	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
ES	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
PT	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
LU	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
EL	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
BE	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
MT	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
FR	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
AT	2.3	9.5	10.4	4.1	11.1	11.5	11.8	12.0	5.0	5.1	7.4
NL	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
DK	2.3	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
SK	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
SE	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
EE	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
FI	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
HR	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
UK	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
CY	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
HU	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
CZ	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
PL	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
US	2.4	2.6	3.6	4.1	6.8	4.6	4.7	4.7	5.0	5.2	7.4
SI	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
RO	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
LT	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
LV	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
IT	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
BG	2.4	2.6	3.5	4.1	4.5	4.6	4.7	4.7	5.0	5.1	7.4
Ø	**2.4**	**2.8**	**3.8**	**4.1**	**4.8**	**4.8**	**4.9**	**5.0**	**5.0**	**5.1**	**7.4**

Table 20: Mean EATR - Inbound – "IP tax planning via IP-box countries" – Intangible (in %)

EATR - Inbound - Intangible											
	IP-box country										
	Hungary	**Portugal**	**Belgium**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**Italy**	**France**	**Spain**
US	-3.1	0.1	-1.2	15.7	0.7	2.9	3.7	7.9	13.3	16.9	19.8
IE	-2.6	0.6	-0.7	-1.1	1.1	3.4	4.2	8.3	13.5	17.1	20.1
FR	-2.6	0.5	-0.6	-0.9	1.3	3.5	4.3	8.3	13.4	17.1	20.1
EL	-2.5	0.7	-0.5	-0.8	1.4	3.5	4.3	8.3	13.4	17.0	20.0
SK	-2.5	0.7	-0.4	-0.8	1.4	3.5	4.3	8.4	13.4	17.1	20.0
SI	-2.5	0.7	-0.4	-0.8	1.4	3.6	4.3	8.4	13.5	17.1	20.1
EE	-2.5	0.7	-0.4	-0.8	1.4	3.5	4.3	8.4	13.4	17.1	20.0
DE	-2.5	0.6	-0.5	-0.8	1.4	3.6	4.4	8.4	13.5	17.1	20.1
CY	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.3	8.4	13.5	17.1	20.1
CZ	-2.4	0.8	-0.4	-0.8	1.4	3.5	4.3	8.4	13.4	17.1	20.1
HU	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.4	8.4	13.5	17.1	20.1
PL	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.4	8.4	13.5	17.1	20.1
FI	-2.4	0.7	-0.4	-0.7	1.4	3.6	4.4	8.4	13.5	17.1	20.1
HR	-2.4	0.7	-0.4	-0.7	1.4	3.6	4.4	8.4	13.5	17.1	20.1
UK	-2.4	0.7	-0.4	-0.7	1.4	3.6	4.4	8.4	13.5	17.1	20.1
SE	-2.4	0.7	-0.4	-0.7	1.4	3.6	4.4	8.4	13.5	17.1	20.1
BE	-2.4	0.6	-0.5	-0.7	1.5	3.6	4.4	8.4	13.5	17.2	20.1
DK	-2.4	0.7	-0.4	-0.7	1.5	3.6	4.4	8.4	13.5	17.1	20.1
RO	-2.4	0.8	-0.4	-0.8	1.4	3.5	4.3	8.5	13.4	17.1	20.1
NL	-2.4	0.7	-0.5	-0.7	1.5	3.6	4.4	8.4	13.5	17.1	20.1
IT	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.4	8.5	13.5	17.1	20.1
LT	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.3	8.5	13.5	17.1	20.1
LV	-2.4	0.8	-0.4	-0.8	1.4	3.6	4.3	8.5	13.5	17.1	20.1
ES	-2.4	0.7	-0.5	-0.7	1.5	3.7	4.4	8.5	13.6	17.2	20.1
LU	-2.4	0.7	-0.4	-0.7	1.5	3.7	4.4	8.5	13.6	17.2	20.2
PT	-2.4	0.7	-0.4	-0.7	1.5	3.7	4.4	8.5	13.6	17.2	20.2
MT	-2.4	0.7	-0.4	-0.7	1.5	3.7	4.4	8.5	13.6	17.2	20.2
BG	-2.4	0.8	-0.3	-0.8	1.4	3.6	4.3	8.5	13.5	17.2	20.1
AT	41.1	0.7	43.0	42.5	44.8	47.0	47.8	8.4	13.5	17.1	20.1
Ø	**-1.0**	**0.7**	**1.0**	**1.3**	**2.9**	**5.1**	**5.8**	**8.4**	**13.5**	**17.1**	**20.1**

Tables 17-24 compare the mean values for inbound and outbound CoC and EATR for all countries averaged over all partner countries for IP tax planning via the 11 EU IP-box countries. In Tables 17-20, only the investment in the intangible is considered. In Tables 21-24, the combined investment in all five assets is taken into account. The columns are ranked according to the attractiveness of the IP-box regimes (measured by taking the mean of the average values for optimal financing across all possible investment combinations). The rows are ranked according to the attractiveness of MNE (outbound) and SUBS (inbound) locations, respectively, for the case that IP tax planning is conducted via the (on average) most attractive IP-box regime. Section C1-4 of the annex includes the detailed results for an investment in an intangible for IP tax planning via all EU member states offering an IP-box regime.

Tables 17 and 19 illustrate that for marginal investments, IP tax planning using the IP-box regimes in Portugal and Hungary is most attractive. While these two countries do not offer the lowest IP-box tax rates among the 11 IP-box countries, they allow deducting interest payments related to the IP-box income as well as depreciation of the intangible asset at the higher ordinary corporate income tax rate (gross approach). For marginal investments via these two IP-box countries, having a tax saving from deducting depreciation at the higher general income tax rate while at the same time taxing the returns at the lower IP-box tax rate yields CoC far below 5% (if only the investment in intangibles is considered).

IP tax planning using the IP-box regime in Portugal is most attractive for marginal outbound investments from low-tax countries applying debt financing of SUBSPB. According to the gross approach, the tax reduction due to deduction of the interest under debt financing of SUBSPB exceeds the taxation of the profits in Portugal. For investments from parent companies resident in low-tax countries, this tax saving in Portugal combined with the taxation in the parent country is lower than the tax burden on IP income in Hungary. Hence, for MNEs resident in such parent countries, using the IP-box regime in Portugal for marginal outbound investments is more attractive than using the IP-box regime in Hungary. For marginal outbound investments from high-tax countries, IP tax planning via Hungary taking advantage of the Hungarian IP-box regime is usually most attractive since in Hungary, a lower IP-box tax rate applies.

For IP tax planning using the IP-box regime in Belgium, the deductibility of interest and the allowance of corporate equity (ACE) at the high corporate income tax rate are the main reasons for the very low mean CoC. The tax saving from this interest and ACE deductibility is especially significant due to the large difference between the general corporate income tax rate and the IP-box rate resulting in excess tax savings over tax payments with respect to all MNE locations. In addition, the annual tax depreciation rate in Belgium is comparably high. This further increases the tax advantage and reduces CoC. However, investing in IP in Belgium is less attractive than using the IP-box regimes in Portugal and Hungary, as depreciation does not reduce other income at the general corporate income tax rate in case of acquired IP that benefits from the IP-box regime in Belgium.

Although neither interest nor depreciation is deductible at the higher corporate income tax rate, Italy also ranks among the most attractive IP-box locations for marginal investments. This is due to the comparably fast depreciation schedule and the resulting high tax savings from depreciation combined with the additional tax savings from the application of the ACE regime.[33] The least attractive IP-box countries for marginal investments are France and Spain. The reasons are the relatively high tax

[33] Please note that both Italy and Belgium have implemented specific anti-avoidance provisions to tackle abuses of the ACE regime. However, these regulations do not apply to the tax planning strategies considered in this study. For a comparison of the anti-avoidance provisions in Italy and Belgium, see Zangari (2014).

rates on IP-box income in both countries combined with comparably low annual depreciation rates and the application of the net principle for both interest deductibility and tax depreciation. In the UK, the annual depreciation rate is also low and a comparably high IP-box tax rate applies. However, as interest is deductible at the ordinary income tax rate in the UK, this IP-box regime is more attractive than the IP-box regimes in France and Spain.

According to Tables 18 and 20, for profitable investment, the attractiveness of the Hungarian IP-box regime increases compared to the IP-box regime in Portugal. For the EATR, tax base effects are less relevant and the IP-box tax rate in Hungary is lower than the one in Portugal. For the same reason, tax planning via Belgium also becomes more attractive compared to IP tax planning via Portugal. An exception are investments in Austria as here royalty expenses are deductible from the tax base when paid to Portugal but not when paid to Hungary or Belgium due to the lower IP-box tax rates in these countries. In addition to a lower IP-box tax rate, Belgium has more favorable depreciation rules for intangibles compared to Portugal and offers an ACE regime. The advantage of deducting depreciation at the higher general corporate income tax rate in Portugal is overcompensated by the lower IP-box tax rate in Belgium for profitable investments. Despite the reduced relevance of tax base rules for profitable investments, the three countries applying the gross income approach to IP income, namely Hungary, Portugal and - with respect to interest payments and the ACE - Belgium, are still among the four most attractive IP-box locations if profitable investments are considered. The only country that is similarly attractive while applying the net approach with respect to both interest and depreciation expenses is Malta. Malta has the lowest IP-box tax rate among the 11 countries considered, which is decisive for profitable investments. The ranking of the other IP-box regimes which feature the net approach generally corresponds to the level of the IP-box tax rates. An exception poses Italy, where the ACE regime results in an additional tax advantage rendering Italy more attractive for IP tax planning compared to France and Spain, which both have lower IP-box tax rates. While the IP-box tax rates in France and Spain are similar, the restriction of interest deductibility in Spain results in higher EATR for tax planning using the Spanish IP-box regime.

As for tax planning via IPOFFSHORE, the inbound CoC and EATR for the investment in the intangible are identical across investment locations because irrespective of the country where profits are generated from IP, only the tax base and tax rate effects of the country where the intangible is owned are relevant if royalty payments are deductible from the tax base of SUBS.

If we compare the tax planning strategy "IP tax planning via IP-box regimes" with "IP tax planning via Offshore treaty", it becomes clear that for marginal investments, tax planning using the IP-box regimes in Portugal, Hungary, Belgium and Italy is most attractive. This is due to favorable tax base effects and, in particular, the application of the gross approach under the respective IP-box regimes. As Malta levies no taxes on IP income eligible for the IP–box regime, the CoC and EATR for using Malta as an IP holding location are for most parent-subsidiary-combinations identical to the CoC and EATR for IP tax planning via Offshore treaty. Differences arise with respect to inbound investments into the US as the US levies withholding taxes on royalties paid to Malta while royalties paid to Offshore treaty are by assumption tax-exempt. Moreover, some countries apply the credit method to dividends received from OFFSHORE treaty while they exempt dividends distributed by a company resident in Malta. The results for Cyprus are similar to the results for the tax planning strategy "IP tax planning via Offshore treaty" due to the very low IP-box tax rate of only 2.5% in Cyprus. Other IP-box regimes provide on average lower tax saving potential for marginal investments than the tax planning strategy "IP tax planning via Offshore treaty", because the higher taxes on the IP income in the IP-box countries

overcompensate potential tax advantages from depreciation and interest deductibility available under the IP-box regimes. For profitable investments, taking advantage of the IP-box regimes in Hungary, Portugal, Belgium and Malta is on average preferable to conducting IP tax planning via Offshore treaty.

Tables 21-24 list the combined inbound and outbound CoC and EATR for the investment in all five assets. The tables illustrate that the country ranking according to the CoC for both inbound and outbound investments is very similar to the respective country ranking in the baseline scenario. The attractiveness of countries for marginal inbound investments relative to other investment locations decreases in particular for those countries with very favorable depreciation rules and high tax rates like Belgium while it increases for countries with comparably less favorable depreciation rules. Nevertheless, the CoC and EATR for all inbound investments decrease compared to the baseline scenario if SUBSPB is located in one of the most attractive IP-box countries. For tax planning via Hungary, the mean CoC decreases by 0.5 percentage points from 5.7% to 5.2% and the mean EATR decreases by 4 percentage points from 20.9% to 16.9%. On the other hand, the CoC and EATR may also increase compared to the base case if SUBSPB is located in one of the countries with a less favorable IP-box regime. If SUBSPB is located in Spain, the mean CoC are always higher for inbound investments compared to direct investments (the mean value increases to 6.1%). The only exception is Spain itself. In case that the IP-box regime in Spain is used for inbound investments into Spain, the CoC is reduced compared to the baseline scenario, where IP-box regimes are not considered. For profitable investments between high-tax countries, IP tax planning via any EU member state offering an IP-box regime is always favorable to the baseline scenario.

Table 21: Mean CoC - Outbound – "IP tax planning via IP-box countries" - all assets (in %)

CoC - Outbound - All assets												
	IP-box country											
	Portugal	**Hungary**	**Belgium**	**Italy**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**France**	**Spain**	**BL**
IT	4.6	4.8	4.9	5.0	5.2	5.2	5.2	5.2	5.2	5.3	5.7	5.3
BG	4.6	4.8	4.9	5.2	5.3	5.3	5.3	5.3	5.2	5.3	5.7	5.3
US	4.7	4.7	4.9	4.9	5.0	5.1	5.1	5.1	5.1	5.2	5.6	5.3
LV	4.9	5.1	5.2	5.3	5.5	5.5	5.5	5.5	5.5	5.5	6.0	5.5
LT	4.9	5.1	5.2	5.3	5.5	5.5	5.5	5.5	5.5	5.5	6.0	5.5
FR	5.0	5.0	5.2	5.2	5.3	5.3	5.4	5.4	5.4	5.4	5.8	5.5
RO	5.0	5.2	5.3	5.5	5.6	5.7	5.7	5.7	5.6	5.6	6.1	5.6
SI	5.0	5.2	5.3	5.4	5.6	5.6	5.6	5.6	5.6	5.6	6.1	5.6
BE	5.0	5.0	5.3	5.2	5.4	5.4	5.4	5.4	5.5	5.5	5.9	5.6
PL	5.1	5.2	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.7	6.1	5.7
UK	5.1	5.2	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.7	6.1	5.7
HU	5.1	5.2	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.7	6.1	5.7
MT	5.1	5.1	5.3	5.3	5.4	5.4	5.5	5.5	5.5	5.5	5.9	5.6
CY	5.1	5.2	5.4	5.5	5.6	5.6	5.7	5.7	5.7	5.7	6.2	5.7
FI	5.1	5.2	5.4	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.1	5.7
SE	5.1	5.2	5.4	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.1	5.7
HR	5.2	5.3	5.5	5.5	5.7	5.7	5.7	5.7	5.7	5.7	6.2	5.8
DK	5.2	5.2	5.5	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.1	5.8
CZ	5.2	5.3	5.5	5.7	5.8	5.8	5.8	5.8	5.7	5.8	6.2	5.8
NL	5.2	5.3	5.5	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.1	5.8
AT	5.2	5.2	5.4	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.1	5.8
PT	5.2	5.2	5.5	5.4	5.6	5.6	5.6	5.6	5.6	5.6	6.1	5.7
LU	5.2	5.2	5.5	5.4	5.6	5.6	5.6	5.6	5.6	5.7	6.1	5.7
EE	5.3	5.4	5.6	5.8	5.9	5.9	5.9	5.9	5.8	5.9	6.4	5.9
DE	5.3	5.3	5.5	5.5	5.6	5.6	5.7	5.7	5.7	5.7	6.2	5.8
ES	5.3	5.3	5.5	5.5	5.6	5.6	5.7	5.7	5.7	5.7	6.2	5.8
SK	5.3	5.5	5.6	5.8	5.9	5.9	5.9	5.9	5.9	6.0	6.4	6.0
IE	5.5	5.6	5.8	5.8	5.9	5.9	6.0	6.0	6.0	6.0	6.5	6.1
EL	5.7	5.8	6.0	6.1	6.2	6.2	6.2	6.2	6.2	6.3	6.7	6.3
Ø	**5.1**	**5.2**	**5.4**	**5.4**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.7**	**6.1**	**5.7**
BL = Baseline scenario												

Table 22: Mean EATR - Outbound – "IP tax planning via IP-box countries" - all assets (in %)

EATR - Outbound - All assets												
	IP-box country											
	Hungary	**Portugal**	**Belgium**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**Italy**	**France**	**Spain**	**BL**
BG	15.0	15.1	15.2	15.9	16.3	16.7	16.9	16.9	18.5	18.8	19.5	19.3
MT	15.3	16.1	16.0	15.6	15.9	16.4	16.5	17.2	18.2	19.0	19.5	19.6
IT	15.4	15.5	15.6	15.8	16.2	16.6	16.8	17.2	18.4	19.2	19.7	19.5
LV	15.9	16.0	16.1	16.4	16.8	17.2	17.4	17.8	19.1	19.7	20.4	20.1
LT	15.9	16.0	16.1	16.4	16.8	17.3	17.4	17.8	19.1	19.7	20.4	20.1
PT	16.0	16.8	16.7	16.2	16.6	17.1	17.2	17.9	18.9	19.7	20.2	20.3
AT	16.0	16.8	16.6	16.3	16.6	17.1	17.2	18.3	19.2	20.0	20.5	20.5
LU	16.0	16.8	16.7	16.3	16.6	17.1	17.3	18.0	18.9	19.7	20.2	20.3
ES	16.2	17.0	16.9	16.5	16.8	17.3	17.4	18.1	19.1	19.9	20.4	20.4
BE	16.2	17.1	16.9	16.5	16.8	17.3	17.4	18.1	19.0	19.8	20.4	20.5
NL	16.3	16.8	16.9	16.5	16.9	17.3	17.5	18.2	19.1	19.9	20.5	20.5
UK	16.3	16.5	16.5	16.5	16.9	17.4	17.5	18.2	19.2	20.0	20.5	20.4
DK	16.3	16.7	16.8	16.6	16.9	17.4	17.5	18.2	19.2	20.0	20.5	20.5
RO	16.3	16.4	16.5	17.2	17.5	18.0	18.1	18.2	19.8	20.1	20.8	20.6
SE	16.4	16.7	16.7	16.6	17.0	17.4	17.6	18.3	19.3	20.1	20.6	20.5
FI	16.4	16.6	16.7	16.7	17.0	17.5	17.6	18.3	19.3	20.1	20.6	20.5
HU	16.4	16.5	16.6	16.7	17.0	17.5	17.6	18.3	19.3	20.1	20.6	20.5
PL	16.4	16.5	16.6	16.7	17.0	17.5	17.7	18.3	19.3	20.1	20.7	20.5
CY	16.6	16.7	16.8	17.0	17.3	17.8	18.0	18.4	19.6	20.4	21.0	20.8
SI	16.7	16.8	16.9	17.1	17.5	17.9	18.1	18.6	19.7	20.5	21.1	20.8
CZ	16.9	17.0	17.0	17.6	17.9	18.4	18.5	18.7	20.2	20.6	21.4	21.0
HR	16.9	17.1	17.2	17.2	17.5	18.0	18.1	18.8	19.8	20.6	21.1	21.1
DE	17.1	17.9	17.7	17.3	17.6	18.1	18.3	19.0	19.9	20.7	21.2	21.3
EE	17.2	17.3	17.4	17.9	18.2	18.7	18.8	19.1	20.5	21.0	21.7	21.4
SK	17.4	17.5	17.6	18.0	18.3	18.8	19.0	19.3	20.6	21.2	21.9	21.6
IE	18.4	18.4	19.4	19.9	19.9	20.0	20.1	20.2	20.7	21.5	22.1	22.2
FR	18.7	19.5	19.3	18.9	19.3	19.7	19.8	20.5	21.4	22.1	22.6	22.7
EL	18.8	18.9	19.0	19.1	19.4	19.9	20.1	20.7	21.7	22.5	23.1	22.9
US	25.5	25.5	26.2	26.6	26.7	26.8	26.8	26.9	26.1	27.0	27.8	27.3
Ø	**16.9**	**17.2**	**17.3**	**17.3**	**17.6**	**18.1**	**18.2**	**18.7**	**19.8**	**20.5**	**21.1**	**20.9**
BL = Baseline scenario												

Table 23: Mean CoC - Inbound – "IP tax planning via IP-box countries" - all assets (in %)

CoC - Inbound - All assets												
	IP-box country											
	Portugal	**Hungary**	**Belgium**	**Italy**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**France**	**Spain**	**BL**
EE	4.0	4.0	4.2	4.3	4.4	4.4	4.4	4.4	4.5	4.5	5.0	4.4
BG	4.5	4.6	4.8	4.9	5.0	5.0	5.0	5.0	5.1	5.1	5.5	5.0
IT	4.7	4.7	4.9	5.0	5.1	5.1	5.1	5.1	5.2	5.2	5.7	4.9
HR	4.7	4.8	4.9	5.1	5.1	5.2	5.2	5.2	5.2	5.3	5.7	5.2
SI	4.8	4.9	5.1	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.8	5.5
CZ	4.8	4.9	5.1	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.8	5.4
LT	4.9	4.9	5.1	5.2	5.3	5.3	5.4	5.4	5.4	5.4	5.9	5.4
IE	4.9	5.0	5.1	5.3	5.3	5.4	5.4	5.4	5.4	5.5	5.9	5.5
RO	4.9	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.5	5.5	5.9	5.5
LV	5.0	5.0	5.2	5.3	5.4	5.4	5.4	5.5	5.5	5.5	6.0	5.5
LU	5.0	5.0	5.2	5.3	5.4	5.4	5.5	5.5	5.5	5.6	6.0	5.5
SK	5.0	5.1	5.2	5.3	5.4	5.4	5.5	5.5	5.5	5.6	6.0	5.6
FI	5.0	5.1	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.6	6.0	5.7
PT	5.0	5.1	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.6	6.1	5.8
SE	5.1	5.1	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.6	6.1	5.6
PL	5.1	5.1	5.3	5.4	5.5	5.5	5.5	5.5	5.6	5.6	6.1	5.6
BE	5.1	5.2	5.3	5.5	5.5	5.6	5.6	5.6	5.6	5.7	6.1	5.3
AT	5.1	6.5	6.7	5.5	6.9	6.9	7.0	7.0	5.6	5.7	6.1	5.8
CY	5.1	5.2	5.3	5.5	5.5	5.6	5.6	5.6	5.6	5.7	6.1	5.6
NL	5.1	5.2	5.4	5.5	5.6	5.6	5.6	5.6	5.7	5.7	6.2	5.7
MT	5.2	5.3	5.5	5.6	5.7	5.7	5.7	5.7	5.8	5.8	6.3	6.0
HU	5.3	5.3	5.5	5.6	5.7	5.7	5.7	5.7	5.8	5.8	6.3	5.8
EL	5.3	5.3	5.5	5.6	5.7	5.7	5.8	5.8	5.8	5.8	6.3	6.0
DK	5.3	5.3	5.5	5.6	5.7	5.7	5.8	5.8	5.8	5.9	6.3	5.7
DE	5.4	5.5	5.7	5.8	5.9	5.9	5.9	5.9	6.0	6.0	6.5	6.0
US	5.7	5.7	5.9	6.0	6.5	6.1	6.1	6.1	6.2	6.2	6.7	6.7
UK	5.8	5.8	6.0	6.1	6.2	6.2	6.2	6.2	6.3	6.3	6.8	6.4
FR	5.8	5.9	6.1	6.2	6.3	6.3	6.3	6.3	6.4	6.4	6.8	6.3
ES	6.2	6.3	6.4	6.5	6.6	6.6	6.7	6.7	6.7	6.8	7.2	7.6
Ø	**5.1**	**5.2**	**5.4**	**5.4**	**5.6**	**5.6**	**5.6**	**5.6**	**5.6**	**5.7**	**6.1**	**5.7**
BL = Baseline scenario												

Table 24: Mean EATR - Inbound – "IP tax planning via IP-box countries" - all assets (in %)

EATR - Inbound - All assets												
	IP-box country											
	Hungary	**Portugal**	**Belgium**	**Malta**	**Cyprus**	**Netherlands**	**Luxembourg**	**UK**	**Italy**	**France**	**Spain**	**BL**
BG	6.6	7.3	7.0	7.0	7.4	7.8	8.0	8.8	9.8	10.5	11.1	8.8
EE	10.1	10.7	10.5	10.4	10.8	11.3	11.4	12.2	13.2	14.0	14.6	13.2
LT	11.0	11.6	11.4	11.3	11.7	12.2	12.3	13.1	14.1	14.9	15.5	13.6
IE	11.3	11.9	11.7	11.6	12.0	12.5	12.6	13.5	14.5	15.2	15.8	14.1
LV	11.3	12.0	11.7	11.7	12.1	12.5	12.7	13.5	14.5	15.2	15.8	14.3
RO	11.7	12.3	12.1	12.0	12.5	12.9	13.0	13.9	14.9	15.6	16.2	14.8
SI	11.8	12.4	12.2	12.1	12.6	13.0	13.2	14.0	15.0	15.7	16.3	15.5
CY	12.7	13.4	13.1	13.1	13.5	13.9	14.1	14.9	15.9	16.6	17.2	15.3
CZ	13.0	13.6	13.4	13.3	13.7	14.2	14.3	15.1	16.1	16.9	17.5	16.6
HR	13.0	13.6	13.4	13.4	13.8	14.2	14.4	15.2	16.2	16.9	17.5	16.4
PL	13.9	14.5	14.3	14.2	14.7	15.1	15.2	16.1	17.1	17.8	18.4	17.5
FI	14.3	14.9	14.7	14.6	15.1	15.5	15.6	16.5	17.5	18.2	18.8	18.5
SE	15.2	15.8	15.6	15.5	16.0	16.4	16.6	17.4	18.4	19.1	19.7	19.2
SK	15.3	15.9	15.7	15.6	16.0	16.5	16.6	17.4	18.4	19.2	19.8	19.3
HU	15.4	16.0	15.8	15.7	16.1	16.6	16.7	17.5	18.5	19.3	19.9	19.3
UK	17.2	17.8	17.6	17.5	18.0	18.4	18.5	19.4	20.4	21.1	21.7	21.4
DK	17.2	17.8	17.6	17.5	18.0	18.4	18.6	19.4	20.4	21.1	21.7	20.9
NL	17.5	18.1	17.8	17.8	18.2	18.7	18.8	19.6	20.6	21.4	22.0	21.9
IT	18.7	19.3	19.1	19.0	19.4	19.9	20.0	20.8	21.8	22.6	23.2	23.0
LU	19.2	19.8	19.6	19.5	20.0	20.4	20.6	21.4	22.4	23.1	23.7	24.2
PT	19.5	20.1	19.9	19.9	20.3	20.7	20.9	21.7	22.7	23.4	24.0	25.2
EL	20.1	20.8	20.5	20.5	20.9	21.3	21.5	22.3	23.3	24.0	24.6	25.8
DE	21.7	22.3	22.1	22.0	22.5	22.9	23.0	23.8	24.9	25.6	26.2	27.1
BE	22.2	22.8	22.5	22.5	22.9	23.4	23.5	24.3	25.3	26.1	26.7	26.7
MT	23.2	23.8	23.6	23.5	24.0	24.4	24.5	25.3	26.4	27.1	27.7	29.7
ES	23.9	24.5	24.3	24.2	24.7	25.1	25.2	26.1	27.1	27.8	28.4	31.7
AT	26.0	17.9	26.4	26.3	26.7	27.2	27.3	19.5	20.5	21.2	21.8	22.3
US	27.8	28.5	28.2	31.6	28.6	29.0	29.2	30.0	31.1	31.8	32.4	36.2
FR	28.5	29.1	28.9	28.8	29.3	29.7	29.9	30.7	31.7	32.4	33.0	35.2
Ø	**16.9**	**17.2**	**17.3**	**17.3**	**17.6**	**18.1**	**18.2**	**18.7**	**19.8**	**20.5**	**21.1**	**20.9**

BL = Baseline scenario

7 Effect of anti-avoidance regulations

Countries have implemented a broad range of anti-avoidance measures restricting tax planning strategies as those discussed in this study. Withholding taxes, switch-over clauses for certain foreign intercompany dividends and rules that fully deny the deduction of interest and royalty payments if the corresponding income is taxed at a low rate have been considered in our calculations (for details see Section 3.4). Other important and prevalent anti-avoidance measures are controlled foreign company (CFC) legislation, interest deduction limitation rules and transfer pricing regulations. In our calculations, we assume that the loan and interest volume stays below the respective threshold values of interest deduction limitation rules that countries may apply.[34] In addition, the level of the royalty payments in tax planning strategies 5-7 is assumed to be in line with transfer pricing rules requiring arm´s length pricing of intra-company transactions. Moreover, CFC rules are disregarded. Nonetheless, in the following the features of CFC rules in the EU member states and the US and their potential application in case of the considered tax planning strategies are discussed in detail. In addition, we illustrate the effect of binding interest deduction restriction rules and CFC rules in a worked example in Section 7.2.

7.1 CFC rules in the EU member states and the US

Many countries use controlled foreign company legislation to fight tax planning strategies like those considered in this study. In principal, CFC rules aim at taxing certain (usually low-taxed) foreign base company income irrespective of its actual distribution at the level of the parent company. As a result, advantages stemming from shifting profits to low-tax jurisdictions are neutralized and the overall tax burden may turn out to be even higher than the tax burden if the profits hadn't been shifted.

Table 25 provides an overview on CFC rules in the EU member states and the US.[35] It shows that among the 28 EU member states, 14 countries have implemented CFC rules. In addition, CFC rules have been implemented in the US.

Most of the countries considered in Table 25 apply CFC rules only to foreign income that is taxed below a certain threshold. This threshold may be defined as a percentage of the domestic income tax rate or in terms of an absolute value. Usually, countries refer to the actual tax paid in the foreign country when testing whether CFC rules apply. The threshold value for most countries ranks between 50% and 75% of the domestic tax rate. In Germany and the US, the threshold value amounts to approximately 85% and 90%, respectively. In Germany, however, CFC income is only subject to corporate income tax at a rate of 15% and not to trade tax (about 14%). This took effect after a recent court decision, effectively reducing the threshold value to 15% and thus to about 50% of the domestic tax level. In the US, the high threshold level is relativized by a broad range of exemptions from the application of the CFC rules.[36]

[34] For an overview on interest deduction limitation rules see Spengel et al. (2016).
[35] The overview is based on Bräutigam et al. (2015) and the country information available on the ibfd tax research platform.
[36] See e.g. Ting (2014).

Table 25: CFC rules in the EU member states and the US 2015

	Approach	Definition of low taxation				Tax credit availability	Special EU-/EEA-clause
		Threshold		Subsidiary location	Parent location		
		relative	absolute				
Denmark	general	-		-	-	yes	no
Finland	low taxation/ jurisdictional	60%	12%	actual tax paid	CIT-rate	yes	yes
France	low taxation	50%	16%	actual tax paid	hypothetical tax paid	yes	yes
Germany	low taxation		25%	actual tax paid		yes (limited to CIT)	yes
Greece	low taxation/ jurisdictional	50%	13%	CIT-rate	CIT-rate	yes	yes
Hungary	low taxation/ jurisdictional		10%	actual tax paid		yes	yes
Italy	low taxation/ jurisdictional	50%	13.75%	actual tax paid	hypothetical tax paid	yes	yes
Lithuania	low taxation/ jurisdictional	75%	11.25%	CIT-rate	CIT-rate	yes	no
Netherlands	low taxation		10%	CIT rate		yes	no
Poland	low taxation/ jurisdictional	75%	14.25%	actual tax paid	CIT-rate	yes	yes
Portugal	low taxation	60%	12.60%	actual tax paid	hypothetical tax paid	yes	yes
Spain	low taxation	75%	15.75%	actual tax paid	CIT-rate	yes (but not if paid in listed tax havens)	yes
Sweden	low taxation/ jurisdictional	55%	12.10%	actual tax paid	CIT-rate	yes	yes
United Kingdom	low taxation/ jurisdictional	75%	15%	actual tax paid	CIT-rate	yes	no
United States	low taxation	90%	29.97%	actual tax paid	CIT-rate	yes	No

Eight EU member states apply a mixed approach by referring to a low-tax threshold while also listing specific countries that are covered (black list) or not covered (white list) by the CFC rules. Following the decision of the European Court of Justice in the case Cadbury-Schweppes[37], almost all EU member states have implemented special EU-/EEA-clauses exempting subsidiaries resident in EU or EEA member states from the application of the CFC rules if the subsidiaries do not constitute wholly artificial arrangements. An exception is Denmark, where authorities decided to extend the existing CFC rules to domestic cases in succession of the Cadbury-Schweppes decision. In Denmark not the level of taxation but only the type of income is decisive for the application of CFC rules. Lithuania applies no EU/EEA-clause but includes all EU member states in its white list. However, companies resident in white list countries may also be subject to CFC rules if they benefit from preferential tax regimes. Similar to the case of Lithuania, the UK CFC rules do not include a general EU-/EEA-clause.

The Netherlands does not employ CFC rules in the narrower sense but requires the annual revaluation of shareholdings in subsidiaries at market value in certain cases. If the revaluation is required, the revaluation amount is included in taxable income of the Dutch parent company, which effectively results in the same outcome as CFC rules. A revaluation is required if the subsidiary is taxed below 10% and at least 90% of the assets are low-taxed passive assets. In addition, the subsidiary needs to be mainly held to provide a return comparable to the return of portfolio investments.

In all included countries, the relevant income types of the tax planning strategies considered in this study - royalty and interest income - qualify as CFC income. In most countries foreign taxes can be credited against the taxes levied on CFC income in the parent country. In countries where no tax credits are granted, the application of CFC rules is likely to lead to a higher overall tax burden than in a scenario without tax planning. In Hungary, CFC rules will only apply if the Hungarian parent company is controlled by Hungarian individual investors. In all other countries listed in Table 25, CFC rules apply at the level of the parent company.

For the seven tax planning structures considered in this study, we can derive the following from the above summary of CFC rules:

(1) If the intermediate company is located in Offshore no treaty, CFC rules could apply in all countries listed in Table 25.

(2) If the intermediate company is located in Offshore treaty, CFC rules could apply in most countries listed in Table 25. No CFC rules should apply in Hungary, as Hungary generally excludes treaty countries from its CFC legislation if the tax payer has a real economic presence in the subsidiary country. If Offshore treaty only exempts dividends, interest and royalties from taxation but generally levies a corporate income tax rate above the CFC threshold levels, CFC rules could be avoided in those countries that define low taxation based on the nominal foreign tax rate in the subsidiary country.

(3) If the intermediate company is located in Average, CFC rules should not apply in any of the EU member states, except for Denmark, as the tax level in the average country (i.e. 23%) is higher than the low-tax threshold in all these countries. All EU member states that refer to the actual tax paid at the level of the subsidiary in their CFC rules have special EU-/EEA-clauses or comparable rules. Hence, also in case of "Hybrid Financing via Average" CFC rules in these countries should not apply if the intermediate company has sufficient substance. The US CFC rules may apply to the income of AVERAGE. However, there are several exemptions to the US CFC rules allowing avoiding the application of the rules.

[37] See 12.9.2006, C-196/04 (Cadbury Schweppes), EuGHE 2006, S. I-7995.

(4) For tax planning strategy 7, in which the intermediate company (SUBSPB) is resident in an EU member state offering an IP-box, the EU-/EEA-clauses should apply, if SUBSPB has sufficient substance. In Lithuania, no special EU/EEA-clause exists. Companies benefiting from a favorable tax regime in a white list country (including all EU and EEA countries) are subject to Lithuanian CFC legislation. Hence, the CFC rules in Lithuania may apply if the tax planning strategy "IP tax planning via IP-box countries" is used. Although the CFC rules in the UK do not include a special EU-/EEA-clause either, these CFC rules presumably do not apply to income of SUBSPB if SUBSPB has sufficient substance as the UK CFC legislation gateway provisions are intended to target only profits which have been artificially diverted from the UK. Hence, Denmark and Lithuania are likely to be the only EU member states for which CFC rules could apply under tax planning strategy 7. In addition, the CFC rules in the US are generally applicable to royalty income of SUBSPB. However, there are several possibilities to avoid the application of US CFC rules.

To conclude, for most parent companies resident in countries applying CFC rules, using the tax planning strategy "Hybrid financing via Average" or holding IP in a country offering an IP-box regime is beneficial compared to other tax planning strategies as conducting tax planning via EU member states facilitates avoidance of the application of CFC rules.

7.2 Example of the effect of CFC and interest deduction limitation rules on the CoC for "Financing via Offshore treaty"

Neither CFC rules nor interest deduction limitation rules are considered in the cost of capital (CoC) and effective average tax rate (EATR) calculations for the tax planning strategies, as the underlying framework cannot adequately model such rules. However, the following example simplifying illustrates the effect of binding CFC and thin capitalization rules for the case of an outbound investment from France to Belgium, using the tax planning strategy "Financing via Offshore treaty". The example assumes retained earnings financing of both OFFSHORE treaty and MNE and considers an investment in an intangible asset only.

To calculate the CoC for a marginal cross-border investment using the tax planning strategy "Financing via Offshore treaty", the following formula applies:

$$p = \frac{(1-\tau_S \varnothing_{S0})(1+\rho)}{(1-\sigma_{SO})(1-\tau_S)(1+\pi)} - \frac{(A_S - \tau_S \varnothing_{S0})(1+\rho)}{(1-\tau_S)(1+\pi)} - \frac{(1-\delta)(1-A_S)}{(1-\tau_S)}$$

(7)
$$- \frac{(1-\tau_S \varnothing_{S0})}{(1-\sigma_{SO})(1-\tau_S)(1+\pi)} + \frac{(1-\tau_S \varnothing_{S0})}{(1-\tau_S)(1+\pi)} - \frac{i(1-\tau_S \varnothing_{S0})(1-\omega_{SO})}{(1-\sigma_{SO})(1-\tau_S)(1+\pi)}$$

$$+ \frac{i(1-\tau_S \varnothing_{S0})}{(1+\pi)} - \delta$$

This formula is derived by setting formula 3 (see Section 4.1.2) equal to zero and solving it for p. If we plug in the respective parameters for the countries, France, Belgium and Offshore treaty, we receive the following formula yielding cost of capital of the investment of about 2%.

$$p = \frac{(1-0)(1+0.071)}{(1-0)(1-0.3399)(1+0.02)} - \frac{((0.9439*0.3399)-0)(1+0.071)}{(1-0.3399)(1+0.02)}$$

$$- \frac{(1-0.1535)(1-(0.9439*0.3399))}{(1-0.3399)} - \frac{(1-0)}{(1-0)(1-0.3399)(1+0.02)} + \frac{(1-0)}{(1-0.3399)(1+0.02)}$$

(8)

$$- \frac{0.071(1-0)(1-0)}{(1-0)(1-0.3399)(1+0.02)} + \frac{0.071(1-0)}{(1+0.02)} - 0.1535$$

$$= 0.02$$

The very low CoC result from a full exemption of the return of investment from profit taxes and the high present value of savings from tax depreciation in Belgium.

If CFC rules apply in France, the interest income earned in period t+1 by Offshore treaty will be immediately taxed in France as ordinary income. As a result, the interest income is subject to the French corporate income tax rate of 38.93%. We model this by multiplying term 7 of formula 3 and correspondingly term 6 of formula 7 by $(1-\tau_P)$, which determines the additional tax burden on the interest in the parent country. This change results in CoC of 6.1%. Direct debt financing from MNE to SUBS in the baseline scenario renders the same CoC. The CoC under this direct financing strategy is higher than under retained earnings financing of SUBS, which is the optimal financing strategy for direct investments from France to Belgium. For intangibles this financing strategy results in CoC of only 4.7%.

An application of interest deduction limitation rules in Belgium increases the CoC to 5.6%. To calculate this value, the factor τ_S in term 8 of formula 3, which represents tax savings from interest deductibility, is set to zero. Although the full interest payment is taxed in Belgium and there are no further tax consequences at the level of OFFSHORE treaty, the resulting CoC is again higher than the CoC for tax-efficient direct financing (retained earnings financing) of the Belgium subsidiary. The reason is that under tax planning via Offshore treaty, the subsidiary does not benefit from a tax base deduction under the ACE regime as it is financed by debt while also the interest is not deductible from the tax base.

The two examples illustrate that anti-avoidance measures such as CFC rules and interest deduction limitation rules have the potential to fully eliminate tax advantages derived from the use of tax planning strategies. In addition, anti-avoidance measures are likely to even increase the tax burden of an investment if certain tax planning strategies are applied compared to investing directly in the subsidiary using optimal financing from the parent company.

8 Summary of results

(1) The ongoing debate on aggressive tax planning of multinationals suggests that companies use profit shifting via interest and royalty payments to significantly reduce the effective tax burden on their global profits. To provide a more general insight into tax burden effects of international tax planning, this report uses the Devereux/Griffith model to calculate CoC and EATR for cross-border investments between all EU member states and the US applying representative profit shifting strategies.

(2) For tax planning via an intermediate financing company resident in a tax-exempt country which grants a loan to the subsidiary and receives the marginal return of the investment as interest, the mean CoC across all investment combinations decreases by 1.6 percentage points from 5.7% to 4.1% and the mean EATR decreases by 4.7 percentage points from 20.9% to 16.2%.

(3) If marginal profits are instead shifted via interest payments to an EU average country with a corporate income tax rate of 23%, the CoC and EATR only decrease for investments between high-tax countries. On average, the CoC for cross-border investments increases by 0.1 percentage points from 5.7% to 5.8% and the EATR increases by 0.7 percentage points from 20.9% to 21.6% if this tax planning strategy is used as opposed to an investment directly financed by the parent company.

(4) In case the financing company resident in the average country grants a hybrid loan to the subsidiary and the average country treats the returns as tax-exempt dividends, the mean CoC across all investment combinations decreases by 1.9 percentage points from 5.7% to 3.8% and the mean EATR decreases by 6.6 percentage points from 20.9% to 14.3% compared to direct financing. Hence, this tax planning strategy is on average superior to using a financing company in a tax-exempt country. This result is driven by investments from parent companies resident in low-tax countries for which debt financing of the financing company is optimal. However, also for parent companies resident in high-tax countries this strategy is often advantageous compared to using a financing company resident in a non-EU tax-exempt country, as CFC rules are less relevant in a European context.

(5) For IP tax planning using an IP holding company resident in a tax-exempt country that licenses IP to the subsidiary abroad, the mean CoC decreases by 0.1 percentage points from 5.7% to 5.6% and the mean EATR decreases by 3.4 percentage points from 20.9% to 17.5%. These results are based on the assumption that IP tax planning only allows shifting of the returns derived from the intangible but not from the other four assets considered in the model. As anecdotal evidence on the tax planning strategies of multinationals such as Google and Ikea suggests,[38] in reality, companies may be able to shift larger shares of profits via royalties. If we assume that a company generates its income only from intangibles, the mean CoC decreases to 4.7% and the mean EATR decreases to only 2%. This shows that IP tax planning results in effective tax rates close to zero for profitable companies with a business model that mainly relies on intangible assets.

(6) Owning IP in an EU member state offering an IP-box regime and licensing it to the subsidiary reduces the mean CoC and EATR for many cross-border investments below the mean CoC and EATR in the baseline scenario. However, depending on the residence country of the parent and subsidiary company and the attractiveness of the IP-box regime, the CoC and EATR may also exceed the respective results in case of direct investments. According to our calculations, Portugal offers the most attractive IP-box regimes for marginal investments. It allows the deduction of interest and depreciation expenses at the high statutory corporate income tax rate, while it taxes IP income at the low IP-box tax rate. Conducting IP tax planning using the IP-box in Portugal reduces the mean CoC by on average 0.6 percentage points from 5.7% to 5.1% for marginal cross-border investments in all five assets. For profitable investments, Hungary offers the most attractive IP-box regime, reducing the mean EATR on average to 16.9% which is both lower than for IP tax planning via a tax-exempt country and

[38] See Kleinbard (2011); Sandell (2012); Ting (2014).

intra-company financing via a tax-exempt country. If only the investment in the intangible asset is considered, the mean CoC decreases to 2.8% and the EATR decreases below zero to -1.0% if the Hungarian IP-box regime is used. This shows that in particular IP-box regimes that allow an asymmetric treatment of income and expenses offer the highest tax-saving potential among all tax planning strategies considered.

(7) Anti-avoidance measures, such as withholding taxes, switch-over clauses for intercompany dividends, thin capitalization and CFC rules, reduce the tax savings from tax planning strategies and often even increase CoC and EATR above the respective values that result in case of a direct investment in the subsidiary using the most tax-efficient way of direct financing.

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Note:
The Annex of the study with detailed results can be found in a separate document.

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