

Discussion Paper No. 15-055

**Decline of CFC Rules and Rise of IP Boxes:
How the ECJ Affects Tax Competition
and Economic Distortions in Europe**

Rainer Bräutigam, Christoph Spengel,
and Frank Streif

ZEW

Zentrum für Europäische
Wirtschaftsforschung GmbH

Centre for European
Economic Research

Discussion Paper No. 15-055

**Decline of CFC Rules and Rise of IP Boxes:
How the ECJ Affects Tax Competition
and Economic Distortions in Europe**

Rainer Bräutigam, Christoph Spengel,
and Frank Streif

Download this ZEW Discussion Paper from our ftp server:

<http://ftp.zew.de/pub/zew-docs/dp/dp15056.pdf>

Die Discussion Papers dienen einer möglichst schnellen Verbreitung von
neueren Forschungsarbeiten des ZEW. Die Beiträge liegen in alleiniger Verantwortung
der Autoren und stellen nicht notwendigerweise die Meinung des ZEW dar.

Discussion Papers are intended to make results of ZEW research promptly available to other
economists in order to encourage discussion and suggestions for revisions. The authors are solely
responsible for the contents which do not necessarily represent the opinion of the ZEW.

Decline of CFC Rules and Rise of IP Boxes: How the ECJ affects Tax Competition and Economic Distortions in Europe

Rainer Bräutigam (ZEW and University of Mannheim)

Christoph Spengel (University of Mannheim and ZEW)

Frank Streif (ZEW and University of Mannheim)

This version: August 2015

Abstract:

The European Court of Justice (ECJ) has become an influential player in the field of direct taxation in the European Union in the past twenty years. However, it is unclear whether the ECJ's decisions actually increase tax neutrality and therefore contribute to the achievement of an internal market as stipulated by the European treaties or not. In 2006, the ECJ limited the applicability of specific tax rules in Europe that are intended to prohibit the excessive use of low-tax countries. Our counterfactual scenarios show that this restriction of so-called controlled foreign company (CFC) rules and the related emergence of IP boxes cast doubt on the positive effects the ECJ is assumed to have. Additionally, we show that the abolishment of IP boxes would strengthen tax neutrality in Europe. Overall, further research is needed to relate and harmonise economic and legal concepts of tax neutrality.

JEL Classification Code: H21, K10

Keywords: European Court of Justice, Tax Neutrality, Effective Tax Rates, Controlled Foreign Company Rules, Intellectual Property Boxes

Acknowledgement: The authors gratefully acknowledge support from the Mannheim Taxation (MaTax) Science Campus, funded by the Leibniz Association, the State of Baden-Württemberg, and the participating institutions ZEW and University of Mannheim.

Corresponding authors: Rainer Bräutigam and Frank Streif, ZEW Mannheim, L 7, 1, 68161 Mannheim, Germany, ++49-621-1235-163, rainer.braeutigam@zew.de and streif@zew.de

1. Introduction

The long-term goal of the European Union (EU) is to establish and ensure an internal market.¹ The completion of this “area without internal frontiers”² should be encouraged by a consistent economic policy in each member state favouring “an efficient allocation of resources”³ in the European Union. This goal which is derived from economic theory calls for a neutral tax system that does not distort investment decisions.⁴ However, the differences in tax systems in the EU are still substantial as direct taxation remains the sole responsibility of the member states and efforts for more harmonisation initiated by the European Commission have had only little success.⁵ This creates significant economic distortions until today.⁶

Consequently, the European Court of Justice (ECJ) is an influential player in completing the internal market and has a high impact on tax policy in Europe. The court’s decisions focus especially on the elimination of discriminatory measures of cross-border investments compared to domestic investments.⁷ Some of the decisions had a major impact on tax systems in Europe and several member states had to adapt their national laws after the judgements. The reasoning of the ECJ decisions have been discussed and criticized in legal literature at length.⁸ Most papers argue that the ECJ’s jurisprudence lacks clear guidance for the member states when it comes to defining what exactly EU-law compliant tax policy is.

In contrast to lengthy debates in legal literature, possible effects of ECJ’s jurisprudence have only scarcely been discussed in economic literature. Some papers evaluate if the ECJ rather favours capital export or capital import neutrality.⁹ The only systematic analysis concerning possible effects of the ECJ’s jurisprudence on tax neutrality is

¹ Article 26 of the Treaty on the Functioning of the European Union (TFEU). This goal has already been established in the Treaty of the European Economic Community (EEC) in 1957.

² Article 26 (2) TFEU.

³ Article 120 TFEU.

⁴ See Horst (1980); Auerbach (1989); Mason (2010, p.126).

⁵ One reason is the requirement for a unanimous decision of all member states. See Graetz/Warren (2006, pp. 1227-1232).

⁶ See Devereux/Pearson (1995); European Commission (2001); Elschner/Vanboerren (2010).

⁷ Until today, more than 250 cases concerning issues in direct taxation have been decided by the ECJ. See European Commission (2015).

⁸ See p. ex. Lang (2002); Bizioli (2008); Pistone (2010).

⁹ See Spengel (2003, pp. 256-262); Graetz/Warren (2006); Mason/Knoll (2012); Schön (2015).

provided by *de la Feria/Fuest* by means of a theoretical model.¹⁰ They show that depending on the reaction of the member states, economic distortions could actually increase due to the ECJ's decisions.

Given the important role of the ECJ and its impact on national tax systems, the consequences for economic distortions have not been sufficiently investigated yet. The essential research question at this interdisciplinary edge between economics and law is whether the ECJ's jurisprudence actually contributes to the reduction of economic distortions caused by national tax systems in the member states or not.

A landmark decision of the ECJ was the Cadbury-Schweppes ruling on CFC rules in 2006.¹¹ We use this decision to illustrate and quantify the economic effects of the ECJ's jurisprudence. In this ruling, the court limited the applicability of CFC rules within the EU. The rules are targeted at specific (highly mobile) activities conducted in a foreign low-tax country and aim at effectively taxing such income on accrual at the higher home country tax rate. The ECJ declined the applicability of such rules within the EU when the application is solely based on the low level of taxation in the country of the foreign subsidiary. Instead, CFC rules are only compatible with EU law¹² if they are restricted to "wholly artificial arrangements" that do not unfold any economic activity (e.g. letter boxes).¹³ All member states with CFC rules had to amend their legislation and limit the application to such "wholly artificial arrangements" as demanded by the ECJ.¹⁴ At its heart, the issue closely relates to the problem on how to examine the existence of economic substance of corporate structures and transactions; this legal and economic challenge is also reflected in the comprehensive litigation on tax shelters in the US that the Internal Revenue Service has deemed to be abusive.¹⁵ Consequently, CFC rules are of low relevance within the EU and the European Economic Area (EEA) nowadays.¹⁶ In this context, *Ruf/Weichenrieder (2013)* investigate whether the Cadbury-Schweppes decision in 2006 has led to an increasing use of low-tax regimes by German multinationals in

¹⁰ See *de la Feria/Fuest* (2011).

¹¹ See European Court of Justice, Judgement from 12. September 2006.

¹² Especially with the fundamental freedoms provided by the TFEU.

¹³ See European Court of Justice, Judgement from 12. September 2006, para. 57.

¹⁴ See European Council (2010).

¹⁵ See Borek et al. (2014).

¹⁶ See Fontana (2006); Smit (2014). Due to special treaties with countries of the European Economic Area (EEA), the judgement also affected the tax policy in Iceland, Norway and Liechtenstein. Therefore, these countries are included in our analysis. Generally, the objectives of the EEA agreement are basically the same as in the TFEU. See Gudmundsson (2006).

Europe.¹⁷ They find economically significant evidence that passive investments from German multinationals in low-tax EEA countries has increased due to the Cadbury-Schweppes decision. Similarly, *Altshuler/Hubbard* and *Ruf/Weichenrieder (2012)* also confirm the economic relevance of CFC legislation for the decisions of multinationals that allocate passive assets.¹⁸ However, none of these studies discuss the general impact of CFC rules and the above mentioned Cadbury-Schweppes decision on tax neutrality in Europe.

Notably, the highly restricted applicability of CFC rules has widened the possibility for member states to attract foreign investment by a favourable tax environment without triggering CFC rules of the corresponding parent country. Before the ruling, member states were restricted to offer favourable tax conditions for certain investments in their country as the application of CFC rules of another country could have eliminated the offered tax incentives. If the conditions of CFC thresholds were fulfilled, the effective tax burden was grossed-up to the higher tax level of the parent's country.¹⁹ Consequently, this restricted certain forms of tax competition within the EU before the Cadbury-Schweppes decision which restrained member states from attracting foreign investment by means of very favourable tax conditions.

We argue that the new possibilities for attracting foreign investments after the judgement have been promptly used by some countries. The rise of Intellectual Property box regimes (IP boxes) within the EU, which provide a lower effective tax rate to (specific) income from IP, can be seen as a direct consequence of the de-facto abolishment of CFC rules. This is especially true for IP boxes which include acquired IP in addition to self-developed IP.²⁰ We argue that IP box regimes which include acquired IP would not have been introduced in the EU without the judgement since they would have not unfolded a significant effect due to CFC rules. The judgement and the reactions in the member states (adaptation of CFC rules and introduction of IP boxes) constitute an important case that allows us to analyse whether the ECJ contributes to the economic goal of an efficient allocation of resources by eliminating influences of tax systems or

¹⁷ See Ruf/Weichenrieder (2013).

¹⁸ See Altshuler/Hubbard (2003); Ruf/Weichenrieder (2012).

¹⁹ Under CFC taxation, most countries tax the income of the foreign subsidiary according to their national rules as accrued and grant a tax credit for taxes paid in the foreign country. See Dahlberg/Wiman (2013, p. 40); Endres/Spengel (2015, pp. 339-342).

²⁰ For a detailed overview see Evers et al. (2015).

not. With this analysis, we also take a combined view on two areas (CFC rules and IP boxes) that are highly debated in the current “Base Erosion and Profit Shifting” (BEPS) project of the OECD.²¹

In our analysis, we apply the Devereux-Griffith model²² which allows us to make precise quantitative assessments on the consequences of the ECJ’s ruling for tax neutrality in Europe in the context of intellectual property. The analysis will be based on effective average tax rates (EATR) provided by the Devereux-Griffith model. We will investigate how the mean and standard deviation of the EATR for domestic and cross-border investments develop over time for different (counterfactual) scenarios (with/without CFC rule and with/without IP box regimes). The mean can be used to identify general trends concerning the absolute tax burden for investments whereas the standard deviation indicates whether there is a convergence or divergence of EATRs in the EU.²³

The remainder of the paper is structured as follows. Section 2 gives a detailed overview of CFC rules in the EU member states and how the Cadbury-Schweppes decision in 2006 has impacted them. In addition, we show the main properties of the IP box regimes which have emerged in recent years. Section 3 presents the Devereux-Griffith model and the implementation of CFC rules into the model. Section 4 provides results for the different scenarios and discusses their implications. Finally, section 5 concludes.

2. CFC Rules and IP Boxes in the EU Member States (2004-2014)

In the following, we provide a detailed overview on the properties of CFC rules and IP boxes in the EU member states from 2004 to 2014 which serves to illustrate how CFC rules and IP boxes work and how they impact the tax burden of investments.

2.1 CFC Rules

2.1.1 Aim and properties of CFC rules in general

Most countries use CFC rules as anti-avoidance measures against extensive use of low tax jurisdictions by multinational enterprises.²⁴ Generally, the separation principle in

²¹ See OECD (2013).

²² See Devereux/Griffith (1999) and Schreiber et al. (2002).

²³ This approach is also applied by Devereux/Pearson (1995); Ruiz (2006); Elschner et al. (2011).

²⁴ See Dahlberg/Wiman (2013, p. 21); Endres/Spengel (2015, pp. 339-342). However, in certain circumstances countries may have incentives to not apply CFC rules since they lower their multinationals’ competitiveness abroad. For the United States, see for example Brauner/Herzfeld (2013, p. 783).

international taxation enables multinationals to exploit tax differentials across jurisdictions.²⁵ However, if CFC rules apply, profits of a foreign subsidiary are taxed as accrued at the higher tax rate of the parent's home country.

A common requirement for CFC rules to be applicable is that the parent company controls the foreign subsidiary. Most commonly, this is fulfilled if the parent owns 50% or more of the capital of the subsidiary. Otherwise, CFC rules mainly differ with respect to two dimensions. The first dimension is about the *income* which is subject to CFC rules. If the "entity approach" is used, all income that is generated by a foreign subsidiary is included whereas the "transactional" approach restricts the CFC rule's applicability to specific kinds of income deemed to be passive (such as royalty or interest income).²⁶

The second dimension determines the exact definition of a *low-tax jurisdiction*. Two approaches prevail:²⁷ If the "threshold approach" is used, a required minimum level of taxation is defined by the CFC legislation of the home country. The minimum requirement usually refers to the actual tax paid in a foreign country and is defined as the percentage of the tax burden which the same investment would bear at home. If the actual foreign tax burden is below the minimum requirement the CFC rule applies. In contrast, if the "jurisdictional approach" is used, governments publish official blacklists and/or whitelists that explicitly name countries for which CFC rules apply and/or do not apply. In general, CFC rules are not applicable for countries which are listed on a whitelist. The non-applicability holds for all income - active and passive. However, most countries which use whitelists additionally require a minimum level of taxation in the source country.

If CFC rules of the parent's country are triggered by the income of a subsidiary, the tax due is calculated according to the tax law of the parent's country. A tax credit for the tax paid in the foreign country may be granted to avoid double taxation.

2.1.2 Implications of the Cadbury-Schweppes decision

In 2006, the ECJ had to decide on the compatibility of the British CFC rules with EU law. In the case at hand, a British multinational (Cadbury-Schweppes) had two subsidiaries in Ireland, one of them receiving substantial amounts of passive income. Before the ECJ's

²⁵ See Graetz (2003, p. 217).

²⁶ See Dahlberg/Wiman (2013, p. 34); Endres/Spengel (2015, p. 340).

²⁷ See Dahlberg/Wiman (2013, pp. 36-38)

decision, the British CFC rule applied to the income of that Irish subsidiary due to the passive income *and* the fact that the tax paid in Ireland was below the minimum level required by the British CFC rule.²⁸ The ECJ restricted the applicability of the minimum requirement to wholly artificial arrangements that do not reflect any economic activity, e.g. pure letter boxes.²⁹ From the ECJ's point of view, it was not proven that the Irish subsidiary was of wholly artificial nature. In this case, CFC rules cannot be justified and are an infringement to the freedom of establishment. Consequently, member states had to adapt their CFC rules as demanded by the ECJ.³⁰

2.1.3 Overview of CFC rules and reactions after the judgement

Throughout the years from 2004 to 2014, CFC rules have been applied in ten EU member states and in Norway. In addition, Iceland and Greece have introduced CFC rules in 2009 and 2014, respectively.³¹

Table 2.1 in the annex provides a detailed overview of the country-specific CFC rules. Nine countries apply a "threshold approach" to define a low-tax jurisdiction by setting out a minimum requirement for the level of taxation in the source countries. Three countries apply the "jurisdictional approach"; however, these countries also apply a minimum requirement as a subordinate condition.³² In the time period observed, two countries (Denmark and Italy) changed their approach for defining low-tax jurisdictions.

Apart from the recently introduced CFC regime in Greece, all countries with a minimum requirement refer to the actual tax paid in the source country as the relevant tax measure. With regard to the "acceptable" low level of taxes in the source country, there is a wide variety with absolute and relative limits. These limits remain mostly constant over the observed time period. Some member states (e.g. Hungary, Finland, and Sweden) restrict their CFC rules to non-tax treaty countries which limits the applicability of CFC rules irrespective of the judgment. In case CFC rules apply, a relief for the foreign tax paid is available in nearly all countries. Hungary and Iceland have currently no relief mechanism in place whereas in Spain taxes paid abroad are only deductible.

²⁸ See European Court of Justice, Judgement from 12. September 2006, para. 13-18.

²⁹ See *ibid.*, para. 49, 55.

³⁰ See Fontana (2006); Rust (2008).

³¹ Poland has introduced CFC rules starting in 2015.

³² Except for Italy until 2010 which switched to a "threshold approach" in the same year.

As a reaction to the Cadbury-Schweppes judgement in 2006, most member states added an exception clause for all EEA countries which restricts the applicability of CFC rules to “wholly artificial arrangements”.³³ France and Spain actually limited the applicability of their CFC rules even before the judgement, as both anticipated the judgement of the ECJ. In fact, Spain completely abolished CFC rules within the EU in 2004 and reintroduced them in accordance with the judgement in 2008.³⁴ By contrast, Denmark is the only member state that has extended its CFC rules to domestic income after the judgment. For the Danish CFC rule to apply, only the kind of income of the subsidiary is decisive, not the level of taxation.³⁵

2.2 IP Box Regimes

Recently, IP box regimes have emerged within the EU. They offer reduced tax rates for *income* that can be attributed to intellectual property. After France (2000) and Hungary (2003), ten other European countries introduced IP box regimes before the end of 2014.³⁶ Some properties of IP box regimes are under on-going review by the EU commission as they might constitute a case of forbidden state aid. Also, the legitimacy of IP boxes is debated and questioned by the on-going OECD project on BEPS.³⁷

Evers et al. give a detailed overview of the properties of IP boxes in Europe and compute effective average tax rates (EATR) for self-developed patents by using the methodology of Devereux and Griffith.³⁸ In our paper, we model the location choice for an IP holding company that *acquires* patents or licenses. Acquired IP is favoured by IP boxes in Cyprus, France, Hungary, Liechtenstein, Luxemburg and Malta.³⁹ The IP boxes differ significantly with respect to the treatment of current expenses (e.g. depreciation). Hungary applies the “gross income approach” which means that expenses can be deducted at the normal tax rate whereas the corresponding income is only taxed at the reduced IP box rate. In contrast, the other countries apply the “net income approach” in which case expenses also have to be deducted at the IP rate. In all six countries, the IP box rates are at least

³³ This was proposed by the European Council (2010).

³⁴ See Baez/Zornoza (2013, p. 701).

³⁵ Up to now, it is unclear whether this extension is compliant with EU law. See Koerver Schmidt (2014).

³⁶ See Evers et al. (2015). Additionally, Italy introduced an IP box in 2015. See Valdonio/Tenore (2015).

³⁷ See for a recent discussion Mang (2015).

³⁸ See Evers et al. (2015).

³⁹ See Table 2.2 in the annex.

50% lower than the normal rates. Cyprus, Liechtenstein and Malta offer very low IP box rates that only amount to 2.5% and 0% respectively.⁴⁰

3. Model and Procedure

In this section, we present the Devereux-Griffith methodology and the inclusion of CFC rules and IP boxes into the model. The results enable us to analyse the impact of the ECJ's Cadbury-Schweppes decision on tax neutrality.

3.1. The Devereux-Griffith Model

The Devereux-Griffith model is a so-called forward-looking approach which computes the effective tax burden on both a hypothetical marginal and a highly profitable investment project of a company. For marginal investments, the effective marginal tax rate (EMTR) is computed whereas for profitable investments, the effective average tax rate (EATR) is derived. In this paper, we focus on profitable investments when modelling the acquisition of a patent since this allows us to analyse how taxes influence discrete location decisions.⁴¹ When computing the EATR, the most important regulations of the national tax regimes are taken into account. This includes nominal corporation tax rates and surcharges as well as regional taxes on profits. In addition, we consider the depreciation rules of patents for tax purposes. We assume a uniform pre-tax return of 20% for our calculations.⁴² To study IP box regimes, the baseline model has to be slightly adapted by implementing the reduced IP box rate and the method to deduct expenses (i.e. gross or net income approach).⁴³ Besides domestic investment, the Devereux-Griffith model can simulate cross-border investments as well. When carrying out these simulations we take withholding taxes on profit repatriation in the source country and the method for avoiding international double taxation in the investor's home country into account.

⁴⁰ Detailed properties of the IP box regimes can be found in Table 2.2 in the annex.

⁴¹Devereux/Griffith (1998, p. 337) and Devereux/Griffith (2003) also argue that the EATR is the relevant measure when analysing discrete location decisions. In empirical studies, researchers also focus on the EATR when focusing on FDI, e.g. Davies/Voget (2008).

⁴² This is in line with previous studies. See p. ex. Spengel et al. (2014).

⁴³ See Evers et al. (2015) for more details on this.

Figure 1: Devereux-Griffith Model

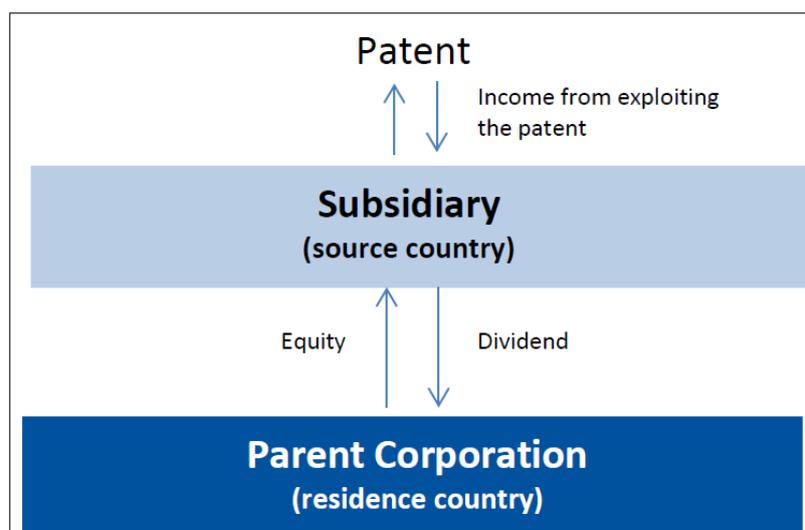


Figure 1 illustrates the set-up of the model investment more precisely. The investment of the company takes place in a wholly owned subsidiary. The multinational aims at acquiring a patent from a third party in order to administer it and exploit it commercially. Practically, the acquisition of the patent can be conducted by the parent company or by any foreign subsidiary. Neglecting non-tax factors, the patent will be acquired in the country where the effective tax burden on (royalty) income is the lowest.⁴⁴ We assume that the subsidiary receives (royalty) income from the exploitation of the acquired patent. This case unfolds a certain degree of economic activity as the administration and contract negotiations related to IP require skilled employees (as well as some office space and office equipment).⁴⁵ In its judgement, the ECJ stated that only wholly artificial arrangements without any economic activity are allowed to trigger CFC rules. Conversely, this means that before the ruling, CFC rules also aimed at investments which constituted real economic activities like our assumed model investment. *Egger/Wamser* show empirically that CFC legislations can have a profound economic impact on companies' real activity abroad.⁴⁶

In order to limit the complexity of our setting, the parent company finances the subsidiary solely by new equity.⁴⁷ Thus, profits generated by the subsidiary are

⁴⁴ Exit taxation and transfer prices do not play a role since we model a transaction between third parties.

⁴⁵ In fact, national tax laws of IP box countries also require investments to have some economic substance in order to qualify for the IP box provisions. Please also see Huijbregtse et al. (2011).

⁴⁶ See Egger/Wamser (2012).

⁴⁷ We account for other financing possibilities (retained earnings, debt) in the robustness section. The parent company itself is refinanced by 100% new equity.

distributed to the parent company by means of dividend payments. For domestic investments, the EATR borne at the level of the subsidiary is assumed to be the overall tax burden since withholding taxes and taxes on repatriated profits (i.e. dividends) are zero in that case.⁴⁸ However, profits earned from a cross-border investment may be taxed at two different levels. Firstly, the earnings of the investment are taxed at the level of the subsidiary. And secondly, the parent company might face an additional tax burden when profits are repatriated. With respect to the latter, we consider withholding taxes levied by the source country and the way the residence country taxes the repatriated profits (dividend income), i.e. how it avoids double taxation on foreign-source dividends.⁴⁹ If the exemption method applies, the tax level of the source (foreign) country always prevails for the model investment. The corporate tax level in the residence country does not matter in that case.⁵⁰ This gives multinationals incentives to take foreign countries' taxes into account when deciding about an investment's location. However, minimizing the tax burden of an investment by optimizing the location decision is restricted when CFC rules apply.⁵¹ In that case, taxes on the profits of a foreign subsidiary are calculated according to the tax law of the parent's country. A relief mechanism for the tax paid in the foreign country may be granted in order to avoid double taxation. We consider the possibility that CFC rules apply in the following.

3.2 Implementation of CFC rules

The Devereux-Griffith model computes the EATR for both domestic and cross-border investments. The cross-border EATR accounts for the combined tax influence of the source country and the treatment of dividend income in the home country (e.g. exemption or credit method). To determine whether the CFC rules of a residence country apply, the domestic tax burdens of the residence country and a source country are compared. CFC rules apply if the investment in the source country does not bear a sufficient level of tax burden from the residence country's perspective. Formally, this is the case when the domestic EATR in the source country ($EATR_S^{dom}$) is lower than the

⁴⁸ We disregard shareholder taxation since it does not affect decisions of corporations when assuming that there is significant international portfolio investment. Please also see Devereux/Pearson (1995, p. 1660).

⁴⁹ In the EU context at hand, double taxation is avoided by the provisions of the parent-subsidiary directive which requires, firstly, the abolishment of withholding taxes and, secondly, the residence country to apply either the exemption or the credit method.

⁵⁰ We do not take profit shifting possibilities by means of financing strategies in the main results into account. Financing strategies are considered in the robustness section.

⁵¹ Griffith et al. (2014) also consider CFC rules when empirically analyzing the location decision of firms for intellectual property.

domestic EATR in the residence country ($EATR_r^{dom}$) multiplied by a (residence) country-specific threshold. The relative threshold (THR_r) in the EEA lies between 50% and 75% and expresses by how much a source country's tax level is tolerated to be lower than the residence country's tax level.

This condition can be written as:⁵²

$$EATR_s^{dom} > EATR_r^{dom} * THR_r$$

If this condition is not fulfilled, CFC rules are triggered. This means that the domestic tax rules of the residence country are applied, i.e. the tax burden of the cross-border investment is computed as if it was a domestic investment in the residence country. In addition, the final tax burden in the CFC case is determined by the relief mechanism in the residence country for the (relatively little) taxes paid in the source country. In case of a tax credit, the tax burden will exactly equal $EATR_r^{dom}$ as the taxes paid in the source country are by definition always lower than in the home country and can therefore be fully credited. If no double taxation relief is granted, the tax burden equals the sum of $EATR_s^{dom}$ and $EATR_r^{dom}$.⁵³

3.3 Analysis Procedure

For a comprehensive analysis of the Cadbury Schweppes decision's effect on the neutrality of investment decisions in the EU, we look at both member states' adjustments to their CFC rules as demanded by the ECJ *and* the introduction of new low-tax regimes (IP boxes) in some member states. As argued in section 1, the introduction of IP boxes for acquired patents has to be analysed in the context of the ECJ's decision to restrict CFC rule since this impacts the effectiveness of the IP box regimes.

In total, we distinguish four different scenarios which are inclined to allow conclusions on the ECJ's effect on economic neutrality within the internal market:

1. CFC-, IP-: CFC rules are not applicable and IP box regimes do not exist
2. CFC+, IP-: CFC rules are in place and IP box regimes do not exist
3. CFC-, IP+: CFC rules are not applicable and IP box regimes exist
4. CFC+, IP+: CFC rules are in place and IP box regimes exist

⁵² This is the condition for countries with relative thresholds. Germany, Greece and Hungary employ absolute thresholds as shown in Table 2.1 in the annex.

⁵³ This is the case in Hungary and Iceland. For the deduction method which is applied in Spain, the tax burden in the CFC case can be approximated by $EATR_s^{dom} + EATR_r^{dom} - EATR_s^{dom} * EATR_r^{dom}$.

To identify the situations which correspond most with an efficient allocation of resources as stipulated by the European treaties we rely on concepts that have been employed in previous studies.⁵⁴ *Pearson/Devereux* analyse the impact of hypothetical corporate tax harmonisation reforms in the EU on production efficiency. Likewise, the *European Commission* examines economic inefficiencies induced by corporate taxes in the EU and simulates various hypothetical tax reforms. *Elschner et al.* evaluate how economic neutrality has changed over time in the EU. In principle, these studies analyse two issues: First, they investigate by how much domestic tax burdens differ from cross-border tax burdens. Second, they show how much cross-border tax burdens vary depending on the source country in case of an outbound investment and the residence country in case of an inbound investment. With respect to outbound investments, a (parent) corporation can choose to invest in 30 different countries in our setting.⁵⁵ In an idealized tax-efficient world, all outbound EATRs would be the same, i.e. the standard deviation of all investment location possibilities would be zero. Furthermore, the outbound EATRs would exactly equal the domestic EATR of the parent country. This would constitute an efficient allocation of resources across countries and so-called *capital export neutrality* (CEN) would be fulfilled. In this case, the pre-tax rates of return for the investment projects of the same investor are identical. Thus, no overall output increase can be achieved by reallocating capital from one country to another.

In terms of inbound investments, there is an additional notion of efficiency, namely *capital import neutrality* (CIN). This concept ensures that different international investors in a specific country face the same after-tax rate of return for investments carried out in that country. Therefore, CIN ensures that domestic capital and inbound capital compete on an equal basis within a country. This is the case when all possible 30 inbound investments into a country bear the same tax burden *and* when this tax burden equals that of domestic investors. Technically, the first condition is fulfilled if the EATR's standard deviation for inbound investments equals zero.

In our analysis, we will focus on both neutrality concepts – CIN and CEN. This approach corresponds to the aim of an optimal international tax structure in general and a level

⁵⁴ See e.g. Devereux/Pearson (1995); European Commission (2001); Elschner et al. (2011).

⁵⁵ We observe the 28 EU member states and the EEA countries Iceland, Liechtenstein and Norway.

playing field in the EU in particular.⁵⁶ The ECJ's jurisprudence corresponds to these concepts as it aims at eliminating discriminatory measures for both outbound and inbound investments. However, due to the member states' diverse reactions it is unclear if the rulings indeed lead to a more level playing field in the EU.

4. Results

In this section we present the results for the four different scenarios with respect to both domestic and cross-border EATRs for the years 2004, 2007, 2010 and 2014. These years reflect the situations before and after the ECJ's judgement in 2006 as well as the increasing relevance of IP box regimes in recent years.

4.1 CFC rules are not applicable and IP box regimes do not exist (Scenario 1)

The first scenario serves as a baseline scenario which disregards CFC rules and IP box regimes. This allows quantifying and disentangling the influence of CFC rules and IP boxes later on. Furthermore, it reflects the analyses of previous studies which, however, look at more general investments.

Table 1 shows the detailed results for all countries for the years 2004 and 2014. In most countries, the domestic EATR decreases from 2004 to 2014. This is in line with previous studies who find a declining trend in effective tax burdens in the EU.⁵⁷ Overall, the (unweighted) average domestic EATR decreases from 25.57% in 2004 to 21.69% in 2014. The standard deviation of domestic EATRs decreases from 8.03 in 2004 to 7.70 in 2014 which indicates a slight convergence in national effective tax levels.

For the cross-border investments, the results are presented in columns 3 to 6 of Table 1. The outbound columns (column 3 and 4) contain all possible outbound locations (i.e. subsidiaries) for a given residence country. This is attained by computing the average over all possible investment locations (30 countries) for a parent company. On the other hand, the inbound columns (column 5 and 6) contain all possible parent locations for a given investment location (i.e. subsidiary). More precisely, we compute the average inbound EATR over all the residence countries for a given source country for the years

⁵⁶ We neither argue in favour of capital export neutrality (CEN) or capital import neutrality (CIN). For an evaluation of both CEN and CIN, see e.g. Musgrave (1969); Devereux/Pearson (1995); Desai/Hines Jr (2003); Desai/Hines Jr (2004). Our analysis rather exploits whether the ECJ ruling on CFC legislation has strengthened CEN or CIN.

⁵⁷ See Elschner et al. (2011); Endres et al. (2013).

Table 1: EATR for domestic and cross-border cases for 2004 and 2014

EATR	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Domestic		Average				EEA Standard Deviation			
			Outbound		Inbound		Outbound		Inbound	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Austria	35.91	26.40	25.81	21.53	38.28	28.02	7.67	7.78	5.29	4.91
Belgium	27.43	23.05	28.15	23.13	30.17	23.96	7.66	7.69	5.59	3.44
Bulgaria	19.10	9.79	31.32	22.08	30.58	11.00	7.62	7.50	9.07	3.97
Croatia	18.71	16.98	30.58	22.40	28.03	18.91	10.21	8.40	6.74	4.49
Cyprus	15.84	11.69	27.58	22.54	19.96	12.78	8.22	8.94	7.52	3.89
Czech	26.93	18.27	26.54	21.89	30.12	19.74	7.75	7.66	5.20	4.30
Denmark	24.52	20.03	26.39	21.74	26.67	21.02	7.94	7.82	5.89	3.56
Estonia	28.55	23.06	48.60	40.15	29.55	23.41	5.86	6.18	2.58	1.11
Finland	30.63	21.12	26.55	21.71	33.13	22.11	7.69	7.83	5.59	3.52
France	33.14	40.02	29.27	26.97	35.22	40.64	10.38	6.56	5.06	2.67
Germany	36.81	28.94	28.56	22.81	39.06	29.80	7.85	7.59	4.98	3.21
Greece	36.96	27.46	35.84	22.23	37.77	29.06	2.36	7.39	3.45	3.76
Hungary	20.01	19.42	26.94	21.76	25.22	20.43	7.55	7.82	7.38	3.59
Iceland	16.84	18.71	31.81	23.25	26.20	20.10	9.82	8.64	6.69	3.80
Ireland	13.20	13.20	29.13	22.06	18.94	15.08	4.57	7.53	9.29	5.09
Italy	32.74	21.87	28.68	23.04	36.09	23.42	7.76	7.71	6.56	4.48
Latvia	14.03	14.03	27.12	21.94	19.18	15.09	7.45	7.69	7.58	3.80
Liechtenstein	14.65	8.84	38.53	26.53	23.43	12.49	10.95	10.14	7.56	7.15
Lithuania	12.73	12.73	27.17	21.98	17.47	14.29	7.37	7.64	7.95	4.56
Luxembourg	28.42	27.33	26.59	21.50	31.31	28.25	7.79	7.76	5.45	3.27
Malta	36.96	36.96	35.79	21.18	37.77	37.77	2.35	7.28	3.45	2.89
Netherlands	32.27	23.38	26.31	21.63	33.94	24.34	7.96	7.82	4.99	3.43
Norway	29.57	28.52	28.53	22.39	33.69	29.82	9.08	8.62	6.12	3.82
Poland	17.77	17.77	27.45	21.82	22.23	18.79	6.36	7.79	6.83	3.65
Portugal	29.04	31.68	27.31	22.01	32.74	33.20	7.55	7.33	6.43	4.60
Romania	23.75	15.21	31.45	21.90	32.09	16.26	6.63	7.73	5.46	3.75
Slovakia	17.77	20.58	26.85	21.72	20.90	21.57	7.57	7.83	6.44	3.54
Slovenia	23.38	17.95	27.56	22.70	27.61	19.41	7.58	7.52	6.26	4.32
Spain	38.98	34.79	27.56	22.10	41.53	36.93	8.42	7.42	4.60	4.89
Sweden	24.22	20.29	26.48	21.73	26.49	21.29	7.89	7.82	4.91	3.55
UK	31.68	22.18	31.83	21.67	32.92	23.15	3.07	7.83	3.88	3.48
Mean	25.57	21.69	29.62	22.97	29.62	22.97	7.38	7.78	5.96	3.89
Standard Deviation	8.03	7.70								

2004 and 2014. Analogously to the domestic results, the average outbound and inbound EATRs decline for the vast majority of countries from 2004 to 2014. This is also reflected in the mean figures over all countries (bottom row in Table 1): The mean of the average inbound and outbound EATRs decreases from 29.62% in 2004 to 22.97% in 2014. When relating this to national investments, the discrepancy in tax burdens between domestic and cross-border investments turns out to decline significantly to only 1.28 percentage points in 2014 compared to 4.05 percentage points in 2004. This indicates a move towards a more level playing field in the internal market which does not discriminate between domestic and cross-border investments. However, the average inbound and outbound EATRs of the single countries (column 3-6 in Table 1) as well as the means over these averages (bottom row of Table 1) mask substantial heterogeneity.

The non-zero standard deviations for in- and outbound investments on a country level (column 7-10 in Table 1) indicate substantial differences of cross-border tax burdens depending on the location of the parent and the subsidiary. If CEN held, the standard deviation of outbound investments for a given residence country would be zero (column 8 in Table 1 for the year 2014). Consequently, also the mean over these standard deviations should be zero (bottom row of Table 1). Analogously, if CIN held, the standard deviation of inbound investments for a given source country would be zero (column 10 in Table 1 for the year 2014). Clearly, CIN and CEN are not fulfilled in 2014 given the non-zero standard deviations for cross-border investments. The mean standard deviation for outbound investments slightly increases from 7.38 in 2004 to 7.78 in 2014 (bottom of column 7 and 8). At the same time, the average standard deviation for inbound investments significantly decreases from 5.96 to 3.89 (bottom of column 9 and 10). Taking both neutrality concepts into account, this constitutes a clear strengthening of CIN over time whereas economic distortions for outbound investments remain roughly constant.

Overall, the domestic and cross-border figures can be explained by mainly two trends in national and international tax legislation in the EU. First, a general decline of the corporate income tax rates can be observed for almost all countries and especially for countries with initially high tax rates in 2004.⁵⁸ This does not only lead to lower and converging domestic EATRs but also induces convergence in EATRs between domestic

⁵⁸ See Spengel et al. (2014, pp. A-1 - A-4) for a study on behalf of the European Commission.

and cross-border investments. Second, the decline in cross-border EATRs can additionally be explained by some countries switching from the credit to the exemption method for taxing foreign dividend income. In recent years, all countries with credit systems have moved towards an exemption system except for Ireland.⁵⁹ This also explains the steady decline over time of the inbound standard deviations because the cross-border tax burden is solely determined by the source countries' tax level. However, domestic EATRs have increased in a few high-tax countries (e.g. France and Portugal) during and after the crisis due to their fiscal needs which explains why the mean of the standard deviations of outbound investments picks up again from 2010 to 2014 (Table 2).⁶⁰ This crisis development is also reflected in the mean of domestic EATRs which does not experience a further decline from 2010 to 2014.

In the following, we consider how cross-border EATRs differ when implementing the other scenarios presented above. On the one hand, this is useful in order to identify and quantify the effects of specific features of the tax systems (e.g. a lower statutory tax rate on IP income). On the other hand, this serves to gather evidence on how helpful the ECJ's Cadbury Schweppes decision was in moving closer to an internal market. We present the summarizing results of the different scenarios in Table 2 which shows the means of all countries corresponding to the bottom row of Table 1.

4.2 CFC rules are in place and IP box regimes do not exist (Scenario 2)

In this scenario, we assume CFC rules to be in place when computing the EATRs. This allows isolating the general impact of CFC rules on tax neutrality in Europe given the national tax systems in place. The qualitative analysis with regard to CFC rules in section 2.1.3 shows that most of the countries enacted an exception clause as a reaction to the court's ruling. Such an exception clause excludes all EU and EEA states from the CFC rules' applicability in our investment setting. The scenario which we present now, however, neglects from the consequences of the judgement and assumes that CFC rules

⁵⁹ The last countries that changed their systems towards the exemption method were the United Kingdom in 2010 and Greece in 2011. See Spengel et al. (2014, p. A-23).

⁶⁰ Seven countries increased their corporate income tax rate from 2010 to 2014 which is a contrary development compared to previous years. See Spengel et al. (2014, p. A-1 - A-4).

are still applicable in a European context after 2006.⁶¹ This sheds light on the potential relevance of CFC rules over time (given the real development of the domestic tax codes in the EU). Since the applicability of CFC rules depends on the relative difference between domestic and foreign tax levels, CFC rules are likely to play a smaller role in a situation with converging national tax levels.

Table 2: Development of EATR for domestic and cross-border investments for different scenarios

Year	\overline{EATR}^{dom}	\overline{EATR}^{out}	$\overline{SD}(EATR_{r,s}^{out})$	\overline{EATR}^{inb}	$\overline{SD}(EATR_{r,s}^{inb})$
Scenario 1: CFC rules are not applicable and IP box regimes do not exist					
2004	25.57	29.62	7.38	29.62	5.96
2007	23.13	25.79	7.58	25.79	5.25
2010	22.00	23.58	7.45	23.58	4.16
2014	21.69	22.97	7.78	22.97	3.89
Scenario 2: CFC rules are in place and IP box regimes do not exist					
2004	25.57	30.27	6.67	30.27	6.09
2007	23.13	26.64	7.06	26.64	5.85
2010	22.00	24.75	6.67	24.75	5.15
2014	21.69	24.23	7.16	24.23	5.29
Scenario 3: CFC rules are not applicable and IP box regimes exist					
2004	24.59	28.81	8.02	28.81	6.14
2007	21.95	24.73	8.39	24.73	5.44
2010	18.96	20.67	8.66	20.67	4.44
2014	18.03	19.65	9.07	19.65	4.36
Scenario 4: CFC rules are in place and IP box regimes exist					
2004	24.59	29.47	7.39	29.47	6.37
2007	21.95	25.62	7.77	25.62	6.08
2010	18.96	22.29	7.42	22.29	5.82
2014	18.03	21.36	7.69	21.36	5.89

Note: \overline{EATR}^{dom} corresponds to the (unweighted) average over the 31 country-specific $EATR^{dom}$. Each country faces 30 outbound and inbound possibilities. The two columns \overline{EATR}^{out} and \overline{EATR}^{inb} show the mean over all cross-border $EATR$ s (31 x 30= 930). The two remaining columns show the mean standard deviation over the 31 countries for outbound and inbound investments. The data of scenario 1 for 2004 and 2014 corresponds to the last line of Table 1.

⁶¹ Only CFC rules with a “threshold approach” (low taxation condition) will be regarded. Therefore, Finland, Hungary, Italy (2004-2009) and Sweden are excluded. Additionally, Spain is either not regarded as royalty income has not been defined as CFC income until 2015. Section 4.5 and Table 4.3 in the annex contain results for an extended scenario in which it is assumed that the CFC rules of these countries are also applicable.

The results for scenario 2 are shown in Table 2. Clearly, the mean standard deviation of inbound investments ($\overline{SD(EATR_{r,s}^{inb})}$) is higher when CFC rules apply compared to when they do not apply (scenario 1) and the difference is considerably increasing over time.⁶² More precisely, the difference in the two standard deviations is increasing from 0.13 in 2004 to 1.40 percentage points in 2014. This result is related to the general trend towards exemption systems which make the impact of CFC rules more pronounced. If CFC rules apply, the cross-border investment bears the same tax burden as the domestic investment in the residence country. Thus, from a source country's perspective, inbound investments bear very different tax burdens depending on the residence country of the parent. This causes the mean standard deviation of inbound investments ($\overline{SD(EATR_{r,s}^{inb})}$) to be high. Conversely, the mean standard deviation of outbound investments ($\overline{SD(EATR_{r,s}^{out})}$) decreases slightly when CFC rules are in place in all years. Taken together, CFC rules in the EU slightly strengthen CEN and clearly harm CIN. Furthermore, CFC rules lead to a further divergence between mean domestic tax levels ($\overline{EATR^{dom}}$) and mean cross-border tax levels ($\overline{EATR^{out}}$ and $\overline{EATR^{inb}}$) in all years.⁶³

4.3 CFC rules are not applicable and IP box regimes exist (Scenario 3)

In this scenario, we consider the emergence of IP box regimes in the EU. IP box regimes differ with respect to their scope of application as discussed in section 2.2. In our simulation, we focus on IP box regimes which include acquired patents in order to reflect our model investment into a patent. This scenario is of interest for at least two reasons: First, it reflects the real tax legislation for the years after 2006. Therefore, the scenario provides more accurate effective tax measures for IP investments than usually provided. Second, it enables us to assess the ECJ's ruling and possible reform options when comparing it to the other scenarios.

A priori, the effect of the IP box regimes on tax neutrality is ambiguous and not predictable. For example, France can be generally classified as a high tax country (applying a main corporate tax rate of 41.93% in 2014) which clearly deviates from the

⁶² Table 4.1 in the annex contains a detailed overview on the number of countries for which CFC rules apply.

⁶³ However, these *aggregated* mean EATRs have to be interpreted cautiously. In case of outbound investments, the cross-border EATR for a given residence country rises if CFC rules apply. This application of CFC rules is good for CEN. However, it automatically increases the overall mean outbound EATR. The difference between $\overline{EATR^{dom}}$ (which is unaffected by CFC rules) and $\overline{EATR^{out}}$ increases although CEN has been strengthened.

mean EU tax level. The IP box tax rate of 21.34% (2014) puts France's tax level more in line with EU standards. In contrast, Cyprus which generally represents a low tax jurisdiction (main corporate tax rate of 12.5% in 2014) further lowers its tax level to an IP box tax rate of 2.5%: This constitutes a move away from the mean EU tax level. Therefore, it is not clear whether the emergence of IP boxes in some countries leads to more or less neutrality in the internal market.

The empirics in Table 2 show that the scenario at hand (CFC-/IP+) performs worse than the baseline scenario (CFC-/IP-) with respect to both CIN and CEN. The mean outbound standard deviation ($\overline{SD(EATR_{r,s}^{out})}$) is 1.29 percentage points and the mean inbound standard deviation ($\overline{SD(EATR_{r,s}^{inb})}$) 0.47 percentage points higher in 2014 when considering IP boxes. This shows that the current IP box regimes do not foster convergence between member states' tax levels but, in contrast, amplify differences in effective tax burdens. However, IP boxes lower the mean domestic EATR significantly to only 18.03% and the one of cross-border investments to 19.65%.

4.4 CFC rules are in place and IP box regimes exist (Scenario 4)

In this scenario we additionally assume CFC rules to be in place. Put differently, we model the hypothetical case of reintroducing CFC rules in today's tax environment. From Scenario 3, we know that the emergence of IP box regimes is detrimental for CIN and CEN at least when there are no CFC rules in place. The results of the scenario at hand show that CFC rules are not the perfect solution to overcome the negative effects which IP boxes have on tax neutrality. The mean inbound standard deviation ($\overline{SD(EATR_{r,s}^{inb})}$) is significantly higher (5.89 compared to 3.89) than in the baseline scenario (no IP boxes and no CFC rules). With respect to CEN, the reintroduction of CFC rules in 2014 would lower the mean outbound standard deviation ($\overline{SD(EATR_{r,s}^{out})}$) only very little compared to the baseline scenario – and not at all in the years 2004 and 2007.

4.5 Robustness of results

The results presented in the previous sections are based on specific assumptions about the applicability of CFC rules as well as on the pre-tax return and the financing of the investment in the Devereux-Griffith model. In the following, we will conduct different sensitivity analyses for these three dimensions and discuss whether our main results are still valid.

In a first sensitivity analysis, we check how our results change when relaxing the assumptions for the application of CFC rules. So far we have taken a rather strict stance on the scope of applicability and excluded countries following a jurisdictional approach. Therefore, we have not considered the CFC rules of Finland, Hungary, Italy, Spain and Sweden in our calculations. Table 4.2 in the annex shows that our main results remain unchanged when the CFC rules of these countries are also considered. If more countries employ CFC rules the introduction of IP boxes led to a deterioration of CEN *and* CIN. The general effects of CFC rules are more pronounced if more countries employ CFC rules⁶⁴ and there is a tendency that CEN increases only modestly whereas CIN is significantly weakened.

The EATRs calculated in the previous sections relied on the assumption that the investment yields a pre-tax return of 20%. EATRs are sensitive to changes in the pre-tax return and align with the statutory tax rate for very high pre-tax returns.⁶⁵ For low pre-tax returns, the determination of the tax base (tax depreciation rules) plays a more important role. Tables 4.4 and 4.5 in the annex show the results for pre-tax returns of 15% and 25%. For a pre-tax return of 15% (25%), the EATRs are generally lower (higher) and the standard deviations for outbound and inbound investments are higher (lower) compared to a pre-tax return of 20%. Our main results are still valid as the introduction of IP boxes led to deterioration of CEN as well as CIN and a reintroduction of CFC rules cannot be recommended.

As a third robustness check, the assumption that the subsidiary is entirely financed by new equity is relaxed. Additional financing possibilities might especially relevant for cross-border investments from low-tax residence to high-tax source countries. In these situations, financing the subsidiary in the high-tax country by debt is more beneficial compared to both new equity and retained earnings.⁶⁶ For robustness, we produce results which only consider the most tax efficient source of financing. For this, we compute separate EATRs for each financing option in each of these cases. The most beneficial source of financing (i.e. the one with the lowest EATR) is chosen for each cross-border country pair. The results in Table 4.6 in the annex show that our main

⁶⁴ Table 4.3 in the annex contains a detailed overview concerning the number of CFC rules triggered by low taxation levels.

⁶⁵ See Devereux/Griffith (1999, p. 22); Schreiber et al. (2002, p. 16).

⁶⁶ It should be noted that an IP box in the residence country does not influence the financing decision as interest is always taxed at normal tax rates.

conclusions remain valid. However, the EATRs and the cross-border standard deviations are lower in all scenarios than in the baseline computations. This is due to the aforementioned beneficial debt financing of subsidiaries in high-tax countries.

5. Discussion and Conclusion

Our paper demonstrates possible negative effects of the ECJ's jurisprudence on the internal market by analysing the consequences of the Cadbury Schweppes decision. We use the well-known concepts of capital export and capital import neutrality to measure the impact of the judgement on international tax neutrality in Europe. The calculations with the Devereux-Griffith model enable us to disentangle specific features of the tax systems and assess their impact on the internal market. Interpretations should be drawn cautiously, though, since counterfactual scenarios are run in a *ceteris paribus* fashion.

Without the ECJ Cadbury Schweppes decision, CFC rules would still be in place today and the emergence of IP boxes for acquired patents would have been discouraged. In this counterfactual scenario, we observe an improvement over time in capital import neutrality and only a very slight decrease in capital export neutrality.

The real world scenario (de-facto abolishment of CFC rules and the emergence of IP boxes) can be seen as the aftermath of the Cadbury Schweppes decision in 2006. Our results do not show a clear dominance of this scenario in comparison to the prejudgement scenario. This dominance would be apparent in an improvement for both capital export and capital import neutrality. However, the judgement only fostered capital import neutrality. At the same time, the increasing divergence of domestic EATRs due to the IP box regimes and the non-applicability of CFC rules harmed capital export neutrality significantly. Therefore, our analysis casts doubt on the assumed positive effects of the ECJ's jurisprudence on the internal market. Overall, further research is needed to relate and harmonise economic and legal concepts of tax neutrality.

Given the current situation in Europe, it is worthwhile to discuss possible reform options and their possible impact on tax neutrality. Both reform options presented below are also currently discussed in the OECD BEPS project.

First, CFC rules could be strengthened and de-facto reintroduced. A recently launched discussion draft by the OECD acknowledges the problems of reintroducing CFC rules in

the EU due to the judgement of the ECJ.⁶⁷ Nevertheless, the OECD argues that an extension of CFC rules' applicability to domestic situations could ensure EU law compatibility.⁶⁸ In our computations for this scenario (with CFC rules and with IP boxes), we observe an improvement for capital export neutrality but not for capital import neutrality. The desirability of this reform is therefore questionable.

Second, IP boxes for acquired patents could be abolished. This is in line with the new nexus approach proposed by the OECD which would restrict the applicability of IP boxes to self-developed IP.⁶⁹ Our results show very desirable properties for this scenario (without CFC rules and without IP boxes) as both capital export *and* import neutrality would be strengthened. Based on our results, we would therefore recommend the abolishment of IP boxes for acquired IP to achieve more tax neutrality in the internal market.

⁶⁷ See OECD (2015b, p. 10).

⁶⁸ Denmark follows this approach.

⁶⁹ See OECD (2014, pp. 30-33) and OECD (2015a).

Annex

Table 2.1: CFC Rules in EU/EEA countries from 2004 to 2014

Country	Years	Applicability of CFC Rules				CFC Income and Relief for Double Taxation			Reaction to ECJ decision (year)	
		Approach	Subsidiary Location	Parent Location	Threshold	Unconditional Exclusion of EU/EEA-countries (apart from ECJ decision)	Approach	Taxation in Home Country		Availability of Tax Credits
Denmark	2004-2006	Low Taxation	actual tax paid	hypothetical tax paid	75%	no	Transactional (including Royalties)	Aggregation with Parent's Income	yes	Extension to national situations (2007)
	2007-2014	---				no	Entity	Aggregation with Parent's Income	yes	
Finland	2004-2008	Jurisdictional	(actual tax paid)	(hypothetical tax paid)	60%	yes (tax treaty countries)	Entity	Separate Taxation	yes	EEA-clause (2009)
	2009-2014	Jurisdictional	(actual tax paid)	(hypothetical tax paid)	60%	yes (no EU/EEA country on blacklist)	Entity	Separate Taxation	yes	
France	2004-2005	Low Taxation	actual tax paid	hypothetical tax paid	66.67%	no	Entity	Aggregation with Parent's Income	yes	EEA-clause (2005)
	2006-2014	Low Taxation	actual tax paid	hypothetical tax paid	50%	no	Entity	Aggregation with Parent's Income	yes	
Germany	2004-2014	Low Taxation	actual tax paid		25%*	no	Transactional (including Royalties)	Aggregation with Parent's Income	yes (limited)**	EEA-clause (2008)
Greece	2014	Low Taxation	income tax rate		13%*	no	Entity	Aggregation with Parent's Income	yes	EEA-clause (2014)

Country	Years	Applicability of CFC Rules				CFC Income and Relief for Double Taxation			Reaction to ECJ decision (year)	
		Approach	Subsidiary Location	Parent Location	Threshold	Unconditional Exclusion of EU/EEA-countries (apart from ECJ decision)	Approach	Taxation in Home Country		Availability of Tax Credits
Hungary	2004-2010	Jurisdictional	(actual tax paid)		10.67%*	yes (tax treaty countries)	Entity	Inclusion when Dividends out of CFC Income are paid	no	EEA-clause (2008)
	2011-2014	Jurisdictional	(actual tax paid)		10%*	yes (tax treaty countries)	Entity	Inclusion when Dividends out of CFC Income are paid	no	
Iceland	2010-2014	Low Taxation	actual tax paid	hypothetical tax paid	66.67%	no	Entity	Aggregation with Parent's Income	no	EEA-clause (2010)
Italy	2004-2009	Jurisdictional				yes (only very specific EU situations in blacklist)	Entity	Separate taxation (at least 27%)	yes	EEA-clause (2010)
	2010-2014	Low Taxation	actual tax paid	hypothetical tax paid	50%	no	Entity	Separate taxation (at least 27%)	yes	
Norway	2004-2014	Low Taxation	actual tax paid	hypothetical tax paid	66.67%	no	Entity	Separate taxation	yes	EEA-clause (2007)
Portugal	2004-2014	Low Taxation	actual tax paid	hypothetical tax paid	60%	no	Entity	Aggregation with Parent's Income	yes	EEA-clause (2012)
Spain	2004-2014	Low Taxation	actual tax paid	hypothetical tax paid	75%	no	Transactional***	Aggregation with Parent's Income	no (tax is only deductible)	General Exemption (2003); EEA-clause (2008)

Country	Years	Applicability of CFC Rules				CFC Income and Relief for Double Taxation			Reaction to ECJ decision (year)	
		Approach	Subsidiary Location	Parent Location	Threshold	Unconditional Exclusion of EU/EEA-countries (apart from ECJ decision)	Approach	Taxation in Home Country		Availability of Tax Credits
Sweden	2004-2014	Jurisdictional	(actual tax paid)	(hypothetical tax paid)	(55%)	yes (only very specific EU situations in blacklist)	Entity	Aggregation with Parent's Income	yes	EEA-clause (2008)
United Kingdom	2004-2012	Low Taxation	actual tax paid	hypothetical tax paid	75%	no	Entity	Separate taxation	yes	EEA-clause (2007)
	2013-2014	Low Taxation	actual tax paid	hypothetical tax paid	75%	no	Transactional	Separate taxation	yes	

* Germany, Greece and Hungary have an absolute limitation in place.

** The tax credit is restricted to the corporate income tax (local profit tax is excluded).

*** Royalties are included from 2015 on.

Information is mainly gathered from the "European Tax Handbooks" which are published every year by the International Bureau for Fiscal Documentation (IBFD). Additional information regarding CFC regimes has been collected from two special issues of the International Fiscal Association (IFA (2001) and IFA (2013)) and two publications from Deloitte (Deloitte (2012) and Deloitte (2014)).

Table 2.2: IP boxes in EU/EEA countries for acquired IP from 2004 to 2014

Country	Date of implementation	IP box rate in 2014 (%)	Main rate in 2014 (%)	Treatment of current expenses
Cyprus	2012	2.5	12.5	Net income
France	2000	21.34	38.93	Net income
Hungary	2004	9.5	20.86	Gross income
Liechtenstein	2011	2.5	12.5	Net income
Luxembourg	2008	5.84	29.22	Net income
Malta	2010	0	35	Not deductible

Information on IP boxes is taken from Evers et al. (2015). The slight differences in the main rates can be explained by a different consideration of local taxes and surcharges. Our main rates are the same as reported in the publication of Spengel et al. (2014) conducted for the European Commission.

Table 4.1: Number of countries for which CFC rules are applied without and with IP boxes from 2004 to 2014 (narrow CFC definition)

Country	Scenario 2				Scenario 4			
	No IP Boxes				IP Boxes implemented			
	2004	2007	2010	2014	2004	2007	2010	2014
Denmark	8	12	13	13	9	13	16	15
France	11	7	7	13	1	1	3	6
Germany	15	18	19	22	16	19	22	25
Greece	-	-	-	4	-	-	-	7
Iceland	-	-	3	3	-	-	6	6
Italy	-	-	5	2	-	-	8	6
Norway	10	12	13	12	12	13	16	15
Portugal	11	13	16	22	12	14	19	25
UK	13	15	16	7	14	16	19	10

Table 4.2: Results for extended application of CFC rules for financing by new equity

Year	$EATR^{dom}$	$EATR^{out}$	$\overline{SD(EATR_{r,s}^{out})}$	$EATR^{inb}$	$\overline{SD(EATR_{r,s}^{inb})}$
Scenario 2: Extended CFC rules are in place and IP box regimes do not exist					
2004	25.57	31.13	6.51	31.13	7.07
2007	23.13	27.67	6.89	27.67	7.00
2010	22.00	25.60	6.56	25.60	6.29
2014	21.69	24.99	7.10	24.99	6.53
Scenario 4: Extended CFC rules are in place and IP box regimes exist					
2004	24.59	30.46	7.10	30.46	7.38
2007	21.95	26.76	7.48	26.76	7.32
2010	18.96	23.36	7.15	23.36	7.09
2014	18.03	22.37	7.40	22.37	7.26

Finland, Hungary, Italy (2004-2009) and Sweden (2004-2014) exclude EU/EEA-countries due to double tax treaties or the use of blacklists/whitelists. In this extended scenario, we abstract from these restrictions and assume that CFC rules are applicable in an EEA context. Additionally, royalties constitute CFC income in Spain from 2015 on. We assume in this extended scenario, that CFC rules have been applicable to royalty income since 2004.

Table 4.3: Number of countries for which CFC rules are applied without and with IP boxes from 2004 to 2014 (broad CFC definition)

Country	Scenario 2				Scenario 4			
	No IP Boxes				IP Boxes implemented			
	2004	2007	2010	2014	2004	2007	2010	2014
Denmark	8	12	13	13	9	13	16	15
Finland	8	7	7	3	9	9	11	6
France	11	7	7	13	1	1	3	6
Germany	15	18	19	22	16	19	22	25
Greece	-	-	-	4	-	-	-	7
Hungary	0	2	3	2	0	2	5	5
Iceland	-	-	3	3	-	-	6	6
Italy	5	7	5	2	6	9	8	6
Norway	10	12	13	12	12	13	16	15
Portugal	11	13	16	22	12	14	19	25
Spain	20	22	20	22	21	23	23	25
Sweden	2	4	5	2	3	5	8	6
UK	13	15	16	7	14	16	19	10

Table 4.4: Results for financing by new equity (pre-tax return: 15%)

Year	$EATR^{dom}$	$EATR^{out}$	$\overline{SD(EATR_{r,s}^{out})}$	$EATR^{inb}$	$\overline{SD(EATR_{r,s}^{inb})}$
Scenario 1: CFC rules are not applicable and IP box regimes do not exist					
2004	25.32	29.54	7.56	29.54	6.21
2007	22.79	25.55	7.80	25.55	5.47
2010	21.63	23.28	7.74	23.28	4.34
2014	21.29	22.62	8.00	22.62	4.05
Scenario 2: CFC rules are in place and IP box regimes do not exist					
2004	25.32	30.17	6.86	30.17	6.32
2007	22.79	26.46	7.21	26.46	6.08
2010	21.63	24.52	6.93	24.52	5.39
2014	21.29	23.99	7.34	23.99	5.59
Scenario 3: CFC rules are not applicable and IP box regimes exist					
2004	24.29	28.68	8.29	28.68	6.39
2007	21.53	24.43	8.81	24.43	5.67
2010	18.52	20.30	9.01	20.30	4.62
2014	17.60	19.28	9.32	19.28	4.53
Scenario 4: CFC rules are in place and IP box regimes exist					
2004	24.29	29.35	7.65	29.35	6.62
2007	21.53	25.39	8.07	25.39	6.35
2010	18.52	21.98	7.74	21.98	6.07
2014	17.60	21.05	7.95	21.05	6.13

Note: $\overline{EATR^{dom}}$ corresponds to the (unweighted) average over the 31 country-specific $EATR^{dom}$. Each country faces 30 outbound and inbound possibilities. The two columns $\overline{EATR^{out}}$ and $\overline{EATR^{inb}}$ show the mean over all cross-border $EATR$ s (31 x 30 = 930). The two remaining columns show the mean standard deviation over the 31 countries for outbound and inbound investments.

Table 4.5: Results for financing by new equity (pre-tax return: 25%)

Year	$EATR^{dom}$	$EATR^{out}$	$\overline{SD(EATR_{r,s}^{out})}$	$EATR^{inb}$	$\overline{SD(EATR_{r,s}^{inb})}$
Scenario 1: CFC rules are not applicable and IP box regimes do not exist					
2004	25.71	29.67	7.31	29.67	5.81
2007	23.34	25.93	7.51	25.93	5.12
2010	22.22	23.76	7.34	23.76	4.06
2014	21.93	23.18	7.70	23.18	3.79
Scenario 2: CFC rules are in place and IP box regimes do not exist					
2004	25.71	30.32	6.61	30.32	5.95
2007	23.34	26.76	7.03	26.76	5.72
2010	22.22	24.90	6.57	24.90	5.02
2014	21.93	24.39	7.11	24.39	5.18
Scenario 3: CFC rules are not applicable and IP box regimes exist					
2004	24.78	28.89	7.89	28.89	5.98
2007	22.20	24.91	8.20	24.91	5.31
2010	19.22	20.90	8.50	20.90	4.34
2014	18.29	19.87	8.98	19.87	4.26
Scenario 4: CFC rules are in place and IP box regimes exist					
2004	24.78	29.55	7.27	29.55	6.21
2007	22.20	25.77	7.63	25.77	5.94
2010	19.22	22.48	7.28	22.48	5.69
2014	18.29	21.54	7.64	21.54	5.76

Note: $\overline{EATR^{dom}}$ corresponds to the (unweighted) average over the 31 country-specific $EATR^{dom}$. Each country faces 30 outbound and inbound possibilities. The two columns $\overline{EATR^{out}}$ and $\overline{EATR^{inb}}$ show the mean over all cross-border $EATR$ s (31 x 30= 930). The two remaining columns show the mean standard deviation over the 31 countries for outbound and inbound investments.

Table 4.6: Results for most beneficial financing of subsidiary (new equity, retained earnings or debt)

Year	$EATR^{dom}$	$EATR^{out}$	$\overline{SD}(EATR_{r,s}^{out})$	$EATR^{inb}$	$\overline{SD}(EATR_{r,s}^{inb})$
Scenario 1: CFC rules are not applicable and IP box regimes do not exist					
2004	25.57	26.70	6.50	26.70	4.52
2007	23.13	23.44	6.51	23.44	3.97
2010	22.00	21.67	6.43	21.67	3.39
2014	21.69	21.21	6.52	21.21	3.25
Scenario 2: CFC rules are in place and IP box regimes do not exist					
2004	25.57	27.50	5.91	27.50	5.05
2007	23.13	24.42	6.02	24.42	5.06
2010	22.00	22.89	5.73	22.89	4.70
2014	21.69	22.52	5.93	22.52	5.03
Scenario 3: CFC rules are not applicable and IP box regimes exist					
2004	24.59	25.93	7.17	25.93	4.64
2007	21.95	22.46	7.42	22.46	4.10
2010	18.96	19.07	7.84	19.07	3.55
2014	18.03	18.23	8.21	18.23	3.54
Scenario 4: CFC rules are in place and IP box regimes exist					
2004	24.59	29.47	7.39	29.47	6.37
2007	21.95	25.62	7.77	25.62	6.08
2010	18.96	22.29	7.42	22.29	5.82
2014	18.03	21.36	7.69	21.36	5.89

Note: $EATR^{dom}$ corresponds to the (unweighted) average over the 31 country-specific $EATR^{dom}$. Each country faces 30 outbound and inbound possibilities. The two columns \overline{EATR}^{out} and \overline{EATR}^{inb} show the mean over all cross-border $EATR$ s (31 x 30= 930). The two remaining columns show the mean standard deviation over the 31 countries for outbound and inbound investments.

References

- Altshuler, R./Hubbard, R. G. (2003): The effect of the tax reform act of 1986 on the location of assets in financial services firms, in: 87 *Journal of Public Economics* 2003, pp. 109-127
- Auerbach, A. J. (1989): The deadweight loss from 'non-neutral' capital income taxation, in: 40 *Journal of Public Economics* 1989, pp. 1-36
- Baez, A./Zornoza, J. (2013): Spain, in: International Fiscal Association, *The taxation of foreign passive income for groups of companies*, Rotterdam 2013, pp. 683-702
- Bizioli, G. (2008): Balancing the Fundamental Freedoms and Tax Sovereignty: Some Thoughts on Recent ECJ Case Law on Direct Taxation, in: *European Taxation* 2008, pp. 133-140
- Borek, T. C./ Frattarelli, A./Hart, O. (2014): Tax Shelters or Efficient Tax Planning? A Theory of the Firm Perspective on the Economic Substance Doctrine, in: 57 *Journal of Law and Economics* 2014, pp. 975-1000
- Brauner, Y./Herzfeld, M. (2013): United States, in: International Fiscal Association, *The taxation of foreign passive income for groups of companies*, Rotterdam 2013, pp. 783-805
- Dahlberg, M./Wiman, B. (2013): General Report, in: International Fiscal Association, *The Taxation of foreign passive income for groups of companies*, Rotterdam 2013, pp. 15-56
- Davies, R. B./Voget, J. (2008): *Tax Competition in an Expanding European Union*, in: Oxford University Centre for Business Taxation WP 08/30 2008
- de la Feria, R./Fuest, C. (2011): Closer to an Internal Market? The Economic Effects of EU Tax Jurisprudence, in: Oxford University Centre for Business Taxation WP 11/12 2011
- Deloitte (2012): *Controlled Foreign Company Rules Essentials 2012*, 2012
- Deloitte (2014): *Guide to Controlled Foreign Company Regimes 2014*, 2014
- Desai, M. A./Hines Jr, J. R. (2003): Evaluating International Tax Reform, in: 56 *National Tax Journal* 2003, pp. 487-502
- Desai, M. A./Hines Jr, J. R. (2004): Old Rules and New Realities: Corporate Tax Policy in a Global Setting, in: 57 *National Tax Journal* 2004, pp. 937-960
- Devereux, M./Griffith, R. (1999): *The Taxation of Discrete Investment Choices*, in: IFS Working Paper Series 1999

- Devereux, M. P./Griffith, R. (1998): Taxes and the location of production: evidence from a panel of US multinationals, in: 68 *Journal of Public Economics* 1998, pp. 335-367
- Devereux, M. P./Griffith, R. (2003): Evaluating Tax Policy for Location Decisions, in: 10 *International Tax and Public Finance* 2003, pp. 107
- Devereux, M. P./Pearson, M. (1995): European tax harmonisation and production efficiency, in: 39 *European Economic Review* 1995, pp. 1657-1681
- Egger, P./Wamser, G. (2012): The Impact of Controlled Foreign Company Legislation on Real Investments Abroad: A Two-dimensional Regression Discontinuity Design, in: CEPR Discussion Papers No. 8460 2012
- Elschner, C./ Heckemeyer, J. H./Spengel, C. (2011): Besteuerungsprinzipien und effektive Unternehmenssteuerbelastungen in der Europäischen Union: Regelt sich die EU-weite Steuerharmonisierung von selbst?, in: 12 *Perspektiven der Wirtschaftspolitik* 2011, pp. 47-71
- Elschner, C./Vanboerren, W. (2010): Effective Corporate Income Tax Rates in an Enlarged European Union, in: *BFIT* 2010, pp. 577-584
- Endres, D./ Finke, K./ Heckemeyer, J. H./Spengel, C. (2013): Corporate Taxation Trends in Europe, in: 41 *Intertax* 2013, pp. 499-506
- Endres, D./Spengel, C. (2015): International company taxation and tax planning, Alphen aan Den Rijn 2015
- European Commission (2001): *Company Taxation in the Internal Market*, 2001
- European Commission (2015): *CJEU Cases in the Area of or of Particular Interest for Direct Taxation*, 2015
- European Council (2010): *Recommendation for CFC Rules*, 2010
- European Court of Justice, Judgement from 12. September 2006, C-196/04, ECR 2006 I-07995
- Evers, L./ Miller, H./Spengel, C. (2015): Intellectual property box regimes: effective tax rates and tax policy considerations, in: 22 *International Tax and Public Finance* 2015, pp. 502-530
- Fontana, R. (2006): The Uncertain Future of CFC Regimes in the Member States of the European Union - Part 1, in: *European Taxation* 2006, pp. 259-267
- Graetz, M. J. (2003): *Foundations of international income taxation*, New York, NY 2003
- Graetz, M. J./Warren, A. C., Jr. (2006): Income Tax Discrimination and the Political and Economic Integration of Europe, in: 115 *The Yale Law Journal* 2006, pp. 1186-1255

- Griffith, R./ Miller, H./O'Connell, M. (2014): Ownership of intellectual property and corporate taxation, in: 112 *Journal of Public Economics* 2014, pp. 12-23
- Gudmundsson, J. E. (2006): European Tax Law in the Relations with EFTA Countries, in: 34 *Intertax* 2006, pp. 58-85
- Horst, T. (1980): A NOTE ON THE OPTIMAL TAXATION OF INTERNATIONAL INVESTMENT INCOME, in: 94 *Quarterly Journal of Economics* 1980, pp. 793-798
- Huibregtse, S./ Peeters, M./ Verdoner, L./Carey, S. (2011): IP companies and substance: no-fly zones?, in: *Transfer Pricing International Journal* 2011, pp. 1-12
- IBFD (2004-2014): *European Tax Handbook, Amsterdam 2004-2014*
- IFA (2001): *Limits on the use of low-tax regimes by multinational businesses : current measures and emerging trends*, 86B, Rotterdam 2001
- IFA (2013): *The Taxation of foreign passive income for group of companies*, 98A, Rotterdam 2013
- Koerver Schmidt, P. (2014): Are the Danish CFC Rules in Conflict with the Freedom of Establishment? - An Analysis of the Danish CFC Regime for Companies in Light of ECJ Case Law, in: *European Taxation* 2014, pp. 3-9
- Lang, M. (2002): CFC Legislation and Community Law, in: *European Taxation* 2002, pp. 374-377
- Mang, F. (2015): The (In)Compatibility of IP Box Regimes with EU Law, the Code of Conduct and the BEPS Initiatives, in: *European Taxation* 2015, pp. 78-87
- Mason, R. (2010): Tax Discrimination and Tax Neutrality, in: *World Tax Journal* 2010, pp. 126-138
- Mason, R./Knoll, M. S. (2012): What Is Tax Discrimination?, in: 121 *Yale Law Journal* 2012, pp. 1014-1116
- Musgrave, P. B. (1969): *United States taxation of foreign investment income: Issues and arguments*, Harvard 1969
- OECD (2013): *Action Plan on Base Erosion and Profit Shifting*, 2013
- OECD (2014): *Countering Harmful Tax Practices More Effectively, Taking into Account Transparency and Substance Action 5: 2014 Deliverable*, 2014
- OECD (2015a): *Action 5: Agreement on Modified Nexus Approach for IP Regimes*, 2015a
- OECD (2015b): *BEPS Action 3: Strengthening CFC Rules Public Discussion Draft*, 2015b
- Pistone, P. (2010): The Impact of ECJ Case Law on National Taxation, in: *BFIT* 2010, pp. 412-428

- Ruf, M./Weichenrieder, A. J. (2012): The taxation of passive foreign investment: lessons from German experience / La fiscalité de l'investissement étranger passif . in: 45 Canadian Journal of Economics 2012, pp. 1504-1528
- Ruf, M./Weichenrieder, A. J. (2013): CFC Legislation, Passive Assets and the Impact of the ECJ's Cadbury-Schweppes Decision, in: Cesifo Working Paper No. 4461 2013
- Ruiz, F. M. (2006): Convergence de l'impôt sur les sociétés dans l'Union Européenne, in: Économie et Prévision 2006, pp. 79-96
- Rust, A. (2008): CFC Legislation and EC Law, in: 36 Intertax 2008, pp. 492-501
- Schön, W. (2015): Neutrality and Territoriality - Competing or Converging Concepts in European Tax Law?, in: 69 BFIT 2015, pp. 271-293
- Schreiber, U./ Spengel, C./Lammersen, L. (2002): Measuring the Impact of Taxation on Investment and Financing Decisions, in: 54 Schmalenbach Business Review 2002, pp. 2-23
- Smit, D. S. (2014): Substance Requirements for Entities Located in a Harmful Tax Jurisdiction under CFC Rules and the EU Freedom of Establishment, in: Derivatives & Financial Instruments 2014, pp. 259-265
- Spengel, C. (2003): Internationale Unternehmensbesteuerung in der Europäischen Union : Steuerwirkungsanalyse, empirische Befunde, Reformüberlegungen, Düsseldorf 2003
- Spengel, C./ Endres, D./ Finke, K./Heckemeyer, J. H. (2014): Effective Tax Levels Using the Devereux/Griffith Methodology, Mannheim 2014
- Valdonio, M./Tenore, M. (2015): Italy's New Patent Box Regime, in: 77 Tax Notes International 2015, pp. 1091-1094