The international tax law of Controlled Foreign Corporation rules and their influence on multinational companies' behaviour

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Axel Prettl

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1. Betreuer:	Prof. Dr. Martin Ruf
2. Betreuer:	Prof. Dr. Georg Wamser

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Dekan:	Prof. Dr. Josef Schmid
1. Gutachter:	Prof. Dr. Martin Ruf
2. Gutachter:	Prof. Dr. Georg Wamser
3. Gutachter:	Prof. Dr. Joachim Grammig

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By
Axel Maximilian Prettl
from Düsseldorf

First Adviser: Prof. Dr. Martin Ruf
Second Advisor: Prof. Dr. Georg Wamser

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To my family, friends, and the public.

Contents

Chapter 1

Introduction

Most companies maximize their profits. Governments around the world, usually, tax these firm profits for various reasons. To maximize after tax profits, however, firms often try to circumvent this taxation by various means. The economic and juridical research presented in this dissertation is motivated by major empirical observations about international businesses and their investment behaviour affected by corporate taxation in the last decades.

As any other non-lump sum taxation, anti-tax avoidance laws create distortions and are market-interfering or a constraint for the reallocation of e.g. capital.[1] From a firm's perspective, international investment decisions can be affected by laws such as the three main anti-tax avoidance laws used globally: thin capitalization rules, transfer pricing rules and controlled foreign corporation (CFC) rules. Therefore, on the one hand, these laws could affect the amount of profits or specific capital invested and used in the headquarters country as well as in the countries of the foreign subsidiaries[2]. On the other hand, from a country's perspective, such anti-tax avoidance laws are usually implemented to prevent profit shifting on the part of multinational companies (multinationals) and thus tax base erosion to secure tax revenue and equal treatment of firms. Thereto, multinationals are at best taxed the same as domestic firms to ensure capital export neutrality. However, it is

[1] e.g., Gordon (1986); Slemrod (1990); Nicodème (2009)

[2] e.g., Hines (1999); Huizinga, Laeven, and Nicodeme (2008); Fuest et al. (2013)

often not easily detectable whether or not investments are mostly taken for tax-driven profit shifting purposes, especially in an international context.

CFC rules - the laws of interest in this study - are an important group of these tax avoidance counter measures and, so far, only little is known about them. In general, CFC rules attempt to tax earnings of foreign subsidiaries, repatriated or not, under specific circumstances concerning both the headquarters and the subsidiary abroad, in case these earnings are shifted profits. These laws could become a potential alternative or rather a powerful addition to tackle raising profit shifting by multinationals. But are these legislations effective in counteracting the profit shifting behaviour of multinationals? To answer this question, and to better understand CFC rules on a global scale, this study sheds some light on these legislations in three ways: (1) The CFC laws of 27 countries are depicted and compared in detail in Chapter 2, (2), the influence of these laws on the profit shifting behaviour of multinationals is shown in Chapter 3.1, and (3), the effect of CFC rules on the ownership structure of multinationals is researched by analyzing cross-border M&A activity in Chapter 4. This introduction will continue with outlining the broader goal of my research, then I am highlighting my mutual theoretical and empirical base and used methodology, before providing a brief overview of each chapter, I conclude by noting implications for future work.

The overall goal of my research, initiated with this dissertation, is to contribute to a better understanding of the profit shifting and investment behaviour of multinationals in relation to governmental means of taxing economic performance in an increasingly globally connected business environment. Thereto, I aim at combining the interrelated research areas of economics, law and business administration. Designing a just and efficient corporate income tax system has become increasingly important in light of tightening governmental fiscal constraints and rising inequality. Recent books and studies have illustrated and proven the commonly felt, by academics and non-academics, increase of wealth and income inequality.[3] Usually, businesses are ultimately held by individuals. Therefore, the taxation of corpo-

[3] e.g., Piketty (2014); Zucman (2015); Alstadsæter, Johannesen, and Zucman (2019)

rations, especially in the international context, has a direct impact on the phenomenon of inequality and redistribution. If some corporations, or rather their owners, are capable of avoiding taxes while others are not, national as well as worldwide distortions are growing. Additionally, with regard to redistribution, the (non-) collected taxes can create a huge difference on the fiscal expenditure side as well. As our current world is developing with constantly increasing speed, accompanied by various concepts of taxing multinationals, the main open question is not how this development can be stopped, but how tax authorities can eventually tackle increasing issues like base erosion and profit shifting from high- to low-tax countries. With my research and the results of this dissertation, I provide deep insights on anti-tax avoidance laws and corporate tax avoidance behaviour on a global scale, which hopefully helps policy makers to gain a more solid information base for their decisions.

The underlying data base used in this dissertation is self-collected and comprises data about CFC rules for 61 countries, 27 of which do have these laws. For these 27 countries, I compiled a unique list of 18 distinct but comparable characteristics of CFC rules over a time frame of 11 years from 2004 to 2014. I combined this data set with further balance sheet data of multinational enterprises, provided by the data set ORBIS from Bureau van Dijk, to detect behavioural changes, provoked by the anti-tax avoidance laws. To ascertain these influences, I mostly used a mixture of quantitative, econometrical methods with various modifications: Simple comparison techniques, graphical analyses like event studies and distribution graphs, (fixed effect) ordinary least squared regressions, bunching observations, and (mixed) logit regressions. As all three main chapters of the work at hand are related to the CFC rule data set, the research found in this dissertation is not arranged in a standard cumulative dissertation design. Thus, Chapter 2, is rather written as a descriptive law part than an economic study and describes the data in great detail. The following chapters refer to these descriptions and explanations to prevent unnecessary repetition.

The single-authored Chapter 2, entitled *What are CFC rules and how do they work?*, provides a broad overview of the development and functionality of CFC rules worldwide,

based on the mentioned data set. First, the fundamental function and importance of CFC rules is described, and a brief historical overview is given. An explanation and comparison of the various law components follows in the next section. All important characteristics which are comparable and yet not too country-specific are compared across countries and over time. After the reader is familiar with the compositional details of these laws, a compilation of previous studies about CFC rules is provided to get an even better perspective on what is already known about this anti-tax avoidance legislation. The last section of this chapter shows the very details of the CFC rules as well as their development over time for every single one of the 27 countries.

Chapter 3, entitled *Profit Shifting & Controlled Foreign Corporation Rules*, is single-authored and provides theoretical as well as empirical evidence of the influence of CFC rules on the profit shifting behaviour of multinational companies. So far, no published study exists, which shows the impacts of CFC rules based on such a rich worldwide panel data set on these laws. The literature part of this chapter focuses on profit shifting studies – within this dissertation – to limit repetition. A simple theory part of how multinationals' profit shifting behaviour could be influenced by CFC rules lays the groundwork for the further empirical analyses. Based on these theoretical considerations, the remainder of this chapter is split into two parts to examine two main components of CFC laws: a minimum low-tax threshold and a passive-to-total income threshold, which are part of many CFC laws. The mentioned CFC rule data set is combined with the ORBIS data base, which contains worldwide firm statistics. I estimate the response of financial profits abroad to the low-tax threshold of CFC rules with linear regression models in the first part. I find that CFC rules worldwide lead to a reduction of roughly 19% in financial income in or profit shifting into foreign low-tax subsidiaries. Then I provide graphical evidence of a court decision for European multinationals. The last part looks into bunching of foreign subsidiaries around the second threshold. This depicts specific tax avoidance tactics of multinationals to circumvent CFC rule taxation - at least to some extend.

An arising question is whether one can observe similar patterns of CFC rule influence on foreign direct investment decisions on an even broader scale. This question of deterring effects of the researched tax laws is answered in the following chapter in terms of cross-border mergers and acquisitions (M&A). Chapter 4, entitled *Multinational Ownership Structures and Anti Tax Avoidance Legislation*, includes joint work with Dominik von Hagen. In 2016, the value of cross-border M&A slightly exceeded the value of announced greenfield projects (UNCTAD (2017)), which emphasizes the global importance of M&As. It is known that tax laws in general influence M&A decisions, but we do not know much about the influence of CFC rules as an anti-tax avoidance measure so far. This chapter partly builds on former work by Feld, Ruf, et al. (2016); Arulampalam, Devereux, and Liberini (2019); Voget (2011) and uses, additionally to the CFC rule data set, the Thomson Financial SDC database, which contains worldwide M&A transactions. Our empirical analysis sheds light on the behaviour of acquiring foreign targets from two perspectives: Do CFC rules influence, (1) where the acquirer is located, and (2), where the target is located. In a third reassuring approach, we research the general impact of CFC rules on the direction of M&A. The result section begins with first descriptive graphical evidence. Then, we show that the probability of an acquirer being from a particular low-tax country is sensitive to the magnitude of potential taxes under CFC rules. Generally, our results seem to be larger and more robust with regard to the impact of CFC rules for the target location decision than for the question where the acquirer is located. Thus, these results point in the direction that the initial idea of CFC rules, to prevent multinational profit shifting behaviour, is indeed more affected than interfering real economic investments abroad. Third, we show that CFC rules alter the acquirer's choice of the targets' locations. Fourth, for a given pair of merging firms, the identity of the acquirer versus the target is sensitive to the existence and potential magnitude of taxes under CFC rules. Altogether, our study shows that for affected acquirer countries, CFC rules lead to less M&A activity in low-tax countries due to a reduced ability to shift income. The magnitudes of the effects we find are rather low, for example, a 10 percentage

point increase in additional CFC rule taxation leads to a 0.5% lower likelihood that an acquisition takes place. This rather contradicts common lobby claims.

This dissertation analyzes the specifications and implications of CFC rules around the globe in great detail. Especially the influences of these laws on multinational firm behaviour. My findings depict the various CFC rule legislations and indicate that, in general, these anti-tax avoidance laws are capable of curbing profit shifting of multinationals globally. On the other hand, I provide findings on how these laws are circumvented to at least some extend. A next interesting step would be joint research about the three major anti-tax avoidance laws, potentially even include IP box regimes, or find ways to quantify law strength and make them comparable, to provide policy makers with even better tools for their work to ultimately curb the BEPS attitude of multinationals. Nonetheless, I hope that the novel insights and newly provided data sets contributed by this dissertation, will help policy makers and legislators in various countries to gain a deeper understanding of CFC rules and the influences of these laws on multinationals' behaviour to develop more suitable laws and curb profit shifting of multinationals efficiently.

Chapter 2

What are CFC rules and how do they work?

International tax laws for corporations are quite complex in general and on top CFC rules are quite diverse between countries. So far, existing studies have researched one specific CFC rule or compared two countries' legislations only, except for one economic study by Voget (2011) about headquarters effects of CFC rules for a cross-country comparison for one year. Therefore, this chapter explains the diverse CFC legislations and compares CFC laws from 27 different countries worldwide, concerning their various characteristics over time. In Section 2.1, the fundamental functionality of CFC laws is explained. Section 2.2 gives a much more detailed description and comparison of the various characteristics of CFC laws, which is followed by an overview of published literature on CFC rules in Section 2.3. Lastly, Section 2.4 gives a detailed description of the CFC rule development for all 27 countries, which are researched in the dissertation at hand.

2.1 Fundamental functionality and the importance of CFC rules

New and old growing multinational company networks relocate activities across countries. Due to inter-company transactions in these networks across country borders, different laws and tax systems are strained. For smart firms this globally interconnected reality provides opportunities for legal tax planning.[1] After offshoring (e.g., Blinder (2006)), a further step in the profitability process is becoming more and more attractive, especially for very large corporations: Tax savings. However, these techniques are usually less complicated, as neither the full production process nor vast amounts of tangible assets have to be shifted to low-tax countries. Instead only the official income has to be shifted to benefit from tax incentives or lower effective income tax rates abroad (e.g., Huizinga and Laeven (2008)). The ways to do so are manifold whereas laws to counteract profit shifting behaviors are scarce (e.g., Gravelle (2009)). The line between fraud and technically legal operations are slim and for the public moral plays often a role (e.g.,

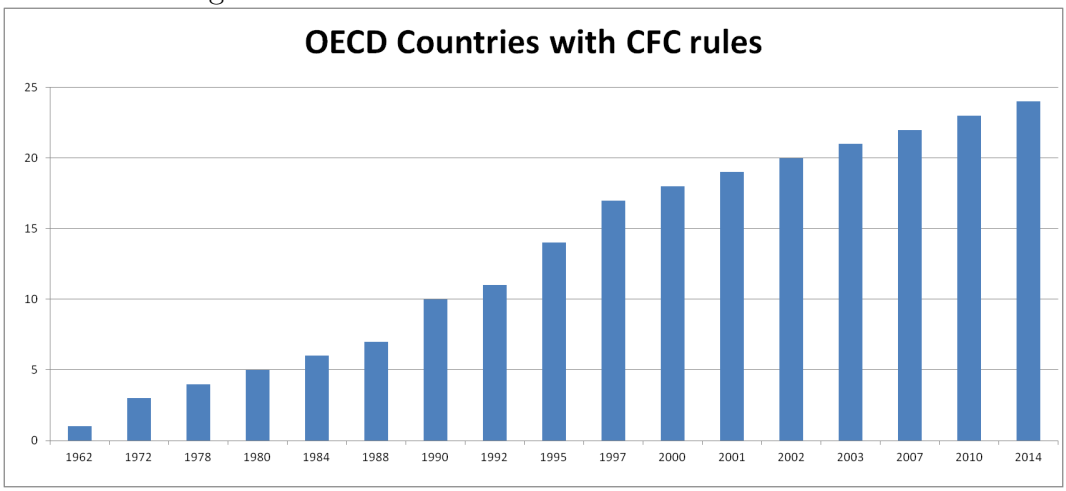
As countries observed that companies exploited these tax planning activities and tax avoidance became a large-scale problem, new laws were installed and old ones were adjusted. This process is still continuing.[2] Not only due to interest reasons can it be very profitable for multinationals to redistribute this income back to the mother country not immediately but later in time. However, at this point CFC rules are coming into action: CFC rules apply under specific conditions, explained in detail in this chapter, to at least some parts of a subsidiary's profits whether they are repatriated or not. In addition, CFC rules apply to income which failed to get taxed, for example, due to problems with arms-length pricing or other internal dept or profit shifting issues. CFC rules affect the whole firm structure,

[1] Not illegal tax evasion; Schäfer and Spengel (2010); Slemrod (2007); McGee (2012)

[2] For instance "thin capitalization rules" should regulate the dept-equity-ratio of multinationals or "transfer pricing regulations" try to regulate the intra-company prices, which both could be used for income shifting and therefore tax reductions. Firms not only use these but other methods and let the income arise in low-tax countries, for example by using financing methods, special services, royalty payments, or other capital movement methods in foreign subsidiaries to shelter income.

not only specific profit shifting methods. Therefore, and if they can accomplish what they are enacted for, CFC rules should be part of a country's tax legislation to counteract base erosion by profit and internal dept shifting of multinationals. However, implementing them is rather problematic.[3] The first worldwide CFC rules were implemented after the Second World War instigated by the rising internationalization of companies and their evolution into multinationals. However, only in the last 20 years, CFC rules have become particularly important given the focus of multinationals to avoid high tax rates in their own home countries and how comparably easy it is nowadays to shift profits.[4]

Figure 2.1: OECD countries with CFC rules in force



Notes: Own source. This graph shows the increasing implementation of CFC rules in OECD countries.

Generally, CFC rules are receiving more and more attention. Many countries worldwide have implemented or strengthened them in recent years or plan to do so. One of the first multi-country attempts started by the OECD Commission in 1998 finally resulted in one of the main action points in the BEPS plan of the OECD (OECD (2013)). Additionally, the EU Commission recently started the Anti Tax Avoidance Directive (ATAD) which contains five legally-binding anti-abuse measures amongst others, CFC rules, which all EU Member

[3] Ruf and Schindler (2015); Haufler, Mardan, and Schindler (2018); Kane (2013); Rust (2008); OECD (2015a); Weichenrieder (1996)

[4] e.g. Dharmapala (2014) with an overview; Krautheim and Schmidt-Eisenlohr (2011); Huizinga and Laeven (2008); Redmiles and Wenrich (2007) for the USA p. 133; Schneider (2004)

States should apply against common forms of aggressive tax planning as of January 1st 2019.[5] CFC rules are composed differently across countries even though they aim at the same goal: to prevent profit shifting in the first place. The various differences shown in this chapter point out the complexity of CFC laws and that, for broad comparison, it is not sufficient to focus on one aspect of these anti-tax avoidance legislations only.

In this chapter, explanations and descriptions of the various key requirements of CFC rules and their development are given. [6]

One general problem of researching the influence of CFC taxation could be the existence of tax treaties between countries.[7] If two countries have signed such a tax treaty, the taxation of the foreign country is influenced by that fact in most of the cases. CFC laws are usually enforced anyway[8], and there are only a few examples where the CFC rule concerned subsidiaries' are explicitly excluded from tax treatments. Therefore, the following country comparison with the focus on the design of CFC rules does not take tax treaties into account. The banking and finance sector has done a good job in the last couple of decades to get special treatment within laws and now has the same stance in many CFC rules. Even though firms in this sector are also affected by different taxation and try to avoid higher taxes, they are often excluded from CFC rules and, therefore, are excluded in this study.[9]

From a comparative law perspective, one can generally distinguish between two main CFC treatment requirements, usually derived from historical factors of tax systems: First, concerning the country *where* the subsidiary and the profits are located - *jurisdictional approach* - and, second, regarding aspects of the subsidiary itself and specifically, the raise

[5] Building on Directive (EU) 2016/1164.

[6] In the following with "interests in a foreign entity" all possible interests like shares, voting rights, economic interests, influence trough specific persons, and more are meant. Unfortunately, there was no possibility to extract the detailed specification concerning this issue for all observed countries over time from the data sources and compare them on a decent level. Additionally, the later on used micro-level data does not offer detailed differentiation on that aspect.

[7] e.g., Oguttu (2009); Marques and Pinho (2014).

[8] More details about this topic has Kuźniacki (2015).

[9] e.g., Merz, Overesch, and Wamser (2017) have shown location choices of financial sector FDI due to tax and regulation policy or Andries, Gallemore, and Jacob (2017) the influence of corporate taxation on bank transparency.

or shift of *passive income abroad - transactional approach*. The rationale of the first system (jurisdictional approach) is to include income derived by foreign entities located in low- or non-taxation jurisdictions into taxation at the parent level to avoid the artificial transfer of income to tax havens or generally lower-taxed countries corporate-wise. While this approach is mainly an anti-abusive rule, the transactional approach has an anti-tax-deferral objective, aiming to achieve capital export neutrality. However, there is no pure form of just one approach in CFC laws anymore.

Therefore, it's not sufficient to focus on one of these characteristics alone if one wants to shed light on the world of different CFC rule settings: all characteristics and thresholds influence the behavior of multinationals concerning their profit shifting strategies substantially and in different ways. Coming from the law perspective, the two main important requirements, besides the control requirement, are the minimum tax threshold and the passive income threshold which are described below as well as in more detail in the following section.

Minimum Tax threshold

This is the most common form of the jurisdictional approach: Whether a foreign country is considered as a low-tax country is determined by a so-called minimum low-tax threshold. In many of the observed CFC rules, such a minimum tax threshold is specified. If the foreign (effective) corporate income tax rate is above this threshold, the country is counted as a safe harbor and not as a low-tax country. Therefore, the CFC law taxation consequences do not apply and vice versa. Some laws determine a fixed rate as the threshold, others bind these regulations to a percentage of their own corporate income tax (CIT) rate.

Passive income threshold

The transactional approach contains regulations on the relative amount of passive income of a firm: The passive or financial income in the foreign subsidiary has to be below a certain

amount or percentage of the total income. If the passive income in a foreign subsidiary is below a specific percentage of total income, the CFC rules of the corresponding countries do not apply. Sometimes the passive income threshold is referred to as *free harbor rule* because it allows certain behavior, specifically accruing passive income in foreign low-taxed subsidiaries, up to a specific relative border.

Additionally to these two main characteristics, this study uses the following law distinctions as well: control of a foreign entity, blacklists, whitelists, special European Economic Area (EEA) exemptions, different tax bases, shares to hold to get affected as a single owner, use of effective tax rates, active business tests and special inclusions of trust, funds or other types of foreign entities. All CFC law characteristics are described in more detail in the following section.

Consequences of being a CFC

These two requirements, as well as the further requirements, have to be fulfilled so that an enacted CFC law takes effect for the owner(s) of a foreign entity. If that is the case, then at least parts of the foreign subsidiary's income will be taxed in the parent country, usually at the parent country's tax rate as *deemed redistributed income*. Thereby, the effective CIT rate for the overall company income increases.

By setting up such thresholds, these laws constitute more a boundary to alter the behavior of multinationals than a huge tax income garner for the governments. This follows from huge differences in taxation of foreign profits in the case where companies stay slightly above or below these limits and from the fact that companies try to stay on the right side of these thresholds. It is shown in many ways that thresholds, in general, alter the behavior of subjects which are influenced by them, but not necessarily in an intended way.[10] Most of these studies are researching the behavior of individuals and the study at hand is one of the first ones to use these methods for large company conduct research. One can easily expect

[10] e.g. Kleven (2016) with a good overview.

that firms try to avoid taxation by CFC rules by using the given thresholds in the laws and requirements for their foreign entities to *not* count as CFC subsidiaries. But are they trying this on a global scale? This question and the questions if these laws work for the purpose they are designed for and if they have possible negative externalities are not answered yet and examined in the following chapters.

2.2 Explanation and comparison of CFC rule characteristics and requirements

In this chapter the different CFC rules of 61 countries in the time span between 2004 and 2014 are compared. To begin with, only the observed countries which do have a CFC rule - that are 27 - are compared [11]

Minimum low-tax threshold - further details

Table 2.1: Minimal foreign CIT rate threshold comparison

	fix threshold countries		relative threshold countries	
	absolute	relative	absolute	relative
percentages	18.49%	63.64%	18.48%	66.65%
range	10% - 25%	49% - 85%	10.67% - 36%	50% - 90%

For this comparison, statutory corporate tax rates are used only. There are two ways to identify such a low-tax threshold. The first group of countries determines a fixed percentage: Denmark until 2007, Germany, Hungary since 2010, Israel, Japan, South Korea and Turkey. The other larger group of remaining countries defines a relative percentage of their own CIT rate. As one can see in Table 2.1 the resulting absolute percentages set as thresholds are very similar in both groups, and amount on average to around 18.48%. In relative terms, the fixed-group is on average, with 63.64%, more than three percentage points below the group

[11] Excluded is Estonia as their CFC legislation affects only individuals and no corporations.

with relative thresholds. The range in both measures is broader in the relative-group. If the United States, as an extreme outlier, is excluded, the absolute rate for the relative group reduces to 17.01% and the relative percentage number levels to 64.49%. As one expects, the absolute numbers are considerably lower if the countries are sorted in low-taxed/high-taxed country groups. Countries which have absolute thresholds below or equal to 15% are: China, Greece, Hungary, Iceland, Israel since 2014, Korea, Lithuania, Portugal since 2007, Sweden since 2009, and Turkey. By contrast, no threshold is implemented in the CFC rules of Australia, Brazil, Canada, Denmark since 2007, Italy before 2009, New Zealand as well as the UK after 2012 (but quasi, in one of the "gate tests"), and CFC taxation is conditional on other terms.

Figure 2.2: Tax Thresholds Over Time

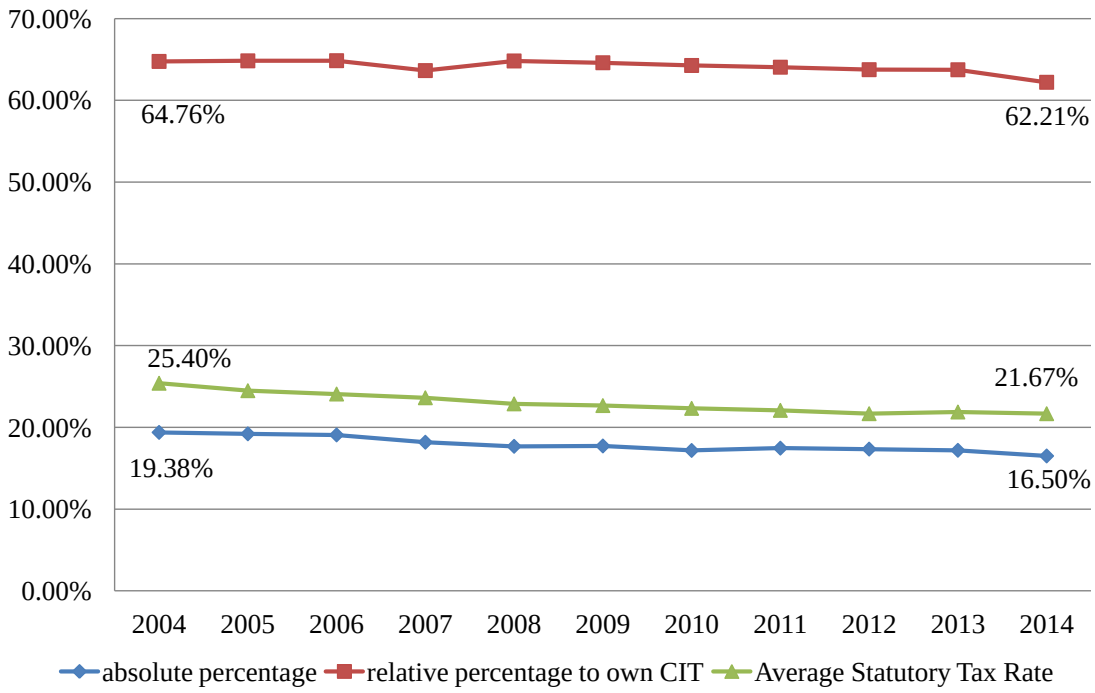


Figure 2.2 shows the development of the average tax thresholds over all countries in absolute and relative terms over time and, additionally, the average CIT rates per year. The results for the average tax rate are in line with Alexander, Vito, and Jacob (2016).

Both threshold lines decline around three to four percentage points over the observed time span. This effect is mainly driven by the bigger group of relative tax threshold definers and their declining home CIT rates over time. But also some of the fix tax rate definers are lowering their thresholds in the observed time span, most likely due to the worldwide decline of corporate income tax rates and tax competitiveness as described above. The average statutory corporate income tax rate in all observed countries and the shown time span declines from 25.40% to 21.67% by nearly four percentage points.

Passive income threshold - further details

As noted above, many countries have passive-to-total income thresholds which are set differently. For the countries considered, these are: 5% for Australia, New Zealand and the USA; 10% for Germany; 15% for Spain; 20% for Mexico; 25% for Portugal and Turkey; 30% for Greece and 50% for China, Denmark since 2007, Estonia since 2011, Israel and Italy since 2009. Especially in the case of numbers below 15%, they are often referenced to as free harbor rule because they allow certain behavior up to a specific line. A comparable requirement are the so-called "active business exemptions", which exist in some countries additionally. However, these requirements are stated in words rather than numbers. They exempt certain CFC's if they fulfill some real economic activity requirements, which differ across countries and often request verifiable real economic activity. Such special exemptions exist in: Australia, Canada, Finland, France, Greece, Hungary, Italy, Japan, New Zealand since 2009, South Korea, Spain and the United Kingdom (UK). Usually these exemptions use words like "mainly active income" or something alike which then again is broadly understood and used as a 50% barrier even in many law guidelines. Due to these exemptions, it is possible for multinationals to have a subsidiary in a low-tax country and still shift profits to this entity without getting taxed by CFC rules. Thereto, they shift income until they are slightly below the mentioned thresholds. The underlying question if that is actually the case is further researched below. A crucial fact here is that these companies are easily able

to manipulate their books in such a way as to shift as much profit as possible while staying below the relative thresholds.[12]

As a further specialty of this threshold, additionally, in nearly all EU countries' CFC rules do not apply to subsidiaries in the EEA/EU if some similar requirements ("mainly active income") of the subsidiary are fulfilled. Many of them were implemented after the Cadbury-Schweppes-Case of the European Court of Justice (ECJ) in 2006.[13] These passages are officially implemented in the CFC legislation of: Finland since 2009, France, Germany since 2007, Greece, Hungary since 2012, Iceland, Italy since 2009, Norway since 2008, Portugal since 2012, Spain, Sweden since 2008 and UK since 2006. And even if the law was implemented later in most of the countries, companies were de lege forbidden but de facto allowed to use this exemption right after the ECJ case. These requirements usually include a generalized "mainly active activity" passage, which requires the foreign subsidiary to be mainly of active nature to not be affected by CFC rules.

Control threshold

As the name CFC legislation says, the foreign subsidiary has to be controlled by the owner in the home country. This defines the third main requirement for CFC rules. In most cases this control is defined by an ownership threshold of 50% or by an imprecise phrase like "exert influence due to contracts", "dominant influence" or "have to control".[14] Deviant from this definition are eight countries: Canada where 10% of interests are deemed sufficient to control the foreign subsidiary; Denmark before 2008 where also 25% of shares are sufficient; France before 2005 where only 10% of control was enough; In Italy a rule for "related entities" is included in the CFC law where 20% of profit entitlements are enough to count as an owner;

[12] Anecdotal evidence: Many accountants and researchers in the accounting area persuaded me that firms or rather their accountants are easily capable of trimming the profits in subsidiaries to a desired outcome. Additionally there are studies which show exactly this capability: e.g., Collins and Shackelford (1997), Burgstahler and Dichev (1997), or Badertscher, Phillips, et al. (2009)

[13] European Court of Justice (2006)

[14] As described above for this survey no distinctions are made between different possibilities of ownership like voting rights, shares, or interests.

The Mexican CFC rule does not foresee any precise percentages in terms of control but only states phrases about "linkage between parties" or "effective control"; In South Korea until 2006 also "controlling" or holding more than 20% of the voting power was sufficient, afterwards 20% of general controlling power and since 2012, 10% is enough to deem the foreign subsidiary as controlled; The Swedish CFC rules set the control threshold at 25%; Until 2010, a control of 1% was enough for an individual in Hungary, whereas now a company (1) has to control 25% or in the case of an individual (2), 10% control or a dominant influence or the majority of income of the CFC derives from a Hungarian source are required. These thresholds mostly contain indirect control through other related parties. In eight countries a threshold for single entity control exists in addition: If in Australia one resident entity controls a foreign subsidiary with at least 40% or "de facto", the subsidiary is deemed to be controlled; Until 2007, 25% control by one entity were enough for the subsidiary to count as a CFC in Denmark; In France 10% of control, held alone, are sufficient; The Hungarian CFC law contains an alone-control threshold of 25% since 2010; In Israel holding 40% of control by one entity is sufficient; The Portuguese CFC rules take effect if one resident entity controls 25% of the foreign subsidiary; In South Korea 20% of alone-control was sufficient until 2006; With some restrictions, 40% controlled power by one entity are sufficient in the UK.

In the CFC rules of nearly all countries affected, a minimum interest that an owner has to have in foreign subsidiaries to get affected by this law exists in addition. This is especially of interest if an entity controls a foreign subsidiary jointly with other companies. Therefore, in Canada and Germany, it is sufficient if one entity has at least 1% of interests in the foreign subsidiary; In France since 2005 and in Japan until 2010, 5% were enough to get texed on the bases of CFC rules; A resident entity in China, Estonia, Finland until 2009, Hungary since 2010, Israel, Japan since 2010, Lithuania, New Zealand, Portugal and the USA is affected by CFC legislation, if it has an interest of 10% or more in the controlled foreign entity; In Finland since 2009 and in the UK, this threshold is at 25%.

Tax base

Another important aspect of CFC rules - which differs across countries - is which part of the subsidiaries' income they affect. The income taxed if the CFC rule takes effect, that is the tax base, differs mainly in two regards. In six of the observed countries, only passive income of the foreign subsidiary is the tax base for CFC taxation: Australia, Canada until 2009, Germany, Israel, Lithuania, Spain and thr UK since 2013. The other group of 13 countries denotes the full (pro rata) income of the foreign subsidiary as tax base: Brazil, China, Denmark, Estonia, Finland, France, Iceland, Italy, Japan, Norway, South Korea, Sweden, Turkey, the UK until 2013 (but with many exemptions). The only countries which changed the tax base of their CFC laws significantly in the observed time span were Canada, Hungary and the UK. As a third category, one could think of countries determining the tax base in between these two definitions, that is all income with big exemptions or passive income with inclusions, i.e. Canada since 2009, Mexico, New Zealand and the USA. As a special case, Portugal and South Africa use the after tax income of the foreign subsidiary as CFC rule tax base. Until 2010, the Hungarian CFC rules denoted only dividends for individuals as tax base and added, under some restrictions, qualifying undistributed after-tax profits, capital gains, liquidation gains, consideration paid to a CFC and further measures as tax base for companies as well.

Effective tax rate

If a described minimum tax threshold is defined, it can make a huge difference if this rate is the statutory tax rate or an effective one. All countries prescribe the use of an effective tax rate except Denmark until 2008 and Lithuania. These two countries aim at the foreign statutory corporate income tax as written in the law. The usage of effective CIT rates was not common in every CFC law before the observed time span and was used by countries to attract firm investment - or more passive income - and by corporations as a tax loophole. How exactly "effective" is measured differs across countries

Taxing Individuals and Corporations

Nearly all of the countries considered include a taxation of individuals; only Turkey, the UK (however, another similar individual tax law is implemented) and until 2006 South Korea do not tax any income via CFC rules if the owner of the foreign subsidiary is a resident individual person. If the owner of the CFC is a company, Estonia does not tax any income of that foreign subsidiary via CFC rules. Yet, other anti-avoidance rules for companies are implemented in the Estonian tax law. In Hungary, only Hungarian individuals and no companies as owners were considered under the CFC regime until 2010.

Legal form of the foreign subsidiary

Every observed country includes the income of corporate foreign entities in the CFC rules of its tax laws. In many jurisdictions, however, hybrid or special types of legal business forms are available, which are not necessarily considered as companies in legal terms.[15] Most of the observed countries try to catch these legal forms also in their CFC rules. In the following countries which do not or only to some extend include specific non-corporate legal forms into CFC laws are outlined. In the CFC rules of Australia, other than corporate foreign entities are not explicitly concerned but extra foreign investment funds (FIF) and deemed present entitlement rules existed until 2010. Since then these rules were planned to be replaced with new anti-avoidance rules which did not happen until the end of 2017. In addition, transferor trust rules are enacted in Australia. The Chinese CFC rules do only cover enterprises and do not specifically concern non-corporate legal forms of the foreign subsidiary. Denmark implemented an extension into the CFC rule so that Permanent Establishments are concerned too since 2007. Also, some special investment companies are taxed in another way. In Estonia, only corporate foreign entities are concerned with CFC rules. Some minor regulations catch a few other foreign investments to be taxed in Estonia. Since 2009, foreign

[15] e.g., Permanent establishments, Partnerships or Trusts. In the following no further specification is made due to comparability reasons. Also, in the various laws the distinction is often not clear.

subsidiaries from a Finnish resident entity are concerned by CFC rules as well, if they have a non-corporate legal form and, in addition, general anti-avoidance rules apply. In Hungarys CFC rule, a foreign subsidiary is defined as a foreign person or its permanent establishment abroad until 2010, and afterwards, as a foreign person or foreign resident. In the CFC rules of New Zealand, non-corporate entities are not explicitly concerned but like in Australia, a FIF regime exists to cover other investments abroad. Turkey does not explicitly include non-corporate foreign entities in their CFC rules. All in all, one can say that most countries try to catch as much entity forms as possible and modify their CFC laws accordingly.

White list and Black list

Some of the observed countries enacted a black or white list, which contains foreign countries in which subsidiaries are *certainly* or *certainly not* affected by CFC rules. Italy was the only country with regulations based entirely on a black list and without any low-tax threshold until 2009. Other countries implemented a black list in addition to their tax thresholds, in particular in Finland since 2012, Greece with its CFC rule implementation in 2014, Lithuania, Mexico, Norway and Portugal. Contrary, a white list exists in the CFC laws of Australia, China, Estonia (mainly EU and tax treaty partners), Hungary, Lithuania, New Zealand (since 2009 only Australia), Norway and Sweden. Often the white list does not provide blanket protection for potential CFCs. Instead it is linked to some preconditions like real business presence or further subsidiaries in non-white list countries.

Tax credit

Generally, all countries provide a tax credit with different values for paid taxes from the foreign subsidiary. Sometimes little, and very specific restrictions exist. The only exemptions are Hungary and Iceland which do not have specific tax credit provisions, and Spain where the foreign tax is only deductible.

All the mentioned characteristics are backed up by, substantiate or amend the recent work of the OECD (OECD (2015a) respectively. The policy considerations and objectives of the different CFC rules described, and the characteristics used in this work are consistent with those used by the OECD. As mentioned, due to data and practicability reasons not exhaustively all CFC rule characteristics discussed in the OECD work are captured in this comparison at hand.

2.3 Literature on CFC rules

All in all, only few studies have researched the impact of CFC rules, although these laws get increasingly noticed and more importantly evaluated. Studies which are not focused on CFC rules, use a simple CFC rule dummy for checking whether an enacted CFC rule in the parent country has an effect on their baseline regression results.[16] Other work, which is focused on CFC legislation, let the CFC dummy variable depend on one characteristic like the low-tax threshold (Ruf and Weichenrieder (2012)) or two characteristics like the low-tax threshold and a de-minimis rule (Egger and Wamser (2015)). Ruf and Weichenrieder (2012) show that the German CFC legislation prevents passive investment in foreign low-tax countries and Egger and Wamser (2015) are able to show that the German CFC law does have a distorting effect on real foreign direct investments (FDI) if the foreign subsidiary is treated as a CFC. A third paper by Ruf and Weichenrieder (2013), shows that the Cadbury-Schweppes-Case of the ECJ (European Court of Justice (2006)) leads to more passive assets in foreign low-tax subsidiaries of German multinationals within the EEA. In a recent working paper Albertus (2018) shows that foreign CFC rules do have an influence on the real economic activity of foreign owned U.S. subsidiaries, especially the investment into low-tax subsidiaries further down the shareholder chain is analyzed. These few analyses and others observe the effects of one country legislation only and/or CFC rules serve as a robustness check with a

[16] Lohse and Riedel (2013); Keller and Schanz (2013)

simple dummy.[17] In addition, historical and law focused analyses of CFC rules are about one country or the comparison of two CFC legislations over time.[18] Kane (2013) analyzes the foundations of CFC rules in comparison to transfer pricing rules, and suggests to define the core problem one is trying to fix first, and then examining the actual fit between the proposed solution and the purported problem afterwards, to gain better results and clearer legislations. Two law studies try to answer the question how "good" CFC legislation should be constructed from the juristic perspective.[19] They show that it is possible to achieve a second best solution at least. In a study from Avi-yonah and Halabi (2012), the U.S. CFC rule, namely Subpart F income, is compared to other OECD CFC legislations and Avi-yonah (2017) wrote recently about the original intend of the Subpart F income legislation, and how far the current version of the law is away from that intention. This became more interesting since the mentioned GITLI provision in the U.S. In a recent theoretical work, Haufler, Mardan, and Schindler (2018) show under which conditions CFC rules should play a role in an optimal tax mix including profit shifting behaviour of multinationals, also including thin capitalization rules. Further recent research, as the work from Dowd, Landefeld, and Moore (2017) about profit shifting in the U.S. including calculated elasticities, is supported by the results on CFC rules of the study at hand.

One study found in a major journal, which analyzes comparable CFC legislations of various countries empirically in detail is Voget (2011); using the fact of relocating headquarters. For this study, one of the main explanatory factors are CFC rules. Thereto, the author observes the CFC legislation for 22 countries in year 2008, including seven characteristics. In the baseline estimations, only a CFC dummy variable is used; if the parent country does have a CFC rule enacted or not. Later, four different characteristics are included and estimated in robustness checks. Significance is shown for one of the four CFC characteristics only, which are established as dummy variables. This significant variable is comparable

[17] e.g., Altshuler and Hubbard (2003); Haberly and Wojcik (2015); Griffith, Miller, and O'Connell (2014)
[18] Avi-yonah and Halabi (2012); Castro (2013); Redmiles and Wenrich (2007)
[19] Pinto (2009); Rust (2008)

to the passive-to-total income threshold, analyzed in the study at hand. A second study on comparing CFC rules is from Bräutigam, Spengel, and Streif (2017), who show that the introduction of the mentioned Cadbury-Schweppes-Case of the ECJ European Court of Justice (2006) led to more profit shifting into low-tax countries within the EU due to more lenient CFC rules for EU member states. Further on, they provide evidence that the following 'IP box regime' introduction, which allows specific tax reliefs for research and development, patents and following royalty payments, led to even more tax distortions within the EU. Thereto, the authors used an extension of the Devereux-Griffith methodology (Devereux and Griffith (2003)) for the calculation of effective average tax rates and implemented the two varying laws. One further study from Markle and L. Robinson (2012), which is not published in a journal yet, shows the importance of CFC rules and their different impacts on multinational firm behaviour concerning the use of tax havens. Additionally, this study investigates different characteristics of CFC legislations in more detail. The authors develop a 9-point scale of inclusiveness of CFC rules, which is larger if the scope of income, caught by the law and taxed, is wider. As law data base, the CFC rules of 18 countries of year 2011 are used. One key finding is that effective CFC rules are a preferable instrument to prevent firms from using specific tax havens, than higher withholding taxes on interest or the taxation of dividends.

Weichenrieder (1996) uses a theoretical model to show the impact of anti-tax-avoidance provisions on the size and the growth of foreign subsidiaries. He extends the study of Hines (1994) and shows that such rules can, unexpectedly, lower the cost of capital of foreign subsidiaries, and - specific restrictions provided - can increase the subsidiaries' size. These anti-tax-avoidance provisions are basically CFC rules and their passive-to-total income threshold, which are empirically researched in the study at hand.

Another recent working paper from Clifford (2017) shows similar results as presented in the first part of Section 3.6. The second part of Clifford (2017) tries to answer the question about location choices of multinational greenfield investment, which are possibly influenced

by CFC rules. Although, answered with a different data set and empirical method, the results are comparable to the ones shown in the fourth baseline regression of Table 3.1 in Section 3.6 and the whole Chapter 4.3.4. These results indicate, that multinationals with headquarters in a CFC rule country prefer to locate their subsidiaries in countries with CIT rates higher than the low-tax threshold of the according CFC rule but lower than their own home CIT rate. In this case they are still able to shift profits for a lower overall taxation.

This dissertation adds to the rare existing literature and knowledge about CFC legislation, by depicting different CFC rules from various countries all over the world and over time. Such a broad study and comparison of these increasingly important laws is not published yet, to the best of my knowledge. Using different data bases, various graphical and econometrical methods, I show the impact of CFC legislation on passive income abroad, and therefore the profit shifting behaviour of multinationals. Additionally, this dissertation provides theoretical thoughts of profit shifting behaviour of multinationals and its limitations by CFC legislation. These thoughts are researched empirically to compare the behaviour of firms on a tax notch, and show compelling evidence of behavioural responses of companies around the globe in Chapters 3 and 4.

2.4 CFC rules per country

This section presents a detailed description of CFC legislations and their development from 2004 to 2014 for every country researched in this dissertation. For every country a short and summarizing table of CFC law differences between 2004 and 2014 is provided.

CFC rules in Australia

The CFC rule in Australia (Part X of ITAA 1936) exists since 1990. No bigger CFC law amendments happened in the observed time span for the monitored characteristics. As of

the end of 2017, the Australian government assess' the OECD BEPS review to implement new recommendations.

Table 2.2: CFC rules in Australia over time

	2004	2014
tax base	pass inc	pass inc
min. control	50%	50%
min tax absolute	none	none
min tax relative	none	none
black-/ whitelist	no/yes	no/yes
active business test	yes	yes

An Australian shareholder may be liable to tax the passive income ("attributable income") of a foreign subsidiary if, generally, one requirement is fulfilled. The subsidiary has to be controlled by Australian attributable taxpayers. To control a foreign subsidiary it is necessary to hold, directly or indirectly, together with four or fewer Australian residents more than 50% of interests in the CFC, or control effectively the CFC respectively. The requirement is also fulfilled if one Australian entity holds 40% or more of interests. Also, income can only be attributed if the Australian resident is an attributable taxpayer (interest of at least 10%). No low-taxation threshold exists. The attributable income may vary, depending on the country of the CFC (whether it is listed or not). Generally, active income is not attributed but only certain passive income. Nevertheless, if more than 5% of a subsidiarys turnover is of passive nature, a save haven active income test is failed and results in the attribution of "adjusted tainted income"/passive income to the home tax base, as long as the CFC is located in an unlisted country. If the subsidiary is located in a listed country, the attributable income is smaller. A tax credit for foreign paid taxes and minor other tax decreasing specifics may be granted. No proper black- or whitelist exists. In addition to the CFC rule, a Foreign Investment Fund rule applies to capture special dividends and other payments.

CFC rules in Austria

In Austria, no actual CFC rule exists. However, there are rules (Art. 10(4)-(6) of the CIT Code) under which the undistributed income of a foreign company may be taxed at the Austrian shareholder level on a pro rata basis, if the subsidiary is characterized as a foreign real estate or investment fund. These rules prohibit the tax-free repatriation of shifted profits from the foreign subsidiary back to an Austrian resident and are in the spirit of CFC rules.

CFC rules in Brazil

The CFC legislation in Brazil (Provisional Measure No. 2,158-35/2001 and Normative Instruction No. 213/2002) does exist since 1995 but became effective since 2001. No bigger CFC law amendment happened in the observed time span for the monitored characteristics but the Brazilian government changed the law after 2014.

Table 2.3: CFC rules in Brazil over time

	2004	2014
tax base	inc	inc
min. control	20%	20%
min tax absolute	none	none
min tax relative	none	none
black-/ whitelist	no/no	no/no
active business test	no	no

The Brazilian CFC rules apply to companies subject to the equity pick-up method for accounting purposes and, basically, include income from foreign affiliates very broadly, compared to other CFC regimes. If a Brazilian corporation (or individual) has an affiliated company abroad, which is the case if, (i) the investor holds significant influence, i.e. the right to participate in the decisions of the invested company; or (ii) the investor holds more than 20% of the invested company without controlling it, the income of this subsidiary is taxed at the parent level. The control interest of 20% or more can be hold directly or indirectly. No low-taxation or passive-income threshold exists in Brazil. The only explicit exemption exists for companies which are active in the oil and gas sector, which are exempt

from CFC enforcement. A tax credit for paid taxes in the foreign country exists. Nevertheless, there is no tax credit carryforward unless the Brazilian company was in an NOL position (net operating loss limitations (i.e. 30%)) at the time the foreign income was taxed. No black- or whitelist exists. Nonetheless, the Brazilian CFC law had many loopholes in the details, which partly got corrected with the new law changes in 2014/15.

CFC rules in Canada

Canada was one of the first countries which implemented a CFC legislation (Sec. 90-95 and 112/113 of Income Tax Act and Part LIX of Income Tax Regulations) worldwide in 1972. The only amendment in the considered time span for the regarded characterizations was in 2009.

Table 2.4: CFC rules in Canada over time

	2004	2014
tax base	pass inc	quasi pass inc
min. control	10%	10%
min tax absolute	none	none
min tax relative	none	none
black-/ whitelist	none	none
active business test	yes	yes

At first glance, Canada seems to have a comparably strong CFC law within the OECD countries. A foreign entity is considered to be a CFC ("Foreign Affiliate") if a Canadian resident, individual or company, does have interests, directly or indirectly, in any class of shares of at least 1% and together with related persons of at least 10%. The "foreign accrual property income" (FAPI) consists of passive income and further designated income which, pro rata, is taxed in Canada with the respective corporate or personal income tax of the Canadian taxpayer. Before 2009, the considered and taxed income was passive income only, without the additionally deemed passive income. A participation exemption for active income for subsidiaries in designated treaty countries exists. No low-tax threshold and no black- or whitelist exists. A tax credit for foreign paid taxes on the FAPI will be granted. Canada

also have some further foreign investment entity rules to catch broader foreign investments. Nonetheless, it was rather simple to circumvent Canadian CFC rules with so called "tracking arrangement" structures, which should be harder to facilitate after a recent law change in early 2018.[20]

CFC rules in China

The CFC rule (Enterprise Income Tax Law (Order of the President [2007] No. 63, EIT Law), Article 45 and its implementation rules) in China is in force since 2008. In the observed time span no elementary amendments in the observed characteristics occurred.

Table 2.5: CFC rules in China over time

	2004	2014
tax base	none	full inc
min. control	none	50%
min tax absolute	none	12.50%
min tax relative	none	50%
black-/ whitelist	none	no/yes
active business test	none	none

A Chinese resident (company or individual) who is a shareholder of a foreign entity may be taxed on the undistributed pro rata income of this entity if three requirements are fulfilled: (1) the foreign entity is controlled by Chinese residents (including other Chinese residents, they have more than 50% of interests in the subsidiary or effective control), and (2), the concerned Chinese shareholders hold at least 10% of interests of the subsidiary (directly or indirectly), and (3), the effective tax rate for the CFC in the foreign country is less than 50% of the current Chinese income tax rate. If these requirements are fulfilled the pro rata CFC income must be included into the gross income of the Chinese resident. Some taxes payed by the subsidiary in the foreign country can be credited against the "CFC taxes" in China. Besides some very special exemptions, a de minimis rule exists, which exempts foreign income if the profits are below 5 million RMB or if the income is mainly active. No

[20] e.g., DLA piper (2018); EY (2018a); EY (2018b)

blacklist exists but a whitelist (including Australia, Canada, France, Germany, India, Italy, Japan, New Zealand, Norway, South Africa, the UK or the US) is in force. Even though the Chinese CFC rules where legally in force since 2008, these laws were rarely if ever enforced until a public case in the year 2014 (e.g., Qio (2017); AmiNews (2017)). This, in reverse, does not necessarily mean, that CFC rules in China were not influencing firm behaviour by deterring effects.

CFC rules in Denmark

The CFC rule in Denmark (Art. 32 of Corporate Tax Code and Art. 16H in the Tax Assessment Code for individuals) do exist since 1995. In the observed time span one bigger law amendment happened in 2007.

Table 2.6: CFC rules in Denmark over time

	2004	2014
tax base	full inc	full inc
min. control	50%	50%
min tax absolute	22.50%	none
min tax relative	80%	none
black-/ whitelist	no	none
active business test	none	none

A Danish parent company, or individual, may be liable to tax the income of a foreign subsidiary if two requirements are fulfilled. First the subsidiary has to be controlled by the Danish parent company and, second, the subsidiary's business is mainly of a financial nature. Latter is fulfilled if more than 50% of its total income is passive income and more than 10% of its assets are passive assets/of a financial nature. To control a foreign subsidiary it is necessary to hold, directly or indirectly with related groups, more than 50% of the voting power. If these conditions are met the Danish parent is taxed on a pro rata share of the foreign passive income with the relevant Danish CIT. This also applies to individuals. A tax credit for taxes paid by the subsidiary is granted. Before 2008 the CFC rules were slightly different: To control a subsidiary it was sufficient to hold at least 25% of the shares

and the threshold of passive income was not 50% but two thirds of the total income of the subsidiary. In the observed years from 2004 to 2007 also a foreign low-tax threshold was installed, varying over years from 22,5% to 21%. No black- or whitelist exists in the Danish CFC rule.

CFC rules in Estonia

Estonia has no common CFC rule. In Estonia, resident individuals only are affected by the CFC regulations since 2000. For resident companies a comparable but weak anti-avoidance rule applies. If an Estonian individual, alone or with associated persons, controls (at least 50% of the capital of the foreign company are held by Estonian residents) a subsidiary in a foreign low-tax country (effective tax rate is less than one third of the Estonian income tax) and holds at least 10% of the shares of the CFC (directly or accompanied), the pro rata income of this subsidiary is attributed to the income tax and charged in Estonia. Estonia has an official whitelist of countries that are not considered as low-tax jurisdictions, comprised mainly of tax treaty partners, EU member states and certain other OECD countries. No blacklist exists. A tax credit for the paid foreign taxes is granted. If more than 50% of the income of the foreign subsidiary is derived from genuine business activities the foreign entity will be tax exempt from CFC regulations. Within the anti-avoidance regulations for companies, more payments to foreign companies in low tax jurisdictions are non-deductible for corporate income tax purposes since 2012.

Table 2.7: CFC rules in Estonia over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	7%	7%
min tax rel	33%	33%
black-/ whitelist	no/yes	no/yes
active business test	none	none

CFC rules in Finland

The Finnish CFC rule (Act on the Taxation of Shareholders in CFCs) is in force since 1995. One bigger tax reform happened in 2009. An entity of Finland (company or individual) who is a shareholder of a foreign company may be taxed on the undistributed pro rata income if three requirements are fulfilled: (1) the foreign entity is controlled by the Finnish resident, (2) the Finnish shareholder holds at least 25% of interests in the subsidiary (directly or indirectly), and (3) the effective tax rate in the foreign country is less than 60% of the current Finnish tax rate. The foreign subsidiary is deemed to be controlled by a Finnish resident (or jointly with other Finnish residents) if she holds at least 50% of interests in the subsidiary. Taxes payed by the subsidiary in the foreign country are credited against the CFC law inflicted taxes in Finland. Two explicit exemptions exist: (1) for exempt activities (if the subsidiary runs on a genuine business activity base), and (2) a tax treaty exemption (if a tax treaty with the corresponding country is in force, provided the foreign CIT is not lower than 75% of the Finnish income tax). Since 2009, subsidiaries in an EEA country (excluding Lichtenstein) and countries with whom Finland does have a tax information exchange agreement receive a special treatment. They are generally exempt from the CFC rule, provided they carry on genuine and actual economic activities. In 2012 the Finnish tax authorities introduced a greylist of countries (containing 13 countries) for which these exemptions are not applicable. No actual white- or blacklist exists for CFC rule purposes in Finland.

Table 2.8: CFC rules in Finland over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	17.40%	12%
min tax rel	60%	60%
black-/ whitelist	no	yes/no
active business test	none	yes

CFC rules in France

Since 1980, CFC rules in France (Art. 209-B of the French Tax Code) exist. This specific CFC law is for companies only but a complementary one persists for individuals. The CFC legislation applies to an entity subject to French CIT, provided the following two facts. First, it has to hold, directly or indirectly, at least 50% of the shares, financial rights or voting rights of a foreign legal entity (or permanent establishment)[21] which, second, is established in a country with an effective taxation of 50% or lower than in France. If the control threshold is reached by a group it is reduced to 5% for every single entity as an anti-abuse provision. In the considered time period these two facts changed in 2005. Before that year the law was a bit stricter, as follows: a CFC was regarded as such if the held control share was at least 10% and the foreign CIT threshold was at two thirds of the French CIT rate. If the law applies, the received, or deemed received, pro rata income of the foreign subsidiary is taxed with the CIT in France. The paid tax on that income in the foreign country can be credited against the tax amount in France. Since 2011 in France exists a list of countries that are deemed to be low tax countries but no actual legal black- or whitelist exists. France has a lot of tax treaties with other countries and they have to be considered in the specific case because there are possible tax reliefs. Also, a "save harbour clause" exists: if a French company can prove that the localization of the foreign entity is not motivated by tax reasons, it may avoid the CFC rule and, additionally, within the EU only artificial structures abroad are affected by the French CFC rule.

Table 2.9: CFC rules in France over time

	2004	2014
tax base	full inc	full inc
control	10%	50%
min tax abs	22%	16.67%
min tax rel	66%	50%
black-/ whitelist	no	yes/no
active business test	yes	yes

[21] There are differences between these distinctions, in other countries as well but they are too specific for this general comparison. If the differences are important for treatment I will distinguish them anyway.

CFC rules in Germany

The CFC rules in Germany (Art. 7-14 AStG) were implemented in 1972. After a few changes the law was reformed again in 2003 to, inter alia, implement intra-company lending provisions. In the observed time period, minor CFC law changes occurred only. In Germany both, individuals and companies, are effected by the CFC rules if they fulfill the following requirements. The German parent, or together with associated individuals, have to have a control share of at least 50% of the foreign subsidiary. As an anti-abuse provision, this threshold is reduced to 1% for each direct shareholder if the 50% are reached by a group. The foreign country is considered to be a low-tax country if the CIT rate of the foreign subsidiary is below 25%. The tax base is the passive income of the foreign subsidiary. If the CFC rule applies, the pro rata passive income of the subsidiary is taxed in Germany with the German CIT rate, credited by a tax deferral of the payed CIT by the subsidiary in the foreign country. The law takes no effect if the passive income is smaller than 10% of the total subsidiary income, or the applicable income is below the de-minimis threshold of 80000 EUR. Germany does not have a white- or blacklist of countries for CFC rule purposes. In certain cases, the CFC income attribution does not apply, if the subsidiary is located in an EU/EEA country and the taxpayer can demonstrate that the CFC carries out genuine business activities (since 2007). There are more special treatments for special cases provided in the law.

Table 2.10: CFC rules in Germany over time

	2004	2014
tax base	pass inc	pass inc
control	50%	50%
min tax abs	25%	25%
min tax rel	65%	85%
black-/ whitelist	none	none
active business test	yes	yes

CFC rules in Greece

Greece implemented a CFC rule (Art. 66 of Income Tax Code) recently in 2013 which is applicable since 2014. This rule concerns both, individuals and companies. The (un-)distributed income of a foreign subsidiary is taxed by a Greek entity, with the appropriate Greek CIT, if: (1) the Greek resident (together with related entities) holds more than 50% of interests in the foreign subsidiary, and (2), the subsidiary is situated in a country that has a preferential tax regime or is on a blacklist, and (3), more than 30% of the subsidiaries net profits are passive, and (4), the principal class of shares of the foreign subsidiary are not traded on a regulated stock market. A foreign country does have a preferential tax regime if its CIT rate is lower than 50% of the Greek ones. No tax credit for foreign taxes is provided. The only exemption given is for subsidiaries in an EU/EEA member state that has negotiated a tax information exchange agreement, but that exemption falls if the subsidiary has an artificial tax avoiding nature.

Table 2.11: CFC rules in Greece over time

	2004	2014
tax base	none	full inc
control	none	50%
min tax abs	none	none
min tax rel	none	none
black-/ whitelist	none	yes
active business test	none	yes

CFC rules in Hungary

In 1997 a CFC rule (Art. 4, 7, 8, 18, 29/Q and Annex 3 of the CIT Code) was implemented in the Hungarian law. One of the biggest changes in this rule occurred in 2010. Before that (1) any interest in a foreign entity by a Hungarian individual, and (2) a foreign CIT rate lower than two-thirds of the Hungarian CIT rate qualified the foreign entity as a CFC. The dividends received by, and pro rata expenses or losses booked for, that entity are taxed in Hungary with the CIT rate. In 2007 additional entities in countries of the EU, OECD

or tax treaty partners of Hungary were exempt from the CFC provision. No rules affected the undistributed or deemed profits of a CFC. Nonetheless, all this rules affected Hungarian resident individuals only. In 2010 the CFC system changed: a foreign country deemed to be a low tax country if the effective tax rate for the foreign entity is below two-thirds of the Hungarian one; a Hungarian entity, now also companies were considered, has to hold, directly or indirectly, at least 25% of interest in the foreign company, and the pro rata after tax passive income[22] is considered to be taxed if the CFC rules apply. Additionally, a real economic activity exemption exists since than. One year later, in 2011, the foreign tax threshold was lowered and decoupled from the home CIT rate to a fix percentage of 10%. In 2012, the real economic proof was shifted to the taxpayer. No actual white- or blacklist exists and no special tax credit provisions apply. In 2008 and 2009 a huge tax amnesty applied for the repatriated income of CFCs (not for CFCs in Andorra, Lichtenstein and Monaco) if at least 50% of the repatriated funds are invested in treasury bonds and this investment is held for at least 2 years. Although, the CFC rules in Hungary have become more complex, they generally are not relevant for non-Hungarian controlled multinationals.

Table 2.12: CFC rules in Hungary over time

	2004	2014
tax base	dividends	dividends and more
control	1%	25%
min tax abs	10.67%	10%
min tax rel	67%	53%
black-/ whitelist	none	none
active business test	yes	yes

CFC rules in Iceland

Iceland implemented a CFC rule (Art. 57 a) of Income Tax Act) in 2010. According to this rule a CFC is a foreign entity, (1) located in a low-tax country, with an effective income tax lower than two thirds of the Icelandic rate, (2) which is owned or controlled (directly or

[22] Actually, there is a list of concerned income but it is more or less passive income.

indirectly) by at least 50% by a resident taxpayer, corporate or individual. The profits of this entity, distributed or not, are then pro rata attributed to its resident shareholders and respectively taxed in Iceland. No tax credit is granted but two exemptions exist when no CFC rule taxation takes place: If the CFC is located (1) in a treaty country and the income of the CFC is not mainly of financial income or with the country exists an information exchange provision, or (2), in an EEA member state and is engaged in real business operations there and the Icelandic tax authorities are able to obtain all necessary information on the basis of an international tax treaty. No black- or whitelist exists.

Table 2.13: CFC rules in Iceland over time

	2004	2014
tax base	none	full inc
control	none	50%
min tax abs	none	13.33%
min tax rel	none	67%
black-/ whitelist	none	none
active business test	none	none

CFC rules in Israel

The CFC rules (Section 75 B of the Income Tax Ordinance) of Israel were implemented in 2003. In the observed time frame three bigger law amendments occurred in 2006, 2009 and 2014. Before that, the pro rata "deemed dividends" of a foreign company or any other body of persons has to be implemented in the residents, company or individual, tax base if the following requirements are fulfilled: (1) the foreign entity's shares are not, or less than 30% publicly traded, and (2), the profits or the income of the foreign entity are mainly (more than 50%) of passive nature, and (3), the income is effectively taxed at a tax rate lower than 20% in the foreign country, and (4), the foreign entity has to be controlled by: (4a) Israeli residents, directly or indirectly, holding more than 50% of the foreign entity, or (4b), one single Israeli resident holds more than 40% of interests and together with close relatives more than 50%. These rules were triggered if an Israeli residents holds at least 10% of the

means of control[23]. A tax credit for the foreign paid taxes is granted. No black- or whitelist exists. Since 2006, not only companies but also trusts and other firm structures are affected by the CFC legislation. Three years later, in 2009, the CFC law became more diluted e.g., new immigrants were enabled to use privileged benefits of the CFC rule. According to the law amendment in 2014, along other changes, the foreign tax threshold dropped from 20% to 15% effective foreign income tax rate, the passive income is defined slightly different and the foreign tax credit changed. To catch further specific foreign investments, other anti tax avoidance laws as the rule for Foreign Professional/Occupational Companies exist concurrently to CFC rules.

Table 2.14: CFC rules in Israel over time

	2004	2014
tax base	pass inc	pass inc
control	50%	50%
min tax abs	20%	15%
min tax rel	56%	57%
black-/ whitelist	none	none
active business test	none	none

CFC rules in Italy

The Italian CFC law (Art. 167/168 of Income Tax Code) is in force since 2001/02. In the observed time frame some changes occurred to reshape the law. Since 2002, profits of a non-resident entity are deemed to be profits of an Italian resident if two main requirements are fulfilled. First, the resident controls, directly or indirectly, the foreign entity, and second, the foreign entity is residing in a tax haven, as defined in a blacklist containing around 70 countries. This applies for companies and individuals. A foreign company is controlled if the Italian resident holds the majority of the votes at the shareholder meeting, or sufficient votes to exert a decisive influence, or the foreign entity is under a dominant influence of another, due to a special contractual relationship. The pro rata full income of the CFC will be taxed

[23] For the mentioned unity reasons above I will continue using the word "interests". Due to specialty reasons, the so called means of control are mentioned here, which are further detailed in the law.

in Italy by the Italian CIT rate, or the specific residents average tax rate, but no lower than 27%. A tax credit for the taxes payed in the foreign country exists. It is possible to prove that the foreign subsidiary carries on a genuine business to avoid the CFC rules. Since 2004, the CFC rules apply if the Italian resident holds a profit entitlement of at least 20% in a foreign related entity as well. In this case a relief exists, if the profits are derived through permanent establishments of the foreign low-taxed company. After 2008, the blacklist was officially abolished and should be replaced by a whitelist but has been considered for a longer time. At the same time, the CFC rule is applicable for a foreign company if the foreign CIT rate is lower than 50% of the Italian effective tax rate, and the passive income of the CFC is more than 50% of the overall income of the subsidiary. By this change, the active business test was strengthened a bit compared to the rather subjective active business legislation before. Since then, the Italian resident companies are able to avoid CFC rule results only if they are able prove that the foreign company is not a wholly artificial arrangement for tax purpose advantages only, which requires a requested ruling from the tax authorities.

Table 2.15: CFC rules in Italy over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	none	15.70%
min tax rel	none	50%
black-/ whitelist	yes/no	yes/no
active business test	yes	yes

CFC rules in Japan

In 1978 a CFC rule (Art. 66-6 - 66-9 and Art. 40-4 - 40-6 of Special Taxation Measures Law) was implemented in the Japanese law. One bigger amendment was implemented in the CFC legislation in April 2010, when Japan switched its underlying international tax systems to a territorial one. Before that, the pro rata profits (distributed or not) of a foreign entity may be attributed to the Japanese residents tax duty if it holds substantial

interests therein, and this subsidiary is located in a low-tax jurisdiction. This rule applied and still applies to individuals and companies nearly similarly. A Japanese entity does have substantial interests if it (directly or indirectly) has at least 5% of interests where more than 50% of the overall interest is owned (directly or indirectly) by Japanese resident entities together. A country is deemed as a low-tax jurisdiction if the effective payed tax by the subsidiary in the foreign country is 25% or less. A tax credit for the foreign payed taxes is available. Before 2010 an active business exemption existed. After the law amendment in 2010, the threshold percentage of a single shareholder person was raised from 5% to 10% and the low-tax threshold dropped to 20% for the effective foreign CIT rate. Additionally, the following conditions were added to the reshaped law: (1) A clearer active business income test concerning the main business of the subsidiary, (2) a substance test (fixed place of business with a head office), (3) a local management and control test, and (4) an unrelated party transaction test or local business test. If all theses requirements are satisfied, certain passive income is affected by CFC taxation only. Otherwise, the full (pro rata) income of the foreign entity has to be included in the parent tax base. No white- or blacklist exists.

Table 2.16: CFC rules in Japan over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	25%	20%
min tax rel	61%	56%
black-/ whitelist	none	none
active business test	yes	yes

CFC rules in Republic of Korea

The Korean CFC law (Art. 17 International Tax Coordination Law) is in force since 1997. In the observed time frame some changes occurred to reshape the law. In 2004 profits of a non-resident entity are deemed to be profits of an Korean resident if two requirements are fulfilled: (1) the resident controls, directly or indirectly, the foreign entity and, (2) the foreign

entity is situated in a low-tax country (average foreign income tax of the last three years is lower than 15%). This CFC rule applied only to companies. A foreign company counts as controlled if the Korean resident holds the majority of the shares or "de facto" controls the foreign entity and holds more than 20% of voting rights. The pro rata full income of the CFC will then be taxed in Korea by the Korean CIT rules. A tax credit for the taxes payed in the foreign country exists. The company has the possibility to prove that the subsidiary carries out an active business operation to avoid CFC rule taxation. Since 2006, the Korean CFC rules apply if the Korean resident holds simply "interests" of at least 20% in the foreign related entity only, and also individuals are affected. Additionally, a de-minimis rule was implemented such that CFC income below 100 million WON were not concerned. In 2010, the de-minimis threshold was doubled to a minimum CFC income of 200 million WON. The law amendment in 2012 reduced the control threshold to only 10% of interests again. Along with this change, the active business test was strengthen a little and the requirements got stronger in juridical wording.

Table 2.17: CFC rules in South Korea over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	15%	15%
min tax rel	51%	62%
black-/ whitelist	none	none
active business test	yes	yes

CFC rules in Latvia

No proper CFC rule does exist in Latvia. Nevertheless, some payments made by Latvian residents to foreign low-taxed companies or individuals are subject to a special withholding tax of 15%, due to law specifications (Art. 17.17 in the Personal Income Tax Code and Art. 3.8 in the CIT Code). A country is deemed to be a low-tax country if it is on the blacklist of Latvia.

CFC rules in Lithuania

Lithuania implemented its CFC rule (No. IX-675 in CIT Code) in 2002. No changes occurred to the law in the observed time frame. The CFC rules apply if a Lithuanian entity, company or individual, (1a) controls (hold more than 50% of interests (directly or indirectly)) a foreign entity, or (1b) holds at least 10% of interests, and together with related persons hold more than 50% of that foreign entity, and (2a), the foreign entity is not located in a country on the whitelist (or is located in a whitelist country but is organized in a special treated business form), or (2b), the foreign country is on the blacklist or the applicable CIT for the subsidiary is below 75% of the Lithuanian CIT. If the CFC rule applies for a CFC-construct the Lithuanian resident entity has to ad the positive passive (active income is not attributed if it satisfies establishment requirements), proportionally income into its income tax base. The foreign paid tax by the subsidiary may be credited against the tax due in Lithuania if a tax treaty is enacted with that country. The regime does not apply if the subsidiarys income comprises less than 5% of the total income of the Lithuanian entity.

Table 2.18: CFC rules in Lithuania over time

	2004	2014
tax base	pass inc	pass inc
control	50%	50%
min tax abs	11.25%	11.25%
min tax rel	75%	75%
black-/ whitelist	none	none
active business test	none	none

CFC rules in Malta

There is no actual CFC rule in Malta. Nevertheless, an investment of a Maltese resident in a non-EU passive entity is considered as a low taxed investment if the following requirements are fulfilled: (1) the foreign CIT is lower than 15%, and (2), more than 50% of the income is passive, and (3), more than 50% of income is from portfolio investments, while the foreign

tax is not at least 5%. This is an anti-avoidance rule of the full participation exemption regime of Malta.

CFC rules in Mexico

Mexico implemented a CFC rule (Title VI of Mexicos Income Tax Law) in 1997 and amended it two times from 2004 until the end of 2014, that was in 2005 and 2013 to specify the rules. If a Mexican company or individual obtain income from foreign entities, distributed or not, it may have to include the pro rata part of this full income into its own income tax base if this entity is a CFC. A foreign company is deemed to be a CFC if: (1) the resident entity controls the subsidiary (namely "have to control"; since 2005 a taxpayer is presumed to control foreign legal entities, unless demonstrated otherwise), and (2), since 2005 the foreign effective tax paid by the subsidiary is less than 75% of the own Mexican tax rate, and (3), at least 20% of the CFC gross income is passive income. In addition, many specific rules exists which permit the non-taxation of active income. The paid tax in Mexico can be credited with the already paid tax in the foreign country by the subsidiary. In the Mexican CFC law no whitelist of countries exists but a black list is enacted. Especially before 2005 this black list was important as no foreign tax threshold existed, currently this black list is secondary. Taxpayers are required to provide information on investments in enlisted entities on this black list. The amendment in 2013 especially implemented an exemption for specific royalties.

Table 2.19: CFC rules in Mexico over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	none	22.50%
min tax rel	none	75%
black-/ whitelist	yes/no	yes/no
active business test	none	none

CFC rules in Netherlands

There is no actual CFC rule in Netherlands. However, the valuation of participation in foreign companies are included in the taxable income of the resident company. To be affected, the participation has to be at least 25%, and 90% or more of the foreign assets have to be passive assets.

CFC rules in New Zealand

New Zealand implemented a CFC legislation (Subparts CQ, DN and EX of Income Tax Act 2007) in 1988. In Juli 2009 a bigger law amendment in the considered time span for the regarded characterisations happened. A foreign entity is considered to be a CFC if a group of five or fewer New Zealand residents, individuals or companies, do have interests, directly or indirectly, of at least 50%, or this group effectively controls the subsidiary, or a single resident has at least 40% of interests in that entity (and no other non-resident bigger shareholder exists), or de-facto control exists. Respectively, an income interest of 10% or more in a CFC from a New Zealand resident is required to be subject to the CFC rules. The attributable income consists mainly of passive income and further designated income, which - pro rata - will be taxed in New Zealand with the respectively tax by the resident taxpayer. Since 2009, an active business income test or rather a save harbour threshold applies to all CFC's (like in Australia). Therefore, the income of a foreign company will not be taxed if it consists of less than 5% of passive income. No actual whitelist exists but before 2009, a special exemption rule existed for greylist countries, provided some specified relief criteria are met. This greylist exemption was abolished, with exception to Australian CFCs. No low-taxation threshold and no blacklist exists. A tax credit for foreign paid taxes on the attributed income will be granted. As in Australia, additionally to the CFC rule, a "Foreign Investment Fund" rule applies to capture special dividends and other payments, not from funds only but further special company structures as well.

Table 2.20: CFC rules in New Zealand over time

	2004	2014
tax base	quasi pass inc	quasi pass inc
control	50%	50%
min tax abs	none	none
min tax rel	none	none
black-/ whitelist	no/yes	no/yes
active business test	yes	yes

CFC rules in Norway

CFC rules in Norway (Art. 10-68 of Norwegian Tax Code) exist since 1992. In the observed time period one bigger change in 2008 happened. A Norwegian entity, company or individual, holding interests in a foreign subsidiary may be taxed on the according share of the subsidiary's worldwide net profits by the Norwegian Income tax if the following requirements are fulfilled: (1) alone or together with other associated persons the Norwegian resident controls, directly or indirectly, at least 50% of the shares of the CFC, and (2), the income of the CFC is effectively low-taxed in the subsidiarys country (lower than two thirds of the Norwegian CIT). A special rule for crediting the paid foreign taxes against the taxes in Norway for the same profits does exist. Norway have a whitelist of countries all over the world which are generally excluded from the CFC rule, nevertheless, some types of income may be taxed by the CFC rule anyway. Additionally, a blacklist of deemed low-tax countries applies. Since 2008, the income of subsidiaries not in treaty countries only, but also in EEA countries may be exempt if a proof of real economic activity of this subsidiary can be provided.

Table 2.21: CFC rules in Norway over time

	2004	2014
tax base	full inc	full inc
control	50%	50%
min tax abs	18.67%	18%
min tax rel	67%	67%
black-/ whitelist	yes	yes
active business test	none	yes

CFC rules in Poland

There was no CFC rule in Poland in the observed time frame but since 2015.

CFC rules in Portugal

In 1995 a CFC rule (Art. 66 of the CIT code) was implemented in the Portuguese law. Pro rata after tax profits of a foreign subsidiary (distributed or not) may be attributed to Portuguese resident tax duties, holding substantial interests therein if this subsidiary is located in a low-tax jurisdiction. This rule applies for individuals and for companies similarly. A Portuguese entity has substantial interests if it (directly or indirectly) owns, (1) at least 25% of the subsidiarys capital, or (2), at least 10% of its capital where more than 50% of the overall capital is owned (directly or indirectly) by Portuguese resident entities. A country is deemed as a low-tax jurisdiction if, (1) it is included in the provided blacklist (consisting of 83 to 81 countries over the focused time frame), or (2), the CIT in the foreign country is 60% or lower than the Portuguese equivalent. In the CFC rule a tax credit for foreign payed taxes exists but not necessarily for all taxes paid by the CFC in the foreign country. If the following requirements are met the CFC rule will be exempt: (1) at least 75% of the profits are from local business activities, and (2), the main activity of the subsidiary is not of a financial nature. No actual whitelist of countries exists but, since 2012, the CFC rule is not applicable if (1) the subsidiary is located within the EU or EEA (with whom an information exchange agreement has been concluded), and (2), the subsidiary performs genuine economic activity.

Table 2.22: CFC rules in Portugal over time

	2004	2014
tax base	after tax inc	after tax inc
control	50%	50%
min tax abs	15%	15%
min tax rel	60%	60%
black-/ whitelist	yes/no	yes
active business test	yes	yes

CFC rules in Russia

There was no CFC rule in Russia during the observed time frame but since 2015.

CFC rules in Slovenia

No actual CFC rule exists in Slovenia. But some provisions in the CIT Code force to tax payments to persons in foreign low-tax countries for certain services like consulting, marketing, market research, human resources, administration, information and legal services. This applies if the effective tax rate in the foreign country is lower than 12.5% or the country is on a provided blacklist. In addition, payments of interests on loans are no deductible expenses for CIT purposes if the granted person is in a blacklist country.

CFC rules in South Africa

In South Africa a partial residence based tax system was effective as of 1998 and the CFC rule (section 9D of the South African Income Tax Act) exists in its current general form with full and not only partial income inclusion since 2001. In the observed time period one bigger change in the CFC legislation occurred in 2008. If a South African entity, individual or company, obtains income by foreign entities it may have to include the after tax pro rata part of this income into its own South African income tax base. Before 2008, the owner was affected if he held at least 10% of interests, and (together with others) controlled the foreign entity which was presumed if together 50% of shares where held. Additionally, the passive income of the foreign entity had to be more than 5% (save harbour threshold). If these requirements were fulfilled the full after tax income of the foreign entity was included in the domestic parent tax base. Since 2008, the foreign CIT rate has to be lower than 75% of the South African CIT rate which introduced the anti-abusive jurisdictional approach. In addition, since 2008 a South African resident would also be affected by the CFC rule if she holds 20% and more interests in the foreign entity alone, and the base of what was

counted as a foreign entity was extended to capture e.g. PEs as well. In the South African CFC legislation no black or whitelist exists but an active income exemption and some other specific exemptions more, mostly to exclude active income from CFC rule taxation. One main exemption used to circumvent the South African CFC legislation is the Foreign Business Entity exemption which has a complex structure itself.

Table 2.23: CFC rules in South Africa over time

	2004	2014
tax base	after tax inc	after tax inc
control	50%	50%
min tax abs	none	21%
min tax rel	none	75%
black-/ whitelist	no/yes	no/yes
active business test	none	yes

CFC rules in Spain

The CFC rule (Art 107 of CIT Code and Art. 91 of Personal Income Tax Code) in Spain exists since 1995. In the observed time period no bigger changes of the law occurred. If a Spanish entity, individual or company, obtains income by foreign entities it may have to include the passive pro rata part of this income into their own income tax base. A foreign company is deemed to be a CFC if: (1) the resident entity holds an interest of at least 50% in the subsidiary, and (2), the foreign effective tax paid by the subsidiary is less than 75% of the Spanish equivalent. The paid tax in Spain can be credited with the already paid tax in the foreign country by the subsidiary. Some exemptions are implemented for: (1) specific regulations for gains from a participation in another company of the CFC, or (2), passive income of the subsidiary lower than 15% of the total net profits, or 4% of the total turnover of the subsidiary, or (3), specific intracompany lending, or (4), income of a subsidiary in an EU country, provided genuine business activities. From this latter list in point (4) Luxembourg since 2006, and Cyprus and Gibraltar since 2007 are specifically excluded. In Spain no actual white- or blacklist of countries exists for CFC rule purposes.

Table 2.24: CFC rules in Spain over time

	2004	2014
tax base	pass inc	pass inc
control	50%	50%
min tax abs	26.25%	22.50%
min tax rel	75%	75%
black-/ whitelist	no/yes	no/yes
active business test	none	yes

CFC rules in Sweden

CFC rules in Sweden (Art. 39a of Swedish Income Tax Code) exist since 1990. In the observed time period one bigger change happened in 2008. A Swedish entity, company or individual, holding interests in a foreign subsidiary may be taxed on its share of the subsidiary's worldwide net profits by the Swedish CIT if the following requirements are fulfilled: (1) low income taxation in the subsidiarys country (lower than 55% of the Swedish CIT), and (2), alone or together with other associated persons the Swedish resident controls, directly or indirectly, over at least 25% of the capital or voting rights. A special rule for crediting the paid foreign taxes against the taxes in Sweden for the same profits do exist. Sweden has a whitelist of countries all over the world which are generally excluded from the CFC rule, nevertheless some types of income may be taxed through the CFC rule anyway. No blacklist exists. Since 2008, the income from subsidiaries in EEA countries may be exempt if a proof of real economic activity of this subsidiary can be provided. The countries Belgium, Estonia, Ireland, Luxembourg and Netherlands are expressly excluded from this regulation. In the observed time period Cyprus was excluded from the whitelist between 2005 and 2007 as well.

Table 2.25: CFC rules in Sweden over time

	2004	2014
tax base	pass inc	pass inc
control	25%	25%
min tax abs	15.40%	12.10%
min tax rel	55%	55%
black-/ whitelist	none	none
active business test	none	yes

CFC rules in Turkey

Turkey implemented a CFC rule (Art. 7 of Corporate Tax Law) in 2007 without fundamental changes until the end of 2014. If a Turkish company obtains income by foreign entities, distributed or not, it may have to include the pro rata part of this income into its own CIT base. A foreign company is deemed to be a CFC if: (1) the resident entity holds an interest of at least 50% in the subsidiary, and (2), the foreign effective paid tax by the subsidiary is less than 10%, and (3), at least 25% of the CFC gross income is passive income. The paid tax in Turkey can be credited with the already paid tax in the foreign country by the subsidiary. For CFC total income below 100000 TRL (former YTL) a de-minimis exemption exists. These CFC rules do not count for individuals. In Turkey no white- or blacklist of countries exists.

Table 2.26: CFC rules in Turkey over time

	2004	2014
tax base	none	full inc
control	none	50%
min tax abs	none	10%
min tax rel	none	50%
black-/ whitelist	none	none
active business test	none	none

CFC rules in United Kingdom (UK)

The CFC legislation in UK (Art. 9A of Taxation Act 2010 (TIOPA)) was implemented first in 1984. A likewise taxation of individuals is included in another law. Due to a different structure than the other CFC laws and many special rules the British CFC law is one of the most complex ones (104 pages of tax law). The biggest change in the observed time frame was introduced with the Finance Act 2012 and the new rules apply since 2013. Before that the CFC rule applied if a shareholder of the UK entity (together with associated or connected persons) held an interest of at least 25% in the foreign subsidiary. If UK shareholders have

an interest of more than 50% in the foreign subsidiary it counts as controlled.[24] As a second requirement, the subsidiary must be located in a low-tax country, meaning that the effective tax rate of the subsidiary is 25% lower than it would have been in the UK. If the rules apply to a company the resident shareholders have to pay a charge on the pro rata income of the subsidiary times the appropriate UK CIT rate. A few exemption methods are implemented. The CFC regime does not apply if: (1) at least 35% of the subsidiary are controlled by public, or (2), at least 90% of chargeable profits are distributed to UK shareholders, or (3), only real commercial transactions are executed, or (4), the subsidiary is in a foreign country for other reasons than tax reduction, or (5), the profits of the subsidiary are lower than 50,000 GBP (de-minimis exemption). The first mentioned exemption (public control) was canceled in 2007 and the second one (distribution to UK shareholders) in 2009. In 2007 an EEA exemption for subsidiaries in EEA countries was implemented due to the Cadberry-Schwepps-Case (European Court of Justice (2006)). Since 2013, the law is different at least on the practical law side, the given numbers from above are hardly different. A general foreign low-tax threshold does no longer exist, and various new exemptions assembled in a "Gateway Test" were introduced. This gateway test aims to filter out the non-artificial profits of business actions diverted from the UK. For simplification a pre-gateway test exists, to preserve obvious non-CFC rule affected subsidiaries from detailed reminder requirements. The new exemption rules are: (1) temporary exemption (12 month after becoming controlled from the UK for the first time), (2) low profits exemption (profits lower than 50000 GBP, (3) low profit margin exemption (accounting profits are lower than 10% of operating expenditure, (4 and 5) excluded territories exemption and tax exemption (as with the old low-tax threshold subsidiaries located in countries with a CIT rate higher than 75% of the UK's CIT rate are not concerned), or (6) some special finance company exemptions. Now, mainly passive income instead of all foreign income - in terms of this comparison - is taxed. A separated

[24] It also counts as controlled if two persons together control the subsidiary, provided that the non-UK resident controls at least 40% but not more than 55% and the UK resident controls at least 40%.

credit for foreign taxes exists for the different types of income. In the UK no actual black- or whitelist exists but a list of "no low-tax countries".

Table 2.27: CFC rules in United Kingdom over time

	2004	2014
tax base	full inc	pass inc
control	50%	50%
min tax abs	22.50%	none
min tax rel	75%	none
black-/ whitelist	no/yes	none
active business test	yes	yes

CFC rules in United States of America

The CFC rule ("subpart F" of Subtitle A chapter 1 subchapter N part III of USA Internal Revenue Code (title 26)) from the United States (U.S.) is the oldest so called CFC law worldwide and in force since 1962. In the observed time span no elementary amendment in the observed characteristics occurred. An entity of the U.S. (company or individual) who is a shareholder of a foreign entity may be taxed on specific undistributed pro rata income if three requirements are fulfilled: (1) the foreign entity is controlled by U.S. residents (together with other U.S. persons they have more than 50% of interests in the CFC), and (2), the concerned USA shareholders hold at least 10% of interests of the subsidiary (directly or indirectly), and (3), the effective tax rate for the CFC in the foreign country is less than 90% of the current highest U.S. corporate income tax rate. If these requirements are fulfilled, parts of the pro rata CFC income, namely "Subpart F Income" consisting of quasi passive income and some extras, must be included into the gross income of the U.S. resident. Various taxes payed by the subsidiary in the foreign country can be credited against the "Subpart F" taxes in the USA. Besides some very special exemptions, a de-minimis rule exists which exempts income below 1 million USD. A save harbour rule exempts the CFC legislation if the foreign passive income is below 5% of the foreign total turnover. If the passive income instead is above 70% of gross income a full inclusion of income results. No actual white- or blacklist

exists. A rather bothersome issue are the so called 'check the box rules' which weaken the impact of the U.S. CFC rules quite heavily.[25] In November 2017 the 'Tax Cuts and Jobs Act' implemented the global intangible low-taxed income (GILTI) tax component which brought back the idea of CFC rules in the U.S. law.[26] No further discussion of this issue will be found here as this is outside the time scope of this study.

Table 2.28: CFC rules in United Kingdom over time

	2004	2014
tax base	quasi pass inc	quasi pass inc
control	50%	50%
min tax abs	36%	36%
min tax rel	90%	90%
black-/ whitelist	none	none
active business test	none	none

Some economical important countries without CFC rules until 2014

To highlight the fact that not all economical important countries, or countries concerning multinational taxation or profit shifting effects, have a law like a CFC rule enacted, a small list of these countries is given, which are included in the following empirical sections as well.

As of 2014 there are no CFC rules in: Belgium, Belarus, Bermuda, British Virgin Islands, Bulgaria, Cayman Islands, Chile, Croatia, Curacao, Cyprus, Czech Republic, Hong Kong, India, Ireland, Liechtenstein, Luxembourg, Malaysia, Netherlands, Netherlands Antilles, Panama, Poland, Romania, Russia, Seychelles, Singapore, Slovakia, Switzerland, Taiwan, Ukraine. This list is not exhaustive.

[25] e.g., Mutti and Grubert (2009); Field (2008-2009); Grubert and Altshuler (2006)
[26] e.g., Goldman, Lisa (2018); Avi-yonah and Mazzoni (2017)

Chapter 3

Profit Shifting & CFC Rules

At present, controlled foreign corporation (CFC) rules are one of the three main anti tax avoidance laws in developed countries. This paper examines the different CFC rule settings in the OECD as well as further countries to show their effects on profit shifting of multinational companies. Using an unique CFC law panel data set for 61 parent countries over 11 years and micro level firm data for more than 260,000 companies worldwide, I show that CFC rules lead to up to 19.1% less financial income in foreign low-tax subsidiaries. CFC rules comprise many distinct characteristics, upon which this study sheds light in order to better understand these laws and their influence on multinational's behaviour.

Using bunching at one of the CFC law given thresholds, I calculate shifted profits into foreign low-tax subsidiaries of around 11.67 billion USD due to tax avoidance as a conservative estimate over the observed time frame. Based on my findings, CFC rules seem to (1) constitute a bridge for territorial tax system countries to counteract profit shifting of multinationals, (2) draw a bottom line to these firm behaviors, and (3) tax shifted income parts in a purpose-built way in the home country.

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3.1 Introduction

Twenty-five years ago the profit shifting behavior of international companies was not a commonly discussed issue, while nowadays one can read every other week that some large corporation hid millions of profits somewhere to pay less taxes, in a newspaper (e.g., The Economist (2013)). The scandals of known tax havens and their networks of corporations in recent years have made clear that multinationals around the globe use varying techniques to circumvent stricter taxation laws whether to hide or shift profits to a foreign low-tax country.[1] It is known that this international firm behavior led to a race to the bottom for corporate income tax rates worldwide and made it harder for governments to gain revenue from these taxes (e.g., Overesch and Rincke (2011)). The perspective in general - for the country and the firms - could be different if the headquarters of the multinationals were operating in countries which generally tax worldwide profits or territorial profits only and exempts foreign ones from taxation.[2] In a very recent study by the European Commission, the losses are estimated at billions of euros or dollars per year respectively, which accounts for more than 10% of the corporate tax revenues of the EU, same goes for the US and Japan (Alvarez-Martinez et al. (2018)). To deal with these issues, many countries use different forms and scopes of anti-tax avoidance rules. Most-studied tools, like thin capitalization rules and transfer pricing rules, do not present an entirely satisfactory solution.[3] Controlled foreign corporation (CFC) rules - the laws of interest in this work - are another important group of these counter measures, and so far only little is known about them. They could become a potential alternative, or rather a powerful addition, to tackle raising profit shifting. CFC rules attempt to tax earnings from foreign subsidiaries, repatriated or not, under specific circumstances, concerning both the owner and the subsidiary, if these earnings are likely shifted profits. But do these laws actually counteract the profit shifting behavior of multinationals?

[1] e.g., Jalan and Vaidyanathan (2017); Brown and Drake (2013); Faulkender and Smith (2016); Dyreng, Lindsey, et al. (2015); Gumpert, Hines, and Schnitzer (2016)

[2] e.g., Voget (2011); Feld, Ruf, et al. (2016)

[3] e.g., Haufler and Runkel (2012); Buettner, Overesch, Schreiber, et al. (2012); Wamser (2014); Beer and Loeprick (2015); Ruf and Schindler (2015); Cristea and Nguyen (2016); Mardan (2017); Davies et al. (2018)

To answer this question, one has to understand the basics of these complex legislations first. CFC laws are, unlike thin capitalization laws or transfer pricing rules, more concerned about the whole structure of the multinational corporation rather than the specific methods of profit shifting. Therefore, they can be understood as a profit shifting barrier in the first place. And secondly, as a vessel to collect profits shifted abroad to tax emerging gains out of an ethically dubious practice to tackle base erosion and profit shifting (BEPS). Therefore, CFC laws usually aim at the so called 'passive income in foreign low-tax country subsidiaries', and especially at earnings which are raised out of patents, trademarks, royalties, interests or other financial incomes — the types of profits that are most easily shifted abroad to benefit from lower taxation rates. Therefore, a CFC rule generally works in the following way: If a multinational's foreign subsidiary fulfills certain requirements, then at least parts of its income are taxed in the multinationals parent country where the CFC rule is enacted, even if no repatriation takes place. In most cases, three factors are crucial: Low taxation in the foreign country, ownership requirements, and unusual financial income derived, for example, through unusual firm construction, mostly denoted as 'passive or tainted income'.[4]

On the one hand, by implementing CFC rules in a tax system, the parent country's government is able to tax income of the company's foreign subsidiaries. This constitutes a big exemption in a territorial tax system, which usually exempts foreign profits. Worldwide tax systems generally tax foreign profits on repatriation but provide credit for paid taxes.[5] Nowadays, there are no longer real pure approaches of this tax system distinction.[6] On the other hand, CFC rules are often intentionally constructed to set a lower bound of quasi allowed profit shifting by setting up "save harbour" thresholds. Through my research, I set out

[4] Passive income has different definitions in different tax laws but all in all, and especially for the further pages of this survey, with "passive income" financial income derived from dividends, interest, rents, royalties and other capital gains is meant. The definitions of passive income of the different countries are not the same but rather similar, and for this comparison the specific details are not crucial.

[5] Ironically, the only remaining big country using a worldwide tax system, the US, implemented a new law in 1996, which diminished nearly all effects of their CFC rules (Grubert and Altshuler (2006)); Resulting in huge accumulations of profits abroad that do not get repatriated and alter investments of US multinationals (Hanlon, Lester, and Verdi (2015) or Feld, Ruf, et al. (2016)).

[6] e.g., Clausing (2015); Altshuler, Shay, and Toder (2015)

to show that CFC rules are the slim bridge between the approaches of taxing multinationals, worldwide or territorial tax systems, in our globalized world. Due to the aforementioned profit shifting actions of multinationals, implementing or strengthening such CFC rules can be one way for governments to react to BEPS. In recent years, the OECD implemented CFC rules as one big issue in their BEPS plan for important international taxation issues (OECD (2013)). Additionally, the EU Commission started the Anti Tax Avoidance Directive (ATAD)[7] which, inter alia, impels members to constitute a CFC rule in their respective tax legislations by 2019.

At OECD's public consultation of strengthening CFC rules, it was lamented about the lack of research on these laws (OECD (2015b)). This is likely due to two main reasons: First, as one can see in this study and other work discussed below, these laws are very complex and, second, they currently lack importance in the United States mainly due to the so called "check the box rule", which allows American multinationals fairly easy to circumvent CFC rules.[8] The latter one changed radically with the implementation of the 'Tax Cuts and Jobs Act' in November 2017, which introduced a global intangible low-taxed income (GILTI) tax component, by which multinationals are taxed (again) on specific foreign low-tax income.[9] All in all, a broad study of these laws covering multiple countries over time is missing, yet crucial for a better understanding and policy recommendations. Therefore, this chapter examines CFC rules across all OECD as well as 25 additional countries of relevance in international business taxation from 2004 to 2014 to shed more light on these critical aspects. Using different estimation methods based on the micro-level panel data set ORBIS from Bureau van Dijk and a self-conducted unique panel data set on CFC rules for 61 countries (27 of them do have a CFC rule in at least one of the observed years), I explore the impact of CFC legislation on passive income abroad.

[7] Based on Directive (EU) 2016/1164. A recent critical review from the law perspective is provided by Hentschel and Moser (2017) or Koerver (2016).

[8] Mutti and Grubert (2004); Grubert and Altshuler (2006)

[9] e.g., Goldman, Lisa (2018); Avi-yonah and Mazzoni (2017)

This chapter presents new evidence that CFC rules curb profit shifting behavior significantly on a global scale. By compiling an extensive list of various CFC rules and their changes over time by hand, I am able to explore the influence of CFC laws and their characteristics in detail, and share more insightful results than the existing literature so far. Therefore, I can demonstrate the importance of these anti-tax avoidance measures to counteract profit shifting behavior, substantiate my findings with detailed firm-level observations, and increase the scarce empirical knowledge about these increasingly important laws. Besides graphical evidence for the behavior change of multinationals, I explore both between subsidiary cross-sectional variation and within-subsidiary time variation around two given thresholds by using a newly created theoretical framework and data of more than 350,000 subsidiary-year observations.

Due to the complexity of CFC legislation, this study aims to provide a better understanding of the different influences these laws can have on decisions of multinationals, theoretically and empirically. Put differently, to answer questions about CFC rule specifics, it is important to get first a bigger picture of how these laws influence corporate behavior. Generally, CFC rules could have three main influences: (1) on profit shifting behavior, (2) on location choices of subsidiaries, and (3) on investment behavior. These three are, to some extent, interrelated. The primary focus of this study is the first issue, as the motivations behind profit shifting of multinationals are the behavior CFC rules are aiming at, but I provide insights into location choices and general investment behavior influences as well.

Building on a new and simple theoretical framework, the results of this study are presented in two settings. The first group of results suggests that a CFC legislation leads to at least around 19.1% less profit shifting behavior into foreign low-tax subsidiaries, which constitutes a relatively conservative lower bound. These results originate from fixed effects panel regressions, which are identified by many changes in quasi parent-subsidiary pair relations due to changes in corporate income tax rates and the researched low-tax threshold. This threshold is included in nearly all CFC rules and changes differently across countries

over the time frame of 11 years. The results are robust to variation tests using a large range of different specifications. Additionally, I show that corporations react differently to various CFC rule characteristics like the specified tax base of the foreign subsidiary. In a next step it is shown that financial profits abroad are decreasing if the subsidiary is located in a low-tax country, determined by the CFC rules in the parent country, but increasing if the subsidiary is located in a country with a corporate income tax rate above this threshold. This indicates a clear influence of CFC rules on profit shifting behavior as well as on location choice, which could lead to more corporate tax revenue from a global perspective. Building on this evidence and the following findings, I conclude that CFC rules constitute a functional anti-tax avoidance law that counteracts profit shifting behavior of multinationals in a certain way. This substantiates the theoretical findings of Haufler, Mardan, and Schindler (2018), who show that CFC rules and thin capitalization rules should both play a role in an optimal tax mix, and the empirical work by Ruf and Weichenrieder (2012), which shows an actual influence of German CFC rules on foreign passive assets of multinationals based in Germany.

As shown in the underlying theory, the low-tax threshold only explains parts of the CFC rule influence on firm behavior and decision choices. Therefore, in the second part of this study, I examine how multinationals circumvent these laws. First, I present graphical evidence by an event study of the mentioned Cadburry-Schweppes-Case (European Court of Justice (2006)) decision influence on foreign low-tax profits. Second, I examine bunching at a so called passive-to-total income threshold, which can annul the low-tax threshold consequences for some firms, with strong identification. If this specification is part of a CFC rule, a company could still generate financial profits in a low-taxed subsidiary without being affected by the anti-tax avoidance legislation, as long as it is below this second threshold. As this results in large average tax rate differences on the two sides of this limit for the multinational, one can observe clear bunching. Therefore, the last part of this study shows details about the location- and time-varying effects of financial profits in foreign low-tax countries explained by this threshold. The results are generally in line with Egger and Wamser (2015)

who show FDI decision influences of German CFC rules on German multinationals. The study at hand uses the same kind of threshold but for various countries and profit shifting influences rather than foreign real investment decisions. The results from Ruf and Weichenrieder (2013) about the influences of the Cadbury-Schweppes-Case decision of the European Court of Justice (European Court of Justice (2006)) on German multinationals and foreign intangible assets are substantiated and discussed in a multi-country setting.

By researching these two thresholds, the aforementioned two main critical factors of CFC rules, that is low-taxed location and rise of passive income, are examined in detail, and a more holistic picture on CFC rules is provided. As explained, if the foreign low-tax subsidiary is generating enough real or active income, multinationals can still shift some profits into these subsidiaries if the passive-to-total income threshold of CFC rules is high enough. In a last step, by using the bunching results and a simple back of the envelope estimation, I am able to show that, during the observed time frame, at least 11.67 billion USD are shifted from CFC rule countries to lower taxed subsidiaries at the passive income threshold alone. This indicates that this passive-to-total income threshold is one important key, which currently seems to be set too high, at least for some constellations, to achieve better anti-BEPS results by the international government community. All together this demonstrates the complexity of CFC laws and emphasizes that, in order to show their impact on corporate behavior, multiple factors need to be taken into consideration. Thereby, this study shows the behavioral response of multinationals due to tax laws in many countries worldwide and extends the sparse literature in this area. It is also the first study which shows corporate tax related bunching for large companies on a global scale using uncommon, non-administrative data. Recently, Zwick and Mahon (2017) show bunching of national companies in equipment investment due to tax incentives, and Almunia and Lopez-Rodriguez (2018) show that size-dependent tax enforcement in Spain leads to clear bunching below the given threshold to avoid stricter tax enforcement.

These results could have important implications for policy, not only for the details of the legislation but also for the very functionality of these laws. If, for example, the United States implemened stricter CFC rules again or got rid of the 'check-the-box' system, what they are currently working towards with the GILTI rules, they would set a boundary and become capital export neutral again,[10] and thus be able to tax millions of shifted profits abroad without disturbing the welfare increasing active investment behavior in foreign countries. Thus, the incentives of American companies to shift profits abroad instead of investing them in their own country would be reduced. My research also shows compelling evidence that CFC rules seem to constitute a proper way to set a boundary for profit shifting behavior of multinationals and ultimately their owners. The ATAD of the European Commission from June 2016 led to a guideline that induces member states to apply CFC rules and other measures beginning on January 1st 2019. Given the results of this study, countries should be persuaded that decent CFC rules are a functional way to tackle profit shifting around the globe.

After an overview of additional literature on profit shifting issues in Section 3.2, Section 3.3 explains the theoretical framework, while Section 3.4 describes the empirical methodology and Section 3.5 provides information about data and data sources. Section 3.6 shows the results and Section 3.7 concludes.

3.2 Literature on profit shifting

As Section 2.3 already provided published literature mainly about CFC rules, this section will provide insights into the literature and the more general discourse in the multinational profit shifting area. An often cited literature review on this topic is the one by Dharmapala (2014), which highlights and overviews literature about base erosion and profit shifting until 2014. Not only since then hundreds of studies are written about multinationals that shift profits

[10] For the background and importance of capital export neutrality see e.g., Richman (1963); Musgrave (1969); Grubert and Mutti (1995); Egger, Merlo, et al. (2015)

to circumvent higher taxation. It is obvious that this section will provide a glimpse into this field only. First, I want to mention that I will not comment on the huge discussion on the alternative taxing method of destination based cash flow tax, (re-)initiated by studies from A. Auerbach and Devereux (2015); A. J. Auerbach, Keen, and Vella (2017).

In a recent working paper, Alvarez-Martinez et al. (2018) estimate the profit shifting and base erosion amount of lost corporate tax revenue from a macro perspective of around 36 billion annually or 7.7% of total corporate tax revenues of the EU. They also provide high numbers for the US and Japan. Maybe even more important for the study at hand, their results suggest that eliminating profit shifting opportunities would slightly reduce investment and GDP but would raise corporate tax revenues due to enhanced domestic production. This in turn could reduce other taxes and increase welfare.

There are various channels through which multinationals shift their earned profits as well as services into low-tax countries. One main channel is through transfer mis-pricing of goods sold cross-border, but intra-company-wise. If multinationals set prices which are not following the arms-length principle, which specifies that goods should be priced the same as between unrelated companies, they can use these differences for pre-tax income shifting. Using the same data base as the study at hand, the work by Beer and Loeprick (2015) shows that the heterogeneity between multinationals is not negligible, and that specifically complex and intangible asset rich multinationals are utilizing tax rate differentials for profit shifting. Additionally, the study shows that transfer pricing documentation requirements reduce profit shifting, however they are not able to find significant results for the former identified high intangible asset multinationals. Using a self-created index of transfer pricing regulations, Marques and Pinho (2016) show that stricter laws lead to less CIT rate differential sensitivity. Cristea and Nguyen (2016) provide evidence of profit shifting via transfer pricing using Danish firm-level data with reduced unit values between 5.7 to 9.1 percent. Davies et al. (2018) instead, using French firm-level data on arms-length and intra-firm ex-

port prices, provide evidence on the key role of tax heavens for tax avoiding profit shifting behaviour via transfer mis-pricing.

Another way of shifting profits is through intra-firm debt financing or lending. The transfer pricing channel and the debt financing channel are both researched by Saunders-Scott (2015), who finds that multinationals treat the profit shifting channels of intra-company debt and transfer mis-pricing rather as substitutes. Also researching both, transfer pricing rules and thin-capitalization rules, the study from Buettner, Overesch, and Wamser (2018) shows influences of these anti tax avoidance rules on real FDI and employment in foreign subsidiaries. They find negative effects of thin-capitalization rules for employment and real FDI for high tax country subsidiaries but no effects for transfer pricing rules on these variables.

Solely focusing on thin capitalization rules, the counter measures against profit shifting via debt financing by setting limits of the amount that a company can claim as a tax deduction on interest, are the following studies. Buettner, Overesch, Schreiber, et al. (2012) and Buettner, Overesch, and Wamser (2016) present evidence for the effectiveness of thin capitalization rules against internal debt shifting in the international profit shifting context based on firm-level data about German multinationals. The study from Blouin et al. (2014), creating an index of thin capitalization rules, shows that subsidiaries of US multinationals tend to rely less on internal debt financing in host countries with tighter thin-capitalization rules. Merlo, Riedel, and Wamser (2015) provide various results for the influence of thin capitalization rules on location choices of multinationals. Ruf and Schindler (2015) summarizes economic effects of thin capitalization rules including literature, theoretical and empirical, about the influence on German multinationals. Later the authors discuss their findings and experience of Nordic countries with thin capitalization rules and conclude that these laws or rather the underlying arms length principle is administratively too costly and impracticable. As a potential alternative, the authors mention CFC rules. The study at hand confirms their thoughts about CFC rules as a promising avenue for limiting internal debt shifting, as I show that CFC rules limit foreign financial income and provide empirical evidence.

One implication of profit shifting is that multinationals tend to choose different locations than they would have done otherwise. Buettner and Ruf (2007) show German multinationals' location decision influences caused by cross border CIT rate differences using fixed-effects logit models for probability estimation. Similarly, the research by Barrios et al. (2012) explains the location choice in a more general setting across countries and, specifically, shows that the decision of an incorporation responds to host and parent country taxes. Both taxes do have a negative impact on the location choice of new foreign subsidiaries.

Various other perspectives of profit shifting are taken by the following studies. Beuselinck, Deloof, and Vanstraelen (2015) show profit shifting of multinationals in general and the intensifying role of weak tax enforcement by countries' governments. A different technique of profit shifting is examined by Simone and Sansing (2018). They analyze income shifting by means of cost sharing agreements with foreign affiliates and explain the major effects when this technique is used. A further perspective is taken by Simone, Klassen, and Seidman (2017), who show that under certain circumstances specifically loss-making firms abroad are used to shift profits. Accordingly, these firms change the reported profits to pay less taxes in total. J. H. Heckemeyer and Overesch (2017) provide a quantitative review of the empirical literature on profit-shifting behaviour of multinational firms. The result of their meta analysis is a tax semi-elasticity of subsidiary pretax profits of about 0.8, which translates into an 0.8% increase in subsidiary pre-tax profits if the tax rate differential is one percentage point smaller. Another literature review is taken by Riedel (2018), which analyses and summarizes literature that deals with the quantitative importance of tax avoidance behaviour of multinationals using income shifting from high- to low-tax countries. Many of the mentioned studies exploit CIT rate differentials. Alexander, Vito, and Jacob (2016) show that these tax differences are indeed causal for profit-shifting behaviour of multinationals, but that recent tax base broadening reforms like the analyzed CFC rules in the study at hand, counteracted this attitude to some extend.

There is already a lot of research on profit shifting, multinationals and the influence of taxes, yet many more studies will follow due to the reasons given above and below. The dissertation at hand is a part of this ongoing research and answers a few questions about the influence of CFC rules on the behaviour of multinationals.

3.3 Conceptual framework

As laid out in the first chapter of this work, CFC rules are mostly constructed around two different important characteristics: the minimum tax threshold as a sign for being located in a low-tax country, and the passive-to-total income threshold for questioning if the profits raised abroad are out of active business or primarily of passive nature. Also, from the law perspective, this is the main distinction - jurisdictional vs. transactional approach.[11] Of course, the foreign subsidiary has to be controlled by the parent, which usually is the case if more than 50% of interests in the foreign entity are held by the parent. The ownership requirement is not researched in this study, except in some empirical robustness checks. Therefore, this requirement is excluded in the following.

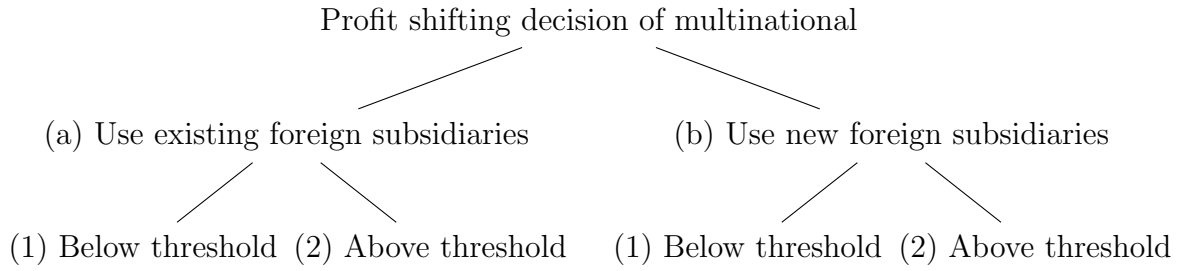


Figure 3.1: Multinational's choice set of shifting profits abroad

As seen in Figure 3.1 the multinational firm has, in general, four different options to use foreign subsidiaries as profit shifting vehicles.[12] At first, the firm can choose between (a) using already set-up foreign subsidiaries, or (b) building/buying new foreign subsidiaries.

[11] Further details are shown in Section 2.1

[12] Obviously, a so far national firm can only choose between the two options of new foreign subsidiaries on the right arm (b) of Figure 3.1.

The right arm of the decision tree is, most likely, associated with higher fixed costs to set up the new foreign entity. At the second level, the multinational can again choose between two options: (1) shifting profits into a subsidiary located in a country with a CIT rate below the minimum low-tax rate threshold, or (2) shifting into a country above that low-tax threshold. Option (1) means a potentially lower tax rate and, therefore, offers more profit shifting options. This technique is, however, limited. As explained above, the passive-to-total income threshold allows passive profits and therefore potential profit shifting, up to a certain ratio of the total or real income in the same subsidiary. Therefore, in this case, additionally to the shifting process, real income has to be generated abroad. For profit shifting option (2), shifting into a country with a CIT rate higher than the low-tax threshold, none of this has to be considered, but tax savings can still be generated. The results in Section 3.6.1 give empirical evidence for decision (2) and the influence of the low-tax threshold on multinational profit shifting behaviour. Section 3.6.2.2 is looking into details about choice (1), shifting into countries with CIT rate below the low-tax threshold and the influence of the passive-to-total income threshold.

For theoretical reflections, consider a high-tax country A and two lower-tax countries B and C with CIT rates $\tau_A > \tau_C > \tau_{low-tax-threshold} > \tau_B$, so that a subsidiary in B would be option (1), i.e. below the threshold, and a subsidiary in C option (2), i.e. above the threshold. For now, focusing on the left arm (a) of Figure 3.1 a net of after-tax profit maximizing company has its headquarters in country A with enacted CFC rules and owns a subsidiary in country B and C. All three of them have standardized production and cost functions, depending on the capital used in the respective firms.

$$A: \ f(K_A) - c_A(K_A) \tag{3.1}$$

$$B: \ f(K_B) - c_B(K_B) \tag{3.2}$$

$$C: \ f(K_C) - c_C(K_C) \tag{3.3}$$

As described above, the multinational is able to shift a portion of its passive profits Φ from country A into its foreign subsidiaries in B and/or C. Therefore the profits without taxation are calculated as:

$$A: \ \pi_A = [f(K_A) - c_A(K_A)] \cdot \ (1 - \Phi) \tag{3.4}$$

$$B: \ \pi_B = f(K_B) - c_B(K_B) + \ \alpha \ \Phi \ [f(K_A) - c_A(K_A)] \tag{3.5}$$

$$C: \ \pi_C = f(K_C) - c_C(K_C) + \ (1 - \alpha) \ \Phi \ [f(K_A) - c_A(K_A)] \tag{3.6}$$

with the first part in B, $f(K_B) - c_B(K_B)$, as real income R and the last part, $\Phi \ [f(K_A) - c_A(K_A)]$, as the shifted income S, and α as the shifting fraction of income which is shifted into country B. The reader should keep in mind, that the mean of shifting is not relevant for CFC rules. The crucial requirement is the occurrence of (too much) passive income abroad and not *how* these resources got there. It is assumed that $\Phi < 1$ as at least some profits have to be active in the home country, and the 'passive' nature is determined by the treatment in the according subsidiary corresponding to the specific CFC law. Due to the passive-to-total income threshold in CFC rules, the effective resulting tax rates for the profits in B depend on the ratio between real income and shifted passive profits Φ into that subsidiary. The tax rate in B is given by:

$$Tax\ rate = \begin{cases} \tau_B & if \quad R \geq \gamma S \\ \tau_B^* & if \quad R < \gamma S \end{cases} \tag{3.7}$$

with $\tau_B^* > \tau_B$, and usually even $\tau_B^* = \tau_A > \tau_B$. γ stands for the actual legal passive-to-total income threshold rate. Besides reasons for an administrative overload of including all foreign passive incomes or very small fractions of passive incomes into the home tax base, and resulting de-minimis or save harbour rulings, there is no other obvious economical reason

why γ should not be zero or very small.[13] The capital a multinational can use to allocate between the two facilities is exogenously given and sums up to: $\bar{K} = K_A + K_B + K_C$.

If the multinational decides to shift profits to a foreign low-tax subsidiary some convex shifting costs $C_{\Phi\, K_A}$ occur, which one could think of as costs for setting up the paper work for hiding or explaining the ongoing shifting to the local government. For simplicity, it is assumed that these costs are not deductible, reflecting for example non-deductible efforts of the owner, and are the same for shifting into both country B and C. Additionally, one should think of these costs as (1) increasing in, and (2) depending on the heterogeneous ability to shift financial profits out of the home country capital K_A (with $C'_{\Phi\, K_A}, C''_{\Phi\, K_A} > 0$). Formalized, including taxes and the costs of shifting $C_{\Phi\, K_A}$, the maximization of the profit shifting problem for the left choice arm (a) of Figure 3.1 is:[14]

$$max\, \Pi_0 = \Pi_A + \Pi_B + \Pi_C - T_A - T_B - T_C - C_{\Phi\, K_A}\ , \tag{3.8}$$

where T_A, T_B and T_C are the CIT amounts paid in countries A, B and C, respectively. The tax base solely depends on the invested (and shifted) capital K_A, K_B and K_C.[15] As one can see, even the solution of only one choice arm of the optimization choice problem – depicted in Figure 3.1 – becomes quite complex. To solve the right arm from Figure 3.1 instead, the solution would have to include fixed costs to account for the new subsidiary abroad. Bringing them both together would give a theoretical ground for profound empirical location choice results. Therefore, this study does not try to explain the general location choice question, but rather shows the different influences of the characteristics of CFC rules on profit shifting behaviour of multinationals, in order to get a better and broader understanding

[13] In fact, it seems that after the Cadbury-Schweppes-Case of the ECJ many countries in the European Union, and later others more, increased their passive-to-total income thresholds and/or active business test guidelines up to 50% from smaller ratios before. This is also shown by Bräutigam, Spengel, and Streif (2017).

[14] Note that these considerations still hold if there is a chain of subsidiaries located in different countries because CFC rules are usually enforced through this kind of ownership chains. $C_{\Phi\, K_A}$ is attributed to the home entity in country A, which is in practice not necessarily the case. As they are assumed to be not tax deductible, this does not matter in this simplified setting.

[15] This concludes in a tax on capital rather than a tax on profits. But in the case of shifted profits, which are determined by the used capital, this results in the same conclusion.

of these laws and their specifics concerning profit shifting.[16] Nevertheless, from this first theoretical exercise, it becomes already clear why the following of this chapter is split into two perspectives, depending on the two main thresholds of CFC laws. Therefore, in the following, these two aspects are mainly handled separately to show their implications in a feasible way, but brought together selectively to see overall conclusions as well.

Minimum low-tax threshold considerations

For the first part of the analysis about the low-tax threshold, no further detailed theoretical framework is needed. For now, only profit shifting options into country C, a foreign country with a CIT rate above the low-tax threshold but below the own home CIT rate (option (2) from above so that $\alpha = 0$), exist. Without further math one can easily see the multinational's decision of shifting profits into foreign subsidiaries. If the profits occur in a subsidiary located in a foreign country with a CIT rate above the minimum low-tax threshold, no additional taxation results from CFC legislation. In contrast, if the foreign CIT rate is below the threshold of the according CFC rule, at least some of the profits abroad would be taxed at the home country CIT rate and the overall effective tax rate of the multinational would be higher, provided that the other CFC rule requirements are fulfilled as well, as mentioned above.[17] It is easy to see, that it could be of advantage from a business tax accountant perspective to shift profits into a subsidiary which is located (slightly) above the tax threshold, as the overall average tax rate for that multinational would be consequently lower. This leads to:

[16] One could think of the decision of opening a new subsidiary in a low-tax country as a first step in a two-step decision process, where the second step is determined by the outcome of the calculations around the passive-to-total income threshold. In further research, it would be interesting to see where additional theoretical results, building on this base, would lead to. The same would be true for low-tax threshold effects from the first distinction in the decision tree above: if an already existing or a new subsidiary is used as a profit shifting vehicle.

[17] In the following regressions in Section 3.6.1 these additional requirements are taken into account gradually, and are commented in the explanation of the empirical part.

Conjecture 1. *Financial profits of multinational companies are higher in foreign subsidiaries which are located in countries with CIT rates above the low-tax threshold of CFC rules, as profits can be shifted there without further taxation by CFC laws.*

Passive-to-total income threshold considerations

The impact of the second important threshold analyzed in this study, the passive-to-total income threshold, i.e. option (1) from Figure 3.1, is shown by utilizing bunching methods and building on, or rather extending, other recent work from the bunching literature.[18] In contrast to these studies, I do not present any tax elasticities, for various reasons. First, the meaning and interpretation of the resulting elasticities in this context are questionable as, e.g.: the strict assumptions, like equal marginal tax rates for all firms or the questionable functional form for the heterogeneity density, are not satisfied in this setting; I have non-administrative data only which lacks of accuracy, and these elasticities would be on a very aggregated level, but stem from rather country specific and widely varying thresholds, which are effecting firms differently due to further conditions. Second, as the observed firms can easily manipulate their books, the so far used methods for local treatments would not work properly.[19] Third, in very recent studies, it is shown that the used methods of elasticity calculation from bunching have their flaws, and that the conclusive effect of the results becomes less clear (e.g., Blomquist and Newey (2017)). The study at hand rather uses bunching to identify the impact of CFC rules and shows their causality for multinational profit shifting behavior at the given discontinuities in the choice sets of firms. Additionally, the bunching mass is used to calculate most likely shifted profits into foreign low-tax countries.

Building on the theoretical thoughts from above, if one ignores for the next exercise the option to shift profits into a country with a tax rate above the low-tax threshold, i.e. option

[18] Saez (2010); Chetty et al. (2011); Kleven and Waseem (2013); Slemrod (2013); Devereux, Liu, and Loretz (2014)

[19] In fact, subsidiaries which bunch could come from every point of the relative income distribution.

(2), country C drops out and Equation 3.8 gets simplified. Accordingly, the overall marginal tax rate for the financial (and possible to shift) profits is:

$$\tau = (1 - \Phi)\tau_A + \Phi\ \tau_B \tag{3.9}$$

Now the multinational chooses both K_A and Φ to maximize the profit: $\pi = \pi_A + \pi_B - T_A - T_B - C_{\Phi\, K_A}$, where T_A is the CIT amount paid in A and vice versa for B. The first order conditions are:[20]

$$f_A{}' = c_A{}' + \tau + C'_{\Phi\, K_A}\ , \tag{3.10}$$

$$C'_{\Phi\, K_A} = \tau_A - \tau_B \tag{3.11}$$

The first expression is the normal marginal condition - marginal output value equals marginal cost - incorporating the cost of shifting income. Expression 3.11 indicates that the firm will shift profits up to the point when the gain from that technique – i.e. the tax benefits – equals the marginal costs of shifting. Therefore, by choosing the level of passive profits that occur abroad, the multinational implicitly chooses the level of overall firm profit taxation. Thus, one could think of these thresholds as notches rather than kinks as not the marginal but the overall average tax rate is changing discontinuously.

For thoroughness reasons, the elasticity of taxable income, in this case corporate income, could be derived as in Appendix B.2.

In the context of this subsection, the shifting decision of the tax minimizing multinational depends on γ from Equation 3.7. The multinational would try to shift as many profits abroad as possible to maximize the tax differential savings. If the CFC law allows passive income in the foreign low-tax subsidiary up to a certain ratio of the total foreign income, one would expect bunching at this threshold as the effective tax rate difference at this point can be

[20] Mathematical proofs are in Appendix B.1. The CIT payed abroad by the subsidiary are usually credited in the CFC rule country and, therefore, cancel out.

substantial. The costs of shifting could include further activities abroad to generate more active income to, ultimately, generate more foreign passive income or rather shift more profits abroad.[21] Therefore, I propose:

Conjecture 2. *Foreign subsidiaries of multinational companies with positive financial income are bunching at the given passive-to-total income thresholds of CFC laws if the tax benefits are high enough, as the effective CIT rate for the shifted profits might be much lower for income ratios right below the threshold.*

3.4 Empirical methodology

Minimum low-tax threshold - fixed effects panel regressions

For this part of the result section, I utilize panel fixed effects estimation methods, including subsidiary firm and parent firm fixed effects, to identify the average causal effect of CFC rules enacted in the parent country on profit shifting behavior of multinationals into foreign (low-tax) subsidiaries. Due to the rich informed panel data set ORBIS, which is discussed further below, I observe within-firm over-time and cross-country effects. I provide evidence in favor of all theoretical predictions made as well as several robustness checks.

All underlying theoretical assumptions seem to be fulfilled and are tested in robustness checks. Due to the firm and parent fixed effects modelling, specific firm and/or parent firm conditions are controlled for. To analyze the effects of the minimum tax threshold of CFC rules on multinational profit shifting behavior, I use a semi-log linearised model of the following form for subsidiary s, in foreign country f, with an owner o in its home country h,

[21] Further theoretical thoughts in this direction are shown by Weichenrieder (1996).

and (later) an intermediate firm located in a different country i, in year t:

$$\begin{aligned} ln(financialprofits)_{sfoht} = \alpha &+ \beta_1 CFC_{fht} \\ &+ \beta_2 X_{ft} + \beta_3 X_{ht} + \beta_4 X_{st} + \beta_5 X_{it} \\ &+ \beta_6 \Gamma_t + \beta_7 \Gamma_i + \epsilon_{sfoht}. \end{aligned} \tag{3.12}$$

The main variable of interest CFC, an indicator which is equal to one if a subsidiary is located in a low-tax country concerning the CFC rules of the owner country h and its influence β_1, are explained further below. In both countries, I control for different factors with appropriate and frequently used control variables. I include X_{ft} to control for time-varying effects in the *foreign subsidiary country* such as the CIT rate[22], GDP per capita, unemployment rate and corruption, and X_{ht} to control for the corresponding effects in the *home country of the owner*. Also, to control for subsidiary specific time-varying effects like the variability of financial reports, I use X_{st} for tangible assets, sales, operating profits or others. Γ_t controls for time fixed effects and Γ_i for fixed effects of intermediate countries between the owner and subsidiary in the robustness checks, as X_{it} does for time varying effects. The selection of control variables is based on plausibility considerations and previous mentioned studies on international taxation and investments or profit shifting abroad.[23]

There might be other variables which potentially influence the dependent variables used in foreign subsidiaries. As other eminent literature, I assume that these are either controlled for (for instance in the fixed effects) or are uncorrelated with – in my case – CFC law regulations and their specific changes over time and are therefore included in the error term. By using this method, I identify my results by cross-section and cross-time differences in a

[22] I do not use effective average tax rates of firms at the beginning, as intra-firm behavior and the taxation of profits is the main purpose this study is interested in. However, in different regressions later on I use effective average (country, not firm) tax rates to show certain aspects of CFC laws as these rates can differ significantly from statutory rates (e.g. White (2013)).

[23] Additionally, I tested for various other parameters like common language, distance or more, and the results stayed more or less the same. The results of these regressions can be delivered on request. One should keep in mind that specific interdependent factors between countries are controlled for in nearly all regressions by the used fixed effects already.

panel data set. As described above and in Section 2.2 there are many changes in the absolute and relative low-tax thresholds and country CIT rates in the various country pairs over time. A stylized variation overview of possible changes in the CFC indicator variable for a single subsidiary-parent-year observation is given in Figure C.1 in Appendix C. All together, this results in a valid identification strategy for the purpose of this study. Additionally, and to verify my results, I add two more CFC rule characteristics – effective average CIT rates instead of statutory CIT rates, and the distinction between different tax bases[24] – to further baseline regressions, to narrow down the identified subsidiaries by their different CFC rule effects and show the distinct influence of these characteristics.

Throughout the main regressions, CFC rules are expected to influence the profit shifting behaviour of multinationals if the foreign subsidiary is located in a low-tax country, constituted by the relevant CFC law. Specifically, the foreign subsidiary is deemed to be a CFC if the statutory CIT rate in foreign country f is below the minimum low-tax rate threshold of the specific CFC rule of the parent in home country h in that year. Hence, the main variable of interest is constructed as

$$CFC = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold} \\ 0 & \text{otherwise} \end{cases} \tag{3.13}$$

where $\tau_{ht}^{threshold}$ is the tax rate threshold of the CFC rule of the parent home country h and τ_{ft} is the statutory CIT rate in the foreign subsidiary country f in year t. The $\tau_{ht}^{threshold}$ of one parent country is the same for all foreign countries, at least for one year. As stated, in some regressions average effective CIT rates are used for refinement instead of statutory ones.

In further baseline results, as well as in robustness checks, this specification is refined as follows. To account for affected foreign tax bases, another CFC rule characteristic, the

[24] In Section 2.2 is a short description of the differences.

variable of interest is split up into three different variables to show the distinct influences: The first specific variable only equals 1 if the owner country CFC rules account for all (active and passive) income as tax base. The same applies, vice versa, for CFC rules of parent countries, which only account for passive income or some income measures in between these two. To show further differences of profit shifting multinationals and specific CFC rule influences on profit shifting location choices, the group of subsidiaries located in foreign countries with CIT rate above the CFC rule low-tax threshold is split up in two groups: one accounts for subsidiaries above the threshold but below the home CIT rate of the parent and the second group accounts for subsidiaries located in foreign countries with CIT rates above the owners CIT rates. This constructs as:

$$\textit{CFC Below threshold} = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold AND } \tau_{ht} > \tau_{ft} \\ 0 & \text{otherwise} \end{cases} \tag{3.14}$$

$$\textit{Above threshold} = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} < \tau_{ft} \text{ AND } \tau_{ht} > \tau_{ft} \\ 0 & \text{otherwise} \end{cases} \tag{3.15}$$

$$\textit{Higher than own CIT} = \begin{cases} 1 & \text{if } \tau_{ht} > \tau_{ft} \text{ and country } h \text{ applies CFC rules} \\ 0 & \text{otherwise} \end{cases} \tag{3.16}$$

Building on the former labeling, τ_{ht} stands for the statutory CIT rate in the owner's home country h. As a logical implication, this approach includes parent countries with existing CFC rules only. In a further robustness check the variable of interest can only become 1 if a thin capitalization rule exists in addition to the CFC rules in the owner's home country h. The variable is constructed as:

$$CFC\ \&\ Thin\ Cap = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold} \\ & \text{AND thin capitalization rules are enacted in country } h \\ 0 & \text{otherwise} \end{cases} \tag{3.17}$$

In a last distinction, I accounted for the size of companies. I split up the subsidiary group of probably affected CFC subsidiaries (former baseline group CFC) into three groups according to size: very large, large and medium. The variables are constructed as:

$$CFC\ very\ large = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold AND } o \text{ is very large} \\ 0 & \text{otherwise} \end{cases} \tag{3.18}$$

$$CFC\ large = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold AND } o \text{ is large} \\ 0 & \text{otherwise} \end{cases} \tag{3.19}$$

$$CFC\ medium = \begin{cases} 1 & \text{if } \tau_{ht}^{threshold} > \tau_{ft} \text{ or country } h \text{ applies CFC} \\ & \text{rules without a tax rate threshold AND } o \text{ is medium sized} \\ 0 & \text{otherwise} \end{cases} \tag{3.20}$$

In another regression, this holds for the size of subsidiary s instead of the owner's o size which gives further insights from a different perspective. In further robustness checks, no variation of the constructed variable of interest takes place and the specifications are explained in the according Section 3.6.1.

In this setting, one could think of three main selection into treatment or omitted variable bias problems. First, the parent headquarters could be moved in order to not be affected by CFC rules. Voget (2011) shows that CFC rules do have a positive effect on the probability of reallocation, comparing 140 headquarters that have been moved with 2000 that have not been moved over a period of 10 years. As described above, I am using parent fixed effects to controls for this potential bias. Additionally, this bias would drive my results towards zero. Second, subsidiaries which are above the low-tax threshold could be used as a new profit shifting vehicle if another subsidiary from the same parent would be affected by changed conditions. This could lead to an overestimation of the treatment effect. Therefore, I test for these issues in robustness checks, additionally to first results of this behaviour in the fourth baseline regression. Third, as shown in the theoretical framework section, the passive-to-total income threshold could be utilized as well. A deemed to be treated foreign subsidiary could be in fact unaffected by CFC taxation if it is below these thresholds. This specific issue is dealt with in robustness checks as well. As already mentioned, due to these and other common econometric caveats, the results of this part should be understood as a *lower bound* of the influence effect of CFC rules on profit shifting behaviour in low-tax subsidiaries.

Passive-to-Total income threshold - Bunching descriptives

In this part of the analysis, by applying the theoretical framework from above and using the quasi-experimental bunching approach, I first show clear bunching at the passive-to-total income threshold. This identifies a further important impact of CFC rules on profit shifting behavior of multinationals and gives reassuring results for Conjecture 2. At first, it is important to mention that there is no other obvious reason for subsidiaries to stay just below or exactly at the passive-to-total income threshold than tax avoidance incentives

inflicted by CFC rules.[25] Building on the framework described above, I use a variation of the bunching estimation method proposed in Saez (2010); Chetty et al. (2011); Kleven (2016) to (1) show the influences of these laws in a non-parametrical way on an aggregated level and (2), calculate the amount of shifted profits into foreign low-tax countries.

In this context, the interesting relative threshold point follows from the increase in tax duties that occur if a multinational shifts "too much" profits into its foreign low-tax subsidiary, so that $R < \gamma S$ in Equation 3.7, meaning that the passive income abroad is above the allowed passive-to-total income threshold. In this case CFC rules are getting enforced, which leads to a tax rate increase from τ_1 to τ_2, with $\tau_1 < \tau_2$ at the threshold K. Following the standard approach taken in the literature, I fit a flexible polynomial to the observed distribution, excluding data in a range around the threshold π^*, in this case mainly the 50% passive-to-total income ratio, and then extrapolate the fitted distribution to the threshold (see e.g., Kleven (2016)). In addition to this basic approach, I use alternatives with differences over time and between countries at the threshold level to identify the clear behavioral response of multinationals to these tax laws.[26] The results of these considerations are used to explain and discuss first descriptives and non-parametrical results. Additionally, I use the counterfactual calculation of the polynomial to explain the shifted amount of profits at this specific threshold. This is done by a simple back-of-the-envelope calculation explained in the according Section 3.6.2.3.

I do not observe a clear kink or notch, as for various CFC rules the according CIT rate jumps from the foreign CIT rate to the home CIT rate for *all foreign income* and for other CFC rules *for parts* of the foreign income only. Additionally, the firms which bunch could come from a broad range of the observed *income ratio*, as it is much easier for firms to modify these ratios than for individuals – see Section 3.3 for further explanations. Nevertheless, in general, one could think of this passive-to-total income ratio threshold as a notch setup, as

[25] As anecdotal evidence I spoke with a lot of accountants at different universities and conferences and no one could think of a real other reason why someone should decide to aim for a specific income ratio of passive to total earnings. No one has shown contrary opinions.

[26] For completeness reasons further mathematical proofs are shown in Appendix B.2.

usually the full foreign (passive) income would be included in the tax base and, therefore, the discontinuity occurs at the average tax rate level, not the marginal one. In addition to the already mentioned reasons of aggregation and the simple book trimming ability of firms, no clear missing mass as in other bunching studies concerning notches is expected, due to the usage of non-administrative data.

3.5 A note on data and data sources

To obtain detailed information about CFC legislations worldwide, I screened the explicit laws of 27 countries and filtered out the main important CFC rule characteristics, as described in detail in Section 2.1. To broaden the base for this empirical analysis, I added 34 countries, which are important for economical and international business taxation related reasons, especially related to profit shifting behavior. These 61 countries (OECD and 26 more) are home to the parent companies considered in this study, and differ with regard to whether or not CFC rules are installed. In addition to the self-conducted data set on CFC rule characteristics, I used the ORBIS firm-level data by Bureau van Djik ranging from 2004 to 2014 to show the economic relations on a micro level. This database not only provides balance sheet data about firms around the world but also links their ownership status. I used all unconsolidated firms contained in this data set, which have a subsidiary in a foreign country that is owned with at least 50% of shares by a parent company in one of the 61 countries. There are certain caveats using the ORBIS data set. First, it is known that the ownership links in ORBIS are only reported for the last year of information - 2014 in this case. This means that potentially misidentified links could occur if the ownership changed in the observed time frame. As other studies, I still use the ORBIS database due to the fact that this problem should bias my results towards zero or insignificance only. Second, as this study researches profit shifting behavior, it is important to have a sufficient number of observations in so called 'tax havens'. The importance of this is shown for example by

Desai, Foley, and Hines (2006); Gumpert, Hines, and Schnitzer (2016); Laffitte and Farid Toubal (2018). As one can see in Table B.1 in Appendix B the study at hand includes observations from tax havens like Bermuda, British Virgin Islands and Cayman Islands, but also from larger European tax havens like Luxembourg or the Netherlands (used e.g., by Laffitte and Farid Toubal (2018)). The reader should keep in mind that the included firms in the ORBIS database from these countries are scarce and, most probably, do not account for the full sample of firms located in these countries. The author is not aware of, or does not have access to, a data base which captures more comprehensive corporate data. Nonetheless, the large panel data in this study seems to be valid for the conducted research.

Based on the ORBIS data, the variable 'financial profits' abroad is the best proxy for passive income and for showing profit shifting behavior of multinationals. Additionally, it represents the specific target variable CFC rules are usually aiming for.[27] This study uses unconsolidated firm data only. As other mentioned studies, most regressions are using logarithmic variables and, therefore, in most cases only firms with positive financial profits are observed. This is relaxed in robustness checks. As in most of the observed CFC rules, banks and financial industry parents are excluded, they are excluded in the following calculations as well (further explanations are given in Section 2.1). In robustness checks, I used intangible assets as dependent variable as well, which gives more or less similar results. After matching parent companies[28] to their foreign subsidiaries[29] and merging the CFC legislation data and further control variables for the 61 parent countries, I end up with a total of 1,815,624 affiliate-year observations for 265,802 subsidiaries in foreign countries. Table B.1 in Appendix B lists subsidiary-year observations of the variables used by parent country. The control variables are chosen to fit other eminent literature in multinational taxation and profit shifting as e.g., Becker and Riedel (2012); Ruf and Weichenrieder (2012). Table B.3 in the appendix shows some descriptive statistics for the underlying data and variables used. In the baseline

[27] e.g., also used by Ruf and Weichenrieder (2012).
[28] With parent companies the global ultimate owner from the ORBIS data base are meant.
[29] Not only direct subsidiaries but also chain sub-subsidiaries are possible.

regressions for around 80,000 foreign subsidiaries, more than 5,000 changes in the variable used for identification occur, meaning that subsidiaries potentially gain or loose CFC status that often. As explained in Section 2.1, tax treaty effects and firms from the banking and finance sector are not included in the regressions.

CFC rules have not always been of as much interest as they are nowadays. Therefore, there are not as many "high quality data sources" available for those laws as in other areas. As the laws are rather complex, the gathering of trustable information was challenging. To get the best data available, I used different sources for one country-year. As sources, I mostly used the European Tax Handbooks from IBFD (2002-2016), various corporate tax guides (Ernst & Young (2004-2016); Deloitte (2015); KPMG (2003-2018)) and the specific legal texts of the countries as provided. For translation and help with the country-specific laws, I worked together with the subsidiaries of the German "Industrie- und Handelskammer" and law attorneys in the appropriate countries. In addition, I used various other annual tax bulletins and tax-change publications. For the before-mentioned data reasons, this analysis focuses on the 11 years from 2004 to 2014. The different characteristics of the various laws are described in Section 2.1 and Section 2.2.

3.6 Estimation results - Impact of CFC rule characteristics on profit shifting

As laid out above, CFC rules are quite complex. The literature expects that CFC rules, to some extend, have an impact on investment decisions of multinationals. As shown in this study, there is not *one* simple impact of a generally formulated CFC rule due to the complexity and levels of firm choices involved. Therefore, in this section, I show the impact of the different characteristics of CFC rules on profit shifting by, mostly, differences in foreign subsidiary's financial profits, the variable most CFC rules are aiming at, as it most clearly and detectable indicates profit shifting behaviour.

3.6.1 How CFC rules limit profit shifting behaviour of multinationals

As seen in Sections 3.3 and 3.4 one would expect a generally negative impact of CFC rules on financial profits abroad for specific subsidiaries. To examine this empirically, I run different regressions. All regressions are panel fixed effects estimations and, if not stated otherwise, include subsidiary, parent and year fixed effects to account for the underlying specifics.[30] All regressions are using winsorized observations at the 1% and 99% level of financial profits to exclude outliers. Besides some robustness checks, all regressions are clustered at the parent-year level and standard errors are robust to heteroskedasticity. Baseline results are presented in Table 3.1. One can see an expected significant negative impact of CFC rules on financial profits in low-tax subsidiaries. In Specification (1), the statutory CIT rate in the subsidiary country is used for determining this low-tax threshold, and the CFC indicator variable is 1 if this rate is below the allowed threshold in the corresponding CFC law in this year. This suggests a decrease in financial profits in these subsidiaries of around 15.2% compared to subsidiaries which are probably not affected by potential CFC legislations of their parents. Usually, it is not the statutory CIT rate, which determines whether a country is a low tax country, but rather the effectively paid CIT (rate). Therefore, from Specification (2) onward the effective average CIT rates of the subsidiary countries is used.[31] Again, the indicator variable is 1 if this effective CIT rate is below the minimum low tax rate threshold of the corresponding CFC law and zero otherwise. Both indicators are highly significant but the effect in Specification (2) is larger and the standard error is smaller.

[30] These parent and subsidiary fixed effects automatically include industry specifics and, therefore, it is not necessary to provide industry fixed effects results. The results are showing the same significances. After submission of this dissertation the work on the single papers continued. Therefore, improvements were made, e.g. regarding the used fixed effects. To be more accurate, this amendment is included for the baseline regressions in Table 3.1 only. The other regressions contain old fixed effects as submitted and the improvement can be found in later versions of this part of the dissertation as single paper.

[31] As a proxy for firm specific effective CIT rates, the effective average (country not firm specific) CIT rate is used from the Oxford Centre of Business Taxation.

Table 3.1: Influence of enacted CFC rules and their characteristics on profit shifting

Dependent Variable	Log Financial Profits				
	(1) statutory CIT	(2) effective CIT	(3) different tax base	(4) excl. non-CFC sister subs	(5) split of non treated
Cfc rule + sub in low tax country (CFC)	-0.152***				
	(0.0310)				
CFC but EATR		-0.260***		-0.270***	
		(0.0260)		(0.0387)	
CFC + All income base			-0.234***		
			(0.0307)		
CFC + Between all and Passive income base			-0.314**		
			(0.152)		
CFC + Passive income base			-0.293***		
			(0.0382)		
CFC (Below threshold)					-0.202***
					(0.0504)
Above threshold					0.0732**
					(0.0358)
Higher than own CIT					0.0418
					(0.0269)
ln Tangible Fixed Assets	0.115***	0.112***	0.112***	0.113***	0.113***
	(0.00362)	(0.00366)	(0.00366)	(0.00396)	(0.00396)
CIT sub	0.261				
	(0.177)				
EATR sub		-3.196***	-3.213***	-3.276***	-3.336***
		(0.205)	(0.205)	(0.239)	(0.250)
ln Corruption sub	0.403***	0.609***	0.609***	0.593***	0.594***
	(0.0539)	(0.0548)	(0.0548)	(0.0613)	(0.0614)
ln gdp sub	2.386***	2.560***	2.585***	2.799***	2.819***
	(0.254)	(0.272)	(0.272)	(0.315)	(0.317)
ln gdppc sub	-1.108***	-1.407***	-1.430***	-1.906***	-1.927***
	(0.258)	(0.278)	(0.279)	(0.321)	(0.323)
ln unemployment sub	-0.0864***	-0.0726***	-0.0724***	-0.0535**	-0.0530**
	(0.0203)	(0.0208)	(0.0208)	(0.0243)	(0.0243)
Observations	359,243	350,647	350,647	288,490	288,490
# of potential CFC subsidiary obs	50,045	62,234	62,234	61,349	61,349
Adjusted R-squared	0.772	0.774	0.774	0.764	0.764
Firm FE & Parent & Parent country x Year FE	YES	YES	YES	YES	YES

Clustered standard errors on parent-year level in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: 'CIT' stands for statutory corporate income tax rate, 'EATR' for the effective average tax rate. From Specification (2) onward, effective average CIT rates are used to determine whether or not a subsidiary is located in a foreign low-tax country (by the CFC law of the parent country). In Specification (3), the probably treated subsidiaries are differentiated by the concerned tax base of their parents' CFC rules. In Regression (4), all high-tax country subsidiaries from CFC rule affected parents with subsidiaries in low-tax countries are excluded. In the last regression, (5), the non-treated subsidiaries of CFC rule parents are split into two groups additionally, i.e. higher or lower than the CIT rate of the parent country. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of Financial Profits.

As the tax base of CFC laws differs between countries and over time, I distinguished the laws between 'passive income', 'all income' or 'something between passive and all income' with regard to the inclusion of foreign profits. This simple distinction stems from the various CFC laws. In Specification (3), the formerly observed low-tax country subsidiaries are split up into these three groups, according to the CFC rules enacted in their corresponding parent country. As one can see, the quasi aggregated value splits up quite differently. All three distinctions show significant negative effect but with varying size. If all income of the foreign subsidiary could be affected by the CFC rule, one can observe clear negative effects on financial profits abroad in Specification (3), with a significant decrease of 23.4% in foreign financial profits. If the passive income is concerned by CFC laws, the effect stays significantly negative for the subsidiaries in Specification (3), with a 29.3% decrease in financial profits abroad. For the incomes in between total or passive income only, one can observe a significant negative effect of 31.4% in Specification (3), however, the statistical significance is slightly less. It seems that subsidiaries, which are potentially effected by their passive income only, are more aggressively used for shifting or, put differently, parents from countries with CFC rules that would affect all income abroad are less risky and, therefore, less responsive to law changes.

So far, the control group consisted of all subsidiaries in the sample which are not directly affected by CFC rules. But one could think of the possibility that multinationals search for other ways to shift their profits abroad and to decrease overall tax payments. As pointed out above, one possibility to circumvent the CFC taxation into a low-tax country subsidiary could be to shift the profits in another foreign non-low tax subsidiary of the same parent instead. Therefore, statistically, this group of subsidiaries would also be considered as treated but in the opposite direction. As this could lead to an overstatement of the results, in Regression (4) subsidiaries which have a treated CFC affiliate are excluded. One can see that the coefficient is still significant and increased to 27% as expected. This observation leads to the following consideration.

In Specification (5), I show that financial profits of CFC rule affected multinationals accrue predominantly in foreign subsidiaries, which are located in countries with CIT rates higher than the low-tax threshold but lower than the own CIT rate of the parent company. Therefore, the subsidiaries located in countries with CIT rates above the low-tax threshold are divided into two groups: (i) above the low-tax threshold but below the parent country CIT rate, and (ii) above the parent's country CIT rate. One can still see the negative effect of CFC rules on financial profits in foreign low-tax countries of -20.2%, but the effects of the remaining two groups differ significantly. Subsidiaries of group (i) have 7.3% higher financial profits as they are not affected by CFC rule taxation. If the CIT rate of the subsidiary country is higher than the parent country CIT rate, group (ii), the financial profits are higher as well but statistically insignificant as shifting profits there does not lead to tax savings.[32] Therefore, it seems that parents affected by CFC rules shift their profits as well, but into subsidiaries located in countries above the low-tax threshold. This behaviour still lowers the average effective tax rates companies would have to pay for these shifted profits and is legitimate. These baseline results proof Conjecture 1 of the theoretical part in Section 3.3 correct, as they show that multinationals choose to shift their profits preferably not into low-tax countries but into countries with CIT rates above the low-tax threshold, which accounts for option (2) in the decision tree in Figure 3.1. Decision choice (1) from the theoretical framework will be researched in more detail in Subsection 3.6.2.2.

The used control variables generally show the expected signs and are significant. On the firm level, tangible fixed assets in the subsidiary have a significant positive effect on financial profits, which seems plausible. Robustness tests in Table 3.3 for varying firm controls do not alter this result. The probably only unexpected sign is displayed by the statutory tax rate in the foreign subsidiary country. Here I observe more financial profits with higher subsidiary tax rates but statistical insignificance. As CFC rules concern effective taxes the used EATR measure from Specification (2) onward seems to provide a better control variable for this

[32] If the excluded affiliates from Regression (4), the 'CFC sister subsidiaries' located in countries above the low-tax threshold, are included again, the results stay nearly the same.

effect, it shows the expected sign and is highly statistically significant. Other reasons for this positive sign for CIT my be the ones observed in Specification (4) and (5). As expected, one can see higher financial profits with higher corruption and higher gdp, both with statistical significance. One can see less financial profits, with higher gdp per capita and with higher unemployment rates. In the context of profit shifting behavior of multinationals, there is no clear expected sign for these two control variables, as both ways could be plausible. In robustness checks one will see that the signs of these two coefficients will change or they become insignificant.

The same Regressions (1)-(3) & (4) are undertaken again but with time-variant parent country controls in Table B.4 in Appendix B.3. The overall picture stays very much the same and the added control variables are showing the expected signs with significant coefficients: Higher CIT rates in the parent countries lead to more profit shifting or more financial profits abroad, respectively, and higher corruption in the parent country leads to more profit shifting as well. No clear sign is expected for the *GDP*, *GDP per capita* or *unemployment* neither for profit shifting nor for foreign financial income. The results of the study at hand are in line with former findings from Ruf and Weichenrieder (2012) about the influence of German CFC rules on foreign investment behaviour, specifically, concerning their results about lower passive investments in foreign low-tax countries of CFC rule affected German multinationals.

Robustness checks and further insights

To show the robustness and causality of my results, variations of the baseline regressions are presented in this subsection. At first, I examined the used fixed effects and clustering conditions. All results in Table 3.2 proof the robustness of my baseline results, as the coefficient on the variable of interest stays negatively significant, and more or less at the same size: in Regression (1) a simple OLS regression is conducted, and in (2) no firm fixed effects are used, both resulting in negatively significant larger coefficients. In Regression (3), I used the most strict fixed effects possible and included parent-subsidiary fixed effects, which

cancel out all time-invariant, link-specific effects within multinational companies, as well as home country-year fixed effects to eliminate all variation that could influence the results on the yearly parent country level. For these reasons, only observations of parents with at least two subsidiaries and two observations can be included, other observations are getting dropped automatically due to these strict conditions. Therefore, the observed number of subsidiaries abroad drops to around 156,000 observations. These fixed effects include any country by country fixed effects as well.[33]

In the following regressions, I change the clustering from parent-year in the baseline results to (4) home country-year, (5) host country-year, and (6) parent level to observe if these variations of perspective drive my results. The significances of some control variables change but the variable of interest, CFC, stays significant, which provides trust for the causality of the effect. Even though I include parent fixed effects in most regressions, there could exist some other interfering effects from the parent home country. To check for this possibility, I included four macro control variables for the parent countries in Regression (7) to account for these possible influences, but the results stay the same. The statutory CIT rate in the parent country seems to affect financial profits abroad positively. With more corruption in the parent country, again, more financial profits accrue abroad, which seem to be the logically expected signs for both. Additionally, with increasing investment freedom, the foreign subsidiaries show more financial profits, which seems plausible as well. There is no clear expected sign for GDP in the parent country, but it seems that multinationals from smaller countries shift more profits or have more financial income abroad.[34] Other mentioned studies show that the CIT rate of the parent country could play an important role and alter behaviour in this setting. Therefore, I rerun all regressions presented in this

[33] As subsidiary firm, parent and also the used subsidiary-parent fixed effects include inherent industry fixed effects and this stricter fixed effects version shows no influence, no regression results for industry fixed effects are shown but are available upon request.

[34] The exact same regressions are undertaken again but with time variant parent country controls in Table B.4 in Appendix B.3. The overall picture stays very much the same and the further control variables are showing the expected signs with significant coefficients: Higher CIT rates in the parent countries lead to more profit shifting/ more financial profits abroad and higher corruption in the parent country leads to more profit shifting too.

study including this variable as well. The results stay nearly the same and are therefore not shown in the study at hand, but are available on request.

As shown in the theoretical part in Section 3.3, one could think of the possible self-selection of very subtle multinationals utilizing subsidiaries in countries with lower CIT rates than the allowed low-tax threshold in the according CFC rule, but with a lower passive-to-total income ratio than the second threshold, as a profit shifting vehicle. This could result in multinationals, that still shift their profits into foreign low-tax countries even if they have enough active income in these subsidiaries to stay below the prescribed ratio threshold.[35] Therefore, in Regression (8) of Table 3.2, I included another indicator variable for the second mentioned important 'passive-to-total income' threshold to account for this selection problem. This indicator variable is 1 if the parent country has a CFC rule enacted, both, parent and subsidiary, are located in the EEA, the passive-to-total income ratio is above 50%, the observed year is after the mentioned Cadbury-Schweppes-Case in 2006, or the passive-to-total income ratio is above the permitted threshold in the specific CFC rule. By construction, this indicator variable depends indirectly on the ratio of financial-to-total income. This is not a forbidden exclusion criteria for a control variable per se, but it can fuel doubts about the causality of the result of Regression (8). As this is a robustness check which simply confirms the baseline regression, the result is still presented in this study but the reader should interpret this regression result with caution in terms of causality. Nonetheless, the coefficients show the expected signs and the interaction effect of both variables shows a larger negative correlation between the expected effect of CFC rules on financial income in foreign low-tax subsidiaries than in the baseline regression. Another approach to tackle this selection problem is undertaken in Regression (6) of Table 3.4 below. In both regressions, the results only vary a bit in magnitude, however, stay in the expected direction, which leads to the presumption that – for the underlying ORBIS data set – the multinationals that select themselves into this specific low-tax country group are rather small in terms of total

[35] Further theoretical thoughts about this issue are undertaken by the mentioned study from Weichenrieder (1996).

financial profits compared to the non-selecting group. Therefore, the selection doubts, which are generally intractable in the underlying setting, can be satisfied to some extend at least. In addition, these results support the claim that the presented baseline regression results are a lower bound in terms of size rather than an exact estimate, which would be hard to extract in this aggregated setting anyway.

Table 3.2: Robustness of fixed effects, clustering or parent country controls of baseline results

Dependent Variable	Log Financial Profits							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	no Firm FE	most strict FE	cluster at Parent_Country*Year	cluster at Sub_Country*Year	cluster at Parent	Parent country controls	Pass Inc threshold
CFC	-0.178***	-0.344***	-0.167***	-0.177***	-0.177***	-0.177***	-0.178***	-0.530***
	(0.0194)	(0.0183)	(0.0406)	(0.0506)	(0.0586)	(0.0194)	(0.0162)	(0.0199)
ln Tangible Fixed Assets				0.118***	0.118***	0.118***	0.115***	0.122***
				(0.00440)	(0.00666)	(0.00441)	(0.00382)	(0.00351)
CIT sub				0.102	0.102	0.102	0.0384	-0.404**
				(0.418)	(1.072)	(0.196)	(0.175)	(0.159)
ln corruption sub				0.700***	0.700**	0.700***	0.599***	0.554***
				(0.126)	(0.292)	(0.0525)	(0.0526)	(0.0447)
ln gdp sub				2.183***	2.183**	2.183***	2.352***	1.714***
				(0.554)	(1.028)	(0.274)	(0.219)	(0.201)
ln gdppc sub				-1.326**	-1.326	-1.326***	-1.545***	-1.053***
				(0.575)	(1.076)	(0.275)	(0.219)	(0.204)
ln unemployment sub				0.0426	0.0426	0.0426*	0.0265	-0.0241
				(0.0531)	(0.0888)	(0.0229)	(0.0179)	(0.0162)
CIT GUO							1.053***	
							(0.188)	
ln corruption GUO							0.210***	
							(0.0615)	
ln gdp GUO							-0.499***	
							(0.0874)	
investmentfreedom GUO							0.00354***	
							(0.000620)	
Passive-to-total income threshold								1.130***
								(0.0106)
CFC##P/T-Inc-thresh								-0.217***
								(0.0210)
Observations	470,420	449,755	156,283	359,243	359,243	359,243	322,260	359,243
Adjusted R-squared	0.001	0.377	0.768	0.769	0.769	0.725	0.770	0.783
Year FE		YES		YES	YES	YES	YES	YES
Parent FE		YES		YES	YES	YES	YES	YES
Subsidiary FE				YES	YES	YES	YES	YES
Subsidiary*Parent FE			YES					
Parent_Country*Year FE			YES					

Clustered robust standard errors on parent-year level in parentheses if not marked otherwise *** p<0.01, ** p<0.05, * p<0.1

Note: 'CIT' stands for statutory corporate income tax rate, 'ln gdppc' for the log of GDP per capita, 'ln unemployment' for the log of the unemployment rate. 'Corruption' is used from the Heritage Foundation calculation. 'sub' stands for subsidiary and 'GUO' for global ultimate owner country. In Specification (1), a simple OLS regression without any controls or other tweaks is used. In Regression (2), no firm fixed effects are used. In Specification (3), I used the most strict fixed effects with subsidiary-parent and parent country-year fixed effects. In the following Regressions (4)-(6), different clustering results are shown. In Specification (7), additional parent country controls are included. In the last Regression (8), the second 'passive-to-total income' threshold is included and interacted with the *CFC*-variable. The signs are as expected, the coefficients larger and still significant. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of financial profits. This table shows that the baseline results are robust to different fixed effects, clustering, controls and the second important CFC rule threshold.

Table 3.3: Robustness of sample or variable selection

Dependent Variable	Log Financial Profits									
	(1) no intermediate & strict FE	(2) control for intermediate	(3) at least 2 subs in 2 years	(4) Only OECD	(5) Exclude non threshold obs.	(6) Include U.S.	(7) EMPL Control	(8) TOAS Control	(9) OPPL Control	(10) tax diff Control
CFC	-0.135**	-0.0610***	-0.124***	-0.198***	-0.159***	-0.170***	-0.167***	-0.150***	-0.227***	-0.185***
	(0.0524)	(0.0220)	(0.0280)	(0.0151)	(0.0333)	(0.0133)	(0.0174)	(0.0143)	(0.0161)	(0.0151)
ln Tangible Fixed Assets	0.112***	0.122***	0.105***	0.111***	0.112***	0.114***				0.118***
	(0.00992)	(0.00450)	(0.00597)	(0.00393)	(0.00503)	(0.00338)				(0.00362)
ln Employees							0.246***			
							(0.00807)			
ln Total Assets								0.723***		
								(0.00674)		
ln Operational Profits									0.0911***	
									(0.00321)	
CFC RULE intermediate		0.0227								
		(0.0753)								
CIT intermediate		1.136***								
		(0.187)								
tax difference										0.638***
										(0.133)
CIT sub	1.335***	0.221	0.873***	0.756***	1.234***	0.00642	-0.485***	0.598***	0.0405	
	(0.394)	(0.198)	(0.245)	(0.172)	(0.224)	(0.151)	(0.184)	(0.152)	(0.177)	
ln corruption sub	0.323***	0.547***	0.735***	0.571***	0.658***	0.705***	0.866***	0.626***	0.799***	0.740***
	(0.110)	(0.0580)	(0.0783)	(0.0505)	(0.0634)	(0.0434)	(0.0536)	(0.0428)	(0.0505)	(0.0450)
ln gdp sub	2.729***	1.460***	1.726***	3.037***	3.513***	1.640***	0.510**	2.201***	2.262***	2.191***
	(0.496)	(0.260)	(0.343)	(0.231)	(0.273)	(0.197)	(0.251)	(0.191)	(0.228)	(0.207)
ln gdppc sub	-0.465	-0.103	-0.0913	-2.312***	-2.502***	-0.699***	0.350	-1.934***	-1.321***	-1.348***
	(0.508)	(0.266)	(0.356)	(0.236)	(0.277)	(0.200)	(0.251)	(0.192)	(0.230)	(0.209)
ln unemployment sub	-0.121***	-0.0863***	-0.123***	0.0511***	0.108***	0.0114	0.123***	-0.00352	0.0680***	0.0472***
	(0.0409)	(0.0220)	(0.0280)	(0.0181)	(0.0212)	(0.0158)	(0.0191)	(0.0155)	(0.0184)	(0.0168)
Observations	60,847	248,596	156,297	301,613	197,798	418,702	289,989	430,686	289,318	359,243
Adjusted R-squared	0.772	0.753	0.769	0.772	0.780	0.769	0.773	0.787	0.773	0.769
Year & Parent & Subsidiary FE		YES	YES	YES	YES	YES	YES	YES	YES	YES
Subsidiary*Parent FE	YES									
Parent_Country*Year FE	YES									

Clustered robust standard errors on parent-year level in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: 'CIT' stands for statutory corporate income tax rate, 'ln gdppc' for the log of GDP per capita, 'ln unemployment' for the log of the unemployment rate. 'Corruption' is used from the Heritage Foundation calculation. 'sub' stands for subsidiary and 'intermediate' for an intermediate owner country. In Specification (1), again the same strict fixed effects from reg.(3) in the above Table 3.2 are used and this time only direct cross-border ownership linkages without intermediate owners are observed. In regression (2), this is relaxed but some controls for the intermediate countries are included. In Specification (3) only parents with at least two subsidiaries for at least two consecutive years are observed. In the following Regressions (4)-(6), country sample selection biases are excluded by observing only OECD parents in (4), excluding CFC subsidiary observations where no low-tax threshold is included in the law (5), and including the U.S. in (6). Different control variables on the subsidiary level are used in Specifications (7)-(9). In the last Specification (10) the tax rate difference between the two countries instead of the foreign subsidiary country is used. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of Financial Profits. This table shows that the baseline results are robust to differently conducted variable and sample selection checks.

In Table 3.3, I examine if the sample or the selected variables could bias my baseline results. Thereto, I use various different samples and control variables in the following robustness regressions. Again, all regressions show significant negative coefficients for the variable of interest, selection biases seem to not drive the results and the regressions confirm the effects of CFC rules on financial profits in low-tax subsidiaries. In Specification (1) of Table 3.3, I exclude all observations that have chain ownership structures with any intermediate companies and observe direct parents only, again with the most strict fixed effects to account for link-specific effects. In Regression (2), I include possible intermediate companies again, but this time control variables for a potential CFC rule and the statutory CIT rate in those countries are included additionally. One can see less observations and the effect of interest is smaller in size, but it is still negatively significant. In Specification (3), I test if another sample constraint could alter the outcome: in this regression, observations are included if the parent has at least two subsidiaries in two years. This should exclude purely (non-) shifting multinationals and provide a preferable comparison environment, but less observations. The results show quality-wise the same outcome, only with far less observations. In Regression (4), I restrict the sample to OECD countries only, excluding the other 25 countries and, again, the baseline results seem to be robust to that test.

As this study tries to compare as many CFC rules as possible from various countries, I included all of these countries so far, even though some of them do not use the low-tax threshold to determine whether subsidiaries are located in low-tax jurisdictions. Some others do, but not for all years. For all these country-years, a subsidiary counted as located in a low-tax country in all regressions so far, which would have driven my results, or rather the significance, to zero. In Regression (5), observations from country-years where only a low-tax threshold exists in the CFC rule as well as of parent countries without CFC rules are included to test for any result driving factors. The results stay the same and show the robustness of the baseline results. So far, in all regressions, the United States (U.S.) are excluded from the calculations, due to their "check the box" rules, which undermined their

existing CFC rules.[36] In Regression (6), this exclusion is lifted and parents from the US as well as their subsidiaries are included, using the rules from the U.S. CFC law and the according thresholds. Despite, including a higher number of observations, the results stay robust.

Generally, it is not clear which control variable should be used to account for real foreign actions and business activity in the foreign subsidiary. To account and control for this issue, so far, tangible fixed assets are used. In Regressions (7) - (9), different variations for the firm-level control are utilized. All results still show negative significant influence of probably affected financial profits in low-tax subsidiaries, even though the number of observations and the size of the coefficient differs. In a further regression, I used log of sales instead, and the results are pretty similar to those of Regression (7).[37] These variables control in a different manner, and potentially even better, for the variability of financial reports, which are irrelevant for profit shifting. On the other hand, these variables are potentially more distorted due to transfer pricing. Interestingly, Regression (7) as well as the not presented one with log of sales instead of tangible fixed assets as control variables are the only regressions that show a clear negative significant sign for the foreign subsidiaries' CIT rate. This would be the expected sign in a normal FDI consideration, but not necessarily in the here observed profit shifting world, as discussed above. In Regression (10), the difference between the parent and the subsidiary CIT rate is used instead of the simple subsidiary CIT rate. The coefficient of interest is slightly larger and shows that with a higher tax rate differential, increasing financial profits accrue abroad, which is plausible and in line with the former mentioned studies about profit shifting.

One could have a further doubt in mind, namely that the results are driven by larger global tax system influences. As shown in Feld, Ruf, et al. (2016) or Clausing (2015), the general tax system probably not exclusively influences FDI, but also profit shifting activities. To show that my baseline results are not driven by these factors, I included a dummy variable

[36] For further details see Section 2.4.

[37] Due to the similarity, the results are not shown in the table but are available on request.

that is 1 if the country's tax system uses the exemption method (territorial tax system) and zero otherwise in Regression (1) in Table 3.4. One can see that the variable of interest is barely influenced by implementing this additional control. The control variable itself shows that subsidiaries from parents within territorial tax systems generally have less financial profits abroad, which is in line with the former mentioned literature.[38] Further important international tax laws concerning financial profits abroad are the already mentioned thin-capitalization rules. In Regression (2), I checked for their influence by combining the used CFC low-tax dummy with these rules. The new dummy of interest is 1, if the subsidiary is located in a low-tax country according to the CFC laws of its parent *and* if thin-capitalization rules are implemented in the parent country. The results are still negatively significant and slightly larger in size, which shows that financial profits in foreign low-tax countries are even smaller if both anti-tax avoidance laws are implemented. Specifically, debt shifting from the parent towards the subsidiary is harder under these circumstances.

In Regression (3), the variable of interest from the baseline results is split up into three categories determined by the company size of the parents.[39] It seems the smaller the parent is the more influence does the CFC legislation have, or at least, that with a larger size of the parent company, the financial profits in foreign low-tax subsidiaries are less affected, even though the results are all negatively significant.[40] The following Regression (4) shows a comparable picture, but this time for the observed company size of the subsidiaries.[41]

[38] The reader should remember that in these regressions, parents from the U.S. are excluded. But, even if the parents and their subsidiaries are included in this calculation, the results stay the same; they are highly significant but the coefficient for the used non-double tax method is smaller in size. These results are not shown here but are available on request.

[39] For the determination of the three categories, I used the provided identifier in the ORBIS data. I excluded $small firms$ as companies can end up in this category just by missing data at Bureau van Dijk. With subsidiaries in low-tax countries included are: 14,710 very large parents, 1,957 large parents and 1,871 medium-sized parents.

[40] Another possible reason for this finding could be the additionally important passive-to-total income threshold, which is examined in the next chapter. In short at this point: If a company is larger and has more real income abroad more profits can be shifted, as long as the passive-to-total income ratio does not exceed a certain threshold.

[41] Here, the proportion of sizes is different: 4,998 very large subsidiaries, 16,291 large subsidiaries, and 28,756 medium-sized subsidiaries are located in low-tax countries and are presumably affected by CFC rules of their parents.

Again, we observe a larger influence on smaller subsidiaries. The reasons for this behavior are manifold and will not be discussed here as they are pure speculation on this level of observation.

As most CFC rules state that at least 50% of the foreign subsidiary must be under control of the parent to be affected by these laws, this threshold is set in all regressions so far. One could argue that even with 50% the possible profit shifting scope is limited. Therefore, in Regression (5), only subsidiaries that are owned with more than 99% are deemed to be possibly affected by profit shifting behaviour and the indicator variable turns 1 if this higher ownership threshold is reached. The results for this variable are still negatively significant but smaller in size, which probably shows that with less ownership shares, sufficient profit shifting decision making power is present already. The EEA exemption due to the Cadbury-Schweppes-Case, explained in Section 2.1 and with more results in Section 3.6.2.2, can annul the low-tax threshold legislation if the main part of the foreign income is from active nature. To demonstrate this implication, in Regression (6), the subsidiaries which are located in a low-tax country and which bunch at the given EEA threshold explained in Section 2.1 are added as an additional group of subsidiaries. Due to this exemption, I do not observe a negative influence of CFC rules on this very specific group of profit shifting vehicles but observe, as expected, higher financial profits abroad.

Table 3.4: Robustness of further possible influences on CFC rules

Dependent Variable	Log Financial Profits					
	(1) Double Tax Method	(2) Including Thin Cap	(3) Company Size Parent	(4) Company Size Subsidiary	(5) Only > 99 percent ownership CFC	(6) EEA Exemption
CFC	-0.164***					-0.178***
	(0.0152)					(0.0150)
Territorial tax system at GUO	-0.133***					
	(0.0179)					
CFC & TC Present		-0.180***				
		(0.0150)				
very large			-0.106***			
			(0.0336)			
large			-0.156**			
			(0.0725)			
medium			-0.285***			
			(0.0827)			
very large sub				-0.150***		
				(0.0535)		
large sub				-0.171***		
				(0.0281)		
medium sub				-0.184***		
				(0.0168)		
$CFC_{alternative}$					-0.101***	
					(0.0211)	
EEA Buncher						0.438***
						(0.148)
ln Tangible Fixed Assets	0.113***	0.117***	0.112***	0.118***	0.119***	0.118***
	(0.00373)	(0.00363)	(0.00630)	(0.00362)	(0.00362)	(0.00362)
CIT sub	0.232	0.111	1.827***	0.108	0.101	0.102
	(0.166)	(0.163)	(0.252)	(0.163)	(0.163)	(0.163)
ln corruption sub	0.658***	0.694***	0.490***	0.702***	0.631***	0.700***
	(0.0470)	(0.0460)	(0.0802)	(0.0460)	(0.0452)	(0.0459)
ln gdp sub	2.172***	2.212***	2.769***	2.187***	1.949***	2.182***
	(0.213)	(0.208)	(0.362)	(0.207)	(0.206)	(0.207)
ln gdppc sub	-1.463***	-1.346***	-0.976***	-1.328***	-1.156***	-1.325***
	(0.213)	(0.210)	(0.371)	(0.209)	(0.209)	(0.209)
ln unemployment sub	0.0361**	0.0425**	-0.113***	0.0428**	0.0355**	0.0425**
	(0.0173)	(0.0168)	(0.0287)	(0.0168)	(0.0168)	(0.0168)
Observations	337,790	357,643	130,661	359,243	359,243	359,243
Adjusted R-squared	0.771	0.769	0.760	0.769	0.769	0.769
Year & Parent & Sub FE	YES	YES	YES	YES	YES	YES

Clustered robust standard errors on parent-year level in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: For the determination of the three categories 'very large', 'large' and 'medium' I used the provided identifier from the Orbis data. 'CIT' stands for statutory corporate income tax rate, 'ln gdppc' for the log of GDP per capita, 'ln unemployment' for the log of the unemployment rate. 'Corruption' is used from the Heritage Foundation calculation. 'sub' stands for subsidiary country. In Specification (1), an additional variable for tax system differentiation is added which is 1 if the parent country corporate tax system uses the exemption method and 0 otherwise. In Regression (2), the CFC variable is altered and is now only 1 if, additionally to the former restrictions, a thin capitalization rule is enacted in the parent country. In Specification (3), a distinction between the parent company sizes is taken and the former CFC variable is split up into three categories. In Regression (4), the same distinction is taken but this time for the subsidiary company size. In Specification (5), a different variable of interest is created by allowing only more than 99% of ownership instead of 50% to account for possible CFC rule effects as in the other regressions. Regression (6) shows that specific subsidiaries, which are located in low-tax countries at the EEA exemption threshold, have higher financial income due to another special EEA exemption explained in detail in Section 3.6.2.2. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of financial profits. This table shows that also the inclusion of further international taxation issues has no generally changing influence to the baseline results, and that the coefficients are different in size for different company sizes.

In the last table of the robustness checks, Table 3.5, I checked for various alternative dependent variables to show that my results are not driven by the unusual variable choice. For readability reasons, I repeated the baseline result in Regression (1). In Specification (2), I used intangible fixed assets of foreign subsidiaries instead as dependent variable, as this measure is often used in other profit shifting literature. As written above, this variable is used to indicate shifting behavior as these assets often stand for patents, trademarks or other intellectual property which are comparably easy to shit. With a higher number of observations, one can see the same results, even with higher magnitude. If the subsidiary is located in a foreign low-tax country, as determined by the CFC laws of its parent, less intangible fixed assets are located in this subsidiary.[42] To account for the fact that in all former financial profit regressions the logarithmic transformation is used and, therefore, only positive observations are included, I relaxed this often used restriction in Regression (3), and set the logarithm of financial profits over total profits as dependent variable, which includes some negative observations as well. The coefficient of the variable of interest is still negatively significant, even though smaller in size. One should keep in mind that fractions as dependent variables have their own flaws, e.g. presence of corner solutions (e.g., Loudermilk (2007)). To learn more about CFC rule influence, I included Specifications (4)-(6), consisting of far more observations due to richer variable data availability. Real activity abroad as proxied by $Sales$ and $OperationalProfits$ is higher in these low-tax subsidiaries, which could have many reasons. No specific assumption of the signs of these coefficients is expected. Regression (5) shows that less $FixedAssets$ are used in these low-tax subsidiaries compared to others, which is in line with former results from Egger and Wamser (2015). As log of tangible assets still accounts for real FDI like machinery, the positive signs could indicate potential transfer mis-pricing in case of these specific low-tax subsidiaries, as men-

[42] In fact, nearly all former regressions run with intangible assets show a similar picture. They are not depicted here, but are available from the author upon request.

tioned above.[43] Additionally, this indicates that countries which actually aim to attract real investment from foreign countries could be better off if CIT rates were increased.

As it is not clear what happens with the less shifted profits, as shown in Regressions (4) and (5) in the baseline results, and where they end up, I included Regressions (7)-(9) to show some insights into these matters. Regressions (7) and (8) show that parents with subsidiaries located in low-tax countries pay comparably higher taxes in their home countries, which indicates that the higher taxation of CFC rules might work. The control variables used to cancel out other possible influences are showing the expected signs and are mostly significant, even with different standard error clustering.[44] Additionally, Specification (9) shows that subsidiaries located in foreign low-tax countries pay comparably less taxes in their host countries as well. This is plausible as we are observing subsidiaries in lower tax countries. These results suggest that CFC rules work as intended and that higher taxes are paid in the parent country.

[43] Interestingly, if the control variable of tangible fixed assets is removed, these signs turn negative and the coefficient of $FixedAssets$ becomes larger as expected. This reinforces the hypothesis of a transfer pricing influence on active income or real FDI, which is not the focus of this study.

[44] The same fixed effects are used to account for the aforementioned possible influences in these regressions as well.

Table 3.5: Robustness of dependent variable and further insights

Dependent variable	(1) Base result	(2) ln(Intangible Fixed Assets)	(3) ln(Financial Profits /Profits)	(4) ln(Sales)	(5) ln(Fixed Assets)	(6) ln(Operational Profits)	(7) ln(taxes paid) Parent	(8) ln(taxes paid) cluster Parent	(9) ln(taxes paid) Subsidiary
CFC	-0.177***	-0.266***	-0.0473***	0.00752**	-0.0462***	0.0220***	0.103***	0.103**	-0.0694***
	(0.0150)	(0.00723)	(0.0116)	(0.00295)	(0.00214)	(0.00477)	(0.0204)	(0.0511)	(0.00341)
ln Tangible Fixed Assets	0.118***	0.223***	0.0605***	0.193***	0.711***	0.173***			
	(0.00362)	(0.00253)	(0.00273)	(0.00119)	(0.00137)	(0.00144)			
ln Operational Profits							0.0397***	0.0397***	0.719***
							(0.00318)	(0.00368)	(0.00137)
CIT sub	0.102	1.989***	0.618***	0.366***	-0.0188	-0.493***	0.207	0.207	2.404***
	(0.163)	(0.0932)	(0.144)	(0.0421)	(0.0271)	(0.0640)	(0.188)	(0.334)	(0.0549)
ln corruption sub	0.700***	0.291***	0.806***	0.00286	0.178***	-0.197***	0.0464	0.0464	-0.283***
	(0.0459)	(0.0265)	(0.0385)	(0.0105)	(0.00707)	(0.0158)	(0.0562)	(0.0907)	(0.0118)
ln gdp sub	2.183***	-3.265***	0.691***	-0.501***	0.189***	-0.0234	0.893***	0.893**	-0.319***
	(0.207)	(0.130)	(0.173)	(0.0431)	(0.0352)	(0.0746)	(0.256)	(0.396)	(0.0596)
ln gdppc sub	-1.326***	2.172***	-0.650***	1.328***	0.208***	0.942***	-1.029***	-1.029**	0.757***
	(0.209)	(0.126)	(0.172)	(0.0446)	(0.0349)	(0.0722)	(0.264)	(0.406)	(0.0546)
ln unemployment sub	0.0426**	-0.504***	0.166***	-0.115***	0.0680***	-0.192***	-0.0385**	-0.0385	-0.127***
	(0.0168)	(0.0102)	(0.0145)	(0.00341)	(0.00273)	(0.00613)	(0.0196)	(0.0336)	(0.00517)
CIT GUO							-0.267	-0.267	
							(0.206)	(0.432)	
ln corruption GUO							-0.734***	-0.734***	
							(0.0773)	(0.158)	
ln gdp GUO							1.429***	1.429**	
							(0.300)	(0.632)	
ln gdppc GUO							1.225***	1.225*	
							(0.356)	(0.673)	
ln unemployment GUO							-0.0684***	-0.0684	
							(0.0253)	(0.0483)	
Observations	359,243	936,233	580,701	1,311,110	1,942,189	1,251,904	183,059	183,059	1,134,741
Adjusted R-squared	0.769	0.801	0.501	0.903	0.959	0.805	0.893	0.893	0.897
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Parent FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Subsidiary FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Clustered robust standard errors on parent-year level in parentheses if not other marked *** p<0.01, ** p<0.05, * p<0.1

Note: 'CIT' stands for statutory corporate income tax rate, 'ln gdppc' for the log of GDP per capita, 'ln unemployment' for the log of the unemployment rate. 'Corruption' is used from the Heritage Foundation calculation. 'sub' stands for subsidiary and 'GUO' for a global ultimate owner country. In specification (1) the baseline regression is repeated for better comparison. In the following Regressions (2)-(6), different dependent variables instead of financial profits are used at the subsidiary level: in (2) intangible assets, in (3) financial profits over total profits to include possible negative observations, in Regressions (4)-(6) non-shifting parameters are used as dependent variable: in Specification (4) sales, in (5) fixed assets and in (6) operational profits. In the following Regressions (7)-(9), effects of CFC rules on tax payments are shown with simple robust standard errors. In Specifications (7) and (8), for taxes paid at the parent level with different clustering for robust and for robust clustering at the subsidiary country-year level. In Regression (9) taxes paid by the foreign subsidiary, are used as dependent variable instead. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of Financial Profits. This table shows the robustness of the baseline results for different depended variables and shows further insights into CFC rule influences for other variables of interest.

3.6.2 How CFC rules are circumvented

Despite the shown impact of CFC rules, that these laws lead, generally, to less financial income in foreign low-tax subsidiaries abroad and, therefore, potentially to more CIT revenue globally, multinationals still try to minimize their tax payments and find ways to circumvent CFC rule taxation. A first possibility for multinationals to do so is shown in the previous section Regressions (4) and (5) of the baseline results in Table 3.1, and is achieved by shifting profits into subsidiaries which are located in countries with CIT rates above the minimum low-tax threshold but still below the home CIT rate of the CFC rule constrained parent. A second way, that is to move the headquarters into countries without CFC rules, is researched by Voget (2011) and has already been discussed above.

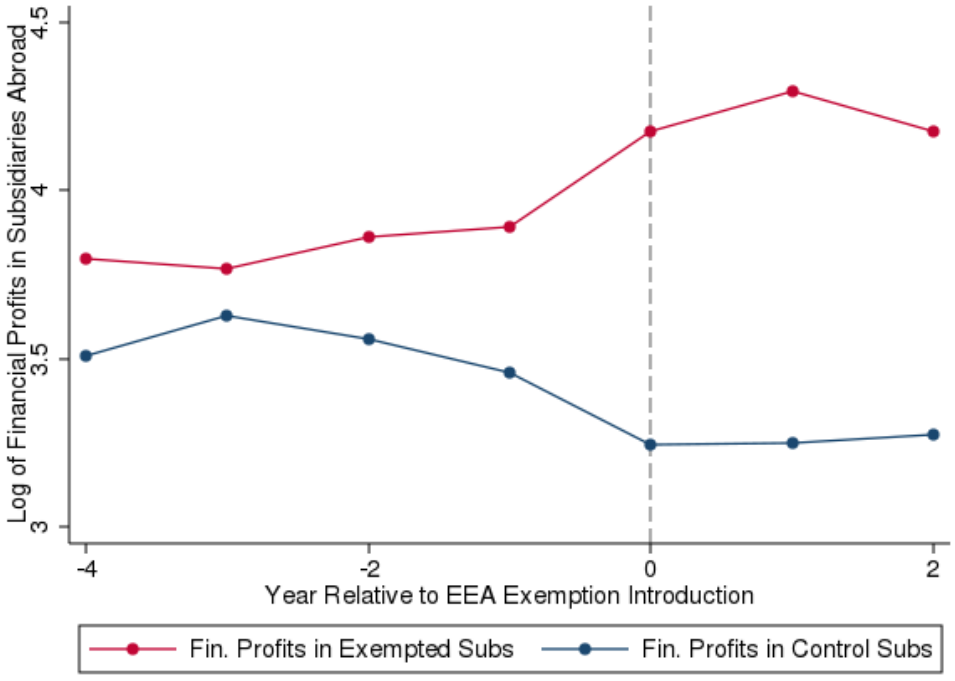
This subsection focuses on a third potential means to bypass CFC rule taxation: the usage of the given passive-to-total income threshold of many CFC rules. This corresponds to Option (1) in the conceptual framework Section 3.3. If the financial-to-active income ratio of a foreign subsidiary is below the given thresholds, the parent of that entity is usually not affected by CFC law taxation. As discussed above, Weichenrieder (1996) has shown theoretically that this threshold can lead to even more active foreign income to keep the ratio below the threshold. I provided empirical proof for these thoughts by showing that the deterrence effect seems to be larger, as can be seen in Regressions (4) and (6) with higher sales and operational profits in the last Table 3.5 of the previous section. Whether these profits are accruing from actual active activity or are rather re-framed profits is not detectable from the available data base. The result of Regression (5) in the same table is in favour of the latter one, as it shows lower fixed assets in these low-tax subsidiaries. The finding of deterrence for active investment in low-tax subsidiaries by CFC rules is in line with Egger and Wamser (2015), who find decreasing foreign real investments in the treatment case for German multinationals, i.e. if the subsidiary is below the low-tax threshold and affected by German CFC rules.

Altogether, the results in this subsection provide evidence that multinationals from around the globe use these given thresholds to shift their profits into low-tax countries.

3.6.2.1 Graphical evidence for the influence of the EEA exemption

As explained in detail in Section 2.2, in nearly all countries of the EEA which do have a CFC rule, financial profits from EEA country subsidiaries are exempt from CFC law taxation if the passive income is below 50% of the overall profits of that subsidiary. This results mainly due to an ECJ ruling (European Court of Justice (2006)) in late 2006. After that, many countries within, but also outside, the EU introduced such an exemption in their CFC laws.

Figure 3.2: Differences in financial income due to the EEA exemption



Notes: The figure shows financial profits of foreign subsidiaries held by owners located in the EEA affected by a CFC law amendment, which gave profit shifting advantages to specific EEA subsidiaries. The red line depicts the treatment group and consists of subsidiaries with a passive-to-total income ratio below 50% located in EEA countries. The blue line is the control group and consists of subsidiaries which are not advantaged by the CFC law amendment but their parents are located in the same countries as the treatment group.

In Figure 3.2, I provided graphical evidence with an event study type, where one can see the different accruing financial profits in foreign subsidiaries in relation to the EEA exemption introduction in the observed countries. The red line (treatment group) shows the increase of financial profits of EEA subsidiaries with a passive-to-total income ratio below 50%, after the home country of the owner introduced the mentioned EEA exemption. The blue line (control group) shows the decrease of financial profits in foreign subsidiaries, which are not affected by the EEA exemption but held by parents located in the same countries as the treatment group. Not every EEA government adjusted the CFC rule right after the ECJ case in the years 2006 or 2007 but, as one can see from the divergence of the two lines before the law amendment, that multinationals anticipated changes and started the re-shifting of profits earlier already. The increase of the red line from year -1 to 0 accounts for a plus of 35 percentage points in financial profits in these CFC law exempted subsidiaries. Otherwise, the decrease of the blue line from year -1 to 0 corresponds to 19% less financial profits in the subsidiaries of the control group. This picture gives rise to the idea that multinationals shifted their profits from low-tax countries around the world into EEA countries, which are exempt from CFC legislation as long as the financial profits are below the passive-to-total income threshold. The reader should keep in mind that this is not only true for the here examined European ultimate owners but also for subsidiaries in owner chains from other countries, which happen to be located in an EEA country with according CFC rules.

For German multinationals, the coherence of the EEA exemption and foreign passive assets as investment is already shown by Ruf and Weichenrieder (2013) using data about German multinationals. The OLS estimates for the treatment effect are slightly larger (with an increase up to 40% in passive assets), but in the range of my estimate for the increase in foreign financial profits within EEA subsidiaries. In the mentioned policy paper by Bräutigam, Spengel, and Streif (2017), the authors show with calculated effective CIT rates that the ECJ decision on tax neutrality issues, not only led to less strict CFC rules but in a second step also to the rise of IP box regimes within the EU.

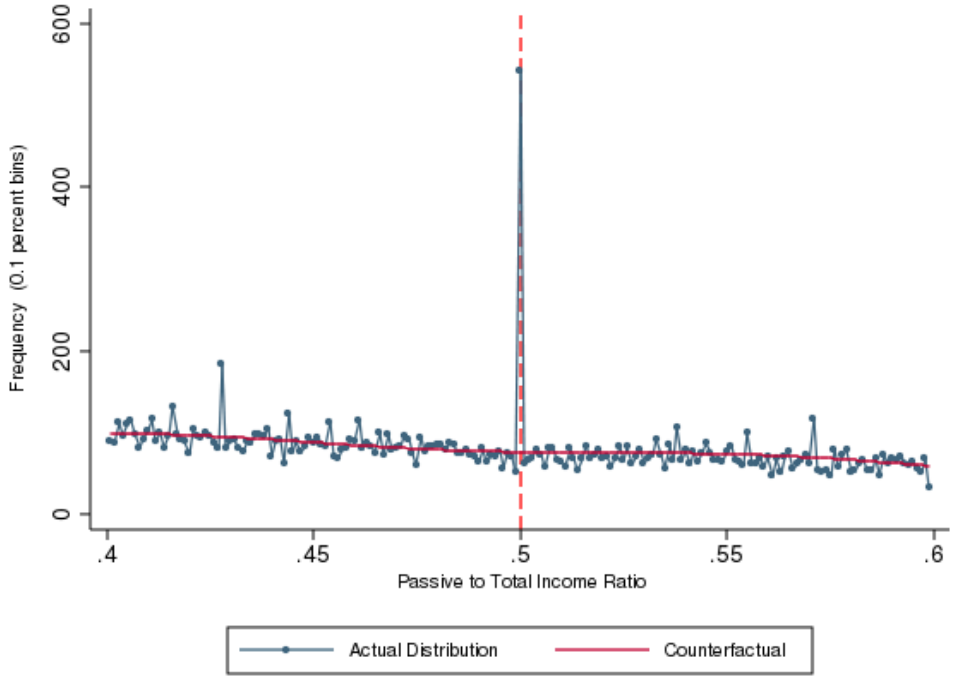
3.6.2.2 Impact of the passive-to-total income threshold on financial income abroad

In this section, I observe the impact of another important threshold, which is, in different forms, often used in CFC rules around the world: the above explained passive-to-total income threshold. As one can easily see in Figure 3.3 this threshold seems to alter corporations' behavior significantly. Ruf and Weichenrieder (2013) show that the foreign low-tax intangible assets from German multinationals are negatively influenced by a similar effect. In this section, I provide evidence for the influence of these thresholds on direct foreign low-tax income for multinationals from various countries. Figure B.1 in Appendix B.4 shows a zoomed out angle with a broader range of income ratios to illustrate the broader picture. In Table B.5 in Appendix B.4 I attached a graph for every country that is used in this study. One can see clear bunching in the countries that use the passive-to-total income ratio of 50% to determine whether a foreign entity is a CFC.[45] In the second table of this Appendix, Table B.6 no bunching occurs in subsidiaries from parent countries without a CFC rule or comparable anti-tax avoidance scheme. These graphical findings show the expected behavior from the theoretical framework as well as the law specifications explained in Section 3.3; specifically the option choice (1) from the decision tree in Figure 3.1 and the following mathematically formulated thoughts.

Figure 3.3 shows the first result of the graphical bunching analysis, including the observed and counterfactual distributions as a red and nearly horizontal line. It shows the densities of subsidiaries with parents in countries with enacted CFC rules that do have such a passive-to-total income threshold at 50%. The solid line with dotted markers plots the observed number of companies in income bins of 0.1 percent income ratios. Each dot denotes the upper bound of a given bin and represents the number of companies in each bin. The red solid smooth line shows the counterfactual density based on fitting a seventh-order polynomial using company

[45] One can also see Hong Kong on that list, which does not have a CFC rule in its legislation but has implemented a comparable law that entails similar consequences for non-financial entities.

Figure 3.3: Bunching at passive income threshold of 50% ratio



Notes: The figure shows an aggregated picture of foreign subsidiaries with positive financial profits from parent home countries where a CFC rule is enacted. These subsidiaries bunch right before the 50% passive-to-total income ratio, which is often the threshold to count as a CFC and get taxed by the observed CFC laws. For visibility reasons, the depicted span reaches from a ratio of above 40% to below 60% of financial-to-total profits abroad before taxes. A zoomed out version with a larger range of income ratios is shown in Figure B.1 in Appendix B.4.

counts with taxable income ratios between 40% and 60%, except for firms in the excluded range close to the critical 50% ratio. Due to the fact that it is easier for companies with their book incomes to stay exactly at or right before the threshold than for individuals, the observable bunching is much clearer as it is in the known bunching literature about individuals. As described above, the potentially affected foreign income base depends on the law (if the full income or only the (incremental) passive income is affected), and no clear notch or kink dynamic is specifiable in this aggregated setting. For the same reasons, the potentially expected missing mass on the right hand side of the threshold is not discernible. The interesting fact here is not the calculable elasticity, as this would be very aggregated and not really usable in this case, as explained in Section 3.3. But rather the huge bunching

in a multinational corporate world at a book ratio of profits, which is easily tweak-able by accountants. Further specific insights about this behavior are shown in this chapter. These results proof Conjecture 2 from the theoretical framework.

Companies which bunch at this specific threshold are interesting from the profit shifting perspective, as there is no further clear motivation other than profit shifting reasons to accumulate profits ending up right below the observed threshold. Not only small or super large multinationals are observed here, but firms of all sizes.[46] There are other ways for multinationals to shift their profits without getting taxed in the home country at the higher tax rates. The reader should keep in mind that the depicted bunchers are only a very specific fraction of multinationals, which try to shift their profits to get taxed at a lower rate by using this method of tax avoidance. Also, the bunchers are probably only the tip of the iceberg of multinationals that circumvent CFC rule taxation in low-tax countries by utilizing the passive-to-total income threshold. The following distinctions are provided for robustness evidence of the observed bunching causality.

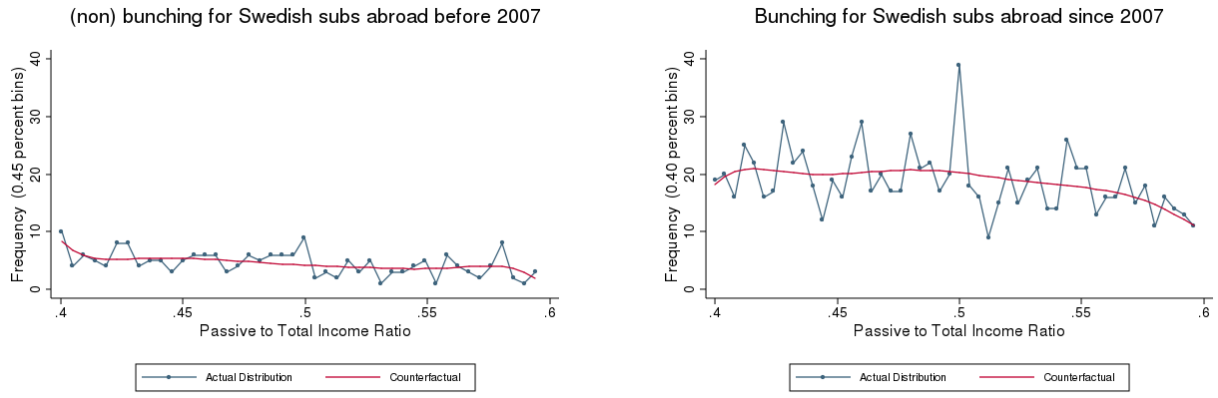
Bunching differences over time

To illustrate the differences in behavior changes of multinationals, I also investigated the adjustments over time when CFC laws changed. As one can see in Figure 3.4, the CFC laws of Sweden, for example, changed for the multinationals from 2007 to 2008.

One can see that, after the introduction of the 50% ratio threshold for subsidiaries from Swedish headquartered companies, subsidiaries gathered right before this specific ratio of financial-to-total income abroad. Before the introduction no clear bunching picture is observable. Even though it is visible that less data points are available for the time before 2008, the data is sufficient to see the clear differences in frequencies. This indicates the usage of tax avoidance strategies, after they became possible, to stay right below or at the threshold to not get affected by the Swedish CFC rule.

[46] The interested reader finds some statistics in Table B.7 in Appendix B.4.

Figure 3.4: Bunching of Swedish subsidiaries over time

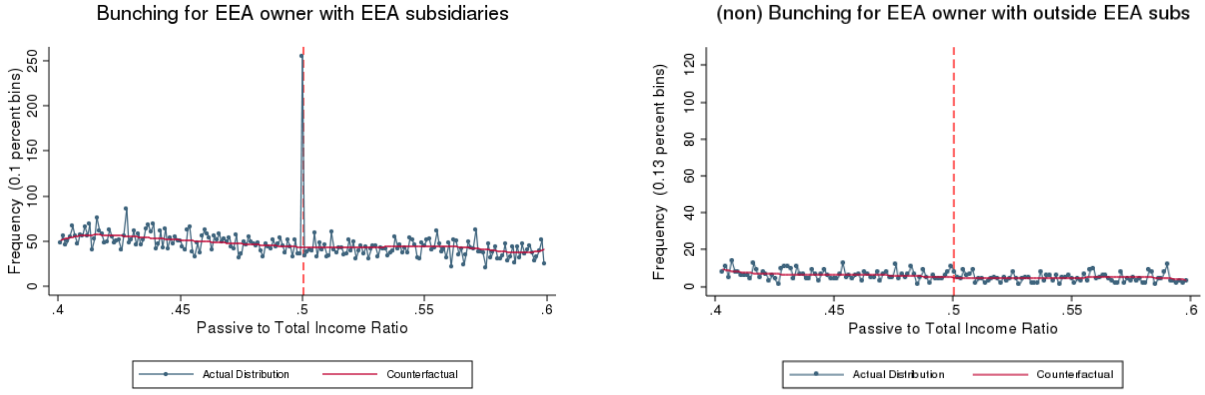


Notes: The figure shows bunching of foreign subsidiaries owned by Swedish parent companies before and after the passive-to-total income threshold introduction into Swedish CFC legislation. After implementing the threshold, the numbers of foreign subsidiaries bunch right before the 50% passive-to-total income ratio, for not getting affected by CFC taxation. For visibility reasons, the depicted span reaches from a ratio of above 40% to below 60% of financial-to-total profits before taxes abroad. The bin width of 0.45 percentage points is the smallest possible width for the few observations in the first time frame. For comparability reasons the bin width in the right hand graph is not much smaller, even though the bunching picture would be much more striking otherwise.

Bunching differences over locations - The EEA exemption

Not only the aforementioned low-tax threshold, which has been shown in Section 3.6.1, shows the influence of CFC laws on location decisions. The passive-to-total income threshold also affects the structure of subsidiaries, and more specifically, the asset and income structure within foreign subsidiaries. To show the differences in the behavior of multinationals concerning the income structure in foreign subsidiaries, I show the income ratio of subsidiaries located in the EEA area in contrast to the income ratio of subsidiaries in non-EEA countries in Figure 3.5. This can be understood as a further investigation of the already presented event study results in Figure 3.2 above. All subsidiaries are owned by parents in EEA countries with enacted CFC rules. As explained above, the big difference is that subsidiaries in EEA countries are allowed to have a ratio of up to 50% passive-to-total income, and only count as CFCs if they are above this threshold.

Figure 3.5: Bunching within EEA due to EEA exemption



Notes: The figure shows bunching of foreign subsidiaries from parent companies within the EEA. The left graph shows bunching of subsidiaries within the EEA and the right graph shows no bunching for subsidiaries outside the EEA. For the latter ones, no specific CFC rule threshold exists. For visibility reasons, the depicted span reaches from a ratio of above 40% to below 60% financial to total profits before taxes abroad.

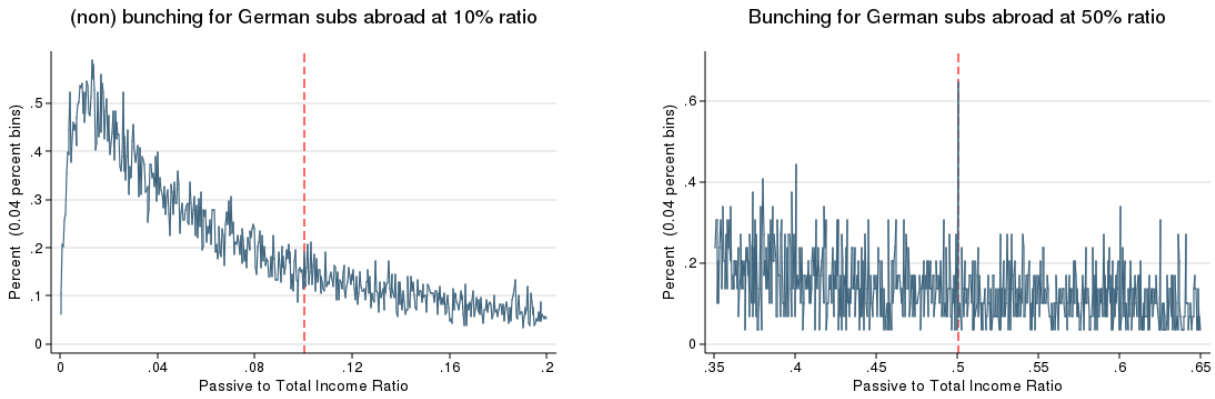
In Figure 3.5 it is clearly visible that companies use these permitted tax avoidance opportunities, emerging due to the explained EEA exemption, to shift profits to their foreign subsidiaries located in the EEA area, which alters profit shifting and investment behaviour. This, again, indicates a clear usage of tax avoidance strategies to stay right below the threshold to get not effected by the CFC rules of the home countries.

(Non-) Bunching for Germany and the U.S. at save harbour thresholds

There are a few countries, in which the passive-to-total income threshold is not set at 50%, but at different percentage points. In this section, I show the specialties about the German and the U.S. income thresholds as examples. As one can see in Figure 3.6 German subsidiaries do not bunch at the actual German CFC passive-to-total income threshold of 10%, but at the special 50% threshold of the EEA exemption that accounts for German subsidiaries in the EEA as well. From an economics standpoint, it seems like German parents use European subsidiaries to shift their profits by staying right below or at the EEA exemption ratio. In the case of non-European subsidiaries, they would need to have at least 90% real income to

shift profits which, apparently, is not as attractive as the workarounds given by the EEA exemption.

Figure 3.6: Bunching of German subsidiaries

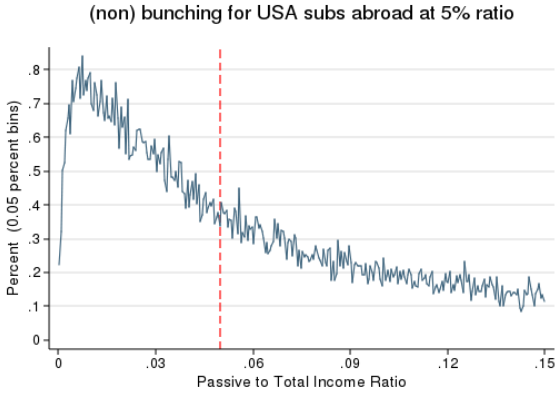


Notes: The figure shows no bunching of foreign subsidiaries from German parent companies at the actual passive-to-total income threshold of German CFC legislation, but bunching at the 50% EEA exemption threshold. For visibility reasons, the depicted spans reach from a ratio of above 0% to below 20% and above 35% to below 65% of financial-to-total profits abroad before taxes.

One can see a comparable picture for the case of subsidiaries from U.S. parents in Figure 3.7. Here, the original passive-to-total income threshold, or rather a save harbour threshold, is set at 5% of financial income abroad, meaning that if the subsidiary yields more than 5% financial income, the foreign income would be taxed according to the Subpart F Income rules (the CFC rules from the U.S.). As explained earlier, the U.S. CFC rules are rather easy to circumvent by the check-the-box-rules. Again, it is not really profitable for an U.S. company to set up a foreign low-tax subsidiary and shift only 5% of financial income. There are easier ways to shift more profits abroad for U.S parents. .

From these two examples, one can see that the examined passive-to-total income threshold only alters multinationals' behavior if it is still profitable enough for these shifters. As seen in the theoretical framework and the decision tree in Figure 3.1 as well as in the former regressions in Section 3.6.1, if other options to circumvent possible CFC legislation are cheaper to achieve, companies would choose them to not get taxed by CFC laws.

Figure 3.7: Bunching of subsidiaries from U.S. parents



Notes: The figure shows no bunching of foreign subsidiaries from U.S. parent companies at the actual passive-to-total income threshold of U.S. CFC legislation of 5%. For visibility reasons, the depicted spans reach from a ratio of above 0% to below 15% of financial to total profits abroad before taxes.

3.6.2.3 Amount of shifted profits abroad

Using this clear bunching, it is possible to calculate the amount of profits, which are presumably shifted abroad from the high tax home countries, as there is no other reason to stay right below or at the threshold. Therefore, I use the (positive) reported financial profits of subsidiaries, which are located right below or at the passive-to-total income threshold of the parent CFC rules. These presumably shifted financial incomes og the bunching subsidiaries are simply summed up.[47] To not overstate these buncher profits, I calculate the average of the financial profits of all subsidiaries with passive-to-total income ratios spanning over the range from 40% to 60% of financial profits (excluding the 3% width bunching bin below the 50% threshold). These average financial profits are multiplied with the average number of subsidiaries in the buncher area, and then subtracted from the previously calculated shifted profits of bunchers. This deduction accounts for the visible counterfactual distribution, the red line in Figure 3.3, examined in this section. The three percent bin below the 50% threshold is used to account for shifting firms which are not located exactly at the limit. With

[47] Even if not all of these financial incomes are shifted abroad, there are likely more shifted profits below the threshold without bunching, which are not accounted for in this simple calculation. These would at least even out the possible overstatement of the summed bunching profits.

the used underlying data set and the time frame of this study, the numbers accumulate to around 11.67 billion USD of shifted profits out of CFC rule countries. This simple back-of-the-envelope calculation is a very conservative and aggregated approximation of profits shifted into foreign low-tax subsidiaries to avoid taxation at higher tax rates at home, and to even circumvent CFC legislation at this specific threshold. Nevertheless, it is the first study to numerically approximate the profit shifting behavior of multinationals, which use thresholds of CFC rules to circumvent taxation by their parent home countries.

Further ways of circumventing CFC rules

Obviously, there are more ways to circumvent CFC legislation by utilizing or bypass other requirements of these laws. For example, one could think of specific ownership structures, where the true owner is hidden in chains that are untraceable, other legal tricks in framing the foreign entity's affiliation, or even specific deals with governments. These tax avoidance strategies are not detectable with the underlying data set, but could potentially be researched in further studies.

3.7 Conclusion

Profit shifting of multinationals into foreign low-tax countries and its interwovenness with international corporate taxation has never been more complex than it is today. Through my research, I have shown that the anti-tax avoidance legislation "CFC rule" is one avenue, which countries have to consider to solve these issues. I compare, for various countries, the decision influence of these laws on profit shifting behavior of multinationals abroad. Therefore, I examine the influence on foreign passive income, which arises very often due to the profit shifting behavior of multinationals, especially in larger and uncommon amounts. To accomplish this, I use a large firm-level data base and a self-conducted data set with specifics about CFC legislations over a span of 11 years for 61 countries worldwide. I find

that CFC laws in general lead to around 19.1% less passive income in low-tax subsidiaries abroad. To identify these effects, specifications with varying time and cross-sectional scope are used in firm fixed effects regressions with various robustness checks. In an event study, it is shown that passive income abroad increases (decreases) significantly if the underlying CFC laws in the parent country are relaxed (strengthened). Additionally, I used graphical evidence to demonstrate that the changes in the behaviors of the multinationals are caused by CFC laws and showed clear bunching. I exhibited both from a time and a location perspective that this bunching behavior is due to the underlying CFC laws. Out of this bunching, I calculated the sum of 11.67 billion USD, which are shifted abroad to avoid taxation in high-tax home countries and to even circumvent CFC legislation by benefiting from the specified threshold. Even though these are more than 1 billion USD per year on average, one should keep in mind, as shown for example by Zucman (2015), that this figure is likely a lower bound. This is due to the fact that in the used Orbis firm-level data, probably only a few companies are used as shifting vehicles, and, generally, detailed data availability for these specific companies is scarce.

My findings not only prove that CFC legislations counteract profit shifting behavior of multinationals but also show that these laws can be circumvented. Companies are able to do so by using the different given thresholds in the laws to stay right above or below them. However, different CFC rules can influence investment behavior in distinct ways. It is easily imaginable that specific thresholds are stricter than others and that the CFC rule in total is thus more or less binding. This again could impact the investment behavior of multinationals and their investment location decisions, depending on their home country. An issue which this paper does not answer, is the question about the costs of shifting or changing the channels of passive income abroad. This study rather compares passive income in subsidiaries located in foreign countries and not directly changes in firm financing behavior in case the investment is already taken. To bring clarification to this issue, it would be useful to distinguish between changes in company behavior in case the initial investment is already

taken and, for example, the subsidiary is already established. Unfortunately, this cannot be done with the given data. Another interesting query from the law perspective, that occurs out of the results of this study, is why this specific passive-to-total income threshold is mostly set at 50%. There is no objective reason other than the mentioned ECJ decision in the Cadbury-Schweppes case, and countries could effectively reduce profit shifting behavior by decreasing this threshold as companies would react to this.

This study demonstrates that CFC rules lead to less passive income in low-taxed subsidiaries abroad, i.e. decrease the profit shifting behavior of multinationals. Given this, the implementation and strengthening of CFC rules in further countries would be a legitimate option to counteract the profit shifting behavior of multinationals on a worldwide scale, which could be done unilaterally. To improve these efforts, governments need to work together to find a common ground on what is considered low-tax and where to set such thresholds. This is especially important as CFC rules are designed in such a way that the means by which the profits are shifted do not matter as much as the structure of the multinationals itself. For countries with territorial CIT systems, CFC rules provide a sufficient way to tackle BEPS, by deter profit shifting behaviour in the first place, but also by potentially tax foreign subsidiaries' profits, as long as these profits presumably slipped through home taxation. For low-tax countries, by contrast, it could be beneficial to increase their CIT rate to be slightly above the low-tax thresholds of CFC laws, which would, according to the results in this study, attract more subsidiaries as well as profits from multinationals and thus raise tax revenue. This mechanism is contrary to the common view of lowering tax rates to attract shifted income. To conclude, in its function as a vessel for collecting financial income in foreign subsidiaries, CFC rules are the slim mental bridge between two monumentally disparate tax systems that try to tax receding profits from companies originally acting in their countries.

Chapter 4

Multinational ownership structures and anti tax avoidance legislation

This study investigates if controlled foreign corporation (CFC) rules influence cross-border merger and acquisition (M&A) activity on a global scale. CFC rules are one main anti tax avoidance measure and potentially lead to immediate taxation of foreign subsidiaries' income at the parent level, without the necessity of repatriation. Analyzing a large corporate M&A data set using three econometric methods, we show how CFC rules distort global ownership patterns. First, we show that the probability of being the acquirer of a low-tax target decreases if CFC rules may be applicable to this target's income. Second, we show that CFC rules alter the acquirer's choice of targets' location. Third, we show that CFC rules negatively affect the probability of being the acquirer in cross-border M&A. Altogether, our study shows that for affected acquirer countries, CFC rules lead to less M&A activity in low-tax countries due to a reduced ability to shift income.

This chapter is partly online available as the paper: von Hagen and Prettl (2018), Multinational Ownership Structures and Anti Tax Avoidance Legislation, Working Paper (SSRN) and is based on joint work with Dominik von Hagen.

4.1 Introduction

Empirical literature provides extensive evidence of tax motivated income shifting strategies within multinational enterprises (MNEs).[1] Over the past years, tax policy makers have discussed and implemented several anti tax avoidance measures to fight against income shifting as the "Base Erosion and Profit Shifting" (BEPS) project of the Organisation for Economic Co-operation and Development (OECD) or the Anti Tax Avoidance Directive (ATAD) of the European Union (EU) (European Court of Justice (2006)) show. ATAD, for example, mandates all EU member states to implement certain anti tax avoidance measures by 2019. Lobby groups claim and countries fear a competitive disadvantage of these measures.[2] We investigate how forthcoming regulations like these impact ownership structures of multinational corporations on a global scale.

Anti tax avoidance measures have expanded rapidly in recent years. One current example is the US 'Public Law 115-97' or 'Tax Cuts and Jobs Act' of 2017 that strengthened US controlled foreign corporation (CFC) rules by introducing the additional Global Intangible Low-Taxed Income (GILTI) rule.[3] As one of the most prominent anti tax avoidance measures, CFC rules trigger tax at an MNE's parent level and usually work as follows: If an MNE's foreign subsidiary fulfills certain requirements, at least part of its income is taxed by the MNE's parent country where CFC legislation is enacted, even if no repatriation takes place.[4] Although tax revenue of the subsidiary's country is not directly affected by CFC rules, these laws make typical income shifting strategies into low-tax countries less

[1] Income shifting is understood as reducing taxable income in high-tax countries by, for example, royalty or interest payments from high-tax to low-tax subsidiaries. See, e.g., Huizinga and Laeven (2008); Weichenrieder (2009); Grubert (2012); Dharmapala and Riedel (2013); Guenther, Matsunaga, and Williams (2017). No differentiation between "income" or "profit" shifting is necessary in this paper and the reader may see those terms as equivalent.

[2] e.g. OECD (2015b); OECD (2015a); Mazars (2015); PwC (2015); Picciotto (2017)

[3] The CFC rules in the US are more broadly known as "Subpart F income" rules and are not as strong as many others due to the 'check-the-box rules' as described in Section 4.2.

[4] Typically, three requirements are crucial for CFC rule application in the MNE's parent country: Low taxation of the foreign subsidiary, passive income of the subsidiary, and minimum ownership in the subsidiary. There is a high degree of variation in how CFC rules are specified, e.g., regarding what is considered low taxation or regarding a passive-to-active-income ratio that may trigger CFC rule application.

attractive for an MNE (e.g., Altshuler and Hubbard (2003); Ruf and Weichenrieder (2012)), because these strategies no longer reduce the MNE's global tax burden. As such, CFC legislation attempts to mitigate income shifting behavior of MNEs, while reducing potential competitive disadvantages of purely national companies, without income shifting opportunities. In our study, we investigate to what extent CFC rules affect one important form of foreign direct investment (FDI): cross-border mergers and acquisitions (M&A).

If a firm decides to engage in tax avoidance or to extend its existing tax avoidance strategies, it could establish a foreign subsidiary in a low-tax country as an income shifting vehicle, where profits are taxed at a low rate. There are two common ways to establish a foreign subsidiary: greenfield investment in a new firm or buying an existing firm. Our study focuses on the latter. Therefore, the existence and strength of CFC rules could impact cross-border M&A and, thereby, ownership structures of MNEs and their location decisions.

We investigate to what extent CFC rules influence ownership patterns on a global scale by analyzing the effect of CFC legislation on cross-border M&A. In our diverse econometric analyses, we investigate a large data set of worldwide M&A deals with more than 14,000 observations and a hand-collected detailed CFC rule data set of 29 countries, extended by countries that do not have CFC legislation, for the period 2002 to 2014. Besides graphical analyses, we apply multinomial and binomial choice models where we control for various firm- and country-specific variables to isolate the effect of CFC rules and their changes in our sample. As our identification strategy, we use differences in low tax rate thresholds of CFC rules and in statutory corporate income tax rates (STRs), which both vary over time and between countries. We find that CFC rules impact cross-border M&A activity in two ways.

First, we detect that CFC legislation alters the acquisition behavior of low-tax targets. In particular, we observe that the probability of acquiring a low-tax target is negatively influenced by potential CFC rule application on the low-tax target's income. Our explanation for this finding is that MNEs with parents in non-CFC rule countries (non-CFC rule MNEs)

calculate higher reservation prices for low-tax targets than MNEs with parents in CFC rule countries (CFC rule MNEs), because these targets may be used as valuable income shifting vehicles within non-CFC rule MNEs. CFC rule MNEs, on the other side, have to account for the possible application of CFC legislation on low-tax targets' income, which decreases after-tax cash flows. Hence, they calculate lower reservation prices for cross-border M&A with targets located in low-tax countries than non-CFC rule MNEs. However, the economic magnitude of this effect is rather low: A ten percentage-point increase in additional CFC rule taxation leads to a 0.5% lower likelihood that an acquisition takes place.

Second, we detect that CFC legislation distorts the direction of cross-border M&A between firms. In particular, we observe that if a firm acquires another non-domestic firm, CFC legislation negatively affects the M&A direction, i.e., which firm becomes the acquirer and, thereby, the parent of the newly formed MNE. This finding is in line with previous research by Voget (2011), who detects that the presence of CFC rules increases the number of headquarter relocations. However, our approach differs from Voget (2011) in two ways: (1) we use a different identification strategy as we consider cross-border M&A in general and not the specific form of headquarters relocation, and (2), we analyze M&A observations from a different and larger database.

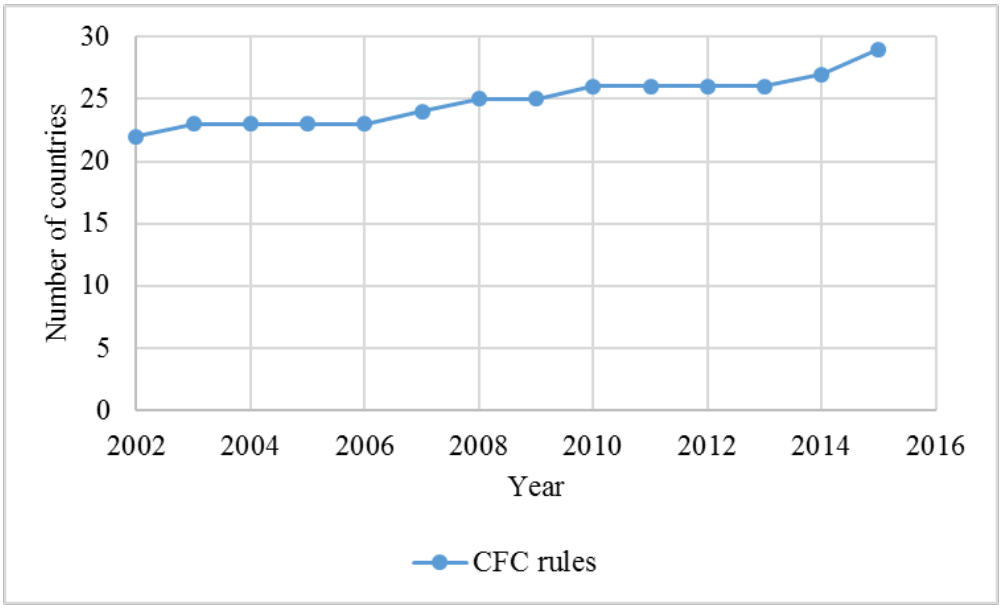
Our paper contributes to tax research and policy considerations in three ways. First, we contribute to empirical tax research on the effects of CFC rules on firm behavior, where little research has been undertaken so far (see Section 4.2). To our knowledge, two studies show the effect of CFC legislation from two countries on passive investment in foreign subsidiaries (Altshuler and Hubbard (2003); Ruf and Weichenrieder (2012)), and another two studies show the effect of CFC rules on headquarters relocation and real investment in foreign subsidiaries (Voget (2011); Egger and Wamser (2015)). Our study focuses on the effect of CFC legislation on firm ownership patterns, which has not been investigated. As Egger and Wamser (2015) point out, the reason why there are only a few empirical studies on CFC rules may be due to the difficulty of isolating the effect of anti tax avoidance measures on MNEs

that operate in multiple jurisdictions and avail complex group interrelations with respect to, for example, financing decisions. In addition, the effect of CFC legislation is difficult to identify as the applicability of CFC rules depends on the foreign subsidiary's characteristics as well as its host-country's characteristics. To overcome these identification difficulties, we investigate the effect of CFC legislation on the decision to integrate foreign firms into an MNE, which can be clearly identified via observed cross-border M&A. Moreover, we leverage the details of each country's CFC legislation by considering individual components of these laws such as tax rate thresholds and passive-to-active-income ratio thresholds.

Second, we contribute to empirical research in the field of M&A and their tax-related determinants. Indeed, there are many empirical studies on the effect of tax regulations on M&A from various perspectives, for example, repatriation taxes (Voget (2011); Hanlon, Lester, and Verdi (2015); Edwards, Kravet, and R. Wilson (2016); Feld, Ruf, et al. (2016)), international double taxation (Huizinga and Voget (2009); Huizinga, Voget, and Wagner (2012); Hagen and Pönnighaus (2017)) or capital gains taxes (B. C. Ayers, C. E. Lefanowicz, and J. R. Robinson (2003); B. Ayers, C. Lefanowicz, and J. Robinson (2007); Huizinga, Voget, and Wagner (2018); Todtenhaupt et al. (2020)). However, besides Voget (2011), our study is the first one that compares the effect of anti tax avoidance measures, and in particular the effects of the increasingly important CFC rules, on M&A activity over various countries. Because CFC legislation is present in 29 OECD, G20, and EU countries as shown in Figure 4.1, the strand of literature dealing with location choices of MNEs and their tax-related elements is highly important.

Third, understanding how CFC rules influence M&A activity on a global scale is also of economic interest, as cross-border M&A are an important form of FDI: In 2016, the value of cross-border M&A accounted globally for 869 billion USD, which slightly exceeded the value of announced greenfield projects (828 billion USD, UNCTAD (2017)). Hence, our analysis on distortionary tax effects on cross-border M&A, and thereby on international ownership structures, is also of interest from a global economic and not only from countries'

Figure 4.1: Presence of CFC rules over time for 49 countries (OECD, G20 and EU member countries).



Notes: This figure provides an overview on how many countries have implemented CFC rules. *Source: Own data collection.*

tax policy perspective. While we show that these distortionary effects from CFC rules are rather small so far, and, therefore, the claimed and feared competitive disadvantage due to CFC legislation for the M&A market is rather low, the distortions may increase due to ongoing tax policy changes globally.

The remainder of this paper proceeds as follows. Section 4.2 gives a brief review of empirical tax literature on CFC rules and on M&A activity. Section 4.3 provides our analysis of the effect of CFC rules on the acquisition of low-tax targets. Section 4.4 analyzes the effect of CFC rules on the direction of cross-border M&A. Finally, Section 4.5 sets forth our conclusions.

4.2 Literature

Despite the far-reaching consequences of CFC rules on MNEs' income shifting abilities and tax burdens, empirical studies on the effects of CFC rules on firm behavior are scarce.[5] Altshuler and Hubbard (2003) find that tightening US CFC rules in 1986 has substantially reduced tax planning opportunities with financial services firms in low-tax countries. Three years later, Grubert and Altshuler (2006) show that the so-called check-the-box rule, which may allow for an escape from CFC rules for US MNEs, negated these effects. Voget (2011) detects in his study about international taxation and the relocation of headquarters that the presence of CFC rules increases the number of those legal structure movements. For a panel of German MNEs, Ruf and Weichenrieder (2012) detect that German CFC rules are effective in reducing passive investments in low-tax countries. These studies show that CFC rules reach the intended goal of reducing income shifting opportunities with low-tax subsidiaries. However, Egger and Wamser (2015) find that German MNEs, whose subsidiaries are subject to CFC rules, also show significantly lower fixed assets in these subsidiaries. They conclude that CFC rules lead to an increase in cost of capital if subsidiaries are subject to CFC rules. Hence, by influencing real activity abroad, the application of CFC rules potentially has non-intended "real" effects. These findings contradict the theoretical thoughts from Weichenrieder (1996) who shows that certain characteristics of CFC rules, such as an accepted passive-to active-income ratio, can lower the cost of capital in foreign subsidiaries under certain circumstances. A recent study from Haufler, Mardan, and Schindler (2018) shows from a theoretical perspective that CFC rules together with thin-capitalization rules should play a role in an optimal tax mix.

[5] A typical profit shifting strategy looks as follows: An MNE equips a subsidiary in a low-tax country with intellectual property (IP) and equity. This subsidiary then may license IP to the parent or subsidiaries in high-tax countries that pay transfer prices (royalties) in exchange for using IP. Further, the low-tax subsidiary may provide debt to the parent or subsidiaries in high-tax countries that pay interest in exchange for the internal loan. Taken together, the royalty and interest expenses reduce taxable income in high-tax countries and increase income in low-tax countries.

The effect of various taxes on M&A activity has been extensively addressed in empirical literature. Hanlon, Lester, and Verdi (2015) analyze the effect of locked-out cash of US MNEs on their cross-border M&A activity. This locked-out cash is not repatriated due to high repatriation tax costs to the US as the worldwide taxation system for dividends was operative in the US until 2017.[6] The authors show that this locked-out cash is used in foreign M&A, which is considered less value-enhancing by the market. Similarly, Edwards, Kravet, and R. Wilson (2016) find that firms with high amounts of locked-out cash engage in less profitable M&A. Feld, Ruf, et al. (2016) show that acquirers from countries operating a territorial taxation system for foreign dividends have a competitive advantage on the cross-border M&A market to acquirers from countries operating a worldwide taxation system for foreign dividends. Huizinga and Voget (2009) find that the prospect of higher international double taxation of foreign dividends decreases the probability of attracting parent firms in a cross-border M&A. Finally, several studies investigate the effect of capital gains taxes on M&A activity. Such taxes could be seen as additional transaction costs, as the seller may be subject to capital gains taxation on selling the target. Several studies show that this so-called lock-in effect affects M&A activity (e.g., B. C. Ayers, C. E. Lefanowicz, and J. R. Robinson (2003); B. Ayers, C. Lefanowicz, and J. Robinson (2007); Todtenhaupt et al. (2020); Huizinga, Voget, and Wagner (2018)). Another working paper by Ohrn and Seegert (2019) points in the same direction on the national shareholder taxation level. About ownership structures in general, for example, Badertscher, Katz, and Sonja O. Rego (2013); McGuire, Wang, and R. J. Wilson (2014); Khan, Srinivasan, and Tan (2017); McClure et al. (2018) have shown that firm shareholding and decisions are influenced by tax avoidance possibilities or vice versa. Yet, an empirical study on the effect of anti tax avoidance measures and specifically CFC rules on M&A activity has not been undertaken to our knowledge.

We aim to contribute to the scarce literature on CFC rules by investigating to what extent CFC rules affect an important form of FDI—cross-border M&A activity—which accounted

[6]Which is confirmed by another, more recent study from Nessa (2017).

for almost 1 trillion USD of FDI in 2016 (UNCTAD (2017)). A comparable analysis has not yet been undertaken. In particular, in Section 4.3, we investigate how CFC rules influence the acquisition of low-tax targets that potentially fall under the scope of CFC rules. In Section 4.4, we investigate how CFC rules influence the direction of cross-border M&A between firms, i.e., which firm becomes the acquirer and, thereby, the parent of the newly formed MNE.

4.3 CFC rules and the acquisition of low-tax targets

4.3.1 Hypothesis development

Non-CFC rule MNEs face fewer constraints in implementing income shifting strategies within their group than CFC rule MNEs, because CFC rules aim at income shifted to low-tax subsidiaries within the MNE and, thereby, make typical income shifting strategies less attractive for an MNE.[7] Generally CFC rules work as follows: The foreign entity has to be (1) controlled by the parent, (2) located in a low-tax country and often, (3) generate some passive income.[8]Following the argumentation and findings of Egger and Wamser (2015), CFC rules even increase the cost of capital of subsidiaries that fall under the scope of CFC rules. Consequently, it should be less attractive for a CFC rule MNE to acquire a low-tax target that may fall under the scope of CFC rules compared to a non-CFC rule MNE. Put differently, for a non-CFC rule MNE, a low-tax target could function—in addition to other synergies—as

[7]In our analysis on the effects of CFC rules on cross-border M&A activity, we consider CFC rules in the country of the MNE's parent to be relevant. The reason is straightforward: On the one side, a non-CFC rule MNE gets into a worse tax position if the acquisition is done via a CFC rule subsidiary; hence, the MNE would not acquire through this subsidiary. In support of this reasoning, Lewellen and L. Robinson (2013) find that the likelihood of choosing a subsidiary as a holding firm within an MNE is significantly lower if that subsidiary resides in a CFC rule country. On the other side, a CFC rule MNE does not get into a better tax position if the acquisition is done via a non-CFC rule subsidiary, because the parent's CFC rule would overall still be applicable in the MNE.

[8] Sometimes more requirements have to be fulfilled by the parent or the subsidiary. With the underlying data these distinctions could not be shown and, therefore and for comprehensibility reasons, those will not be taken into account. Also, other mentioned studies about CFC rules observe only these three crucial factors, or less, and our results are significant at this level as well.

an income shifting vehicle within the MNE. This additional function could make a candidate target more valuable for this MNE compared to a CFC rule MNE without such income shifting opportunities. Due to this competitive advantage, non-CFC rule MNEs may calculate higher reservation prices for foreign low-tax targets compared to CFC rule MNEs. We, therefore, hypothesize the following, stated in alternative form:

Hypothesis 1a: In a set of candidate acquirers from various countries bidding for a given foreign low-tax target, the probability of being the actual acquirer is higher for a non-CFC rule MNE compared to an MNE that potentially has to apply CFC rules on this target's income.

Hypothesis 1a investigates the influence of CFC rules on the likelihood of acquiring a given target that acquirers from various countries bid for. We also take the "opposite" perspective that a given acquirer has the choice to buy a target out of a pool of targets from various countries. Based on the reasoning above – it is less attractive for a CFC rule MNE to acquire a low-tax target that may fall under the scope of CFC rules compared to a potentially higher taxed target that does not fall under the scope of CFC rules – we hypothesize the following, stated in alternative form:

Hypothesis 1b: In a set of candidate targets from various countries, the probability of being the actual target from a given acquirer is lower for targets that potentially fall under the scope of CFC rules of this acquirer compared to targets that do not fall under the scope of CFC rules of this acquirer.

4.3.2 Empirical approach

4.3.2.1 Acquirer perspective

Our empirical approach to analyze Hypothesis 1a, i.e., the probability of being the actual acquirer country among several candidate acquirer countries, follows the common assumption in M&A literature that M&A reflect synergies from combining two firms with all assets being

priced at their fair value (e.g., Mitchell and Mulherin (1996); Becker and Fuest (2010); Feld, Ruf, et al. (2016)) where

$$V_{ijk} = \alpha CFC_{ijk} + \beta^T \boldsymbol{x}_{ijk} + \varepsilon_{ijk} \tag{4.1}$$

is the value of target k in country j if it was owned by an acquirer from country i.[9] The term CFC_{ij} reflects the higher burden of potential taxation of target income due to CFC rules in the acquirer country i if the target is located in country j. The variable vector $\boldsymbol{x}_{ijk}$ and the residual ε_{ijk} contain various observable and unobservable variables to capture owner-country-specific synergies realized through a potential M&A. Coefficients α and β^T are the estimated parameters. This approach builds on the methodology used by Feld, Ruf, et al. (2016), where the target is the same for every concerned potential M&A; therefore, we automatically account for target firm, target country, and year fixed effects as they equally affect all candidate acquirers. Hence, these fixed effects do not need to be included. To control for acquirer country differences and specific effects, we include acquirer country fixed effects as well. In robustness checks, we also include specific target and acquirer firm controls and account for country-pair specific effects.

We use the fact that a foreign firm from country i will acquire a target if the value for this target is higher than for any other candidate acquirer from country h, i.e.,

$$V_{ijk} \geq V_{hjk}, \forall h \in (1, \ldots, I)\,, \tag{4.2}$$

where I indicates the number of candidate acquirer countries. We analyze the probability that a particular acquirer buys a target, depending on potential application of CFC rules in the country of that particular acquirer and given that we know that the transaction takes place, which is given by:

[9] We suppress a time subscript t in the interest of readability of the model.

$$P\left(V_{ijk} > V_{hjk} | CFC_{1jk}, \boldsymbol{x}_{1jk}, \ldots, CFC_{Ijk}, \boldsymbol{x}_{Ijk}\right) = \frac{exp(\alpha CFC_{ij} + \beta X_{ijk})}{\sum_{l=1}^{I} exp\left(\alpha CFC_{lj} + \beta X_{ljk}\right)} \forall h, \quad (4.3)$$

where I stands for the candidate acquirer countries.[10] Expression 4.3 considers a choice model assuming that M&A reflect synergies from combining two firms and that acquirers value the individual firms and the M&A correctly at their fair value. In particular, the dummy variable in this choice model takes the value of 1 if acquirer i chooses alternative k in country j. Using conditional logit and mixed logit regression models, we aim to calculate Expression 4.3.[11] Due to potential correlation between alternatives, the mixed logit approach with random drawing of observations allows us to model (i) random variations in the response probability to changes in variables, (ii) unrestricted substitution patterns, and (iii) correlated unobserved factors.

Identification

Our identification strategy is mainly based on acquirer CFC rules and target STRs. In particular, whether a certain target is potentially treated by CFC rules is due to substantial variation of CFC rules among candidate acquirer countries and, in addition, variation in STRs among target countries. For example, if a candidate acquirer country lowers the low tax rate threshold of its CFC rules, some targets in various countries that were previously captured by the CFC rule are now not affected anymore. Whereas, if a target country lowers its STR, targets located in this country may now be considered low-tax targets by some CFC rules. Figure C.1 in Appendix C.2 shows a stylized variation of the main identification, which

[10] As in Feld, Ruf, et al. (2016), at this point it is sufficient to analyze matching target firms with acquiring countries instead of the matching of target firms with particular acquiring firms, for which the construction of an appropriate choice set would be challenging and we do not have data in this regard. Instead, the accounted country-specific effects include variations in the number of candidate acquiring firms across countries.

[11] The presented multinomial choice model is based on Feld, Ruf, et al. (2016), p. 15, and can be understood as the polar case of a zero-sum world in which the gain of one acquirer is automatically the loss of all other acquirers.

captures variation observed in our data set, i.e., changes in CFC rules, their application, and STRs between and within countries over time.[12]

In our first approach, the difference between CFC rules among candidate acquirer countries is shown by a simple dummy variable. This dummy variable is coded one if a CFC rule is enacted in acquirer country i and is potentially applicable on target income, i.e., the STR in target country j is below the minimum low tax rate threshold of the CFC rule of the candidate acquirer country i. Almost all observed CFC rules have such a threshold to determine whether a foreign subsidiary's country is considered a low-tax country. Hence, the first variable of interest is constructed as

$$CFC^{dummy} = \begin{cases} 1, \text{ if } \mathrm{t_{i_{threshold}}} > \mathrm{t_j} \text{ or country } i \text{ applies CFC} \\ \quad \text{rules without a tax rate threshold} \\ 0, \text{ otherwise,} \end{cases} \tag{4.4}$$

where $t_{i_{threshold}}$ is the tax rate threshold of the CFC rule of the candidate acquirer country i and t_j is the STR in the target country j.

In this first approach, the treatment effect is assumed to be homogeneous, as we are pooling treatments of different intensities. In a second approach, we consider heterogeneity by using the tax rate differential between the home and host countries as a finer metering of the treatment. In particular, we consider the additional taxes payable due to CFC rule application if the target is used as an income shifting vehicle[13]:

[12] The reasons for CFC rule changes are manifold. On occasion, CFC rules themselves get changed due to government policy reasons such as protecting their tax base. Usually, these CFC rule implementations and law changes result from self inflicted policy reasons, but sometimes they are stipulated by others (for example, by the mentioned intergovernmental BEPS and ATAD initiatives). The mentioned low-tax threshold of CFC rules is often bound to the country's STR in a way that this threshold is, for example, set at 60% of the acquirer country's own STR. If that STR changes, what happens quite frequently in the observed time span, the threshold changes as well, which affects then only some potential target countries and helps our identification.

[13] $\tau_i - \tau_j$ (and not fully τ_i) are the additional taxes because the observed CFC rules grant a credit for the taxes paid by the foreign subsidiary in its host country.

$$CFC^{diff} = \begin{cases} \tau_{\mathrm{i}} - \tau_{\mathrm{j}}, \text{ if } \mathrm{t}_{\mathrm{i}_{\mathrm{threshold}}} > \mathrm{t}_{\mathrm{j}} \text{ or country } i \text{ applies CFC} \\ \qquad \text{rules without a tax rate threshold} \\ 0, \qquad \text{otherwise,} \end{cases} \tag{4.5}$$

where $\tau_i(\tau_j)$ is the statutory tax rate in the candidate acquirer (target) country. For both approaches, we expect a negative sign of the regression coefficients α according to Hypothesis 1a and 1b derived in Section 4.3.1.

In our robustness test, we check whether our results are robust to considering effective average tax rates (EATRs) as CFC rules usually take into account the effective tax burden of the foreign low-tax subsidiary.[14] Because we do not observe the effective tax burden of the targets, we use country-level EATRs from the Oxford University Centre for Business Taxation to determine whether a target may fall under the scope of CFC rules:

$$CFC^{diffEATR} = \begin{cases} \tau_{\mathrm{i}} - \tau_{\mathrm{j}}, \text{ if } \mathrm{t}_{\mathrm{i}_{\mathrm{threshold}}} > \mathrm{t}_{\mathrm{j}_{\mathrm{EATR}}} \text{or country } i \text{ applies CFC} \\ \qquad \text{rules without a tax rate threshold} \\ 0, \qquad \text{otherwise.} \end{cases} \tag{4.6}$$

In a further robustness test, we consider the scope of income included by the CFC rule. Although some CFC rules only include passive income of the subsidiary, other CFC rules include passive and active income. Therefore, we let the treatment effect differ in this regard:

[14] For more about effective tax rates see, for example, Dyreng, Hanlon, et al. (2017).

$$CFC^{taxbase} = \begin{cases} \tau_{\mathrm{i}}, \text{ if } \mathrm{t}_{\mathrm{i}_{\mathrm{thresh}}} > \mathrm{t}_{\mathrm{j}} \text{ or country } i \text{ applies CFC} \\ \qquad \text{rules without a tax rate threshold} \\ \qquad \text{and has a full income tax base} \\ \frac{(\tau_{\mathrm{i}}+\tau_{\mathrm{j}})}{2}, \text{ if } \mathrm{t}_{\mathrm{i}_{\mathrm{thresh}}} > \mathrm{t}_{\mathrm{j}} \text{ or country } i \text{ applies CFC} \\ \qquad \text{rules without a tax rate threshold} \\ \qquad \text{and has a passive income tax base} \\ \tau_{\mathrm{j}}, \quad \text{otherwise.} \end{cases} \tag{4.7}$$

According to this differentiation, all targets are taxed at their STR. Further, this differentiation takes into account the additional CFC rule tax burden – assuming that active and passive income in the target are at the same height – in the following way: If CFC rules include the full target income once triggered, the total tax burden is set to the acquirer STR. If CFC rules include only target's passive income once triggered, the total tax burden is set to the average between target and acquirer STR.

Following Feld, Ruf, et al. (2016) we include several control variables in our regressions. We control for STR and economic indicators, such as GDP per capita, GDP growth, stock market capitalization per GDP, and credits granted to private sector per GDP in the country of the candidate acquirer. Further, we control for several distance variables, such as the distance between the acquirer and target country, whether the acquirer and target have a common language, whether the acquirer and target were ever in a colonial relation, and whether the legal systems of the acquirer and target country have common legal origins. The sources of the variables can be found in Table C.3 in Appendix C.2.

4.3.2.2 Target Perspective

The approach presented above takes an *acquirer perspective* by analyzing why a given target is bought by an acquirer from a specific country (Hypothesis 1a) for tax or specifically CFC rule reasons. In a second analysis, we follow the same logic but take a *target perspective* by analyzing the influence of CFC rules on the decision of why a given acquirer chooses to buy a target from a specific country (Hypothesis 1b).[15]

Building on Expression (1), we use the fact that a foreign firm will acquire a target in country j if the value for this target is higher than for any other candidate target from country g, i.e.,

$$V_{jik} \geq V_{gik}, \forall g \in (1, \ldots, J)\,, \tag{4.4}$$

where J indicates the number of candidate target countries. We analyze the probability that an acquirer buys a particular target, depending on potential application of CFC rules in the country of the acquirer and given that we know that the transaction takes place, which is given by:

$$P\left(V_{jik} > V_{gik} | CFC_{1ik}, \boldsymbol{x}_{1ik}, \ldots, CFC_{Jik}, \boldsymbol{x}_{Jik}\right) = \frac{exp(\alpha CFC_{ji} + \beta X_{jik})}{\sum_{l=1}^{J} exp\left(\alpha CFC_{li} + \beta X_{lik}\right)} \forall g, \tag{4.5}$$

where J stands for the candidate target countries.[16] Expression (9) considers again a choice model assuming that M&A reflect synergies from combining two firms and that acquirers value the individual firms and the M&A correctly at their fair value. In particular, the dummy variable in this choice model takes the value of 1 if acquirer i chooses target k in country j. Using conditional logit and mixed logit regression models, we aim to calculate

[15] Such a target perspective is also taken by Arulampalam, Devereux, and Liberini (2019)

[16] As in Feld, Ruf, et al. (2016) at this point it is sufficient to analyze the matching of target firms with acquiring countries instead of the matching of target firms with particular acquiring firms, for which the construction of an appropriate choice set would be challenging and we do not have data in this regard. Instead, the accounted country-specific effects include variations in the number of candidate target firms across countries.

Expression 4.5.[17] Due to the correlation between alternatives, the mixed logit approach with random drawing of observations allows us to model (i) random variations in the response probability to changes in variables, (ii) unrestricted substitution patterns, and (iii) correlated unobserved factors. We use the same CFC variable differentiation method as in the acquirer perspective described above with the same identification strategy.

We include several control variables as well in this perspective, following Feld, Ruf, et al. (2016) and Arulampalam, Devereux, and Liberini (2019). We control for STR and economic indicators, such as GDP per capita, GDP growth, stock market capitalization per GDP, and credits granted to private sector per GDP in the country of the candidate target. Further, we control for several distance variables, such as the distance between the acquirer and target country, whether the acquirer and target have a common language, whether the acquirer and target were ever in a colonial relation, and whether the legal system of the acquirer and target country have common legal origins. Additionally, we include variables to control for the institutional framework of the candidate target country, such as corruption control, business start-up cost, unemployment rate and number of listed domestic firms, and the mentioned fixed effects. The sources of the variables can be found in Table C.6 in Appendix C.2.

4.3.3 Data

Data for the empirical analysis are taken from the Thomson Financial SDC database, which contains worldwide M&A transactions. We have selected all completed M&A for the period 2002 to 2014 through which majority control (>50%) of the targets has been attained.[18] Further, for each M&A, country of the acquirer ultimate parent, direct acquirer, target ultimate parent and direct target must be given.[19] In addition, we require that the acquirer

[17] The presented multinomial choice model builds on Feld, Ruf, et al. (2016) and Arulampalam, Devereux, and Liberini (2019).

[18] All observed CFC rules have a participation threshold below or equal to 50% so that the majority control requirement of CFC rules is always fulfilled.

[19] Throughout our paper, we use the terms "ultimate parent" and "parent" synonymously.

ultimate parent and the target reside in different countries and that the acquirer ultimate parent and direct acquirer reside in the same country to reduce the possibility of a subsidiary in a third country involved in the M&A. To keep the mixed logit regressions computationally feasible, the set of considered candidate acquirer countries (Hypothesis 1a) or candidate target countries (Hypothesis 1b) is restricted to the 30 most frequent acquirer or target locations.[20] Furthermore, the additional observations per potentially included country are very low. These restrictions leave a sample of 14,421 cross-border M&A involving 55 countries to investigate Hypothesis 1a and a sample of 13,447 cross-border M&A involving 54 countries to investigate Hypothesis 1b. Table C.2 and Table C.2 give an overview over the number of acquirer ultimate parents and targets in the respective cross-border M&A sample per country. In line with Di Giovanni (2005), we observe that countries with the largest financial markets have the most observations in both samples. Further, these tables provide information on whether CFC rules are implemented in those countries.

Data on CFC rules are based on IBFD (2002-2016), various corporate tax guides (Ernst & Young (2004-2016); Deloitte (2015); KPMG (2003-2018)), and the specific tax law of each country. We sampled various dimensions of CFC rules for the period 2002 to 2014, such as:

- tax rate threshold that triggers CFC rule,
- country lists that trigger (blacklists) or do not trigger (whitelists) CFC rule,
- threshold for passive-to-active-income ratio that triggers CFC rule,
- whether active or only passive income of CFCs is included at the parent level, or
- significant exemptions to CFC rule.

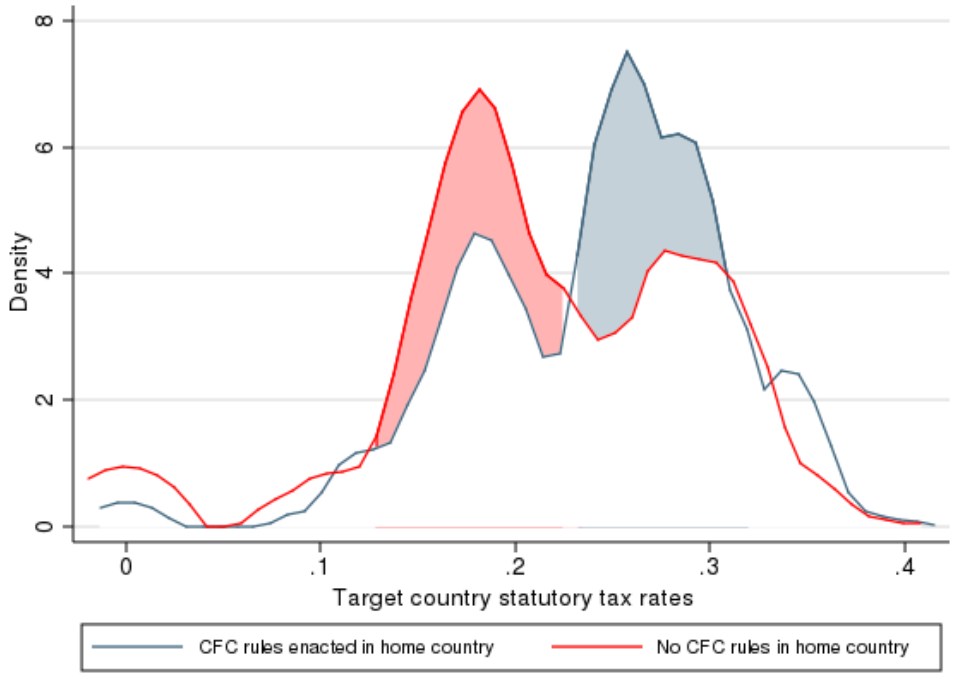
[20] To investigate Hypothesis 1a, important control variables are missing for Guernsey, Luxembourg and Taiwan so that we effectively consider 27 candidate acquirer countries. To investigate Hypothesis 1b, important control variables are missing for Indonesia and Sweden so that we effectively consider 28 candidate target countries.

4.3.4 Results

4.3.4.1 Graphical analysis

In this section, we graphically analyze whether acquisition behavior is affected by CFC rules with raw data. In particular, Figure 4.2 shows variation in acquisition behavior of acquirers from countries with and without CFC rules via density distributions. We observe that acquirers from CFC-rule countries tend to buy targets in high-tax countries, whereas acquirers from non-CFC rule countries tend to buy targets in low-tax countries.

Figure 4.2: Distribution of target country STR.

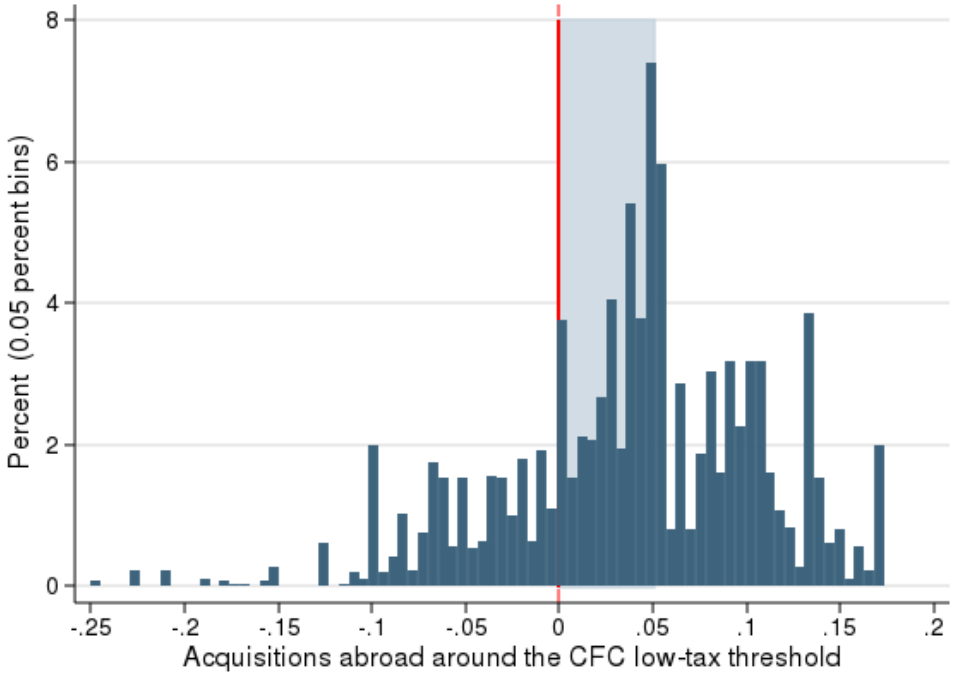


Notes: This figure shows the distribution of target country STR depending on whether the acquirer country applies CFC rules or not. It is clearly visible that acquirers from CFC rule countries acquire less low-tax targets than acquirers from non-CFC rule countries. *Source: M&A data set.*

Further, we analyze the acquisition behavior of acquirers from CFC rule countries regarding targets that have a lower STR than the acquirer. In particular, Figure 4.3 shows the distribution of targets depending on whether their STR is below or above the low tax rate threshold of the acquiring country's CFC rule. One can see that observed acquisitions

increase significantly if the target is located in a country slightly above the low tax rate threshold. The summed up number of acquisitions included in the 5 percentage point range above the low tax rate threshold accounts for more than 40% of all observed acquisitions.

Figure 4.3: Distribution of cross-border M&A for acquirers from CFC rule countries.



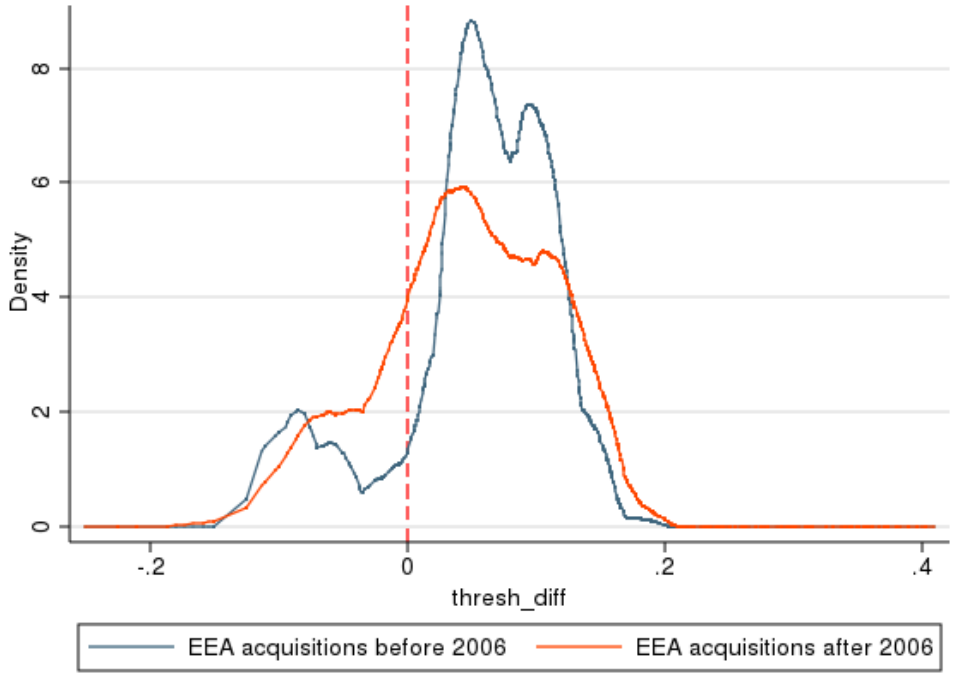
Notes: This figure shows the distribution of acquired targets around the low tax rate threshold of CFC rules if target STR is lower than acquirer STR. It is clearly visible that acquirers from CFC rule countries acquire less targets if these targets have an STR below the low tax rate threshold. *Source: M&A data set.*

This indicates that acquirers from CFC rule countries choose targets with an STR slightly above the low tax rate threshold, most likely to facilitate tax savings via income shifting opportunities as there are no other obvious or known reasons for acting that clearly on a random threshold.[21] In other words, these acquirers can shift income to lower taxed countries without potential CFC rule application; however, they are somewhat restricted in that behavior compared to acquirers from non-CFC rule countries. This may indicate that

[21]For anecdotic evidence, we asked accountants, participants at conferences and workshops, as well as colleagues, but no other reason than profit shifting behavior seems to be plausible to explain this behavior.

CFC rules could lead to overall higher global taxation of firm profits due to tighter income shifting possibilities.

Figure 4.4: Distribution of cross-border M&A for acquirers from CFC rule countries within the EAA before and after the Cadbury-Schweppes ruling in 2006.



Notes: This figure shows the distribution of acquired targets around the low tax rate threshold of CFC rules if target STR is lower than acquirer STR and acquirer and target reside within the EEA. It is clearly visible that acquisitions after the Cadbury-Schweppes ruling in 2006 increased in low-tax countries. *Source: M&A data set.*

Finally, we investigate the issue of potential non-application of CFC rules within the European Economic Area (EAA) due to the Cadbury-Schweppes ruling of the European Court of Justice in 2006. This ruling triggered a substantial mitigation of the application of CFC rules within the EEA. In simple words, the low tax rate threshold of CFC rules could be circumvented by a potential acquirer inside the EEA if the EEA target was still in compliance with another, less rigorous threshold about the passive-to-active-income ratio of that target. In line with this argumentation, Ruf and Weichenrieder (2013) find evidence for a relative increase in passive investments in low-tax EEA subsidiaries and a parallel decrease

in passive investments in non-EEA subsidiaries. Figure 4.4 shows that acquirers from the EAA acquired more low-tax EAA targets after 2006.

Taken together, the graphical analysis suggests that acquirers are influenced by CFC rules in their acquisition behavior.[22] In the following, we investigate whether this graphical evidence is confirmed in a multivariate regression analysis.

4.3.4.2 Acquirer perspective

Results

Table 4.1 presents the baseline results of different multinomial choice models to test Hypothesis 1a on the influence of CFC rules on the likelihood of being the acquirer country of a given target (acquirer perspective). For each deal, the dependent variable equals one for the actual acquirer country of origin and zero for all other counterfactual acquirer countries. For definitions, data sources, and summary statistics of all variables see Table C.3 in Appendix C.2.

In the conditional logit regression (1), CFC^{dummy} from expression (4) is the variable of interest, which indicates potential taxation via CFC rules in the acquirer country via a dummy variable approach. We observe a negative coefficient, which suggests that potential taxation in the acquirer country due to CFC rule application has a negative influence on the probability of being the acquirer country for a given target. To be more specific, we consider CFC^{diff} from expression (5) in regression (2). CFC^{diff} is a continuous variable and takes values between 0 and 0.409; it measures the magnitude of a potential additional tax burden due to CFC rule application and the coefficient is significantly negative. The substantially lower p-value of CFC^{diff} (p<0.000%) compared to CFC^{dummy} (p=19.9%) is probably due to introducing heterogeneity to the treatment effect by considering the specific tax rate differential between the acquirer and target country in case CFC rules apply. The

[22]Due to data restrictions, we are not able to analyze if the acquired targets are actually used as profit shifting vehicles. However, there are no other obvious reasons—besides the presented ones—for the observed behavior in the shown graphs as CFC rules do not affect foreign subsidiaries if – put simply – no profit shifting takes place. For more details of how CFC rules work see Section 4.3

coefficient of -1.4569 implies as average partial effect that if the target is potentially treated by CFC rules and the difference between acquirer STR and target STR increases by 1%, the likelihood of acquiring this target decreases by 0.05%.

Taken together, we provide evidence that potential CFC rule application on a target's income reduces the probability of acquiring this target; this finding supports Hypothesis 1a. However, the calculated economic effect seems to be very low for small STR differences. Therefore, countries should not expect large negative effects of CFC rule implementation on their MNE's cross-border M&A activity. Besides the following robustness tests, further reassurance is served in the next Section 4.3.4.4.

As argued in Feld, Ruf, et al. (2016), a violation of the assumption of the independence of irrelevant alternatives (IIA) in the conditional logit model could be problematic because estimates may be biased. Further, and in our case potentially even more important, there may be unobserved heterogeneity in how CFC rules affect acquirers' target valuation. To account for such heterogeneity across firms in terms of M&A decisions and to address the IIA assumption, we randomize this heterogeneity and assume it to be normally distributed. Consequently, we randomize our variables of interest by using a mixed logit estimator. This randomization follows a normal distribution with mean $\boldsymbol{g}$ and covariance $\boldsymbol{W}$; the parameters are estimated by simulated maximum likelihood with 50 Halton draws.[23] In our mixed logit regressions, we observe that the estimated standard deviations of the normal distribution are highly significant; therefore, we prefer this approach and apply mixed logit regressions in the remaining regressions.

In regression (3), we observe that applying the mixed logit model does not change the basic results as CFC^{diff} remains significantly negative at the 1% level and quantitatively stable. In regression (4), we cluster the standard errors at the target-country/year level and observe that CFC^{diff} is significant at the 5% level.

[23]In untabulated regression results, we find that using 100 Halton draws produces very similar results in both the acquirer and target perspective; these results are available upon request.

Most control variables are highly significant and show the expected signs. Regarding *STR*, we find a negative effect on the likelihood to be the successful bidder if the bidder is located in a high-tax country. This finding is in line with Becker and Riedel (2012), who find a negative effect of parent STR on investment in foreign subsidiaries. Helpman (2014) show that the productivity level of firms influences their investments abroad and firms with the highest productivity engage in FDI. Similar to other studies, we use GDP per capita and GDP growth as proxies for productivity levels in an acquirer country and find that GDP per capita has a significantly positive coefficient, while GDP growth is insignificant. Hence, a high level of GDP per capita has a positive impact on cross-border M&A activity. Stock market capitalization per GDP has the expected positive coefficient, which indicates that well-developed stock markets in the acquirer country offer good financing conditions to raise capital to fund cross-border M&A. The size of the private credit market has no significant effect. Cross-border M&A literature finds that lower bilateral transaction costs between the acquirer and target due to less cultural and geographic distance positively affect M&A activity (e.g., Di Giovanni (2005)). In line with these findings, we observe that the distance, a common language, past colonial relation, and a common legal system show the expected signs and are highly significant.

Robustness tests

Table 4.2 provides the results of our check on whether our baseline results are robust to specification variations. In regression (1), we include a dummy variable capturing the unilateral method (i.e., the credit or exemption method on foreign dividends) to avoid double taxation on foreign dividends which was research specifically in the work of Feld, Ruf, et al. (2016). A country's method to avoid double taxation could be potentially correlated with whether or not this country has CFC rules. The reason is as follows: If a country taxes foreign dividends under the credit method system, income shifted to tax havens will — theoretically— be ultimately taxed on profit repatriation. However, the important difference between CFC rules and taxing foreign dividends taxation is the timing of taxation: While

under CFC rules distinct foreign profits are immediately taxed at the parent level irrespective of dividend distribution, taxation under the pure credit method system can be deferred by the parent company until the actual dividend distribution taxation takes place. Under the exemption method system, profits shifted to tax havens are not taxed upon repatriation and the country may be more prone to introduce CFC rules. Indeed, under the Tax Cuts and Jobs Act of 2017, the US changed its international corporate tax system towards the exemption method system and strengthened its former rather weak CFC rules (as described above) by introducing the GILTI rule. To control for this potential interdependency, we include a variable for the method $ExemptionMethod$, which is one (zero) if the acquirer applies the territorial/exemption (worldwide/credit) tax system, to avoid double taxation, and the coefficient of CFC^{diff} remains significantly negative; however, the coefficient decreases by around half. The significantly positive coefficient of $ExemptionMethod$ indicates that the likelihood of being the acquirer increases if the acquirer resides in a country that exempts foreign dividends of the target from taxation, which is in line with the result of Feld, Ruf, et al. (2016).

Table 4.1: Effect of acquirer CFC rules on probability of being the acquirer country

Explanatory variables	(1) Conditional logit	(2) Conditional logit	(3) Mixed logit	(4) Mixed logit
CFC^{dummy}	-0.0523[a]			
	(0.0407)			
CFC^{diff}		-1.4569***	-1.2387***	-1.2387**
		(0.3277)	(0.3482)	(0.5606)
STR	-2.0538***	-1.7568***	-2.0903***	-2.0903**
	(0.6319)	(0.633)	(0.6442)	(0.8423)
GDP per capita	1.0541***	1.0452***	1.1104***	1.1104***
	(0.1619)	(0.1625)	(0.1652)	(0.2118)
GDP growth	-0.0034	-0.0032	-0.0041	-0.0041
	(0.0076)	(0.0075)	(0.0076)	(0.0099)
Stock market capitalization per GDP	0.0005***	0.0005***	0.0005***	0.0005
	(0.0002)	(0.0002)	(0.0002)	(0.0003)
Size of private credit market	0.0007	0.0006	0.0007	0.0007
	(0.0006)	(0.0006)	(0.0006)	(0.0011)
Distance	-0.5852***	-0.5789***	-0.5906***	-0.5906***
	(0.0114)	(0.0115)	(0.0119)	(0.0217)
Common language	1.8148***	1.8112***	1.8494***	1.8494***
	(0.062)	(0.062)	(0.0629)	(0.1289)
Past colonial relationships	0.3020***	0.2868***	0.2994***	0.2994***
	(0.036)	(0.0359)	(0.0364)	(0.0569)
Common legal system	0.1029***	0.1145***	0.1117***	0.1117**
	(0.0251)	(0.0252)	(0.0254)	(0.047)
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES
Observations	317,835	317,835	317,835	317,835
Log-likelihood	-32,188	-32,178	-32,165	-32,165

Note: The table shows regressions of probability of being the acquirer country on (potential) CFC rule application; see Expression 4.3. For each deal, the dependent variable equals one if country i is the actual acquirers country of origin, and zero if country h is a counterfactual acquirer country. For variable definitions and data sources, see Table C.3. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for acquirer country fixed effects, which are available upon request. The variables of interest follow a random distribution in the mixed logit regressions. Regressions (1) and (2) are estimated by a conditional logit model and regressions (3) and (4) are estimated by a mixed logit model. Regression (4) is identical to regression (3) except for standard errors, which are robust to clustering on the target-country-year level. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses. [a] The level of statistical significance is 19.9% .

Table 4.2: Effect of acquirer CFC rules on probability of being acquirer country (Robustness checks)

Explanatory variables	(1) Controlling for exemption or credit method	(2) Using target effective average tax rate	(3) Considering EAA exemption (post 2006)	(4) Considering included income of CFC rule	(5) Randomizing STR	(6) Excl. acquirers from AU&CA&NZ	(7) Excl. acquirers from CA&UK&US	(8) OLS regression
CFC^{diff}	-0.6035*				-1.2130***	-1.6977***	-1.0453*	
	(0.3472)				(0.3507)	(0.3588)	(0.5643)	
$CFC^{diffEATR}$		-1.2961***						
		(0.3162)						
$CFC^{diffEEA}$			-1.5406***					
			(0.3491)					
$CFC^{taxbase}$				-1.7810***				
				(0.3993)				
CFC^{dummy}								-0.0108***
								(0.0020)
STR	-2.3967***	-1.9075***	-1.9575***	-2.0217***	-2.1346***	-1.6298**	-1.9436***	-0.0093
	(0.6431)	(0.6363)	(0.6440)	(0.6433)	(0.6472)	(0.6774)	(0.7260)	(0.0197)
ExemptionMethod	0.8440***							
	(0.0859)							
GDP per capita	1.2497***	1.0501***	1.1225***	1.1152***	1.0906***	1.1571***	1.0672***	0.0116***
	(0.1661)	(0.1621)	(0.1655)	(0.1653)	(0.1666)	(0.1680)	(0.1805)	(0.0043)
GDP growth	-0.0071	-0.0034	-0.0040	-0.0044	-0.0046	0.0051	-0.0106	0.0001
	(0.0077)	(0.0076)	(0.0076)	(0.0076)	(0.0077)	(0.0085)	(0.0086)	(0.0003)
Stock market capitalization per GDP	0.0006***	0.0005***	0.0005***	0.0005***	0.0005***	0.0004***	0.0003**	0.0000***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0000)
Size of private credit market	0.0012*	0.0006	0.0007	0.0007	0.0007	0.0006	0.0010	0.0000
	(0.0007)	(0.0006)	(0.0006)	(0.0006)	(0.0007)	(0.0008)	(0.0010)	(0.0000)
Distance	-0.5657***	-0.5890***	-0.5884***	-0.5948***	-0.5919***	-0.5696***	-0.6515***	-0.0351***
	(0.0121)	(0.0115)	(0.0119)	(0.0119)	(0.0119)	(0.0143)	(0.0175)	(0.0007)
Common language	1.9151***	1.8596***	1.8491***	1.8603***	1.8598***	1.9419***	2.2097***	0.0954***
	(0.0641)	(0.0625)	(0.0630)	(0.0631)	(0.0627)	(0.0676)	(0.0770)	(0.0041)
Past colonial relationships	0.2454***	0.3005***	0.2971***	0.3004***	0.2937***	0.2334***	0.4303***	0.0132***
	(0.0370)	(0.0360)	(0.0364)	(0.0365)	(0.0371)	(0.0388)	(0.0475)	(0.0019)
Common legal system	0.0946***	0.1030***	0.1139***	0.1136***	0.1122***	0.1244***	0.1925***	0.0046***
	(0.0258)	(0.0251)	(0.0254)	(0.0254)	(0.0256)	(0.0258)	(0.0277)	(0.0010)
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	294,697	317,835	317,835	317,835	317,835	243,136	151,651	317,835
Log-likelihood	-30,936	-32,175	-32,164	-32,161	-32,164	-25,945	-19,203	
R squared adjusted								0.136

Note: The table shows regressions of probability of being the acquirer country on (potential) CFC rule application; see expression (3). For each deal, the dependent variable equals one if country i is the actual acquirer's country of origin, and zero if country h is a counterfactual acquirer country. For variable definitions and data sources, see Table C.3. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for acquirer country fixed effects, which are available upon request, and are estimated by a mixed logit model. The variables of interest follow a random distribution. Regression (1) additionally controls for double taxation avoidance method, regression (2), (3) and (4) check whether our variable of interest is robust to using effective average tax rates, considering potential non-application of CFC rules within the EEA and considering the included income by CFC rules as shown in Section 4.3.2.1. In regression (5), also *STR* follows a random distribution. Regressions (6) and (7) exclude certain countries. Regression (8) is estimated by an OLS regression; the constant is not reported but available upon request. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

In regressions (2), (3) and (4), we vary the calculation of our variable of interest by considering target effective average tax rates ($CFC^{diffEATR}$), potential non-application of CFC rules within the EEA ($CFC^{diffEEA}$), and the included income by CFC rules ($CFC^{taxbase}$). In regression (5), we additionally randomize STR and in regression (6), we exclude acquirers from Australia, Canada, and New Zealand because their CFC rules do not explicitly mention a tax rate threshold that potentially changes country-pairwise over time, from which our main identification is coming from. Regression (7) excludes the largest acquirer countries (Canada, United Kingdom, and United States), which account for around half of our observations. The exclusion of the US further checks for a potential bias due to the so-called check-the-box rule, which was introduced in the US in 1997 and may allow for an escape from CFC rules for US MNEs under specific circumstances by using hybrid entities (e.g., Sonja Olhoft Rego (2003); Grubert and Altshuler (2006); Mutti and Grubert (2009)). Finally, in regression (8), we run an ordinary least squares (OLS) regression with acquirer country, target country, and year fixed effects, i.e., assuming that the probability is a linear function of the explanatory variables. The coefficient of CFC^{dummy} is significantly negative at the 1% level. However, given that the range of probabilities of the logistic regression is from 0.01 to 0.823, assuming a linear function is not appropriate and linear probability regressions lead to biased estimates. Therefore, we do not use OLS regression in our baseline results. We observe that all robustness tests validate our baseline results, both quantitatively and qualitatively.

Table 4.3: Further robustness tests of effect of acquirer CFC rules on probability of being the acquirer country

Explanatory variables	(1) Excl. control variables	(2) Profitable vs. non-profitable targets	(3) Incl. target assets & target return on assets	(4) Incl. target sales	(5) Incl. target EBITDA
CFC^{diff}	-4.1258***		-3.1934***	-2.8136***	-2.1391*
	(0.3294)		(1.1995)	(0.7548)	(1.2086)
$CFC^{profitable}$		-1.9250**			
		(0.9653)			
$CFC^{non\_profitable}$		-5.5943***			
		(1.7488)			
STR		0.8489	0.4872	-0.6872	-0.5640
		(1.5131)	(1.5582)	(1.2818)	(1.8920)
GDP per capita		1.6639***	1.8388***	1.2574***	1.1308**
		(0.3762)	(0.3851)	(0.3246)	(0.5062)
GDP growth		0.0383**	0.0455**	0.0166	0.0272
		(0.0195)	(0.0202)	(0.0176)	(0.0258)
Stock market capitalization		0.0003	-0.0002	-0.0000	-0.0007
per GDP		(0.0004)	(0.0005)	(0.0004)	(0.0006)
Size of private credit market		0.0001	0.0003	-0.0010	-0.0008
		(0.0017)	(0.0018)	(0.0014)	(0.0023)
Distance		-0.5018***	-0.4904***	-0.4932***	-0.5148***
		(0.0313)	(0.0338)	(0.0266)	(0.0422)
Common language		1.7924***	1.6550***	1.5999***	1.4257***
		(0.1765)	(0.1951)	(0.1562)	(0.2360)
Past colonial relationships		0.2783***	0.2070**	0.1570**	0.1919*
		(0.0862)	(0.0921)	(0.0731)	(0.1080)
Common legal system		0.2239***	0.3270***	0.3013***	0.3555***
		(0.0654)	(0.0713)	(0.0560)	(0.0860)
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES	YES
Observations	317,835	55,715	52,809	78,495	34,405
Log-likelihood	-35,450	-5,495	-5,157	-7,715	-3,287

Note: Regressions of probability of being the acquirer country on (potential) CFC rule application; see Expression 4.3. For each deal, the dependent variable equals one if country i is the actual acquirer's country of origin, and zero if country h is a counterfactual acquirer country. For variable definitions and data sources, see Table C.3. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for acquirer country fixed effects, which are available upon request, and are estimated by a mixed logit model. The variables of interest follow a random distribution. Regression (1) drops all control variables and regression (2) distinguishes between profitable and non-profitable targets. Regression (3) includes the interaction between acquirer country fixed effects and *TargetAssets* and the interaction between acquirer country fixed effects and *TargetROA*. Regression (4) includes the interaction between acquirer country fixed effects and *TargetSales*. Regression (5) includes the interaction between acquirer country fixed effects and *TargetEBITDA*. The coefficients and standard errors of these interactions are shown in Table C.4 in the appendix. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

Table 4.3 provides further robustness tests. In regression (1), we exclude all control variables except for the acquirer country fixed effects to check if there is a bias due to correlation between CFC^{diff} and the control variables. We find that CFC^{diff} decreases substantially and remains significant. Further, we check whether our results are robust to differentiating between profitable and loss-making targets in regression (2). Due to missing firm level variables, the sample decreases substantially. We find that the coefficients of $CFC^{profitable}$ and $CFC^{non\_profitable}$ remain significantly negative. Interestingly, the effect is

more pronounced for loss-making targets; the difference between the coefficients is significant at a p-value of 1.9% (two-sided). One possible reason could be that non-CFC rule acquirers are more interested in acquiring low-tax loss-making targets than CFC rule acquirers, because non-CFC rule acquirers may shift income to the loss-making targets and, thereby, net out the losses—or even use existing loss carryforwards if possible—of these targets; CFC rule acquirer on the other hand are restricted in their shifting possibilities as, for example, due to these rules often not too much financial income is allowed to show up at the target. This explanation would be in line with e.g., Langenmayr and Lester (2018); Simone, Klassen, and Seidman (2017); Maydew (1997). Finally, regressions (3), (4) and (5) control for target-specific financial data (total assets, return on assets, sales and earnings before interest, taxes, depreciation and amortization) by interacting these consolidated profit and loss statement and balance sheet items with each candidate acquirer country. While again the sample size decreases substantially, we observe that CFC^{diff} remains significantly negative.

4.3.4.3 Target perspective

Results

As described in Section 4.3.2.2, we analyze for each given acquirer the origin of the eventual target country among a choice set of various target countries. Table 4.4 presents the baseline results of different multinomial choice models to test Hypothesis 1b on the influence of CFC rules on the likelihood of being chosen as the target country of a given acquirer. For each deal, the dependent variable equals one for the actual target country of origin and zero for all other counterfactual target countries. For definitions, data sources and summary statistics of all variables see Table C.6.[24]

In the conditional logit regression (1), the dummy variable CFC^{dummy} has a significantly negative coefficient, which indicates that potential CFC rule application on a candidate target's income has a negative effect on actually choosing the target country as a location.

[24]The underlying base data in both perspectives are the same. The actual observations in both perspectives differ slightly, which is due to availability restrictions of different necessary control variables.

CFC^{diff} is a continuous variable and takes values between 0 and 0.284; it measures in more detail the magnitude of a potential additional tax burden due to CFC rule application and – similar to the result in Section 4.3.4.2 – the significance level increases compared to the mere dummy variable approach (CFC^{dummy}). In line with Hypothesis 1b, this finding indicates that potential CFC rule application on target's income negatively influences the target location choice of a given acquirer, as intended by these deterrence laws. Therefore, from a global perspective and with an increasing number of countries introducing or strengthening CFC rules, this finding may further indicate higher overall tax revenue due to potentially less income shifting from firms in high-tax countries. The coefficient of -1.7115 is slightly larger than the coefficient under the acquirer perspective and may indicate that CFC rules have a somewhat stronger effect on target location choice than on who becomes the acquirer. The coefficient implies as average partial effect that if the target is potentially treated by CFC rules and the difference between acquirer STR and target STR increases by 1%, the likelihood of acquiring this targets decreases by 0.06%.

To cope with a possible violation of the IIA and the potentially unobserved heterogeneity in how CFC rules affect acquirers' target valuation decisions (see Section 4.3.4.2), we use again a mixed logit estimator and randomize our variables of interest in the remaining regressions. Again, we observe that the estimated standard deviations of the normal distribution are highly significant; therefore, we prefer this approach and apply mixed logit regressions in the remaining regressions. We observe a further decrease of CFC^{diff} and the significance level remains stable in regression (3) and regression (4), where we cluster the standard errors at the acquirer-country/year level. In regression (5), we again run an OLS regression and observe a significantly negative coefficient of CFC^{diff}.

Regarding significant control variables, we observe that STR has a positive effect on target location choice, which is an unexpected result as FDI literature generally suggests a negative effect of host country STR on host country investment (e.g., Feld and J. Heckemeyer (2011)). An explanation for this result could be that cross-border M&A are less sensitive to host

Table 4.4: Effect of acquirer CFC rules on probability of being *target* country

Explanatory variables	(1) Conditional logit	(2) Conditional logit	(3) Mixed logit	(4) Mixed logit
CFC^{dummy}	-0.1078**			
	(0.0450)			
CFC^{diff}		-1.7115***	-2.8880***	-2.8880***
		(0.3921)	(0.5306)	(0.8075)
STR	2.6019***	2.4139***	2.0753***	2.0753**
	(0.6293)	(0.6309)	(0.6398)	(0.8535)
GDP per capita	-0.0639	-0.0388	-0.0848	-0.0848
	(0.1740)	(0.1739)	(0.1744)	(0.3059)
GDP growth	0.0142*	0.0143*	0.0134*	0.0134
	(0.0081)	(0.0081)	(0.0081)	(0.0112)
Stock market capitalization per GDP	-0.0003	-0.0003	-0.0003	-0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0003)
Size of private credit market	-0.0019**	-0.0019**	-0.0021***	-0.0021**
	(0.0008)	(0.0008)	(0.0008)	(0.0011)
Distance	-0.5799***	-0.5740***	-0.5736***	-0.5736***
	(0.0112)	(0.0114)	(0.0114)	(0.0188)
Common language	1.9043***	1.9006***	1.9162***	1.9162***
	(0.0639)	(0.0638)	(0.0641)	(0.1225)
Past colonial relationships	0.2992***	0.2777***	0.2712***	0.2712***
	(0.0375)	(0.0377)	(0.0378)	(0.0489)
Common legal system	0.0172	0.0311	0.0345	0.0345
	(0.0269)	(0.0271)	(0.0272)	(0.0483)
Corruption control	0.1651*	0.1644*	0.1600*	0.1600
	(0.0859)	(0.0860)	(0.0863)	(0.1337)
Business start-up cost	-0.0073**	-0.0072**	-0.0075**	-0.0075*
	(0.0033)	(0.0033)	(0.0033)	(0.0044)
Unemployment rate	-0.0004	0.0001	0.0004	0.0004
	(0.0064)	(0.0064)	(0.0064)	(0.0085)
Domestic firms	0.1775**	0.1651*	0.1834**	0.1834
	(0.0848)	(0.0846)	(0.0848)	(0.1338)
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES
Observations	317,444	317,444	317,444	317,444
Log-likelihood	-31,158	-31,151	-31,144	-31,144

Note: Regressions of probability of being the target country on (potential) CFC rule application in acquirer country; see Expression 4.5. For each deal, the dependent variable equals one if country j is the actual target's country of origin, and zero if country g is a counterfactual target country. For variable definitions and data sources, see Table C.6. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for target country fixed effects, which are available upon request. The variables of interest follow a random distribution in the mixed logit regressions. Regressions (1) and (2) are estimated by a conditional logit model and regressions (3) and (4) are estimated by a mixed logit model. Regression (4) is identical to regression (3) except for standard errors, which are robust to clustering on the acquirer-country-year level. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

country STRs (e.g., Hebous, Ruf, and Weichenrieder (2011); Herger, Kotsogiannis, and McCorriston (2016) or that income shifting structures within the acquiring MNE mitigate this effect (e.g., Arulampalam, Devereux, and Liberini (2019)). Additionally, variation of STR is also used to compose our variable of interest, which may lead to interdependencies. Finally, the significantly positive effect of STR does not prove to be robust.

Regarding control variables, GDP per capita and stock market capitalization per GDP have insignificant coefficients, whereas GDP growth has a significantly positive effect in some regressions, i.e., targets located in growing economies are more likely to be acquired. Further, the control variable for the size of the private credit market has a significantly negative effect on target location choice. The explanation for this finding may be the following: If a target is located in a country with a low ratio of private credits granted to the private sector, the supply of credits may be limited. Consequently, credit supply for internal expansion is limited, which makes targets in these countries more likely to be acquired (Arulampalam, Devereux, and Liberini (2019)). Similar to the findings in Section 4.3.4.2, we observe that lower bilateral transaction costs between the acquirer and target positively affect target location choice: the distance, a common language and past colonial relationships have the expected significant coefficient; the variable controlling for a common legal system has an expected positive though insignificant estimate. Finally, the control variables for the institutional framework in the candidate target country have significant explanatory power. A high degree of corruption control, a large number of listed firms, and low business start-up cost increase the chances to be chosen as a target location; unemployment rate has an insignificant effect.

Robustness tests

In Table 4.5, we provide similar robustness tests as in Table 4.2 and yield similar results. Regressions (1), (2), and (3) take into account target effective average tax rates ($CFC^{diffEATR}$), potential non-application of CFC rules within the EEA ($CFC^{diffEEA}$) and the included income by CFC rules ($CFC^{taxbase}$). In regression (4), we additionally randomize

STR and in regression (5), we exclude acquirers from Australia, Canada, and New Zealand because their CFC rules do not explicitly mention a tax rate threshold. Regression (6) excludes the largest target countries (Germany, United Kingdom, and United States), which account for almost half of our observations. In regression (7), we include a variable controlling for the extent of business disclosure as a further variable for the institutional framework in the candidate target country. This variable is not included in our baseline results because its inclusion significantly drops the observation number. Finally, in regression (8), we run an ordinary least squares (OLS) regression. The coefficient of CFC^{dummy} is significantly negative at the 1% level; however, given that the range of probabilities is from a 0.01 to 0.779, linear probability regressions lead to biased estimates. Therefore, we again do not use OLS regression in our baseline results. We observe that all robustness tests resemble our baseline results, both quantitatively and qualitatively.

Table 4.6 provides further robustness tests yielding similar results as presented in Table 4.3. In regression (1), we exclude all control variables except for the target country fixed effects to check if there is a bias due to correlation between CFC^{diff} and the control variables. Again, we find that CFC^{diff} decreases substantially and remains significant. Further, we check whether our results are robust to differentiating between profitable and loss-making targets in regression (2). We find that the coefficients of $CFC^{profitable}$ and $CFC^{non\_profitable}$ remain significantly negative; however, in this robustness test, there is no significant difference between the coefficients of $CFC^{profitable}$ and $CFC^{non\_profitable}$. Finally, in regressions (3), (4) and (5), we include acquirer-specific financial data (total assets, return on assets, sales and earnings before interest, taxes, depreciation and amortization) by interacting these consolidated profit and loss statement and balance sheet items with each candidate target country. We again observe a substantial sample decrease due missing firm level variables, but the results prove to be robust.

Table 4.5: Effect of acquirer CFC rules on probability of being a *target* country (Robustness checks)

Explanatory variables	(1) Using target effective average tax rate	(2) Considering EAA exemption (post 2006)	(3) Considering included income of CFC rule	(4) Randomizing STR	(5) Excl. acquirers from AU&CA&NZ	(6) Excl. acquirers from CA&UK&US	(7) Incl. business disclosure index	(8) OLS regression
CFC^{diff}				-2.9635***	-3.0176***	-1.9885***	-2.1462***	
				(0.5612)	(0.5315)	(0.6091)	(0.5646)	
$CFC^{diffEATR}$	-1.6836***							
	(0.4775)							
$CFC^{diffEEA}$		-3.2489***						
		(0.5360)						
$CFC^{taxbase}$			-1.3819[a]					
			(0.9350)					
CFC^{dummy}								-0.0163***
								(0.0012)
STR	2.3923***	1.9682***	3.8860***	1.8021***	2.2549***	-0.7337	1.8860**	0.0429*
	(0.6354)	(0.6407)	(1.0668)	(0.6577)	(0.6744)	(0.9266)	(0.7650)	(0.0251)
GDP per capita	-0.0710	-0.0803	-0.1884	-0.3431*	0.0169	-0.5203***	0.3354	0.0117*
	(0.1744)	(0.1749)	(0.1798)	(0.1848)	(0.1825)	(0.1978)	(0.2291)	(0.0063)
GDP growth	0.0139*	0.0137*	0.0140*	0.0119	0.0109	0.0186**	0.0204**	0.0004
	(0.0081)	(0.0081)	(0.0082)	(0.0083)	(0.0087)	(0.0093)	(0.0087)	(0.0002)
Stock market capitalization per GDP	-0.0003	-0.0003	-0.0002	-0.0001	-0.0003	-0.0002	-0.0002	-0.0000**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0000)
Size of private credit market	-0.0020**	-0.0022***	-0.0018**	-0.0022***	-0.0029***	-0.0034***	-0.0025***	-0.0001***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0009)	(0.0011)	(0.0009)	(0.0000)
Distance	-0.5834***	-0.5712***	-0.5919***	-0.5985***	-0.5562***	-0.6799***	-0.5717***	-0.0328***
	(0.0113)	(0.0115)	(0.0122)	(0.0125)	(0.0145)	(0.0166)	(0.0123)	(0.0007)
Common language	1.9332***	1.9217***	1.9710***	2.0260***	1.9892***	2.0413***	1.9405***	0.1293***
	(0.0639)	(0.0640)	(0.0670)	(0.0684)	(0.0685)	(0.0805)	(0.0687)	(0.0049)
Past colonial relationships	0.2986***	0.2636***	0.2760***	0.2637***	0.2214***	0.3984***	0.2497***	0.0051***
	(0.0377)	(0.0378)	(0.0384)	(0.0387)	(0.0403)	(0.0485)	(0.0413)	(0.0018)
Common legal system	0.0139	0.0364	0.0282	0.0315	0.0482*	0.0919***	0.0162	0.0020*
	(0.0269)	(0.0272)	(0.0278)	(0.0280)	(0.0278)	(0.0341)	(0.0291)	(0.0012)
Corruption control	0.1784**	0.1504*	0.1641*	0.1525*	0.1277	0.0777	0.3170***	0.0035
	(0.0860)	(0.0865)	(0.0875)	(0.0889)	(0.0922)	(0.1113)	(0.1135)	(0.0027)
Business start-up cost	-0.0074**	-0.0074**	-0.0076**	-0.0081**	-0.0052	-0.0071*	-0.0064*	0.0002**
	(0.0033)	(0.0033)	(0.0033)	(0.0034)	(0.0035)	(0.0037)	(0.0036)	(0.0001)
Unemployment rate	0.0003	0.0002	-0.0026	-0.0032	0.0033	-0.0134*	0.0055	0.0006***
	(0.0064)	(0.0064)	(0.0065)	(0.0065)	(0.0067)	(0.0081)	(0.0071)	(0.0002)
Domestic firms	0.1715**	0.1794**	0.2252***	0.2844***	0.2078**	0.2547***	0.0623	0.0030*
	(0.0848)	(0.0849)	(0.0861)	(0.0876)	(0.0883)	(0.0907)	(0.1015)	(0.0018)
Business disclosure							0.0820	
							(0.0686)	
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	317,444	317,444	317,444	317,444	255,172	161,910	264,159	317,444
Log-likelihood	-31,155	-31,140	-31,136	-31,119	-26,594	-19,327	-26,172	
R squared adjusted								0.133

Note: Regressions of probability of being the target country on (potential) CFC rule application in acquirer country; see Expression 4.5. For each deal, the dependent variable equals one if country j is the actual target's country of origin, and zero if country g is a counterfactual target country. For variable definitions and data sources, see Table C.6. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for target country fixed effects, which are available upon request, and are estimated by a mixed logit model. The variables of interest follow a random distribution in the mixed logit regressions. Regression (1), (2) and (3) check whether our variable of interest is robust to using effective average tax rates, considering potential non-application of CFC rules within the EEA and considering the included income by CFC rules. In regression (4), also STR follows a random distribution. Regressions (5) and (6) exclude certain countries and regression (7) considers a further control variable (*Business disclosure*). Regression (8) is estimated by an OLS regression; the constant is not reported but available upon request. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

[a] The level of statistical significance is 13.9%.

Table 4.6: Further robustness tests of effect of acquirer CFC rules on probability of being the acquirer country

Explanatory variables	(1) Excl. control variables	(2) Profitable vs. non-profitable targets	(3) Incl. acquirer assets & acquirer return on assets	(4) Incl. acquirer sales	(5) Incl. acquirer EBITDA
CFC^{diff}	-6.4155***		-3.5409***	-3.4268***	-3.2957***
	(0.4292)		(0.6830)	(0.6655)	(0.7050)
$CFC^{profitable}$		-6.4673***			
		(1.6700)			
$CFC^{non\_profitable}$		-7.2323***			
		(1.9287)			
STR		-1.8795	2.4216***	2.7097***	2.7031***
		(1.7514)	(0.7889)	(0.7979)	(0.8450)
GDP per capita		0.2851	-0.1952	-0.0804	-0.3150
		(0.5944)	(0.2289)	(0.2319)	(0.2494)
GDP growth		-0.0329	0.0119	0.0107	0.0096
		(0.0227)	(0.0101)	(0.0104)	(0.0111)
Stock market capitalization per GDP		-0.0003	0.0000	-0.0002	-0.0000
		(0.0007)	(0.0003)	(0.0003)	(0.0003)
Size of private credit market		-0.0050***	-0.0027***	-0.0029***	-0.0026**
		(0.0018)	(0.0010)	(0.0010)	(0.0011)
Distance		-0.4524***	-0.5450***	-0.5504***	-0.5388***
		(0.0303)	(0.0145)	(0.0152)	(0.0162)
Common language		2.0888***	1.6471***	1.5955***	1.4247***
		(0.1776)	(0.0896)	(0.0895)	(0.1006)
Past colonial relationships		0.2331***	0.2761***	0.2821***	0.2991***
		(0.0901)	(0.0462)	(0.0468)	(0.0489)
Common legal system		0.1076	0.1376***	0.1668***	0.2000***
		(0.0681)	(0.0363)	(0.0363)	(0.0388)
Corruption control		0.0070	0.1240	0.0248	0.0192
		(0.2145)	(0.1076)	(0.1088)	(0.1168)
Business start-up cost		-0.0087	-0.0122***	-0.0110***	-0.0091**
		(0.0089)	(0.0041)	(0.0042)	(0.0046)
Unemployment rate		-0.0252	-0.0091	-0.0124	-0.0128
		(0.0160)	(0.0081)	(0.0082)	(0.0087)
Domestic firms		0.4353*	0.1074	0.0945	0.1462
		(0.2224)	(0.1060)	(0.1069)	(0.1119)
Acquirer country FE & target country FE & target firm FE & year FE	YES	YES	YES	YES	YES
Observations	317,444	53,270	215,197	206,176	180,202
Log-likelihood	-34,219	-5,028	-20,617	-19,818	-17,463

Note: This table shows regressions of probability of being the target country on (potential) CFC rule application in acquirer country; see Expression 4.5. For each deal, the dependent variable equals one if country j is the actual target's country of origin, and zero if country g is a counterfactual target country. For variable definitions and data sources, see Table C.6. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for target country fixed effects, which are available upon request, and are estimated by a mixed logit model. The variables of interest follow a random distribution in the mixed logit regressions. Regression (1) drops all control variables and regression (2) distinguishes between profitable and non-profitable targets. Regression (3) includes the interaction between target country fixed effects and *AcquirerAssets* and the interaction between target country fixed effects and *AcquirerROA*. Regression (4) includes the interaction between target country fixed effects and *AcquirerSales*. Regression (5) includes the interaction between target country fixed effects and *AcquirerEBITDA*. The coefficients and standard errors of these interactions are shown in Table C.7. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

4.3.4.4 Comparison and further robustness of both perspectives

So far, we are not able to control for country-pair specific fixed effects. The number of required dummy variables appears to be too large for the logistic regressions as the maximum likelihood estimation did not achieve convergence. But, as presented above, the OLS regressions in Table 4.2 and Table 4.5 show similar results as their logistic counterparts. Therefore, we test with further OLS regressions for various further endogeneity questions that may arise.[25]

In Table 4.7, we include four more regressions from the acquirer and target perspective taken in our analysis above. Regressions (1) and (2) show that even with applied acquirer country-year and target country-year fixed effects, which control for changes within a country over time (e.g., the introduction or change of other anti tax avoidance rules), our results are robust and statistically significant. To interpret these robustness test results better, we used the CFC^{dummy} variable again. The interpretation of regression (1) yields that if a target is located in a low-tax country in terms of a CFC rule definition, the probability that this target is bought by an acquirer from that CFC rule country is 1.2% lower than from a non-CFC rule country. Regression (2) shows for the target perspective that a target in a specified low-tax country is chosen by an acquirer from a CFC rule country with a 1.8% lower probability.[26]

In the following regressions we apply the most strict fixed effects that we could control for: acquirer country-year, target country-year, and country-pair fixed effects. In regressions (3) and (4), we observe non statistical significant results, which are quite smaller in size and even change signs with these strong fixed effect controls. In regressions (5) and (6), the CFC^{diff} variable is used instead as this specification includes more of the underlying heterogeneity of the observations. In this case, the coefficient for the acquirer perspective stays insignificant, but the coefficient for the target perspective shows statistical significance.

[25]Thereby, these regressions do not control for target firm specific effects anymore but different stronger fixed effect controls can by applied.

[26]The reader should keep in mind that the preferred regression methods for binary variables are logistic methods and, therefore, the numbers presented in this robustness section should be interpreted with caution.

In Regression (1) to (6), we keep the sample size at the same level as in the regressions in the previous sub-sections. In Regressions (7) and (8), we drop that restriction and see similar results for the full sample size that is used in these calculations where no observations are dropped due to none missing control variables.[27]

Comparing the results from Section 4.3.4.2, Section 4.3.4.3, and Section 4.3.4.4 reveals that the coefficients are always larger in the target perspective version. Additionally, one can observe in the last four regressions in this subsection that the target perspective results prove to be more robust. These findings suggest that CFC rule influence on M&A decisions is more important on the choice of targets in low-tax countries than on the question of who becomes the new parent of a new target in a low-tax country, which accounts for the two perspectives taken above. This would be in line with the intended deterring effect of CFC rules and is speaking against some competitive disadvantages arguments of lobbyists, especially as the size of the effect in the M&A market seems to be rather low as shown in this section.

[27]Due to missing control variables in previous sub-section regressions, some observations had to be dropped.

Table 4.7: Further robustness tests of acquirer CFC rules in the form of OLS regressions for acquirer and target country probabilities

Explanatory variables	(1) Acquirer Perspective	(2) Target Perspective	(3) Acquirer Perspective	(4) Target Perspective	(5) Acquirer Perspective	(6) Target Perspective	(7) Acquirer Perspective	(8) Target Perspective
CFC^{dummy}	-0.0118***	-0.0182***	0.0021	0.0001				
	(0.0021)	(0.0012)	(0.0044)	(0.0023)				
CFC^{diff}					0.0008	-0.0458*	0.0063	-0.0323*
					(0.0374)	(0.0262)	(0.0265)	(0.0193)
Distance	-0.0352***	-0.0328***						
	(0.0007)	(0.0007)						
Common language	0.0963***	0.1303***						
	(0.0041)	(0.0049)						
Past colonial relationships	0.0132***	0.0053***						
	(0.0019)	(0.0018)						
Common legal system	0.0045***	0.0023**						
	(0.0010)	(0.0012)						
Target Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Acquirer Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Country-Pair FE			YES	YES	YES	YES	YES	YES
Observations	317,835	318,666	317,826	318,545	317,826	318,545	471,474	497,147
R squared adjusted	0.1374	0.1321	0.1805	0.1800	0.1805	0.1801	0.1617	0.1575

Note: This table shows ordinary least squares (OLS) regressions with various fixed effects as robustness checks. For each deal, the dependent variable equals one if country i (j) is the actual acquirer's (target's) country of origin, and zero if country h (g) is a counterfactual acquirer (target) country in the relevant perspective shown alternately. For variable definitions and data sources, see Table C.3 and Table C.6. Only cross-border M&A where the direct acquirer country is equal to the acquirer ultimate parent country are considered. All regressions control for target country-year and acquirer country-year fixed effects. In regressions (1) and (2), some country-pair specific control variables are included. In the following regressions (3) to (8), country-pair fixed effects are included to account for these effects even stricter. In regressions (5) to (8), another variable of interest with more heterogeneity is used. The sample base of regressions (7) and (8) is set to its initial size as in these fixed effects regressions no observations have to be deleted due to potential missing control variables as in the former logistic regressions above. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

4.4 CFC rules and the direction of cross-border M&A

4.4.1 Hypothesis development

In this section, we consider the direction of cross-border M&A. In particular, we investigate whether CFC rules affect the decision as to which firm becomes the parent firm of a newly created MNE through a cross-border M&A. Following the finding of Voget (2011) that CFC rules trigger the relocation of headquarters, we argue that CFC rules negatively influence the direction of a cross-border M&A between two firms from different countries, i.e., we expect that it is more probable that the non-CFC rule firm acquires the CFC rule firm. The reasoning is as follows: If the non-CFC rule firm becomes the new MNE's parent, potential (new) income shifting strategies may arise by setting up or using an already existing tax haven subsidiary within the MNE, which potentially decreases the overall tax burden. These (new) income shifting strategies would not exist if the CFC rule firm became the acquirer due to potential CFC rule application on low-tax subsidiaries' income. We, therefore, hypothesize the following, stated in alternative form:

Hypothesis 2: The probability of being the acquiring firm in cross-border M&A is higher for firms in non-CFC rule countries compared to firms in CFC rule countries.

This analysis is different to the analysis presented in Section 4.3, where we investigate whether CFC rules affect the decision to acquire a target if CFC rules are potentially applied to this target's income. By analyzing the effect of CFC rules on the direction of cross-border M&A, we consider whether CFC rules negatively affect the choice of who becomes the parent of the newly created MNE.

4.4.2 Empirical approach

To analyze the direction of observed cross-border M&A, we assume that firm a acquires firm b and that a and b do not reside in the same country. Under the assumption that M&A reflect synergies from combining these two firms and that investors value the individual firms

and the M&A correctly, it follows that the value when a acquires b (V_{ab}) is higher than the value when b acquires a (V_{ba}), i.e., $V_{ab} - V_{ba} > 0$. Based on Hypothesis 2 derived under Section 4.4.1, we argue that CFC rules have an impact on this valuation. In particular, CFC rules lead to a competitive disadvantage for parent firms as those firms have less income shifting opportunities within their group and have to fear potential CFC rule application on low-tax subsidiaries' income, at which these laws are aiming. We consider the following expression to analyze the direction in cross-border M&A, depending on the CFC rules of the two involved firms and given that we know that the transaction takes place:

$$P(V_{ab} > V_{ba}|X) = E\left(Y|\Delta CFC + \Delta X\right) = \frac{exp(\beta(\Delta CFC + \Delta X))}{1 + exp\left(\beta\left(\Delta CFC + \Delta X\right)\right)} \tag{4.6}$$

with the dependent variable $Y = \begin{cases} 1 \text{ if } \mathrm{V_{ab}} - \mathrm{V_{ba}} > 0 \\ 0 \text{ if } \mathrm{V_{ab}} - \mathrm{V_{ba}} \leq 0 \end{cases}$.

Using logit regression models, we aim to calculate $P(V_{ab} > V_{ba}|X)$, i.e., we always consider the setting that a acquires b ($V_{ab} - V_{ba} > 0$ in Equation 4.6). This consideration implies that y, our dependent variable, always takes the value 1.[28] The variable of interest is ΔCFC, which measures the difference in CFC rules between a and b. We consider two approaches in calculating ΔCFC.

First, we construct a CFC dummy variable (Δ*CFC_dummy*) that measures whether CFC rules are present in the residence countries of a and b. If, for example, the country of a does not apply CFC rules (0) and the country of b applies CFC rules (1) in the M&A year, Δ*CFC_dummy* takes the value 0-1 = -1.

Second, we consider individual characteristics of CFC rules to allow for more heterogeneity among CFC rules. We construct a CFC variable (Δ*CFC_value*), which is zero for non-CFC rule countries and one for CFC rule countries. In addition to that, we consider the CFC rule countries in more detail and group them regarding their CFC rule harshness

[28] The presented binary choice model is based on the methodology used by Huizinga and Voget (2009), pp. 1229ff.

among the two main CFC rule features, which can be derived from all observed CFC rules: The lowest possible tax haven STR and the passive-to-active-income ratio accepted by CFC rules. This approach can increase ΔCFC_value up to the value 3. Among the CFC rule countries, the lowest possible tax haven STR is set to the tax rate threshold of the CFC rule.[29] For CFC rule countries with a tax haven STR equal or above its median value of 15%, we add 1 to ΔCFC_value. Similarly, we consider the passive-to-active-income ratio, which determines the amount of passive income that is allowed so that CFC rules are not triggered. The median value of the passive-to-active-income ratio is 10%; for CFC rule countries with a passive-to-active-income ratio below 10%, we add 1 to ΔCFC_value.[30] Table C.8 provides one country example for each of the four categories of ΔCFC_value. If, for example, a firm residing in the Netherlands acquires a firm residing in the Republic of Korea, ΔCFC_value takes the value 0-2 = -2.

We expect a negative coefficient for both ΔCFC_dummy and ΔCFC_value, indicating that it is more likely that the firm without CFC rules or with less harsh CFC rules becomes the acquiring firm. We are aware of the fact that these *CFC_value* variables have some subjectivity built in, but they account more precisely for the individual CFC rule considerations and variations between the countries and over time. Therefore, *CFC_value* extends our study in this last approach in a meaningful way.

Following Huizinga and Voget (2009), we control for firm characteristics and macroeconomic conditions in the two countries captured by ΔX. On the firm level, we include the firms' consolidated financial data. We control for relative size of the two firms ($\Delta Size$) and expect a positive coefficient, as larger firms are considered more likely to acquire smaller firms. $\Delta Leverage$ considers the difference in leverage ratio between the two firms. Following

[29]For EEA member states in the years after the decision of the European Court of Justice in the case "Cadbury-Schweppes" (C-194/04) in 2006, we set the tax haven tax rate equal to the lowest STR within the EU, because since this decision, CFC rules are de facto not applicable within the EU. In support of this reasoning, Ruf and Weichenrieder (2013) and Section 3.6.2 provide evidence for an increase of profit shifting within the EEA after this decision (see also Section 4.3.4.1).

[30]These thresholds are subjective; however, they split the CFC rule countries into two equal halves and allow a grouping of the CFC rule countries according to their relative CFC rule harshness.

Desai and Hines (2002), we argue that firms with higher leverage have lower borrowing costs. Thus, these firms have higher borrowing capacity, which makes them more likely to be the acquirer. ΔPTI measures the relative difference between pre-tax income of the two firms. Similar to our expectation of $\Delta Size$, we expect that firms with higher profits are more likely to acquire firms with lower profits.

On the country-level, we control for the difference in STRs (ΔSTR). We have no expectation on its coefficient as high-tax countries may have a better investment environment whereas low-tax countries may attract firms due to tax savings. Based on the finding of Huizinga and Voget (2009) that taxation of dividend repatriation affects M&A direction, we include the difference in both countries' double taxation avoidance method on foreign dividends (ΔDTM), where 0 (1) stands for the credit (exemption) method. We expect a positive coefficient for this variable. We also include the two countries' relative stock market size ($\Delta StockMrk$), which proxies for the relative ease to raise capital at stock markets and we expect a positive coefficient. In addition, we include the two countries' relative difference between domestic credits granted to the private sector ($\Delta CreditMrk$). Similar to the argumentation in Section 4.3.4.3, we argue that if a firm is located in a country with a low ratio of credits granted to the private market, the supply of credit may be limited and, hence, the possibility to finance an acquisition via credit is limited. Thus, we expect a positive coefficient. Finally, to control for the price level in an economy, we include the difference in the inflation rate ($\Delta Inflation$) between both countries. We have a negative expectation on its coefficient.

Further, we include country fixed effects that reflect whether the country is the acquirer or the target country: For each M&A, the acquirer country gets the value of 1 and the target country gets the value of -1; all other countries get the value of 0 for the respective M&A.

Following Huizinga and Voget (2009), our logit regression is estimated using maximum likelihood estimation without a constant. The reason is straightforward: Since we always consider the setting that firm a acquires firm b ($V_{ab} - V_{ba} > 0$ in equation 4.6), the dependent

variable is always one and, consequently, there is no variation in the dependent variable and the constant would be a perfect fit.

4.4.3 Data

The M&A data analyzed in this section are the same as described in Section 4.3.3 with two exceptions. First, we relax the restriction to the 30 most frequent acquirer or target locations. Second, we require that the direct acquirer and the direct target reside in the same country as their respective ultimate parent to reduce the possibility of a subsidiary in a third country being involved in the M&A. In addition, as outlined above, we need consolidated financial data of both firms as control variables, which reduces our sample to 1,199 cross-border M&A involving 30 countries.[31] Table C.9 in the appendix gives an overview over the number of acquirer ultimate parents and target ultimate parents in this cross-border M&A sample per country. Further, this table provides information on whether CFC rules are implemented in those countries.

4.4.4 Results

Table 4.8 shows the results of the binary choice model to test Hypothesis 2 on the influence of CFC rules on the direction of cross-border M&A between two firms, i.e., which firm becomes the acquirer. For definitions, data sources and summary statistics of all variables see Table C.10 in Appendix C.3.

In regressions (1) and (2), we find that CFC rules negatively affect the probability of which firm becomes the acquirer. In particular, we find a significant coefficient at the 5% level for

[31] We experience this sharp decrease in cross-border M&A observation due to the lack of important financial control variables. However, this decrease is not due to specific countries or a specific financial control variable. Hence, we assume that the smaller sub-sample is a representative subset of the larger one and that focusing on this subset does not bias our subsequent empirical work. This argumentation follows Huizinga and Voget (2009), p. 1228, who face the same problem using firm level data in an SDC data set and who observe a similar decrease in sample size. To expand our sub-sample, we follow Huizinga and Voget (2009) and use Compustat North America and Compustat Global databases that are together global in coverage to fill-up firm level control variables. We use CUSIP and SEDOL firm identification codes to link the Compustat databases with the SDC database.

Table 4.8: Effect of CFC rules on direction of cross-border M&A

Explanatory variables	Level of direct acquirer & direct target		Level of acquirer ult. par. & target ult. par.			
	(1)	(2)	(3)	(4)	(5)	(6)
Δ*CFC_value*	-1.127**		-1.438**		-2.025[a]	
	(0.530)		(0.701)		(1.558)	
Δ*CFC_dummy*		-2.027*		-3.543**		-10.944***
		(1.132)		(1.754)		(2.620)
Δ*STR*	0.168*	0.096**	0.278***	0.062	0.693***	0.079
	(0.086)	(0.038)	(0.105)	(0.043)	(0.254)	(0.058)
Δ*DTM*	-0.242	0.201	-0.910	-0.399	-1.833**	-0.881
	(0.652)	(0.671)	(0.853)	(0.879)	(0.927)	(1.040)
Δ*Size*	5.101***	5.509***	5.480***	5.698***	7.523***	6.037***
	(0.398)	(0.409)	(0.501)	(0.477)	(1.403)	(0.886)
Δ*PTI*	1.177***	1.128***	1.399***	1.307***	1.571	0.906
	(0.407)	(0.375)	(0.466)	(0.366)	(1.040)	(0.844)
Δ*Leverage*	0.158**	0.216**	0.123*	0.206**	-0.098	-0.372
	(0.068)	(0.086)	(0.068)	(0.083)	(0.983)	(0.638)
Δ*StockMrk*	4.914***	2.802**	6.446***	3.004**	9.175***	2.896
	(1.615)	(1.292)	(2.278)	(1.459)	(3.105)	(2.410)
Δ*CreditMrk*	-6.363***	-2.533*	-8.826***	-3.069	-9.829*	0.013
	(1.848)	(1.403)	(2.851)	(1.884)	(5.900)	(4.130)
Δ*Inflation*	0.193	0.083	0.321	0.132	0.245	0.002
	(0.205)	(0.171)	(0.245)	(0.210)	(0.534)	(0.427)
Country fixed effects	YES	YES	YES	YES	YES	YES
Observations	1,199	1,580	989	1,305	418	492
Number of countries	30	31	30	30	29	29
Log-likelihood	-99.2	-133.6	-70.2	-100.7	-24.8	-38.1
Time period	2002-2014	1995-2014	2002-2014	1995-2014	2002-2014	1995-2014

Note: Logit regressions of probability of being the acquirer country on (potential) CFC rules in a cross-border M&A; see Equation 4.6. For variable definitions and data sources, see Table C.10. All regressions control for country fixed effects, which are available upon request. Regressions (1) and (2) consider M&A where the direct acquirer and direct target reside in the same country as their respective ultimate parents. Regressions (3) and (4) are the same as (1) and (2), but require that the direct acquirer and the direct target are the respective groups' ultimate parents. Regressions (5) and (6) are the same as (3) and (4), but exclude M&A involving the United States. Regressions (2), (4) and (6) consider in addition years 1995-2001; due to a lack of more detailed historic CFC rule data Δ*CFC_value* cannot be constructed for the time period 1995-2001. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.
[a] The level of statistical significance is 19.4%.

Δ*CFC_value*. This finding suggests that when two firms perform a cross-border M&A, it is less likely that the firm with the harsher CFC rule becomes the acquiring firm. For the dummy variable approach (Δ*CFC_dummy*), we observe a significantly negative coefficient at the 10% level. Hence, the mere presence of CFC rules seems to affect cross-border M&A direction. These results prove to be robust in regressions (3) and (4), where we analyze a

slightly smaller sample by considering only cross-border M&A directly between the ultimate parents, i.e., the acquirer is the acquirer ultimate parent and the target is the target ultimate parent. In regressions (5) and (6), we consider the same setting as in regressions (3) and (4), but exclude M&A that involve the United States. We do this to check that the results are not biased by potential check-the-box rule application in the US, which may allow for an escape from CFC rules for US MNEs under specific circumstances by using hybrid entities (e.g., Grubert and Altshuler (2006); Mutti and Grubert (2009)). Although this exclusion decreases the sample by more than half, we still observe a significantly negative estimate for ΔCFC_dummy. The coefficient of ΔCFC_value remains also negative; however, its p-value drops to 19.4%.

Taken together, we provide evidence for Hypothesis 2 that the direction of cross-border M&A between firms is negatively affected by the presence and harshness of CFC rules. This finding contributes to previous research documenting that headquarters relocation is influenced by CFC rules (Voget (2011)). Our interpretation of this finding is that if the non-CFC rule firm acquirers the CFC rule firm, new income shifting opportunities may potentially come up within the newly formed MNE, which may decrease the tax burden in the future. If the CFC rule firm acquires the non-CFC rule firm, these income shifting opportunities are rather unattractive due to CFC rules in the new parent country. In addition, the CFC rule firm has to fear potential CFC rule application on low-tax subsidiaries' income if such subsidiaries are already present in the acquired firm. The firms involved in the M&A are quite large with an average value of total assets of the acquirers (targets) of 38.3 (2.4) bio. USD. Hence, it is reasonable to assume that at least some of the involved firms are already MNEs with implemented income shifting strategies within their group if no CFC rules are present in the ultimate parent country.

Regarding control variables, we find, as expected, that firm size has a significantly positive impact on the likelihood of being the acquiring firm and, in most regressions, firm profitability, firm leverage, STR and stock market size have a significantly positive effect on M&A

direction. Credit market size has an unexpected negative effect in most regressions. We observe non-significant estimates for inflation rate and the method to avoid double taxation.

4.5 Conclusion

In this study, we investigate the impact of an increasingly important anti tax avoidance measure on cross-border M&A activity of corporations on a global scale. In particular, we consider important characteristics of CFC legislation from a variety of countries and apply different logit regression models on a large worldwide cross-border M&A data set. Considering individual M&A, we find that the probability of being the acquirer of a low-tax target decreases if CFC rules may be applicable on this target's income. This finding implies that acquirers from non-CFC rule countries have a competitive advantage in bidding for targets in low-tax countries. This is explained by a higher reservation price of these non-CFC rules acquirers due to potential firm value increasing income shifting opportunities after the M&A. Further, we show that the acquirer's location choice of a target is negatively affected if the target may fall under the scope of CFC legislation of an acquirer. The reasoning behind this result is the same as before but the underlying perspective is different. Thereby, we find evidence that CFC rules affect M&A activity on the bidding side, i.e., non-CFC rule acquirers have competitive advantages in bidding for a given target, and on the target side, i.e., low-tax targets are rather acquired by non-CFC rule acquirers. These two findings provide robust evidence that CFC legislation distorts ownership of low-tax targets although the economic magnitude of the effects is rather small. Finally, we show that CFC rules negatively affect the direction of cross-border M&A, i.e., countries with CFC legislation are less likely to attract parent firms in a newly created MNE after M&A.

However, our results should not be interpreted as suggesting that countries should get rid of CFC rules if undesired tax distortions of M&A, which can lead to ownership inefficiencies, shall be mitigated. Moreover, our findings suggest that CFC legislation seems to reach the

intended goal of reducing income shifting opportunities with low-tax subsidiaries in our cross border M&A context. In other words, our results suggest that the specific way of investing in foreign low-tax countries to shift income afterwards is limited by existing CFC rules in the acquirer country. Therefore, CFC legislation can be used by countries to counteract tax avoidance behavior of their MNEs, which could result in an increase in tax revenue on an overall global scale. However, the shown effects are of small economic magnitude, which indicates that CFC rules do not distort M&A to a high degree. Therefore, national tax policy makers do not have to fear a large negative impact of CFC legislation on their MNEs' cross-border M&A activity.

Nevertheless, the parallel presence and non-presence of CFC rules across countries is problematic to a certain degree due to competitive disadvantages on the cross-border M&A market and potentially tax-biased ownership structures on a global scale. Thereby, we contribute to a strand of literature where little research has been undertaken so far. Further, our findings are particularly interesting in light of current tax policy developments. Although the BEPS project of the OECD recommends an implementation of effective CFC rules in the OECD and G20 countries (OECD/G20 (2015)), the European Council even issued a legally binding directive requiring EU member states to implement CFC legislation by 2019 (European Council (2016)). In other words, at the latest from 2019 onwards, firms residing in the EU may face competitive disadvantages in M&A activities due to tax legislation, compared to firms residing in OECD and G20 member states, which do not follow the BEPS project's suggestion to implement effective CFC rules and lower their MNEs' tax avoidance opportunities. Although our finding's magnitude based on historic data is rather small in size, it indicates that more coordination regarding countries' international tax law seems to be necessary for tax induced distortion not to be increased due to upcoming tax rule changes. This is of particular relevance if tax avoidance behavior of MNEs is considered unfavorable on a global scale and intended measures to prevent this behavior are supposed to be fruitful.

Appendix A

CFC rule characteristics and changes per country

Table A.1: Data about CFC rules worldwide for 27 countries (incl. OECD & EEA countries) over the time frame from 2004 to 2014 .

Country	Years	tax base	min. control	low-tax threshold		EEA exemption	passive income save harbour	white list/ black list
				absolute CIT rate	relative % of own CIT rate			
Australia	2004 - 2014	passive income	50%*	0	–	–	5%**	wl
Brazil	2004 - 2014	full income	20%*	0	–	–	–	–
Canada	2004 - 2008	passive income	10%	0	–	–	–	–
	2009 - 2014	quasi passive income	10%	0	–	–	–	–
China	2008 - 2014	full income	50%*	12.5%	50%	–	50%	wl[1]
Denmark	2004 - 2005	passive income	50%*	22.5%	80%	–	33%	wl
	2006	passive income	50%*	21%	75%	–	33%	wl
	2007 - 2014	full income	50%*	12.5%	50%	–[2]	50%	wl
Estonia[3]	2004 - 2010	full income	50%*	7%	33%	–	–	wl
	2011 - 2014	full income	50%*	7%	33%	–	50%	wl
Finland	2004	full income	50%*	17.4%	50%	–	50%**	–
	2005 - 2008	full income	50%*	15.6%	50%	–	50%**	–
	2009 - 2011	full income	50%*	15.6%	50%	Yes	50%**	–
	2012 - 2013	full income	50%*	14.7%	50%	Yes	50%**	bl
	2014	full income	50%*	12 %	50%	Yes	50%**	bl
France	2004	full income	50%*	21%	66%	Yes	50%**	–
	2005 - 2014	full income	50%*	16.67%	50%	Yes	50%**	–
Germany	2004 - 2006	passive income	50%	25%	65%	–	10%	–[4]
	2007	passive income	50%	25%	65%	Yes	10%	–
	2008 - 2014	passive income	50%	25%	85%	Yes	10%	–
Greece	2014	full income	50%	13%	50%	Yes	30%	bl
Hungary	2004 - 2007	Dividends	1%	10.67%	67%	–	10%**	–
	2008 - 2009[5]	dividends	1%	10.67%	67%	Yes	10%**	–
	2010	dividends and more	25%*	12.67%	67%	Yes	50%**	–
	2011 - 2014	dividends and more	25%*	10%	53%	Yes	50%**	–
Iceland	2010	full income	50%	12%	66.67%	Yes	–	–
	2011 - 2014	full income	50%	13.33%	66.67%	Yes	–	–
Israel	2004 - 2013	passive income	50%	20%	56% - 80%	–	50%	–
	2014	passive income	50%	15%	57%	–	50%	–
Italy	2004 - 2009	full income	50%	–	–	–	–**	bl
	2010 - 2014	full income	50%	15.7%	50%	Yes	50%**	bl
Japan	2004 - 2009	full income	50%	25%	61%	–	–	–
	2010 - 2014	full income	50%	20%	49% - 56%	–	0%**	–

Continued on next page

[1] Effective since 2009.
[2] No clear exemption but law adjustments for national positions.
[3] The Estonian CFC rules are only applicable for Estonian individuals, not for companies.
[4] No legally binding black or white list exists in Germany, but an unofficial list as guidance for all years.
[5] Until the end of 2009 CFC rules affected only Hungarian individuals and no corporations.

TableA.1 – continued from previous page

Country	Years	tax base	min. control	low-tax threshold		EEA	passive income	white list/
				absolute CIT rate	relative % of own CIT rate	exemption	save harbour	black list
Lithuania	2004 - 2014	passive income	50%	11.25% - 15%	75%	–	–	bl & wl
Mexico	2004	quasi passive income	50%	–	–	–	20%	bl
	2005 - 2014	quasi passive income	50%	22.50% - 21%	75%	–	20%	bl
New Zealand	2004 - 2009	quasi passive income	50%	–	–	–	–	wl
	2010 - 2014	quasi passive income	50%	–	–	–	5%**	–
Norway	2004 - 2006	full income	50%	18.67%	66.67%	–	–[6]	–
	2007 - 2013	full income	50%	18.67%	66.67%	Yes	–	–
	2014	full income	50%	18%	66.67%	Yes	–	–
Portugal	2004 - 2006	after tax income	50%	16.5%	60%	–	25%[7]	bl
	2007 - 2011	after tax income	50%	15%	60%	–	25%	bl
	2012 - 2013	after tax income	50%	15%	60%	Yes	25%	bl
	2014	after tax income	50%	13.8%	60%	Yes	25%	bl
South Africa	2004 - 2007	after tax income	50%	–	–	–	5%**	–
	2008 - 2012	after tax income	50%	25.91%	75%	–	5%**	–
	2013 - 2014	after tax income	50%	21%	75%	–	5%**	–
South Korea	2004 - 2005	full income	50%	15%	51% - 55%	–	50%**	bl
	2005 - 2008	full income	20%	15%	55%	–	50%**	bl
	2009	full income	20%	15%	62%	–	50%**	bl
	2010 - 2011	full income	20%	15%	62%	–	50%**	–
	2012 - 2014	full income	10%	15%	62%	–	50%**	–
Spain	2004 - 2006	passive income	50%	26.25%	75%	Yes	15%	–
	2007	passive income	50%	24.38%	75%	Yes	15%	–
	2008 - 2014	passive income	50%	22.5%	75%	Yes	15%	–
Sweden	2004 - 2007	full income	25%	15.4%	55%	–	–	wl
	2008	full income	25%	15.4%	55%	Yes	–	wl
	2009 - 2012	full income	25%	14.47%	55%	Yes	–	wl
	2013 - 2014	full income	25%	12.1%	55%	Yes	–	wl
Turkey	2007 - 2014	full income	50%	10%	50%	–	25%	–
United Kingdom	2004 - 2006	full income	50%	22.5%	75%	–	50%	–
	2007	full income	50%	22.5%	75%	Yes	50%	–
	2008 - 2010	full income	50%	21%	75%	Yes	50%	–
	2011	full income	50%	19.5%	75%	Yes	50%	–
	2012	full income	50%	18%	75%	Yes	50%	–
	2013	passive income	50%	17.25%	75%	Yes	50%	–
	2014	passive income	50%	15.75%	75%	Yes	50%	–
USA	2004 - 2014	quasi passive income	50%	36%	90%	–	5%[8]	–

Note: * or de facto control. ** An active business test is enacted.
Source: Information is gathered from the various specific laws, the European Tax Handbooks, which are published every year by the International Bureau for Fiscal Documentation (IBFD) and various other sources for cross-checks.

[6] For the full time span until 2014 Norway had an CFC exemption if the subsidiary is in a tax treaty country and has mainly active income.

[7] Portugal exempts foreign income – for the full time frame until 2014 – from CFC legislation if these profits are from local activities and mainly not financial.

[8] Note that the USA had the 'check the box' rule enacted which allowed easy circumvention of their CFC rules (see e.g., Grubert and Altshuler (2006).

Appendix B

CFC rules and Profit Shifting

B.1 Mathematical Proofs

Proof of Equation 10:

Including expressions 3.4, 3.5 and the taxes for both, parent and subsidiary, into the overall profits results in:

$$\begin{aligned}\pi = [f_{k_A} - c_{A(k_A)}]\,(1-\Phi) + [f_{k_B} - c_{B(k_B)}] + \Phi\,(f_{k_A} - c_{A(k_A)}) \\ - k_A\,(1-\Phi)\,t_A - [k_B\,t_B + \Phi\,k_A\,t_B] - C_{\Phi\,k_A}\,.\end{aligned} \tag{B.1}$$

Using $y_x = f_{k_x} - c_x$ for $x\,\epsilon\,[A,B]$ and deriving with respect to k_A gives:

$$\frac{\delta\pi}{\delta k_A} = {y_A}' + {y_B}' - t_A + \Phi t_A - \Phi t_B - C'_{\Phi\,k_A} \stackrel{!}{=} 0\,. \tag{B.2}$$

Including the marginal tax rate τ from expression 3.9 yields:

$${y_A}' + {y_B}' = \tau + C_\Phi\,, \tag{B.3}$$

which at the end results in equation 3.10.

B.2 Further bunching methodology elaboration

As shown in the above mentioned bunching literature, the elasticity of taxable corporate income could be derived by

$$\epsilon = \frac{\triangle \pi^* / \pi^*}{\triangle \tau / (1-\tau)} \ , \tag{B.4}$$

or, due to a rather large notch,[1] as a parametric formula

$$\epsilon = -\frac{log(1 + \triangle \pi^* / \pi^*)}{log(1 - \triangle \tau / (1-\tau))} \ , \tag{B.5}$$

which is a generalization of Equation B.4 and both are local elasticities at the threshold level π^* only. As explained, this study does not calculate elasticities of taxable income but rather uses the observable bunching, and later the counterfactual distribution, to show and quantify the behavioral responses of multinational's profit shifting due to CFC legislation.

As we can abstract from income effects, due to the above mentioned facts, and because we have no tax rate changes on inframarginal income below the threshold, the fraction of firms who choose to locate right before the threshold can be denoted as $B(t_1, t_2) = \int_K^{K+\triangle x} g(x)dx$, where $g(x)$ is the density distribution of taxable income when there is a constant marginal tax rate over the whole distribution. Under the assumption that $g(x)$ is uniform around the threshold, the elasticity of corporate taxable income at the threshold is

$$e \cong \frac{B(t_1, t_2)/g(K)}{Kln(\frac{1-t_1}{1-t_2})} = \frac{b(t_1, t_2)}{Kln(\frac{1-t_1}{1-t_2})} \tag{B.6}$$

where $b(t_1, t_2)$ expresses the fraction of firms who bunch at the passive-to-total income threshold relative to the counterfactual density. The tax rates t_1 and t_2 and the threshold point are given policy parameters, $b(t_1, t_2)$ needs to be estimated empirically instead, so that e can be identified.

Therefore, I group companies in small passive-to-total-income ratio bins indexed by j and estimate the counterfactual distribution using the following regression:

$$c_j = \sum_{i=0}^{q} \beta_i \cdot (z_j)^i + \sum_{i=z_-}^{z_+} \gamma_i \cdot \mathbf{1}[z_j = i] + \epsilon_j \ , \tag{B.7}$$

where c_j is the number of companies in bin j, z_j is the level of shifted profit in bin j, $[z_-, z_+]$ is the excluded range around the threshold, q is the order of the flexible polynomial and γ is a bin fixed effect for each bin in the excluded range. Omitting the contribution of the dummies in the excluded range, I get the initial estimate of the counterfactual distribution (i.e. $\hat{c_j} = \sum_{i=0}^{q} \hat{\beta}_i \cdot (z_j)^i$). Excess bunching is then given by the difference between the counterfactual and observed bin counts within the excluded range (i.e. $\hat{B^0} = \sum_{i=z_-}^{z_+} (c_j - \hat{c_j}^0)$).

[1] Income effects of tax changes on profits π are ruled out due to the fact that firms would choose a totally different tax avoidance strategy if this threshold opportunity is not profitable any more. This behavior would not be observed in the present setting. Possible optimization frictions are discussed below.

This oversimplified calculation could overestimate $\hat{B}$ and, therefore, further refinements should be implemented if tax elasticity are calculated. Namely, one could add an additional set of round number dummies to control for bunching at other round income ratios ($\sum_{r \epsilon R_k} \rho_{r_k} \cdot \mathbf{1}[z_j = i]$. Even though there are no obvious reasons why a company should aim for a specific round number *ratio* it is known from other literature about individuals that round numbers seem to attract optimization attention. Additionally, following Chetty et al. (2011), one could shift the counterfactual distribution to the right of the threshold until it satisfies the constraint that the number of companies in the observed distribution is equal to the one of the counterfactual distribution. To analyze and show the specific firm behavior I observe passive income subsidiary effects of time and destination differences.

B.3 Descriptives and more robustness checks

Table B.1: Subsidiary-year observations of countries in data set - by parent countries

Country	Total	(ln) Fixed Assets	(ln) Financial Profits	Number of Parents	Number of Subsidiaries	Avg. CIT rate in %
Australia	15892	13621	4710	1415	2931	30.0
Austria	69425	64910	11722	4757	9571	25.3
Belarus	3019	2072	380	502	539	22.2
Belgium	47971	44348	12392	2517	6416	34.0
Bermuda	16565	12876	5012	305	2254	0.0
Brazil	2094	1744	417	113	357	34.0
British Virgin Isl.	33276	30177	7476	2631	5442	0.0
Bulgaria	30509	24631	2784	3606	3871	10.8
Canada	18123	15094	4785	771	2606	29.9
Cayman Islands	13043	11344	3533	582	2192	0.0
Chile	908	809	160	67	139	18.1
China	14491	12891	3195	1187	2459	27.0
Croatia	5333	5054	1115	487	682	20.0
Curacao	11851	10671	1894	601	1507	32.8
Cyprus	72477	67019	14894	6822	11511	10.6
Czech Republic	24845	22373	3685	3848	4220	20.6
Denmark	45080	42067	13193	2880	6760	25.5
Estonia	3536	3047	633	396	502	21.6
Finland	19451	18369	6179	747	2564	25.4
France	102377	91522	32800	3473	13774	33.3
Germany	386581	364254	61412	34022	52229	32.0
Greece	15242	14245	2039	1596	1960	25.3
Hong Kong	13160	12000	2746	1465	2370	16.7
Hungary	8574	7051	1699	1276	1539	17.8
Iceland	3205	2826	752	217	456	18.2
India	12622	11285	3246	482	1830	33.9
Ireland	29556	25349	7452	1263	3757	12.5
Israel	9239	8459	1986	576	1432	27.0
Italy	349350	336898	49417	36540	44610	33.1
Japan	59996	55805	22322	1340	8439	39.8
Korea, Republic	5607	5145	1491	405	888	25.0

Continued on next page

Table B.2: Subsidiary-year observations of countries in data set - by parent countries

Country	Total	(ln) Fixed Assets	(ln) Financial Profits	Number of Parents	Number of Subsidiaries	Avg. CIT rate in %
Latvia	7725	5914	705	879	947	15.0
Liechtenstein	9094	8348	1697	584	1235	12.5
Lithuania	6666	5906	872	907	1032	15.5
Luxembourg	91221	84675	21773	4294	13009	29.1
Malaysia	2961	2354	564	167	488	25.9
Malta	4682	4257	951	359	731	35.0
Mexico	2442	2054	698	64	317	29.5
Netherlands	107158	98437	27498	5231	14495	26.5
New Zealand	2754	2524	747	183	466	30.0
Norway	67596	63554	23112	5997	8865	27.9
Panama	6222	5289	1178	544	925	27.8
Poland	28029	26366	7019	4031	4525	19.0
Portugal	23208	21884	3244	2381	3117	25.5
Romania	33917	32398	7482	4281	4362	16.1
Russia	232330	168768	15934	39970	44507	21.2
Serbia	10528	10138	2388	1200	1254	10.8
Seychelles	4083	3522	892	500	712	36.2
Singapore	7452	6597	1771	502	1250	18.0
Slovakia	11510	10578	1324	1574	1707	19.8
Slovenia	8036	7539	1518	684	1024	20.7
South Africa	5690	4537	1572	136	852	33.9
Spain	158162	152278	32405	15933	19700	31.7
Sweden	49359	45681	15526	1765	6677	26.2
Switzerland	87311	78795	20086	4347	12094	19.2
Taiwan, Republic	6882	6552	2159	488	1131	20.7
Turkey	7727	7025	1356	965	1169	21.0
Ukraine	4539	3805	568	566	716	23.7
Unit. Arab. Emi.	5712	5024	1573	311	866	0.0
United Kingdom	124239	109591	34302	6098	17575	27.1
USA	273178	240715	95386	7023	37896	39.2
Total	2833811	2563061	611821	228853	403451	2833811

Note: The observations numbers of columns four to six are for the (ln) financial profit observations, as they are used mostly and, therefore, give a better impression.

Table B.3: Descriptive Statistics

	Obs	Mean	Std. Dev.	Min	Max	Data source
Financial Profits	2,298,714	1487.695	141,539.3	-4.28e+07	7.31e+07	ORBIS
Tangible Fixed Assets	2,676,250	11067.23	352,577.7	-180,941.7	4.53e+08	ORBIS
Intangible Fixed Assets	2,655,578	3358.205	1,662,297	-1,490,282	2.70e+09	ORBIS
Fixed Assets	2,780,597	56858.57	1958454	-793,784.6	2.70e+09	ORBIS
Total Assets	2,807,825	186,250.1	7,870,930	-634,888	3.20e+09	ORBIS
Employees	1,752,595	146.4313	1,369.771	0	478,980	ORBIS
Operational Profits	2,282,224	-122.7246	3,505,755	-5.29e+09	4.02e+07	ORBIS
CIT rate sub country	2,830,149	.2692973	.0669161	0	.55	KPMG & Tax Guides
Corruption Index	2,828,578	20.94826	26.01556	1.3	92	Transparency International
GDP sub Country	2,831,831	1.93e+12	1.78e+12	4.77e+08	1.72e+13	World Bank
GDP per capita sub Country	2,831,831	33,706.48	11,971.33	520.9566	136,135.5	World Bank
Unemployment rate sub Country	2,832,390	8.325034	4.136631	.1	37.6	World Bank
CIT rate parent country	2,833,811	.2782615	.086963	0	.4069	KPMG & Tax Guides

Note: 'sub' stands for subsidiary. 'CIT' stands for statutory corporate income tax. All company specific financial variables are measured in thousands of USD.

Table B.4: Influence of enacted CFC rules and their characteristics on profit shifting

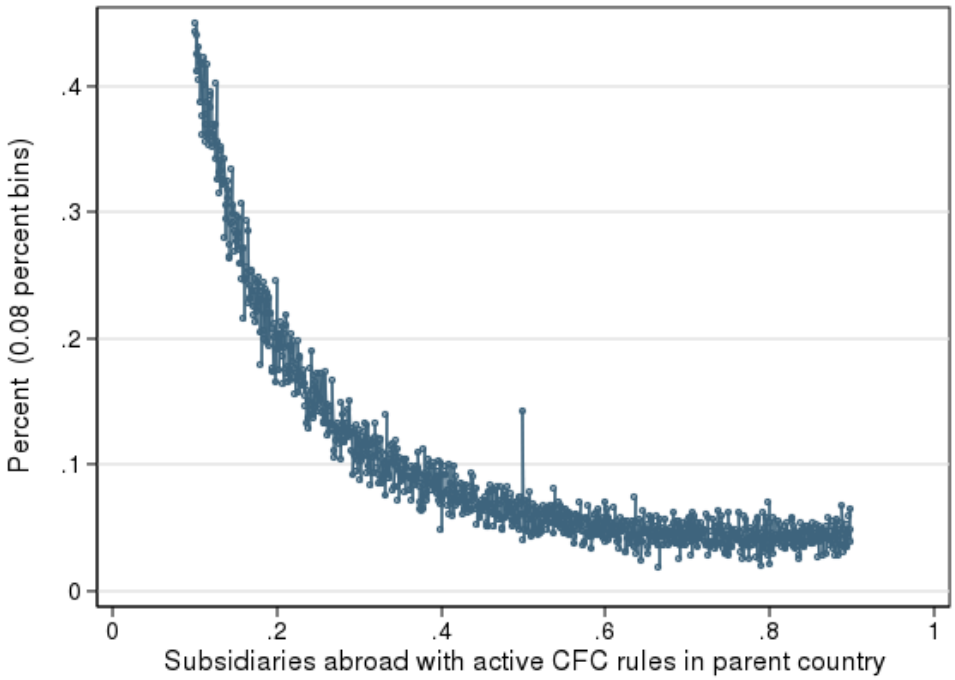
Dependent Variable	Log Financial Profits abroad			
	(1)	(2)	(3)	(4)
	treated	effective CIT	dif. tax base	split of non treated
Cfc rule + sub in low tax country (CFC)	-0.164***	-0.181***		
	(0.0162)	(0.0154)		
CFC + All income base			-0.152***	
			(0.0173)	
CFC + Between all and Passive income base			-0.174**	
			(0.0769)	
CFC + Passive income base			-0.219***	
			(0.0390)	
CFC (Below threshold)				-0.203***
				(0.0234)
Above threshold				0.0890***
				(0.0260)
Higher than own CIT				0.0282
				(0.0328)
ln Tangible Fixed Assets	0.121***	0.121***	0.121***	0.120***
	(0.00378)	(0.00378)	(0.00378)	(0.00402)
CIT sub	0.346**	0.319*	0.304*	0.186
	(0.171)	(0.171)	(0.173)	(0.187)
ln corruption sub	0.556***	0.568***	0.556***	0.675***
	(0.0524)	(0.0524)	(0.0524)	(0.0550)
ln gdp sub	2.246***	2.175***	2.245***	2.258***
	(0.219)	(0.218)	(0.219)	(0.228)
ln gdppc sub	-1.393***	-1.342***	-1.392***	-1.286***
	(0.224)	(0.224)	(0.224)	(0.233)
ln unempl sub	-0.0548***	-0.0485**	-0.0542***	-0.0509**
	(0.0189)	(0.0189)	(0.0189)	(0.0198)
CIT GUO	0.281	0.292	0.275	1.265***
	(0.186)	(0.186)	(0.187)	(0.216)
ln corruption GUO	0.327***	0.330***	0.314***	0.290***
	(0.0618)	(0.0614)	(0.0624)	(0.0646)
ln gdp GUO	0.303*	0.330**	0.280*	0.421**
	(0.163)	(0.163)	(0.163)	(0.170)
ln gdppc GUO	-0.554***	-0.571***	-0.541***	-0.705***
	(0.175)	(0.175)	(0.175)	(0.181)
ln unempl GUO	0.221***	0.217***	0.217***	0.192***
	(0.0195)	(0.0195)	(0.0195)	(0.0206)
Observations	350,144	350,144	350,144	320,159
Adjusted R-squared	0.783	0.783	0.783	0.785
# of CFC sub	50,525	50,525	50,525	23,587
Year FE & Parent FE & Subsidiary FE	YES	YES	YES	YES

Clustered standard errors on parent firm level in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: 'CIT' stands for statutory corporate income tax rate, 'ln gdppc' for the log of GDP per capita, 'ln unempl' for the log of the unemployment rate. 'ln corruption' is used from the Heritage Foundation calculation. 'sub' stands for subsidiary and 'GUO' for global ultimate parent. In specification (2) the effective average CIT's are used to determine whether a subsidiary is located in a foreign low-tax country (by the CFC law of the parent country) or not. In specification (3) the probably treated subsidiaries are differentiated between the concerned tax base of their parents CFC rules. In the last regression (4) only CFC rules with thresholds are observed and the non treated subsidiaries are split into two groups, higher or lower than the CIT rate of the parent. All regressions are panel fixed effects estimations and winsorized at the observation levels of 1% and 99% of Financial Profits.

B.4 Further bunching insights

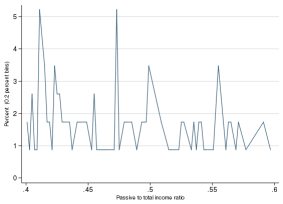
Figure B.1: Bunching at passive income threshold of 50% ratio



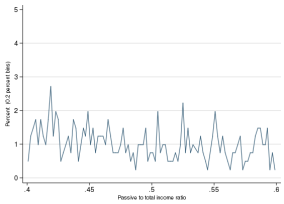
Notes: The figure shows an aggregated picture of foreign subsidiaries with financial profits above 20,000 USD from parent home countries where a CFC rule is enacted. These subsidiaries bunch right before the 50% passive-to-total income ratio, which is often the threshold to get affected as a CFC and get taxed by the observed CFC laws. The observed span reaches from a ratio of 10% to 90% financial-to-total profits before taxes.

Table B.5: Countries *with* passive to total income threshold at 50% in CFC rule or a comparable law.

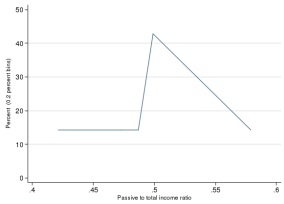
China



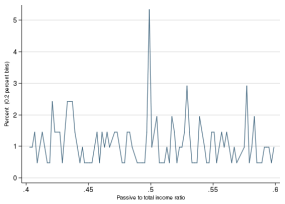
Denmark



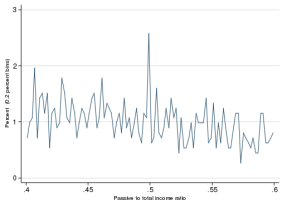
Estonia



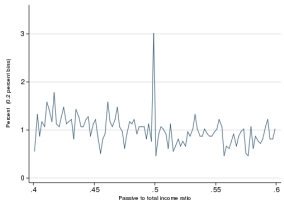
Finland



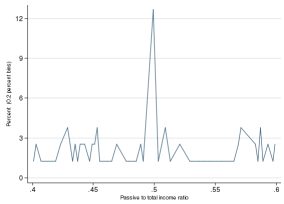
France



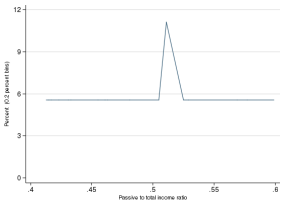
Germany



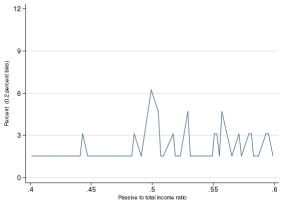
Hungary



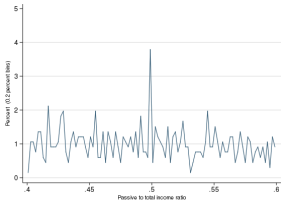
Iceland



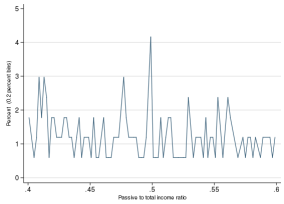
Israel



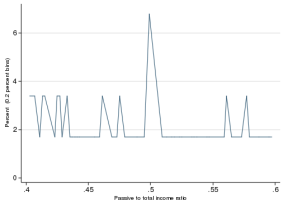
Italy



Norway



Portugal



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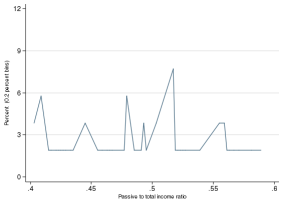

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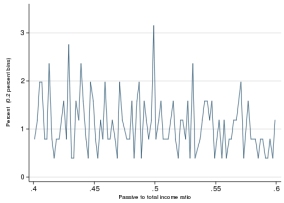
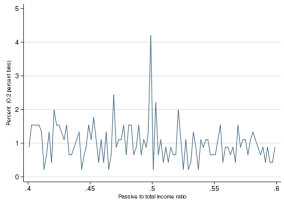
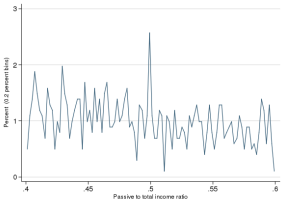


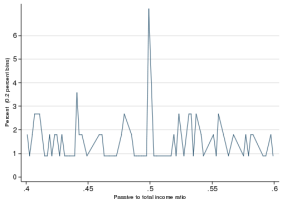
Sweden



United Kingdom



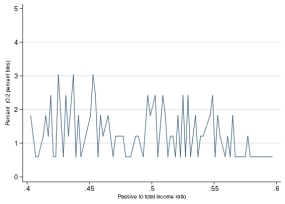
Hong Kong



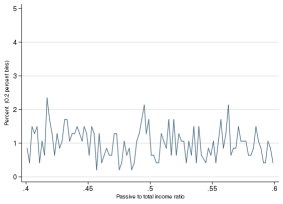
Note: The table shows foreign subsidiaries from various parent countries that have a passive-to-total income threshold at 50% or a comparable legislation included in their CFC laws. HongKong does not have a CFC rule but a comparable law to classify entities as non-financial entities. Estonian CFC rules affect only Estonian individuals. Only subsidiaries with positive financial income are used to generate the graphs.

Table B.6: Countries *without* a passive to total income threshold at 50% in CFC rule or a comparable law.

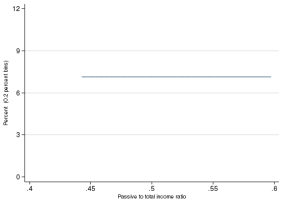
Australia*



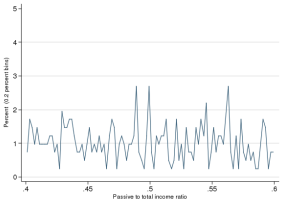
Austria



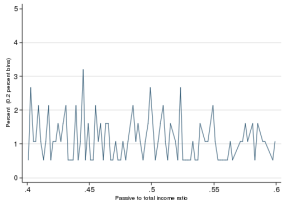
Belarus



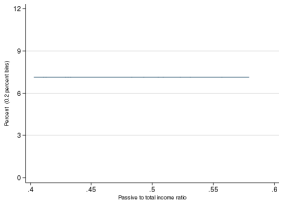
Belgium



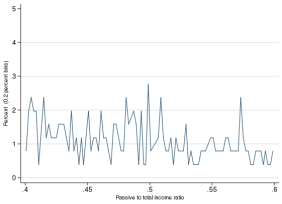
Bermuda



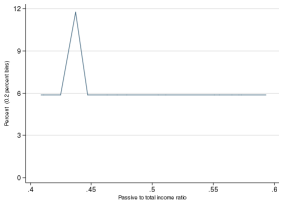
Brazil*



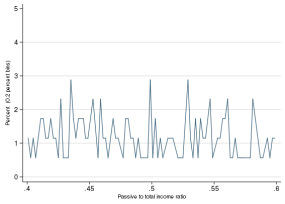
British Virgin Isl.



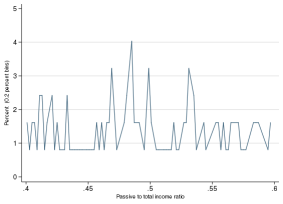
Bulgaria



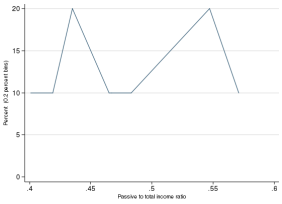
Canada*



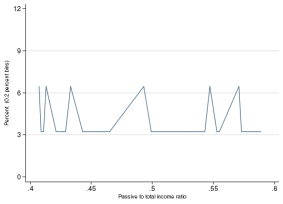
Cayman Islands



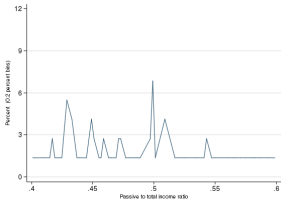
Chile



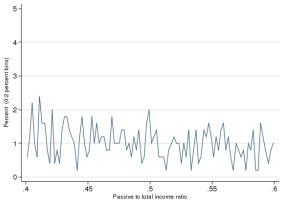
Croatia



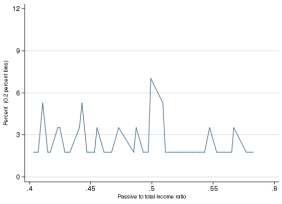
Curacao



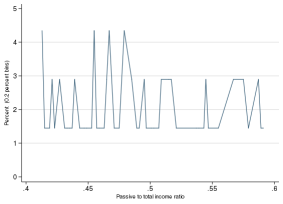
Cyprus



Czech Republic



Greece*



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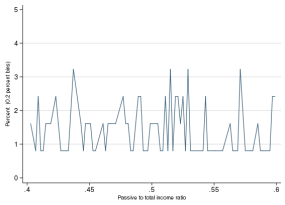
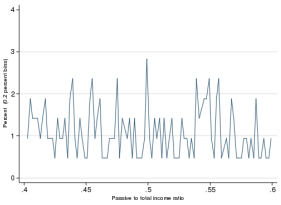
Continuation of Table B.6

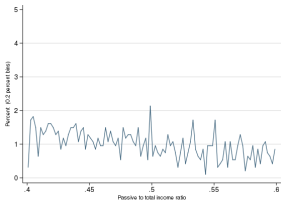
India



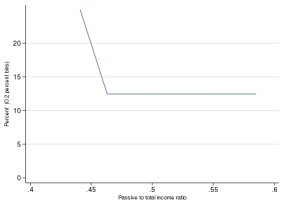
Ireland



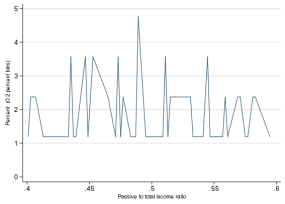
Japan*



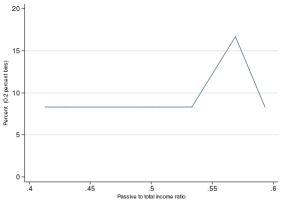
Latvia



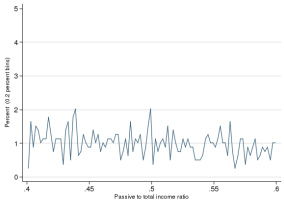
Liechtenstein



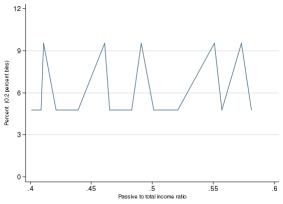
Lithuania



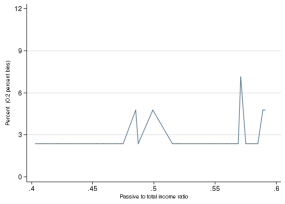
Luxembourg



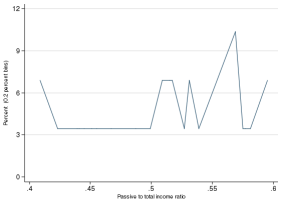
Malaysia



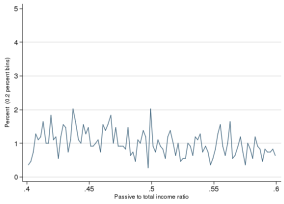
Malta



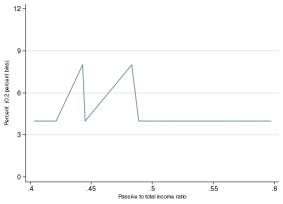
Mexico*



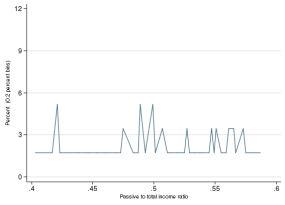
Netherlands



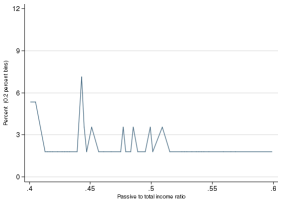
New Zealand*



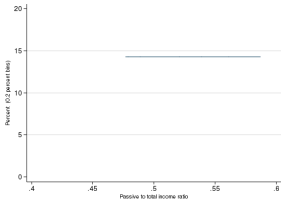
Panama



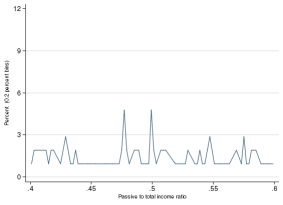
Poland



Romania



Russia



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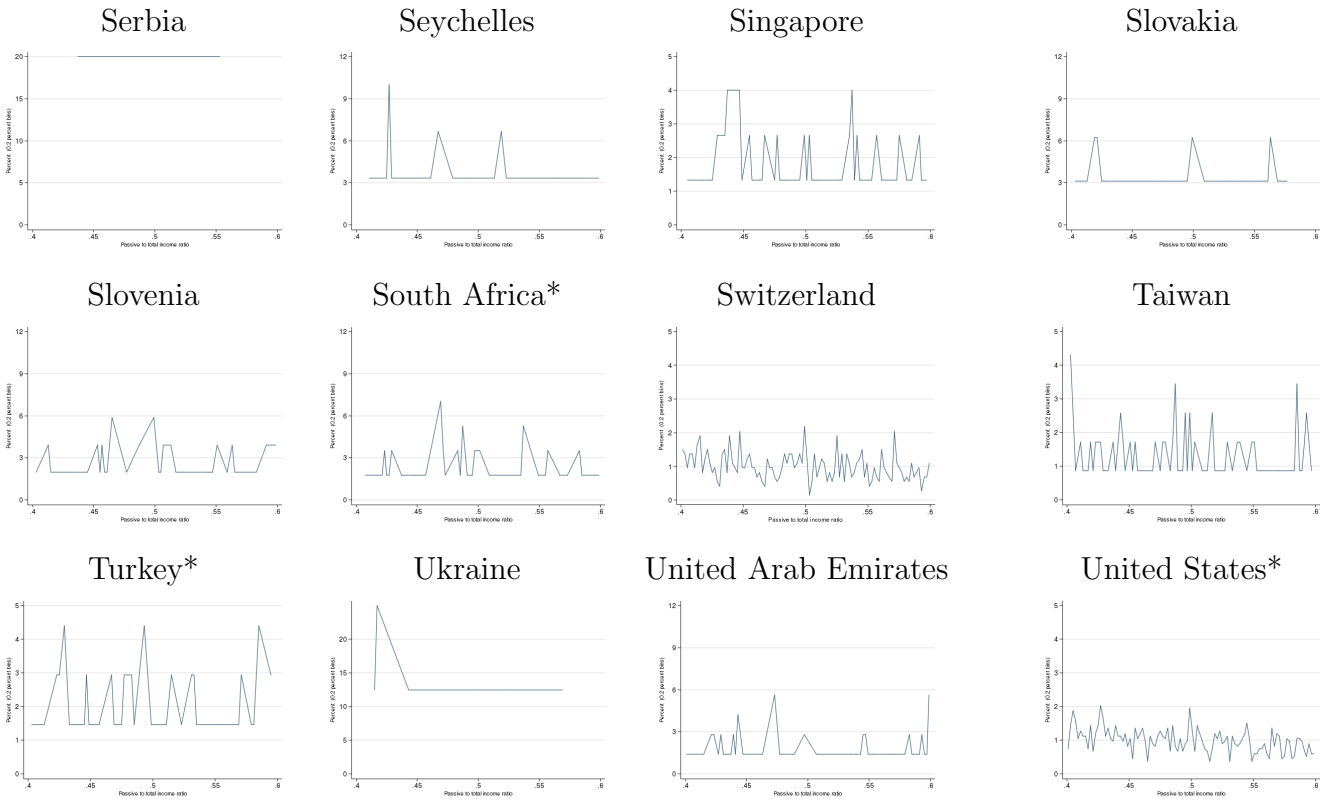
Continuation of Table B.6



* These countries do have a CFC rule in the observed time frame.

Note: The table shows foreign subsidiaries from various parent countries that do not have a passive-to-total income threshold at 50% or a comparable legislation included in their CFC laws or no CFC regulation at all. Only subsidiaries with positive financial income are used to generate the graphs.

Table B.7: Descriptive statistics about bunching subsidiaries abroad from Figure 3.3.

Variable	Obs	Mean	Min	Max
Fixed Assets	2'193	161'068.7	0	42'100'000
Intangible Fixed Assets	2'100	5'244.59	-8'670.99	1'926'008
Employees	1'611	281.60	0	20'479
Sales	1'662	146'775.50	0	19'100'000
Financial Profits	2'202	9'878.13	20.36	3'432'162
Profits before Taxes	2'202	2'0471.31	41.06	7'026'615
Tax payed	2'210	3'521.67	-182'225	1'681'732
R & D expenses	106	23'127.61	0	2'106'390

Note: This table provides some statistics about the subsidiaries which bunch at the 50% income ratio threshold in figure 3.3. Financial numbers are in thousands.

Appendix C

CFC rules and M&A

C.1 Stylized identification variable example

Table C.1: Identification Variable Example.

Base case in t=0

	Parent Country 1	Parent Country 2	Parent Country 3
STR Parent	30%	26,25%	20%
CFC rule with min. tax threshold at	<25 %	<90% of own STR (i.e., 23.63%)	none
Subsidiary Country A (STR = 20,5%)	X	X	
Subsidiary Country B (STR = 19%)	X	X	
Subsidiary Country C (STR = 12%)	X	X	

Change in CFC law threshold in t=1

	Parent Country 1	Parent Country 2	Parent Country 3
STR Parent	30%	26,25%	20%
CFC rule with min. tax threshold at	**<20** %	**<80%** of own STR (i.e., **21%**)	none
Subsidiary Country A (STR = 20,5%)		X	
Subsidiary Country B (STR = 19%)	X	X	
Subsidiary Country C (STR = 12%)	X	X	

Change in parent country STR in t=2

	Parent Country 1	Parent Country 2	Parent Country 3
STR Parent	**25%**	**21,25%**	**16%**
CFC rule with min. tax threshold at	<20 %	<80% of own STR (i.e., **17%**)	none
Subsidiary Country A (STR = 20,5%)			
Subsidiary Country B (STR = 19%)	X		
Subsidiary Country C (STR = 12%)	X	X	

Change in subsidiary country STR in t=3

	Parent Country 1	Parent Country 2	Parent Country 3
STR Parent	25%	21,25%	16%
CFC rule with min. tax threshold at	<20 %	<80% of own STR (i.e., 17%)	none
Subsidiary Country A (**STR = 18%**)	X		
Subsidiary Country B (**STR = 16%**)	X	X	
Subsidiary Country C (**STR = 10%**)	X	X	

Note: An "X" indicates that this subsidiary country is potentially affected by CFC rules. These depicted changes in the different triggering law settings occur over time in various countries so that various subsidiaries are potentially affected by CFC legislation and others are not. In our regressions, we use various fixed effects and other control variables to account for other potentially influencing effects.

C.2 Descriptives and robustness check tables on low-tax target acquisition

Table C.2: Cross-border M&A sample (2002-2014) for analyzing the effect of acquirer CFC rules on the probability of being the **acquirer country** (Section 4.3.4.2).

Country	CFC rule	Number of acquirers	Number of targets	Country	CFC rule	Number of acquirers	Number of targets
Australia	1	923	663	Japan	1	529	166
Austria	0	125	73	Korea, Rep.	1	187	147
Belarus	n/a	none	6	Latvia	n/a	none	2
Belgium	0	154	186	Lithuania	n/a	none	14
Bermuda	n/a	none	29	Malaysia	0	212	157
Brazil	n/a	none	251	Malta	n/a	none	4
British Virgin Islands	n/a	none	70	Mexico	n/a	none	197
Bulgaria	n/a	none	30	Netherlands	0	421	355
Canada	1	1,124	1,074	New Zealand	1	68	196
Cayman Islands	n/a	none	17	Norway	1	296	144
Chile	n/a	none	95	Panama	n/a	none	10
China	1	338	846	Poland	n/a	none	140
Croatia	n/a	none	20	Portugal	n/a	none	69
Cyprus	n/a	none	16	Russian Federation	0	39	112
Czech Republic	n/a	none	81	Seychelles	n/a	none	2
Denmark	1	42	158	Singapore	0	490	271
Estonia	n/a	none	12	Slovak Republic	n/a	none	16
Finland	1	62	142	Slovenia	n/a	none	15
France	1	644	667	South Africa	n/a	none	119
Germany	1	622	842	Spain	1	324	360
Greece	n/a	none	25	Sweden	1	71	369
Hong Kong SAR, China	0	560	343	Switzerland	0	344	209
Hungary	n/a	none	45	Taiwan, China	n/a	none	105
Iceland	n/a	none	3	Turkey	n/a	none	79
India	0	337	214	Ukraine	n/a	none	31
Ireland	0	342	152	United Kingdom	1	1,670	1,772
Israel	1	206	129	United States	1	4,020	2,857
Italy	1	271	314	**Total**		**14,421**	**14,421**

Note: This table shows the number of acquirer ultimate parents and targets per country in our cross-border M&A sample to investigate Hypothesis 1a. In this context, cross-border M&As are defined as acquirer ultimate parent and target residing in different countries; the direct acquirer and acquirer ultimate parent reside in the same country. To keep the mixed logit regressions computationally feasible, the set of considered candidate acquirer countries is restricted (see section 4.3.3). In this table CFC rule takes the value one, if the acquirer country has implemented CFC rules in 2014 and zero otherwise.

Table C.3: Definition, data sources and summary statistics of variables for analyzing effect of acquirer CFC rules on probability of being acquirer country (section 4.3.4.2).

Variable	Definition	Data source	Obs.	Mean	Std. Dev.	Min	Max
CFC^{dummy}	Binary dummy variable coded one if target country STR is smaller than acquirer country's tax rate threshold of CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	TG	317,835	0.111	0.315	0	1
CFC^{diff}	Difference between acquirer country STR and target country STR if target country STR is smaller than acquirer country's tax rate threshold of CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	TG	317,835	0.012	0.043	0	0.409
$CFC^{diffEATR}$	Difference between acquirer country STR and target country STR if target country EATR is smaller than acquirer country's tax rate threshold of the CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	TG; CBT	317,835	0.011	0.039	-0.011	0.409
$CFC^{diffEEA}$	Same as CFC^{diff}; however, set to zero if acquirer and target country are both EEA member states and M&A year is after 2006	TG	317,835	0.012	0.042	0	0.409
$CFC^{taxbase}$	See expression 4.7	TG	317,835	0.318	0.066	0	0.409
$CFC^{profitable}$	Same as CFC^{diff}; however, for non-profitable targets set to zero	TG; SDC; CNA; CG	55,715	0.007	0.034	0	0.395
$CFC^{non\_profitable}$	Same as CFC^{diff}; however, for profitable targets set to zero	TG; SDC; CNA; CG	55,715	0.003	0.021	0	0.409
STR	STR in candidate acquirer country, including typical local taxes	TG	317,835	0.291	0.071	0.125	0.409
ExemptionMethod	Binary dummy variable coded one if candidate acquirer country unilaterally applies the exemption method to avoid double taxation of foreign dividends, and 0 if it unilaterally applies the credit method	TG	294,697	0.606	0.489	0	1
GDP per capita	GDP per capita in candidate acquirer country (natural logarithm)	World Bank	317,835	10.416	0.62	7.942	11.284
GDP growth	Growth of GDP in candidate acquirer country (in %)	World Bank	317,835	3.095	3.168	-7.821	15.240
Stock market capitalization per GDP	Stock market capitalization of listed domestic firms in candidate acquirer country (in % of GDP)	World Bank	317,835	121.5	175.6	15.767	1,254.5
Size of private credit market	Domestic credit to private sector in candidate acquirer country (in % of GDP)	World Bank	317,835	115.3	39.525	31.081	233.4
Distance	Simple distance (in km) between most populated cities of candidate acquirer and target country (natural logarithm)	Mayer and Zignago (2011)	317,835	8.498	1.100	4.088	9.883
Common language	Common language index between candidate acquirer and target country (0 (low) to 1 (high similarity))	Melitz and Toubal (2014)	317,835	0.242	0.217	0	0.983
Past colonial relationships	Binary dummy variable coded one if candidate acquirer and target country were ever in a colonial relationship, and 0 otherwise	Mayer and Zignago (2011)	317,835	0.095	0.294	0	1
Common legal system	Binary dummy variable coded one if legal system of candidate acquirer and target country have common legal origins, and 0 otherwise	Head et al. (2010)	317,835	0.319	0.466	0	1
TargetAssets	Pre-deal consolidated target total assets in the last year before the effective M&A date (natural logarithm)	SDC; CNA; CG	52,809	18.118	2.297	11.513	28.060
TargetROA	Pre-deal consolidated target pre-tax income in the last year before the effective M&A date divided by pre-deal consolidated target total assets in the last year before the effective M&A date	SDC; CNA; CG	52,809	-0.036	0.844	-11.800	18.000
TargetSales	Pre-deal consolidated target net sales in the last year before the effective M&A date (natural logarithm)	SDC; CNA; CG	78,495	17.667	2.320	6.908	26.216

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TableC.3 – continued from previous page

Variable	Definition	Data source	Obs.	Mean	Std. Dev.	Min	Max
TargetEBITDA	Pre-deal consolidated target EBITDA (earnings before interest, taxes, depreciation and amortization) in the last year before the effective M&A date (natural logarithm)	SDC; CNA; CG	34,405	16.369	2.093	7.601	24.300

Note: Data on country fixed effects are not reported but are available upon request. 'TG' stands for Tax Guides, 'CBT' stands for Oxford University Centre for Business Taxation, 'SDC' stands for SDC Platinum, 'CNA' stands for Compustat North America, 'CG' stands for Compustat Global,

Table C.4: Supplemental regression results for candidate acquirer country fixed effects interacted with target-specific financial data.

Regression (3) of table 4.3		Regression (4) of table 4.3		Regression (5) of table 4.3	
*Australia*TargetAssets*	-0.1275**	*Australia*TargetSales*	-0.1167***	*Australia*TargetEBITDA*	-0.1229*
	(0.0526)		(0.0417)		(0.0696)
*Austria*TargetAssets*	0.0927	*Austria*TargetSales*	0.0242	*Austria*TargetEBITDA*	0.2592**
	(0.0960)		(0.0851)		(0.1150)
*Belgium*TargetAssets*	0.0394	*Belgium*TargetSales*	-0.0256	*Belgium*TargetEBITDA*	0.0561
	(0.0890)		(0.0693)		(0.1021)
*Canada*TargetAssets*	-0.1606***	*Canada*TargetSales*	-0.1735***	*Canada*TargetEBITDA*	-0.1486**
	(0.0541)		(0.0380)		(0.0643)
*China*TargetAssets*	0.0502	*China*TargetSales*	-0.0781	*China*TargetEBITDA*	-0.0301
	(0.0579)		(0.0507)		(0.1096)
*Denmark*TargetAssets*	0.0591	*Denmark*TargetSales*	0.0749	*Denmark*TargetEBITDA*	0.0275
	(0.1467)		(0.1215)		(0.1813)
*Finland*TargetAssets*	-0.0130	*Finland*TargetSales*	-0.1980***	*Finland*TargetEBITDA*	0.0561
	(0.1863)		(0.0728)		(0.0490)
*France*TargetAssets*	0.1841***	*France*TargetSales*	0.1561***	*France*TargetEBITDA*	0.1999***
	(0.0477)		(0.0420)		(0.0603)
*Germany*TargetAssets*	0.1779***	*Germany*TargetSales*	0.1239***	*Germany*TargetEBITDA*	0.2245***
	(0.0482)		(0.0479)		(0.0636)
*HongKongSARChina**	-0.0375	*HongKongSARChina**	-0.0809*	*HongKongSARChina**	-0.0597
TargetAssets	(0.0544)	TargetSales	(0.0477)	TargetEBITDA	(0.0725)
*India*TargetAssets*	-0.1437**	*India*TargetSales*	-0.0593	*India*TargetEBITDA*	-0.3182***
	(0.0591)		(0.0369)		(0.0755)
*Ireland*TargetAssets*	-0.1022**	*Ireland*TargetSales*	-0.0565	*Ireland*TargetEBITDA*	-0.1737**
	(0.0504)		(0.0410)		(0.0714)
*Israel*TargetAssets*	-0.0013	*Israel*TargetSales*	-0.0859	*Israel*TargetEBITDA*	0.0781
	(0.0810)		(0.0572)		(0.1288)
*Italy*TargetAssets*	0.0162	*Italy*TargetSales*	0.0067	*Italy*TargetEBITDA*	0.0309
	(0.0585)		(0.0457)		(0.0794)
*Japan*TargetAssets*	0.1112**	*Japan*TargetSales*	0.1007**	*Japan*TargetEBITDA*	0.0818
	(0.0461)		(0.0404)		(0.0696)
*KoreaRep*TargetAssets*	0.0875	*KoreaRep*TargetSales*	-0.0338	*KoreaRep*TargetEBITDA*	0.2206
	(0.1026)		(0.0893)		(0.2751)
*Malaysia*TargetAssets*	-0.1075	*Malaysia*TargetSales*	-0.1171*	*Malaysia*TargetEBITDA*	-0.2086
	(0.1090)		(0.0707)		(0.1310)
*Netherlands*TargetAssets*	0.1765***	*Netherlands*TargetSales*	0.0893*	*Netherlands*TargetEBITDA*	0.1696**
	(0.0504)		(0.0458)		(0.0699)
*NewZealand*TargetAssets*	-0.0111	*NewZealand*TargetSales*	0.2038**	*NewZealand*TargetEBITDA*	-0.1343
	(0.1395)		(0.0951)		(0.1243)
*Norway*TargetAssets*	-0.2134***	*Norway*TargetSales*	-0.1773***	*Norway*TargetEBITDA*	-0.2307**
	(0.0732)		(0.0423)		(0.1167)
*RussianFederation*TargetAssets*	0.0481	*RussianFederation*TargetSales*	-0.1325	*RussianFederation*TargetEBITDA*	0.2715
	(0.2429)		(0.1597)		(0.1787)
*Singapore*TargetAssets*	-0.0009	*Singapore*TargetSales*	-0.0877	*Singapore*TargetEBITDA*	-0.0784
	(0.0640)		(0.0580)		(0.0812)
*Spain*TargetAssets*	0.2229***	*Spain*TargetSales*	0.1261**	*Spain*TargetEBITDA*	0.1338
	(0.0759)		(0.0589)		(0.0972)
*Sweden*TargetAssets*	0.3177***	*Sweden*TargetSales*	-0.0665	*Sweden*TargetEBITDA*	0.0543
	(0.1215)		(0.0901)		(0.1561)
*Switzerland*TargetAssets*	0.1798***	*Switzerland*TargetSales*	0.0347	*Switzerland*TargetEBITDA*	0.1748**
	(0.0563)		(0.0557)		(0.0872)
*UnitedKingdom*TargetAssets*	-0.0638	*UnitedKingdom*TargetSales*	-0.1709***	*UnitedKingdom*TargetEBITDA*	-0.0150
	(0.0475)		(0.0314)		(0.0577)
*Australia*TargetROA*	0.0451				
	(0.1562)				
*Austria*TargetROA*	-0.3821**				
	(0.1873)				
*Belgium*TargetROA*	0.0782				
	(0.3381)				
*Canada*TargetROA*	0.0885				
	(0.2366)				
*China*TargetROA*	-0.3323**				
	(0.1653)				
*Denmark*TargetROA*	0.3034				
	(0.2514)				
*Finland*TargetROA*	0.4007**				
	(0.1818)				
*France*TargetROA*	0.1699				
	(0.1596)				
*Germany*TargetROA*	-0.3493**				
	(0.1597)				

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TableC.4 – continued from previous page

Regression (3) of table 4.3		Regression (4) of table 4.3	Regression (5) of table 4.3
*HongKongSARChina*TargetROA*	0.0771		
	(0.1329)		
*India*TargetROA*	0.0564		
	(0.1776)		
*Ireland*TargetROA*	0.2417*		
	(0.1374)		
*Israel*TargetROA*	-0.3429**		
	(0.1377)		
*Italy*TargetROA*	-0.1279		
	(0.1952)		
*Japan*TargetROA*	0.4780***		
	(0.1482)		
*KoreaRep*TargetROA*	-0.3778**		
	(0.1693)		
*Malaysia*TargetROA*	0.1243		
	(0.1701)		
*Netherlands*TargetROA*	0.3409		
	(0.2256)		
*NewZealand*TargetROA*	0.3107**		
	(0.1298)		
*Norway*TargetROA*	-0.0062		
	(0.1873)		
*RussianFederation*TargetROA*	0.1880		
	(0.3663)		
*Singapore*TargetROA*	-0.2435*		
	(0.1407)		
*Spain*TargetROA*	0.1719		
	(0.2793)		
*Sweden*TargetROA*	7.1903**		
	(3.2794)		
*Switzerland*TargetROA*	-0.2943*		
	(0.1715)		
*UnitedKingdom*TargetROA*	0.2905**		
	(0.1420)		

Note: Table reports supplemental results of regressions (3), (4) and (5) of table 4.3. In particular, the coefficient of the interaction between candidate acquirer country fixed effects with target-specific consolidated financial data (target total assets, target return on assets, target net sales and target earnings before interest, taxes, depreciation and amortization) are shown. In all regressions, the US represent the base category *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

Table C.5: Cross-border M&A sample (2002-2014) for analyzing effect of acquirer CFC rules on probability of being *target* country (Section 4.3.4.3).

Country	CFC rule	Number of acquirers	Number of targets	Country	CFC rule	Number of acquirers	Number of targets
Australia	1	712	801	Japan	1	431	170
Austria	0	77	none	Korea, Rep.	1	162	153
Belarus	0	1	none	Lithuania	1	5	none
Belgium	0	123	197	Malaysia	0	178	174
Bermuda	0	56	none	Malta	0	5	none
Brazil	1	40	320	Mexico	1	54	270
British Virgin Islands	0	28	none	Netherlands	0	296	404
Bulgaria	0	1	none	New Zealand	1	92	141
Canada	1	1,824	594	Norway	1	130	260
Cayman Islands	0	17	none	Panama	0	5	none
Chile	0	19	none	Poland	0	25	170
China	1	271	897	Portugal	1	35	none
Croatia	0	1	none	Russian Federation	0	51	82
Cyprus	0	35	none	Seychelles	0	7	none
Czech Republic	0	7	none	Singapore	0	416	290
Denmark	1	118	35	Slovak Republic	0	2	none
Estonia	0	1	none	Slovenia	0	5	none
Finland	1	112	44	South Africa	1	58	156
France	1	490	708	Spain	1	239	369
Germany	1	433	951	Sweden	1	365	none
Greece	1	17	none	Switzerland	0	268	240
Hong Kong SAR, China	0	487	377	Taiwan, China	0	90	none
Hungary	1	7	none	Turkey	1	17	none
Iceland	1	38	none	Ukraine	0	8	none
India	0	295	227	United Kingdom	1	2,023	1,084
Ireland	0	253	181	United States	1	2,647	3,818
Israel	1	172	none				
Italy	1	198	334	**Total**		**13,447**	**13,447**

Note: This table shows the number of acquirer ultimate parents and targets per country in our cross-border M&A sample to investigate Hypothesis 1b. In this context, cross-border M&As are defined as acquirer ultimate parent and target residing in different countries; the direct acquirer and acquirer ultimate parent reside in the same country. To keep the mixed logit regressions computationally feasible, the set of considered candidate target countries is restricted (see section 4.3.3). CFC rule takes the value one, if the acquirer country has implemented CFC rules in 2014.

Table C.6: Definition, data sources and summary statistics of variables for analyzing effect of acquirer CFC rules on probability of being *target* country (section 4.3.4.3).

Variable	Definition	Data source	Obs.	Mean	Std. Dev.	Min	Max
CFC^{dummy}	Binary dummy variable coded one if target country STR is smaller than acquirer country's tax rate threshold of CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	Tax guides	317,444	0.345	0.475	0	1
CFC^{diff}	Difference between acquirer country STR and target country STR if target country STR is smaller than acquirer country's tax rate threshold of CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	Tax guides	317,444	0.037	0.063	0.000	0.284
$CFC^{diffEATR}$	Difference between acquirer country STR and target country STR if target country EATR is smaller than acquirer country's tax rate threshold of the CFC rule or acquirer country applies CFC rules without a tax rate threshold, and 0 otherwise	Tax guides; Oxford University CBT	317,444	0.031	0.057	-0.033	0.284
$CFC^{diffEEA}$	Same as CFC^{diff}; however, set to zero if acquirer and target country are both EEA member states and M&A year is after 2006	Tax guides	317,444	0.035	0.062	0.000	0.284
$CFC^{taxbase}$	See expression 4.7.	Tax guides	317,444	0.305	0.058	0.125	0.409
$CFC^{profitable}$	Same as CFC^{diff}; however, for non-profitable targets set to zero	Tax guides; SDC Platinum; Compustat North America; Compustat Global	53,270	0.026	0.057	0.000	0.284
$CFC^{non\_profitable}$	Same as CFC^{diff}; however, for profitable targets set to zero	Tax guides; SDC Platinum; Compustat North America; Compustat Global	53,270	0.013	0.042	0.000	0.277
STR	STR in candidate target country, including typical local taxes	Tax guides	317,444	0.287	0.071	0.125	0.409
GDP per capita	GDP per capita in candidate target country (natural logarithm)	World Bank	317,444	10.267	0.687	7.942	11.284
GDP growth	Growth of GDP in candidate target country (in %)	World Bank	317,444	3.221	3.206	-7.821	15.240
Stock market capitalization per GDP	Stock market capitalization of listed domestic firms in candidate target country (in % of GDP)	World Bank	317,444	124.1	178.4	17.020	1,254.5
Size of private credit market	Domestic credit to private sector in candidate target country (in % of GDP)	World Bank	317,444	109.5	47.091	13.353	233.4
Distance	Simple distance (in km) between most populated cities of acquirer and candidate target country (natural logarithm)	Mayer and Zignago (2011)	317,444	8.609	1.046	5.153	9.883
Common language	Common language index between acquirer and candidate target country (0 (low similarity) to 1 (high similarity))	Melitz and Toubal (2014)	317,444	0.235	0.212	0.000	0.991
Past colonial relationships	Binary dummy variable coded one if acquirer and candidate target country were ever in a colonial relationship, and 0 otherwise	Mayer and Zignago (2011)	317,444	0.103	0.304	0	1
Common legal system	Binary dummy variable coded one if legal system of acquirer and candidate target country have common legal origins, and 0 otherwise	Head et al. (2010)	317,444	0.329	0.470	0	1
Corruption control	Corruption control index of candidate target country (-3 (low control) to 3 (high control))	World Bank	317,444	1.072	0.976	-1.088	2.527

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TableC.6 – continued from previous page

Variable	Definition	Data source	Obs.	Mean	Std. Dev.	Min	Max
Business start-up cost	Cost of business start-up procedures in candidate target country (in % of GNI per capita)	World Bank	317,444	9.601	12.746	0.000	78.400
Unemployment rate	Unemployment rate in candidate target country (in % of total labor force)	World Bank	317,444	7.031	5.050	2.493	27.140
Domestic firms	Number of listed domestic firms in candidate target country (natural logarithm)	World Bank	317,444	6.426	1.232	3.714	8.638
Business disclosure	Business extent of disclosure index of in candidate target country (0 (less disclosure) to 10 (more disclosure))	World Bank	264,159	7.188	2.344	0	10
AcquirerAssets	Pre-deal consolidated acquirer total assets in the last year before the effective M&A date (natural logarithm)	SDC Platinum; Compustat North America; Compustat Global	215,197	20.280	2.808	11.513	28.710
AcquirerROA	Pre-deal consolidated acquirer pre-tax income in the last year before the effective M&A date divided by pre-deal consolidated acquirer total assets in the last year before the effective M&A date	SDC Platinum; Compustat North America; Compustat Global	215,197	0.035	5.999	-191.9	360.5
AcquirerSales	Pre-deal consolidated acquirer net sales in the last year before the effective M&A date (natural logarithm)	SDC Platinum; Compustat North America; Compustat Global	206,176	19.979	2.732	8.219	26.834
AcquirerEBITDA	Pre-deal consolidated acquirer EBITDA (earnings before interest, taxes, depreciation and amortization) in the last year before the effective M&A date (natural logarithm)	SDC Platinum; Compustat North America; Compustat Global	180,202	18.594	2.365	9.210	24.723

Note: Data on country fixed effects are not reported but are available on request.

Table C.7: Supplemental regression results for candidate target country fixed effects interacted with acquirer-specific financial data.

Regression (3) of table 4.6		Regression (4) of table 4.6		Regression (5) of table 4.6	
*Australia*AcquirerAssets*	-0.0867***	*Australia*AcquirerSales*	-0.0542***	*Australia*AcquirerEBITDA*	-0.0819***
	(0.0194)		(0.0199)		(0.0230)
*Belgium*AcquirerAssets*	-0.0737**	*Belgium*AcquirerSales*	-0.0633**	*Belgium*AcquirerEBITDA*	-0.1133***
	(0.0302)		(0.0301)		(0.0389)
*Brazil*AcquirerAssets*	0.0321	*Brazil*AcquirerSales*	0.1174***	*Brazil*AcquirerEBITDA*	0.1288***
	(0.0301)		(0.0373)		(0.0361)
*Canada*AcquirerAssets*	-0.1900***	*Canada*AcquirerSales*	-0.1707***	*Canada*AcquirerEBITDA*	-0.1391***
	(0.0244)		(0.0245)		(0.0298)
*China*AcquirerAssets*	-0.1894***	*China*AcquirerSales*	-0.1697***	*China*AcquirerEBITDA*	-0.1784***
	(0.0212)		(0.0201)		(0.0279)
*Denmark*AcquirerAssets*	-0.0393	*Denmark*AcquirerSales*	-0.0148	*Denmark*AcquirerEBITDA*	-0.0599
	(0.0754)		(0.0855)		(0.0968)
*Finland*AcquirerAssets*	-0.0406	*Finland*AcquirerSales*	0.0486	*Finland*AcquirerEBITDA*	-0.1441
	(0.0725)		(0.0660)		(0.1023)
*France*AcquirerAssets*	-0.0699***	*France*AcquirerSales*	-0.0638***	*France*AcquirerEBITDA*	-0.1531***
	(0.0168)		(0.0174)		(0.0216)
*Germany*AcquirerAssets*	-0.0929***	*Germany*AcquirerSales*	-0.0944***	*Germany*AcquirerEBITDA*	-0.1481***
	(0.0156)		(0.0160)		(0.0196)
*HongKongSARChina*AcquirerAssets*	-0.2496***	*HongKongSARChina*AcquirerSales*	-0.2166***	*HongKongSARChina*AcquirerEBITDA*	-0.2576***
	(0.0345)		(0.0277)		(0.0399)
*India*AcquirerAssets*	0.0178	*India*AcquirerSales*	0.0684*	*India*AcquirerEBITDA*	0.0444
	(0.0334)		(0.0371)		(0.0420)
*Ireland*AcquirerAssets*	-0.0215	*Ireland*AcquirerSales*	-0.0067	*Ireland*AcquirerEBITDA*	-0.0489
	(0.0349)		(0.0344)		(0.0421)
*Italy*AcquirerAssets*	0.0233	*Italy*AcquirerSales*	0.0241	*Italy*AcquirerEBITDA*	-0.0159
	(0.0291)		(0.0300)		(0.0359)
*Japan*AcquirerAssets*	0.0125	*Japan*AcquirerSales*	-0.0390	*Japan*AcquirerEBITDA*	-0.0462
	(0.0403)		(0.0456)		(0.0554)
*KoreaRep*AcquirerAssets*	0.0294	*KoreaRep*AcquirerSales*	0.0095	*KoreaRep*AcquirerEBITDA*	0.0552
	(0.0504)		(0.0494)		(0.0542)
*Malaysia*AcquirerAssets*	-0.2115***	*Malaysia*AcquirerSales*	-0.1429***	*Malaysia*AcquirerEBITDA*	-0.2109***
	(0.0426)		(0.0421)		(0.0558)
*Mexico*AcquirerAssets*	-0.3658***	*Mexico*AcquirerSales*	-0.1508***	*Mexico*AcquirerEBITDA*	-0.0526
	(0.0316)		(0.0437)		(0.0550)
*Netherlands*AcquirerAssets*	-0.0799***	*Netherlands*AcquirerSales*	-0.0567***	*Netherlands*AcquirerEBITDA*	-0.1291***
	(0.0209)		(0.0215)		(0.0259)
*NewZealand*AcquirerAssets*	-0.1727***	*NewZealand*AcquirerSales*	-0.1197***	*NewZealand*AcquirerEBITDA*	-0.3288***
	(0.0307)		(0.0266)		(0.0381)
*Norway*AcquirerAssets*	-0.1155***	*Norway*AcquirerSales*	-0.0915***	*Norway*AcquirerEBITDA*	-0.1021***
	(0.0273)		(0.0262)		(0.0340)
*Poland*AcquirerAssets*	-0.0356	*Poland*AcquirerSales*	-0.0602	*Poland*AcquirerEBITDA*	-0.0928*
	(0.0452)		(0.0441)		(0.0500)
*RussianFederation*AcquirerAssets*	-0.0841	*RussianFederation*AcquirerSales*	-0.1421**	*RussianFederation*AcquirerEBITDA*	-0.0242
	(0.0558)		(0.0607)		(0.0884)
*Singapore*AcquirerAssets*	-0.1589***	*Singapore*AcquirerSales*	-0.1096***	*Singapore*AcquirerEBITDA*	-0.1836***
	(0.0315)		(0.0268)		(0.0356)
*SouthAfrica*AcquirerAssets*	-0.1952***	*SouthAfrica*AcquirerSales*	-0.1524***	*SouthAfrica*AcquirerEBITDA*	-0.1421***
	(0.0376)		(0.0371)		(0.0543)
*Spain*AcquirerAssets*	-0.0371	*Spain*AcquirerSales*	-0.0328	*Spain*AcquirerEBITDA*	-0.0454
	(0.0317)		(0.0312)		(0.0358)
*Switzerland*AcquirerAssets*	-0.0841***	*Switzerland*AcquirerSales*	-0.0741***	*Switzerland*AcquirerEBITDA*	-0.0619*
	(0.0264)		(0.0285)		(0.0350)
*UnitedKingdom*AcquirerAssets*	-0.0884***	*UnitedKingdom*AcquirerSales*	-0.0762***	*UnitedKingdom*AcquirerEBITDA*	-0.1113***
	(0.0174)		(0.0179)		(0.0214)
*Australia*AcquirerROA*	-0.0370				
	(0.0295)				
*Belgium*AcquirerROA*	0.0158***				
	(0.0057)				
*Brazil*AcquirerROA*	-0.0375				
	(0.0277)				
*Canada*AcquirerROA*	-0.0413				
	(0.0390)				
*China*AcquirerROA*	-0.0043				
	(0.0112)				
*Denmark*AcquirerROA*	0.0424				
	(0.5075)				
*Finland*AcquirerROA*	-0.1937				
	(0.1496)				
*France*AcquirerROA*	0.0021				
	(0.0058)				
*Germany*AcquirerROA*	0.0108**				
	(0.0053)				

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TableC.7 – continued from previous page

Regression (3) of table 4.6	Regression (4) of table 4.6	Regression (5) of table 4.6
*HongKongSARChina*AcquirerROA*	-0.0648*	
	(0.0355)	
*India*AcquirerROA*	-0.0484	
	(0.0374)	
*Ireland*AcquirerROA*	-0.0134	
	(0.0453)	
*Italy*AcquirerROA*	-0.0068	
	(0.0254)	
*Japan*AcquirerROA*	-0.0642*	
	(0.0346)	
*KoreaRep*AcquirerROA*	-0.0577*	
	(0.0337)	
*Malaysia*AcquirerROA*	0.0007	
	(0.0079)	
*Mexico*AcquirerROA*	-0.0010	
	(0.0081)	
*Netherlands*AcquirerROA*	-0.0154	
	(0.0531)	
*NewZealand*AcquirerROA*	0.0195	
	(0.0137)	
*Norway*AcquirerROA*	-0.0151	
	(0.0344)	
*Poland*AcquirerROA*	-0.0394	
	(0.0410)	
*RussianFederation*AcquirerROA*	-0.0564*	
	(0.0339)	
*Singapore*AcquirerROA*	-0.0539	
	(0.0349)	
*SouthAfrica*AcquirerROA*	0.0006	
	(0.0076)	
*Spain*AcquirerROA*	-0.0365	
	(0.0386)	
*Switzerland*AcquirerROA*	0.0027	
	(0.0058)	
*UnitedKingdom*AcquirerROA*	-0.0098	
	(0.0196)	

Note: Table reports supplemental results of regressions (3), (4) and (5) of table 4.6. In particular, the coefficient of the interaction between candidate target country fixed effects with acquirer-specific consolidated financial data (acquirer total assets, acquirer return on assets, acquirer net sales and acquirer earnings before interest, taxes, depreciation and amortization) are shown. In all regressions, the US represent the base category *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively. Robust standard errors are provided in parentheses.

C.3 Descriptives tables on the direction of M&As

Table C.8: Country examples for the four categories of Δ***CFC_value***

ΔCFC_value of country	Exemplary country	CFC rules?	Tax rate threshold >15%?	Passive-to-active-income ratio <10%?
0	Netherlands	no	n/a	n/a
1	China (from 2008)	yes (since 2008)	no (12.5%)	no (50%)
2	Korea, Rep.	yes	yes (15%)	no (50%)
3	Japan	yes	yes (20%)	yes (no ratio)

Note: This table shows some examples for the calculated *CFC_value* in section 4.4 resulting from the various law differences.

Table C.9: Cross-border M&A sample (2002-2014) for analyzing the effect of CFC rules on direction of cross-border M&As (Section 4.4.4).

Country	CFC rule	Number of acquirers	Number of targets	Country	CFC rule	Number of acquirers	Number of targets
Australia	1	43	57	Luxembourg	0	3	6
Austria	0	7	3	Mexico	1	7	5
Belgium	0	21	27	Netherlands	0	41	19
Brazil	1	3	24	New Zealand	1	4	4
Canada	1	70	101	Norway	1	9	24
Chile	0	2	6	Poland	0	1	5
China	1	14	6	Portugal	1	2	1
Denmark	1	7	9	Russian Federation	0	6	2
France	1	64	83	South Africa	1	20	10
Germany	1	55	65	Spain	1	29	40
India	0	32	12	Sweden	1	5	5
Ireland	0	32	14	Switzerland	0	40	18
Israel	1	21	16	United Kingdom	1	156	338
Italy	1	30	21	United States	1	411	260
Japan	1	55	9				
Korea, Rep.	1	9	9	**Total**		**1,199**	**1,199**

Note: This table shows the number of acquirer ultimate parents and target ultimate parents per country in our cross-border M&A sample to investigate Hypothesis 2. In this context, cross-border M&As are defined as acquirer ultimate parent and target ultimate parent residing in different countries; the direct acquirer and acquirer ultimate parent reside in the same country and also the direct target and target ultimate parent reside in the same country. CFC rule takes the value one if the country has implemented CFC rules in 2014. Each country has at least one acquiring firm and one target firm to ensure that maximum likelihood estimation yields finite likelihood.

Table C.10: Definition, data sources and summary statistics of variables for analyzing effect of CFC rules on direction of cross-border M&As (Section 4.4.4).

Variable	Definition	Data source	Obs.	Mean	Std. Dev.	Min	Max
ΔCFC_value	Difference in CFC value of the two firms (see Section 4.4.2)	Tax guides	1,199	0.059	1.536	-3	3
ΔCFC_dummy	Difference in CFC rule of the two firms (see Section 4.4.2)	Tax guides	1,580	-0.069	0.466	-1	1
ΔSTR	Difference in STRs, including typical local taxes, of the two firms (in %)	Tax guides	1,199	1.149	9.233	-26.706	26.823
ΔDTM	Difference in method to avoid double taxation on foreign dividends of two firms where 0 (1) represents the credit (exemption) method	Tax guides	1,199	-0.008	0.690	-1	1
$\Delta Size$	Difference in total assets of the two firms divided by the sum of the firms' total assets	SDC Platinum; Compustat North America; Compustat Global	1,199	0.799	0.301	-0.990	1.000
ΔPTI	Difference in pre-tax incomes of the two firms divided by the sum of the firms' pre-tax incomes, where non-positive values of pre-tax income are replaced by 0.001 to avoid low values in the denominator	SDC Platinum	1,199	0.645	0.550	-1.000	1.000
$\Delta Leverage$	Difference in leverage ratios of the two firms (total liabilities/total assets, in %)	SDC Platinum; Compustat North America; Compustat Global	1,199	-0.082	0.942	-22.413	4.314
$\Delta StockMrk$	Difference in stock market capitalizations of the two countries divided by the sum of the countries' stock market capitalization volume	World Bank	1,199	0.104	0.783	-1.000	1.000
$\Delta CreditMrk$	Difference in domestic credits to private sector of the two countries divided by the sum of the countries' domestic credit volume	World Bank	1,199	0.089	0.732	-0.997	0.998
$\Delta Inflation$	Difference in inflation rates of the two countries (in %)	World Bank	1,199	0.037	2.106	-13.352	11.742

Note: Data on country fixed effects are not reported but are available upon request. These statistics show relative values of the variables when firm a acquires firm b, see equation 4.6. For example, if firm a has a leverage ratio of 0.45 and firm b has a leverage ratio of 0.50, then $\Delta Leverage$ takes the value -0.05 (=0.45-0.50).

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