

Negotiated Tax Havens

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Abstract

Recently, the intersection of state aid and international tax has acquired a high profile in the European Union. In response, important tax and accounting policy changes are being proposed or implemented. However, these changes are predicated on the assumption that unfair tax ruling practices by host country governments are pervasive, and significantly benefit foreign-owned companies. Yet, there is no empirical evidence as to whether this is the case. We find preliminary evidence, based on an examination of effective tax rates, that foreign-owned companies benefit from favorable tax treatment more in the European Economic Area, and in countries that previously granted illegal state aid, relative to domestic-owned companies. This suggests recent investigations are warranted and that any country can operate as a tax haven, in fact but not in appearance, without greater supervision and transparency.

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1. Introduction

For at least the past decade, multinational firms (MNCs) have been under intense scrutiny for their alleged tax avoidance practices. In particular, there is broad consensus that MNCs reduce their tax liability by relocating their activities to low-tax countries, artificially shifting profits to low-tax countries, and creating double non-taxation of income by taking advantages of loopholes among domestic tax policies in countries in which they locate. While this is not new, what has recently become widely known within the European Union (EU) is that tax rulings negotiated between MNCs and host governments back some of these tax avoidance strategies.¹ What this means is that some of what academics, policymakers, investors, and the public think of as “risky” or “aggressive” tax avoidance by MNCs, is really a manifestation of explicit accommodations on the part of the host country to attract and retain foreign direct investment (FDI). That is to say, there is a difference between “taking advantage of existing tax rules” and “negotiating your own tax rules”. The ability to negotiate one’s own tax rules implies that any country could act as a sort of tax haven, in practice.²

Tax rulings have been used for decades by many countries and have positive aspects such as improved compliance (through enhanced disclosure), lower uncertainty for taxpayers, and enhanced relationships between tax administrators and taxpayers. However, the potentially harmful aspects have been emphasized due to several recent negative decisions by the European

¹ ‘Tax rulings’ is a collective term for all kinds of tax ‘arrangements’. A tax ruling may occur in the form of an advance tax ruling, an advance pricing agreement or any other ‘tax arrangement’. There are formal and informal ‘tax rulings’. An ‘advance tax ruling’ is a statement provided by the tax authorities, or an independent council, regarding the tax treatment of a taxpayer with respect to his future transactions and on which he is – to a certain extent – entitled to rely. An ‘advance pricing agreement’ determines (in accordance with the law and the OECD Guidelines) in advance if the transfer price between two related parties within a group is at arm’s length compared to the transfer price with an unrelated party. In practice, many other ‘tax arrangements’ are made – without any framework – between the taxpayer and the local tax inspector before a specific transaction takes place or before filing the tax return, after a tax mediation process, in court, within a horizontal monitoring process, or, within the context of a tax audit.” (Van de Velde, 2015).

² For example, Dharmapala and Hines (2009) define a tax haven country as a “location with a very low tax rate and other tax attributes designed to appeal to foreign investors” (p. 1058)

Commission (EC) resulting from the investigation of Member State's tax ruling practices. Although the EC has issued around 170 decisions since 1999 ordering recovery of illegal state aid from individual companies for tax matters, the scope and magnitude of a few recent cases is striking, and therefore well publicized. On October 21, 2015 the EC decided that rulings provided to Fiat by Luxembourg and Starbucks in the Netherlands constituted unlawful state aid and that the countries would have to recover €20 to €30 million from each company to claw back the benefits of the state aid received. On August 30, 2016, Ireland was ordered to recover unpaid taxes in Ireland from Apple for the years 2003 to 2014 of up to €13 billion, plus interest. On October 4, 2017, the EC ruled that Luxembourg gave illegal tax benefits to Amazon worth around €250 million related to a tax structure that it endorsed between May 2006 and June 2014.

Countries in the EU generally enjoy fiscal autonomy in the design, interpretation, and enforcement of their national tax laws, including the issuance of tax rulings. However, in contrast to income earned in a purely domestic context, cross-border income can be subject to tax by multiple countries. Because international tax rulings affect how income is taxed in multiple countries, these rulings are not only a matter of national tax policy, but must also be evaluated under EU competition law. This is explained by the EC as follows:

“A company which receives government support gains an advantage over its competitors. Therefore, the Treaty [governing the EU] generally prohibits State aid unless it is justified by reasons of general economic development. To ensure that this prohibition is respected and exemptions are applied equally across the European Union, the European Commission is in charge of ensuring that State aid complies with EU rules. . . . State aid is defined as an advantage in any form whatsoever conferred on a selective basis to undertakings [businesses] by national public authorities. Therefore, subsidies granted to individuals or general measures open to all enterprises are not covered by this prohibition and do not constitute State aid (examples include general taxation measures).³

³ http://ec.europa.eu/competition/state_aid/overview/index_en.html

The focus of recent state aid investigations has been on ‘discrimination’ and ‘selectivity’; e.g., when tax rulings offer foreign companies a selective advantage they may constitute illegal state aid. Some natural questions arise because of these recent decisions. To what extent do tax authorities in the EU grant tax advantages to foreign-owned companies? How much of what we think of as tax avoidance by companies is actually negotiated tax treatment between companies and governments? Are those different things? Finally, are these few cases the tip of the iceberg or instead just a handful of sensational stories that will eventually be resolved and forgotten? Our study attempts to shed some light on these questions.

We obtain financial and (dynamic) ownership data from Bureau van Dijk’s Orbis database for all companies operating in Europe during the period 1995 through 2016. This amounts to more than 64 million observations, approximately 10 percent of which represent foreign-owned companies. Our approach is to search for differences in both effective tax rates and performance between foreign-owned and domestic-owned companies, and to determine whether those differences are attributable to the granting of preferential tax treatment. Prior literature has examined differences within a single country between foreign-owned and domestic-owned companies (e.g., Grubert et al. 1993 in the US; Oyeler and Emmanuel 1998 in the UK; Langli and Saudagaran 2004; in Norway) and attributed those differences to differences in tax planning opportunities.⁴ As noted in Demirgüç-Kunt and Huizinga (2001), the first to examine differences across countries, single-country regressions are only suggestive of “tax planning”; a more direct test is to pool data for all countries and search for an interaction effect between foreign ownership and the host-country statutory tax rate. Our data allow for such a test.⁵

⁴ Within the US literature, there is a lack of consensus as to whether performance differences between foreign-owned and domestic-owned companies are attributable to differences in tax planning, rather than non-tax factors.

⁵ Demirgüç-Kunt and Huizinga (2001) only examine banks and only the period 1988 – 1995.

Our empirical set-up is to regress various measures – i.e., tax and profitability ratios – on company- and country-level variables, controlling for important non-tax factors that could explain these differences (namely company size, age and industry membership), as well as time- and country-fixed effects. The coefficient of interest in our model is the interaction of a binary variable indicating foreign ownership at the company-level and the time-varying host-country statutory tax rate. A negative coefficient on the interaction term is evidence of more tax advantages enjoyed by foreign-owned companies, relative to their domestic peers. When the dependent variable is either the ratio of tax expense to income, or income to assets, we find evidence consistent with effective tax rate and profitability differences attributable to tax planning.⁶

To determine whether these differences in tax planning are attributable to tax arbitrage generally available to multinational groups versus host-country cooperation, we introduce a triple interaction term. This coefficient tests whether there is an incremental effect on the interaction between foreign ownership and the statutory rate in countries that are more or less likely to negotiate with foreign companies. We identify countries as less likely to negotiate if they are part of the European Economic Area (EEA) because they are constrained by EU competition law, and more likely to negotiate if at any point in the past the country received a negative state aid decision. When the dependent variable is the ratio of tax expense to income, we find evidence to suggest that foreign companies enjoy more tax planning opportunities in EEA countries (rather than less), and in countries that have previously granted illegal state aid. When the dependent variable is the ratio of income to assets, we find the opposite result. However, foreign owned companies

⁶ However, our results are sensitive to the tax or profitability ratio we use as a dependent variable. When we use the rate of tax expense to assets, tax expense to revenue, or income to revenue, we do not obtain consistent results. We provide an example in Appendix A, however that illustrates why the only dependent variable with a clear prediction is the ratio of tax expense to income. Yet, this is only one example that has been widely publicized, and thus has much public information in which to consider the effect on various performance measures.

benefiting from tax rulings that create double non-taxation of income do not necessarily show low profitability so it is difficult to interpret these results (see Appendix A).

Recently, the intersection of state aid and international tax has acquired a high profile in the European Union. In response, important tax and accounting policy changes are being proposed or implemented. However, these changes are predicated on the assumption that unfair tax ruling practices by host country governments are pervasive, and significantly benefit foreign-owned companies. Yet, there is no empirical evidence as to whether this is the case. We find preliminary evidence, based on an examination of effective tax rates, that foreign-owned companies benefit from favorable tax treatment more in the European Economic Area, and in countries that previously granted illegal state aid, relative to domestic-owned companies. This suggests recent investigations are warranted and that any country can operate as a tax haven, in fact but not in appearance, without greater supervision and transparency.

2. Background, related literature and hypothesis development

a. Background

i. Tax policy and foreign direct investment

There are many policy considerations guiding the taxation of both inbound and outbound foreign direct investment (FDI). Broadly speaking, these considerations include revenue requirements, efficiency considerations, fair domestic competition concerns, and pressure to provide internationally competitive tax treatment (OECD 2008). The prospect of generating substantial host-country benefits from inbound FDI, such as new jobs and technologies, creates pressure on governments to accommodate a relatively low host-country tax burden. Explicit accommodations may come in the form of reductions in the headline statutory rate, general tax

relief that alters the tax base, or targeted tax relief that benefits particular activities, types of income, or industries. Each of these approaches tradeoff on policy considerations.⁷

Where inbound FDI is particularly sensitive to host-country taxation, governments may be encouraged to offer targeted tax relief to the exclusion of domestic-owned firms. That is, fair domestic competition arguments for taxing profits on inbound FDI at the same effective rate as imposed on resident domestic-owned businesses may be tossed aside. This could happen in several ways. First, governments may indirectly confer an unfair advantage on foreign-owned companies through lax enforcement. Second, explicit tax relief may by design benefit only foreign-owned companies that can bifurcate their value chain across countries. For example, policies may lower the tax burden on income from mobile business activities or sources of income (e.g., head-office activities, coordination centers, treasury functions, holding companies, royalties). Finally, international tax rulings may be negotiated between a host government and a multinational firm. A tax ruling is a confirmation or assurance that tax authorities give to foreign investors on how their tax will be calculated. The use of international tax rulings is particularly prevalent in Europe, where countries differ less on non-tax factors and tax competition is fierce.

ii. Fair domestic competition, tax rulings, and state aid

The Treaty on the Functioning of the European Union (TFEU) provides for a single internal market with free movement of goods and services throughout the European Union (EU).⁸ To achieve this, it includes rules to ensure that competition within the EU is not restricted or distorted

⁷ Regarding outbound FDI, governments may introduce policies that offer tax neutrality between domestic and foreign investment if the belief that doing so will provide efficient access to foreign markets and production scale economics, leading to increased domestic income (e.g., Desai et al. 2009). Our focus is on tax policies that promote inbound FDI.

⁸ These rules have the force of law throughout the European Economic Area (EEA) that includes the EU Member states (Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) as well as Iceland, Lichtenstein and Norway. We also consider Switzerland to be a member of the EEA in our empirical tests due to their extensive treaty system.

by, among other things (e.g., cartels, abuses of market power), unfair State aid.⁹ The European Commission (EC) enforces the TFEU and regards the control of State aid as one of the most important aspects of EU competition policy. In general, Member States may not grant aid “in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods...in so far as it affects trade between Member States” (Article 107(1) TFEU). With regard to tax policy, the role of State aid control is to prevent distortions of competition through the granting of special tax advantages that are not available to all similarly situated taxpayers in a given Member State. Thus, the existence of preferential treatment in tax policies to promote inward FDI can leave government officials in a gray area.

International tax rulings are in themselves not considered a problem and many countries issue them. They intend to establish, in advance, the application of the tax system to a particular case in view of its facts and circumstances. For reasons of legal certainty, many national tax authorities provide rulings on the future tax treatment of specific transactions. This may be done to establish in advance how a bilateral tax treaty or national fiscal provisions will be applied to a particular case or how “arm’s-length profits” will be set for related-party transactions. However, their utility is questionable when rulings offer a low level of taxation, encouraging companies to shift profits there, leading to revenue losses for other countries. The EC and national courts determine when tax rulings distort competition based on an analysis of whether (1) the ruling misapplies national tax law and this results in lower tax; (2) the ruling is not available to

⁹ Despite the general prohibition of State aid, in some circumstances government intervention is necessary for a well-functioning and equitable economy. Therefore, the Treaty leaves room for a number of policy objectives for which State aid can be considered compatible with other EU objectives. The legislation stipulates these exemptions. The laws are regularly reviewed to improve their efficiency and to respond to the European Councils' calls for less but better targeted State aid to boost the European economy. “Approved” state aid is disclosed to the public at <https://webgate.ec.europa.eu/competition/transparency/public?lang=en>

transactions that have a similar legal and factual situation; or (3) the administration applies a more favorable tax treatment compared with other taxpayers in a similar situation.¹⁰

Beginning in 1999, the EC began conducting formal investigations into the fiscal schemes of Member States that appeared to benefit only certain companies. This was part of an overall effort by the EC to tackle harmful tax competition.¹¹ Since then, the EC has issued a series of negative decisions finding such schemes to selectively advantage multinational companies. Figure 1 below provides a list of each of those negative decisions, noting the country, fiscal scheme, and years in which multinationals are believed to have benefited from these harmful tax practices.

Figure 1: State Aid Investigations: Tax schemes

Country	Harmful tax practice	Year(s) in force
Belgium	Coordination centres	1984 – 2010
Belgium	Tax ruling for US foreign sales corporation	1985 – 2003
Finland	Aland Islands captive insurance companies	1993 – 2001
France	Central corporate treasury companies	1999 – 2002
France	Headquarters and logistics centres	1997 – 2003
Germany	Control and coordination centres	1984 – 2000
Ireland	Companies with foreign income	1995 – 2001
Italy	Trieste financial services and insurance centres	1991 (1995) – 2002
Luxembourg	Coordination centres	1989 – 1996 (2001)
Luxembourg	Exempt holdings and billionaire holdings	n/a: individual tax
Luxembourg	Finance companies	1989 – 1996 (2001)
Netherlands	International financing activities	1996 – 2010
Spain	Vizcaya coordination centres	1996 – 1997
UK	Gibraltar corporate tax reform	n/a: reform proposal
UK	Gibraltar qualifying companies	1983 – 2004

More recently, beginning in June 2013, the focus of EC investigations has been on individual tax rulings of Member States, rather than tax schemes that operate as part of national tax policy like the earlier cases in Figure 1. Fueled by the political atmosphere surrounding BEPS and media

¹⁰ http://ec.europa.eu/competition/state_aid/legislation/working_paper_tax_rulings.pdf

¹¹ The http://ec.europa.eu/competition/state_aid/studies_reports/rapportaidesfiscales_en.pdf

reports of multinational tax avoidance strategies involving tax rulings around this time (and further fueled by LuxLeaks), the EC formed a working group that asked all Member States to provide information about their international tax ruling practices, as well as a list of tax rulings issued from 2010 through 2012. Based on this information, the EC went on to request detailed information on certain tax rulings between specific companies and host countries. As of 2016, the EC looked at more than 1,000 tax rulings and issued several major negative decisions listed in Figure 2 below.¹²

Figure 2: State Aid Investigations: Individual companies

Country (Firm)	Harmful tax practice	Year(s) in force
<i>Negative decisions:</i>		
Belgium (35 MNCs)	Excess profits tax exemption	2005 – 2013
Ireland (Apple)	Tax base reduction	1991 – 2014
Luxembourg (Amazon)	Tax base reduction	2003 – 2013
Luxembourg (Fiat)	Tax base reduction & Tax exemption	2012 – present
Netherlands (Starbucks)	Tax base reduction	2002 – 2012
<i>Pending decisions:</i>		
Luxembourg (Engie)	Tax base reduction & Tax exemption	2008 – present
Luxembourg (McDonalds)	Tax base reduction	2009 – present
Netherlands (IKEA)	Tax base reduction	2006 – present
UK	Group financing exemption	2013 - present

iii. Policy implications of state aid investigations

The concept of state aid in the EU has existed since 1958 and has always included tax exemptions or the provision of lower tax rates as an example of an action that the EC might consider state aid. Recently, however, the intersection of state aid and international tax has

¹² The scope and magnitude of these rulings is quite striking. On October 21, 2015 the EC decided that rulings provided to Fiat by Luxembourg and Starbucks in the Netherlands constituted unlawful state aid and that the countries would have to recover €20 to €30 million from each company to claw back the benefits of the state aid received. On August 30, 2016, Ireland was ordered to recover unpaid taxes in Ireland from Apple for the years 2003 to 2014 of up to €13 billion, plus interest. On October 4, 2017, the EC ruled that Luxembourg gave illegal tax benefits to Amazon worth around €250 million related to a tax structure that it endorsed between May 2006 and June 2014.

acquired a high profile in the EU. As a result, important tax and accounting policy changes are being proposed or implemented in response. However, these changes are predicated on the assumption that unfair tax ruling practices are pervasive, and significantly benefit foreign-owned companies. Yet, there is no empirical evidence as to whether this is the case. Consider the somewhat controversial (among legal scholars) statement in a letter to US Treasury Secretary Lew, from Vestager of the EC asserting that “EU Courts have long established that under EU State aid rules Member States cannot give multinational groups a more favourable tax treatment than standalone companies.”¹³

From a tax policy perspective, one conclusion from the ongoing state aid investigations is that greater transparency for tax rulings is urgently needed in order to tackle aggressive tax planning and ensure fair tax competition between Member States. Without automatic exchange of information, Member States are often unaware of one another's tax rulings, or the effect these are having on their own tax bases, leaving them unable to take the necessary response to aggressive tax planning driven by tax rulings. In the wake of the final OECD BEPS reports issued in October, the European Council adopted amendments to Directive 2011/16/EU providing for the automatic exchange of information concerning advance cross border rulings (ACBR) and advance pricing arrangements (APA) between Member States. The amendments came into force from 1 January 2017. However, this system leaves room for interpretation by country issuing the tax ruling.¹⁴

With increased information exchange, however, companies face new risks. For instance, those companies using tax rulings as part of their tax planning (aggressive or otherwise) will be

¹³ Letter from Margrethe Vestager, European Commissioner for Competition, to Jacob J. Lew, U.S. Secretary of the Treasury (Feb. 29, 2016), https://drive.google.com/file/d/0B_p5wXj7Q88MYUVyTG83R01BZEK/view.

¹⁴ That State decides what is "relevant" and which other Member States should receive the information. In some cases, this leeway may be deliberately exploited to avoid sharing information. In other cases, the Member State issuing the tax ruling may simply not realize that this information could be useful to another Member State, so it does not spontaneously exchange it. Moreover, under current rules, Member States can refuse to spontaneously exchange the information on the grounds of commercial secrecy laws or public policy.

under closer scrutiny because of the greater oversight that tax authorities will have. On the one hand, increased oversight could improve compliance, but it may also create unnecessary compliance costs and undue tax burdens for multinational firms facing taxing authorities that are competing for tax base. Moreover, it has become apparent from recent EC investigations that a taxing authority in the Member State issuing the ruling may not ultimately be able to provide legal certainty to the issues agreed upon in the tax ruling. In each of the negative decisions shown in Figure 2, the EC ordered the host country to recover unpaid taxes from the companies.

Thus, international tax ruling practices also have important implications for financial reporting. Consider the following disclosure by a multinational firm reporting under IFRS: “From 2012 until 2015, the Group’s Canadian subsidiary Maple-leaf Inc benefited from a tax ruling of the Canadian tax authorities allowing it to qualify for a reduced corporate tax rate. In 2016, there was a change in the Canadian government. The new government is currently investigating certain tax rulings granted in the past, which include the tax ruling applied by the Group. If the tax ruling applied in the past is retroactively revoked, then additional tax expenses for the period 2012 – 2015 may be incurred.”¹⁵ In the US, the FASB has added to its disclosure framework for income taxes the requirement to disclose “the terms of any rights or privileges granted by a governmental entity directly to the reporting entity that have reduced, or may reduce, the entity’s income tax burden.” These accounting disclosures are yet another indication that we do not understand how many tax rulings are out there and how many may result in tax benefits being revoked.

b. Related literature

Performance gaps between a subsidiary of a multinational firm (i.e., foreign-owned or FO) and a domestic firm (i.e., domestic-owned or DO) have been identified across numerous literatures

¹⁵ <https://home.kpmg.com/content/dam/kpmg/xx/pdf/2016/11/ifs-2016-illustrative-disclosures.pdf>

in such areas as productivity, wages, profitability, growth, market-entry strategies, survival, export intensity, labor relations, market shares, bankruptcy, exit, size, skill intensity, innovation, and advertising intensity.¹⁶ The broad issue examined in decades of research is why performance gaps exist theoretically, and whether foreign ownership, per se, explains such gaps empirically. An important normative question that arises from all of this work is whether discriminatory inbound investment promotion policies can be justified. After all, these ‘costly’ investment policies are rooted in the belief that the superior performance of FO firms will have positive spillover effects on the domestic economy in the host country.

The distinction between FO and DO firms is salient in the field of taxation, in particular, for at least two reasons. First, as described above, tax policy may be used to attract inbound investment, discriminating favorably towards investment of FO firms with no certainty as to whether those policies will generate social gains (OECD 2008).¹⁷ How those policies affect the competitive landscape for domestic companies is important in the context of EU competition law. Second, those steeped in international tax have often concluded that observed profitability differences between FO and DO firms results, at least in part, from profit shifting opportunities. For instance, Grubert et al. (1993) in the US, Oyeler and Emmanuel (1998) in the UK, Langli and Saudagaran (2004) in Norway, Demirgüç-Kunt and Huizinga (2001) in banks across 80 countries; and Egger et al. (2010) using plant level data in 31 EU countries. Each of these studies concludes that the profitability differential between FO and DO firms is explained, in part, by profit shifting. After all, it is counter-intuitive why FO firms would generally excel in every economic respect as

¹⁶ A DO firm is a firm which is either purely domestic or multinational (i.e., owns foreign subsidiaries). A FO firm is a subsidiary of a parent company located in a foreign country. See Bellak (2004) for an excellent review of this literature. Studies vary in the conclusions reached. Some studies find no difference in performance at all, while other studies disagree on determinants of the performance gap.

¹⁷ Of course, policymakers may also support outbound investment with the expectation that benefits will accrue to domestic income. The focus of our study is on FO versus DO firms, which relate to inward investment policies.

compared to their DO counterparts, except profitability.

Despite the consistent finding in the US literature that FO firms report lower profitability than DO firms, some US studies question whether this difference should be attributed to income manipulation (e.g., Collins et al. 1997; Kinney and Lawrence 2000; Mataloni 2000; Blouin et al. 2001). Other factors such as industry mix, age effects, exchange rates, disadvantages by foreigners in the market for corporate control, and/or differences in cost of capital are offered as alternative explanations. The contribution of our study is not to resolve this empirical debate in the US. In fact, US firms are not in our sample. Our contribution is to use cross-country differences between DO and FO firms to tease out the tax effects, as in Demirgüç-Kunt and Huizinga (2001), while considering the more important alternative explanations posed in the US literature. We focus on companies operating in all industries, operating in the EU where international tax rulings are prevalent and fair competition rules operate, and over a long time period that includes relatively recent years where tax competition was fierce.

c. Hypothesis development

Our hypotheses are motivated by the recent policy debates surrounding state aid described above, and the lack of empirical evidence on the selective advantages enjoyed by foreign-owned firms. In other words, the EC has limited resources and cannot examine all tax rulings between host governments and taxpayers. However, in the formulation of tax policy to react to the potential abuse and misuse of international tax rulings, it is important to understand how far the use of tax rulings might have gone over the past two decades. For instance, are the recent illegal state aid cases just extraordinary stories about a handful of companies that are deemed to have received preferential tax treatment in a way that was unfair? Or, are these cases just the tip of the iceberg

and in fact foreign-owned companies have been enjoying various forms of what could be considered illegal state aid for decades? We attempt to uncover answers to these questions.

In the EU, where tax competition is fierce but constrained by the existence of an internal market, it seems important to assess how far targeted tax relief has gone for foreign-owned companies over the past two decades. Our first hypothesis conjectures that foreign-owned companies have more opportunities to avoid taxes than domestic-owned companies:

H1: Foreign-owned companies have more tax planning opportunities available to them, relative to domestic-owned companies.

Finding evidence of H1 does not distinguish with regard to whether those opportunities were granted formally (i.e., international tax rulings, domestic tax law that offers targeted tax relief) or informally (i.e., lax enforcement of foreign-owned companies) by the tax administration in the host country. In other words, foreign-owned companies always have tax planning opportunities by virtue of the fact that they are part of a multinational group, but those opportunities may be significantly expanded by the host country tax administration.

Therefore, our second hypothesis conjectures that host-country tax administrators grant preferential tax treatment to foreign-owned companies:

H2: Foreign-owned companies have more tax planning opportunities available to them due to cooperation from host-country tax administrators, relative to domestic-owned companies.

3. Research design and data

a. Research design

To test our hypotheses, we examine tax remittances and profitability differences between foreign-owned (FO) and domestic-owned (DO) companies. We employ five empirical measures to examine these differences because tax planning may manifest itself in financial data in multiple ways. First, firms may enjoy lower tax payments. Second, firms may report lower income. Thus,

we examine differences across FO and DO firms with regard to both tax ratios and profitability ratios. Our regression analysis begins from the following estimating equation:

$$I_{ijt} = \alpha_0 + \beta_i B_{it} + \beta_j X_{jt} + \varepsilon_{ijt} \quad (1)$$

where I_{ijt} is the dependent variable for company I in country j in year t . The dependent variables that we examine include three tax ratios: (i) *Tax/Income* = the ratio of tax expense to income before tax; (ii) *Tax/Assets* = the ratio of tax expense to total assets; (iii) *Tax/Revenue* = the ratio of tax expense to total revenue, and two profitability ratios: (iv) *Income/Assets* = the ratio of income before tax to total assets; (v) *Income/Revenue* = the ratio of income before tax to total revenue.

Further, B_{it} are company variables for company i in year t , and X_{jt} are country-level variables for country j in year t . All regressions include indicator variables to capture country- and time-specific effects. We next develop/expand this model further as follows:

$$I_{ijt} = \alpha_0 + \beta_{1i} FO_{it} + \beta_{2i} Size_{it} + \beta_{3i} Age_{it} + \beta_{4j} StatRate_{jt} + \beta_{5j} StatRate_{jt} * FO_{it} + \varepsilon_{ijt} \quad (2)$$

The company variable of interest Equation (2) is FO , which is equal to one if a company is foreign-owned, and zero otherwise. To determine the other company and country variables to include in the model we follow prior literature. Grubert et al. (1997) find that age, size, and industry are consistently important factors in explaining performance differences between FO and DO firms. Therefore, the vector B_{it} includes the log of firm age (i.e., how long the company appears in the Orbis database), Age , the log of total assets, $Size$, and industry indicator variables measured at the 1-digit NAICS code level. Following Demirgüç-Kunt and Huizinga (2001), we include a country variable for the host country statutory tax rate, $StatRate$, and its interaction with FO .

As explained by Demirgüç-Kunt and Huizinga (2001), it is difficult to tell with a single country regression whether any performance differential between FO and DO firms is attributable to greater tax rate or tax base reductions enjoyed by FO firms, or some other non-tax difference.

This is one reason for the lack of empirical consensus in the US literature that compares only foreign-owned versus domestic-owned companies operating in the US. Using cross-country data, we can detect the tax channel more directly by running pooled regressions across countries, and including the statutory corporate income tax rate and its interaction with the company-level foreign ownership dummy as additional dependent variables.

If foreign-owned companies have more host-country tax planning opportunities available to them, relative to domestic-owned companies (as in H1), we expect $\beta_1 < 0$ and $\beta_5 < 0$ in our estimation Equation (2). While $\beta_1 < 0$ provides evidence that differentials exist, $\beta_5 < 0$ provides evidence that the differential exists due to tax planning opportunities.

To test our second hypothesis, we augment Equation (2) with another country-level variable and its interaction with $StatRate*FO$. First, we identify when foreign-owned companies are more likely to have host-country tax planning opportunities available to them due to cooperation from host-country tax administrators. We do this in two ways. The first variable, EEA , is equal to one if a country is part of the European Economic Area, and zero otherwise. If a country is part of the EEA, we view them as relatively more constrained and therefore less likely to grant preferential tax treatment to foreign-owned firms. The second variable, Aid , is equal to one if a country has ever been issued a negative decision in a state aid case, and zero otherwise (see Figures 1 and 2).

$$\begin{aligned}
I_{ijt} = & \alpha_0 + \beta_{1i}FO_{it} + \beta_{2i}EEA*FO_{it} + \beta_{3i}Size_{it} + \beta_{4i}Age_{it} \\
& + \beta_{5j}StatRate_{jt} + \beta_{6j}StatRate_{jt}*FO_{it} + \beta_{7j}StatRate_{jt}*EEA_{it} \\
& + \beta_{8j}StatRate_{jt}*EEA_{it}*FO_{it} + \varepsilon_{ijt}
\end{aligned} \tag{3a}$$

$$\begin{aligned}
I_{ijt} = & \alpha_0 + \beta_{1i}FO_{it} + \beta_{2i}Aid*FO_{it} + \beta_{3i}Size_{it} + \beta_{4i}Age_{it} \\
& + \beta_{5j}StatRate_{jt} + \beta_{6j}StatRate_{jt}*FO_{it} + \beta_{7j}StatRate_{jt}*Aid_{it} \\
& + \beta_{8j}StatRate_{jt}*Aid_{it}*FO_{it} + \varepsilon_{ijt}
\end{aligned} \tag{3b}$$

We expect $\beta_8 < 0$ in Equation (3a) and (3b) if at least some tax benefits enjoyed by foreign-owned companies are granted or approved as a matter of national tax policy, consistent with H2.

b. Data sources

Using the Orbis database from Bureau van Dijk (BvD), we collect financial and ownership data for all companies operating in Eastern and Western Europe from 1995 through 2016. With respect to our company-level data requirements outlined above, we keep only those observations with non-missing tax expense, pre-tax income, total assets, revenue, industry membership, and country of location. We also require each company to have ownership data. As ownership data is static, we capture ownership at five points in time (i.e., 2005, 2007, 2013, 2015, and 2017) and determine foreign-owned versus domestic-owned using the most recent data point for each company during the intervening years. We consider a company foreign-owned if it has at least 50% ultimate ownership (direct or indirect), by a parent company located in a different country. Diagram A illustrates our process for classifying each company in our sample.¹⁸ We obtain data on statutory tax rates from Comtax.

c. Descriptive statistics

Table 1 Panel A provides some information about the importance of foreign-owned companies for the countries in our sample. The *Share of FO*, in the table, is the ratio of all foreign-owned companies to total companies averaged for the years 1995 through 2016. The five countries with the largest share of foreign-owned companies from largest to smallest are Ireland, Luxembourg, Austria, Malta, and the Netherlands. This table also shows that the relative magnitudes of our dependent variables for foreign-owned and domestic-owned companies tends to vary across countries. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax

¹⁸ In the next version of the paper, we are considering whether to separate domestic-owned companies into standalone and domestic MNCs for purposes of comparison, as in Grubert et al. 1993; Habu 2017a; Habu 2017b.

income to total revenue. We calculate these tax and profitability ratios for each company and then average across each group of companies in each country.

The unconditional tax and profitability ratios do not consistently show that foreign-owned companies pay lower taxes or report lower income, as the existing literature and policy debates would predict. For instance, only about 70 percent of countries show a more favorable (i.e., lower) tax ratio for foreign-owned companies by at least one measure, but only 40 and 14 percent show a more favorable tax ratio across two and (all) three tax ratios, respectively. With regard to the profitability ratios, they tell a somewhat more consistent story. About 80 percent of countries exhibit lower profitability ratios for foreign-owned companies by at least one measure, and 52 percent show lower profitability for foreign-owned companies across both measures.

It is not clear, however, what to expect with respect to the interaction of foreign ownership, preferential tax treatment and the tax and profitability ratios. It is likely that the extent to which tax strategies manifest in tax and profitability ratios depends on the corporate structure, the financial accounts that are filed, and the mechanics of the tax strategy.¹⁹ Much of the policy debate surrounds the preferential tax treatment of foreign-owned companies, but how does this actually manifest itself in financial metrics? While most of this remains a black box to everyone but companies and lawyers, Appendix A provides an example using McDonald's, a state aid case where detailed information is available regarding the tax strategy and how it manifests in financial statements. We reproduce the table from Appendix A here for ease of discussion:

	Tax/Income	Tax/Assets	Tax/Revenue	Income/Assets	Income/Revenue
McD	0.014	0.004	0.030	0.265	0.1889
LU Avg	0.122	0.015	0.049	0.022	(0.630)

¹⁹ It is important to note that most studies searching for profitability differences and finding lower profitability of foreign-owned companies attributable to tax planning utilize tax return data rather than financial accounting data. The use of different data sources is important. Here, the income will show up in Luxembourg financial statements, but not a Luxembourg tax return. Thus, it is not clear whether to expect a profitability difference using financial statements.

The ratio of *Tax/Income* is lower than the average company in Luxembourg (LU Avg). The financial statements filed in Luxembourg include a significant amount of income that is not taxed anywhere. The lower tax payments also manifest themselves in the ratio of *Tax/Assets* and *Tax/Revenue*, though not as significantly as in *Tax/Income*. With regard to the profitability ratios, both the *Income/Assets* and *Income/Revenue* ratio are *higher* than the average company in Luxembourg. The Luxembourg entity shows low assets and low revenue (because here royalties are not classified as revenue), relative to its income. At least with regard to the McDonald's example, the ratio of *Tax/Income* is the dependent variable with the clearest prediction.

Table 1 Panel B provides summary figures across three country groups. *State Aid* countries are those countries that have received, at any point, a negative decision in an investigation by the European Commission. *EEA* countries include the EU Member states (Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) as well as Iceland, Lichtenstein and Norway. *High Rate* countries are those countries with an above sample median statutory tax rate (using the average statutory tax rate over all years in the sample). We also provide descriptive statistics separately for the first half relative to the second half of our sample period.

With respect to the ratio of *Tax/Income*, some of the expected patterns emerge. For instance, in countries that have given illegal state aid, foreign-owned companies show a 1-percentage point lower average *Tax/Income* relative to domestic companies. In state aid countries, foreign-owned companies also show a 5-percentage point lower ratio of *Income/Assets*. As this suggests preferential tax treatment, is also not surprising to see that 14 percent of companies in state aid countries are foreign-owned, as compared to only 8 percent in other countries. Another

broad pattern consistent with our expectations is that there are more foreign-owned companies in the second half of the sample period, consistent with globalization.

d. Host country regressions

Before turning to our main empirical tests where we take advantage of pooled regressions across countries, we first estimate Equation (2) by country. Along these lines, we regress companies' tax and profitability ratios on an indicator for foreign ownership, *FO*, controlling for *Age*, *Size*, and industry and year fixed effects. The *FO* indicator captures the difference in foreign-owned companies relative to domestic-owned companies, country by country. In Table 2, only the coefficients on *FO* from these regressions are reported (if there are sufficient observations to allow estimation). The controls are not reported to save space, as they are not of immediate interest themselves. The signs of the estimated coefficients for the foreign ownership variable and their significance levels differ considerably across countries.

Overall, the results in Table 2 tell a relatively more consistent story than the comparison of means by country in Table 1. The *FO* coefficient when the dependent variable is *Tax/Income* is significantly negative in 23 out of 42 regression, and only significantly positive in 4 regressions (Greece, Russia, Norway, and the UK). Roughly the same pattern is observed when the dependent variable is *Tax/Revenue*, but a different pattern emerges in column (3). When the dependent variable is *Tax/Assets*, the *FO* coefficient is significantly positive in 29 country regressions. It is difficult to say why these measures would produce such different results. The *FO* coefficient when the dependent variable is *Income/Revenue* is significantly negative in 25 out of 42 regression, and only significantly positive in 5 regressions (Germany, Greece, Ireland, Netherland, and Poland). Finally, when the dependent variable is *Income/Assets*, there are roughly the same number of positive and negative coefficients.

4. Discussion of results

a. Opportunities for tax planning in general – Test of H1

Table 3 reports the results of estimating Equation (2) where the dependent variables are our three tax ratios – *Tax/Income*, *Tax/Assets*, and *Tax/Revenue*. For each specification, the first column reports the results of the pooled regression without the *FO* indicator. The second column adds the *FO* indicator and the statutory tax rate, *StatRate*. The third column adds the interaction between *FO* and *StatRate*. Across all three tax ratios, the sign on *FO* is significantly negative, suggesting that foreign-owned firms make fewer tax payments relative to domestic owned firms. To probe further, as to whether these differentials arise because of opportunities for foreign-owned companies to avoid taxes that domestic companies do not have access to, we interact the *FO* indicator with *StatRate*. In column (3), the results show that the interaction term has a negative, significant coefficient. This means that taxes paid by foreign-owned companies rise relatively less with increases in the statutory rate ($0.119 - 0.034 = 0.085$). This suggests more advantageous tax opportunities are available to foreign-owned companies.

Despite the negative coefficient on *FO* in columns (6) and (9), these other tax ratios tell a different story with respect to the interaction term. In column (6), where the dependent variable is the ratio *Tax/Assets*, the coefficient on *StatRate*FO* suggests that taxes paid by foreign-owned companies increase relatively more with increases in the statutory tax rate ($0.017 + 0.036 = 0.053$). In column (9), where the dependent variable is the ratio *Tax/Revenue*, the coefficient on *StatRate*FO* suggests that taxes paid by foreign-owned companies do not change as the statutory tax rate changes ($-0.004 + 0.004 = 0.000$), while for domestic-owned companies, taxes paid rise relatively *less* with increases in the statutory rate. Although *Tax/Income* is the most intuitive measure of taxes paid, and provides evidence entirely consistent with foreign-owned companies

having access to tax planning opportunities not available to domestic companies, it is troubling that different scalars for tax expense produce such different results.

Table 4 reports the results of estimating Equation (2) where the dependent variables are our two profitability ratios – *Income/Assets* and *Income/Revenue*. Again, as in Table 3, the coefficient on the *FO* indicator is consistently negative and significant. To probe further on whether these differences are tax-driven, we again focus on the interaction term. In column (3), where the dependent variable is the ratio *Income/Assets*, the results show that the interaction term has a negative, significant coefficient. This means that income reported by foreign-owned companies rises relatively less with increases in the statutory rate ($0.582 - 0.078 = 0.504$), suggesting more advantageous tax opportunities available to foreign-owned companies (from profit shifting). In column (6), where the dependent variable is the ratio *Income/Revenue*, the results on the interaction term suggests that income reported by foreign-owned companies rises relative more with increases in the statutory tax rate ($0.444 + 0.156 = 0.600$), suggesting less advantageous tax planning opportunities. As in Table 3, it is not clear why scaling income by revenues rather than assets gives such a drastically different (significant) result.

Reducing our focus to *Tax/Income* and *Income/Assets* as the most natural and widely used measures of tax payments and profitability in the literature, and to save space, we report only results with these two measures in the remainder of our tests.²⁰

i. Does the parent country matter for FO?

Before turning to tests of H2, we first explore whether our results on *FO* and its interaction with the statutory rate are sensitive to the country of the parent. We do not have specific hypotheses here (yet), but do wonder if advantageous tax planning opportunities are generally available to all

²⁰ We are in the process of thinking more carefully about the reasons that different scalars for tax and income produce different results. Results using all dependent variables for all tests are available upon request.

foreign-owned companies, or only foreign-owned companies controlled by parent companies located in certain countries. These differences may exist to attract FDI from certain countries, or for other political economy reasons. Table 5 reports the results of estimating Equation (2) except we replace the general foreign indicator with a foreign parent ownership indicator - e.g., *FO_Switzerland* is equal to one for foreign-owned entities whose ultimate parent company is located in Switzerland.

Interestingly, in column (2) the magnitude of the negative coefficient on *FO* is relatively similar across parent countries, suggesting that differences in tax ratios do not vary with the country in which the foreign-owned company is controlled. However, in column (3) when we interact *FO* with *StatRate*, differences begin to emerge. For instance, the interaction term is only negative and significant for parent companies located in Cyprus, France, Italy, Netherlands, and the Other category. Interestingly, despite the fact that many of the recent state aid cases involve US companies; the interaction term is insignificant for companies owned by US parents. The results in column (6) tell a less coherent story. The sign on the *FO* indicator is negative in some countries and positive in others (e.g., Germany, UK) and the interaction term is also negative in some countries and positive in others (e.g., Luxembourg, US). Overall, the results in Table 5 suggest that there may be more to the story in Tables 3 and 4.

b. Enhanced tax planning granted by tax administrators – Test of H2

In this section, we consider the possibility that any tax advantages available to foreign-owned companies in our sample are not simply from the fact that multinationals have more tax planning available to them, but rather that they are granted preferential tax treatment by the host country (formally or informally) in order to attract FDI. We conduct two tests in order to detect the granting of preferential tax treatment. In our first test (Table 6), we rely on variation across countries with

respect to membership in the European Economic Area (EEA). Tax administrations within the EEA are relatively more constrained with respect to tax policy to attract FDI because they operate as part of a single market. This means that tax policy may be viewed as illegal state aid if it distorts competition in a way that grants selective or preferential treatment to certain companies. In our second test (Table 7), we restrict the sample only to EEA countries and rely on variation across countries with respect to receiving a negative state aid decision in the past. We conjecture that countries granting illegal state aid at any point, are more likely to do so in general, relative to other countries. Consistent with this, many countries found to have granted illegal state aid are often repeat offenders.

Table 6 reports the results of estimating Equation (3a). Here, the coefficient of interest is the triple interaction term $StatRate*EEA*FO$. In column (2), this coefficient is negative and significant, suggesting that in countries where tax administrators are more constrained with respect to granting preferential treatment, the tax payments of foreign-owned companies rise relatively less in response to increases in the tax rate. This could imply EEA countries grant tax advantages to foreign-owned companies because there is more competition to attract investment (EEA countries differ less on non-tax factors due to the internal market). In fact, this would be consistent with the recent state aid rulings, and suggest that the European Commission's recent investigations regarding Member States international tax rulings practices are warranted.

In column (4), the coefficient on $StatRate*EEA*FO$ is positive and significant. This suggests that in countries where tax administrators are more constrained with respect to granting preferential treatment, the reported income of foreign-owned companies rises relatively more in response to increases in the statutory rate. This would be consistent with the tax administration granting fewer advantages to foreign-owned companies, however, in Appendix A, we show that McDonald's has

a very high ratio of *Income/Assets* despite having received illegal state aid. Thus, the implication of these results in the broad sample are unclear. Both a lower *Tax/Income* and higher *Income/Assets* ratio, as illustrated by McDonald's could be consistent with preferential tax treatment.

Table 7 reports the results of estimating Equation (3b). This is a more direct test of H2 because the granting of illegal state aid is a more direct measure of the likelihood that a tax administration would grant preferential treatment. Here we see the same pattern as in Table 6. The coefficient on *StatRate*EEA*FO* is negative and significant in column (2) when the dependent variable is *Tax/Income* and positive and significant in column (4) when the dependent variable is *Income/Assets*. Although this seems inconsistent with foreign-owned companies receiving preferential tax treatment across these two measures, this is also consistent with the McDonald's illustration where McDonald's Luxembourg reports a very low tax ratio while also reporting a very high profitability ratio.

5. Conclusion

For at least the past decade, multinational firms (MNCs) have been under intense scrutiny for their alleged tax avoidance practices. What has recently become widely known within the European Union (EU) is that international tax rulings negotiated between MNCs and host governments back some of these tax avoidance strategies. These rulings are not only a matter of national tax policy, but must also be evaluated under EU competition law. The focus of recent state aid investigations has been on 'discrimination' and 'selectivity'; e.g., when tax rulings offer foreign companies a selective advantage they may constitute illegal state aid. The EC has issued around 170 decisions ordering recovery of illegal state aid from individual companies for tax matters since 1999, with the most recent cases being highly publicized.

Some natural questions arise because of these recent decisions. To what extent do tax authorities in the EU grant tax advantages to foreign-owned companies? How much of what we think of as tax avoidance by companies is actually negotiated tax treatment between companies and governments? Are those different things? Finally, are these few cases the tip of the iceberg or instead just a handful of sensational stories that will eventually be resolved and forgotten? Our study attempts to shed some light on these questions.

We search for effective tax rate and profitability differences between foreign-owned and domestic-owned companies in the EU from 1995 through 2016 to determine whether those differences are attributable to the granting of preferential tax treatment. Our empirical set-up is to regress various financial metrics – tax and profitability ratios – on company- and country-level variables, controlling for important non-tax factors that could explain these differences (namely company size, age and industry membership), as well as time- and country-fixed effects. The coefficient of interest in our model is the coefficient on the interaction of a foreign ownership dummy variable and the time-varying host-country statutory tax rate. A negative coefficient on the interaction term is evidence of tax planning by foreign-owned companies. When the dependent variable is either the ratio of tax expense to income, or income to assets, we find evidence consistent with effective tax rate and profitability differences attributable to tax planning.

To determine whether these differences in tax planning are attributable to tax arbitrage generally available to multinational groups, or host-country cooperation, we introduce a triple interaction term. This coefficient tests whether there is an incremental effect on the interaction between foreign ownership and the statutory rate in countries that are more or less likely to negotiate with foreign companies. We identify countries as less likely to negotiate if they are part of the European Economic Area (EEA) because they are constrained by EU competition law, and

more likely to negotiate if at any point in the past the country received a negative state aid decision. When the dependent variable is the ratio of tax expense to income, we find evidence to suggest that foreign companies enjoy more tax planning opportunities in EEA countries (rather than less), and in countries that have previously granted illegal state aid. When the dependent variable is the ratio of income to assets, we find the opposite result. However, foreign owned companies benefiting from tax rulings do not necessary show low profitability so it is difficult to interpret these results (see Appendix A).

Recently, the intersection of state aid and international tax has acquired a high profile in the EU. As a result, important tax and accounting policy changes are being proposed or implemented in response. However, these changes are predicated on the assumption that unfair tax ruling practices are pervasive, and significantly benefit foreign-owned companies. Yet, there is no empirical evidence as to whether this is the case. We find preliminary evidence, based on an examination of effective tax rates that foreign-owned companies appear to benefit from favorable tax treatment more in EEA countries, and more in countries that have previously granted state aid. This suggests that recent investigations are warranted and that any country can in fact operate as a tax haven without greater supervision and transparency.

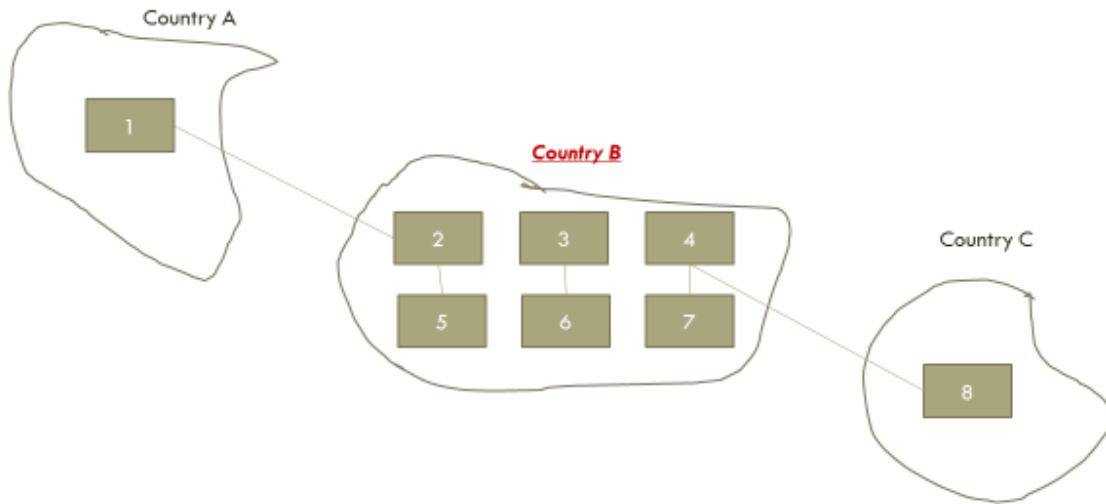
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Diagram A

Diagram Illustrating the Classification of FO and DO Companies



Consider an example with 3 countries and 8 companies. Entity 1 in Country A is the parent company with two subsidiaries in Country B. Entity 2 is owned by Entity 1 directly, while Entity 5 is owned by Entity 1 indirectly through Entity 2. Entity 3 in Country B is the parent company of one subsidiary; Entity 6 also in Country B. Entity 4 in Country B is the parent company of two subsidiaries; Entity 7 in Country B and Entity 8 in country C.

Characterization of Entities in Country B:

Assuming that Entities 2, 3 and 4 generally file consolidated financial statements in Country B, we consider Entity 2 to be foreign-owned, and compare its tax and profitability ratios reported in Country B to those of Entities 3 and 4, that we consider to be domestic-owned. If Entities 2, 3 and 4 do not file consolidated financial statements in Country B, then Entity 5 would be foreign-owned and Entities 6 and 7 would be domestic-owned.

(Entity 1 is domestic-owned and Entity 8 is foreign-owned).

Appendix A

Example of Illegal State Aid Case

This Appendix illustrates how the international tax ruling between Luxembourg and McDonald's impacted McDonald's tax and profitability ratios in the Luxembourg financial statements filed by McDonald's.

The corporate structure²¹

Following a number of favourable changes in 2007 in Luxembourg regarding the tax treatment of royalties and intellectual property, McDonald's restructured its business. McDonald's centralizes the oversight and management of its European franchise rights within McD Europe, whose principal place of business is in Luxembourg. McD Europe operates two branches, one in the U.S. and the other in Switzerland, both Luxembourg companies. As shown below, royalties flow from third parties to the Swiss Branch and then to the U.S. Branch. Their key tax strategy here is that the income recorded by the US Branch is not taxed in any jurisdiction.



The international tax ruling

McDonald's made its ruling request simultaneously with the restructuring that resulted in the structure shown above. Lesser known than advance pricing rulings are permanent establishment rulings, which is the nature of the ruling requested here. McDonald's was looking for assurance that McD Europe would be considered a tax resident in Luxembourg and fully liable for corporate income tax in Luxembourg. As a Luxembourg tax resident, McD Europe would benefit from all of the provisions of any double tax treaty concluded by Luxembourg. Furthermore, McDonald's wanted assurances that the activities of the US Branch would be considered to be performed in the

²¹ http://europa.eu/rapid/press-release_IP-15-6221_en.htm

US. Consequently, the profits of the US branch would only be subject to possible taxation in the US and exempt from tax in Luxembourg by virtue of the US-LU tax treaty.

The Luxembourg tax administration issued a tax ruling in March 2009 that agreed with all of the positions taken by McDonalds. Importantly, the tax administration agreed that the US Branch was a permanent establishment and that the profits of McD Europe imputed to that branch would be subject to tax in the US and tax exempt in Luxembourg. The final piece of legal strategy that makes this work is that based on US domestic tax law, the US Branch did not constitute a permanent establishment for US tax purposes. This means the US income was not taxed by either country.

The EC decision that this constituted state aid

The European Commission ruled in June 2016, that the interpretation of the US-LU treaty by the Luxembourg taxing authority was incorrect, and that it amounted to a voluntary tax exemption that gave McDonald’s an advantage not available to other companies in a comparable factual and legal. At the heart of the case is the different interpretations of the language in the tax treaty which permits Luxembourg to “exempt from tax income that ‘may be taxed in the United States’” However, ‘subject to tax’ and ‘effectively taxed’ are different. Luxembourg believe that because the US ‘could have’ taxed the income, but did not, the tax ruling should not be considered state aid. In other words, it is not Luxembourg’s responsibility to know whether or not the US Branch constitutes a taxable presence in the US. The way that the treaty provision is written, it prevents double taxation, not double non-taxation.

Impact on tax and profitability ratios

Because the US Branch is part of the same legal entity – McD Europe, which files consolidated financial accounts in Luxembourg – McD Europe’s financial statements include the US Branch. This means that all of the income associated with the structure shows up in the financial statements but the income that is not taxed anywhere does not generate a tax expense. The consolidated financial accounts show that profits reported by McD Europe increase significantly from 2009 to 2013, but its reported tax expense remains stable, resulting in a falling effective tax rate. By 2013, the effective tax rate was 1.4 percent. This rate is significantly lower than those that appear to be available under the standard Luxembourg tax regime, even taking into account the 5.8 percent rate available on royalties.

Below are tax and profitability ratios for McD Franchising in Luxembourg in 2012. The structure was dissolved following the EC decision in 2016.

	Tax/Income	Tax/Assets	Tax/Revenue	Income/Assets	Income/Revenue
McD	0.014	0.004	0.030	0.265	0.1889
LU Avg	0.122	0.015	0.049	0.022	(0.630)

Table 1 Panel A
Tax and profitability ratios by country: domestic-owned versus foreign-owned

Country	N	Share of FO	Tax Ratios						Profitability Ratios			
			<i>Tax/Income</i>		<i>Tax/Assets</i>		<i>Tax/Revenue</i>		<i>Income/Assets</i>		<i>Income/Revenue</i>	
			DO	FO	DO	FO	DO	FO	DO	FO	DO	FO
Albania	446	10%	0,15	0,15	0,01	0,02	0,01	0,02	0,05	0,10	(0,01)	(0,08)
Austria	62 125	30%	0,17	0,16	0,02	0,02	0,32	0,20	0,05	0,06	1,26	0,82
Belgium	727 633	10%	0,28	0,26	0,03	0,03	0,03	0,03	0,08	0,08	0,09	0,11
Bosnia and Herzegovina	163 227	5%	0,04	0,04	0,01	0,00	0,00	0,00	0,04	0,04	(0,10)	(0,10)
Bulgaria	1 341 687	2%	0,06	0,08	0,01	0,01	0,01	0,01	0,11	0,05	0,04	(0,06)
Croatia	710 397	4%	0,14	0,13	0,02	0,02	0,01	0,01	0,03	0,02	(0,07)	(0,12)
Cyprus	5 346	14%	0,11	0,08	0,01	0,01	0,00	0,03	0,20	0,12	0,08	(0,00)
Czech Republic	1 186 199	10%	0,11	0,11	0,01	0,01	0,01	0,01	0,02	0,02	(0,05)	(0,12)
Denmark	287 281	7%	0,18	0,19	0,02	0,02	0,08	0,03	0,05	0,04	0,38	0,10
Estonia	347 045	5%	0,04	0,04	0,01	0,01	0,01	0,01	0,12	0,10	0,09	0,06
Finland	1 143 942	2%	0,19	0,18	0,04	0,03	0,03	0,02	0,14	0,13	0,11	0,07
France	12 488 731	2%	0,13	0,17	0,02	0,02	0,01	0,01	0,06	0,04	0,03	0,01
Germany	649 888	13%	0,21	0,17	0,02	0,02	0,02	0,02	0,08	0,07	0,06	0,06
Gibraltar	109	22%	0,08	0,14	0,00	0,00	0,00	0,02	(0,62)	(0,02)	(53,54)	(0,03)

Notes. *FO* is foreign-owned. *DO* is domestic-owned. *Share of FO* is the ratio of the number of foreign-owned companies to all companies in each country over the 1995 – 2016 period. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. Tax and profitability ratios are calculated for each company and then averaged for all companies per country in the sample.

Table 1 Panel A (cont.)
Tax and profitability ratios by country: domestic-owned versus foreign-owned

Country	N	Share of FO	Tax Ratios						Profitability Ratios			
			<i>Tax/Income</i>		<i>Tax/Assets</i>		<i>Tax/Revenue</i>		<i>Income/Assets</i>		<i>Income/Revenue</i>	
			DO	FO	DO	FO	DO	FO	DO	FO	DO	FO
Greece	450 030	4%	0,18	0,20	0,02	0,02	0,02	0,02	0,04	0,04	(0,03)	(0,02)
Hungary	2 502 498	1%	0,08	0,11	0,03	0,01	0,02	0,01	0,10	0,08	0,06	0,03
Iceland	80 336	1%	0,07	0,14	0,02	0,02	0,02	0,02	0,06	0,05	(0,05)	(0,11)
Ireland	67 459	36%	0,13	0,13	0,01	0,01	0,02	0,02	0,10	0,08	0,10	0,10
Italy	7 912 571	2%	0,38	0,35	0,02	0,03	0,03	0,03	0,04	0,04	(0,00)	(0,03)
Latvia	450 943	10%	0,07	0,08	0,03	0,02	0,01	0,01	(0,08)	(0,08)	(0,11)	(0,17)
Liechtenstein	109	7%	0,07	0,19	0,00	0,00	0,01	0,00	0,05	0,03	0,03	0,01
Lithuania	80 907	9%	0,13	0,15	0,02	0,02	0,01	0,01	0,12	0,11	0,06	0,06
Luxembourg	38 052	36%	0,14	0,13	0,02	0,02	0,04	0,06	0,04	0,03	(0,01)	(0,35)
Macedonia	102 639	3%	0,05	0,08	0,00	0,01	0,00	0,00	0,02	0,03	(0,01)	(0,05)
Malta	12 104	27%	0,17	0,20	0,02	0,05	0,05	0,06	0,09	0,16	(0,02)	(0,00)
Moldova	290	6%	0,07	0,06	0,00	0,00	0,01	0,00	0,01	(0,01)	(0,19)	(0,31)
Montenegro	22 492	4%	0,03	0,05	0,00	0,01	0,00	0,01	(0,16)	0,00	(0,31)	(0,19)
Netherlands	161 781	26%	0,20	0,21	0,02	0,02	0,02	0,03	0,06	0,07	0,07	0,18

Notes. *FO* is foreign-owned. *DO* is domestic-owned. *Share of FO* is the ratio of the number of foreign-owned companies to all companies in each country over the 1995 – 2016 period. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. Tax and profitability ratios are calculated for each company and then averaged for all companies per country in the sample.

Table 1 Panel A (cont.)
Tax and profitability ratios by country: domestic-owned versus foreign-owned

Country	N	Share of FO	Tax Ratios						Profitability Ratios			
			<i>Tax/Income</i>		<i>Tax/Assets</i>		<i>Tax/Revenue</i>		<i>Income/Assets</i>		<i>Income/Revenue</i>	
			DO	FO	DO	FO	DO	FO	DO	FO	DO	FO
Norway	1 875 450	3%	0,18	0,22	0,03	0,03	0,03	0,02	0,08	0,07	0,09	0,05
Poland	564 205	15%	0,20	0,19	0,02	0,03	0,01	0,02	0,11	0,11	0,06	0,06
Portugal	1 778 776	3%	0,21	0,21	0,02	0,02	0,02	0,02	0,06	0,05	0,04	0,04
Romania	4 836 737	7%	0,09	0,09	0,03	0,02	0,02	0,01	0,06	0,05	(0,02)	(0,08)
Russian Federation	5 872 620	2%	0,11	0,14	0,03	0,02	0,01	0,02	0,17	0,10	0,04	0,04
Serbia	417 991	7%	0,03	0,04	0,01	0,01	0,00	0,00	0,05	0,02	(0,06)	(0,16)
Slovakia	894 737	9%	0,14	0,13	0,03	0,02	0,03	0,02	0,02	0,01	(0,05)	(0,09)
Slovenia	166 183	5%	0,15	0,18	0,02	0,02	0,01	0,01	0,09	0,10	0,09	0,07
Spain	7 685 465	2%	0,22	0,23	0,01	0,02	0,01	0,01	0,03	0,05	0,01	0,01
Sweden	3 231 190	2%	0,17	0,18	0,03	0,02	0,03	0,02	0,10	0,09	0,08	0,06
Switzerland	11 726	7%	0,17	0,19	0,01	0,01	0,01	0,02	0,02	0,04	(0,02)	0,03
Turkey	121 800	3%	0,16	0,13	0,01	0,01	0,01	0,01	0,06	0,06	0,03	0,04
Ukraine	2 369 444	2%	0,08	0,09	0,02	0,02	0,01	0,01	0,06	0,03	(0,04)	(0,11)
United Kingdom	2 495 367	12%	0,18	0,21	0,10	0,03	0,04	0,03	0,56	0,13	0,24	0,11

Notes. *FO* is foreign-owned. *DO* is domestic-owned. *Share of FO* is the ratio of the number of foreign-owned companies to all companies in each country over the 1995 – 2016 period. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. Tax and profitability ratios are calculated for each company and then averaged for all companies per country in the sample.

Table 1 Panel B*Tax and profitability ratios by country – selected aggregates: domestic-owned versus foreign-owned*

Group	N	Share of FO	Tax Ratios						Profitability Ratios			
			<i>Tax/Income</i>		<i>Tax/Assets</i>		<i>Tax/Revenue</i>		<i>Income/Assets</i>		<i>Income/Revenue</i>	
			DO	FO	DO	FO	DO	FO	DO	FO	DO	FO
No State Aid	29 947 069	8%	0,11	0,13	0,02	0,02	0,02	0,02	0,04	0,05	(1,63)	(0,01)
State Aid	33 370 889	14%	0,21	0,20	0,03	0,02	0,03	0,03	0,12	0,07	0,07	0,03
EEA	54 246 900	10%	0,15	0,16	0,02	0,02	0,03	0,03	0,08	0,06	0,08	0,03
Non-EEA	9 071 058	6%	0,08	0,09	0,01	0,01	0,01	0,01	(0,03)	0,04	(5,42)	(0,10)
1995-2005	22 169 208	7%	0,17	0,18	0,02	0,02	0,01	0,02	0,13	0,13	0,05	0,07
2006-2016	41 148 718	10%	0,13	0,14	0,02	0,02	0,03	0,02	0,05	0,06	(1,22)	(0,00)
High rate	50 973 508	10%	0,18	0,18	0,03	0,02	0,04	0,03	0,09	0,06	0,11	0,04
Low rate	12 344 450	8%	0,09	0,11	0,01	0,01	0,01	0,01	0,02	0,05	(2,69)	(0,05)

Notes. *FO* is foreign-owned. *DO* is domestic-owned. *Share of FO* is the ratio of the number of foreign-owned companies to all companies in each country over the 1995 – 2016 period. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. Tax and profitability ratios are calculated for each company and then averaged for all companies per country in the sample. *State Aid* countries are those countries that have received, at any point, a negative decision in an investigation by the European Commission. *EEA* countries are member of the European Economic Area and include the EU Member states (Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) as well as Iceland, Lichtenstein and Norway. *High Rate* countries are those countries with an above sample median statutory tax rate (using the average statutory tax rate over all years in the sample). We also include Switzerland who operates informally as part of the EEA through treaties.

Table 2
Impact of foreign ownership on tax and profitability ratios by HOST country

HOST COUNTRY	N	(1)		(2)		(3)		(4)		(5)	
		<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr
<i>Albania</i>	446	0.002	0.031	0.005	0.103	0.010*	0.091	-0.164	0.153	0.019	0.168
<i>Austria</i>	62,125	-0.009***	0.007	-0.122***	0.016	0.003***	0.037	-0.493***	0.010	0.007***	0.010
<i>Belgium</i>	727,633	0.016***	0.017	0,001	0.099	0.013***	0.093	-0.029***	0.036	0.024***	0.042
<i>Bosnia</i>	163,227	-0.010***	0.048	-0.001***	0.030	0.000	0.021	-0.005	0.014	-0.010***	0.026
<i>Bulgaria</i>	1,341,687	-0.018***	0.097	-0.004***	0.079	-0.003***	0.048	-0.086***	0.012	-0.043***	0.038
<i>Croatia</i>	710,397	-0.037***	0.040	-0.002***	0.052	-0.001***	0.059	-0.064***	0.012	-0.055***	0.045
<i>Cyprus</i>	5,346	-0.026	0.014	0.004	0.135	0.002**	0.132	0.029	0.071	0.069***	0.434
<i>Czech Republic</i>	1,186,199	-0.016***	0.085	-0.001***	0.048	0.001***	0.051	-0.100***	0.016	-0.035***	0.050
<i>Denmark</i>	287,281	0.000	0.015	-0.037***	0.034	0.004***	0.026	-0.341***	0.034	-0.019***	0.016
<i>Estonia</i>	347,045	0.001	0.095	-0.001***	0.127	0.002***	0.159	-0.061***	0.044	-0.040***	0.063
<i>Finland</i>	1,143,942	-0.025***	0.029	-0.012***	0.076	0.001**	0.060	-0.053***	0.054	-0.004	0.031
<i>France</i>	12,488,731	-0.038***	0.089	-0.004***	0.059	-0.002***	0.039	-0.048***	0.011	-0.044***	0.015
<i>Germany</i>	649,888	-0.055***	0.019	0.001***	0.058	-0.000	0.025	0.009***	0.046	0.003**	0.031
<i>Gibraltar</i>	109	-0.238***	0.425	-0.022***	0.350	-0.013**	0.221	-67.910	0.169	-1.778**	0.465

Notes. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. We tabulate only the independent variable of interest, *FO*. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. We estimate regressions by country, including as independent variables, industry and time fixed effects, as well as *Size*, the log of total assets, *Age*, and the log of the number of years the company appears in Orbis beginning in 1995. We use robust standard errors clustered by firm. *** p<0.01, ** p<0.05, *p<0.1.

Table 2 (continued)
Impact of foreign ownership on tax and profitability ratios by HOST country

HOST COUNTRY	N	(1)		(2)		(3)		(4)		(5)	
		<i>Tax / Income</i>		<i>Tax / Revenue</i>		<i>Tax / Assets</i>		<i>Income / Revenue</i>		<i>Income / Assets</i>	
		<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr
<i>Greece</i>	450,030	0.010***	0.047	0.000	0.037	0.008***	0.057	0.013***	0.021	-0.000	0.035
<i>Hungary</i>	2,502,498	-0.020***	0.078	-0.003***	0.073	0.004***	0.050	-0.047***	0.030	-0.069***	0.033
<i>Iceland</i>	80,336	0.004	0.159	-0.009***	0.061	-0.002	0.084	-0.074	0.056	-0.124***	0.048
<i>Ireland</i>	67,459	-0.005*	0.018	0.002***	0.020	0.002***	0.059	0.022***	0.018	0.015***	0.084
<i>Italy</i>	7,912,571	-0.050***	0.017	-0.001***	0.095	0.009***	0.075	-0.031***	0.007	0.003***	0.013
<i>Latvia</i>	450,943	-0.013***	0.024	-0.001***	0.076	-0.002***	0.063	-0.114***	0.022	-0.148***	0.084
<i>Lichtenstein</i>	109	0.118	0.654	0.003	0.404	0.002	0.579	-0.022	0.302	-0.004	0.261
<i>Lithuania</i>	80,907	0.001	0.084	-0.001**	0.086	0.003***	0.093	-0.011***	0.061	0.012***	0.101
<i>Luxembourg</i>	38,052	-0.008	0.017	-0.001	0.037	0.001*	0.042	-0.396*	0.003	-0.004	0.018
<i>Macedonia</i>	102,639	-0.001	0.098	-0.001***	0.085	0.001***	0.038	-0.095***	0.058	-0.075***	0.094
<i>Malta</i>	12,104	0.001	0.048	0.009	0.015	0.019***	0.092	-0.159	0.014	0.058***	0.022
<i>Moldova</i>	290	-0.016	0.071	-0.004**	0.130	-0.001	0.069	-0.173	0.060	-0.030	0.072
<i>Montenegro</i>	22,492	-0.001	0.084	-0.001	0.065	0.000	0.021	-0.046	0.013	-0.176***	0.171
<i>Netherlands</i>	161,781	-0.012***	0.026	0.008***	0.014	0.002***	0.037	0.055***	0.006	0.001	0.011

Notes. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. We tabulate only the independent variable of interest, *FO*. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. We estimate regressions by country, including as independent variables, industry and time fixed effects, as well as *Size*, the log of total assets, *Age*, and the log of the number of years the company appears in Orbis beginning in 1995. We use robust standard errors clustered by firm. *** p<0.01, ** p<0.05, *p<0.1.

Table 2 (continued)
Impact of foreign ownership on tax and profitability ratios by HOST country

HOST COUNTRY	N	(1)		(2)		(3)		(4)		(5)	
		<i>Tax / Income</i>		<i>Tax / Revenue</i>		<i>Tax / Assets</i>		<i>Income / Revenue</i>		<i>Income / Assets</i>	
		<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr	<i>FO</i>	R-sqr
<i>Norway</i>	1,875,450	0.006***	0.058	-0.006***	0.035	0.002***	0.030	-0.077***	0.020	-0.021***	0.011
<i>Poland</i>	564,205	-0.012***	0.019	0.003***	0.061	0.009***	0.110	0.007***	0.057	0.028***	0.107
<i>Portugal</i>	1,778,776	-0.035***	0.030	0.002***	0.108	0.011***	0.113	0.000	0.027	0.020***	0.042
<i>Romania</i>	4,836,737	-0.035***	0.060	-0.001***	0.140	-0.002***	0.113	-0.123***	0.041	-0.107***	0.080
<i>Russia</i>	5,872,620	0.014***	0.039	0.004***	0.055	0.011***	0.048	-0.008***	0.026	0.029***	0.054
<i>Serbia</i>	417,991	-0.010***	0.030	-0.000	0.043	-0.000***	0.020	-0.114***	0.018	-0.058***	0.042
<i>Slovakia</i>	894,737	-0.011***	0.037	0.005***	0.109	0.004***	0.190	-0.038***	0.017	-0.041***	0.050
<i>Slovenia</i>	166,183	-0.011***	0.065	-0.001***	0.054	0.005***	0.060	-0.002	0.065	0.035***	0.101
<i>Spain</i>	7,685,465	-0.019***	0.022	-0.005***	0.040	0.005***	0.033	-0.022***	0.017	-0.002***	0.023
<i>Sweden</i>	3,231,190	-0.014***	0.021	-0.008***	0.101	0.002***	0.135	-0.072***	0.055	-0.027***	0.114
<i>Switzerland</i>	11,726	0.001	0.040	0.001	0.124	0.002**	0.151	0.040	0.012	0.001	0.128
<i>Turkey</i>	121,800	-0.035***	0.016	0.001	0.058	0.003***	0.043	-0.009***	0.023	0.005	0.028
<i>Ukraine</i>	2,369,444	0.003*	0.027	0.002***	0.029	0.008***	0.031	-0.022***	0.024	-0.022***	0.024
<i>United Kingdom</i>	2,495,367	0.004***	0.031	-0.006***	0.111	0.014***	0.303	-0.036***	0.140	0.089***	0.345

Notes. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. We tabulate only the independent variable of interest, *FO*. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. We estimate regressions by country, including as independent variables, industry and time fixed effects, as well as *Size*, the log of total assets, *Age*, and the log of the number of years the company appears in Orbis beginning in 1995. We use robust standard errors clustered by firm. *** p<0.01, ** p<0.05, *p<0.1.

Table 3
Impact of foreign ownership on tax ratios in host country

VARIABLES	(1) <i>Tax/Income</i>	(2) <i>Tax/Income</i>	(3) <i>Tax/Income</i>	(4) <i>Tax/Assets</i>	(5) <i>Tax/Assets</i>	(6) <i>Tax/Assets</i>	(7) <i>Tax/Revenue</i>	(8) <i>Tax/Revenue</i>	(9) <i>Tax/Revenue</i>
<i>FO</i>		-0.023*** (0.000)	-0.014*** (0.001)		-0.000 (0.000)	-0.005*** (0.000)		-0.004*** (0.000)	-0.005*** (0.000)
<i>Size</i>	0.014*** (0.000)	0.014*** (0.000)	0.014*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
<i>Age</i>	0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
<i>StatRate</i>	0.117*** (0.001)	0.118*** (0.001)	0.119*** (0.001)	0.031*** (0.000)	0.031*** (0.000)	0.030*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)
<i>StatRate*FO</i>			-0.034*** (0.003)			0.017*** (0.001)			0.004*** (0.001)
Constant	0.078*** (0.001)	0.075*** (0.001)	0.075*** (0.001)	0.036*** (0.000)	0.036*** (0.000)	0.036*** (0.000)	0.012*** (0.000)	0.012*** (0.000)	0.012*** (0.000)
Observations	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969
R-squared	0.098	0.098	0.098	0.107	0.107	0.107	0.061	0.061	0.061
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample	full	full	full	full	full	full	full	full	full
Cluster	firm	firm	firm	firm	firm	firm	firm	firm	firm

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, *p<0.1

Notes. We estimate the regression using least squares pooling company level data across 42 countries for the period 1995 – 2016. *Tax/Income* is the ratio of tax expense to pre-tax income. *Tax/Assets* is the ratio of tax expense to total assets. *Tax/Revenue* is the ratio of tax expense to total revenue. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Size* is the log of total assets. *Age* is the log of the number of years the company appears in Orbis beginning in 1995. *StatRate* is the corporate tax rate in the host country.

Table 4
Impact of foreign ownership on profitability ratios in host country

VARIABLES	(1) <i>Income/Assets</i>	(2) <i>Income/Assets</i>	(3) <i>Income/Assets</i>	(4) <i>Income/Revenue</i>	(5) <i>Income/Revenue</i>	(6) <i>Income/Revenue</i>
<i>FO</i>		-0.033*** (0.000)	-0.012*** (0.001)		-0.058*** (0.001)	-0.100*** (0.002)
<i>Size</i>	-0.013*** (0.000)	-0.012*** (0.000)	-0.012*** (0.000)	0.005*** (0.000)	0.007*** (0.000)	0.007*** (0.000)
<i>Age</i>	-0.027*** (0.000)	-0.027*** (0.000)	-0.027*** (0.000)	-0.006*** (0.000)	-0.006*** (0.000)	-0.006*** (0.000)
<i>StatRate</i>	0.578*** (0.002)	0.579*** (0.002)	0.582*** (0.002)	0.448*** (0.004)	0.449*** (0.004)	0.444*** (0.004)
<i>StatRate*FO</i>			-0.078*** (0.004)			0.156*** (0.008)
Constant	-0.031*** (0.001)	-0.034*** (0.001)	-0.035*** (0.001)	-0.163*** (0.002)	-0.170*** (0.002)	-0.168*** (0.002)
Observations	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969
R-squared	0.085	0.086	0.086	0.017	0.017	0.017
Country FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Sample	full	full	full	full	full	full
Cluster	firm	firm	firm	firm	firm	firm

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. We estimate the regression using least squares pooling company level data across 42 countries for the period 1995 – 2016. *Income/Assets* is the ratio of pre-tax income to total assets. *Income/Revenue* is the ratio of pre-tax income to total revenue. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Size* is the log of total assets. *Age* is the log of the number of years the company appears in Orbis beginning in 1995. *StatRate* is the corporate tax rate in the host country.

Table 5
Impact of foreign ownership on tax and profitability ratios by PARENT country

VARIABLES	(1) <i>Tax/Income</i>	(2) <i>Tax/Income</i>	(3) <i>Tax/Income</i>	(4) <i>Income/Assets</i>	(5) <i>Income/Assets</i>	(6) <i>Income/Assets</i>
<i>FO_Other</i>		-0.023*** (0.000)	-0.016*** (0.001)		-0.043*** (0.001)	-0.011*** (0.002)
<i>FO_Switzerland</i>		-0.024*** (0.002)	-0.021*** (0.004)		-0.027*** (0.002)	-0.018*** (0.006)
<i>FO_Cyprus</i>		-0.027*** (0.001)	-0.003 (0.004)		-0.039*** (0.002)	0.028*** (0.006)
<i>FO_Germany</i>		-0.012*** (0.001)	-0.014*** (0.002)		0.005*** (0.001)	0.053*** (0.003)
<i>FO_France</i>		-0.028*** (0.001)	0.013*** (0.004)		-0.031*** (0.002)	-0.003 (0.006)
<i>FO_UK</i>		-0.023*** (0.001)	-0.016*** (0.003)		0.023*** (0.001)	0.017*** (0.005)
<i>FO_Italy</i>		-0.020*** (0.001)	-0.008*** (0.003)		-0.007*** (0.001)	0.024*** (0.004)
<i>FO_Luxembourg</i>		-0.049*** (0.002)	-0.044*** (0.005)		-0.031*** (0.002)	-0.082*** (0.008)
<i>FO_Netherlands</i>		-0.025*** (0.001)	-0.011*** (0.004)		-0.022*** (0.001)	-0.018*** (0.005)
<i>FO_Sweden</i>		-0.013*** (0.001)	-0.017*** (0.005)		-0.003 (0.002)	0.068*** (0.007)
<i>FO_US</i>		-0.021*** (0.001)	-0.016*** (0.003)		-0.082*** (0.001)	-0.130*** (0.005)
<i>Size</i>	0.014*** (0.000)	0.014*** (0.000)	0.014*** (0.000)	-0.013*** (0.000)	-0.012*** (0.000)	-0.012*** (0.000)
<i>Age</i>	0.005*** (0.000)	0.005*** (0.000)	0.005*** (0.000)	-0.027*** (0.000)	-0.027*** (0.000)	-0.027*** (0.000)
<i>StatRate</i>	0.117*** (0.001)	0.118*** (0.001)	0.119*** (0.001)	0.578*** (0.002)	0.579*** (0.002)	0.583*** (0.002)

Notes: This table modifies the regressions shown in Tables 3 and 4 by including a foreign parent ownership indicator instead of the general foreign indicator; e.g., *FO_Switzerland* is equal to one for foreign-owned entities whose ultimate parent company is located in Switzerland. (*Results continued...*)

Table 5 (continued)
Impact of foreign ownership on tax and profitability ratios by PARENT country

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Tax/Income</i>	<i>Tax/Income</i>	<i>Tax/Income</i>	<i>Income/Assets</i>	<i>Income/Assets</i>	<i>Income/Assets</i>
<i>StatRate*FO_Other</i>			-0.028*** (0.005)			-0.125*** (0.007)
<i>StatRate*FO_Switzerland</i>			-0.011 (0.017)			-0.030 (0.019)
<i>StatRate*FO_Cyprus</i>			-0.122*** (0.022)			-0.335*** (0.027)
<i>StatRate*FO_Germany</i>			0.008 (0.010)			-0.185*** (0.012)
<i>StatRate*FO_France</i>			-0.145*** (0.017)			-0.100*** (0.018)
<i>StatRate*FO_UK</i>			-0.027** (0.013)			0.020 (0.015)
<i>StatRate*FO_Italy</i>			-0.046*** (0.011)			-0.125*** (0.015)
<i>StatRate*FO_Luxembourg</i>			-0.017 (0.018)			0.172*** (0.023)
<i>StatRate*FO_Netherlands</i>			-0.050*** (0.014)			-0.015 (0.016)
<i>StatRate*FO_Sweden</i>			0.016 (0.019)			-0.265*** (0.024)
<i>StatRate*FO_US</i>			-0.016 (0.011)			0.164*** (0.014)
Observations	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969	63,317,969
R-squared	0.098	0.098	0.098	0.085	0.086	0.086
Country FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Sample	full	full	full	full	full	full
Cluster	firm	firm	firm	firm	firm	firm

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6
The role of government cooperation: EEA versus non-EEA countries

VARIABLES	(1) <i>Tax/Income</i>	(2) <i>Tax/Income</i>	(3) <i>Income/Assets</i>	(4) <i>Income/Assets</i>
<i>FO</i>	-0.023*** (0.000)	-0.019*** (0.002)	-0.033*** (0.000)	0.039*** (0.003)
<i>EAA*FO</i>		0.009*** (0.002)		-0.059*** (0.003)
<i>Size</i>	0.014*** (0.000)	0.014*** (0.000)	-0.012*** (0.000)	-0.012*** (0.000)
<i>Age</i>	0.005*** (0.000)	0.004*** (0.000)	-0.027*** (0.000)	-0.027*** (0.000)
<i>StatRate</i>	0.118*** (0.001)	-0.165*** (0.002)	0.579*** (0.002)	0.632*** (0.003)
<i>StatRate*FO</i>		0.040*** (0.010)		-0.317*** (0.015)
<i>StatRate*EEA</i>		0.449*** (0.002)		-0.079*** (0.004)
<i>StatRate*EEA*FO</i>		-0.090*** (0.011)		0.265*** (0.016)
Constant	0.075*** (0.001)	0.030*** (0.001)	-0.034*** (0.001)	-0.027*** (0.001)
Observations	63,317,969	63,317,969	63,317,969	63,317,969
R-squared	0.098	0.098	0.086	0.086
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Sample	full	full	full	full
Cluster	firm	firm	firm	firm

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. We estimate the regression using least squares pooling company level data across 42 countries for the period 1995 – 2016. *Tax/Income* is the ratio of tax expense to pre-tax income. *Income/Assets* is the ratio of pre-tax income to total assets. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Size* is the log of total assets. *Age* is the log of the number of years the company appears in Orbis beginning in 1995. *StatRate* is the corporate tax rate in the host country. *EEA* countries are member of the European Economic Area and include the EU Member states (Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) as well as Iceland, Lichtenstein and Norway. *High Rate* countries are those countries with an above sample median statutory tax rate (using the average statutory tax rate over all years in the sample). We also include Switzerland who operates informally as part of the EEA through treaties.

Table 7*The role of government cooperation: State aid versus non-State aid (EEA only)*

VARIABLES	(1) <i>Tax/Income</i>	(2) <i>Tax/Income</i>	(3) <i>Income/Assets</i>	(4) <i>Income/Assets</i>
<i>FO</i>	-0.027*** (0.000)	-0.024*** (0.001)	-0.039*** (0.000)	0.025*** (0.002)
<i>Aid*FO</i>		0.024*** (0.003)		-0.582*** (0.004)
<i>Size</i>	0.016*** (0.000)	0.015*** (0.000)	-0.010*** (0.000)	-0.010*** (0.000)
<i>Age</i>	0.004*** (0.000)	0.005*** (0.000)	-0.025*** (0.000)	-0.025*** (0.000)
<i>StatRate</i>	0.301*** (0.002)	0.181*** (0.002)	0.543*** (0.002)	0.616*** (0.003)
<i>StatRate*FO</i>		0.002 (0.005)		-0.069*** (0.008)
<i>StatRate*Aid</i>		0.456*** (0.004)		-0.345*** (0.004)
<i>StatRate*Aid*FO</i>		-0.089*** (0.010)		1.543*** (0.014)
Constant	0.015*** (0.001)	-0.048*** (0.001)	-0.044*** (0.001)	0.008*** (0.001)
Observations	54,246,900	54,246,900	54,246,900	54,246,900
R-squared	0.093	0.094	0.096	0.098
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Sample	EEA	EEA	EEA	EEA
Cluster	firm	firm	firm	firm

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. We estimate the regression using least squares pooling company level data across 42 countries for the period 1995 – 2016. *Tax/Income* is the ratio of tax expense to pre-tax income. *Income/Assets* is the ratio of pre-tax income to total assets. *FO* is an indicator variable equal to 1 for foreign-owned companies, and 0 otherwise. We consider a company foreign-owned if it has at least 50 %, ultimate ownership (direct or indirect), by a parent company located in a different country. *Size* is the log of total assets. *Age* is the log of the number of years the company appears in Orbis beginning in 1995. *StatRate* is the corporate tax rate in the host country. *State Aid* countries are those countries that have received, at any point, a negative decision in an investigation by the European Commission.