

The Taxation of Passive Foreign Investment

Lessons from German Experience

by

Martin Ruf

(Mannheim University)

and

Alfons J. Weichenrieder[#]

(Goethe University Frankfurt, University of Economics and Business, Vienna, & CESifo)

Final version submitted. The definitive version is available at www.interscience.wiley.com.

Link: <http://onlinelibrary.wiley.com/doi/10.1111/j.1540-5982.2012.01737.x/full>

Abstract

The paper evaluates the working of German CFC rules that restrict the use of foreign subsidiaries located in low-tax countries to shelter passive investment income from home taxation. While passive investments make up a significant fraction of German outbound FDI, we find that German CFC rules are quite effective in restricting investments in low-tax jurisdictions. We find evidence that the German 2001 tax reform, which unilaterally introduced exemption of passive income in medium- and high-tax countries, has led to some shifting of passive assets into countries for which the exemption was previously limited.

Keywords: foreign direct investment, CFC regulation, passive investment

JEL classification: H25, H73

Addresses of authors

Martin Ruf
University of Mannheim
Faculty of Business Administration
68131 Mannheim
martin.ruf@bwl.uni-mannheim.de

Alfons J. Weichenrieder
Goethe University Frankfurt
Faculty of Economics and Business Administration
60323 Frankfurt (Main)
a.weichenrieder@em.uni-frankfurt.de

[#] The hospitality and support of the Deutsche Bundesbank Research Center is gratefully acknowledged. The second author gratefully acknowledges financial support from the Deutsche Forschungsgemeinschaft (DFG) and the hospitality of the Oxford University Centre for Business Taxation. We benefited from helpful discussions with Johannes Voget and from comments by participants of the Deutsche Bundesbank MiDi Workshop 2008, the Vienna Workshop on "Taxes and the Financial and Legal Structure of Firms", 7–9 January 2009, the European Accounting Association Annual Congress 2009 in Tampere and the IIPF Congress 2009 in Cape Town.

I. INTRODUCTION

The treatment of foreign source income of domestic corporations is one of the main issues in shaping a country's international tax rules. The treatment of dividends received from a foreign subsidiary usually follows one of two approaches. Exemption countries, such as the Netherlands, France, and Belgium, abstain from taxation of those dividends. This reflects a territorial approach to international taxation. In contrast, credit countries like the U.S. adhere to the residence approach that subjects worldwide repatriated income to domestic taxation. At the same time, these countries provide a credit for foreign dividends. In such a *credit* system, the foreign dividend is subject to corporate tax when received by the parent, but a tax credit that takes into account taxes paid by the foreign subsidiary on profits that underlie the distributed dividend may be credited. This is called an *indirect* tax credit, while a tax credit that is granted for foreign withholding taxes on the dividend is called a *direct* tax credit. Usually, capital-exporting countries that use a credit system provide for both the indirect and the direct credit in cases of a qualifying participation.

One of the problems that may haunt both exemption and credit countries is that domestic firms use low-tax jurisdictions to shelter their income from higher home-country taxation. In the case where the home country runs an exemption system this is self-evident: foreign income earned by a foreign subsidiary and subject to low taxation abroad is exempt from high domestic taxes. In the case of credit countries, there still may be an advantage to low foreign tax rates, as the home tax may be deferred until repatriation of the foreign profit. These tax shelters are generally accepted by home countries of parent corporations in the case of active foreign profits that derive from production, trade, and services. Here a possible argument is capital import neutrality: foreign subsidiaries of high-tax parents may be granted the possibility to compete with native low-tax firms on an equal basis (Musgrave 1969).

Conversely, subjecting profits of foreign subsidiaries to immediate home-country taxation may put them at a disadvantage.

While acceptable in the case of active business income abroad, the tax shelter implied by exemption or, to a lesser extent, deferral of home-country taxes is much less palatable for capital-exporting countries if the foreign subsidiary is not competing abroad, but merely acts as an instrument to manage the company group's liquid assets. Exemption of foreign profits may lead to worries about profit shifting and the associated tax revenue consequences. CFC rules are anti-avoidance measures that potentially curb such behavior. Indeed, most industrialized countries have legislated measures that limit the tax privilege of exemption or deferral in the case of passive investments. The standard approach used in the legislation on controlled foreign companies (CFC rules) by countries such as the U.S., Germany, France, the UK, or Italy is to tax passive investment income of foreign subsidiaries on an accrual basis if some conditions are met; the privilege of exemption or deferral is not extended to these incomes.

While CFC rules are of considerable importance in the legal and theoretical discussions of international corporate tax systems (see, e.g., Weichenrieder 1996 for a theoretical study, and Lang et al. 2004 for a legal comparison of international CFC rules), there is a lack of studies that empirically discuss the effectiveness of CFC rules based on firm micro data. One of the main purposes of this paper is to fill this gap by looking at the German experience. Using 85,333 firm-year observations and panel econometrics we investigate the effect of the German CFC-rules on the location of passive assets within German multinationals. As the only prior study investigating the effect of CFC-rules based on aggregate data, Altshuler and Hubbard (2003) examine the effects of a policy change in the Tax Reform Act of 1986 with respect to the U.S. CFC-rules (Subpart F provisions) on the international location decisions of U.S. financial services firms. However, Grubert and Mutti (2006) argue that by using hybrid entities the U.S. CFC-rules may be circumvented.

Shedding light on the effectiveness of CFC rules requires variation of the CFC rules across countries and/or across time. A first variation that applies mainly (though not

exclusively) across countries is that the overall applicability of the German CFC rules requires a low effective tax rate in the host country. Our analysis will therefore analyze whether exceeding this threshold has an impact on the allocation of passive investment. In the analysis, we distinguish between two different forms of passive investment. One form is financial portfolio (arm's length) investment. The other form consists of loans granted to other affiliated subsidiaries. The German CFC rules consider these loans to be passive investment under certain circumstances. The data suggest that the German CFC rules have behavioral effects for both types of passive investment.

A second variation that can be exploited in the analysis results from a tax reform in 2003. This reform ended a tax preference that the CFC rules had given to intracompany lending as compared to arm's-length passive investment. We find that the reform had some impact on intracompany loans provided by low-tax subsidiaries, which is in line with expectations.

A third variation is owed to the tax reform of 2001. The reform extended the exemption method to a wider set of countries. Before 2001 exemption of foreign dividends received by a German parent required a double tax treaty with the host country. In the absence of a treaty, a unilateral credit system was used. Since 2001 Germany uses an exemption system as a unilateral method towards all countries, including tax havens that have not double tax treaty with Germany. Strictly speaking, this reform did not change the CFC rules. But by extending exemption to a full list of tax havens the reform allows us to analyze whether a move from credit to exemption systems empirically leads to a different pattern of passive investment.

Overall, the evidence provided in this paper is that German CFC rules have a significant and predictable impact on multinational financing and seem to be an effective measure to limit the shifting of passive assets. We hope that our empirical results have some value for evaluating tax policy options. If CFC rules were rather ineffective, then deferral countries might have a comparative advantage over exemption countries in curbing passive

investment abroad. In the case of ineffective CFC rules, an exemption country forgoes taxation of passive income altogether, while in the case of a deferral system home-country taxes are only postponed. Conversely, in the case of effective CFC rules, moving from a deferral system to an exemption of foreign dividend – as recently done in the UK and Japan – may come at a relatively small cost in terms of additional passive investment abroad.

The remainder of the paper is organized as follows. Section II illustrates the German CFC rules in more detail. Section III describes the data and presents the main empirical evidence. Section IV concludes.

II. German CFC Rules

While resident individuals are taxed on their worldwide income irrespective of whether a dividend has been paid by a German or a foreign corporation, foreign dividends that are received by a German corporation are exempt. In addition, a German corporation is not taxable on retained earnings abroad. Until 2000, the exemption of foreign dividends was restricted to dividends paid from treaty countries. Since 2001, 95% of the dividends received have been exempt, whether a tax treaty applies or not. Since 1972, however, limits to exemption have applied due to §§ 7–14 of the German *Außensteuergesetz* (German Foreign Tax Act).¹ These CFC rules closely follow the U.S. subpart F legislation introduced in 1964, and address resident shareholders of controlled foreign corporations investing in low-taxed passive business operations. Under certain conditions, the German rules provide that the pro rata share of low-taxed passive income of a controlled foreign corporation (CFC) abroad is included in the shareholder's income on a current basis, implying that deferral and exemption privileges are denied. German CFC rules are applicable if three requirements are met.

¹ For a detailed description see Förster and Schmidtman (2004).

Ownership requirement. In general, the ownership requirement is met if more than 50 percent of ordinary shares or voting rights in the foreign corporation are held directly or indirectly by German resident individuals or companies.²

Passive Income. Shareholders of a CFC may be subject to tax on the passive income of the CFC, where the term passive income is defined negatively. Passive income is any income that does not qualify as active under § 8 (1) *Außensteuergesetz*. Active income is income from agriculture, production, banking and insurance, trade, dividends, and the disposal of shares. Under some additional requirements, also income from services and from renting and leasing is deemed to be active. Income from borrowing and lending of capital is active if the German resident shareholder proves that all of the capital is raised in foreign capital markets from unrelated persons and the same capital is lent to an active foreign business or permanent establishment or to a German business or permanent establishment. As a consequence, interest income from financial activities is generally passive income if capital is raised within the group. Passive capital investment income is a special subcategory of passive income and includes income from the possession, administration, and management of cash, receivables, securities, shareholdings, or similar assets. However, such income qualifies as active in the case of foreign subsidiaries in banking and insurance.

Low taxation. German CFC rules only apply to low-taxed passive income. Passive income is considered low-taxed if the tax rate on such income is less than 25 percent (less than 30 percent before 2001).

² Under certain conditions, also ownership of former residents is considered.

If the three legal requirements discussed above are all met, the low-taxed passive income is included in the taxable income of the German resident shareholders, but foreign income taxes on the passive income may be deducted or, upon election of the shareholder, credited against the German income or corporation tax.³ The German rules also apply to ownership chains, to prevent multi-tier structures from being used as avoidance measures.

Some German double-tax treaties exempt foreign income regardless of whether this income stems from passive or active investment. In these cases, the exemption privilege is not limited by an activity clause, making the application of the German CFC rules difficult. To overcome these difficulties, in a 1992 revision of the CFC rules Germany unilaterally declared such treaty protections as not applicable for passive investment income. An exception was introduced for passive capital investment income from intragroup financing activities, where treaty protection still applied for 40 percent of the income. In 2003 treaty protection for ordinary passive income was abolished completely.

III. Empirical Evidence

III.1. Data Set

The paper uses the MiDi database of the Deutsche Bundesbank to investigate the impact of German CFC rules. German investors owning foreign subsidiaries are legally required to report on any foreign operation if it meets mild size and ownership requirements. For wholly owned foreign subsidiaries compulsory reporting applies if total assets exceed the equivalent of €3m. In addition, German investors are obliged to report also on subsidiaries that are held via intermediate companies if ownership ties are sufficiently strong (see Lipponer

³ Passive income up to €80,000 (€62,000 before 2007) may be innocuous if it does not represent more than 10 percent of the CFC's pretax income.

2003). Most importantly for our purpose, investors have to report on their foreign subsidiaries' lending to other affiliated firms, on their equity ownership of affiliated companies, and on their financial assets in total.⁴ The data allows tracing direct investment positions of individual firms over time. The current version provides subsidiary-level panel data for the period from 1996 to 2006. We complemented the data with information on national characteristics from the World Bank Development Indicators and with tax rate information from PricewaterhouseCoopers, the Bureau of Tax Policy Research at the University of Michigan, KPMG, and other sources.

III.2. CFC Rules and the Location of Passive Assets

In a first step we analyze the allocation of liquid assets in German multinational corporations. More precisely, we highlight the allocation of financial assets abroad that count neither as equity holdings in affiliated companies nor as loans to subsidiaries. The deduction of loans and equity stakes in affiliated corporations avoids double counting of passive investments in the case of ownership chains. The subgroup of passive assets considered will mainly consist of bonds and portfolio equity that may be shifted from high-tax to low-tax locations without triggering capital gains taxation. Therefore, abstracting from CFC legislation, a simple comparison of statutory tax rates suggests that multinationals should hold these transferable passive assets through subsidiaries in low-tax countries and that the benefit of doing so should increase as the tax rate in the low-tax country decreases.

However, adding CFC rules may change the picture. The German rules provide that the passive income earned by controlled foreign corporations abroad is deemed as income of the German parent if the effective taxation of the passive income abroad falls short of a threshold value, which has been 25% since 2001 (30% before 2001). While taxes on the passive income paid abroad may be credited against German taxation, the application of the

⁴ This information is missing in most other company balance sheets as available in the Amadeus or Datastream data sets. Previous studies that use MiDi for analyzing tax effects on FDI include Ramb and Weichenrieder (2005) and Büttner and Ruf (2007).

German tax rate (including the relevant local rate) makes this the effective tax rate on the passive investment.

In a first step we look at the country distribution of passive investments, which is illustrated in Table 1. If the CFC regulation is binding and multinationals cannot work around it, we should expect few passive investments in low-tax countries, as the effective rate would not be the host-country rate but the higher German tax rate. Table 1 reports on the passive assets in those 22 countries that in 2006 hosted more than €250m of passive assets of German multinationals. While low-tax jurisdictions like the Cayman Islands, Cyprus, and the Netherland Antilles are on the list and in relation to their GDP host a significant amount of passive investment from Germany, the majority of passive assets are found in major economies with medium or high headline corporate tax rates, like the U.S., France, Canada, the UK, or the Netherlands. If we compare passive investment with the amount of fixed investment and intangibles of German-owned firms several small economies like the Cayman Islands, Jersey, Cyprus, or the Netherland Antilles rank first. For these economies, passive asset holdings of German companies dwarf corresponding real investment by German affiliates.

A qualification with respect to the effective tax rate may apply because of special holding company regimes in some countries, like the Netherlands or Luxemburg. In the Netherlands, subject to certain conditions, since 1997 a group finance company could establish a reserve up to 80 percent of its financial services income. A tax-free withdrawal from the reserve could be made equal to 50 percent of investments in affiliates or up to 100 percent for certain indirect investments. The identification of the subsidiaries that do take advantage of special regimes is difficult. According to a letter of the Dutch government to the European Commission, a total of 87 companies from all over the world have been admitted to this scheme (EU Commission Decision (2003/515/EG)), including Dutch-owned companies.

So only a small number will be German-owned.⁵ Given the missing information of whether a firm could take advantage of a holding company regime we therefore decided to use the statutory headline taxes.

Table 1: Passive assets outside banking and insurance per country (2006, in million euros)

Host country	(1)	(2)	(3)	(4)
	Passive investment	Fixed investment and intangibles	Fraction of total passive investment	Statutory tax rate including local taxes (CT)
USA	5345.4	125343.3	19.0%	40.0%
Netherlands	4904.3	7609.1	17.4%	29.6%
United Kingdom	2110.8	36621.0	7.5%	30.0%
Cayman Islands	1616.3	66.8	5.7%	0.0%
Luxembourg	1585.6	4321.5	5.6%	29.6%
France	1155.4	16133.0	4.1%	33.3%
Austria	1104.1	10577.4	3.9%	25.0%
Italy	1030.1	12742.8	3.7%	37.3%
Australia	973.8	2801.3	3.5%	30.0%
South Africa	659.7	1277.8	2.3%	36.9%
Japan	658.0	2175.8	2.3%	40.7%
Spain	600.6	10633.7	2.1%	35.0%
Switzerland	507.1	7070.8	1.8%	29.0%
Hong Kong	494.2	384.9	1.8%	17.5%
Jersey	465.2	3.5	1.7%	20.0%
Canada	403.6	9188.2	1.4%	36.1%
Denmark	395.5	2131.5	1.4%	28.0%
Netherland Antilles	382.2	0.1	1.4%	34.5%
Turkey	344.7	2094.2	1.2%	30.0%
Sweden	268.0	4592.0	1.0%	28.0%
Cyprus	266.3	107.3	0.9%	10.0%
South Korea	251.3	1772.9	0.9%	27.5%
...

Annotations: In column (1), the table reports the passive investment, defined as the total financial assets net of equity in affiliated firms and lending to affiliated firms, in the country under consideration. We left out firms with an ownership share of the German investor of less than 90%, and excluded unincorporated subsidiaries and subsidiaries in banking and insurance, as these industries are treated differently under the German CFC rules. Column (2) reports the aggregated fixed investment and intangibles of nonfinancial companies. As in the following regressions of Table 3, we censored firms at the 99.9 centile of passive assets. The table reports all countries with more than €250 million of passive investment. The further list of 58 countries contains mostly countries with less than 5 firms.

⁵ The group-financing-facility reserve deduction has come under attack by the European Commission and had to be terminated by 2010.

To investigate whether the German CFC rules restrict German multinationals in their allocation of passive investment, we proceed to regression results on the micro level using the panel data described above. As in the descriptive statistics of Table 1, we left out firms with an ownership share of the German investor of less than 90%, and excluded unincorporated subsidiaries and subsidiaries in banking and insurance, as these industries are treated differently under the German CFC rules. Generally, the observed units are the German-owned subsidiaries abroad. However, in cases in which a German parent owns more than one subsidiary in a specific country, we aggregated passive investment across observations, i.e., affiliated firms in one country and year were merged and treated as a single observation. This takes into account that affiliated firms located in the same country and owned by the same parent may fail to be independent observations.

Table 2 reports on key variables of the regressions and their definitions. The left hand side variable is the log of passive assets. Passive investment here is defined as the total financial assets net of equity in affiliated firms and lending to affiliated firms, in the country under consideration.⁶ On average the German affiliates in our sample had almost €3m of passive assets, but with a high standard deviation. The average statutory tax rate CT in the host country in our sample is 33.5%. The variable CFC_DUMMY takes on the value one if the country has a statutory tax rate that is below the safe-haven tax rate of the German CFC rules (30% before 2001, 25% thereafter) and the rules are therefore potentially binding. This is the case in more than 10 percent of our observations.

⁶ The data does not allow addressing intangibles or royalties.

Table 2: Descriptive statistics

	Mean	Standard dev.	Definition
Amount of passive assets	2956.5	48179.3	Passive assets in thousands of euros defined as the total financial assets net of equity in affiliated firms and lending to affiliated firms provided by MiDi.
Log of passive assets	4.86	2.73	Log of Passive assets defined as the total financial assets net of equity in affiliated firms and lending to affiliated firms provided by MiDi.
CFC_DUMMY	.105	.307	CFC_DUMMY takes on the value one if the country has a statutory tax rate that is below the safe-haven tax rate of the German CFC rules (30% before 2001, 25% thereafter).
CT	.335	.063	The statutory corporate income tax rate provided by Institute for Fiscal Studies, KPMG, Ross school of business of the university of Michigan and Mintz and Weichenrieder (2010).

Table 3 reports on our regression results. While the left-hand variable in the empirical models (1)–(2) of Table 3 is the natural logarithm of passive assets, in models (3)–(4) we use the absolute value of passive assets. As to the right-hand variables, effective CFC rules suggest a negative coefficient for the variable CFC_DUMMY. $CT \cdot CFC_Dummy$ is built by interacting the tax rate and CFC_DUMMY. Similarly, we created $CT \cdot (1 - CFC_Dummy)$. These interaction terms are motivated by the hypothesis that when CFC rules are binding, then we expect that a lower corporate tax rate should have a smaller impact on the attraction of passive assets than when the CFC_Dummy is zero. $LN(ASSETS)$ measures a subsidiary's nonfinancial assets (fixed and intangible assets plus working capital).⁷ It is a proxy for firm size, reflecting that larger firms with more real capital may wish to hold larger amounts of liquid assets. The holding of some passive assets is ancillary to carrying out active investment. E.g. firms need some cash to pay their suppliers.⁸

⁷ A limitation of the German FDI data is that it is not possible to separate tangible and intangible assets.

⁸ The causality can not be reverse, since active investment is not sufficient to shelter the earnings of passive investment from the German CFC legislation as soon as they exceed the amount of passive assets typically necessary for running active investments. In practice this leverage (allowed passive investment per euro of active investment) is that small, that it is not worth installing active investment in order to shelter passive assets.

Finally, we use four variables capturing nontax country characteristics. LN(GDP) measures the log of GDP measured in purchasing power parities. Since tax rates and country sizes have been found to be systematically correlated,⁹ inclusion of this size measure prevents the tax rate from picking up size effects. In addition we use the log of per capita GDP, LN(GDPPC), measured in purchasing power parities. LN(INTEREST) reflects the local bank lending rate, and LN(CORR) is defined as the logarithm of the Transparency International corruption index, which is constructed with higher values of the index indicating lower corruption. All regressions include a full set of parent fixed effects and year fixed effects, the coefficients of which are not reported.

Column (1) reports results of an OLS regression with CT and CFC_DUMMY as the main variables of interest. As expected, the coefficient for the tax rate is negative, implying that, in general, a higher tax rate is detrimental to the allocation of passive assets. At the same time, CFC_DUMMY is significantly negative, and the coefficient -0.771 implies that the holdings of passive assets are reduced by some 77% on the subsidiary level if a country is affected by the German CFC rules.¹⁰ The variable CT has a coefficient of 3.7. At an average tax rate of 0.335 this semi-elasticity reflects a tax elasticity of 1.24.

⁹ See, e.g., Weichenrieder (2005).

¹⁰ Since the CFC_DUMMY in principle could simply reflect a nonlinear effect of the tax rate, we also used an unreported specification in which the squared tax rate was used as an additional regressor, which turned out to be insignificant and irrelevant for the significance and value of the CFC_DUMMY coefficient; and the significance and value of CFC_DUMMY were also unaffected by using the log of the tax rate rather than the rate itself.

Table 3: CFC rules and passive assets

	OLS		Panel Poisson	
	(1)	(2)	(3)	(4)
COEFFICIENT				
CFC_DUMMY	-0.771*** (0.17)	-1.475*** (0.47)	-0.819** (0.35)	-2.589*** (0.87)
CT	-3.691*** (1.10)		-3.584*** (1.28)	
CT*CFC_DUMMY		-1.277 (1.62)		3.038 (3.68)
CT*(1 – CFC_DUMMY)		-4.294*** (1.25)		-5.362*** (1.53)
CT_EFF				
LN(ASSETS)	0.397*** (0.023)	0.397*** (0.023)	0.307*** (0.034)	0.308*** (0.034)
LN(CORR)	0.488** (0.24)	0.435* (0.23)	0.170 (0.32)	0.0330 (0.28)
LN(GDPPC)	0.578*** (0.14)	0.519*** (0.15)	1.499*** (0.22)	1.591*** (0.21)
LN(GDP)	0.0929* (0.052)	0.0988* (0.053)	0.186* (0.096)	0.209** (0.097)
LN(INTEREST)	-0.0482 (0.091)	-0.0604 (0.092)	0.113 (0.16)	0.0756 (0.17)
Observations	30815	30815	85388	85388
R-squared/Log-likelihood	0.54	0.54	-2.785e+08	-2.773e+08

Annotations: The dependent variable in (1)–(2) is the log of passive assets, in (3)–(4) the amount of passive assets. Standard errors in parentheses are corrected for clustering within country-year cells for columns (1)–(2) and robust for (3)–(4). Stars denote p -values; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. All estimations include parent fixed effects, and firms are observed during the period 1996–2006 (unbalanced sample). Affiliates in banking and insurance are not included in the sample, since their activities are assumed to be active according to the German CFC rules. In cases in which a German parent owns more than one subsidiary in a specific country, we aggregated passive investment across country-year observations. The data has been censored at the 0.1 percent of the observations with the largest amounts of passive assets.

Regression (2) makes use of the interacted variables CT*CFC_Dummy and CT*(1 – CFC_Dummy) and drops CT. While both interacted variables are negative, the larger coefficient of CT when the CFC rules are not binding and the insignificant coefficient for low-tax countries confirm the view that the CFC rules are influencing the allocation of passive assets. The absolute value of the coefficient for CFC_DUMMY is larger than in regression (1) and even larger than unity, but note that the impact of the CFC rules is also working through the interaction variables.

There are two possible problems with the OLS results presented in columns (1)–(2). First, taking the logarithm of the stock of passive assets forces us to drop a large number of observations with zero passive assets. This may lead to a possible selection bias in the results.¹¹ Second, as emphasized by Silva and Tenreyro (2006), estimating a logarithmic or semilogarithmic OLS model may lead to biased estimations if the data is heteroskedastic. As a solution, these authors suggest using a Poisson maximum-likelihood model, and this route has been taken also in subsequent trade studies (e.g., Egger and Larch 2008), where zero bilateral trade between remote countries is a frequent phenomenon.

The results for the Poisson models are presented in columns (3)–(4) of Table 3 and contain the same set of regressors as the OLS models. While the left-hand side is now measured in total passive assets rather than its logarithm, the tax coefficients of the Poisson maximum-likelihood model, as in the previous models, can be interpreted as semielasticities. While some of the absolute values of the tax coefficients are somewhat higher than in the OLS models, the message of the Poisson estimates is very similar, and the results of (3) are closely comparable to those in (1) despite the more than doubling of the observations. A difference that appears in column (4) when compared with the respective OLS result in column (2) is that the coefficient of CT*CFC_DUMMY is now positive, but this coefficient comes with a very high standard error.

In all empirical models of Table 3, LN(ASSETS) was introduced to capture that a larger firm with larger real assets may find it worthwhile to have more liquid assets. The data is compatible with this hypothesis, and the regression suggests that a one percent increase in real assets is associated with an increase in passive investment of some 0.4 percent when estimated by OLS and by 0.3 percent in the Poisson models. LN(GDP) was introduced on the basis that a large host country may invite making more passive investments. This is confirmed, but the coefficient is only weakly significant at the ten percent level. The interest

¹¹ To address the selection problem we also experimented with a Heckman two-stage model, which produced results closely comparable to those presented in Table 3, but our concerns about the appropriateness of the variables used in the selection stage induced us to omit the results.

level in the host country, LN(INTEREST), does not appear to be influential for the size of passive investments. LN(CORR) operates as expected: a lower level of corruption (a higher index) increases passive investments.¹² GDP per capita, which may also reflect the quality of the institutions, had also a consistent and positive effect on passive assets.

While the Poisson estimates solve the problem of zero observations, the results presented in Table 3 are based on a given set of observed affiliates. Some affiliates may not exist just because of high tax rates for passive assets, or because of the applicability of CFC rules. Therefore, as a complement to our results above and as a further sensitivity analysis, we now look at the factors that influence the allocation of affiliates with sizable passive assets.¹³ For this purpose we look at the decision problem from the point of view of the German multinationals. One shortcoming of our FDI data is that we have little information about the German parent firm apart from a firm identifier and the industry in which it is operating. We therefore do not attempt to look at the factors that induce German parents to set up affiliates with large passive assets, but look at the decision where to locate these, given that such an affiliate is on record. For a set of 77 countries and 1242 parent firms, we defined an endogenous binary variable that was encoded with the value one if the parent under consideration owned an affiliate with a substantial fraction of passive assets in a respective country and zero otherwise.¹⁴ Given that the German CFC rules may allow affiliates to have ten percent of their income from passive investment if the total income from that source does not exceed a certain absolute limit, we used a ten percent rule for encoding. Therefore observations received the value one if passive assets exceeded ten percent of total assets. Other affiliates and nonexistent affiliates receive the value zero.

The two conditional logit regression results reported in Table 4 [columns (1)–(2)] follow the setup of Table 3, and all tend to confirm the effectiveness of CFC rules for whether

¹² Using the coefficients derived from model (3) implies that improving the corruption index from 4 to 6 (which is roughly equivalent to the difference between Bulgaria and Slovenia) allows one to increase the tax rate by 8 percentage points without detrimental effects on passive assets.

¹³ This two-step approach was suggested by Manning, Duan, and Rogers (1987) in the absence of exclusion restrictions.

¹⁴ Not all parents are observed across all periods.

a country is hosting German subsidiaries with passive investment. The first column reports estimates where CFC_DUMMY and CT appear as tax variables. As in Table 3, they have the expected sign. Both the tax rate and the applicability of the German CFC rules significantly reduce the probability that a country hosts a German affiliate with passive assets of more than ten percent of total assets. The specification in column (2) splits up the tax-rate effect according to whether the foreign tax rate triggers applicability of the CFC rules or not. Unlike in Table 3, a higher tax rate is significantly discouraging now in both cases. The significance of the variable CT*CFC_DUMMY may reflect that the allocation of subsidiaries is not only based on the effective tax on passive investment, but also on the tax rate on active investment. Even if a firm, because of the CFC rules, cannot take advantage of a low rate on passive investment, the low tax rate is still attractive as to the extent the firm plans active investment as well. Our main variable of interest, CFC_DUMMY, has still a negative effect on the location decision, although significance is only at the ten percent level.

The models include four country characteristics from previous regression. GDP, GDP per capita, and the corruption index perform in the expected positive way. Unlike in Table 3, the interest level now enters significantly negative in the location equation, possibly reflecting that lower local interest rates indicate a more stable currency.

Columns (2)–(3) include regression with the same set of regressors, but using a simple linear regression OLS with parent fixed effects. The linear probability model makes it somewhat easier to infer the relative importance of the various factors. Given that the overall (unconditional) probability for one of the 77 countries of receiving a German affiliate with more than ten percent of passive assets is 2.14%, the coefficient of CFC_Dummy in column (3) indicates that applicability of the CFC rules reduces this probability by some 37%. Using the panel logit results of column (1) and evaluating at the sample mean probability for the location of a passive investment subsidiary yields an even higher effect of 55%, or 1.2 percentage points.

Table 4: The allocation of affiliates with passive assets

	Panel logit model		Linear probability model	
	(1)	(2)	(3)	(4)
CFC_DUMMY	-0.805*** (0.11)	-0.453* (0.27)	-0.00795*** (0.0015)	0.00297 (0.0055)
CT	-4.116*** (0.54)		-0.0261*** (0.0097)	
CT*CFC_DUMMY		-4.886*** (0.68)		-0.0444*** (0.011)
CT*(1 – CFC_DUMMY)		-3.439*** (0.71)		-0.00340 (0.015)
LN(GDPPC)	1.187*** (0.093)	1.158*** (0.098)	0.0142*** (0.00093)	0.0137*** (0.00093)
LN(GDP)	0.422*** (0.028)	0.414*** (0.028)	0.00907*** (0.00058)	0.00888*** (0.00057)
LN(INTEREST)	-0.168** (0.069)	-0.157** (0.068)	-0.00180* (0.0010)	-0.00169* (0.0010)
LN(CORR)	0.395*** (0.11)	0.447*** (0.12)	0.0113*** (0.0016)	0.0119*** (0.0016)
Observations	160409	160409	163472	163472
Pseudo R-squared / R-squared	0.13	0.13	0.03	0.03

Annotations: Columns (1)–(2) report conditional logit estimates with parent fixed effects. Numbers in columns (1)–(2) represent coefficients rather than odds ratios. Standard errors are corrected for clustering at the parent level. Columns (3)–(4) report OLS with standard errors clustered across country-year cells. Stars denote p -values: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. All estimations include parent fixed effects, and firms are observed during the period 1996–2006 (unbalanced sample). Affiliates in banking and insurance are not considered in the sample, since their activities are assumed to be active according to the German CFC rules.

Table 5: Robustness Tests

	OLS			Panel Poisson			Panel Logit Model	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COEFFICIENT								
CFC_DUMMY	-	-0.708***	-0.770***	-0.624*	-0.561*	-0.714**	-0.829***	-0.599***
	0.795***							
	(0.18)	(0.17)	(0.17)	(0.33)	(0.31)	(0.36)	(0.11)	(0.11)
CT	-	-3.096***	-3.729***	-3.189**	-1.505	-2.760**	-5.129***	-3.077***
	3.460***							
	(1.21)	(1.09)	(1.11)	(1.52)	(1.29)	(1.24)	(0.67)	(0.63)
LN(ASSETS)	0.405***	0.391***	0.432***	0.312***	0.299***	0.327***		
	(0.024)	(0.023)	(0.024)	(0.033)	(0.035)	(0.043)		
LN(CORR)	0.631**	0.363	0.509**	0.190	-0.0584	0.387	0.150	-0.212**
	(0.27)	(0.23)	(0.23)	(0.38)	(0.28)	(0.34)	(0.11)	(0.11)
LN(GDPPC)	0.576***	0.386***	0.519***	1.525***	1.168***	1.320***	1.338***	0.853***
	(0.17)	(0.14)	(0.14)	(0.27)	(0.26)	(0.22)	(0.10)	(0.100)
LN(GDP)	0.0701	0.133**	0.0782	0.172*	0.185**	0.176*	0.451***	0.477***
	(0.054)	(0.053)	(0.052)	(0.091)	(0.091)	(0.10)	(0.028)	(0.029)
LN(INTEREST)		-0.00210	-0.0570		0.136	0.114		-0.074
		(0.090)	(0.092)		(0.13)	(0.16)		(0.074)
LN(INFLATION)	-0.00868			0.0729			-0.181***	
	(0.054)			(0.12)			(0.031)	
LN(REAL INTEREST)	0.0922			-0.103			0.0125	
	(0.058)			(0.076)			(0.037)	
WB REGULATORY		0.201			0.172			0.615***
		(0.13)			(0.16)			(0.09)
HF FINANCIAL FREE		0.00729***			0.0171***			0.015***
		(0.0026)			(0.0050)			(0.002)
LN(MUMSIZE)			-0.0349			0.0259		
			(0.023)			(0.053)		
Observations	28341	30815	30281	77367	85388	84136	135318	160409
R-squared/Log-likelihood/Pseudo R-squared	0.56	0.55	0.53	-2.534E+11	-2.745E+11	-2.661e+08	0.1393	0.1364

Annotations: The dependent variable in (1)–(3) is the log of passive assets, in (4)–(6) the amount of passive assets, in (7)–(8) conditional logit estimates with parent fixed effects. Standard errors in parentheses are corrected for clustering within country-year cells for columns (1)–(3), robust for (4)–(6) and corrected for clustering at the parent level for (7)–(8). Stars denote p -values; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. All estimations include parent fixed effects, and firms are observed during the period 1996–2006 (unbalanced sample). Affiliates in banking and insurance are not included in the sample, since their activities are assumed to be active according to the German CFC rules. In cases in which a German parent owns more than one subsidiary in a specific country, we aggregated passive investment across country-year observations in (1)–(6). The data has been censored at the 0.1 percent of the observations with the largest amounts of passive assets in (1)–(6).

Table 5 provides robustness checks for the specifications presented in tables 3 and 4 by including additional covariates. Instead of the interest rate we tried a combination of the log of inflation and real interest rates; LN(INFLATION), LN(REAL INTEREST). Another possible factor for attracting passive assets may be the regulatory standard of the host country that may be measured by the respective World Bank indicator (WB REGULATORY). For similar reasons we include the financial freedom index by the Heritage Foundation (HF FINANCIAL FREE). Finally we include a measure of the size of the group LN(MUMSIZE), where MUMSIZE is the aggregate investment value of a parent's subsidiaries. As a general picture, with the exception of the financial freedom index, none of these additional variables is consistently significant and the coefficient of the CFC Dummy is robust to inclusion of these variables.

III.3. Loans to Affiliated Enterprises and CFC Legislation

In the previous section we concentrated on the investment in arm's-length transactions. The present section complements the analysis by looking at intrafirm lending. Most countries allow firms to deduct the interest cost of corporate debt. The advantage of the debt tax shield is larger, the larger the local tax rate is. For this reason, multinational firms have an incentive to allocate debt in high-tax countries and to allocate equity in low-tax ones. A related strategy that may be motivated by international tax rate differentials is the establishment of financial conduit entities in low-tax countries or tax havens. A tax-efficient approach¹⁵ may be to finance these companies by equity and have them forward these funds in the form of intracompany loans to high-tax subsidiaries, possibly including the parent firm (see, e.g., Mintz 2004, Mintz and Weichenrieder 2010). As a result, the multinational's interest expenses

¹⁵ As an example of such a structure a German parent decides not to finance an investment e.g. in France using equity, but instead provides equity to a subsidiary in the Bahamas (zero corporate tax rate). The Bahamas subsidiary then provides a loan to the French subsidiary in order to finance the investment there. As a result interest expenses in France lower the taxable income there, whereas the resulting interest earnings in the Bahamas do not trigger any taxes due to the zero corporate tax rate. Given the German exemption system the German parent can repatriate the interest earnings in the Bahamas tax free as dividends. However, given the German CFC-rules such a structure is not attractive, since pursuant the German CFC-rules the interest earnings in the Bahamas are taxed as income of the parent at the German corporate tax rate.

are tax-deductible in high-tax countries, whereas the taxation of the interest payments in the conduit entity is subject to low or even zero tax rates. Abstracting from countries' anti-avoidance measures, the shifting of equity and debt, unlike the shifting of real assets, does not trigger taxation of hidden reserves and should therefore be comparatively straightforward.

However, governments do react to such tax planning strategies. German CFC rules treat the interest income of such conduit entities as passive income, and the German parent of the conduit entity may be subject to German taxation on the passive income abroad. For interest income of such foreign corporations the German statutory tax rate becomes effective unless the conduit entity can provide evidence that the forwarded loans have been exclusively financed on capital markets outside Germany¹⁶ (rather than by receiving equity from the German parent).

To investigate whether the German regulations are binding, we identify all German-owned subsidiaries for which lending to affiliated enterprises exceeds liabilities. For the rest of the paper we will label these corporations *conduit entities with positive net lending* (CEPNL). There are two reasons for concentrating on subsidiaries that are net lenders. First, given that interest rates on borrowing and lending are approximately the same, using liabilities to finance lending is not a tax-efficient strategy: in such cases interest payments received and interest payments paid should largely net out (assuming that arm's-length transfer pricing rules are respected), and the resulting profit and thus possible tax savings are near zero. Second, German CFC rules will be applicable only in cases where net lending is positive. Conversely, if net lending is negative, we may conclude that all the funds have been raised on foreign capital markets, which implies that German CFC rules were not applicable.

¹⁶ Continuing the example given in footnote 15, the interest earnings in the Bahamas are not subject to German corporate taxation pursuant the German CFC-rules if the capital necessary to provide the loan is raised on foreign capital markets from unrelated parties instead of within the multinational group. We thus exclude all subsidiaries financing their intrafirm lending by raising funds from foreign capital markets from the analysis.

Table 6: Conduit entities with positive net lending by country (2006)

Country	Lending to affiliated companies less liabilities (in million euros)	No. of conduit entities	Statutory tax rate
USA	53824	58	40.0%
UK	3574	38	30.0%
Switzerland	610	31	29.0%
France	563	30	33.3%
Netherlands	807	26	29.6%
Belgium	2607	12	34.0%
Austria	309	10	25.0%
South Africa	82	9	39.6%
Luxembourg	1109	8	29.6%
Ireland	718	7	12.5%
Spain	28	6	35.0%
Sweden	71	6	28.0%
Canada	405	5	36.1%
Italy	226	5	37.3%
Cayman Islands	4406	4	0.0%
Singapore	32	4	20.0%
Australia	25	4	30.0%
Jersey	99	4	20.0%
Finland	31	3	26.0%
Denmark	51	3	28.0%
Estonia	21	3	23.0%
Malta	243	3	35.0%

Annotations: The table reports on those conduit entities for which net lending (lending to affiliated companies minus total liabilities) is positive. We left out firms with an ownership share of the German investor of less than 90%, and excluded unincorporated subsidiaries and subsidiaries in banking and insurance, as these industries are treated differently under the German CFC rules. For confidentiality reasons, we do not report on countries with less than three qualifying subsidiaries.

Table 7: The treatment of interest income from lending to affiliated companies (positive net lending)

	Treatment of passive income derived from lending to subsidiaries	
	1993–2002	From 2003
Treaty country with activity clause and nontreaty countries	German parent is taxed on total interest income of the foreign subsidiary.	
Treaty country without activity clause	German parent is taxed on 60 percent of the interest income of the foreign subsidiary.	German parent is taxed on total interest income of the foreign subsidiary.

Table 6 offers descriptive statistics on the number of German-owned conduit entities complying with a positive net lending and presents the respective amount of loans to affiliated enterprises in 2005. The table includes all countries that in 2006 have hosted more than two CEPNLs. In total this yields 170 cases. The total amount of net lending for these 170 cases is

moderate, at least for non-U.S. subsidiaries. In the Netherlands, for example, German-owned subsidiaries accounted for €879m. of net lending. Among the countries in Table 6, the only low-tax country according to the definition of the German CFC rules is Ireland. Tax-haven countries, such as the Cayman Islands or the Bermudas, are not used as significant locations for conduit entities in the sample presented here.¹⁷ Tax incentives for setting up conduit entities may however apply in the cases of the Netherlands and Switzerland. In both countries, holding company regimes apply to certain corporations that may considerably reduce the effective tax rate on interest income (see Mintz and Weichenrieder 2010).

The effects of the German CFC rules on the number of CEPNLs may be investigated by looking at the 2003 reform.¹⁸ Table 7 explicates the effect of this reform, which had a differential effect on conduit entities depending on tax treaty details. The reform implied no change for CEPNLs in cases where the tax treaty contains an activity clause. In pre- and postreform years, the German CFC rules triggered a tax for the German parent (at a rate of approximately 39% in 2005) if a foreign subsidiary derived interest income from intracompany loans, the loans were not financed on local capital markets, and a low foreign tax rate on the interest income applied. Conversely, if the relevant tax treaty contains no activity clause, then the pre-reform treatment of the parent implied that only 60 percent of the foreign interest income was subjected to German tax. For the post-reform years, the preference given in these cases was lost, and 100 percent of the foreign interest income was subject to German tax. As a result, the reform decreased the incentives to use low-tax countries that enjoy the preference of a double-tax treaty with no activity clause, and from 2003 we should expect to see a diminishing number of conduit entities there. We should add that the reform has affected only a few countries, since Germany has accepted omission of an activity clause only in a limited number of cases, including France, Ireland, Denmark, Finland, Sweden, and Norway, with the most prominent low-tax jurisdiction being Ireland.

¹⁷ For confidentiality reasons we cannot report descriptive statistics if the number of observations per year in a country is lower than three. Hence all countries not represented in the table above may at maximum have two conduit entities with net lending in 2006.

¹⁸ § 10 (6) *Außensteuergesetz* was abolished with effect from fiscal year 2003.

Indeed, Ireland is the only host country that fell below the 25% safe-haven rate of the German CFC rules and is enjoying a tax treaty without activity clause.

Table 8 reports descriptive statistics for CEPNLs in Ireland. Overall, German multinationals did not make extensive use of those conduit entities in Ireland, and the maximum number of CEPNLs was nine, reached in 1997. The aggregated amount of loans to affiliated enterprises not financed by liabilities reached a maximum of €978m. in 1996. Assuming an interest rate of 5% and a German statutory tax rate of roughly 56% at that time, the tax savings from using the Ireland CEPNLs may have reached some €22.5m. [= €978m. × 5% × (56% – 10%)] in this year.

Table 8: Conduit entities in Ireland

Year	Lending to affiliated companies net of borrowing (in million euros)	Number of conduit entities with positive net lending	Corporate tax rate
2006	718	7	12.5%
2005	619	4	12.5%
2004	*	*	12.5%
2003	329	4	12.5%
2002	423	7	10.0%
2001	70	6	10.0%
2000	229	5	10.0%
1999	66	6	10.0%
1998	777	7	10.0%
1997	840	9	10.0%
1996	978	7	10.0%

Annotations: * Information on less than three observations has to be omitted for confidentiality reasons.

The change in German CFC rules from 2003 onwards was associated with a temporary reduction of the number of conduit entities in Ireland. Table 9 revisits the effect of the 2003 reform by presenting microeconomic evidence. The analysis is based on all subsidiaries of 421 German parents that had at least one CEPNL according to our definition. Each of these subsidiaries is then treated as one observation. The left-hand variable of the regressions is a zero-one indicator, with a value of one if the German-owned subsidiary is a CEPNL, i.e., its lending to affiliated companies is larger than its liabilities. Besides the variables used before, we now also include two new ones. CFC_DUMMY*NOACTI, like CFC_DUMMY, can only

be equal to one if the local statutory tax rate is below the German safe-haven rate. Unlike CFC_DUMMY, it is only equal to one if the subsidiary under consideration benefits from the absence of an activity clause in the relevant tax treaty. Since prior to 2003 these subsidiaries received preferential treatment in the German CFC rules, we should expect a positive coefficient, i.e., a higher likelihood of CEPNLs (given inclusion of the variable CFC_DUMMY). Since the preference for low-tax countries without activity clause was dropped for years from 2003, we expect that this positive effect is nullified for this period. To allow identification of this hypothesis we include the variable CFC_DUMMY*NOACTI*POST2003, which equals CFC_DUMMY*NOACTI for 2003 through 2005, but is zero otherwise.

Table 9: Locating conduit entities with positive net lending

	Panel logit	OLS, linear probability
CT	-1.664 (1.38)	-0.0527 (0.055)
CFC_DUMMY	-0.659*** (0.25)	-0.0270*** (0.0089)
CFC_DUMMY*NOACTI	0.815** (0.38)	0.0381*** (0.014)
CFC_DUMMY*NOACTI*POST2003	-1.066** (0.52)	-0.0577*** (0.021)
LN(CORR)	1.002*** (0.26)	0.0433*** (0.011)
LN(GDP)	-0.0239 (0.056)	-0.00336* (0.0019)
LN(GDPPC)	0.643*** (0.22)	0.00508 (0.0051)
LN(INTEREST)	-0.374* (0.21)	-0.00847** (0.0043)
LN(ASSETS)	0.124*** (0.047)	0.00692*** (0.0015)
Observations	24951	25282
Pseudo R-squared / R-squared	0.07	0.19

Annotations: Dependent variable: dummy indicating positive net lending of the subsidiary. Stars denote p -values: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Conditional logit standard errors are robust and clustered on the parent level; results for the OLS are robust and corrected for clustering within country-year cells. All estimations include time fixed effects and parent fixed effects, and firms are observed during the period 1996–2006 (unbalanced sample). The logit model drops groups with all positive or all negative outcomes; therefore observations differ between models. Banks and insurance firms are not included in the sample, since their activities are assumed to be active according to the German CFC rules.

The regression results presented in Table 9 confirm that German CFC rules affect affiliate behavior. A binding German CFC rule (i.e., a local tax rate below the German safe-haven rate) reduces the frequency of CEPNLs, as indicated by the significantly negative coefficient of CFC_DUMMY in the panel logit as well as in a linear probability model. With an average probability of 6.5 percent, both models suggest that binding CFC rules reduce the probability of a German parent owning a CEPNL in a country by some 45 percent.

The coefficient for CFC_DUMMY*NOACTI indicates that – compared with low-tax countries that have an activity clause in their treaty with Germany – low-tax countries that do not face this clause have a higher probability of hosting more CEPNLs. The negative coefficient of CFC_DUMMY*NOACTI*POST2003 also shows that the elimination of the

CFC preference roughly nullified this effect, with the combined effect of the two variables being insignificantly different from zero. The significance of the coefficients and the opposite signs of these two variables of interest are conserved across different regression specifications, at least at the ten percent level. At the same time, it should be kept in mind that the coefficients for CFC_DUMMY*NOACTI*POST2003 and CFC_DUMMY*NOACTI, unlike those for CFC_DUMMY, are based exclusively on firm observations in Ireland, and the results should therefore be taken with a grain of salt. The model also uses the additional covariates included in previous regressions. The positive coefficient of LN(ASSETS) indicates that CEPNLs tend to be above average size. The coefficients of LN(CORR) and LN(INTEREST) are plausibly indicating that conduit entities are attracted by low corruption and low interest rates.

III.4. Exemption of Repatriated Passive Income: the 2001 Reform

As mentioned above, the German double-tax treaties differ with respect to inclusion of an activity clause. The previous subsection has discussed this in connection with the 2003 reform, which changed the tax treatment of intracompany lending conducted through subsidiaries in low-tax countries (i.e., countries below the safe haven rate). The differences in bilateral tax treaties are also relevant for high-tax partner countries, due to the 2001 German tax reform. Before 2001, exemption of dividends paid from treaty countries with activity clause was restricted to dividends from active income, while dividends paid from passive income were taxed by using the credit system. Since 2001, Germany has extended the exemption system unilaterally also to countries that have agreed to an activity clause in the tax treaty (and even to nontreaty countries). Hence, passive investment income repatriated from countries without an activity clause was exempt from German taxation before as well as after 2001, whereas dividends repatriated from countries with an activity clause¹⁹ were tax-exempt

¹⁹ The policy change was relevant for Argentina, Australia, Bolivia, Brazil, Canada, China, Colombia, Costa Rica, Cyprus, Czech Republic, Dominican Republic, Ecuador, Greece, Guatemala, India, Korea, Latvia, Malaysia, Malta, Mexico, Peru, Philippines, Poland, Portugal, Russian Federation, Singapore, Slovak Republic, Slovenia, Spain, Switzerland, Thailand, Ukraine, Uruguay and Venezuela.

in Germany only from 2001 onwards. This tax reform therefore gives us the opportunity to investigate the changed incentives in activity-clause countries, using the subsidiaries in countries without a clause as a control group, allowing the use of interactive variables. Table 10 explicates the implication of this reform.

Table 10: The treatment of dividends from passive income at the level of the German parent

	Treatment of dividends from passive income at the level of the German parent	
	1993–2000	From 2001
Treaty country with activity clause and nontreaty countries	German parent is taxed on total dividend income; credit for underlying foreign tax is granted (tax credit method)	Dividend is tax free at the level of the German parent (exemption system)
Treaty country without activity clause	Dividend is tax free at the level of the German parent (exemption system)	

As in Section IV.1, we start by using the log of passive investment (excluding loans and equity in affiliated companies) as the left-hand variable in a panel OLS model [columns (1)–(3)]. The treatment group in our natural experiment consists of all the subsidiaries in countries that either have no tax treaty with Germany or have one *with* an activity clause. For these subsidiaries the German 2001 reform made the tax treatment of passive income more lenient. To identify this effect we created the dummy variable POST_REFORM_W, which takes on the value one in years 2001–2006 if the relevant country has an activity clause or no tax treaty at all. Again, specification (1) starts with a relatively parsimonious empirical model. In line with our hypothesis, the coefficient of POST_REFORM_W is positive and significant, indicating that the reform has made passive investment relatively more attractive in countries that had agreed on an activity clause (or have no tax treaty). Compared to the control group, the reform has increased the amount of passive investments in arm's-length investments by more than 20 percent.

The application of the credit method or the exemption method at the level of the German parent matters more, the lower the tax rate in the host country. Therefore, passive investments in countries with a relatively low tax rate, but still above the rate that triggers

applicability of the CFC rules, should be more reactive to the tax policy change. To look into this we created yet another dummy by interacting POST_REFORM_W with LOW, a dummy for countries with a tax rate at or below 35 percent, yielding the variable POST_REFORM_W_LOW. Using this variable along with POST_REFORM_W in column (2) leads to a higher level for the coefficient of POST_REFORM_W_LOW than of POST_REFORM_W. Although the inclusion of this split reduces the significance, the size of the estimated coefficients indicates that the change in passive investments occurred mostly in countries with moderate tax rates. This is also suggested by column (3), which reports a significant estimate for POST_REFORM_W_LOW when POST_REFORM_W is dropped.

Table 11: German tax reform 2001 and passive investment

	OLS			Panel Poisson		
	(1)	(2)	(3)	(4)	(5)	(6)
CT	0.874 (0.62)	0.767 (0.60)	0.929 (0.62)	0.964* (0.57)	0.441 (0.40)	1.056* (0.58)
POST_REFORM_W	0.205** (0.083)	0.0746 (0.20)		0.379*** (0.063)	-0.00539 (0.022)	
POST_REFORM_W_LOW		0.156 (0.20)	0.206** (0.080)		0.452*** (0.064)	0.435*** (0.072)
LOW		-0.105* (0.059)			-0.177*** (0.048)	
LN(CORR)	0.0909 (0.098)	0.104 (0.099)	0.0817 (0.100)	0.261*** (0.019)	0.269*** (0.020)	0.247*** (0.018)
LN(GDP)	0.00502 (1.83)	-0.145 (1.81)	0.132 (1.81)	4.565*** (1.14)	5.005*** (0.69)	4.790*** (0.80)
LN(GDPPC)	2.124 (1.88)	2.241 (1.85)	2.014 (1.86)	-3.493*** (0.94)	-3.862*** (0.45)	-3.671*** (0.56)
LN(INTEREST)	0.155 (0.11)	0.157 (0.11)	0.144 (0.11)	0.0213 (0.031)	0.0355** (0.015)	0.0157 (0.019)
LN(ASSETS)	0.203*** (0.036)	0.204*** (0.036)	0.203*** (0.036)	0.106*** (0.0042)	0.105*** (0.0044)	0.105*** (0.0042)
Observations	21657	21657	21657	35185	35185	35185
R-squared/Log-Likelihood	0.85	0.85	0.85	-37984457	37984457	37961300

Annotations: Dependent variable is the log of passive assets in columns (1)–(3), and the absolute value of passive assets in (4)–(6). OLS columns report robust standard errors, corrected for clustering within country-year cells. Poisson standard errors are robust. Stars denote p -values: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. All estimations include firm and time fixed effects. Firms are observed during the period 1996–2005 (unbalanced sample). Banks and insurance firms are not included in the sample.

The same objections against application of OLS models that have been quoted in Section III.1 could be raised here. Therefore, we follow our previous approach and

complement the OLS estimates with the respective panel Poisson models. Like the OLS models, the Poisson models (4)–(6) suggest that the countries that have benefited from the 2001 extension of the exemption privilege have received additional passive assets compared to other countries. While the estimated coefficients are roughly twice as high as those in columns (1)–(3), they also come with a higher standard error for the tax variables.

IV. Summary and Conclusions

CFC rules, which are designed to curb the tax revenue losses due to the outflow of passive investments into low-tax countries, are part of the international tax systems of most developed countries. So far there has been almost no empirical work on the effects of these rules. In this paper we have tried to fill this gap by looking at German experience. Overall, the German past experience suggests that CFC rules seem to enable even a high-tax country to significantly inhibit the migration of passive assets into low-tax jurisdictions. Based on a comprehensive database of German FDI, we found that offshore tax-haven countries – the Cayman Islands, Barbados, and the like – are not able to attract major amounts of passive investment or a large number of financing subsidiaries. Neither are these offshore jurisdictions particularly attractive for the location of conduit entities that are equity-funded and grant these funds to affiliated companies by granting loans.

Our empirical work for the first time provides microeconomic evidence on the working of the German CFC rules. One piece of empirical evidence for the effectiveness of the rules is that, while a lower local tax rate in general attracts German passive investment, this effect is lower for countries for which the rules are applicable, since their local rate is below the safe-haven rate. There is also some evidence that the German 2003 revision of the CFC rules, which ended a tax preference for conduit entities in some treaty countries, was successful in curbing passive investments in the form of intracompany loans. Finally, this paper looked at the 2001 tax reform, which unilaterally introduced the exemption of foreign dividends when received by a German corporation. While prior to the reform dividends from

various treaty countries were exempt only in the case of an active business abroad, the reform introduced exemption even for dividends paid from passive investment income (provided the CFC rules are not applicable). We find evidence that this legislation has measurably increased the passive investment in the countries that profit from the reform. This may be interesting information for countries like the U.S. and the UK, which are currently discussing the move from a credit system of international taxation to an exemption system.

Bibliography

- Altshuler, R., and H. Grubert. 2003. Repatriation taxes, repatriation strategies and multinational financial policy. *Journal of Public Economics* 87: 73–107.
- Altshuler, R., and G. Hubbard. 2003. The effect of the tax reform act of 1986 on the location of assets in financial services firms. *Journal of Public Economics* 87: 109–127.
- Büttner, T., and M. Ruf. 2007. Tax Incentives and the location of FDI: Evidence from a panel of German multinationals. *International Tax and Public Finance* 14: 151–164.
- Egger, P., and Larch, M. 2008. Interdependent preferential trade agreement memberships: an empirical analysis. *Journal of International Economics* 76: 384–399.
- Förster, D., and G. Schmidtman. 2004. CFC legislation in Germany. *Intertax*: 476–486.
- Lang, M., H.-J. Aigner, U. Scheuerle, and M. Stefaner. 2004. CFC legislation, tax treaties and EC law. Wien: Linde.
- Lipponer, A. 2003. Deutsche Bundesbank's FDI Micro Database. *Schmollers Jahrbuch – Zeitschrift für Wirtschafts- und Sozialwissenschaften* 123: 593–600.
- Manning, W.G., N. Duan, and W.H. Rogers. 1987. Monte Carlo evidence on the choice between sample selection and two-part models. *Journal of Econometrics* 35: 59–82.
- Mintz, J.M. 2004. Conduit entities: implications of indirect tax-efficient financing structures for real investment. *International Tax and Public Finance* 11: 419–434.
- Mintz, J.M., and A.J. Weichenrieder. 2010. The indirect side of direct investment. *Multinational company finance and taxation*. MIT Press, Cambridge MA.
- Musgrave, P.B. 1969. *United States taxation of foreign investment income: issues and arguments*. Cambridge (MA): International Tax Programm, Harvard Law School.
- Mutti, J. and H. Grubert. 2006. New developments in the effect of taxes on royalties and the migration of intangible assets abroad. Paper prepared for the NBER/CRIW Conference on International Service Flows, Washington D.C., 28 April 2006.
- Ramb, F., and A.J. Weichenrieder. 2005. Taxes and the financial structure of German inbound FDI. *Review of World Economics* 141: 670–692.
- Santos Silva, J.M.C. and S. Tenreyro (2006), The log of gravity, *Review of Economics and Statistics* 88, 641–658.
- Weichenrieder, A.J. 1996. Anti-tax-avoidance provisions and the size of foreign direct investment. *International Tax and Public Finance* 3: 67–81.
- Weichenrieder, A.J. 2005. (Why) Do we need corporate taxation? *Proceedings of OeNB Workshops No.6 – Capital Taxation after EU Enlargement* 60–72.