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Repatriation taxes and outbound M&As*

Lars P. Feld
(University of Freiburg, Walter Eucken Institut and Centre for European Economic Research)

Martin Ruf
(University of Tübingen and NoCeT)

Uwe Scheuering
(German Council of Economic Experts)

Ulrich Schreiber
(University of Mannheim and Centre for European Economic Research)

Johannes Voget†
(University of Mannheim, Centre for European Economic Research, and Oxford University Centre for Business Taxation)

Abstract

Repatriation taxes reduce the competitiveness of multinational firms from tax credit countries when bidding for targets in low tax countries. This comparative disadvantage with respect to bidders from exemption countries violates ownership neutrality, which results in production inefficiencies due to second-best ownership structures. This paper empirically estimates the magnitude of these effects. The abolishment of repatriation taxes in Japan and in the U.K. in 2009 has increased the number of acquisitions abroad by Japanese and British firms by 16.1 % and 1.6 %, respectively. A similar policy switch in the U.S. is simulated to increase the number of U.S. cross-border acquisition by 11.0 %. The yearly gain in efficiency is estimated to be 108.9 million dollar due to the Japanese reform and 3.9 million dollar due to the U.K. reform. Simulating such a reform for the U.S. results in a yearly efficiency gain of 537.0 million dollar.

Keywords: International taxation; ownership neutrality; cross-border M&As; repatriation taxes

JEL-Classification: H25, F23, G34

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†Corresponding Author. Address: University of Mannheim, 68131 Mannheim, Germany. E-mail: voget@uni-mannheim.de.

1 Introduction

"*No one is satisfied with the U.S. corporate tax system. Some (...) say, the main problem is that the United States has a higher corporate tax rate than any other major country and, unlike other countries, imposes severe taxes on income earned outside its borders. This, they argue, unfairly burdens companies engaged in international competition and discourages the repatriation of profits earned abroad.*" (Lawrence Summers in the Washington Post July 7th, 2013).

This paper analyzes a particular aspect in which tax systems may distort the international competition between firms: the effect of repatriation taxes on international mergers and acquisitions. When profits from foreign subsidiaries are repatriated by a United States (U.S.) corporate parent, the U.S. taxes the grossed up dividend at the domestic corporation tax rate of 35 % (plus state taxes), while crediting the foreign taxes already paid on the repatriated profits (foreign dividend tax credit system).[3] In contrast, all other major developed countries generally exempt dividends received by the parent from foreign subsidiaries from taxation (dividend exemption system).

Repatriation taxes to be paid on a target's profits following international mergers and acquisitions reduce the discounted future cash flows to the investor, which results in a lower valuation of the target. Ceteris paribus, due to repatriation taxes, the bid price of U.S. investors is relatively lower than that of an identical investor from an exemption country. Investors from the U.S. should thus less frequently succeed in acquiring targets. To recur to the the introductory quote: the U.S. corporate tax system may 'unfairly burden companies engaged in international competition' for corporate control. In this paper, we empirically investigate if a foreign tax credit system indeed impedes foreign acquisitions and we quantify the implied loss in efficiency.

This is a particularly relevant issue given the important role that cross-border mergers and acquisitions play for foreign direct investment (FDI) especially between developed economies. In 2011, their value increased by 53 % to $ 526 billion and the implied loss in efficiency due to distortions in the market for corporate control may therefore be correspondingly huge.

In 2009, Japan, New Zealand and the United Kingdom (U.K.) switched from a tax credit system to an exemption system. This is the first time that major capital exporting economies fundamentally changed their international taxation regimes — an event, which allows us to directly identify the regimes' effect on international mergers and acquisitions.

[3] The earnings that underlie the dividend are included in the taxable income of the U.S. recipient corporation and tax credit is granted for the corresponding corporate income taxes paid by the foreign subsidiary and for withholding taxes on dividends.

In contrast, previous empirical identification strategies had to rely on indirect changes in double taxation due to variations of withholding taxes or corporate tax rates in either the capital exporting or capital importing country. With such an indirect approach, it is possible that the observed effect of double taxation is actually an artifact which should instead be attributed to the underlying changes themselves — for example, the fact that a tax treaty has been concluded or that the corporate income tax rate has changed.

We consider a large sample of cross-border mergers and acquisitions in the period from 2004 to 2013. For every target firm, we analyze the origin of the eventual acquirer by estimating conditional logit models, nested logit models, and simulated maximum likelihood models. The treatment group in the sample is represented by the acquirer countries, which switch from a foreign tax credit regime to an exemption regime, while the strength of the treatment is moderated by the tax rate differentials between acquirer and target countries.

We find that repatriation taxes reduce the competitiveness of investors from tax credit countries in the international market for corporate control. The size of this effect is conditional on the acquirer's tax rate relative to the the rest of the world: the larger the home country's corporate income tax rate, the larger the repatriation taxes due. Accordingly, the effect of the reform is more pronounced for Japan than for the U.K. because the Japanese tax rate of 40.69 % is higher in 2009 than the British tax rate of 28 %. We estimate the abolishment of the tax credit system in Japan to have increased the number of international mergers and acquisitions with a Japanese acquirer by 16.1 %. The estimated effect for New Zealand is only 1.8 % and for the U.K. it is 1.6 %. We finally simulate a switch in the U.S. from a credit to an exemption regime, which implies an increase in the number of international mergers and acquisitions with U.S. acquirers by 11.0 %.

The empirical results are relevant for the ongoing discussion on the U.S. corporate tax system as well as for the scientific discussion on the design of international tax systems. The seminal paper by Musgrave (1969) argues that a foreign tax credit system is optimal from a global perspective because it establishes production efficiency by means of capital export neutrality. On the other hand, Desai and Hines (2003) and Becker and Fuest (2010) develop the counterargument that ownership neutrality may be more relevant for efficiency in a world in which FDI takes place mainly by means of mergers and acquisitions and not by means of greenfield investment. In this case, repatriation taxes distort production efficiency as they distort ownership structures in favor of parent firms, which are not subject to these kind of taxes. Ownership advantages (e.g. expected synergies) are therefore not optimally exploited.

Based on these arguments, Griffith et al. (2010) recommend the abolishment of foreign tax credits in the U.K. in favor of exempting dividends to improve the competitiveness of U.K.-based multinational companies in the international market for corporate control. The controversial discussion of the two systems of double taxation relief with respect to neutrality properties would be rather moot if the two systems - as they are actually put in practice - resulted in identical empirical patterns. However, our results confirm that ownership structures are indeed distorted by asymmetries in international taxation, as a policy switch from credit to exemption does increase the amount of acquisitions abroad. With respect to distortions of ownership neutrality, we estimate the yearly gain in efficiency in the form of additional synergies raised to be in the order of 108.9 million dollar for the Japanese tax reform and 3.9 million dollar for the tax reform in the U.K. A simulation of a policy change to an exemption system in the U.S. implies gains of 537.0 million dollar.

Several papers deal with the empirical effects of international taxation on FDI in general (see e.g. Slemrod (1990), Swenson (1994), Hines (1996), Gropp and Kostial (2000), Bénassy-Quéré et al. (2005) and Hajkova et al. (2006)). However, the empirical literature on the effect of international taxation on mergers and acquisitions is scarce. Di Giovanni (2005), Herger et al. (2011) and Arulampalam et al. (2012) consider the effect of host country corporate taxation. Huizinga and Voget (2009) additionally include withholding taxes in their analysis, while Barrios et al. (2012) consider the establishment of new foreign subsidiaries. In contrast to the previous literature, we directly identify the effect of a systematic change in international taxation. Furthermore, instead of analyzing the choice of location for investment, we focus on the location of the investor, as our ultimate interest is in the loss of efficiency due to violations of ownership neutrality.

In a recent paper, Hanlon et al. (2015) show a positive association between locked-out cash due to repatriation tax costs and the likelihood of acquisitions abroad for a sample of large U.S. multinationals. Although there is no comparison to the rate of acquisitions by non-U.S. multinationals, this could be taken as evidence against an impeding effect of repatriation taxes on acquisitions. However, a dynamic model of the nucleus theory of corporations (Hartmann 1985, Sinn 1991) also explains this finding, since it would predict that firms subject to repatriation taxes initially underinvest abroad before they mature by accumulating retained earnings at which stage they may overinvest - especially when foreign earnings were subject to positive shocks and when expecting a repeal (or temporary reduction) of repatriation taxes at some point in the future[4].

In the following, section 2 describes the tax treatment of foreign source dividends within multinational firms, and it presents the empirical framework for estimating the effect of

[4]See page 13 for more details.

this international tax on the location of the investor in deals. Section 3 describes the data and the control variables. Section 4 presents the empirical results and section 5 concludes.

2 International Taxation and the Valuation of Firms

In line with the recommendations of the OECD model tax treaty, cross-border dividend repatriations from foreign subsidiaries to their corporate parent within the OECD are generally governed by one of two methods of double taxation relief: either the dividends are exempted from further taxation at the level of the corporate parent (exemption system) or the repatriated dividends are subject to the corporate income tax in the parent's country while receiving a tax credit for taxes already paid abroad (foreign tax credit system). This additional tax burden on repatriated dividends may put acquirers from countries with a foreign credit system at a disadvantage when bidding for foreign corporations, specifically in low tax locations because the additional tax is inversely related to the target firm's corporate income tax. The unique feature in our period of observation is the policy switch of two major capital exporting countries - Japan and the U.K. - from a foreign tax credit system to an exemption system in 2009.[5] Accordingly, the empirical analysis is particularly designed to isolate the effect of this policy change from other developments in the tax system. Furthermore, even country-specific reactions to the financial crisis should not affect our estimation results, as the proposed identification strategy relies on changes at the bilateral level.

2.1 Empirical Model

Following Mitchell and Mulherin (1996) and Becker and Fuest (2010), let us assume that takeovers reflect the synergies from combining two firms and that all assets are priced at fair value. Let

$$V_{ijk} = \alpha T_{ij} + \boldsymbol{\beta}^{\top} \boldsymbol{x}_{ijk} + \epsilon_{ijk} \tag{1}$$

be the value of firm k in country j if it was owned by an investor from country i.[6] The term T_{ij} captures the cost of additional taxation to be paid when dividends are repatriated from country j to country i. The variable vector $\boldsymbol{x}_{ijk}$ and the error term ϵ_{ijk} represent other observable and unobservable factors, which capture the general size of firm k's profits as well as ownership-specific synergies which are realized by combining

[5]New Zealand also switched to an exemption system in 2009. In the interest of brevity, we will focus our discussion mainly on the cases of Japan and the U.K.
[6]A subscript t indicating the time-period is suppressed.

firm k with a particular investor.[7] Target country, target firm and time-specific effects are automatically accounted for as they equally affect the value for all investors. Acquirer-country specific effects are captured by means of dummy variables.[8] The error term ϵ_{ijk} follows an extreme value distribution as seen in McFadden (1974), and the coefficients α and $\boldsymbol{\beta}$ are parameters to be estimated. A given target firm will be acquired by an investor from country i if the corresponding reservation price is higher than for any other acquirer,

$$V_{ijk} \geq V_{hjk}, \quad \forall h \in (1, ..., I) \tag{2}$$

the probability of which is given by[9]

$$P(V_{ijk} \geq V_{hjk} | T_{1jk}, \boldsymbol{x}_{1jk}, ..., T_{Ijk}, \boldsymbol{x}_{Ijk}) = \frac{exp(\alpha T_{ij} + \boldsymbol{\beta}^\top \boldsymbol{x}_{ijk})}{\sum_{l=1}^{I} exp(\alpha T_{lj} + \boldsymbol{\beta}^\top \boldsymbol{x}_{ljk})} \quad \forall h, \tag{3}$$

where I indicates the number of potential acquirer countries.[10] Any target country, target firm and time-specific effect cancels out as it appears in the numerator and every summand of the denominator. The parameters α and $\boldsymbol{\beta}$ can then be estimated by a conditional logit regression in a sample of deals.[11] A negative value for α would be in line with the conjecture of Desai and Hines (2003), that firms subject to repatriation taxes are at a disadvantage when bidding for foreign firms. While the conditional logit model is conceptually straightforward, estimates may be biased if the independence of irrelevant

[7] Arulampalam et al. (2012) give an example, in which labeling goods with a well-known brand allows the firm to raise prices resulting in larger profits. In Jensen and Ruback (1983) and Palepu (1986), more efficient management increases the target firm's value.

[8] Country-pair specific effects could not be controlled for in this way. The number of required dummy variables appears to be too large as the maximum likelihood estimations did not achieve convergence.

[9] The probability is conditional on the takeover being profitable for at least one acquirer. We expect this condition to be independent of $P(V_{ijk} \geq V_{hjk})$.

[10] For the current research question, it is sufficient to analyze the matching of target firms with acquiring countries instead of the matching of target firms with particular acquiring firms — for which it would be challenging to construct an appropriate choice set. Variations in the number of potential acquiring firms across countries are subsumed in country-specific effects, which are accounted for in all regressions.

[11] The conditional logit model represents the polar case of a zero-sum world in which the gain of one acquirer is automatically the loss of all other acquirers. A tax decrease raises the number of acquisition because there is a negative cross-elasticity with respect to all other potential acquirer locations. A corresponding Poisson model represents the other polar case of a positive-sum world, in which a tax decrease raises the number of acquisitions by more deals taking place without causing any loss to other acquirer locations. (Inbetween cases can be modeled by a nested logit approach.) The two models are estimated by log likelihood functions which are identical up to a constant yielding identical estimates of all other coefficients (see Guimares et al., 2003). However, the implied elasticities differ between the two models. Schmidheiny and Brülhart (2011) show that the elasticity implied by the conditional logit model is generally closer to zero than the elasticity implied by the Poisson model (and vice versa for cross-elasticities which are zero in the Poisson model). Hence, the elasticities reported on page 10 and page 11 represent a conservative lower bound as they are derived from the polar case of a conditional logit model. The elasticities would be larger if a tax decrease encourages more deals taking place.

alternatives assumption is violated. Alternatively, mixed logit regressions and nested logit regressions are therefore applied as specified in robustness checks of the empirical analysis.

2.2 Identification Strategy

The first, most parsimonious approach analyzes the policy change as a treatment effect: countries with a foreign tax credit system apply the treatment (i.e. additional taxes) to dividends from sources with a lower tax level, in which case the treatment dummy variable takes the value one.[12] The treatment is abolished by starting to exempt foreign-source dividends from taxation. Unobserved factors are controlled for by country-fixed effects and time-fixed effects.[13] Specifically, the variable of interest is constructed as

$$T_{ij}^{dummy} = \begin{cases} 1, & \text{if } \tau_i > \tau_j \text{ and country } i \text{ applies foreign tax credit system} \\ 0, & \text{otherwise,} \end{cases} \tag{4}$$

where τ_j is the corporate income tax rate in the subsidiary's country j and τ_i the tax rate in the parent's country i. However, the parsimony of this approach comes at the cost of precision because the treatment is assumed to be homogenous. In a second step, the heterogeneity of the treatment is therefore taken into account by using the tax differential between host and home country as a measure for the dose of the treatment - the size of repatriation taxes:

$$T_{ij}^{\Delta} = \begin{cases} \tau_i - \tau_j, & \text{if } \tau_i > \tau_j \text{ and country } i \text{ applies foreign tax credit system} \\ 0, & \text{otherwise.} \end{cases} \tag{5}$$

If this repatriation tax handicaps the acquisition of foreign firms, one should find a negative effect when estimating its coefficient in expression (3). Some countries do not fully exempt foreign-source dividends. A certain percentage of the dividends may be deemed to be non-deductible expenses and be added to the parent's taxable income, leading to a repatriation tax burden. Moving further away from the treatment effect design, the measure of repatriation taxes can therefore be refined in a third step by also taking into account that some countries such as Germany or France do not fully exempt foreign-source dividends. Instead, usually 5 % of foreign-source dividends remain subject to corporate

[12] Foreign tax credits are always limited such that the tax on the repatriated dividends cannot become negative when corporate income taxes are higher in the subsidiary's country than in the parent's country.

[13] Time-fixed effects simply cancel out in this estimation framework as they apply equally to all potential acquirers of a target firm.

income taxes, such that the variable of interest is defined as

$$T_{ij}^{\Delta 2} = \begin{cases} \tau_i - \tau_j, & \text{if } \tau_i > \tau_j \text{ and country } i \text{ applies foreign tax credit system} \\ (1-\tau_j)x\tau_i, & \text{if country } i \text{ exempts only a share of (1-}x\text{)} \\ 0, & \text{otherwise.} \end{cases} \tag{6}$$

The above measure accounts only for the tax on dividends imposed by the parent country. The subsidiary's country, however, may impose additional withholding taxes on dividends. Though withholding taxes are creditable foreign taxes, these additional taxes may cause an excess credit situation and the overall double tax on dividend repatriations may increase. If the subsidiary's country levies withholding taxes on dividends, the compound double tax is calculated as[14]

$$T_{ij}^{\Delta 3} = \begin{cases} max[\tau_i - \tau_j, (1-\tau_j)\omega_{ij}], & \text{if country } i \text{ applies foreign} \\ & \text{tax credit system} \\ (1-\tau_j)\omega_{ij} + (1-\tau_j)(1-\omega_{ij})x\tau_i, & \text{if country } i \text{ exempts} \\ & \text{only a share of (1-}x\text{)} \\ (1-\tau_j)\omega_{ij}, & \text{otherwise,} \end{cases} \tag{7}$$

where ω_{ij} is the applicable withholding tax rate for dividend payments from a subsidiary in country j to its parent in country i. Foreign corporation tax is difficult to avoid even if dividends are eventually repatriated via third countries (e.g. by interposing a foreign conduit company). Dividend routing, however, matters in case of withholding taxes. These taxes may be reduced significantly or even avoided if received by the parent via interposed foreign companies. In line with this, Barrios et al. (2012) find that the establishment of new foreign subsidiaries does not appear to be affected by withholding taxes, which could be attributed to the use of conduit companies.[15] This potential difference in effect conditional on the source of repatriation taxes is further investigated in robustness checks of the empirical analysis.

The tax rates defined above are statutory rates because some features of international taxation cannot be explicitly accounted for as it would require speculative assumptions — not only about the actual acquirer but also about its contenders — with respect to their international structure and the timing of repatriations. For example, the repatriation tax may be deferred until the foreign profits are distributed reducing the effective repatriation tax burden — which would be particularly relevant in the presence of good reinvestment

[14]See Huizinga and Voget (2009) or Barrios et al. (2012) for comparison.

[15]For example, Mintz and Weichenrieder (2010) provide evidence that high withholding tax rates tend to be avoided by conduit companies.

opportunities or if target firms are expected to generate taxable losses for several years. This is implicitly taken into account as it attenuates the estimated coefficient of the statutory double tax measure. Similarly, acquirers may find the potential double tax less relevant if they are in a position of having excess foreign tax credits due to a pre-existing large share of business in high-tax countries. Again, this would be reflected in attenuated coefficient estimates of the statutory double tax measure. Another initial assumption is that target firms earn active business income such that controlled foreign corporation rules do not become relevant. Some of these aspects are addressed more explicitly in the robustness checks of the empirical results.

Table 1: Tax Rates and Dividend Repatriation Taxation Systems

	Tax Rate		System	
Acquirer country	2004	2013	2004	2013
Australia	0.30	0.30	E	E
Austria	0.34	0.25	E	E
Belgium	0.34	0.34	E95	E95
Canada	0.34	0.27	E	E
Denmark	0.30	0.25	E	E
Germany	0.36	0.30	E95	E95
Finland	0.29	0.25	E	E
France	0.34	0.33	E95	E95
Ireland	0.13	0.13	C	C
Italy	0.37	0.31	E95	E95
Japan	0.42	0.38	C	E95
Luxembourg	0.30	0.29	E	E
Netherlands	0.35	0.25	E	E
New Zealand	0.33	0.28	C	E
Norway	0.28	0.28	E	E
Spain	0.35	0.30	E	E
Sweden	0.28	0.22	E	E
Switzerland	0.24	0.21	E	E
United Kingdom	0.30	0.23	C	E
United States	0.39	0.39	C	C

C: credit, E: exemption, E95: 95 % exemption, E97: 97 % exemption

The last two columns report the default tax regime for foreign-source income in the presence of a tax treaty. Bilateral deviations due to the absence of tax treaties are listed below:

2004:

Australia applied the tax credit system for subsidiaries located in Chile, Estonia, Greece, Island, Israel, Luxembourg, Portugal and Turkey. Canada applied the tax credit system for subsidiaries located in Greece and Turkey. Spain applied the tax credit system for subsidiaries located in New Zealand and Finland applied the tax credit system for subsidiaries located in Chile.

2013:

Finland applied the tax credit system for subsidiaries located in Chile.

Table 1 summarizes the prevalent method of double tax relief for the potential acquirer locations at the beginning and at the end of our sample period. Bilateral deviations from the default method due to tax treaty provisions or the absence of tax treaties are also taken into account as mentioned in the notes of Table 1. The U.S. is currently the only country left, which still applies a foreign tax credit system, apart from Ireland, where the method of double tax relief is practically irrelevant due to the low Irish corporate income tax rate of 12.5 %. In Japan the foreign tax credit system was replaced by an exemption system in 2009. The reform was first announced in December 2008 and the legislation passed on March 27, 2009. Since April 1, 2009, dividends received have generally been exempt, although 5 % of repatriated profits are still subject to Japanese corporate income taxes as they are deemed to be non-deductible expenses.[16] Similarly, the U.K. started to exempt dividends from July 1, 2009. The first proposal was made in June 2007. In July 2008, the Financial Secretary to the Treasury wrote an open letter in which he announced a possible dividend exemption. In December 2008, a draft for discussion was made.[17] In addition, New Zealand replaced its foreign tax credit system with an exemption system on January 1, 2009.[18] General or country-specific shocks around 2009 should not interfere with the previously described identification strategy because the existence and the magnitude of the abolished tax treatment varies at a bilateral level. For example, unobserved shocks due to the financial crisis should not cause a bias as long as they are not correlated with the bilateral-specific tax burdens.

3 Data Description

From the Zephyr Bureau van Dijk database, we collect all cross-border corporate deals between OECD countries in the 2004-2013 period, through which majority control of the target firm has been attained.[19] To keep the mixed logit regressions computationally feasible, the set of acquiring countries considered is restricted to the twenty most frequent acquirer locations. This renders a sample of 17907 deals. Table 6 in the Appendix lists the number of acquirers by country of origin over time. Figure 4 shows the deals by Japanese acquirers relative to all acquiring countries in our sample and figure 5 the deals by UK acquirers. Figure 1 illustrates the spatial distribution of acquirer locations. The variation in the total number of deals over time reflects the cyclical nature of mergers and acquisitions activity, which generally follows the trends in stock markets: the number of deals peaked in 2007 and fell thereafter. In 2010, the number of deals recovered to the level

[16] See Smith et al. (2009), Ernst & Young (2011), p. 562, Carr et al. (2009) and Gutiérrez at al. (2011), p. 553 - 554.

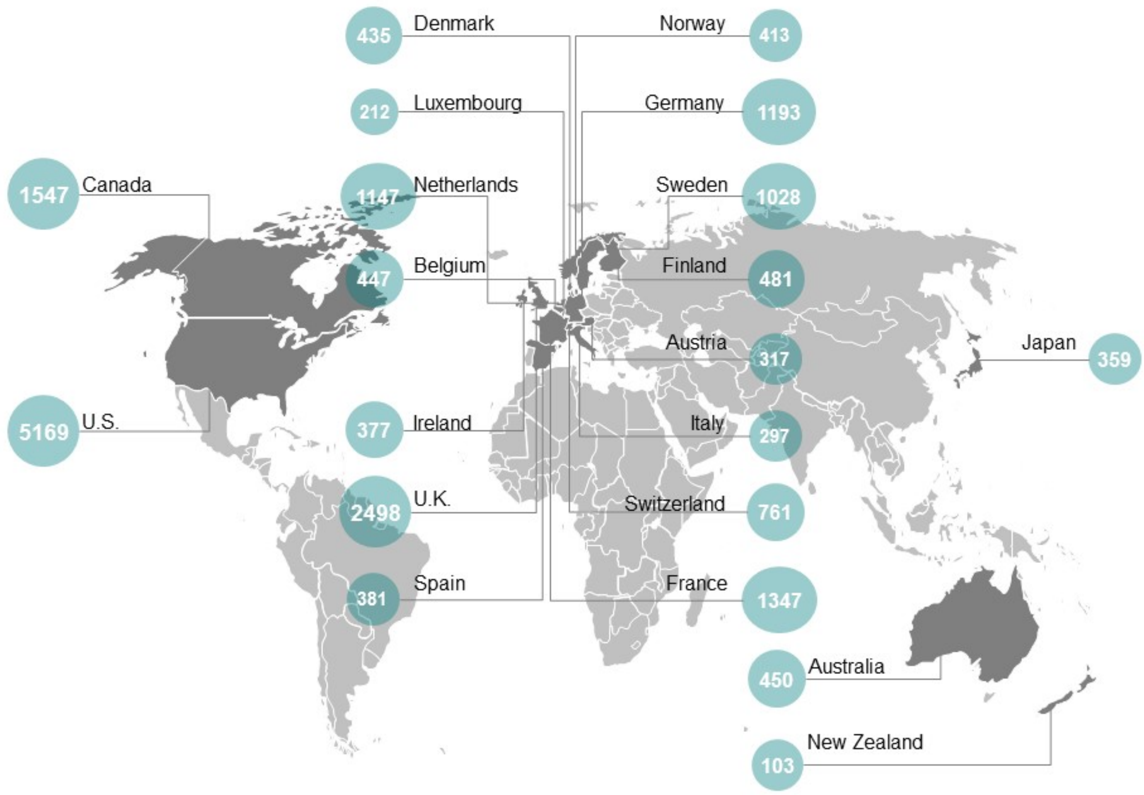
[17] See House of Lords (2009), Ernst & Young (2011), p. 1179, Carr et al. (2009) and Gutiérrez at al. (2011).

[18] See Ernst & Young (2011), p. 789 - 790 and Gutiérrez at al. (2011), p. 759.

[19] Data was downloaded on 09.11.2014. Deals without a uniquely determined acquirer or target are excluded. The acquirer is the firm which becomes the parent firm (irrespective of size differences between acquirer and target as observed in case of corporate inversions).

at which it had started in 2004. These general developments — even if country-specific — should not distort the estimation results as the proposed identification strategy relies on changes at a bilateral level. In line with the findings by Di Giovanni (2005), countries with large stock markets such as the U.S. and the U.K. also exhibit the largest number of acquirers.

Figure 1: Spatial distribution of acquirers



Variable definitions and data sources are listed in Table 7 in the Appendix. Table 8 in the Appendix provides summary statistics for the control variables used in the empirical work. At the level of the acquirer country, the corporate income tax rate, τ_i, controls for shocks to the parent firm's investment, which serves as a common input in a multinational production process. For example, Becker and Riedel (2012) find a negative effect of parent country tax rates on foreign affiliate investment. The gross domestic product per capita, $GDPC_i$, and the gross domestic product growth rate, $GDPG_i$, may have a positive effect, reflecting differences in productivity across potential acquirers. Good financing conditions as proxied by a country's stock market capitalization relative to GDP, $Stock_i$, should increase the likelihood of a successful bid. Furthermore, a strong exchange rate, $Exch_i$, may facilitate foreign acquisitions (Blonigen (1997)). The variables $GDPS_{ki}$ and

$Deals_{ki}$ capture the specialisation of acquirer countries in particular industries. $GDPS_{ki}$ measures the share of the target's industry sector in the GDP of the acquiring country one year prior to the deal, whereas $Deals_{ki}$ counts how many cross-border deals in the target firm's industry originated from the acquirer country over the preceding 5 years. Several variables such as distance, $Dist_{ij}$, and indicators for common borders, $Neighb_{ij}$, common languages, $Lang_{ij}$, former colonial relationships $Colony_{ij}$, and formerly having been part of the same nation, $Same_{ij}$, control for bilateral variation in transaction costs which increase with the cultural and geographic distance between countries. These control variables were also found to be relevant for cross-border mergers and acquisitions by Di Giovanni (2005).

4 Empirical Results

Table 2 presents the results of multinomial choice regressions explaining the acquirer's country of origin in the previously described sample. For every deal, the dependent variable equals one for the actual acquirer's country of origin and zero for the counterfactual acquirer locations. In the conditional logit regression (1), the variable of interest is the parsimonious treatment dummy, T_{ij}^{dummy}, defined in expression (4), which indicates an additional tax on dividend repatriations due to insufficient foreign tax credits. The negative coefficient implies that the switch to an exemption system by Japan and the U.K. facilitates successful bids for target firms in countries with relatively lower tax rates.

A heterogenous treatment effect is allowed for in regression (2), as the variable of interest T_{ij}^{Δ}, defined in expression (5), measures the size of potential repatriation taxes on dividends. Again, the coefficient is found to be negative, although its p-value is now substantially smaller than in regression (1). The higher significance is most probably due to removing the assumption of homogeneous repatriation taxes.

Following Cameron and Trivedi (2009, p. 502), the economic effect implied by regression (2) is estimated by the change in predicted probabilities, as the variable of interest is perturbed while keeping all other variables constant. In particular, we simulate the counterfactual that the U.K. had not exempted foreign-source dividends from taxation in 2009 and 2013. Table 3 lists the average predicted probabilities of harboring the successful acquirer in a cross-border deal based on the actual variables in column (1), and based on the simulated variables in column (2). The comparison implies that the switch to an exemption system has increased British acquisitions abroad by 1.6 % (= (0.1492 − 0.1469)/0.1469) or by 0.7 billion U.S. dollar in terms of yearly volume. Along the same lines, we simulate that Japan had not introduced an exemption system in 2009. The corresponding predicted probabilities for the actual and the counterfactual

Table 2: Regression estimates

	Conditional logit		Mixed logit	
	(1)	(2)	(3)	(4)
T_{ij}^{dummy}	-0.0656			
	(0.268)			
T_{ij}^{Δ}		-1.6092[a]	-1.4992***	-1.4992[b]
		(0.000)	(0.000)	(0.139)
τ_i	-0.2658	0.682	-0.0470	-0.0470
	(0.634)	(0.904)	(0.937)	(0.947)
$GDPC_i$	0.0507***	0.0513***	0.0538***	0.0538***
	(0.000)	(0.000)	(0.000)	(0.000)
$GDPG_i$	0.0615***	0.0643***	0.0622***	0.0622***
	(0.000)	(0.000)	(0.000)	(0.000)
$Stock_i$	-0.0001	-0.0001	-0.0001	-0.0001
	(0.842)	(0.822)	(0.895)	(0.896)
$Exch_i$	-0.0129***	-0.0099***	-0.0104**	-0.0104*
	(0.003)	(0.018)	(0.014)	(0.052)
$GDPS_{ki}$	0.0034**	0.0034**	0.0035**	0.0035
	(0.049)	(0.048)	(0.050)	(0.413)
$Deals_{ki}$	0.0002***	0.0002***	0.0002***	0.0002***
	(0.000)	(0.000)	(0.000)	(0.000)
$Dist_{ij}$	-0.5166***	-0.5074***	-0.5206***	-0.5206***
	(0.000)	(0.000)	(0.000)	(0.000)
$Neighb_{ij}$	0.2405***	0.2492***	0.2843***	0.2843***
	(0.000)	(0.000)	(0.000)	(0.002)
$Lang_{ij}$	0.7502***	0.7675***	0.7995***	0.7995***
	(0.000)	(0.000)	(0.000)	(0.000)
$Colony_{ij}$	0.3388***	0.3167***	0.3240***	0.3240***
	(0.000)	(0.000)	(0.000)	(0.000)
$Same_{ij}$	0.6293***	0.6293***	0.7279***	0.7279***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	341719	341719	341719	341719
Log-Likelihood	-39252.00	-39243.68	-39227.40	-39227.40

Notes: the dependent variable equals one if country i is the actual acquirer's country of origin. It is zero if country i is a counterfactual acquirer location. Regression (1) and (2) are conditional logit regressions, while regressions (3) and (4) are mixed logit regressions. All regressions control for acquirer country specific effects, which follow a random distribution in the mixed logit regressions. The parameter estimates for the acquirer country-specific estimates in the mixed logit regressions are shown in Table 10. Standard errors in column (1), (2) and (3) are robust. Regression (4) is identical to regression (3) except for standard errors, which are robust to clustering on the target-country/industry level. [a] denotes signifigance at the 1 % level for Tax_{ij}^{Δ}; we additionally followed the procedure described in Cameron and Miller (2013), p. 24, to compute two-way clustered standard errors within industries in the source and destination resulting in a significant coefficient at the 1 % level for Tax_{ij}^{Δ} instead. [b] denotes signifigance at the 13.9 % level for Tax_{ij}^{Δ}; with clustering on the level of target-country/year pairs Tax_{ij}^{Δ} is instead significant at the 8.1% level and with clustering on the level of industry/year pairs at the 1.2% level. p-values in parentheses, * denotes significance at the 10 %-level, ** at the 5 %-level and *** at the 1 %-level respectively.

situation in columns (1) and (3) imply that Japanese acquisitions abroad have increased by 16.1 % or by 3.1 billion U.S. dollar in terms of yearly volume. The more pronounced effect is due to the Japanese corporate income tax rate of 40.7 % in 2010 and still 38 % in 2013 being considerably higher than the British corporate income tax rates of 28 % and 23 % respectively. Hence, the abolished potential double taxation of Japanese dividend repatriations was larger and occured in more cases than for British repatriations. In fact, the Japanese tax rate is the maximum tax rate through most of the sample period. This difference in effect is also reflected in the share of Japanese acquisitions and the share of British acquisitions relative to all acquisitions in figure 4 and figure 5. The former increases from 2009 on while the latter stagnates. For New Zealand, the comparison of predicted probabilities in columns (1) and (4) implies an increase in acquisitions by 1.8%, which is slightly larger than for the U.K. This is in line with slightly larger tax rates of 30 % in 2010 and 28 % in 2013.

Inspired by the discussion in the U.S. for a reform of foreign corporate income taxation, we also simulate that the U.S. had exempted foreign-source dividends in 2009 and 2013, the average predicted probabilities of which are listed in column (5). Such a policy change is calculated to increase the number of U.S. acquisitions abroad by 11.0 % or by 12.7 billion U.S. dollar in terms of yearly volume.[20] For comparison, the increase in U.S. acquisitions abroad is similar in volume (Raice, 2014) to the value of foreign firms which have been involved in corporate inversions of U.S. multinationals in 2013.

Which unique features of the U.S. tax system would cause a divergence from the simulation results? The U.S. system may be relatively more stringent with respect to restrictions on lending money back to U.S.-based companies (IRC section 956). The retained earnings trapped abroad may instead be used for acquisitions. Hence, in the short run, the response to a U.S. shift to territorial taxation could even be negative as the surplus of retained earnings is repatriated to the U.S. However, in the long run, one would then also expect a stronger increase in acquisitions than simulated because the current U.S. system is in the end more stringent than its peers.

The nucleus theory of corporations (Hartman, 1985, Sinn, 1991) would predict that firms subject to repatriation taxes initially underinvest abroad before they mature by accumulating retained earnings at which stage they may overinvest (also in the form of acquisitions) - especially when foreign earnings were subject to positive shocks and when expecting a repeal (or temporary reduction) of repatriation taxes at some point in the future. In line with this argument, Hanlon et al. (2015) find that large U.S. multinationals are more likely to engage in foreign acquisitions if they are estimated to

[20] The calculation of yearly volumes is based on the acquiring country's average deal value in the sample period 2004-2013.

Table 3: Effect of policy change based on regression (2) of Table 2

	Reforms 2009 - 2013:				
Country	Actual state 2009-2013	No Reform U.K. 2009-2013	No Reform Japan 2009-2013	No Reform New Zealand 2009-2013	Reform U.S. 2009-2013
Australia	0.0260	0.0261	0.0261	0.0260	0.0248
Austria	0.0166	0.0167	0.0167	0.0166	0.0158
Belgium	0.0243	0.0244	0.0244	0.0243	0.0232
Canada	0.0877	0.0878	0.0879	0.0877	0.0859
Denmark	0.0216	0.0216	0.0216	0.0216	0.0205
Finland	0.0235	0.0235	0.0236	0.0235	0.0223
France	0.0755	0.0757	0.0758	0.0755	0.0716
Germany	0.0743	0.0745	0.0745	0.0743	0.0706
Ireland	0.0163	0.0163	0.0164	0.0163	0.0152
Italy	0.0143	0.0144	0.0144	0.0143	0.0136
Japan	0.0231	0.0232	0.0199	0.0231	0.0220
Luxembourg	0.0094	0.0094	0.0094	0.0094	0.0090
Netherlands	0.0619	0.0620	0.0621	0.0619	0.0590
New Zealand	0.0057	0.0058	0.0058	0.0056	0.0055
Norway	0.0218	0.0219	0.0219	0.0218	0.0207
Spain	0.0180	0.0181	0.0181	0.0180	0.0172
Sweden	0.0575	0.0577	0.0577	0.0575	0.0547
Switzerland	0.0422	0.0423	0.0423	0.0422	0.0403
United Kingdom	0.1492	0.1469	0.1496	0.1492	0.1434
United States	0.3438	0.3445	0.3450	0.3439	0.3816

Numbers are relative frequencies of all deals with acquirer from the specific country in the given period predicted based on regression (2).

have relatively more locked-out cash due to repatriation taxes compared to other large U.S. multinationals. This is consistent with a generally impeding effect of repatriation taxes on foreign acquisitions which is moderated by the current state of foreign capital stock in the set of all U.S. firms. In fact, if there was no threat of ending up in a position with locked-out cash, it is not clear how an impeding effect of repatriation taxes on foreign investment would come about.[21]

[21] The difference in acquisition likelihood estimated by Hanlon et al. (2015) relates to differences within the group of U.S. multinationals. There is no comparison to the rate of acquisitions by non-US multinationals as Hanlon et al. (2015) focus on U.S. firms. The authors also point out that they end the sample in 2004 exactly because at that point the American Jobs Creation Act temporarily reduced the repatriation tax effectively to 5.25% (less foreign tax credits) which led to an eightfold increase in dividend repatriations to almost 400 billion U.S. dollar (Grubert, 2009). Hence, this intervention may have set the foreign equity position of U.S. multinationals back towards a level of relative underinvestment. Furthermore, the empirical design in Hanlon et al. (2015) precludes comparisons with non-U.S. multinationals' investment and it results in a sample of large firms which have already become multinationals. A complementary finding could be, that the out-of-sample, large purely domestic firms (about every third large firm in Compustat), and the small firms (more than half of all Compustat firms) are less likely to engage in foreign acquisitions than comparable peers from other jurisdictions. The empirical approach described in Section 2.1 includes all types of firms as potential acquirers.

Among the control variables, the likelihood of a successful bid is negatively related to the acquirer's corporate income tax rate, τ_i, as shocks to investment in common input factors at the parent level appear to decrease the value of acquisitions abroad. The positive signs of gross domestic product per capita, $GDPC_i$, and of the gross domestic product growth rate, $GDPG_i$, suggest that highly productive firms are more likely to engage in FDI as argued by Helpman, Melitz and Yeaple (2004). Stock market capitalization over GDP, $Stock_i$, reflects the comparative advantage of acquirers with access to well developed capital markets. It does not show a significant effect. The exchange rate, $Exch_i$, shows a significant negative effect. Acquirers with a depreciated currency have a lower probability to succeed in acquiring foreign targets. Specialization in the target's industry — as measured by the relevant industry sector share in the acquiring country's GDP, $GDPS_{ki}$, and the acquiring country's number of cross-border acquisitions in the relevant industry over the preceding 5 years, $Deals_{ki}$ — also appears to explain the prevailing acquirer location. The significant effects of distance, $Dist_{ij}$, common borders, $Neighb_{ij}$, common languages, $Lang_{ij}$, former colonial relationships, $Colony_{ij}$, and formerly having been part of the same nation, $Same_{ij}$, suggest the presence of bilateral transaction costs, for example, in the form of cultural frictions or information costs.

The conditional logit regressions may be inconsistent if the assumption of independence of irrelevant alternatives (IIA) is violated. We test the IIA assumption by a series of 20 Hausman tests, in which one country at a time is excluded from the choice set. In most cases, the estimates based on the reduced samples differ significantly from the full sample estimates, which casts doubt upon the validity of the IIA assumption. On the other hand, Cheng and Long (2006) argue that tests of the IIA assumption based on restricted choice sets perform very poorly even in large samples. Nevertheless, the IIA assumption appears to be rather strong from a theoretical perspective, for example, if acquirer countries' industrial specialisations cannot be sufficiently controlled for by observables: a manufacturing firm, may be more likely to be acquired by a German firm, whereas a target financial firm may be more likely to be acquired from the U.K. or from the U.S. One set of acquirer-country fixed effects for the whole sample would therefore be too restrictive, as the effects should vary across industries. Similarly, regional markets may integrate at different speeds than the global market and a target may be more likely (or less likely) to be acquired from a country within the same regional market than from overseas. In both cases the IIA assumption is violated. Allowing for a larger number of fixed effects — acquirer-country by industry, acquirer-country by target-country or even a combination of the two — by means of dummy variables is not a viable approach as the large number of parameters would result in an incidental parameter bias (Greene (2012), p. 659-661).

Instead, a mixed logit estimator (Train (2009), p. 138) is applied in regression (3) of

Table 2, in which the vector of coefficients for the country-specific effects $\boldsymbol{\gamma}$ is allowed to be random according to a normal distribution with mean $\boldsymbol{g}$ and covariance $\boldsymbol{W}$. Parameters are estimated by simulated maximum likelihood with 50 Halton draws. The estimated standard deviations of the normal distribution are highly significant indicating that this approach should be preferred to the conditional logit regression. Therefore, we stick to mixed logit regressions for most of the remaining analysis. Eventually, this choice is immaterial because the basic implications remain similar: the coefficient of the variable of interest, Tax_{ij}^{Δ}, remains significantly negative in regression (3). As previously conducted, we simulate counterfactual policies in the U.K., Japan, and the U.S. for taxing foreign-source dividends in the period 2009-2010. The change in average predicted probabilities suggests that exempting dividends has increased — or, in the case of the U.S., would have increased — the number of acquisitions abroad by 3.7 % for the U.K., by 30.4 % for Japan, and 16.2 % for the U.S.

The coefficients significance becomes less if assumptions about the independence of acquisitions are relaxed: Regression (4) is similar to regression (3), but standard errors are now robust to clustering within industries of the target country implying a p-value of 13.9% for the coefficient of Tax_{ij}^{Δ}. We only report the most conservative standard error for Tax_{ij}^{Δ} resulting from different clusters in table 2 column (4). With clustering on the level of target-country/year pairs (p-Value of 8.1 %) or on the level of industry/year pairs (p-Value of 1.2 %) Tax_{ij}^{Δ} is instead significant at conventional significance levels.

As mentioned before, the unique feature in our data is the policy switch of two major capital exporting countries - Japan and the U.K. - from a foreign tax credit system to an exemption system. However, tax rates varied between 2004 and 2013, which also affects our repatriation tax measure T_{ij}^{Δ}. In regression (1) of Table 4, we therefore rely solely on regime changes for identification by calculating repatriation taxes with tax rates fixed to their values in 2008, one year prior to the British and Japanese reforms. The estimates remain similar, which confirms that the effect is indeed identified by the changes in the method of double tax relief and not by variations in the underlying corporate income tax rates.[22]

[22] As a placebo test, it can be checked if bilateral foreign portfolio investment (FPI) reacts to changes in foreign income taxation which actually apply to foreign direct investment (and hence to cross-border acquisitions). However, a negative correlation with T_{ij}^{Δ} could actually persist as FPI by corporations in the U.K., for example, does benefit from the switch to exempting foreign-source dividends. FPI with respect to equity for our sample is provided by the IMF's Coordinated Portfolio Investment Survey for 5923 bilateral relationships in our sample. The effect of the country-specific explanatory variables in Table 2 is then analyzed by means of a Poisson regression similar to the empirical trade literature (Silva and Tenreyro, 2006) controlling for bilateral and year-fixed effects. The estimated coefficient for T_{ij}^{Δ} is -0.39 with a p-value of 52%. This insignificant finding is robust to changes in specification such as employing a linear regression with the logarithm of portfolio investment as the dependent variable (similar to Amiram and Frank, 2012), or using the share of bilateral portfolio investment in total portfolio investment as the dependent variable, or replacing bilateral fixed effects

Table 4: Robustness checks

	Mixed Logit								Nested Logit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
T_{ij}^{Δ}	-0.8593**	-1.3323***		-3.8062***	-2.6934***				-1.7904***
	(0.049)	(0.001)		(0.000)	(0.000)				(0.000)
$T_{ij}^{\Delta}(Profit_k)$			-2.7549***						
			(0.000)						
$T_{ij}^{\Delta}(Loss_k)$			-1.6224***						
			(0.002)						
$T_{ij}^{\Delta 2}$						-1.5449***		-1.5709***	
						(0.000)		(0.000)	
$T_{ij}^{\Delta 3}$							-0.4002**		
							(0.039)		
$Withholding_{ij}$								-0.1230	
								(0.558)	
τ_i	-0.3706	0.3476	-0.1653	0.7860	0.0289	-0.0198	-0.3735	-0.0267	0.1884
	(0.527)	(0.581)	(0.777)	(0.424)	(0.961)	(0.973)	(0.524)	(0.964)	(0.694)
$GDPC_i$	0.0528***	0.0544***	0.0529***	0.0499***	0.0561***	0.0537***	0.0520***	0.0535***	0.0465***
	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$GDPG_i$	0.0634***	0.0557***	0.0641***	0.0687***	0.0666***	0.0662***	0.0638***	0.0661***	0.0493***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Stock_i$	-0.0000	-0.0003	-0.0001	-0.0002	-0.0001	-0.0001	-0.0000	-0.0001	-0.0000
	(0.944)	(0.753)	(0.869)	(0.850)	(0.901)	(0.896)	(0.969)	(0.902)	(0.971)
$Exch_i$	-0.0123***	-0.0110***	-0.0119***	-0.0047	-0.0093**	-0.0109***	-0.0148***	-0.0111***	-0.0071***
	(0.004)	(0.009)	(0.003)	(0.541)	(0.028)	(0.009)	(0.000)	(0.008)	(0.003)

to be continued on next page

Table 4: Robustness checks - continued

	Mixlogit								Nested Logit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$GDPS_{ki}$	0.0035**	0.0020	0.0034*	0.0017	0.0038**	0.0035**	0.0034*	0.0034*	0.0036**
	(0.048)	(0.289)	(0.054)	(0.534)	(0.036)	(0.050)	(0.053)	(0.051)	(0.016)
$Deals_{ki}$	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Dist_{ij}$	-0.5220***	-0.5222***	-0.5142***	-0.5800***	-0.5241***	-0.5202***	-0.5229***	-0.5180***	-0.4754***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Neighb_{ij}$	0.2806***	0.2858***	0.2843***	0.5133***	0.2931***	0.2844***	0.2798***	0.2856***	0.2387***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Lang_{ij}$	0.7920***	0.8159***	0.7743***	0.7310***	0.8194***	0.8003***	0.7709***	0.7944***	0.6359***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Colony_{ij}$	0.3329***	0.3085***	0.3459***	0.1879***	0.3213***	0.3231***	0.3479***	0.3249***	0.2366***
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Same_{ij}$	0.7440***	0.8298***	0.7159***	0.6829***	0.7127***	0.7278***	0.7478***	0.7299***	0.5020***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	341719	305298	341719	127262	341719	341719	341719	341719	341719
Log-Likelihood	-39233.39	-34832.09	-39205.83	-15538.56	-39209.17	-39227.03	-39232.60	-39226.86	-39176.43

Notes: the dependent variable equals one if country i is the actual acquirer's country of origin. It is zero if country i is a counterfactual acquirer location. Regressions (1) to (8) are mixed logit regressions, while regression (9) is a nested logit regression, in which countries are grouped according to their geographic location in Asia/Australasia, Europe, and North America at the first level of a two-level choice process. All regressions control for acquirer country-specific effects. Regression (1) fixes tax rate differences to the values of the year 2008 for computing T_{ij}^{Δ}. Regression (2) excludes all deals from 2008. Regression (3) allows a separate coefficient of T_{ij}^{Δ} for profitable and not profitable targets. Regression (4) expands the set of control variables by the target firm specific control variables $Asset_k$ and $Prof_k$, the coefficients of which are presented in Table 11 as their effect varies across the potential acquirer locations. Regression (5) randomizes the coefficient of T_{ij}^{Δ}. Regressions (6) to (8) use more precise measures of repatriation taxes. Standard errors are robust. p-values in parentheses, * denotes significance at the 10 %-level, ** at the 5 %-level and *** at the 1 %-level respectively.

Acquisition behavior may have already adjusted in the run-up to the effective change in policy if agents started to anticipate the eventual introduction of an exemption system. Therefore, regression (2) of Table 4 excludes all observations from 2008, the year prior to the reforms, without much change in the results.

Profitable target firms may indeed be bought for the future profits they promise while loss-making firms may be bought for strategic reasons such as removing the threat of a potential future competitor or acquiring a common input factor. The former group of acquisitions could be more affected by taxes on dividend repatriations than the latter group. This hypothesis is tested in regression (3) of Table 4 by allowing the coefficient of T_{ij}^{Δ} to differ between the two groups. Indeed, repatriation taxes appear to have a stronger effect in case of profitable target firms than in case of loss-making target firms. The difference in the coefficients is significant at a p-value of 0.0510.[23]

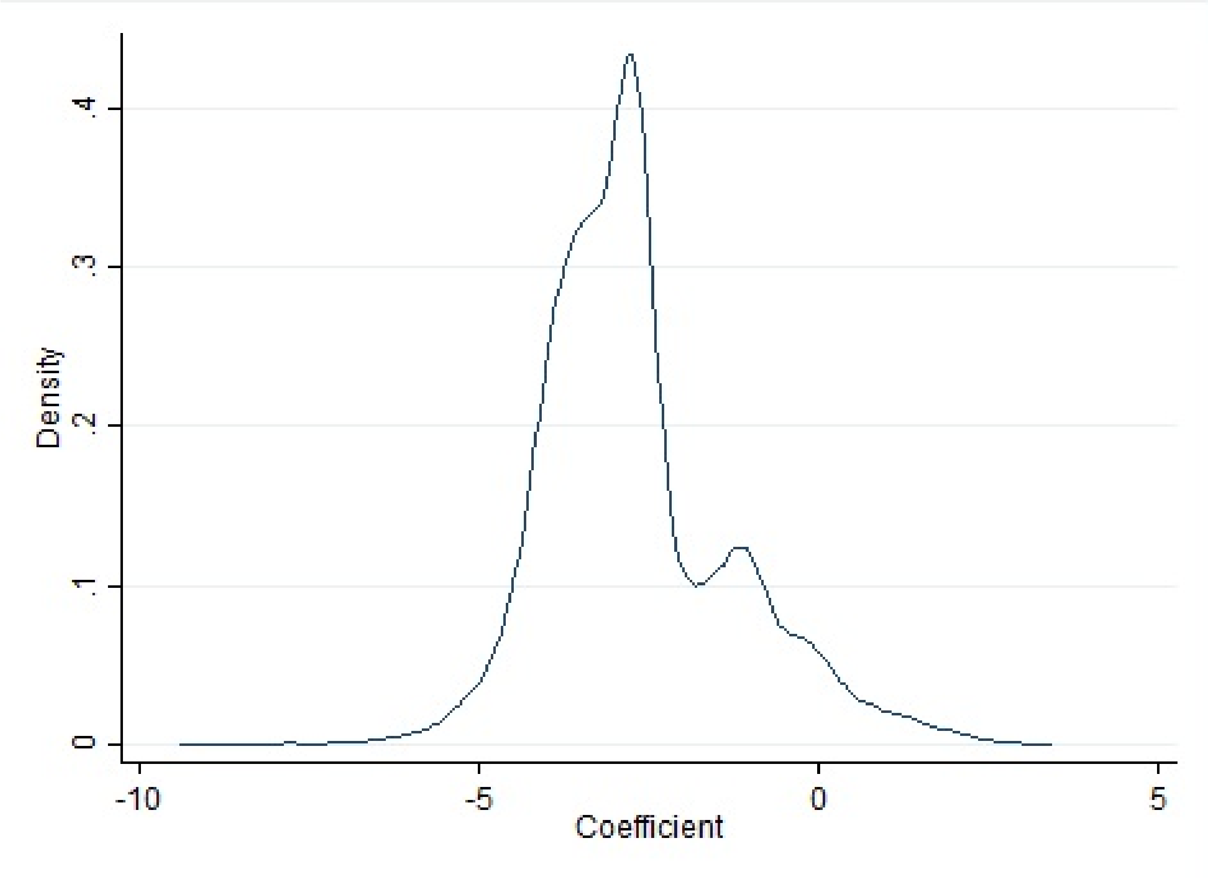
Regression (4) of Table 4 controls for further heterogeneity in target firms by allowing the propensity to be acquired by a particular country to vary conditional on target-specific controls (total assets and profitability). The coefficient for repatriation taxes remains significant and increases in size. Table 11 lists the coefficients of the target-specific variables per acquirer location except for the U.S., which serves as the country of reference. Interestingly, the coefficients for target profitability are significantly positive for quite a number of acquirer locations, but never significantly negative. This pattern implies that the probability of a U.S. acquirer decreases in the target firm's profitability, which may reflect that highly profitable firms are relatively less valuable to U.S. acquirers due to repatriation taxes — in line with the findings of the previous robustness check, where the acquisition of profitable targets was more affected by repatriation taxes than the acquisition of loss-making firms.

Instead of modeling the source of heterogeneity explicitly, regression (5) of Table 4 accounts for different sensitivity to double taxation by also allowing the coefficient of T_{ij}^{Δ} to be randomly distributed. With a value of -2.69, the average coefficient is more negative than in the previous regressions. Specific values of the coefficients per target firm can be simulated as in Train (2009, p.256). Figure 2 displays a kernel density estimate of these simulated coefficients. In line with the previous robustness checks investigating the relationship between double taxation and target profitability, there is a significant difference in target profitability when the sample is split at the median of the simulated coefficients of T_{ij}^{Δ}. Observations with more negative coefficients have an average profits-to-assets ratio of 4.1 % whereas observations with less negative coefficients have an average

with sets of import/export dummy variables and gravity type of variables (distance etc.).

[23] Correspondingly, a one-sided test for a more negative coefficient in case of profitable firms would have a p-value of 0.0255.

Figure 2: Kernel density of simulated coefficients of T_{ij}^{Δ}



The figure shows the kernel distribution of simulated coefficients of T_{ij}^{Δ} in specification (5) of Table 4 using the method described by Train (2009, p.256) with 50 Halton draws. The mean of the simulated coefficients is -2.69, the standard deviation is 1.39. The bandwidth for the kernel density is 0.13.

profits-to-assets ratio of 2.8 %.[24]

Regression (6) of Table 4 departs from the treatment effect design by using the repatriation tax measure $T_{ij}^{\Delta 2}$ defined by expression (6) on p. 6, which also accounts for repatriation taxes due to incomplete exemption of dividends as some countries exempt only 95 or 97 % of repatriated dividends from taxation. The estimated coefficients are very similar to previous results.

The measure $T_{ij}^{\Delta 2}$ in expression (6) accounts only for the tax on dividends imposed by the parent country. This tax is difficult to avoid even if dividends are eventually repatriated via third countries. The overall double tax on dividend repatriations $T_{ij}^{\Delta 3}$ defined by expression (7) can be larger if the subsidiary's country imposes withholding taxes, which

[24]Extreme outliers of profit-to-assets ratios below -1 or above 1 were disregarded. Otherwise the sample variance would increase from 0.045 to 334 and the kurtosis would increase from 7.9 to 4553.

a multinational may or may not be able to circumvent by means of conduit companies. In regression (7) of Table 4, the coefficient for $T_{ij}^{\Delta 3}$ is considerably attenuated compared to previous estimates and it is no longer significant, which suggests that withholding taxes may have a different effect than taxes imposed by the parent firm's country. This hypothesis is explicitly investigated in regression (8) of Table 4 by including

$$Withholding_{ij} = T_{ij}^{\Delta 3} - T_{ij}^{\Delta 2} \tag{8}$$

as a separate variable, which captures the potential additional tax burden due to withholding taxes, while $T_{ij}^{\Delta 2}$ controls for taxes imposed by the parent firm's country. The two coefficients are found to be significantly different with a p-value of less than 0.01. The negative coefficient of $T_{ij}^{\Delta 2}$ is similar to previous estimates while the insignificant coefficient of $Withholding_{ij}$ with a point estimate close to zero suggests that withholding taxes can be avoided at low cost. This result is similar to the finding of Barrios et al. (2012) that the establishment of new foreign subsidiaries does not appear to be affected by withholding taxes.

The nested logit regression (9) in Table 4 is an alternative to the mixed logit approach, which is also robust to violations of the IIA assumption. As a generalization of the conditional logit regression, it allows for a two-level choice process: at the first level a preferred subset of choices is determined, while the specific choice is picked at the second level from within the subset.[25] However, some structure has to be imposed ex-ante by defining the relevant subsets of choices. In the current setting, a geographic grouping of potential acquirer countries appears most sensible. In particular, we distinguish between acquirers from Asia/Australasia, from Europe, and from North-America. As before, T_{ij}^{Δ} has a signifcantly negative effect.

Returning to the mixed logit approach, regression (1) in Table 5 excludes all control variables except for the fixed effects in order to check if there is a bias due to endogenous controls.This does not appear to be the case as the findings are robust. Regression (2) interacts the repatriation tax rate T_{ij}^{Δ} with a dummy for targets in high growth countries measured in terms of target country GDP growth. The dummy is one for target countries with GDP growth above the median and zero otherwise. The coefficient on the interaction is 0.89 and significant. This reflects that repatriation taxes are less important with respect to targets in high growth countries as there exist better reinvestment opportunities. Regression (3) takes as the acquirer country the global ultimate owner of the acquirer reported in Zephyr whenever available. Results remain unchanged. Finally, the variable of interest captures the bilateral variation in the default treatment of foreign in-

[25]See, for example, Greene (2012), p. 808-810, for more details.

Table 5: Robustness checks 2

	(1)	(2)	(3)	(4)
T_{ij}^{Δ}	-1.9366***	-1.9253***	-1.4205***	-1.4667***
	(0.000)	(0.000)	(0.001)	(0.000)
$T_{ij}^{\Delta} \times HGDPG_j$		0.8906**		
		(0.012)		
$Tcfc_{ij}^{\Delta}$				-0.8212
				(0.239)
$Tcfc_{ij}^{\Delta} \times credit_i$				-1.1903
				(0.398)
τ_i		0.2997	-0.8891	-0.0301
		(0.619)	(0.159)	(0.959)
$GDPC_i$		0.0505***	0.0458***	0.0540***
		(0.000)	(0.000)	(0.000)
$GDPG_i$		0.0694***	0.0565***	0.0662***
		(0.000)	(0.000)	(0.000)
$Stock_i$		-0.0001	0.0014	-0.0001
		(0.920)	(0.105)	(0.891)
$Exch_i$		-0.0107**	-0.0062	-0.0099**
		(0.011)	(0.115)	(0.019)
$GDPS_{ki}$		0.0034*	0.0037**	0.0034*
		(0.050)	(0.046)	(0.051)
$Deals_{ki}$		0.0002***	0.0002***	0.0002***
		(0.000)	(0.000)	(0.000)
$Dist_{ij}$		-0.5159***	-0.4949***	-0.5193***
		(0.000)	(0.000)	(0.000)
$Neighb_{ij}$		0.2826***	0.3163***	0.2865***
		(0.000)	(0.000)	(0.000)
$Lang_{ij}$		0.8019***	0.8157***	0.7999***
		(0.000)	(0.000)	(0.000)
$Colony_{ij}$		0.3304***	0.3007***	0.3241***
		(0.000)	(0.000)	(0.000)
$Same_{ij}$		0.7211***	0.8416***	0.7280***
		(0.000)	(0.000)	(0.000)
Observations	341719	341479	336340	341719
Log-Likelihood	-43367.61	-39193.61	-38617.37	-39225.42

Notes: The dependent variable equals one if country i is the actual acquirer's country of origin. It is zero if country i is a counterfactual acquirer location. Regression (1) to (4) are mixed logit regressions. $T_{ij}^{\Delta} \times HGDPG_j$ interacts the repatriation tax rate with a dummy for targets in high growth countries measured in terms of target country GDP growth (dummy is one for target countries with GDP growth above the median). $Tcfc_{ij}^{\Delta}$ is $\tau_i - \tau_j$ (acquirer corporate tax rate less target corporate tax rate) if $\tau_i > \tau_j$ and country i applies a cfc rule with respect to target country j and zero otherwise. $Tcfc_{ij}^{\Delta} \times credit_i$ interacts the CFC-rule tax with a dummy equal to one for acquiring tax credit countries. In column (3) we take as the acquirer country the global ultimate owner of the acquirer reported in Zephyr whenever available. All regressions control for acquirer country specific effects, which follow a random distribution in the mixed logit regressions. Standard errors are robust. p-values in parentheses, * denotes significance at the 10 %-level, ** at the 5 %-level and *** at the 1 %-level respectively.

come. However, many countries have adopted controlled foreign corporation (CFC) rules for combating tax base erosion. These rules can impose a much a higher tax burden in case of foreign subsidiaries with substantial passive income by not granting any deferral and frequently also by applying less favorable relief from double taxation. Regression (4) controls for these CFC rules.[26] $Tcfc_{ij}^{\Delta}$ is the CFC-rule tax rate (acquirer corporate tax rate τ_i less target corporate tax rate τ_j) due, if the acquiring country i applies a CFC rule with respect to target country j and zero otherwise. $Tcfc_{ij}^{\Delta} \times credit_i$ interacts the CFC-rule tax rate with a dummy equal to one for acquiring tax credit countries, since — given the existence of the regular repatriation tax — CFC-rule repatriation taxes could have a different effect for tax credit countries. The coefficients of the CFC-related variables exhibit the expected negative sign but remain quite insignificant. This may reflect that the typical target firm's income comprises mainly active business income or that more detailed information about the composition of the target's firm income is required to determine the cases for which CFC rules would become relevant.

The results above show that taxes on dividend repatriations distort cross-border ownership patterns. As the additional tax burden differs between acquirer locations, one expects the observed ownership structures to be inefficient. Larger synergies could be exploited by an alternative matching of acquirers and targets.

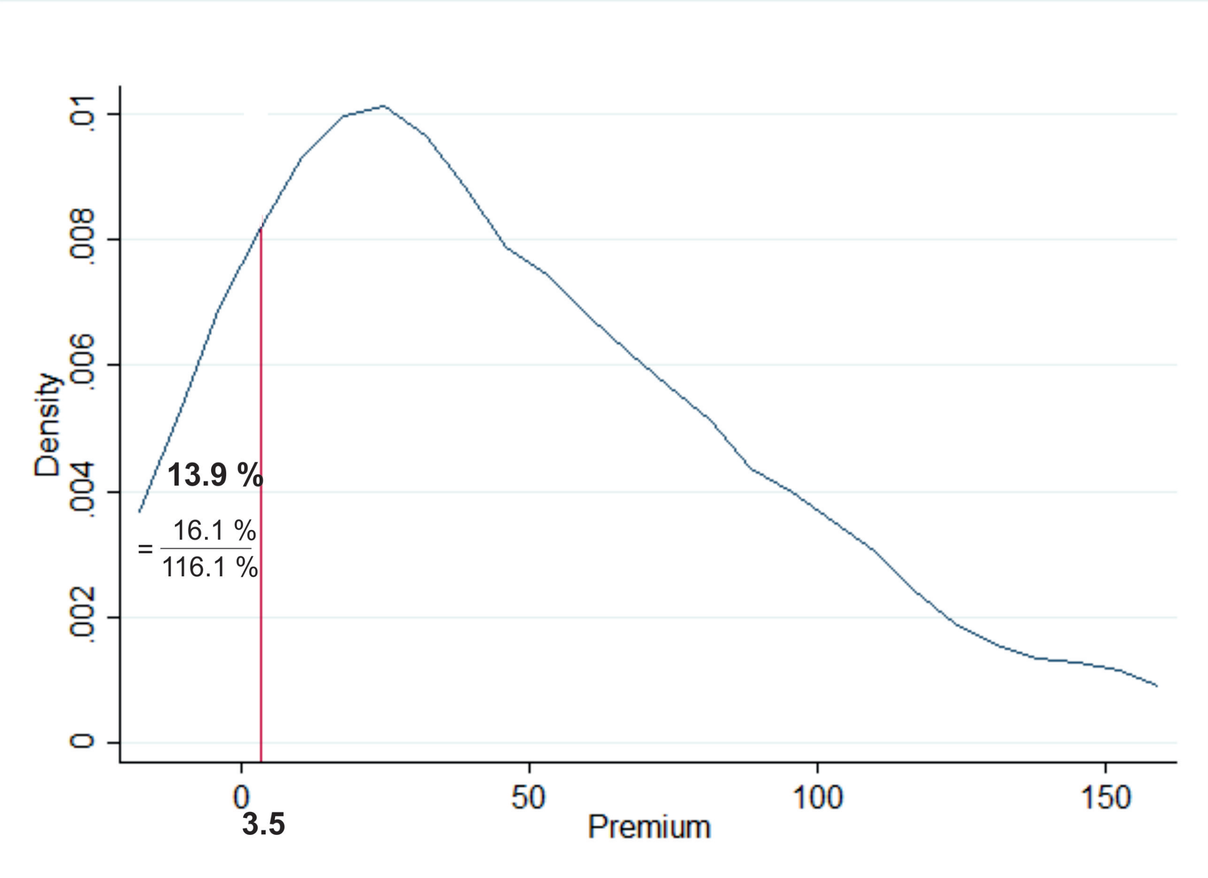
In order to calculate the decrease in synergies due to second-best ownership, we cut-off the left tail of the distribution of take-over premiums offered by Japanese acquirers, as displayed in Figure 3, such that the proportion of the left tail relative to the whole distribution is equal to the increase in the total number of mergers and acquisitions due to switching from a credit to an exemption system (as calculated on p. 10). At the cut-off, the premium is 3.5 percentage points. This value is the upper bound for the loss in synergies caused by inefficient ownership due to double taxation. This upper bound is reached, for example, under the (polar) assumption that for all the acquisitions by Japanese firms, the second-best bidder is never willing to pay more for a target firm than the going market price. Hence, if all Japanese acquirers decreased their premiums offered by 3.5 percentage points, then 13.9 % of the acquisitions would no longer have a Japanese acquirer. The synergies reflected in the take-over premiums of these acquisitions would no longer be realized.[27]

The loss in synergies would be correspondingly smaller than this upper bound if there exist second-best bids close to the-first best bids of the Japanese acquirers - because then a smaller reduction in the premiums offered by Japanese acquirers would already cause the same proportion of mergers and acquisitions to be lost.

[26] Variation over time in the tax rate thresholds below which CFC rules are triggered is taken into account based on information from IBFD (2014b), Markle and Robinson (2012), and Voget (2011).

[27] Andrade et al. (2001) show that synergies are almost fully reflected in take-over premiums.

Figure 3: Distribution of premiums paid by Japanese acquirers



The figure shows the kernel density estimate of premiums paid by Japanese acquirers for foreign listed companies. The premium is defined as hundred times the difference between the acquisition price and the price one day prior to the announcement of the acquisition, divided by the latter. 13.9 % of the mergers and acquisitions have a premium smaller than 3.5. The bandwidth for the kernel density is 18.7.

The increase in mergers and acquisitions with Japanese acquirers due to switching to an exemption system (estimated on p. 10) represents an average yearly deal volume of 3.1 billion U.S. dollar. Hence, the yearly efficiency loss due to inefficient ownership caused by Japanese double taxation may have been up to 108.9 million U.S. dollar (=3.5% $\times$ 3.1 billion U.S. dollar).

Similar calculations show the value of synergies raised to be in the order of 3.9 million dollar per year for the case of the British international tax reform. Simulating such a reform for the U.S. results in a yearly value of 537.0 million dollar of additional synergies. The potential gains in synergies relate to an increase in British acquisitions abroad by 0.7 billion U.S. dollar and an increase in U.S. acquisitions abroad by 12.7 billion U.S. dollar as estimated on page 13. For comparison, the latter increase is similar in volume (Raice, 2014) to the deal value of all corporate inversions by U.S. multinationals in 2013.

5 Conclusion

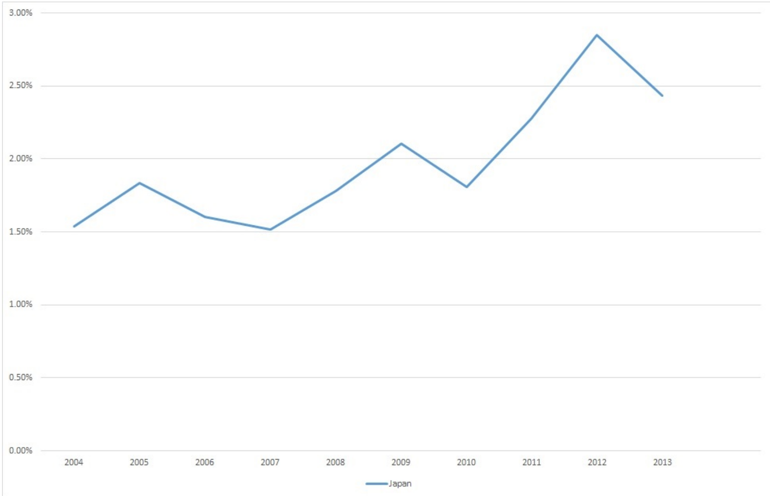
The empirical analysis finds that multinationals from countries which impose taxes on repatriated profits do indeed face a comparative disadvantage in acquiring foreign firms. Japan, New Zealand and the U.K. both started to exempt foreign-source dividends from tax in 2009. These reforms are found to have increased the number of foreign acquisitions by Japanese firms by 16.1 %, whereas the number of foreign acquisitions by British firms increased by 1.6%. For New Zealand, the number of acquisitions abroad increased by 1.8%. The identification approach relies directly on policy changes in double tax relief and not on changes in tax rates, so we can exclude that the observed effects are just an artifact of a change in the underlying corporate income tax. The implied loss in efficiency due to violations of ownership neutrality is sizeable: in the case of double taxation of multinationals based in the U.S., the loss in efficiency of 537.0 million dollar per year is in the order of 0.5 % of the yearly total value of U.S. acquisitions abroad. In that sense, one could draw the conclusion that the U.S. — as the only remaining major country still relying on a foreign tax credit system — should follow the British and Japanese example of exempting foreign source dividends in order to create a level playing field for competing acquirers and thereby avoid second-best ownership structures.

However, our results should not be interpreted as suggesting that exempting dividends from tax is a panacea for all inefficiencies which may arise in the international investment process. First, as Becker and Fuest (2010) argue, even for mergers and acquisitions the exemption system is not optimal from a national perspective if foreign acquisitions rely on rival input factors from the headquarters, for example, management capacity. Foreign activities would then crowd out domestic forms of engagement. Second, the aspect of capital export neutrality raised by Musgrave (1969) still applies to the classic mode of FDI, in which capital is exported. Eventually, the optimal balance between ownership neutrality and capital export neutrality should depend on the relative share of greenfield investment versus mergers and acquisitions in FDI. The alternative option of discriminating the two modes of FDI for tax purposes may not be feasible in practice.

Finally, global inefficiencies may not matter from a national policy perspective. According to Andrade et al. (2001), the synergies from combining two firms are to a large extent capitalized in acquisition prices. Hence, the gains from an acquisition abroad mainly accrue to initial foreign shareholders and not to acquiring shareholders. Similarly, positive externalities of foreign direct investment have been documented for the host economy (Balsvik and Haller, 2011), while the evidence about the effect on the source economy is mixed (Becker et al., 2013, Mankiw and Swagel, 2006). In summary, there is no clear incentive for a country to strive for ownership neutrality in the design of its foreign income tax system.

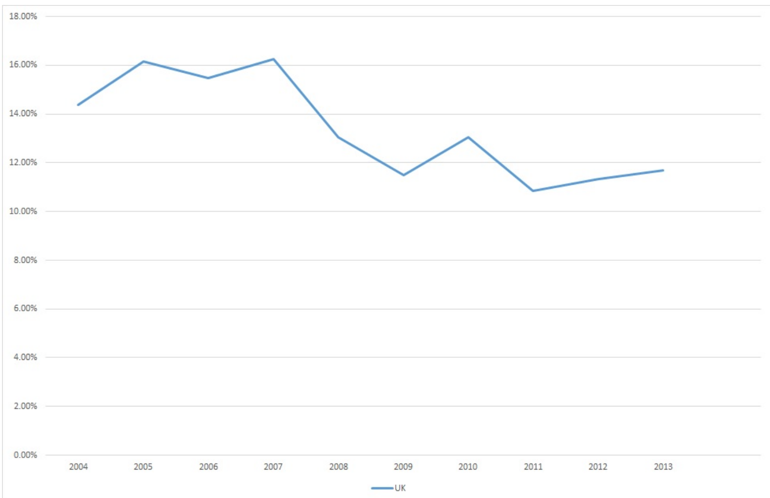
Appendix

Figure 4: Deals by Japanese acquirers relative to total sample



The figure shows the deals by Japanese acquirers relative to all acquiring countries in our sample in percent as tabulated in table 6.

Figure 5: Deals by UK acquirers relative to total sample



The figure shows the deals by UK acquirers relative to all acquiring countries in our sample in percent as tabulated in table 6.

Table 6: Regional origin of acquirers

Country	Code	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	All years
Australia	AU	36	51	61	84	53	40	33	32	28	21	439
Austria	AT	28	27	33	39	45	27	17	22	33	27	298
Belgium	BE	45	46	68	46	42	31	34	36	42	32	422
Canada	CA	170	169	154	157	137	104	170	145	154	118	1478
Denmark	DK	43	62	55	45	55	27	26	28	40	31	412
Finland	FI	40	54	60	59	71	28	46	44	22	38	462
France	FR	97	129	126	147	141	115	102	145	143	127	1272
Germany	DE	75	108	117	148	120	103	85	116	141	106	1119
Ireland	IE	46	40	42	81	31	18	21	34	29	18	360
Italy	IT	19	29	40	38	39	19	19	28	27	25	283
Japan	JP	24	36	32	33	33	26	27	40	51	40	342
Luxembourg	LU	8	23	24	28	15	13	18	16	26	25	196
Netherlands	NL	89	123	129	148	134	81	89	107	105	86	1091
New Zealand	NZ	14	17	9	21	17	5	5	9	2	4	103
Norway	NO	25	58	58	50	44	23	24	34	48	31	395
Spain	ES	40	42	48	50	47	22	27	38	29	24	367
Sweden	SE	66	100	103	138	103	72	82	93	94	112	963
Switzerland	CH	56	66	67	75	91	60	47	73	93	87	715
United Kingdom	GB	224	317	309	354	242	142	195	191	203	192	2369
United States	US	450	514	524	521	448	318	461	559	507	519	4821
all countries		1595	2011	2059	2262	1908	1274	1528	1790	1817	1663	17907

The table reports the number of cross-border M&As per country of acquirer and year.

Table 7: Variables

τ_i	Corporate income tax rate of the candidate-country including average state and municipal taxes, measured in percentage-points (0.01 = one %). Used to compute T_{ij}^{dummy}, T_{ij}^{Δ} and $T_{ij}^{\Delta 2}$. Sources: IBFD (2014a). Previous issues of this publication were consulted as well.
τ_j	Corporate income tax of the target-country including average state and municipal taxes, measured in percentage-points (0.01 = one %). Used to compute T_{ij}^{dummy}, T_{ij}^{Δ} and $T_{ij}^{\Delta 2}$. Sources: like τ_i
ω_{ij}	Withholding tax rate applicable for dividends distributed from country j to a parent located in country i. Sources: IBFD (2014a, 2014b). Previous issues of these publications were consulted as well.
$GDPC_i$	Per capita gross domestic product in thousand dollars in the year before the announcement date in the candidate-country converted to international dollar using purchasing power parity rates. Source: Worldbank (2014).

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Table 7: (continued)

$GDPG_i$	Growth rate of gross domestic product of the candidate-country in the year of the announcement date, measured in percentage-points. Sources: Worldbank (2014) and OECD (2010), "Aggregate National Accounts: gross domestic product", OECD National Accounts Statistics (database) for 2010 data.
$Stock_i$	Share price times the number of shares outstanding of listed companies in the candidate-country in the year before the announcement of the deal. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles. Measured in percentage of gross domestic product. Source: Worldbank (2014).
$Exch_i$	Exchange rate in the candidate-country, national currency per U.S. dollar. Sources: OECD (2014), "OECD Economic Outlook No. 96", OECD Economic Outlook: Statistics and Projections (database).
$GDPS_{ki}$	Fraction of the target industry sector (first, second or third) in the gross domestic product of the candidate country in the year before the announcement date. Source: Worldbank (2014), target sector taken from SIC-codes provided by Zephyr.
$Deals_{ki}$	Number of deals in the industry of the target-company (first character of the 4-digit-sic-code) with acquirer-company in the candidate-country in the 5-year period before the year of announcement of the deal. Source: Zephyr, Bureau van Dijk
$Dist_{ij}$	Logarithm of the simple distance between the most populated cities of the candidate- and target-country in km. Source: Mayer and Zignago (2005).
$Neighb_{ij}$	Dummy variable, 1 for contiguity of candidate- and target-country. Source: Mayer and Zignago (2005).
$Lang_{ij}$	Dummy variable, 1 for common official primary language in the candidate- and target-country. Source: Mayer and Zignago (2005).
$Colony_{ij}$	Dummy variable, 1 if candidate- and target-country pairs were ever in colonial relationship. Source: Mayer and Zignago (2005).
$Same_{ij}$	Dummy variable, 1 if candidate- and target-country were or are the same country.

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Table 7: (continued)

	Source: Mayer and Zignago (2005).
$Asset_k$	Logarithm of pre-deal target total assets in thousand U.S. dollar in the last available year before the acquisition announcement. Source: Zephyr, Bureau van Dijk.
$Prof_k$	Pre-deal target profit after tax in thousand U.S. dollar in the last available year before the announcement divided by pre-deal target total assets in thousand U.S. dollar in the last available year before the acquisition announcement. Source: Zephyr, Bureau van Dijk.
$HGDPG_j$	Dummy for high growth target countries measured in terms of target country GDP growth (dummy is one for target countries with GDP growth above the median). Sources: Worldbank (2014) and OECD (2014), "Aggregate National Accounts: gross domestic product", OECD National Accounts Statistics (database) for 2014 data and own computations.
$Tcfc_{ij}^{\Delta}$	$\tau_i - \tau_j$ (acquirer corporate tax rate less target corporate tax rate) if $\tau_i > \tau_j$ and country i applies an effective CFC rule with respect to target country j and zero otherwise. CFC rules are not effective if the target country's corporate income tax rate is larger than a trigger threshold contained in the CFC regulation, or if passive income can be counted as active income, or if passive income must be more than half of total income before triggering CFC rules, or if there is an economic motive test. Within the European Union, CFC rules cannot be effective due to case law of the European Court of Justice. Variation in CFC rules over time is taken into account. Sources: Markle and Robinson (2012), Voget (2011), IBFD (2014b). Previous issues of the latter publication were consulted as well.
$credit_i$	Dummy equal to one if the acquirer's country applies a foreign tax credit system. Sources: IBFD (2014a, 2014b). Previous issues of these publications were consulted as well.

Table 8: Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
T_{ij}^{Δ}	341719	0.009	0.032	0	0.296
T_{ij}^{Δ} (2008 tax rates)	341719	0.009	0.033	0	0.283
$T_{ij}^{\Delta}(Profit_k)$	341719	0.003	0.018	0	0.296
$T_{ij}^{\Delta}(Loss_k)$	341719	0.001	0.011	0	0.283
$T_{ij}^{\Delta 2}$	341719	0.012	0.032	0	0.296
$T_{ij}^{\Delta 3}$	341719	0.075	0.087	0	0.302
$Withholding_{ij}$	341719	0.063	0.084	0	0.291
τ_i	341719	0.294	0.062	0.125	0.421
$GDPC_i$	341719	43.253	13.064	29.925	97.410
$GDPG_i$	341719	1.631	2.361	-8.411	6.588
$Stock_i$	341719	90.087	53.203	13.962	323.656
$Exch_i$	341719	6.878	22.265	0.500	117.755
$GDPS_{ki}$	341719	54.227	22.629	0.290	86.774
$Deals_{ki}$	341719	367.441	818.406	0	8184
$Dist_{ij}$	341719	7.868	1.291	4.088	9.883
$Neighb_{ij}$	341719	0.113	0.316	0	1
$Lang_{ij}$	341719	0.208	0.406	0	1
$Colony_{ij}$	341719	0.099	0.299	0	1
$Same_{ij}$	341719	0.010	0.101	0	1
$Asset_k$	172468	8.851	2.217	-7.594	21.495
$Prof_k$	127262	0.119	15.260	-146	1236.621

For detailed variable descriptions and data sources, see Table 7.

Table 9: Split of summary statistics Credit/Exemption

Variable	Credit	Exemption	Diff.
T_{ij}^{Δ}	0.049	0.000	0.049***
τ_i	0.294	0.294	-0.0004
$GDPC_i$	40.719	43.798	-3.080***
$GDPG_i$	1.872	1.579	0.293***
$Stock_i$	84.455	91.298	-6.843***
$Exch_i$	18.809	4.313	14.496***
$GDPS_{ki}$	54.262	54.219	0.042
$Deals_{ki}$	1005.205	230.310	774.895***
$Dist_{ij}$	8.363	7.762	0.602
$Neighb_{ij}$	0.077	0.120	-0.043***
$Lang_{ij}$	0.359	0.175	0.183***
$Colony_{ij}$	0.204	0.077	0.127***
$Same_{ij}$	0.000	0.012	-0.012***
N	60473	281246	

Diff. is the difference in means comparing credit to exemption countries. * denotes significance at the 10 %-level, ** at the 5 %-level and *** at the 1 %-level respectively resulting from t tests on the equality of means. For detailed variable descriptions and data sources, see Table 7.

Table 10: Regression results for the candidate-country fixed effects, column (3) of Table 2

Variable name	Mean	P-value mean	Standard deviation	P-value standard deviation
AT	-2.5267	0.000	-0.2593	0.693
AU	-1.1626	0.000	0.0613	0.813
BE	-3.2665	0.000	1.1776	0.001
CA	-1.3968	0.000	-0.6297	0.002
CH	-2.8237	0.000	1.2360	0.000
DE	-1.5103	0.000	-1.0962	0.000
DK	-1.8275	0.000	0.1648	0.676
ES	-1.3592	0.000	-0.2721	0.431
FI	-2.0440	0.000	0.9081	0.000
FR	-0.8732	0.000	0.5120	0.042
UK	-0.2837	0.107	-0.2715	0.097
IE	-2.8189	0.000	-0.0245	0.936
IT	-1.7084	0.000	0.1656	0.746
JP	0.1760	0.720	0.6658	0.066
LU	-7.2730	0.000	1.6530	0.000
NL	-1.7792	0.000	1.1392	0.000
NO	-2.9343	0.000	0.1985	0.385
NZ	-2.1327	0.000	-0.1198	0.694
SE	-0.9044	0.000	-0.0649	0.611

The table reports the means and standard deviations of the random coefficients of the potential acquirer country dummy variables in regression (3) of Table 2. The U.S. represents the base category.

Table 11: Regression results for candidate-country fixed effects and target-specific variables $Asset_k$ and $Prof_k$, column (4) of Table 4

Variable name	Coefficient	P-value	Standard deviation	P-value standard deviation
AT*$Asset_k$	0.1737	0.000	-	-
AU*$Asset_k$	0.0486	0.365	-	-
BE*$Asset_k$	-0.0606	0.172	-	-
CA*$Asset_k$	-0.0275	0.468	-	-
CH*$Asset_k$	0.0302	0.453	-	-
DE*$Asset_k$	0.0443	0.196	-	-
DK*$Asset_k$	-0.1769	0.000	-	-
ES*$Asset_k$	0.1119	0.002	-	-
FI*$Asset_k$	-0.1756	0.000	-	-
FR*$Asset_k$	0.0069	0.793	-	-
UK*$Asset_k$	-0.0515	0.024	-	-
IE*$Asset_k$	0.0546	0.274	-	-
IT*$Asset_k$	0.1114	0.008	-	-
JP*$Asset_k$	0.2130	0.000	-	-
LU*$Asset_k$	0.2507	0.000	-	-
NL*$Asset_k$	0.0542	0.062	-	-
NO*$Asset_k$	-0.1626	0.000	-	-
NZ*$Asset_k$	0.0669	0.603	-	-
SE*$Asset_k$	-0.1315	0.000	-	-
AT*$Prof_k$	0.0332	0.329	-	-
AU*$Prof_k$	0.0347	0.207	-	-
BE*$Prof_k$	0.0309	0.283	-	-
CA*$Prof_k$	0.0335	0.221	-	-
CH*$Prof_k$	0.0337	0.221	-	-
DE*$Prof_k$	0.0323	0.234	-	-
DK*$Prof_k$	0.0327	0.227	-	-
ES*$Prof_k$	0.0319	0.408	-	-
FI*$Prof_k$	0.0335	0.213	-	-
FR*$Prof_k$	0.0279	0.411	-	-
UK*$Prof_k$	0.0353	0.180	-	-
IE*$Prof_k$	0.0339	0.248	-	-
IT*$Prof_k$	0.0073	0.807	-	-
JP*$Prof_k$	0.0237	0.609	-	-
LU*$Prof_k$	0.0334	0.332	-	-
NL*$Prof_k$	0.0760	0.340	-	-
NO*$Prof_k$	0.0316	0.289	-	-
NZ*$Prof_k$	0.0345	0.338	-	-
SE*$Prof_k$	0.0162	0.546	-	-

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Table 11: Regression results for candidate-country fixed effects and target-specific variables $Asset_k$ and $Prof_k$, column (4) of Table 4, continued

Variable name	Mean	P-value	Standard deviation	P-value Standard deviation
AT	-5.0062	0.000	1.1261	0.005
AU	-2.2349	0.000	-0.3139	0.628
BE	-3.4480	0.000	1.6508	0.000
CA	-2.0230	0.000	-1.3148	0.000
CH	-4.3049	0.000	-1.9874	0.000
DE	-3.3473	0.000	1.9785	0.000
DK	-0.4643	0.286	0.3554	0.524
ES	-2.5343	0.000	-0.1505	0.654
FI	-0.8955	0.050	-1.1001	0.000
FR	-1.2246	0.001	-0.1441	0.768
UK	-0.0811	0.825	0.2349	0.342
IE	-3.8773	0.000	-0.6635	0.097
IT	-2.9638	0.000	-0.0699	0.898
JP	-3.1624	0.004	-1.2368	0.020
LU	-9.8283	0.000	-1.5180	0.032
NL	-2.6029	0.000	-1.1926	0.001
NO	-1.5908	0.000	-0.0430	0.905
NZ	-4.1213	0.022	0.9763	0.412
SE	0.0498	0.887	0.3670	0.102

This table reports supplemental results of regression (4) in Table 4. The first part of the table lists the coefficients (and corresponding p-values) of the target-specific variables $Asset_k$ and $Prof_k$ interacted with potential acquirer locations. The second part of the table reports the means and standard deviations of the random coefficients of the potential acquirer country dummy variables and their corresponding p-values. In all cases, the U.S. represents the base category.

References

Amiram, D., and M. M. Frank (2012), *The Effect of Investor-Level Dividend Taxes on the Allocation of Foreign Portfolio Investment around the World*, Darden Business School Working Paper No. 1539422.

Andrade, G., Mitchell, M. and E. Stafford (2001), New evidence and perspectives on mergers. *Journal of Economic Perspectives* (15), p. 103 - 120.

Arulampalam, W., Devereux, M. P. und F. Liberini (2012), *Taxes and the location of targets*, Working Paper, Oxford University Centre for Business Taxation, Said Business School.

Balsvik, R. and S. A. Haller (2011), Foreign firms and host-country productivity: does the mode of entry matter?, *Oxford Economic Papers* 63(1), p. 158-186.

Barrios, S., H. Huizinga, L. Laeven and G. Nicodème (2012), International taxation and multinational firm location decisions. *Journal of Public Economics* (96)11-12, p. 946 - 958.

Becker, J. and C. Fuest (2010), Taxing Foreign Profits with International Mergers and Acquisitions, *International Economic Review* (51)1, p. 171 - 186 February 2010.

Becker, J. and N. Riedel (2012), Cross-border tax effects on affiliate investment – Evidence from European multinationals, *European Economic Review* (56), p. 436 - 450.

Becker, S. O., K. Ekholm, and M. A. Muendler (2013), Offshoring and the onshore composition of tasks and skills, *Journal of International Economics* 90(1), 91-106.

Bénassy-Quéré, A., L. Fontagne and A. Lahrèche-Révil (2005), How Does FDI React to Corporate Taxation?, *International Tax and Public Finance* (12), p. 583 - 603.

Blonigen, B. A. (1997), Firm-specific assets and the link between exchange rates and foreign direct investment. *The American Economic Review*, Vol. (87)3, p. 447 - 465.

Cameron, A.C. and P.K. Trivedi (2009), *Microeconometrics Using Stata*, Stata Press, Texas.

Cameron, A.C. and D. Miller (2013), *A Practitioner's Guide to Cluster-Robust Inference*, Working Paper, University of California - Davis.

Carr, J., Hoerner, J. and A. Martinez (2009), New Foreign Dividend Exemption Systems in Japan and the U.K.: Tax Considerations for Distributions from U.S. Subsidiaries, *Tax Management International Journal.*

Cheng, S. and J. S. Long (2006), Testing for IIA in the Multinomial Logit Model. *Sociological Methods & Research* (35), p. 583 - 600.

Desai, M. A. and J. R. Hines (2003), Evaluating International Tax Reform, *National Tax Journal* (56)3, p. 487 - 502.

Di Giovanni, J. (2005), What drives capital flows? The case of cross-border M&A activity and financial deepening, *Journal of International Economics* (65), p. 127 - 149.

Ernst & Young (2011), *Ernst & Young Corporate Income Tax Guide 2011.*

Greene, W.H. (2012), *Econometric Analysis*, seventh edition, Pearson Education, New Jersey.

Gropp, R. and K. Kostial (2000), *The Disappearing Tax Base: Is Foreign Direct Investment (FDI) Eroding Corporate Income Taxes?*, IMF Working Paper No. 00/173.

Griffith, R., Hines, J. and P. Sørensen (2010), *International Capital Taxation*, in Mirrlees Review (2010), Sir James Mirrlees, Stuart Adam, Timothy Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles, and James Poterba (Editors), Dimensions of Tax Design, The Mirrlees Review, Institute for Fiscal Finance, Oxford Univiersity Press, p. 914 - 996.

Grubert, H. (2009), MNC Dividends, Tax Holidays and the Burden of the Repatriation Tax: Recent Evidence, Oxford University Centre for Business Taxation Working Paper 09/27.

Guimaraes, P., O. Figueirdo and D. Woodward (2003), A tractable approach to the firm location decision problem, *Review of Economics and Statistics*, (85)1, p. 201-204.

Gutiérrez at al. (2011), *Global Corporate Tax Handbook 2011*, Guitérrez, C. P., Hamazaoui, R., Rienstra, J.G., Soo, M. and O. Boeijen (eds.), Amsterdam, IBFD 2011.

Hajkova, D., G. Nicoletti, L. Vartia and Kwang-Yeol Yoo (2006), *Taxation and Business Environment as Drivers of Foreign Direct Investment in OECD Countries*, OECD Economic Studies No. 43, 2006/2.

Hanlon, M., R. Lester and R. Verdi (2015), The effect of repatriation tax costs on US multinational investment, *Journal of Financial Economics*, (116)1, p. 179 - 196.

Hartman, D.G. (1985), Tax policy and foreign direct investment, *Journal of Public Economics*, (26)1, p. 107-121.

Helpman, E., M. Melitz and S. Yeaple (2004), Export versus FDI with heterogeneous firms, *American Economic Review*, (94)1, p. 300 - 317.

Herger, N., C. Kotsogiannis and S. McCorriston (2011), *Taxation and FDI Strategies: Evidence from US cross border acquisitions*, Economic Department Discussion Paper Series, Paper No. 11/09, University of Exeter.

Hines, J.R. jr. (1996), Altered States: Taxes and the Location of Foreign Direct Investment in America, *The American Economic Review* (86)5, p. 1076 - 1094.

House of Lords (2009), *The Finance Bill 2009 - Economic Affairs Committee, Chapter 4: Taxation of Foreign Profits*, http://www.publications.parliament.uk/pa/ld200809/ldselect/ldeconaf/113/11307.htm.

Huizinga, H.P. and J. Voget (2009), International taxation and the direction and volume of cross-border M&As, *Journal of Finance* (64), p. 1217 - 1249.

IBFD (2014a), *Global Tax Surveys.* IBFD Publications, Amsterdam.

IBFD (2014b), *IBFD Tax Research Platform, Country Analyses.* IBFD Publications, Amsterdam.

Jensen, N. and R. Ruback (1983), The market for corporate control: The scientific evidence, *Journal of Financial Economics* (11), p. 5 - 50.

Mankiw, N. G. P. and Swagel (2006), The politics and economics of offshore outsourcing, *Journal of monetary Economics* 53(5), p. 1027-1056.

Markle, K., and L. Robinson (2012), *Tax haven use across international tax regimes*, Working Paper.

Mayer, T. and S. Zignago (2005), *Notes on CEPII's distances measures: The GeoDist database*, Working Paper No. 2011 - 25.

McFadden, D. L. (1974), Conditional logit analysis of qualitative choice behavior, *Frontiers in Econometrics*, ed. P. Zarembka, p. 105 - 142, New York: Academic Press.

Mintz, J. and A. Weichenrieder (2010), *The Indirect Side of Direct Investment - Multinational Company Finance and Taxation*, MIT Press, Mass.

Mitchell, M. L., and J. H. Mulherin (1996), The impact of industry shocks on takeover and restructuring activity, *Journal of Financial Economics* (41), p. 193-230.

Musgrave, P. (1969), *United States Taxation of Foreign Investment Income: Issues and Arguments*, Cambridge MA: International Tax Program, Harward Law School.

OECD (2014), *iLibrary*, online database.

Palepu, K. (1986), Predicting takeover targets: A methodological and empirical analysis, *Journal of Accounting and Economics* (8), p. 3 - 36.

Raice, Shayndi (2014), *How Tax Inversions Became the Hottest Trend in M&A*, The Wall Street Journal, August 5th, 2014.

Schmidheiny, K., and M. Brülhart (2011), On the equivalence of location choice models: Conditional logit, nested logit and Poisson. *Journal of Urban Economics* (69)2, p. 214-222.

Silva, J. S., and S. Tenreyro (2006), The log of gravity, *The Review of Economics and statistics*, (88)4, p. 641-658.

Sinn, H. W. (1991), The vanishing Harberger triangle, *Journal of Public Economics*, (45)3, p. 271-300.

Slemrod, J. (1990), *Tax Effects on Foreign Direct Investment in the United States: Evidence from a Cross-Country Comparison*, Taxation in the Global Economy, p. 79 - 122.

Smith, J. S., Walters, N. and C. Stobbs (2009), *Foreign dividend exemption in 2009 Japanese tax reform*, in World Tax Advisor, Deloitte Touche Tohmatsu, http://www.taxrates.cc/html/0909-japanese-tax-reform-09.html.

Summers, L. (2013), *Tax reform can aid multinationals, cut deficit*, The Washington Post, July 07, 2013.

Swenson D.L. (1994), The impact of U.S. tax reform on foreign direct investment in the United States, *Journal of Public Economics* (54), p. 243 - 266.

Voget, J. (2011), Relocation of headquarters and international taxation, *Journal of Public Economics* (95)9, p. 1067-1081.

Train, Kenneth E., (2009). *Discrete Choice Methods with Simulation*, Cambridge Books, Cambridge University Press, No. 9780521747387.

Worldbank (2010), *World Development Indicators* (Worldbank, Washington, DC).