Charles University in Prague

Faculty of Social Sciences
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MASTER'S THESIS

Base erosion and profit shifting in eastern European countries

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Academic Year: **2015/2016**

Declaration of Authorship

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Prague, July 29, 2016

Signature

Acknowledgments

I would like to thank Petr Janský, Ph.D. for supervising this thesis and for his invaluable advice and comments. His contribution was essential in writing this thesis.

Abstract

Corporate tax base erosion and profit shifting has become widely debated topic by academics and world leaders alike. The need to reform international tax system resulted into G20-OECD initiative addressing Base Erosion and Profit Shifting and recently thanks to the leak of so called Panama papers this issue is recognised by the general public as well. The goal of this thesis is to provide new evidence of profit shifting activities in eastern Europe and to provide better understanding of these practises. Our main focus is on tax havens that are often at heart of profit shifting activities. We analyse financial and ownership data for 661,841 companies from 18 countries for the period of 8 years 2006 – 2013. In our dataset there are 65,002 multinational companies out of which 17,359 have affiliates in tax havens. The evidence suggests that multinational companies in eastern Europe with ties to tax havens report lower pre-tax profits, pay lower taxes and hold higher debt ratio compare to other companies which is consistent with corporate tax avoidance using profit shifting. By examining tax havens in more detail we found that the most commonly used tax havens in this region are predominantly Cyprus followed by British Virgin Islands and Luxembourg with the strongest signs of profit shifting activities exhibiting companies with affiliates in British Virgin Islands. We also found that the evidence of profit shifting activities was not conclusive for some countries often labelled as tax havens such as Switzerland or Netherlands. In addition, we find that countries most suffering by profit shifting using tax havens in eastern Europe are Russia and Ukraine.

JEL Classification	H25, H26, H87, F23, C33
Keywords	tax haven, profit shifting, corporate tax base erosion, multinational corporations

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Abstrakt

Snižování základu korporátních daní a přesun zisku se stalo často probíraným tématem jak akademiky, tak předními světovými politiky. Nutnost reformy mezinárodního daňového systému vyústila v G20-OECD projekt addressing Base Erosion and Profit Shifting a v nedávné době se díky úniku takzvaných Panama papers dostalo toto téma i do podvědomí široké veřejnosti. Cílem této práce je najít důkazy o přesunu zisku ve východní Evropě a poskytnout podklady pro lepší pochopení tohoto fenoménu. Soustředíme se především na daňové ráje, které jsou často k těmto daňovým aktivitám nezbytné. Tato práce podrobně analyzuje finanční a vlastnická data pro 661,841 firem z 18 zemí po dobu 8 let od 2006 do 2013. K dispozici jsme měli 65,002 mezinárodních společností, z nichž 17,359 má spojení do daňových rájů. Výsledky ukazují, že východoevropské mezinárodní společnosti, které mají přístup do daňových rájů, vykazují nižší zisky před zdaněním, nižší daně a jsou vice zadluženy ve srovnání s ostatními firmami, což je konzistentní s daňovými úniky za použití přesunu zisků. Díky bližšímu zkoumání nejčastěji využívaných daňových rájů v tomto region jsme zjistili, že nejvíce využívaným daňovým rájem je Kypr, následovaný Britskými Panenskými ostrovy a Lucemburskem. Nesilnější známky využívání daňových rájů za účelem daňové optimalizace vykazují firmy se spojením do Britských Panenských ostrovů. Na druhou stranu pro některé země, které jsou často označovány jako daňové ráje, jako například Švýcarsko nebo Nizozemí, známky daňové optimalizace nebyly průkazné. Mezi další zjištění také patří, že z východoevropských zemí jsou nejvíce poškozeny daňovými operacemi za pomoci daňových rájů Rusko a Ukrajina.

Klasifikace	H25, H26, H87, F23, C33
Klíčová slova	daňové ráje, přesouvání zisku, snižování korporátního daňového základu, mezinárodní korporace

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Acronyms

BEA Bureau of economic analysis

BEPS Base erosion and profit shifting

CFC Controlled foreign company

CPI Corruption Perception Index

EBITDA Earnings before interest, taxes, depreciation and amortization

FDI Foreign direct investment

GDP Gross domestic product

ICT Information as communication technologies

IMF International monetary fund

IP Intelectual property

LOB Limitation-on-benefits rule

MAP Mutual agreement procedure

MNC Multinational company

MNC Multinational entity

OECD Organization for economic Cooperation and Development

PE Permanent establishment

PPT Principle purpose test

TH Tax haven

UNCTAD United Nations Conference on Trade and Development

Master's Thesis Proposal

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Proposed Topic:

Base erosion and profit shifting in eastern European countries

Motivation:

Base erosion and profit shifting has become a widely debated issue in last several years. The fact that tax avoidance and tax evasion of multinational corporations (MNCs) is a serious problem that can hinder development of both developed and developing countries has been identified and acknowledged not only by academics but by world leaders as well. In June 2012 the G20 leaders expressed concerns about base erosion and profit shifting (BEPS) and the need for prevention. In February 2013 the Organization for Economic Co-operation and development (OECD) published a report *Addressing base erosion and profit shifting.* In this report OECD presented studies regarding existence and magnitude of BEPS, examined matters of global developments that had impact on corporate taxes in past and reviewed BEPS opportunities that may be presented not only to MNCs but to all companies that are involved in cross-border activities. In June 2013 the first action plan by OECD was introduced which had on its agenda topics like for example establishing of international coherence of corporate income taxation or ensuring transparency of tax returns by MNCs. The BEPS initiative by OECD with approval of G20 is still ongoing today and by the end of 2015 the first implementation package should be presented.

As the big interest in this topic by the largest economic organizations suggests a lot of research in this field has already been done. There are several approaches to study profit shifting. The first approach is trade mispricing. According to this approach companies can manipulate prices of internationally traded goods to shift income across boarder. The main issue with this approach as stated by Fuest and Riedel (2012) is the identification of price manipulation. For example Baker (2005) uses confidential interviews with firms to identify mispriced trade transactions and then based on those interviews estimates the income shifted from country. Another method of distinguishing mispricing is through identifying abnormally priced import and export transaction with so called price filer matrix as used by Pak (2007) which tries to spot the suspiciously high or low transaction inside a group of imported and exported products and then used them as base for computation of income shifted in or out of a country. Both of these approaches have number of drawbacks which makes them unreliable, hard to interpret of impossible to replicate (Fuest and Riedel 2012).

The second approach to examine profit shifting is through profitability and investigation if firms observed profitability pattern can be explained by profit shifting. For example Oxfam (2000) uses foreign direct investment (FDI) into certain countries and World Bank's estimated of returns of FDI and calculates the tax base that should be paid and identifies the gap between these calculated taxes and taxes reported in real data as tax loss due to profit shifting. Again this approach has been criticized by Fuest and Riedel for several issues.

Another and arguably better (Fuest and Riedel 2012) approach which will be the one used in

this thesis is to try to identify profit shifting on micro not macro level. For this approach a detailed data on number of variables concerning individual companies is required. Fortunately in recent years several such data sources were developed and improved to be well suited for this topic. In this thesis I will use the ORBIS database developed and maintained by Bureau van Dijk. This database contains detailed information about both public and private companies all over the world. This approach using the ORBIS database was already used for example by Janský (2015), Fuest and Riedel (2012), or Maffini (2009).

Hypotheses:

1. Hypothesis #1: MNCs with ties to tax havens report lower pre-tax profits and pay lower taxes than MNCs without ties to tax havens and MNCs without ties to tax havens report lower pre-tax profits and pay lower taxes than national companies.
2. Hypothesis #2: MNCs especially those with connections to tax havens hold higher fraction of debt than national companies.
3. Hypothesis #3: Companies in high tax rate countries and/or high corruption rate report lower pre-tax profits and pay lower taxes than those in lower tax rate and lower corruption rate countries.

Methodology:

Using a large dataset extracted from ORBIS database I will use panel data to test for hypotheses formulated earlier. The dataset contains data for 16 countries: Baltic states (Estonia, Latvia, Lithuania), Middle and eastern European countries (Czech Republic, Slovak Republic, Hungary, Belarus, Poland, Ukraine), Balkan states (Bulgaria, Romania, Croatia, Slovenia, Serbia, Bosnia and Herzegovina) and Russia. All key variables for testing our hypotheses are available such as detailed information about both pre-tax and after-tax profits, details about size of companies, ownership structure, subsidiaries and their ties to tax havens countries, as well as data about companies' long term and short term debts or taxes paid. The data are available between years 2005 and 2014.

The number of companies included in this dataset is close to a million so there will be no problem in forming a control group from national firms and treatment group from MNCs with and without ties to tax havens. Due to different sizes of countries there is no surprise that there is a big difference between numbers of companies residing in different countries. For example almost half of companies in our dataset are from Russia as it is by far biggest country included. To account for this fact one might follow identification strategies used in earlier papers for example Maffini (2009).

Expected Contribution:

By this work I will try to add to a growing discussion about shifting income of multinational corporations across border of domestic country with special focus on those MNCs with ties to tax havens for which the possibility of tax avoidance and tax evasion can be especially enticing. By working with a large and unique panel dataset I will try to provide empirical evidence about such behaviour of companies in eastern Europe. Unlike other papers which are exploring profit shifting on a micro level such as Janský (2015) or Fuest and Riedel (2012) I will try to observe evidence of tax avoidance across whole region not only for single country. Also by including a several years instead of a single year with the highest number of observations I will be able to control for time constant differences between observations.

A goal of this thesis is not only to find evidence of profit shifting in eastern Europe but also to provide a small inside into why companies might want to shift their profit from domestic countries. Of course there is an obvious reason that companies want to save on tax payments by shifting some of the profits from high tax countries and therefore increase its profit. But there can be another reason that companies are trying to shift some of their income out of corrupt or politically unstable countries. An investigation of these motives is in similar paper either omitted completely or as it is for example in Fuest and Riedel (2012) it is only briefly touched but any rigorous analysis of these motives is still missing.

Outline:

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2. LIterature survey
3. Tax havens and profit shifting
4. Data description
5. Methodology
6. Regression results
7. Conclusion

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Author **Supervisor**

1 Introduction

Base erosion and profit shifting (BEPS) refers to tax planning strategies that exploit gaps and mismatches in tax rules to make profits 'disappear' for tax purposes (OECD, 2015d). These planning strategies are most commonly conducted by multinational companies (MNC'S). MNC's similar to other economic agents are trying to maximize their profits, but unlike many of them they may have at their disposal techniques to artificially manipulate their tax liabilities. This can provide MNC's not only with unfair advantage compared to other companies, which can disrupt competition and business market, but it can also seriously decrease tax income of a country. Taxation is one of the basic and most important sources of country's income and systematic reduction by MNC's can harm all its citizens. It may even undermine tax compliance of all tax payers including individuals, leading to further distortion of tax system. Because MNC's usually use cross border operations for profit shifting activities it may also disrupt the efficiency of investment allocation. These disruptions most notably harm less developed countries hindering them not only by reduction of tax base but also decreasing their potential growth (Fuest and Riedel, 2012).

With still increasing speed of integration there is a growing number of entities operating internationally while, corporate tax is still levied on domestic level. Interactions of MNC's with individual domestic tax systems can cause gaps and exceptions that MNC's can use for profit shifting. Although BEPS is very harmful to global economy there are many strategies which are not actually illegal. This is a result of certain obsolete tax laws which have not kept pace with development of economic markets into environment of global economic players and still increasing role of digital economies, intangible assets and risk management. The companies conducting profit shifting activities are not the only ones to blame. Another "culprit" encouraging profit shifting and creating appropriate conditions for it are countries, which set their tax laws very softly or even not imposing tax rules at all. We label these countries as tax havens. Tax havens are at a core of many profit shifting strategies where companies can stash their profits or unduly claim protection by tax

treaty, effectively decreasing their tax liability. As a result domestic countries where economic activity was conducted are deprived of tax revenues.

In recent years the need for decreasing and hopefully stopping BEPS has been recognized by world leaders who are trying to conduct first steps to achieve this goal, such as BEPS initiative by organization of economic co-operation and development (OECD) which was launched and is consistently supported by G20 (OECD, 2013). It is important to uncover and understand BEPS activities since not addressing this problem might lead to serious harms to both businesses and countries. In this thesis we will be examining profit shifting activities across eastern and south-eastern European region. Tax losses caused by profit shifting are especially harmful for developing countries where it is estimated, that the corporate tax revenues might be as much as 3 times lower than for developed ones (Crivelli et al. 2015). Yet because of often insufficient data availability, examining BEPS in developing countries may be very problematic. Most countries in eastern and south-eastern European are post-communist countries and they are not considered as developing anymore, however their economies are not considered as the most advanced either. By examining this region we might be able to study the nature of profit shifting similar to developing countries bypassing the problem of insufficient data availability.

Base erosion and profit shifting is most commonly attributed to MNC's making use of loose tax rules of tax havens. The main question is whether MNC's, especially those with tax haven connections, conduct profit shifting activities more than other companies. We will be using extensive firm-level dataset to find empirical evidence of profit shifting activities by MNC's in this region and try to investigate involvement of tax havens. After that we will be focusing on individual countries (possibly tax havens) to find out which of them are most seriously influencing tax distortion in eastern Europe. Finally we will be examining which tax havens are most harmful for individual countries.

The rest of this thesis will be organized as follows. Section 2 will briefly introduce some profit shifting strategies in order to provide theoretical basis for empirical study of profit shifting activities. We will discuss most commonly used strategies focusing mainly on transfer mispricing and manipulation of corporate structure. We will also

introduce a profit shifting strategy which is actually used in practise today by MNC'S. Section 3 will address the strategy of world leaders to combat tax avoidance through profit shifting activities. This strategy is summarized by the Action plan of OECD's BEPS initiative and we will by briefly introducing each of the 15 plans which are included in this Action plan. In section 4 we will provide a brief review of existing literature. Section 5 will be introducing data and methodology used in this study to provide evidence of profit shifting and investigating through which countries are these profits shifted. Sections 6 will render our results and section 7 concludes and provides possible extensions.

2 Profit shifting in theory and practice

In the last few decades there has been an increased speed of integration of markets and economies all over the world. With the increased level of integration of global economy the enterprises became more integrated as well. Nowadays international companies contribute by large portion to global economy and their importance is still growing. This increase in speed of integration and consequential rise of multi-national companies created new challenges to efficient tax collection. Taxation and system of its collection are one of the basic characteristics and responsibilities of sovereign country. Yet different approaches to taxation by each individual country may create ambiguities and therefore eventual opportunities for international companies to lower their tax obligation. Below we discuss why MNC's are most often linked with profit shifting activities, as well as most common strategies used by MNC's to provide theoretical foundation for methodology used for empirical study of profit shifting activities.

2.1 Profit shifting channels

The fact that company is operating in multiple countries creates a question to what tax laws should the company be subjected to. A company can then take an advantage of this ambiguity to artificially reduce its tax burden or shift its taxable income into different tax jurisdiction. The jurisdiction to tax basically deals with question of territorial and worldwide taxation. Territorial taxation means taxing income of companies both domestic and foreign, which originated in its territory, while worldwide taxation imposes tax on worldwide income for its residential entities. While no country employs one or the other in pure form, some form of territorial taxation is dominant in most countries. This leads to conflicts in different domestic systems and the situation might occur, that an item can be subject of two overlapping

tax systems[1]. As company tries to maximize its income, the item will be naturally taxed in jurisdiction which will be most beneficial to the company.

There are multiple strategies by which an international company can manipulate its tax obligation in order to be most beneficial for the company. One such strategy might be for example transfer mispricing. A multinational entity consists of several firms in different countries. There are many reasons for having an abroad subsidiary which does not need to have anything to do with tax liability of a multinational group, for example better resources availability, cheaper workforce and so on. There might be many day to day transactions between firms located in different countries while belonging into the same entity. The prices of these transactions are called transfer prices. The transfer pricing is actually quite common. For example it is estimated, that in US approximately 40% of all international trade is trade that occurs within multinational companies (Clausing 2003). While these transfer prices might be completely in line with international law, multinational company can use these transfer prices to decrease its tax liability (Hines, 1997).

Typically multinational firm can lower the price which is paid to an affiliate in a high tax jurisdiction for a transaction heading into the low-tax jurisdiction. If this price is lowered in order to manipulate a tax burden, it is labelled as transfer mispricing. To prevent transfer mispricing, the OECD has adopted so called Arm's length principle which states, that a transaction between any two subjects should be conducted as if there was no affiliation between the two. It might seem, that it would be easy to recognize transfer mispricing for tax avoidance purposes, since a mispriced good would be sold at significantly lower price within one multinational entity than market price. Yet there might be such a good for which there is no appropriate market to compare the price of a good. A prime example of such goods might be intangible assets like patent rights.

Another strategy used by multinational companies is called "thin capitalization" and it occurs when a capital structure is formed with debt rather than equity. This strategy

[1] There are cases where item does not fall to either of domestic tax systems. This occurrence is known as double non-taxation.

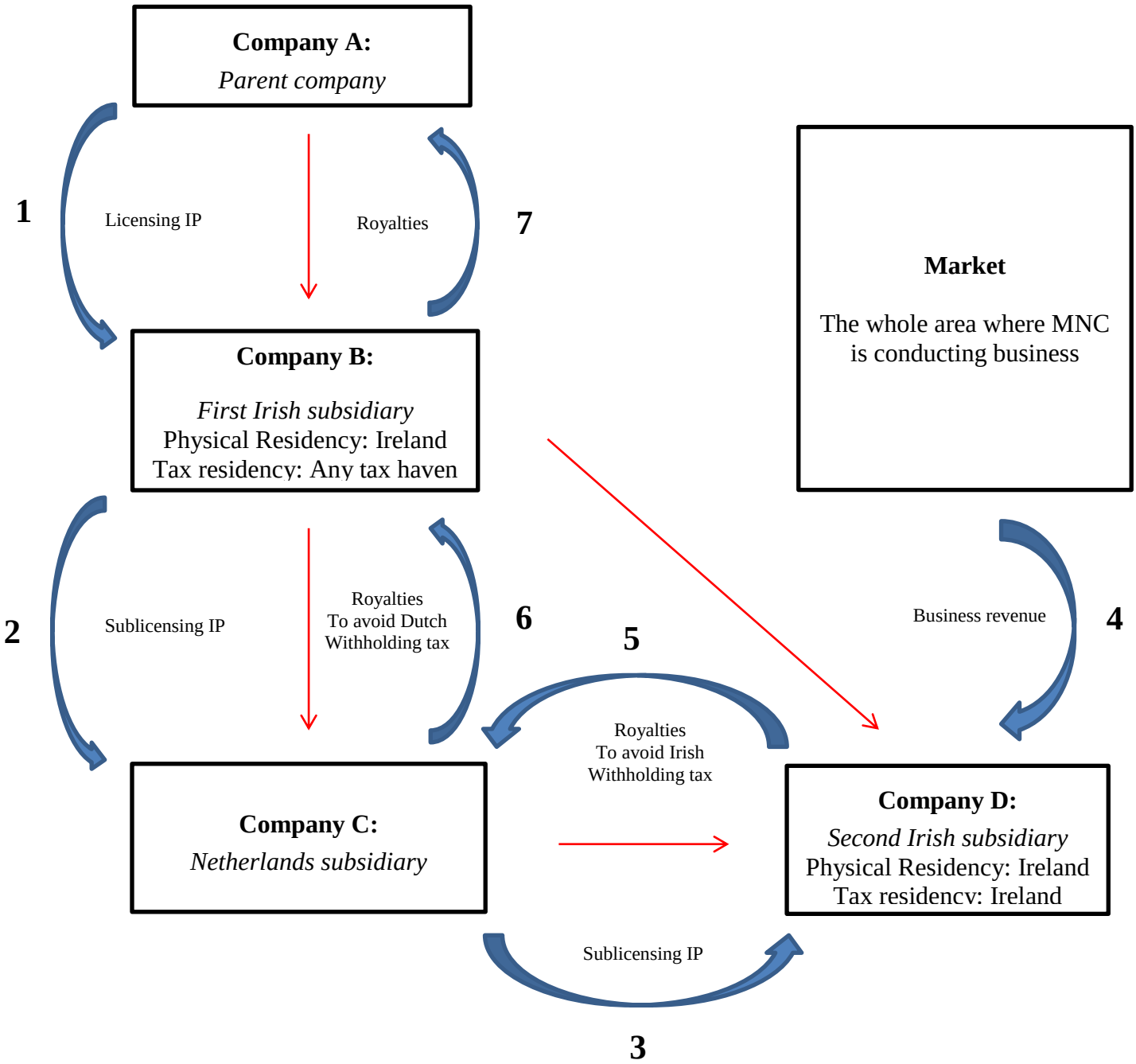
builds on the fact that debt and interest payments are tax deductible. If a company in a high tax jurisdiction takes a loan from an affiliate in low tax jurisdiction, this company can then deduct interest payments from its profits and hence decrease is tax liability (Mintz and Smart, 2004). This encourages affiliates of multinational company in high tax locations (very often parent companies) to hold much higher debt level than necessary.

Similar to the thin capitalization, differences in tax rules between countries can seriously affect the decisions about profits within multinational company. The profits of a subsidiary can be either reinvested or used as a payment to its parent company as dividend. There is significant empirical evidence (see Hines, 1997) that for companies in low tax rate locations holds, that they will most likely reinvest profits and dividends will be remitted. Because the payment of dividends is optional, we cannot consider this as tax avoidance behaviour per se but it is another way of corporate tax distortion through placement of an affiliate in low tax jurisdictions.

2.2 Double Irish with Dutch Sandwich

Now we can take a look in bigger detail on one specific tax avoidance strategy which is called “Double Irish with Dutch Sandwich”. It is used to move revenues from both the domestic country, where intellectual property was created, as well as from foreign countries, where sales actually take place into third low tax jurisdiction or tax haven. For better understanding, the whole scheme can be reviewed in figure 2.1. Let us imagine that we have a technological company in certain high tax jurisdiction for example in US (Company A). This company can establish a subsidiary in Ireland, however although this subsidiary physically resides in Ireland, it will have tax residence in different low tax location, for example British Virgin Islands, Seychelles or Singapore (Company B). This is possible because Irish tax law allows tax residency of a company to be where its management is based and not where it is actually located. This subsidiary will establish another 2 subsidiaries, one in Netherlands (Company C,) another one in Ireland with tax residence in countries, where they were incorporated (Company D).

Figure 2.1: Breakdown of Double Irish with Dutch Sandwich



Notes: The red arrows represent ownership structures while the blue arrows represent the flow of funds.

The parent company will licence its intellectual property, let us say software, to the first Irish subsidiary (Company B) which in turn will sublicense this intellectual property to the Dutch subsidiary (Company C). This Dutch subsidiary will again pass

the licence to the second Irish subsidiary (Company D). The licenses can be sold at a very low price using transfer mispricing since this case does fall under intangible asset, for which it would be extremely hard maybe even impossible to apply the Arm's length principle. All the revenues generated from the original software will come to the second Irish subsidiary (Company D). This company will pay royalty fees (very generous ones) for using this license to a subsidiary in Netherlands (Company C), who in turn pay royalty to the tax haven resident Irish subsidiary (Company B). Royalty payments are tax deductible in both Ireland and Netherlands hence the taxes paid both by the second Irish subsidiary and Dutch company (Companies C and D) will be substantially decreased. Most of the income will end up through royalty payments in the first Irish subsidiary (Company B) and therefore under no or very generous law of tax haven. The inclusion of Dutch company (Company C) is simply to avoid the withholding tax in Ireland through bilateral tax treaty between Ireland and Netherlands. It would be impossible to move the profits between the Irish subsidiaries because of withholding tax, but using a Dutch subsidiary the withholding tax is bypassed.

This strategy allows a company to outsource most of its profit to low tax jurisdiction of choice. An example of company that uses this scheme is Google. Its headquarters in Dublin controls profits from the whole Europe and for example Australia (McClure et.al. 2016) and then, using holding in Netherlands to avoid withholding tax and another Irish holding with tax residency in Bermuda, to avoid most of the taxation altogether. Another company using this scheme is Apple but instead of deducting royalties from profits it reinvests these funds into manufacturing process. Although named after Ireland and Netherlands this scheme can be utilised in any two countries which fulfil required tax conditions. In Europe it can be for example Switzerland and Luxembourg where Luxembourg serves as a country for avoiding Swiss withholding taxation.

As we can see the tax avoidance structure might be rather complex. Discussed strategies are only the most common ways how to shift profits. The more unorthodox strategies might not yet been revealed and might be results of anti-avoidance measures of individual countries. Limiting these strategies and preventing BEPS however cannot be achieved by individual countries hence implementation of more

comprehensive and effective system is in order. This system should provide countries with domestic and international instruments that will better align rights to tax with economic activity (OECD, 2013) and most importantly should be implemented on a global level, not only on the level of individual countries.

3 Addressing base erosion and profit shifting

Base erosion and profit shifting has become a widely debated issue in last several years. The fact that tax avoidance and tax evasion of multinational corporations is a serious problem, that can hinder development of both developed and developing countries, has been identified and acknowledged not only by academics, but by world leaders as well. In June 2012 the G20 leaders expressed concerns about base erosion and profit shifting and the need for its prevention. In February 2013 the Organization for Economic Co-operation and development (OECD) published a report *Addressing base erosion and profit shifting.* In June 2013 the first action plan by OECD was introduced to suggest how to deal with these issues. The main topic was to establish international coherence of income taxation since most of the common practices come from wildly different domestic tax laws in various countries. In October 2015 BEPS final action plan which includes 15 in depth reports for each action introduced by OECD was presented. All 15 actions are characterized according to OECD (2015) into several categories:

Agreed minimum – Actions 5,6,13 and 14
Reinforced international standard – Actions 7-10
Common approaches and best practices for domestic law – Actions 2, 3,4,12
Analytical reports – Actions 1, 11 and 15

3.1 Agreed minimum

Minimum standards were agreed in particular to tackle issues in cases where no action by some countries would have created negative spill overs (including adverse impacts of competitiveness) on other countries (OECD, 2015d). This minimum standard should provide similar tax conditions for all countries. The key areas are addressed, particularly fighting harmful tax practices, preventing treaty shopping, improving dispute resolution and providing country by country reporting.

The first action in minimum standrard is Action 5 *Countering Harmful Tax Practices More Effectively, Taking into Account Transparency and Substance* is looking mainly into two areas: Preferential tax regimes and improving transparency of tax payments through exchange of information on certain rulings. Preferential tax regimes particularly intellectual property (IP) regimes are one of the key areas used for profit shifting. In theory every country can have different rules on taxing intangible assets such as patents, software usage etc. This allows having different effective tax rate for income that comes from any activity, which can be labelled as resulting from intellectual property. As a part of this action 43 preferential regimes, out of which 16 were IP regimes, were reviewed and found insufficient to prevent profit shifting through this channel. Instead a nexus approach was chosen to be the best solution and it was created especially as an answer to IP regimes. Because IP regimes are created in order to encourage R&D spending, a company will be eligible to use IP regimes only if it really did produce appropriate activity in R&D to earn IP income. The nexus approach can be used not only for IP regimes but for any preferential regime, where enough activity was incurred, in order to grant a tax benefit with expenditure being a proxy for activity. Improved transparency should be achieved through compulsory exchange of information on certain rulings, for example ruling on preferential regimes, conduit and permanent establishment rulings or cross boarded advanced pricing arrangements. In practise there will be much stricter rules on benefiting from preferential tax regime. If a company will be ruled as fulfilling all conditions it will get a guarantee of benefiting from preferential regime for 5 years to provide stability for the company for medium term. But under this regime country will be required to provide information on why a preferential regime was allowed.

Action 6 *Preventing the Granting of Treaty Benefits in Inappropriate Circumstances* as the name suggests is to limit tax avoidance through abuse of bilateral tax treaties between countries, especially on treaty shopping. Treaty shopping refers to practices of creating such multinational structure of business to take advantage of tax treaties available in certain jurisdiction. For example let’s say that a company in home country A has subsidiary in country B, generating significant income with which the home country A does not have any tax treaties beneficial to parent company. Parent thus establishes an entity in third country with which the country does have beneficial tax treaties in order to minimize its tax obligation against home country. This goal is

to make changes to OECD Model Tax Convention such that every country would provide at least minimum level of protection against treaty abuse.

The minimal level of protection would entail implementing one of two solutions. The first one is inclusion of principle purpose test (PPT) which is a general tax rule based on principal purpose of transactions or arrangements which states, that treaty benefits will be granted only to those transactions or arrangements which will have the same purpose as the treaty itself. The second one is limitation-on-benefits rule (LOB) which adds additional safeguards to every treaty in order to provide these benefits only to entities that meet certain conditions (for example enough activity or ownership structure in certain treaty bound country). These conditions will be clearly defined in OECD Model Tax Convention. Because LOB rules are specific to each treaty it would have to be combined either with general PPT rule or weekend version of PPT rule, which deals with conduit financing arrangements (situations where an entity entitled to a treaty benefits acts as a conduit for payments from other countries).

Action 13 *Transfer Pricing Documentation and Country-by-Country Reporting* contains specific standardized practices of how transfer pricing will be monitored and in what form should companies report their intra-firm transfer activities. The companies will be required to provide 2 reports. First of them is master file which will contain high level global information about business and transfer pricing policies conducting by the whole international company. This master file will be available to every relevant tax jurisdiction. This file will be supplemented by local file which would contain detailed information about transactions in each jurisdiction, for example about amounts of moved assets and analysis of pricing of these assets. A company will have to provide a separate local file for each country in which it conducts any business. For large MNC's whose annual revenue across the whole group is equal or higher than EUR 750 million, there will be additional requirement to provide annually country by country report. In this report there will be information about revenues, before tax profits, tangible assets, number of employees and other similar business relevant information for each jurisdiction. Together these three documents will help tax administration to assess transfer pricing and redistribute audit funds more efficiently. This information however will be available only to

proper tax administrations and not to general public or academics. New safeguards will be imposed to prevent leaks of this information.

Last action in agreed minimum is Action 14 *Making Dispute Resolution Mechanisms More Effective* recognizes the need for swift resolution of disputes involving mutual agreements and prevention of uncertainty to tax payer that it might cause. This action tends to improve existing mechanism of dispute resolution the mutual agreement procedure (MAP) described in Article 25 of the OECD Model Tax Convention (OECD, 2014). Countries accepting BEPS have agreed to improve their approach to the resolution in treaty disputes by implementing at least minimum standard, which includes resolving cases in timely manner and actions taken with respect to MAP are implemented in good faith. Improving administrative process to prevent disputes and accelerate resolution and access of involved tax payer to MAP when requested. Unlike all other previous actions, this action does not bring any concrete guidelines for improvement and prevention of BEPS and in author's opinion is more or less only symbolic.

3.2 Reinforced international standard

Actions that belong under reinforced standard should build on the minimal standard and provide guidance and recommendations in more advanced tax practices such as transfer pricing or exceptions using permanent establishments. Ihe first action dealing mainly with permanent establishments is Action 7 called *Preventing the Artificial Avoidance of Permanent Establishment Status.* Permanent establishment (PE) status is a basis on which an obligation on tax is created, hence if a company has a controlled entity without PE status in foreign country, activities conducted by this entity are not taxable in said country. One such strategy with which this action is concerned, is commissionaire agreement, which allows one entity to sell products of another company in foreign state under its own name but on behalf of the original company. This agreement does not need a PE status for the selling entity and thus its income is not taxable in the country where products are sold. The taxable income is only a commission for the sales, but these can have strange form if both companies are part of one multinational group. Similar strategies are conducted to abuse exceptions in OECD Model Tax Convention. These exceptions apply if either

contracts are negotiated in one country and finalised in another or if those contracts are finalised in one country but the finalization is done by "independent agent". Then under exception in OECD Model Tax Convention PE status does not form.

Different strategy entails dividing business into smaller units typically referred to as a "fragmentation of activities". While a PE status arises for each unit, some unit can be labelled as "preparatory or auxiliary" for which special tax concessions are permitted. Thus the tax base is reduced simply by administratively splitting up a business into smaller parts, leaving the real organization unchanged. There are more strategies how to avoid PE status or use exceptions for tax avoidance. Action 7 should change and unify PE status in OECD Model Tax Convention as they can be slightly different per tax treaty. Also for each exception a PPT rule from action 6 should be applicable.

Actions 8-10 *Aligning Transfer Pricing Outcomes with Value Creation* are dealing with transfer pricing which is recognised as one of the biggest source of reallocating assets within a multinational group. The key instrument for transfer pricing is the arm's length principle which states, that every transaction should be priced as if it was conducted between two independent entities. The arm's length principle was firstly set out in 1979 then revised in 1995 and 2010 (OECD). Although it has proven useful, it is also prone to manipulation for tax purposes hence new revision is in order. Transfer pricing is in need of new revisions in 3 areas. Action 8 deals with first area, which is transfer pricing involving intangible assets, action 9 deals with second area, which is transfer pricing based on overvaluation of risk and misallocation capital. Lastly action 10 deals with transfer pricing using other high-risk areas for example transfer re-characterization or suspicious profit splits. The main guideline for each area is that each transaction will be examined not only based on contractual relationship between each entity but also with conduct of those entities. Thus profits will be allocated to the companies which actually perform the activities that lead to profit. In line with this basic guideline action 8 suggests that ownership alone does not guarantee right to profits from intangibles. The parts of the group (individual companies) functionally responsible for intangibles will be entitled to appropriate profits despite ownership structure. Also better data collection will be implemented to deal with hard to value intangibles (part of action 13).

Business uncertainty can be a source of transfer mispricing due to inappropriate risk evaluation. Thus company can for example shift assets through over evaluation of risks of these transactions while business operations remain unchanged. Action 9 suggests transfer pricing based on risk allocation will be governed by basic economic principle that every profit generating action is generating uncertainty and therefore risks and higher risks warrant generating higher expected returns. Therefore risks which are contractually assumed by company, which cannot in fact undertake these risks, will be allocated back to the party that actually maintains control over these risks. Also transactions where no actual risks are assumed must be priced by zero or risk free return. Lastly action 10 will deal with transactions that do not make any commercial sense. For example allocation of benefits to those members of a group that does not contribute to the business activities. This should limit so called "cash boxes" which are parties with high capital flow but with missing or very little business activity.

3.3 Common approaches and best practices for domestic law

In several areas such as hybrid mismatch arrangements or interest deductibility countries have agreed to implement general policies rather than series of specific steps. In these areas, they are expected to converge over time through the implementation of the agreed common approaches (OECD, 2015d). After implementation in practice, some of these common approaches may be considered becoming minimum standard.

Action 2 named *Neutralising the Effects of Hybrid Mismatch Arrangements* is probably the most "practically" aimed report in BEPS action plan. It tries to deliver a set of rules and recommendations to deal with situations, where there is exploitation of gap between two or more jurisdictions, to achieve double non-taxation including long-term deferrals. These exploitations are widespread and result in a substantial erosion of the taxable bases of concerned countries. They have an overall negative impact on competition, efficiency, transparency and fairness (OECD, 2015b). The action plan consists of 2 parts. The first part tries to deliver recommendations to domestic tax laws, more specifically to deny ambiguous deductions for company when dealing with controlled foreign company (CFC) in order to unify treatment of

tax deductions. The ambiguous treatment of tax deductions can cause undesirable outcomes. One of these is as deduction/not inclusion outcome, which occurs, when transfer is included in tax deductions for one country, while not included in income in other (this outcome might be direct through mismatch of 2 tax locations or indirect which is caused by inclusion of third jurisdiction).Second is double deduction outcome, when payment is deductible more times because of different treatment of more tax jurisdictions.

These recommendations have to be applied by all parties otherwise they are not effective. To remedy this situation, these recommendations also contain secondary rules. These rules enable one party (in this case country) in this transaction to require deductions to be included in taxable income and/or deny duplicate tax deduction. Part 2 of this action is focused on ensuring, that these hybrid entities and transactions, as well as for example dual resident entities, are not included in bilateral tax treaties that would circumvent changes to domestic tax laws. The most important element of second part of this action is to change OECD Model Tax Convention, whose main purpose is to guide negotiations of bilateral treaties between countries. It is important to note that as the name of this action suggests it is concerned only with mismatches that arise from creation of hybrid entities or using hybrid transactions. It does not deal with other inter-country mismatches, such as foreign currency fluctuations, as according to OECD they are attributable to differences in the measurement of value of payment.

Action 3 *Designing Effective Controlled Foreign Company Rules* is designed to improve dealing with companies that have subsidiary in foreign country, because it is a building block of most corporate tax avoidance strategies employed today. The first implementation of any rules regarding CFC's was in 1962 and many countries in OECD are actually using them, yet OECD does not find them to be satisfactory in nowadays internationally intertwined corporate structures (OECD, 2015c). Action 3 is trying to significantly update CFC rules. It starts with definition of CFC. First of all CFC should be defined as an entity where residents of domestic (companies, shareholders etc.) country hold at least 50% or more of the company in foreign country. As CFC can be also considered other entities than just companies, for

example permanent establishments or some hybrid entities that would raise concern about BEPS behaviour.

Definition, computation and attribution of tax burden should also be revised. Nowadays CFC rules apply only for certain types of income. In the updated report there are new approaches to include all income that could cause profit shifting concerns such as dividends, interests, royalties, insurance income or income from sales and services. The attribution should be tied to the ownership and influence structure and the income of CFC attributed to the shareholders should be computed using a parent company jurisdiction. OECD recognises that tightening of CFC rules can lead to problems in tax collection. Therefore the new CFC rules should only be applied to those entities which are in countries, that has effective tax rate meaningfully lower than those of its parent company. Also a set of safeguards will be applied to prevent and eliminate double taxation through relief on taxation in one country if creation income was already taxed under different jurisdiction, which applied new CFC regime.

Action 4 *Limiting Base Erosion Involving Interest Deductions and Other Financial Payments* deals mainly with profit shifting techniques tied with manipulation of intragroup financing structure. This manipulation includes for example moving higher shares of MNC's debt into higher tax countries which is profitable, because interest on repayment of this debt is tax deductible. Also reinvesting income into opportune foreign subsidiary can be used for profit shifting. The main solution of this problem is introduction of fixed ratio rule, that would limit net interest deductions claimed by an entity to a fixed percentage of earnings before interest, taxes, depreciation and amortization (EBITDA) (OECD, 2015e). There are guidelines for setting up appropriate fixed ratio for each country, yet recommended ration is between 10% and 30%. For allowing exceptions for multinational entities which are highly leveraged from the nature of its operation, a worldwide ratio would be introduced to complement the fixed ratio. This would allow certain companies to deduct up to percentage of its worldwide EBITDA.

The worldwide ratio can be replaced by different group ratios which can be chosen by different countries and based on equity or assets held by multinational group. This

specific action is in author's opinion one of the weakest of the plan, since allowance of other group ratios can be source of ambiguities which can be exploitable for tax avoidance. There are also recommendations to allow exceptions for whole number of specific situations, for example interest on loans used to fund public-benefit projects or exceptions for companies with low level of interest expense. Also from the nature of industry for all companies that conduct business in banking or insurance sector, this action does not apply. This action should be revised before implementation to account better for different tax avoidance strategies based on intra-firm financial structure and to actually be applicable for all sectors.

Action 12 tries to increase transparency and data availability through *Mandatory disclosure rules* which should introduce clear, effective and flexible disclosure regimes. The main goal of these regimes would be providing tax administration with information about transactions and tax schemes early enough that they could be reviewed and possible suspicions tax activity caught in time. Another maybe more indirect goal would be to secure data for both government and researchers to uncover new ways to avoid taxation. The last goal is for the disclosure regime to function as discouraging mechanism. Engaging in profit shifting scheme might not be preferable if it must be disclosed or profitable enough to risk penalties imposed for not following disclosure regime. The disclosure regime should include imposing disclosure obligation on either promoter or taxpayer or both, introduction of hallmarks which would label every transaction for better orientation and faster disclosure requirement, mechanism to link disclosures to reveal inconsistencies (for example to link 2 disclosures of single transaction one disclosure being from promoter an one from client) and also introduce penalties for missing, wrong or incomplete disclosures to insure compliance. Also these disclosures should be available at time when tax schemes are constructed to allow timely intervention and prevent situations when tax avoidance is uncovered through audit many years after the scheme if ever.

3.4 Analytical reports

Analytical reports in Action plan do not bring any new policies, however they assist countries in evaluation of fiscal effects and impacts of BEPS actions and provide

them with analytical tools to do so. These reports also deliver pioneering work in certain areas such as tax policies for digital economy or technical feasibility of multilateral instrument to replace bilateral treaties.

Action 1 is called *Addressing the Tax Challenges of the Digital Economy*. The digital economy encompasses all markets based on information as communication technologies (ICT), which facilitate the trade of goods and services through e-commerce (OECD, 2012). According to European Commission it is the single most important driver of innovation, competitiveness and growth in the world. Digital economy is very quickly integrating into all markets and thus it presents some key features relevant for tax collection especially for Value added tax, where goods and services are sold to the end consumers directly from abroad. There were several proposals on how to deal with this challenge, for example by creating a special category of digital transaction for which the tax would be withheld. Yet in the end none of these proposals were accepted, mainly because of further expected development of digital economy. There are several results of the first action. Firstly it is to modify the list of exceptions to ensure, that it is not possible to benefit from these exceptions by dividing business activities among closely related enterprises in different countries. Secondly to modify the definition of permanent establishment to prevent artificial agreements in which sales of goods and services, provided by one company in multinational group, is treated as if it were provided by parent company. Lastly to augment transfer pricing in order to limit exploitation of intangibles by multinational groups. According to OECD (2015) digital economy and its business models do not generate unique BEPS issues, but some of its key features exacerbate BEPS risks. One might disagree with this assessment since all modifications seem to indicate reaction to specific tax avoidance scheme described in section 2.

Action 11 *Measuring and Monitoring BEPS* does not bring any new guidelines or recommendations to limit profit shifting, instead it plans to monitor existing BEPS and thus also evaluate performance of whole action plan. According to estimates from 2013 (OECD) between 4% and 10% of corporate tax income is lost due to BEPS. There are basic indicators of BEPS:

a) MNC’s face lower effective tax rates than domestic companies

b) Profits of affiliates of international groups are higher if there are located in low tax rate location
c) FDI is becoming more concentrated – the amount of investment into countries which have ration of FDI to GDP more than 200% is rapidly increasing
d) There is growing inconsistency between tax location of profits and country where the profits are actually created. This inconsistency is especially pronounced for intangible assets
e) Debt is concentrated in those affiliates of international groups which reside in higher tax jurisdiction (OECD, 2015j)

The measuring of BEPS is still a problem mainly due to relatively low data availability especially in less developed countries but with implementation of certain actions, data availability should be increasing (especially actions 12 and 13 which we will discuss shortly and also action 5 where one of the goals is to increase transparency of tax rulings).

Action 15 *Developing a Multilateral Instrument to Modify Bilateral Tax Treaties* similarly as previous action does not bring any recommendation or specific steps to prevent BEPS. At this moment it is an on-going work to create a multilateral instrument to supplement bilateral agreements to prevent double non-taxation and exploitation of these treaties for tax avoidance purposes. This instrument should be based on international law which contains examples of such multilateral agreements and final report on action 15 is exploring technical issues and potential obstacles to implement similar practice into tax laws. It is important to note, that any results from this action are not expected in foreseeable future as not much progress has been achieved from the first draft of action plan in 2014.

The BEPS initiative by OECD with approval of G20 is still ongoing today and implementation packages for country-by-country reporting should continue until 2020 when in depth review of results should take place. It is important to note that as of June 2016, 83 countries are members of BEPS initiative and agreed to implement steps reviewed above to stop BEPS. Members include biggest world countries such as US, UK, China, Russia, Canada, Germany and many more, as well as several countries which have nowadays very benevolent tax laws such as Switzerland,

Luxembourg, Jersey or Honk Kong. Unfortunately and unsurprisingly “classical” tax havens such as Virgin Islands, Seychelles or Bermuda are not participating.

4 Literatue review

While the OECD initiative started relatively recently academics tried to identify profit shifting strategies much earlier. There is growing number of studies and methodologies to provide evidence of profit shifting and estimate its impact and subsequent losses to tax collection. These estimates and evidence will be crucial for determining whether the BEPS initiative is successful, because if so, evidence of profit shifting activities should naturally decrease. In this section we will discuss different methodologies of estimating profit shifting, particularly the main dichotomy whether to use macro or micro level data. We also provide estimates of losses due to profit shifting to stress the importance of this topic.

4.1 Evidence and impacts of profit shifting

One of the early estimates of losses due to profitshifting is by Oxfam (2000), who uses foreign direct investment (FDI) into certain countries and World Bank's estimates of returns FDI and calculates the tax base that should be paid. Then he identifies the gap between these calculated taxes and taxes reported in real data as tax loss due to profit shifting. In the end the estimated loss due to profit shifting is 50 billion US dollars per year out of developing countries. Clausing (2003) focuses more on empirically identifying profit shifting instruments. He analyses monthly US trade prices between years 1997 – 1999 and finds a statistically significant relationship between country's tax rate and prices of intra-firm imports and exports within this country. He finds that the lower the tax rate of certain country, the lower are intra-firm export prices in this country and conversely the higher are import intra-firm prices. These findings are evidence of transfer mispricing within one MNC in order to avoid taxation. Another study that analyses international trade, more precisely import and export transaction is, by De Boyrie, Pak, & Zdanowicz (2005), who focus on trade transaction between US and Switzerland from 1995 to 2000. They choose this particular setup, since in January 1998 there were changes in anti-money laundering laws in Switzerland. The international trade transaction shows significant

outflows of capital out of Switzerland after the new laws were issued, supporting the evidence of trade mispricing strategies. There are more studies focusing on studying tax avoidance through trade mispricing for example Hogg et al. (2009) or Zdanowicz (2009).

As trade mispricing is not the only tax avoidance strategy some studies pay attention to profit shifting through corporate structure, especially through debt manipulation. Buettner and Wamser (2007) use data provided by Bundesbank on large part of German multinational companies for the period of 9 years. They found that a debt structure of multinational company can be predicted according to tax differences for affiliates of this company. Although this relationship is apparent, interestingly enough implied tax revenue losses were not as serious as one might expect, suggesting that costs needed for changing a debt structure of multinational entity are quite large and often outweigh additional profits gained from profit shifting. Similar results were also found by Huizinga, Laeven and Nicodéme (2008) who showed that corporate debt policy indeed not only reflects domestic corporate tax rates but also differences in international tax systems. A special case of transfer mispricing can be achieved through manipulation of intangible assets. The evidence of these activities comes from Dischinger and Riedel (2008) who found that the lower subsidiaries' tax rate relative to other subsidiaries, the higher the intangible asset investment.

Among more recent studies we can mention for example Crivelli et al. (2015) who uses panel data from 173 countries over period of 33 years to explore profit shifting with a special focus on developing countries. The main idea in their model is estimating a profit gained by countries from taxation, if the spillover effects of tax havens were to be eliminated. They find that global losses on corporate taxes due to tax avoidance can be up to 600 billion US dollars and spillover effects from tax havens are more profound for non-OECD countries. Another recent influential study is a World Investment Report by UNCTAD (2015). Similar to early studies they use FDI to estimate impacts of BEPS. First they establish the fiscal contribution of MNE's in order to get a baseline on possible scope of taxes to be avoided. Then using an Offshore Investment matrix they analyse patterns of outflow of investment from certain country into another. The big advantage of this approach is that it can be focused on developing countries for which the scope of BEPS is much harder to

estimate. Among other they analyse how much FDI flows out of developing countries through offshore financial centres and tax havens. UNCTAD (2015) shows that rate of return on foreign direct investment in developing countries is much lower for investment derived from tax havens which suggests profit shifting activities. They also estimate that losses in developing countries from tax havens can be up to 450 billion US dollars.

4.2 Studies using micro level data

Although there is merit to both approaches, in recent years there is a growing popularity of finding evidence and estimating effects of BEPS using micro rather than macro level data i.e. studying consolidated data from individual firms, instead of for example FDI from one country to another as Oxfam (2000) or more recently UNCTAD (2015). One of the advantages of micro data is that it is less prone to give rise to endogeneity problems in the estimation strategy (Fuest and Riedel, 2012). In the past this analysis was almost impossible simply because such dataset was very hard to collect. One of the first attempts to create such dataset was by Baker (2005) who conducted interviews of over a 500 companies in 11 countries and focused mainly on trade mispricing. He reports that the interviews confirmed misuse of import and export in of developing countries to be common practice. He estimated that almost 50% of transactions out of Latin America are mispriced. Unfortunately Baker ensured anonymity in all his interviews hence his results could not be replicated.

Since then, due to globalization and improvement of information technologies, a number of commercial and non-commercial data sources have become available. Fuest and Riedel (2012) review several databases where detailed information about accounting, finances and ownership of companies from all over the worlds is available such as ORBIS database, COMPUSTAT, BEA (Bureau of economic analysis) or MiDi (Deutsche Databank of Direct Investment) . They find ORBIS database to be best suitable for estimating profit shifting as well as Cobham et al. (2014) who reports, that it is the largest commercially available database with company balance sheet data in the world. Both these studies then use data from

ORBIS database to examine corporate taxation. Cobham et al. (2014) uses detailed firm data to calculate losses associated with transition to unitary tax system all over the world, resulting practically in the end of profit shifting activities by multinational groups. They found that global switch to unitary tax systems would result in reduce of global corporate tax base by 12%. On the other hand it would shift revenues more to developing countries where they are very often most needed. Fuest and Riedel (2012) then use the ORBIS database to estimate whether MNCs with tax haven links conduct more profit shifting activities than those without these links. On large dataset of firms from East Asia driven mainly by companies from China they found a significant evidence of these practises. Another study that uses ORBIS database for examining tax avoidance practises is by Maffini (2009), who uses data from 15 countries from 2003 to 2007 to estimate the effect of tax haven operations on tax liabilities of multinational groups. He finds that at mean an additional subsidiary located in tax haven reduces tax liability over total assets for the whole international group by 7% in the short run and by 7.4% in the long run.

From more recent studies using the ORBIS database we can name for example an estimate of BEPS impacts that were part of *Action 11* of BEPS Action plan (OECD, 2015j). This study tries to estimate corporate tax rate losses, as well as impacts of different tax systems between countries and differences between taxation of larger and smaller companies. They find that there is on average gap of 4%-8.5% in effective tax rate between larger multinational companies and domestic companies. They also report that global revenue losses due to BEPS are between 100 – 104 billion US dollars annually which translates to 4% - 10% of global annual corporate income tax.

4.3 Profit shifting in eastern Europe

One of the most recent studies for eastern Europe was conducted by Johannesen, Tørsløv and Wier (2016). They use ORBIS database to study aggressive profit shifting activities by multinational groups to find reasons why profit shifting hits especially developing countries. They found that the sensitivity of reported profits to profit-shifting incentives is negatively related to the level of economic and institutional development. This might explain why developing countries are often

setting very low corporate tax rates. They also provide conclusions concerning region studied in this thesis. They find that a 10 percentage points decrease in foreign affiliates' tax rates increases the likelihood that the corporation reports zero profits by 4 percentage points in eastern Europe, but only by 1.5 percentage points in western Europe. The same decrease also causes decrease reported profits by 10–20 per cent in eastern Europe, while in western Europe this decrease is far lower and also mostly statistically insignificant. These results show that eastern European countries are much more exposed to profit shifting activities than western Europe.

There is more evidence of profit shifting activities countries from eastern Europe. Ledyaeva et.al (2013) examines round trip investment in Russia. Round trip investment refers to a strategy to move capital abroad in order to bring them back as a FDI. They study this phenomenon to uncover more corrupt region in Russia, yet one of the findings relevant to this study is that this strategy is using mostly Cyprus and British Virgin Islands to move this investment. Furthermore Valdivieso (2013) finds that there is evidence of inwards profit shifting via transfer pricing manipulation, where MNC's consistently display higher levels of profitability than those companies, which are locally controlled. There is also significant evidence of inwards profit shifting via capital structure decisions by Polish MNC's.

Last study that we will be mentioning is study by Janský and Kokeš (2015). This study builds on methodology of Fuest and Riedel (2012) to find evidences of profit shifting activities in certain countries. They expanded the identification strategy of Fuest and Riedel and found evidence of profit shifting activities in Czech Republic, mainly through manipulation of corporate debt structure. We will be using methodology of Fuest and Riedel and ORBIS data as well but we will be applying it to panel data to account for time, rather than examining only one year. Also unlike most studies we will not stop by just finding evidence of profit shifting. We will also be examining profit shifting in more detail to find out which countries are used the most for these practises.

5 Methodology and data

In this section we will be describing data and methodology used in this thesis. The first part discusses collected data and all modification conducted to create final dataset. Because we are focusing on tax havens and there is no clear definition of tax haven, we also discuss identification of tax havens. In the second part we describe methodology used for empirical testing of profit shifting activities. We discuss models used in our regression analysis in detail, as well as any econometric issues that might arise.

5.1 Dataset

For our analysis we will use data which were obtained from an ORBIS database provided by Bureau van Dijk. This database contains detailed financial and ownership information about individual companies from all over the world. In our analysis we will be focusing on eastern and south-eastern part of Europe. Concretely in our data there will be companies from these countries: Albania, Bosnia and Herzegovina, Bulgaria, Belarus, Czech Republic, Estonia, Croatia, Hungary, Latvia, Lithuania, Montenegro, Macedonia, Poland, Romania, Serbia, Slovak Republic, Slovenia , Ukraine and although it is only partly in eastern Europe we will include also companies from Russia.

In our dataset we will be using only companies which are in ORBIS database listed as very large, large or medium. Companies labelled as small will be excluded. If we say multinational company, most people will naturally imagine a giant global company. This prejudice is not without merit. We can expect that in the sample of larger companies there will be higher number of MNC's with or without tax haven connections and among smaller firms there will be mostly domestic companies. We need a control group of domestic companies, however this control group can be constructed robust enough without small companies. To keep control group in appropriate size we have chosen to limit our selection in terms of company size.

The division by size categories is using following rules: Very Large companies are companies that have Operating Revenue ≥ 100 million EUR or Total assets ≥ 200

million EUR or Employees ≥ 1,000. Large companies are companies with Operating Revenue ≥ 10 million EUR or Total assets ≥ 20 million EUR or Employees ≥ 150 and company is not listed as Very Large. Medium companies exhibit Operating Revenue ≥ 1 million EUR or Total assets ≥ 2 million EUR or Employees ≥ 15 and company is not listed as Very Large or Large. The company is considered as small if it is not in any other category.[2] Data from ORBIS database are provided from both public and private sources, hence the coverage may be varying for different countries. Since the included region as a whole can be described as developed, the data coverage for our analysis should be sufficient. The difference in number of included companies per country will be naturally indicated mainly by size of each country and its economic development.

Data coverage of ORBIS database and distributions into size categories is important because it provides the first challenge in creating a dataset which will be eventually used for our final analysis. In our full dataset we have at least some information about a total of 971,016 companies and information about them for the priod from 2006 to 2013. In the dataset as it is, there is a large number of missing values and so it still has to be adjusted. The coverage and selection according to size distribution is the reason for these missing values. Either there is a bad coverage of information for some company, which leads to inapplicability of this company in our analysis, because we do not have enough information about it – for example all financial information about the company is missing and we have only ownership information.

[2] To be complete in our description of distribution of companies according to size there are several more rules: Companies are excluded from category Very Large, Large and Medium if their ratios of Operating Revenue per Employee or Total Assets per Employee below 100 EUR. Company for which Operating Revenue, Total Assets and Employees are unknown but have a level of Capital over 5 million EUR are included into the Very Large category.

Company for which Operating Revenue, Total Assets and Employees are unknown but have a level of Capital between 500 thousand and 5 million EUR are included into the Large category.

Company for which Operating Revenue, Total Assets and Employees are unknown but have a level of Capital between 50 thousand and 500 thousand EUR are included into the Medium category.

Or the quality of coverage has actually changed during our examined time period, hence we have all the information we need but not for the whole time period. Another reason for missing values might be in the size of a company. It is reasonable to assume that there will be at least several companies out of our total of 971,016 that did not exist for the whole period, as it is not guaranteed by selection of ORBIS database. It stands to reason that in the category of Medium sized companies there will be more such companies.

Table 5.1: Distribution of firms among countries

	# of companies	MNC	Tax haven link
Bosnia and Herzegovina	6,023	737	70
Bulgaria	29,850	2,119	707
Belarus	2,353	87	2
Czech Republic	35,397	7,636	1,833
Estonia	5,153	1,928	248
Croatia	10,716	1,675	172
Hungary	32,897	2,073	180
Lithuania	9,904	1,267	127
Latvia	10,145	2,341	328
Montenegro	299	57	5
Macedonia	3,453	196	17
Poland	59,495	9,739	1,632
Romania	44,326	9,627	1,929
Serbia	11,420	1,964	423
Russia	303,817	13,890	8,097
Slovenia	18,802	1,208	124
Slovak Republic	18,499	5,386	506
Ukraine	72,910	3,072	1,409
Total	661,841	65,002	17,359

Source: Author, Orbis

The size and coverage discussion raises a question how to deal with this problem, because we cannot leave the dataset as it is, as it would be too seriously unbalanced. One way is to simply drop all the missing observations and get a balanced dataset. Another way to go is to drop just some of the data to arrive at still unbalanced, but not too seriously unbalanced dataset. After some consideration I decided to work with the unbalanced dataset. The main reason boils down back to data coverage, since dropping missing observations for all years will cause loosing several countries and the dataset will not be unbalanced enough to cause any issues in our analysis. In line with methodology used in Fuest and Riedel (2012) and Janský (2015) to avoid too much contamination of our data by outliers we have dropped the observations which have pre-tax profitability below -1 or higher than 1. Also we have dropped observations where total assets are negative. As their number was not high, it will not qualitatively affect our results.

For a company to be useful for our analysis we need both ownership and financial data, hence next modification in creating our dataset was to drop those, for which we do have one or the other but not both. The final modification was to drop those companies for which we do not have an observation in at least one examined year for every required variable. We are now working with 661,841 companies and the country distribution of this dataset can be examined in table 5.1. The first thing to note is that all observations for Albania were unfortunately dropped. After examining this country I discovered that large portion of financial data (surprisingly not ownership data) for Albania was extremely poorly represented in original data.

Unsurprisingly we have the most companies from Russia which is no doubt caused by size of this country. The second and third countries with the most data are Ukraine and Poland, which is little surprising especially for Ukraine but probably caused by quality of coverage of ORBIS database. On the other hand countries with least number of observations are Montenegro, Macedonia and Belarus. Once again the number of observations for Belarus might not respond to the size of country, but it is caused by coverage of ORBIS database and subsequent dropping. The number of observations might be low even negligible for Montenegro, yet it will not cause any problems in your analysis so there is no reason to exclude these observations. In the

rest of the countries there is not one that would be somewhat unexpected and the numbers of observations are more or less balanced.

In table 5.1 we can also find distribution of countries which are MNCs and those MNCs with links to the tax havens. In total we are working with 65,002 MNCs of which 17,359 have a link to some tax haven. To identify whether company is MNC and have any links to tax haven we use ownership data for our companies. For every company in our dataset we have complete list of its documented subsidiaries (or their lack of) and for each subsidiary we have a country at which it operates and hence pays taxes. But company does not have to move its profits and assets to avoid taxation through subsidiaries but also through its owner. For each company we also have its documented Global ultimate owner and a country at which it operates. This way if a company has a subsidiary or an owner in different country than at which it operates, we consider it a multi-national entity. Then we check every one of these links whether it leads to a country considered as a tax haven or not. In the identification of tax haven we follow a methodology used in Janský (2015).

As Fuest and Rieder (2010) point out there might be a slight inaccuracy in our division of companies. It can be the case, that for example some subsidiaries for a certain country might be missing in our data and if this subsidiary happens to be from different country than out considered country, we would incorrectly classify it as a national instead of multi-national. In fact if we compare how many companies have been classified as multinational through downward link, meaning through subsidiary and how many through upward links, through owner, the upward link is dominant. This might be partially explained by the fact, that a lot of our considered companies fall into the category of medium and those companies might not establish subsidiaries as often as large or very large. But it is no doubt caused by some missing links as well. There may be missing links to other countries but if any link is reported we take it as given since we assume, that the ORBIS database might be incomplete but not wrong. Unfortunately this will bias the results against us and the result will be understatement of true effect.

Identification of tax haven is not an easy task, as there is no unified definition of tax havens. Fortunately among last few decades there have been a number of studies and lists that try to identify all tax havens. We will follow a methodology by Murphy

(2009) who uses 11 tax havens lists to track how these lists identify each country. Some of these lists are constructed by academics such as Irish (1982), or Hines et.al (1994), while other lists were prepared by global economic institutions such as OECD, IMF, Financial stability forum and others. While this meta-approach is definitely transparent, the age of lists used by Murphy ranges from 1997 to 2008. To keep our definition of tax haven more current we will use methodology of Janský and Prats (2015) who augment this approach by including a score of Financial Secrecy score from 2009 and 2013. This score ranges from 1 to 100 and if a country has a score 60 or higher it is considered as a tax haven by this measure. This way we have 13 indicators of tax havens. A country will be treated as a tax haven in this study, if it is identified as a tax haven by at least 7 out of these 13 indicators. The full list of tax havens can be found in the table 5.2.

Table 5.2: List of countries considered as a tax haven

Andorra	Jersey
Anguilla	Lebanon
Antigua and Barbuda	Liberia
Aruba	Liechtenstein
Bahamas, The	Luxembourg
Bahrain	Malta
Barbados	Marshall Islands
Belize	Mauritius
Bermuda	Monaco
British Virgin Islands	Nauru
Cayman Islands	Netherlands Antilles
Cook Islands	Panama
Costa Rica	Samoa
Cyprus	Seychelles
Dominica	Singapore
Gibraltar	St. Kitts and Nevis
Grenada	St. Lucia
Guernsey	St. Vincent and the Grenadines
Hong Kong S.A.R. of China	Switzerland
Ireland	Turks and Caicos Islands
Isle of Man	Vanuatu

Source: Murphy (2009), Janský (2015)

5.2 Methodology

We are trying to uncover evidence of profit shifting activities of MNC's and companies with tax haven connections as opposed to national companies and companies without tax haven links. For this we will be using identification strategy based on Fuest and Riedel (2012) and later also used and expanded by Janský and Prats (2014). The main point of this identification strategy is that MNC's and especially those with tax haven links, have much higher incentive and ability to use profit shifting practices in order to reallocate income out of their domestic countries into more opportune tax jurisdiction. We can expect that these companies will engage in profit shifting activities much more often than domestic firms. With data from ORBIS at our disposal we are able to create a map of ownership structure for every firm in our dataset and thus determine which firms are domestic, a part of multinational group or MNC with tax haven connections.

We will explore four main variables: pre-tax profitability, tax payments, average tax rates and debt ratio. Profitability is calculated as pre-tax profits divided by total assets. Comparing profits per unit of assets helps us to control for the size of company and it is used as a proxy for a tax base of a company. Next variable of interest will be tax payments, which again will be divided by total assets. Third variable will be average tax rate, which will be calculated as tax payments divided by profits. The last variable of interest will be long term debt ratio, which is defined as the ratio of long term debt to total assets. Long term debt is defined as all financing of leasing obligations which are due to period equal or greater than 12 months. All necessary financial information was extracted from ORBIS database. Pre-tax profits, tax payments, debts and total assets are all recorded in thousands of US dollars. The exchange rate for each year is at closing date for every reported year.

While looking for evidence of corporate tax avoidance we will be testing 2 main hypotheses. The first hypothesis is: MNCs with ties to tax havens report lower pre-tax profits and pay lower taxes than MNCs without ties to tax havens and all MNCs report lower pre-tax profits and pay lower taxes than national companies. The second hypothesis will be that MNCs especially those with connections to tax havens hold higher fraction of debt than national companies. If our hypotheses turn out to be true, we can consider it as a clear evidence of tax avoidance activities in studied

region. Lower tax payments are clear result of tax avoidance. Lower reported profits point to profit shifting, while higher debt ration points to manipulation of corporate structure.

One of the challenges of this identification is to account for potential selection of firms with different characteristics into different groups of countries (national, multinational) (Fuest and Riedel, 2012). There are several possible sources of heterogeneity which could compromise our results and which should be accounted for. For example as pointed out by Maffini (2009) in different domestic countries there might be different nature of multinationals. For example we might be expecting large multinationals in Russia, while in smaller countries there might be smaller and less internationalised groups. Other sources of heterogeneity might be for example size of company or industry, in which the company is operating. Strategies to solve these problems have been presented in earlier papers (e.g. Desai et al. 2006; Maffini, 2009). We will be presenting different specifications for regression in order to control for differences in companies' size, sector and country of origin.

Our methodology is based on the methodology developed by Fuest and Riedel (2012) and we are using several improvements and treatment of tax havens from Janský and Prats (2014). The fundamental difference in this study is that we are using a panel data, while both studies used cross sectional data. There are 2 main advantages which are resulting from the nature of panel data itself. First of all by including not only one but eight years ,we are increasing radically the number of observations which will result in more efficient estimation of our variables. Second by using panel data, we can control for variation of chosen variables in time and thus come to more revealing conclusions. We have 4 main variables of interest: pre-tax profitability, tax payments, average tax rates and debt ratio, therefore we will be using each of these as a dependent variable in its own regression analysis. For each dependent variable we will have several specifications in order to control for different sources of heterogeneity between companies.

In the first and the simplest specification on the left hand side we will have our dependent variable (one of four) and on the right hand side we will have constant and two dummy variables, one for the case we consider a company to be an MNC and

one for whether this company has any link to any country we considered as a tax haven. Hence our regression will look like:

$$y_{it} = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \mu_i + e_{it} \qquad \begin{matrix} i = 1,\ldots\ldots, n \\ t = 1,2,\ldots\ldots, 8 \end{matrix}$$

Where y_{it} is one of our dependent variable of choice, x_{1t} is a dummy variable for companies tax haven affiliation and x_{2t} is a dummy variable stating whether company is a multinational company or not.

The classical problem for panel data is whether to use a random effect or fixed effect estimator. In our case this choice is quite clear, because our two explanatory variables of interest are time invariant. In our dataset a company either is a part of MNC or has a tax haven affiliate for all observations or it does not. The classical fixed effect estimator is subtracting a mean of each predictor across all observation in time and in our case these observations are specific companies. For these time invariant variables this company-specific mean is the same and hence subtraction would yield 0 for each company. And since with fixed effect estimator it is impossible to estimate parameters of time invariant variables for the first specification we are using a random effect estimator.

The second specification will contain both explanatory variables from the first specification but in addition we will include a full set of dummy variables for each of our examined country which means 17 country dummy variables (we are excluding one to avoid dummy trap).

$$y_{it} = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} \; \beta_j c_j + \mu_i + e_{it} \qquad \begin{matrix} i = 1,\ldots\ldots, n \\ t = 1,2,\ldots\ldots, 8 \\ j = 1,2,\ldots\ldots, 17 \end{matrix}$$

Where all stays as in previous case but c_j is including time invariant country dummies. We will not be reporting the estimation results of these parameters, since they are included to control for heterogeneity between companies resulting from different country of origin and hence these parameters themselves are of no interest.

In the third specification we will keep all explanatory variables as in the previous one but now we will include a full set of industry dummies as well. For these we will use a Statistical classification of economic activities in the European Community also known as NACE. Although developed from 1970, we will use the latest classification which was revised in 2006. More on NACE classification can be found for example on EUROSTAT. Third specification therefore is:

$$y_{it} = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_j c_j + \beta_k n_k + \mu_i + e_{it}$$

i = 1,…..,, n
t = 1,2,….., 8
j = 1,2,……., 17
k =1,2,….., 86

Where n_k is full set of industry dummies. We will be using classification which divides any economic activity into 87 categories and hence we will be including 86 industry dummies (again excluding one because of dummy trap). As in the case of domestic country dummies, the parameters will be of no interest. Because all the dummy variables for country and industry are again time invariant we will use random effect estimator for second and third specification as well.

For the last specification, in addition to all explanatory variables as in the third specification, we will include also assets of the company in logarithmic form in order to control for the size of a company. But the assets are not time invariant, hence the choice between random effects and fixed effects will no longer be as simple, as it was so far. In order to estimate such model we will use a hybrid model proposed by Allison (2009), which combines advantages of both random and fixed effect models. In this model a time varying variables will be transformed into deviations from cluster specific means while the dependent variable will not. By doing this we will be decomposing time varying variables into between and a cluster component while estimating time invariant variable with random effects as we did so far. Thus the last specification will look like this:

$$y_{it} = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 (x_{it} - \bar{x}) + \beta_4 \bar{x} + \beta_j c_j + \beta_k n_k + \mu_i + e_{it}$$

i = 1,….., n, t = 1,2,….., 8
j = 1,2…..,, 17, k =1,2,….., 86

Where y_{it} is one of our four explanatory variables, x_{it} is logarithm of assets per year, $\bar{x}$ is cluster mean of logarithm of assets per year (in other words mean across all years for each individual company) and the rest of the equation remains the same as before. $\bar{x}$ does appear in regression, yet it does not appear in reporting our findings similar to all country and industry dummies. Its parameter is of no particular interest and it is included to get better estimates of effects of time invariant variables, since excluding it would mean that we would not fully control for the effect of per year assets (in other words size of company). The hybrid model is very closely related to correlated random effects firstly introduced by Mundlak (1978) and later extended by Chamberlain (1980). This approach allows us to unify fixed effects and random effects estimation approaches by relaxing the assumption of zero correlation between level 2 error and time invariant variables.

It is also very reasonable to assume, that our errors will not be i.i.d. From the nature of our data the autocorrelation of errors on the firm level is extremely likely since the development of company is a long-term process. Hence we will use HAC standard errors which are robust to both heteroskedasticity and autocorrelation. Because we are working with panel data we will be using a concept of cluster-robust standard errors which will relax the assumption of independent errors allowing correlation between errors within clusters. In our case it is appropriate to use two-way clustering across firm and time. This way we will allow an error correlation within each firm, where reasons for correlation are obvious, while allowing for correlations between time periods. This might occur for example due to a common shock in one year which would hit multiple companies, such as for example financial crises.

In the next step we will not be grouping tax havens together, but instead we will test certain individual countries, both ones that we labelled tax havens and ones that we did not, and searching for profit shifting evidences. Naturally in countries we have labelled as a tax haven we will expect to find considerable evidence of profit shifting activities and we are including also other countires to perform a “sanity check” of our identification strategies. In countries not labelled as tax havens we will obviously expect little or no evidence of base erosion and profit shifting. Of course as our dataset is very extensive, we will be choosing only limited number of countries. We build on our original methodology, but now we will replace the explanatory variable of

company having an affiliate in tax haven, with whether a certain company has affiliate in certain individual country we have chosen to examine. The analytical treatment of panel data as well as reasoning remains the same. The approach to reporting our results remain unchanged as well as we will be still using all four of our different identification strategies and report results from regression analysis for all of them.

6 Empirical results

After establishing methodology and data, we will be looking for empirical evidence of base erosion and profit shifting. We will start by examining our dataset using simple descriptive statistics. Following that, we will begin with regression analysis using methodology described in previous section. First we will be treating tax havens as homogeneous group, after which we will establish most commonly used tax havens and examine each of them in bigger detail.

6.1 Descriptive statistics

Now we will look at our data through some simple descriptive statistics and see if we can see some preliminary evidences of profit shifting in certain group of companies. If we take a look on table A.1 of in appendix A, we can see some basic descriptive statistics of profitability from our balanced dataset. We have at our disposal large number of companies which varies between years as is nature of unbalanced dataset. For example it seems, that on average the MNCs with link to tax haven report much lower pre-tax profitability than those MNCs without these links and national companies. If we take a look on 95% confidence intervals the difference seems to be statistically significant for all examined years. The biggest difference is in year 2013 where on average, MNCs with tax haven links report 51.5% lower pre-tax profitability than those MNCs without these links, while the lowest difference is for year 2007, where the difference is 30.1%. Even the lower average difference is quite large and it definitely supports our initial hypothesis. The same significant differences can be observed between national companies and multi-national companies without tax haven links in all examined years.

We can see that for all groups of companies there is a clear trend in development of their pre-tax profitability. The average profitability is decreasing between 2007 and 2009, then in 2010 and 2011 there is a slow recovery, after which the recovery slows down or starts to fall again. This is seems to be an evidence of financial crisis, but if we compare the pre-tax profitability of national companies and multinational-companies without tax haven links, for national companies the effects

of financial crisis seems to be a little weaker. The drop of average pre-tax profitability for national companies between 2007 and 2013 is about 27% while for MNCs without tax haven links is 36.4% and for companies with tax haven links the drop even exceeds 50%. This would suggest that financial crisis have higher impact on multinational companies.

In table A.2 in the appendix, there are descriptive statistics for our second variable which is tax payments per asset. The scenario for MNCs with tax haven links is very similar to our previous variable. The tax payments of these companies are on average much lower, than tax payments of MNCs without tax havens and national companies. The biggest difference is like in previous case for year 2013, where on average the reported tax payments for MNCs without tax haven links over 40% higher. The 95% confidence intervals support the significance of these differences for all examined years. This again supports our initial hypothesis that MNCs with tax haven links pay lower taxes than other companies without this advantage. If we compare the remaining two groups of companies it is again very similar to previous case of pre-tax profits. The national companies seem to pay on average higher taxes than multinational ones. This time for several years the difference is not statistically significant on 95% level but "only" on 90% level.

In table A.3 we can see descriptive statistics for tax payments per profit which is a proxy for tax rate. As expected companies with tax haven links face on average lower tax rate as those without these links. The differences are statistically significant yet much lower, than in case of our other variables. If we take a look on national companies however, our initial hypothesis seems to be wrong. It seems that the national companies face lower tax rate than those MNCs without tax haven connections and in some year the significance of difference even between MNCs without tax haven connections is gone.

The last variable of interest, for which we will examine descriptive statistics in greater detail, is long term debt ratio. The results for all three groups of companies can be found in table A.4. Our initial hypothesis that MNCs with tax haven connections hold higher fraction of debt, than MNCs without these connections or national companies seem to be fully supported by our data. And these differences seem even bigger than in case of previous 2 variables. The differences between long

term debt ratio of MNCs with or without tax haven links are ranging between minimum 29% for year 2006 and maximum of 45.1% for year 2013. In other words, for the whole examined time period the average debt ration of MNCs with tax haven links was at minimum by one third higher than those without these connections. The comparison with national companies shows that for all years 2006 – 2013 the long term debt ration of national companies was more than 45% lower than debt ratio of MNCs with tax haven connections. If we compare national companies with companies without tax haven links, in contrast to previous two cases our initial hypothesis holds. The national companies seem to on average hold lower fraction of debt than multinational companies without tax haven links. The 95% confidence intervals confirm significance for all examined years. The in-group differences are lower than for previous variables. Because under long term debt fall obligation with maturity that can be in decades, it is not surprising, that it became less flexible and the financial crisis would be reflected least in this variable. This actually supports our theory that some inaccuracies in our initial hypotheses are caused by financial crisis.

6.2 Tax havens as homogeneous group

In the summary statistics we analysed 4 main variables of interest and saw a big differences between companies with and without tax haven connections. Furthermore three out of four examined variables behaved exactly according to our initial hypotheses. Now we will take a look at results of regression analysis, which will allow us to control for other effects beyond simple tax haven connection. In the summary statistics we had comparisons for each year for each variable. The panel data structure will allow us to aggregate results controlling for time. In line with Fuest and Rieder (2012) for each variable we will have four regression specifications. The first regression will include only dummy variables, for whether a company is MNC and has links to tax havens. The second regression will also include dummy variables for different countries of origin controlling for country specific differences. The third regression will include also a full set of industry specific dummies to control for sectorial heterogeneity. The fourth specification will include also total assets as explanatory variable to control for size of company.

Table 6.1: Regression results. Dependent variable: Profitability and tax payments

Dependent variable: pre tax per assets profitability				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.0244*** (0.00130)	-0.0390*** (0.00131)	-0.0304*** (0.00130)	-0.0253*** (0.00131)
MNC	-0.0365*** (0.000721)	-0.0222*** (0.000744)	-0.0214*** (0.000744)	-0.00988*** (0.000760)
Assets	No	No	No	0.00929*** (0.000185)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0880*** (0.000209)	0.0451*** (0.000557)	-0.0337** (0.0156)	0.0137** (0.00676)
Observations	3,489,181	3,477,276	3,467,587	3,467,587
Number of firms	657,188	655,280	652,059	652,059
Dependent variable: Tax payement per asset				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.00555*** (0.000289)	-0.00748*** (0.000290)	-0.00618*** (0.000286)	-0.00453*** (0.000288)
MNC	-0.00233*** (0.000139)	-0.000537*** (0.000143)	-0.000887*** (0.000142)	0.00281*** (0.000145)
Assets	No	No	No	-0.00234*** (5.34e-05)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0186*** (4.66e-05)	0.0195*** (0.000134)	0.00338 (0.00235)	0.0186*** (0.00266)
Observations	3,280,233	3,280,233	3,277,981	3,277,981
Number of firms	622,152	622,152	621,541	621,541

Source: Author, Orbis

*Note: Robust standard errors are reported in parentheses. Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

Table 6.2: Regression results. Dependent variable: Tax rate and long term debt

Dependent variable: Tax payement per profit				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.0142***	-0.00412***	0.00177*	-0.000185
	(0.00108)	(0.00108)	(0.00106)	(0.00106)
MNC	0.00816***	-0.00527***	-0.0110***	-0.0154***
	(0.000567)	(0.000570)	(0.000568)	(0.000574)
Assets	No	No	No	0.00560***
				(0.000134)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.118***	0.104***	0.124***	0.112***
	(0.000164)	(0.000565)	(0.0132)	(0.0153)
Observations	3,154,079	3,147,314	3,150,898	3,129,835
Number of firms	622,495	621,289	621,671	616,460
Dependent variable: Long term debt ratio				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	0.0591***	0.0716***	0.0573***	0.0503***
	(0.00194)	(0.00193)	(0.00187)	(0.00184)
MNC	0.0182***	0.00383***	0.00408***	-0.0109***
	(0.000813)	(0.000850)	(0.000833)	(0.000830)
Assets	No	No	No	0.0116***
				(0.000139)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0607***	0.0240***	0.0465	-0.0155
	(0.000193)	(0.000344)	(0.0659)	(0.0808)
Observations	2,989,530	2,989,530	2,987,150	2,987,150
Number of firms	602,230	602,230	601,608	601,608

Source: Author, Orbis

*Note: Robust standard errors are reported in parentheses.Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

In tables 3 and 4 we can see the results of all regressions. The first variable of interest is profitability of company. All four regression results agree with our initial hypothesis and results suggested by descriptive statistics. The MNCs indeed exhibit lower pre-tax profitability than national companies and this effect is not only true, but even stronger for companies with links to a tax haven. These effects are also highly significant for each regression. The first regression would suggest, that the effect of company being multinational is stronger than effect of tax haven link. The magnitude of the effect is substantially corrected by adding country dummies rendering the tax haven link effect stronger than effect of MNCm which is then even more corrected by including industry dummies, which would suggest big differences of MNC's between countries. This is not surprising as our dataset includes for example huge Russian oil companies which can exhibit very different behaviour than other companies.

The specification, in which we are most interested, is the fourth one where we are controlling for the size of the company as well. This would suggest that the fact, a company has an affiliate in tax haven means, that it reports by 0.0253 lower pre-tax profits per asset than other companies.

Next variable of interest are taxes paid by companies. The regression results for per asset tax payments can be found in table 6.1. Again we can observe changes in coefficients as we include more explanatory variables and control for more heterogeneity. If we take a look at the final specification it would suggest, that the fact a company has a tax haven affiliate means, that it pays by 0.00453 lower taxes per each asset. The dummy variable designating other MNC's is in this case actually positive which would suggest that MNCs pay higher per asset taxes than national companies. For other specifications this coefficient was negative but very close to zero. This result suggests that MNC's without tax haven affiliates does not appear to conduct serious tax avoidance activities. The coefficients are like for previous variable highly significant.

In table 6.2 we can see the results for tax payments per profit which is a proxy for tax rate. This is the only variable which does not seem to confirm our initial hypothesis. According to our first specification the companies with tax havens do indeed face lower tax rate and this result is even highly significant. However as we add more explanatory variables to control for different factors the direction of the effect is

diminishing and becoming statistically insignificant. The opposite is true for the multinational companies. At our initial specification the effect seems to be positive which is not what we would expect. Yet in our final specification we can see, that multinational companies do face significantly lower tax rate than national companies. The same cannot be said for companies with tax haven links where the effect is insignificant.

The last variable of interest is the long term debt ratio. The significant coefficients for tax haven link dummy in our regression results confirms that companies with tax haven links do hold higher long term debt. This would suggests manipulation with corporate structure namely debt sharing. However the same cannot be said for the rest of multinational companies. For the first three specifications the coefficient is positive which is exactly what would we expect yet it is very low. In the fourth specification however the coefficient becomes negative which would suggests no debt sharing within MNC's without tax havens affiliates.

6.3 Individual tax havens in eastern Europe

We have found significant evidence of tax avoidance activities especially for those MNC's with tax haven connections. We have grouped tax havens together but now we will focus on which tax havens are most used and which are the most harmful. In table 6.3 we can see countries most often linked through ownership with MNC' in eastern Europe.[3] It is no surprise that the most commonly linked country to eastern European MNC's is Germany. In our sample there are 7721 firms that have some ownership link to Germany. The reasons are quite obvious. It is the biggest economy in Europe and one of the biggest economies in the world, it has geographical proximity to our examined region and it is actively playing big role in economic integration in Europe.

We can take a look at other big economies in the world. The third most commonly linked country to eastern European MNC's is USA but number of links is far lower

[3] It is important to note that these are only foreign links. We can see that for example 1574 firms have links to Czech Republic. To these firms we are including only companies which are not from Czech Republic.

than the two leading countries. Second and third biggest economies being China and Japan are not even in our list of top 20 countries. Japan is 23rd with 711 companies and China even at 42nd place with just 319 connections.

Table 6.3: Number of companies with links to certain countries

Country	Number firms	Country	Number firms
Germany	7721	Luxembourg	1855
Cyprus	7691	Czech Republic	1574
United States	3498	Hungary	1476
Austria	3452	Sweden	1314
Italia	3368	Russia	1160
Netherlands	2911	Denmark	1119
Great Britain	2728	Finland	1022
Virgin Islands	2413	Estonia	907
France	2097	Belarus	896
Switzerland	1931	Slovakia	819

Source: Author, Orbis

The biggest surprise is Cyprus which appears to be the second most commonly linked country to MNC's having almost as much company connections as Germany. But unlike Germany there is no clear reason for so many firms to be connected to this country other than profit shifting activities. Cyprus is commonly occurring on the list of world's tax havens and it is considered as a tax haven for the purposes of this study as well. Another country with surprisingly large number of links is the Virgin Islands. Similarly to Cyprus there seems to be no logical explanation of why it is the case other than tax avoidance of MNC's. It is certainly not one of the important economies in the world, yet despite its big geographical distance from Europe it has more company links, than for example France which is one of the most important economies in Europe. Like for Cyprus profit shifting activities of eastern European MNC's seems to be the only logical explanation. In table 6.3 there are two more countries considered as a tax haven by this study – Switzerland and Luxembourg.

Table 6.4: Distribution of most commonly used tax havens in eastern Europe

	Cyprus		Virgin Islands		Luxembourg		Switzerland	
	# of companies		# of companies		# of companies		# of companies	
Bosnia and Herzegovina	18	(2.46%)	0	(0%)	21	(2.9%)	22	(3%)
Bulgaria	186	(8.76%)	93	(4.38%)	62	(2.92%)	101	(4.76%)
Czech Republic	371	(4.76%)	20	(0.2%)	366	(4.69%)	329	(4.22%)
Estonia	60	(2.78%)	26	(1.2%)	34	(1.57%)	34	(1.57%)
Croatia	19	(1.2%)	9	(0.05%)	18	(1.1%)	66	(4.1%)
Hungary	8	(0.04%)	1	(0.005%)	33	(1.6%)	88	(4.4%)
Lithuania	31	(2.45%)	7	(0.05%)	20	(1.58%)	39	(3.1%)
Latvia	151	(6.55%)	24	(1.1%)	25	(1.1%)	28	(1.2%)
Poland	389	(4.02%)	26	(0.03%)	596	(6.1%)	258	(2.66%)
Romania	906	(9.26%)	91	(0.09%)	231	(2.36%)	256	(2.61%)
Serbia	185	(9.6%)	46	(2.38%)	47	(2.44%)	69	(3.58%)
Russia	4346	(31.55%)	1878	(13.63%)	167	(1.21%)	354	(2.57%)
Slovenia	20	(1.61%)	3	(0.02%)	23	(1.86%)	57	(4.61%)
Slovakia	158	(2.8%)	9	(0.02%)	103	(1.82%)	143	(2.53%)
Ukraine	837	(27.35%)	172	(5.62%)	105	(3.43%)	83	(2.71%)

Source: Author, Orbis

Note: In parentheses we report percentage share out of all MNC's in country

To better understand tax havens in eastern Europe we will explore distribution of our 4 most commonly utilized tax havens among domestic countries. In table 6.4 we can see number of companies from each domestic country linked to 4 main tax havens.

For better notion of importance in parentheses we include also percentage from all MNC's in certain country. We have excluded results for Montenegro, Macedonia and Belarus since number of MNC's in these countries is not very high. The first thing to notice is results for Russia and Ukraine. While for other countries the share of countries per tax haven does not exceed 10% more than 31% of Russian MNC's have connections to Cyprus and more than 13% to British Virgin Islands. Similarly more than 27% of companies in Ukraine have affiliates in Cyprus. This suggests extreme use of profit shifting activities in these countries.

Even if we disregard extreme values of Russia and Ukraine, there are also other countries where the share of companies connected to Cyprus is quite high, for example Romania or Serbia, but due to geographical proximity not all of them probably use these connections for profit shifting activities. In this regard countries more affected by influence of this tax haven will be Latvia and Czech Republic with comparably lower shares but higher probability of profit shifting activities. With exception of Slovenia, Hungary and Croatia share of companies utilising this tax haven does not drop below 2.5%. Switzerland seems to be quite consistently used tax haven as well. Only Latvia and Estonia have shares of companies below 2.5%. Luxembourg seems to be used much less frequently, with exception of Poland, which have share of companies with ties to this country more than 6%, which is much higher than average between these countries. Finally British Virgin Island seems to be driven mainly by companies in Russia.

6.4 Examining most commonly used tax havens

In the previous section we have discussed countries most often linked through ownership with MNC's in eastern Europe and now we will continue this discussion with empirical evidence of profit shifting activities through these countries. We will be using very similar methodology focusing on profits, tax payments and long term debt as we did while estimating effects of tax havens as homogeneous group. The key difference is, that dummy explanatory variable whether company has tax haven connection or not is being replaced with whether company has connection to examined country. We will be focusing only on several countries which we can divide into different types according to our expectations of the results.

The first type are countries which have suspiciously large number of company connections in eastern Europe, which are Cyprus and British Islands. For the first type of countries we expect clear evidence of profit shifting activities. For these countries we expect reported lower pre-tax profits and tax payments and higher debt rations. Next type will be countries whose number of connections might not be suspicious on the first sight, yet they are often considered, including this study, as tax havens. These countries are Luxembourg and Switzerland. For the second type we will expect the same results, yet maybe not in the same magnitude. The last type of countries will be countries for which we would expect their presence in top linked countries in eastern Europe, which will be Germany, USA and Great Britain. For the last type of countries we do not expect significant evidence of profit shifting activities. The third type countries we can consider as a control group on "non tax haven countries" where the profit shifting evidence should be scarce.

We will include one more country for which the initial look on the top linked countries with eastern Europe might not be that odd, yet it deserves further examination. This country is Netherlands. The Netherlands is the world's largest conduit country with a favourable tax treaty network used to avoid host country withholding taxes (Weyzig, 2012). Weyzig (2014) shows, that large companies can issue debt securities to obtain external financing or set up lowly-taxed affiliates in the Netherlands for internal debt-shifting purposes. If we return to the table of country connections we can see, that Netherlands is only behind the biggest world and European economies – USA and Germany, Cyprus for which we expect profit shifting reasons and Italy and Austria which might not be comparable in size of the economy, yet geographical position is very different. Both Italy and Austria are relatively close to our examined region while Netherlands in comparison is not. We must keep in mind that we are including the whole eastern Europe, hence Austria is close to for example Czech Republic, Slovakia or Hungary while Italy is very close to south eastern countries such as Romania or Bulgaria. While we could argue that Netherlands is close to Baltic States, their size and therefore representation in the sample is relatively small compare to other countries. For this reasons we will consider it as a type 2 country and place it besides Luxemburg and Switzerland.

Table 6.5 Summary of regression results for individual countries

Country	pre tax per assets profitability		Tax payement per asset		Tax payement per profit		Long term debt ratio	
	TH	MNE	TH	MNE	TH	MNE	TH	MNE
all	-0.0253*** (0.00131)	-0.00988*** (0.000760)	-0.00453*** (0.000288)	0.00281*** (0.000145)	-0.000185 (0.00106)	-0.0154*** (0.000574)	0.0503*** (0.00184)	-0.0109*** (0.000830)
Cyprus	-0.0255*** (0.00184)	-0.0138*** (0.000692)	-0.00490*** (0.000455)	0.00214*** (0.000135)	0.00326** (0.00148)	-0.0159*** (0.000531)	0.0641*** (0.00277)	-0.00479*** (0.000803)
Virgin Islands	-0.0402*** (0.00277)	-0.0153*** (0.000670)	-0.00768*** (0.000630)	0.00184*** (0.000137)	0.00830*** (0.00240)	-0.0159*** (0.000516)	0.0475*** (0.00473)	0.00138* (0.000800)
Netherlands	0.00131 (0.00298)	-0.0169*** (0.000666)	0.00227*** (0.000548)	0.00142*** (0.000137)	-0.00338 (0.00220)	-0.0154*** (0.000515)	-0.00462 (0.00336)	0.00364*** (0.000810)
Switzerland	0.0110*** (0.00353)	-0.0172*** (0.000664)	0.00258*** (0.000660)	0.00144*** (0.000136)	0.00468* (0.00271)	-0.0157*** (0.000513)	-0.000331 (0.00423)	0.00345*** (0.000804)
Luxembourg	-0.0138*** (0.00335)	-0.0165*** (0.000664)	-0.00220*** (0.000645)	0.00158*** (0.000136)	-0.0226*** (0.00269)	-0.0149*** (0.000512)	0.0213*** (0.00486)	0.00284*** (0.000801)
United States	0.0250*** (0.00286)	-0.0182*** (0.000666)	0.00749*** (0.000617)	0.00112*** (0.000135)	0.0118*** (0.00205)	-0.0162*** (0.000517)	-0.0329*** (0.00262)	0.00521*** (0.000817)
Germany	0.0288*** (0.00185)	-0.046698*** (0.0006533)	0.00477*** (0.00129)	0.000952*** (0.000141)	0.0103*** (0.00129)	-0.0168*** (0.000537)	-0.0301*** (0.00175)	0.00701*** (0.000853)
Great Britain	0.00826*** (0.00316)	-0.0172*** (0.000665)	0.00201*** (0.000595)	0.00143*** (0.000136)	-0.00255 (0.00225)	-0.0154*** (0.000515)	-0.00262 (0.00371)	0.00355*** (0.000807)

Source: Author, Orbis

*Note: Robust standard errors are reported in parentheses.Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

In the appendix we can see the results for the full set of regression for each of our examined countries, where we can observe changes in parameters as we add more explanatory variables. Because there are a lot of regression results for better

comparison between countries in table 6.5 there is a summary of results for each of the dependent variable and for each examined country. In the summary there are results only for the fourth specification, as it should be dealing best with heterogeneity between companies. For better comparison we are including only parameters for 2 explanatory variables and its country link and MNC, as these are the variables of interest. The rest is mainly to control for heterogeneity between countries. For better comparison we are including also results from the initial regression as a benchmark.

Firstly we will take a look on the results of the first type countries. We can see that our initial expectations of evidence of profit shifting activities have been met. The MNC's with links to Cyprus and Virgin Islands do indeed exhibit lower pre-tax profitability, per asset tax payments and hold higher fractions of debt than countries without connections to these countries. These effects are highly significant and stronger or very close to the effects for companies with any tax haven links. Our expectations were not met for per profit tax payments which is a proxy for tax rate. In the benchmark regression the link to the tax haven was insignificant providing no evidence of MNC's with tax haven connections facing lower tax rates. For countries with connections to Cyprus and Virgin Islands this effect is significant but positive, suggesting that these companies face higher tax rate. If we compare magnitude of these effects we can see that the effects for Virgin Islands are much stronger, than for Cyprus in profitability and tax payments but a little weaker in debt holding. Comparing the results with our benchmark we could say that companies with links to Virgin Islands are conducting more profit shifting activities than other companies with tax haven links. For Cyprus the magnitude of effects is more or less similar.

If we take a look of our type 2 countries we can see that the only one showing evidences of being a tax haven is Luxembourg. Companies with connections to Luxembourg seem to report lower pre-tax profits, tax payments per asset and higher long term debt ratio. For companies with connections to Luxembourg even tax payments per profits which up until now were not behaving according to our expectations seem to be significantly lower than for other companies. All results are highly significant. If we compare the magnitude of these effects with other Cyprus and Virgin Islands we can see that these effects are much weaker.

According to our results the rest of type 2 countries do not exhibit evidence of being a tax haven. For Netherlands most of the results are not significant and the only significant variable, tax payment per asset, suggests that companies with connections to Netherlands pay higher taxes than those without these connections. For companies with ties to Switzerland the situation is similar. They do not seem to report significantly different debt ratios or tax payments per profit and do report higher pre-tax profits and tax payments, which are not consistent with our initial tax haven hypothesis. As for type 3 countries the results for Germany and United states are what we have expected. All results are significant and exactly opposite of what we have considered as an evidence of profit shifting behaviour i.e. countries with connections to United States or Germany report higher pre-tax profits, tax payments and lower debt ratio. For Great Britain the results for pre-tax profits and per asset tax payments are similar but weaker in magnitude than those for Germany and US. The rest is statistically insignificant.

As previously mentioned the strategy of simply dropping the outliers might not be the best, hence to achieve at least some kind of robustness we include also regression results for data where outliers were dealt with by winsorizing. Winsorizing is a common procedure to replace any data value above the n^{th} percentile of the sample data by the n^{th}percentile and any value below the 100 – n^{th} percentile by the 100 – n^{th} percentile. (Ghosh, Vogt, 2012). Because of large number of observations we will be using 99^{th} percentile.

In the appendix we can compare coefficients for all our countries. The hypotheses and strategy for tax haven identification remain the same the only difference is in approach in dealing with outliers. If we take a closer look on the results of winsorized data we can see that the conclusions about tax havens in general as well about individual countries drawn from our original dataset remain sound. There are differences in magnitude of effects where the pre-tax per assets profits as well as long term debt ratios seems to be stronger for the winsorized dataset, however the opposite is true for per asset tax payments. The behaviour of per profit tax payments remains different from our initial hypothesis even for winsorized data. Overall different treatment of outliers by winsorizing does not seem to seriously impact conclusions drawn from our original data.

7 Conclusion

In this study we provide empirical evidence of profit shifting activities of MNC's, especially those with tax haven connections in eastern and south-eastern Europe. This region was represented by 18 countries: Bosnia and Herzegovina, Bulgaria, Belarus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Montenegro, Macedonia, Poland, Romania, Serbia, Russia, Slovenia, Slovak Republic and Ukraine. We analysed detail financial and ownership company-level data of 661,841 companies out of which 65,002 were MNC's and 17,359 have tax haven connections across the period of 8 years from 2006 to 2013.

We found that MNC's with tax haven connections report lower profits, lower tax payments and have higher long term debt ratios than other companies, which is evidence of profit shifting activities conducted by these companies. We also provide insight into the structure of profit shifting activities in examined region. We find that country most commonly used for profit shifting activities out of eastern Europe is by far Cyprus, followed by British Virgin Islands and Luxembourg. In our dataset, the number of companies with affiliates in Cyprus was almost as high, as the number of companies with affiliates in Germany which is the biggest economy in Europe. In this regard Cyprus surpassed by far some of the biggest economies of the world like US, France or Great Britain. After that, we examined companies with affiliates in these and several other countries and found out, that the strongest signs of profit shifting activities are exhibiting companies with affiliates in British Virgin Islands. On the other hand for, some countries for which we could expect profit shifting activities, such as Switzerland or Netherlands, the evidence was not conclusive. Countries most affected by profit shifting in this region are mainly Russia and Ukraine, whose share of MNC's using these tax havens is 45% and 35% respectively. Other countries whose share of MNC's utilising these tax havens are more than 10% and therefore are significantly affected by profit shifting are Czech Republic and Poland.

To make our results more robust we carried out our analysis twice. The second time we dealt with possible outliers by more robust approach, which did not bring any big changes into our conclusions. Of course our analysis could be improved by

improving our dataset. Although data coverage for our region was overall decent in some countries it was notably weaker. Also including data for more countries would help to create better picture of profit shifting activities in Europe. Another possible extension might be inclusion of corruption rate. Ledyaeva et al. (2013) shows strong link between round-trip investment and corruption money laundering in Russia. We could investigate, whether this link holds for other tax avoidance techniques, as well as for more countries or throughout the whole region. We could also improve our estimates by carrying out our regression analysis in fully robust way. Although fully robust estimation in panel data is uncommon, there are studies which provide methodological foundation, such as Víšek (2013).

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Appendix A: Descriptive statistics

Table A.1: Descriptive statistics of pre-tax per asset profitability

National companies					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	255,178	0.103	0.213	0.1022	0.10383
2007	296,464	0.113	0.214	0.1123	0.1139
2008	322,054	0.0985	0.216	0.0978	0.9929
2009	357,543	0.0699	0.210	0.0692	0.07058
2010	399,751	0.0751	0.205	0.0745	0.0757
2011	431,983	0.0780	0.205	0.0774	0.0786
2012	524,485	0.0817	0.208	0.0811	0.0822
2013	510,823	0.0821	0.210	0.0815	0.0827
Multinational companies without tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	25,527	0.0872	0.197	0.0847	0.0896
2007	29,413	0.0824	0.203	0.0801	0.0847
2008	31,792	0.0564	0.212	0.0540	0.0587
2009	35,350	0.0376	0.206	0.0354	0.0397
2010	38,387	0.0485	0.197	0.0466	0.0505
2011	39,722	0.0526	0.194	0.0507	0.0545
2012	42,240	0.0527	0.191	0.0509	0.0545
2013	39,974	0.0524	0.187	0.0506	0.0543
Multinational companies with tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	8,130	0.0564	0.196	0.0521	0.0607
2007	9,675	0.0576	0.199	0.0536	0.0616
2008	10,669	0.0310	0.212	0.0270	0.0350
2009	11,647	0.0176	0.196	0.0140	0.0212
2010	12,707	0.0260	0.189	0.0227	0.0293
2011	13,262	0.0281	0.193	0.0248	0.0314
2012	15,584	0.0279	0.191	0.0249	0.0309
2013	14,906	0.0254	0.185	0.0224	0.0284

Source: Author, Orbis

Table A.2: Descriptive statistics of tax payments per asset

National companies					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	242,117	0.0240	0.0514	0.0238	0.0242
2007	281,581	0.0246	0.0518	0.0244	0.0248
2008	305,288	0.0228	0.0512	0.0226	0.0230
2009	335,232	0.0181	0.0463	0.0180	0.0183
2010	372,019	0.0164	0.0429	0.0163	0.0165
2011	402,697	0.0157	0.0405	0.0156	0.0158
2012	496,572	0.0163	0.0435	0.0162	0.0164
2013	487,153	0.0162	0.0438	0.0161	0.0163
Multinational companies without tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	23,830	0.0214	0.0392	0.0209	0.0219
2007	27,577	0.0210	0.0398	0.0205	0.0215
2008	29,616	0.0179	0.0400	0.0175	0.0184
2009	31,829	0.0161	0.0397	0.0157	0.0165
2010	34,230	0.0161	0.0381	0.0157	0.0165
2011	35,593	0.0156	0.0357	0.0152	0.0160
2012	38,168	0.0153	0.0338	0.1500	0.01568
2013	36,377	0.0149	0.0324	0.01457	0.01523
Multinational companies with tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	7,994	0.0176	0.0473	0.0165	0.0186
2007	9,488	0.0171	0.0503	0.0161	0.0181
2008	10,459	0.0140	0.0531	0.0130	0.0150
2009	11,204	0.0103	0.0485	0.0095	0.0112
2010	12,161	0.0107	0.0458	0.0099	0.0115
2011	12,649	0.0105	0.0436	0.0097	0.0113
2012	14,947	0.0101	0.0459	0.0094	0.01088
2013	14,363	0.00891	0.0403	0.0083	0.0096

Source: Author, Orbis

Table A.3: Descriptive statistics of tax payments per profit

National companies					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	229,485	0.140	0.196	0.1393	0.1409
2007	268,629	0.142	0.191	0.1414	0.1429
2008	292,223	0.136	0.194	0.1348	0.1362
2009	321,784	0.120	0.198	0.1193	0.1206
2010	358,566	0.116	0.196	0.1158	0.1171
2011	389,664	0.111	0.178	0.1109	0.1120
2012	476,039	0.111	0.177	0.1106	0.1116
2013	473,370	0.109	0.175	0.1084	0.1094
Multinational companies without tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	23,125	0.145	0.180	0.1431	0.1477
2007	26,788	0.142	0.179	0.1400	0.1443
2008	28,732	0.132	0.188	0.1299	0.1343
2009	30,964	0.125	0.190	0.1229	0.1271
2010	33,362	0.128	0.191	0.1263	0.1305
2011	34,638	0.127	0.180	0.1247	0.1285
2012	37,116	0.124	0.181	0.1222	0.1260
2013	35,452	0.123	0.181	0.1206	0.1244
Multinational companies with tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	7,253	0.133	0.207	0.1280	0.1376
2007	8,673	0.130	0.202	0.1258	0.1343
2008	9,604	0.121	0.198	0.1174	0.1253
2009	10,489	0.105	0.189	0.1010	0.1082
2010	11,436	0.111	0.197	0.1069	0.1141
2011	11,993	0.108	0.187	0.1043	0.1110
2012	14,094	0.109	0.192	0.1054	0.1112
2013	13,672	0.108	0.191	0.1046	0.1110

Source: Author, Orbis

Table A.4: Descriptive statistics of long term debt ratio

National companies					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	235,830	0.0502	0.142	0.0497	0.0508
2007	249,593	0.0592	0.154	0.0586	0.0598
2008	271,875	0.0634	0.160	0.06281	0.0640
2009	299,503	0.0599	0.157	0.0594	0.0605
2010	338,960	0.0612	0.159	0.0607	0.0617
2011	365,465	0.0629	0.161	0.0623	0.0634
2012	463,096	0.0616	0.163	0.0611	0.0621
2013	449,909	0.0636	0.165	0.0631	0.0641
Multinational companies without tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	23,271	0.0745	0.174	0.0723	0.0767
2007	22,385	0.0880	0.188	0.0856	0.0905
2008	23,972	0.0894	0.190	0.0870	0.0919
2009	26,400	0.0866	0.190	0.0843	0.0889
2010	29,775	0.0824	0.185	0.0803	0.0846
2011	30,808	0.0818	0.185	0.0797	0.0838
2012	34,919	0.0747	0.178	0.0728	0.0766
2013	32,833	0.0741	0.176	0.0722	0.0760
Multinational companies with tax haven links					
	# Obs.	Mean	St.dev.	95% confidence intervals	
2006	7,746	0.105	0.228	0.0999	0.1101
2007	7,965	0.129	0.251	0.1237	0.1347
2008	8,703	0.138	0.258	0.1330	0.1438
2009	9,436	0.134	0.254	0.1288	0.1391
2010	10,615	0.135	0.253	0.1297	0.1393
2011	11,091	0.135	0.250	0.1299	0.1392
2012	13,697	0.136	0.253	0.1317	0.1401
2013	13,035	0.135	0.249	0.1310	0.1395

Source: Author, Orbis

Appendix B: Full regression results for examined countries

*Note: Throughout all appendix B we will be using following designation: Robust standard errors are reported in parentheses.Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

Table B.1: Full regression results for Cyprus and Netherlands. Dependend varable: Pre-tax profits per asset

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0250***	-0.0403***	-0.0311***	-0.0255***	-0.00175	-0.00191	-0.00058	0.00131
	(0.00183)	(0.00183)	(0.00182)	(0.00184)	(0.00302)	(0.00301)	(0.00296)	(0.00298)
MNC	-0.0400***	-0.0281***	-0.0260***	-0.0138***	-0.0428***	-0.0330***	-0.0299***	-0.0169***
	(0.000655)	(0.000675)	(0.000675)	(0.000692)	(0.000632)	(0.000648)	(0.000648)	(0.000666)
Assets	No	No	No	0.00930***	No	No	No	0.00930***
				(0.000185)				(0.000185)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0879***	0.0450***	-0.0336**	0.0139**	0.0879***	0.0448***	-0.0335**	0.0142**
	(0.000209)	(0.000557)	(0.0156)	(0.00676)	(0.000209)	(0.000557)	(0.0156)	(0.00676)
Observations	3,489,181	3,489,181	3,467,587	3,467,587	3,489,181	3,489,181	3,467,587	3,467,587
Firms	657,188	657,188	652,059	652,059	657,188	657,188	652,059	652,059

Source: Author, Orbis

Table B.2: Full regression results for Switzerland and Luxembourg Dependend varable: Pre-tax profits per asset

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0101***	0.0121***	0.0108***	0.0110***	-0.0292***	-0.0260***	-0.0158***	-0.0138***
	(0.00356)	(0.00353)	(0.00348)	(0.00353)	(0.00337)	(0.00341)	(0.00332)	(0.00335)
MNC	-0.0432***	-0.0334***	-0.0302***	-0.0172***	-0.0421***	-0.0323***	-0.0294***	-0.0165***
	(0.000629)	(0.000645)	(0.000645)	(0.000664)	(0.000629)	(0.000645)	(0.000646)	(0.000664)
Assets	No	No	No	0.00930***	No	No	No	0.00930***
				(0.000185)				(0.000185)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0879***	0.0448***	-0.0335**	0.0142**	0.0879***	0.0448***	-0.0335**	0.0142**
	(0.000209)	(0.000557)	(0.0156)	(0.00676)	(0.000209)	(0.000557)	(0.0156)	(0.00676)
Observations	3,489,181	3,489,181	3,467,587	3,467,587	3,489,181	3,489,181	3,467,587	3,467,587
Firms	657,188	657,188	652,059	652,059	657,188	657,188	652,059	652,059

Source: Author, Orbis

Table B.3: Full regression results for Virgin Islands and United States. Dependend varable: Pre-tax profits per asset

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0273***	-0.0522***	-0.0456***	-0.0402***	0.0314***	0.0318***	0.0226***	0.0250***
	(0.00273)	(0.00272)	(0.00274)	(0.00277)	(0.00287)	(0.00286)	(0.00281)	(0.00286)
MNC	-0.0419***	-0.0310***	-0.0281***	-0.0153***	-0.0446***	-0.0348***	-0.0311***	-0.0182***
	(0.000633)	(0.000651)	(0.000652)	(0.000670)	(0.000632)	(0.000648)	(0.000649)	(0.000666)
Assets	No	No	No	0.00930***	No	No	No	0.00930***
				(0.000185)				(0.000185)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0879***	0.0448***	-0.0337**	0.0139**	0.0879***	0.0448***	-0.0335**	0.0142**
	(0.000209)	(0.000557)	(0.0156)	(0.00676)	(0.000209)	(0.000557)	(0.0156)	(0.00676)
Observations	3,489,181	3,489,181	3,467,587	3,467,587	3,489,181	3,489,181	3,467,587	3,467,587
Firms	657,188	657,188	652,059	652,059	657,188	657,188	652,059	652,059

Source: Author, Orbis

Table B.4: Full regression results for Germany and Great Britian. Dependend varable: Pre-tax profits per asset

	Germany				Great Britian			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	.0310715***	0.0349***	0.0299***	0.0288***	0.0142***	0.0118***	0.00774**	0.00826***
	.0018426	(0.00185)	(0.000351)	(0.00185)	(0.00323)	(0.00321)	(0.00315)	(0.00316)
MNC	-.0466997***	-0.0372***	-0.00337***	-.0203***	-0.0435***	-0.0336***	-0.0302***	-0.0172***
	.0006533	(0.000668)	(0.000139)	(0.000686)	(0.000630)	(0.000646)	-0.0302***	(0.000665)
Assets	No	No	No	0.00930***	No	No	No	0.00930***
				(0.000185)				(0.000185)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	.0878935***	0.0449***	-0.0335**	0.0141**	0.0879***	0.0448***	-0.0335**	0.0142**
	.0002086	(0.000557)	(0.0156)	(0.00676)	(0.000209)	(0.000557)	(0.0156)	(0.00676)
Observations	3489181	3,489,181	3,467,587	3,467,587	3,489,181	3,489,181	3,467,587	3,467,587
Firms	657188	657,188	652,059	652,059	657,188	657,188	652,059	652,059

Source: Author, Orbis

Table B.5: Full regression results for Cyprus and Netherlands. Dependend varable: Tax payement per asset

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00574***	-0.00796***	-0.00666***	-0.00490***	0.00205***	0.00135**	0.00157***	0.00227***
	(0.000455)	(0.000456)	(0.000450)	(0.000455)	(0.000571)	(0.000566)	(0.000548)	(0.000548)
MNC	-0.00315***	-0.00165***	-0.00179***	0.00214***	-0.00393***	-0.00275***	-0.00273***	0.00142***
	(0.000129)	(0.000133)	(0.000132)	(0.000135)	(0.000129)	(0.000134)	(0.000133)	(0.000137)
Assets	No	No	No	-0.00233***	No	No	No	-0.00233***
				(5.33e-05)				(5.33e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0186***	0.0195***	0.00340	0.0186***	0.0186***	0.0195***	0.00342	0.0187***
	(4.65e-05)	(0.000134)	(0.00235)	(0.00266)	(4.66e-05)	(0.000134)	(0.00235)	(0.00267)
Observations	3,280,233	3,280,233	3,277,981	3,277,981	3,280,233	3,280,233	3,277,981	3,277,981
Firms	622,152	622,152	621,541	621,541	622,152	622,152	621,541	621,541

Source: Author, Orbis

Table B.6: Full regression results for Switzerland and Luxembourg. Dependend varable: Tax payement per asset

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00230***	0.00276***	0.00253***	0.00258***	-0.00450***	-0.00494***	-0.00298***	-0.00220***
	(0.000660)	(0.000654)	(0.000652)	(0.000660)	(0.000660)	(0.000664)	(0.000647)	(0.000645)
MNC	-0.00391***	-0.00277***	-0.00273***	0.00144***	-0.00372***	-0.00255***	-0.00258***	0.00158***
	(0.000129)	(0.000133)	(0.000132)	(0.000136)	(0.000129)	(0.000133)	(0.000132)	(0.000136)
Assets	No	No	No	-0.00233***	No	No	No	-0.00233***
				(5.33e-05)				(5.33e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0186***	0.0195***	0.00342	0.0187***	0.0186***	0.0195***	0.00342	0.0187***
	(4.66e-05)	(0.000134)	(0.00235)	(0.00267)	(4.65e-05)	(0.000134)	(0.00235)	(0.00267)
Observations	3,280,233	3,280,233	3,277,981	3,277,981	3,280,233	3,280,233	3,277,981	3,277,981
Firms	622,152	622,152	621,541	621,541	622,152	622,152	621,541	621,541

Source: Author, Orbis

Table B.7: Full regression results for Virgin Islands and United States. Dependend varable: Tax payement per asset

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00782***	-0.0103***	-0.00926***	-0.00768***	0.00912***	0.00888***	0.00680***	0.00749***
	(0.000623)	(0.000628)	(0.000622)	(0.000630)	(0.000633)	(0.000625)	(0.000615)	(0.000617)
MNC	-0.00354***	-0.00224***	-0.00226***	0.00184***	-0.00434***	-0.00317***	-0.00302***	0.00112***
	(0.000129)	(0.000134)	(0.000132)	(0.000137)	(0.000128)	(0.000132)	(0.000131)	(0.000135)
Assets	No	No	No	-0.00233***	No	No	No	-0.00233***
				(5.33e-05)				(5.33e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0186***	0.0195***	0.00338	0.0186***	0.0186***	0.0195***	0.00342	0.0187***
	(4.66e-05)	(0.000134)	(0.00235)	(0.00267)	(4.65e-05)	(0.000134)	(0.00235)	(0.00268)
Observations	3,280,233	3,280,233	3,277,981	3,277,981	3,280,233	3,280,233	3,277,981	3,277,981
Firms	622,152	622,152	621,541	621,541	622,152	622,152	621,541	621,541

Source: Author, Orbis

Table B.8: Full regression results for Germany and Great Britian. Dependend varable: Tax payement per asset

	Germany				Great Britian			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00601***	0.00582***	0.00515***	0.00477***	0.00374***	0.00302***	0.00192***	0.00201***
	(0.000353)	(0.000351)	(0.000346)	(0.00129)	(0.000620)	(0.000615)	(0.000599)	(0.000595)
MNC	-0.00456***	-0.00337***	-0.00326***	0.000952***	-0.00400***	-0.00281***	-0.00274***	0.00143***
	(0.000134)	(0.000139)	(0.000137)	(0.000141)	(0.000129)	(0.000133)	(0.000132)	(0.000136)
Assets	No	No	No	-0.00233***	No	No	No	-0.00233***
				(5.33e-05)				(5.33e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0186***	0.0195***	0.00342	0.0187***	0.0186***	0.0195***	0.00342	0.0187***
	(4.65e-05)	(0.000134)	(0.00235)	(0.0153)	(4.65e-05)	(0.000134)	(0.00235)	(0.00267)
Observations	3,280,233	3,280,233	3,277,981	3,277,981	3,280,233	3,280,233	3,277,981	3,277,981
Firms	622,152	622,152	621,541	621,541	622,152	622,152	621,541	621,541

Source: Author, Orbis

Table B.9: Full regression results for Cyprus and Netherlands. Dependend varable: Tax payement per profit

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0137***	-0.00114	0.00532***	0.00326**	0.00298	-0.00437*	-0.00264	-0.00338
	(0.00150)	(0.00151)	(0.00149)	(0.00148)	(0.00231)	(0.00226)	(0.00222)	(0.00220)
MNC	0.00598***	-0.00633***	-0.0112***	-0.0159***	0.00425***	-0.00628***	-0.0104***	-0.0154***
	(0.000523)	(0.000525)	(0.000524)	(0.000531)	(0.000507)	(0.000507)	(0.000506)	(0.000515)
Assets	No	No	No	0.00560***	No	No	No	0.00560***
				(0.000134)				(0.000134)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.118***	0.104***	0.124***	0.112***	0.118***	0.104***	0.124***	0.112***
	(0.000164)	(0.000565)	(0.0132)	(0.0153)	(0.000164)	(0.000565)	(0.0132)	(0.0153)
Observations	3,154,079	3,154,079	3,150,898	3,129,835	3,154,079	3,154,079	3,150,898	3,129,835
Firms	622,495	622,495	621,671	616,460	622,495	622,495	621,671	616,460

Source: Author, Orbis

Table B.10: Full regression results for Switzerland and Luxembourg. Dependend varable: Tax payement per profit

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00611**	0.00595**	0.00463*	0.00468*	-0.0173***	-0.0289***	-0.0215***	-0.0226***
	(0.00283)	(0.00276)	(0.00271)	(0.00271)	(0.00284)	(0.00276)	(0.00269)	(0.00269)
MNC	0.00420***	-0.00665***	-0.0107***	-0.0157***	0.00487***	-0.00568***	-0.00995***	-0.0149***
	(0.000503)	(0.000505)	(0.000504)	(0.000513)	(0.000503)	(0.000504)	(0.000503)	(0.000512)
Assets	No	No	No	0.00560***	No	No	No	0.00560***
				(0.000134)				(0.000134)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.118***	0.104***	0.124***	0.112***	0.118***	0.104***	0.124***	0.112***
	(0.000164)	(0.000565)	(0.0132)	(0.0153)	(0.000164)	(0.000565)	(0.0132)	(0.0153)
Observations	3,154,079	3,154,079	3,150,898	3,129,835	3,154,079	3,154,079	3,150,898	3,129,835
Firms	622,495	622,495	621,671	616,460	622,495	622,495	621,671	616,460

Source: Author, Orbis

Table B.11: Full regression results for Virgin Islands and United States. Dependend varable: Tax payement per profit

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0113***	0.00609**	0.0104***	0.00830***	0.0229***	0.0174***	-0.0215***	0.0118***
	(0.00244)	(0.00243)	(0.00240)	(0.00240)	(0.00214)	(0.00209)	(0.00269)	(0.00205)
MNC	0.00480***	-0.00672***	-0.0110***	-0.0159***	0.00313***	-0.00742***	-0.00995***	-0.0162***
	(0.000505)	(0.000509)	(0.000508)	(0.000516)	(0.000508)	(0.000509)	(0.000503)	(0.000517)
Assets	No	No	No	0.00560***	No	No	No	0.00560***
				(0.000134)				(0.000134)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.118***	0.104***	0.124***	0.112***	0.118***	0.104***	0.124***	0.112***
	(0.000164)	(0.000565)	(0.0132)	(0.0153)	(0.000164)	(0.000565)	(0.0132)	(0.0153)
Observations	3,154,079	3,154,079	3,150,898	3,129,835	3,154,079	3,154,079	3,150,898	3,129,835
Firms	622,495	622,495	621,671	616,460	622,495	622,495	621,671	616,460

Source: Author, Orbis

Table B.12: Full regression results for Germany and Great Britian. Dependend varable: Tax payement per profit

	Germany				Great Britian			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0275***	0.0143***	0.00974***	0.0103***	0.00114	-0.00198	-0.00243	-0.00255
	(0.00133)	(0.00131)	(0.00130)	(0.00129)	(0.00238)	(0.00229)	(0.00225)	(0.00225)
MNC	0.000998*	-0.00820***	-0.0117***	-0.0168***	0.00434***	-0.0064***	-0.0104***	-0.0154***
	(0.000530)	(0.000530)	(0.000528)	(0.000537)	(0.000506)	(0.000507)	(0.000506)	(0.000515)
Assets	No	No	No	0.00560***	No	No	No	0.0056***
				(0.000134)				(0.000134)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.118***	0.104***	0.124***	0.112***	0.118***	0.104***	0.124***	0.112***
	(0.000164)	(0.000565)	(0.0132)	(0.0153)	(0.000164)	(0.000565)	(0.0132)	(0.0153)
Observations	3,154,079	3,154,079	3,150,898	3,129,835	3,154,079	3,154,079	3,150,898	3,129,835
Firms	622,495	622,495	621,671	616,460	622,495	622,495	621,671	616,460

Source: Author, Orbis

Table B.13: Full regression results for Cyprus and Netherlands. Dependend varable: Long term debt ratio

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0701***	0.0866***	0.0717***	0.0641***	-0.00180	0.000943	-0.00211	-0.00462
	(0.00293)	(0.00290)	(0.00283)	(0.00277)	(0.00365)	(0.00359)	(0.00343)	(0.00336)
MNC	0.0258***	0.0131***	0.0112***	-0.00479***	0.0344***	0.0245***	0.0207***	0.00364***
	(0.000785)	(0.000824)	(0.000807)	(0.000803)	(0.000798)	(0.000837)	(0.000818)	(0.000810)
Assets	No	No	No	0.0116***	No	No	No	0.0116***
				(0.000138)				(0.000138)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0608***	0.0240***	0.0463	-0.0158	0.0608***	0.0245***	0.0461	-0.0165
	(0.000193)	(0.000344)	(0.0659)	(0.0809)	(0.000193)	(0.000344)	(0.0659)	(0.0810)
Observations	2,989,530	2,989,530	2,987,150	2,987,150	2,989,530	2,989,530	2,987,150	2,987,150
Firms	602,230	602,230	601,608	601,608	602,230	602,230	601,608	601,608

Source: Author, Orbis

Table B.14: Full regression results for Switzerland and Luxembourg. Dependend varable: Long term debt ratio

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00188	-0.00262	-0.000361	-0.000331	0.0426***	0.0405***	0.0237***	0.0213***
	(0.00443)	(0.00438)	(0.00427)	(0.00423)	(0.00525)	(0.00512)	(0.00493)	(0.00486)
MNC	0.0343***	0.0246***	0.0206***	0.00345***	0.0331***	0.0234***	0.0199***	0.00284***
	(0.000792)	(0.000831)	(0.000812)	(0.000804)	(0.000787)	(0.000827)	(0.000808)	(0.000801)
Assets	No	No	No	0.0116***	No	No	No	0.0116***
				(0.000138)				(0.000138)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0608***	0.0245***	0.0461	-0.0165	0.0608***	0.0245***	0.0461	-0.0165
	(0.000193)	(0.000344)	(0.0659)	(0.0810)	(0.000193)	(0.000344)	(0.0659)	(0.0810)
Observations	2,989,530	2,989,530	2,987,150	2,987,150	2,989,530	2,989,530	2,987,150	2,987,150
Firms	602,230	602,230	601,608	601,608	602,230	602,230	601,608	601,608

Source: Author, Orbis

Table B.15: Full regression results for Virgin Islands and United States. Dependend varable: Long term debt ratio

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0536***	0.0657***	0.0545***	0.0475***	-0.0383***	-0.0381***	-0.0301***	-0.0329***
	(0.00493)	(0.00493)	(0.00484)	(0.00473)	(0.00271)	(0.00272)	(0.00265)	(0.00262)
MNC	0.0322***	0.0216***	0.0182***	0.00138*	0.0364***	0.0266***	0.0222***	0.00521***
	(0.000785)	(0.000826)	(0.000806)	(0.000800)	(0.000809)	(0.000846)	(0.000825)	(0.000817)
Assets	No	No	No	0.0116***	No	No	No	0.0116***
				(0.000138)				(0.000138)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0608***	0.0245***	0.0463	-0.0162	0.0608***	0.0245***	0.0461	-0.0166
	(0.000193)	(0.000344)	(0.0659)	(0.0810)	(0.000193)	(0.000344)	(0.0659)	(0.0810)
Observations	2,989,530	2,989,530	2,987,150	2,987,150	2,989,530	2,989,530	2,987,150	2,987,150
Firms	602,230	602,230	601,608	601,608	602,230	602,230	601,608	601,608

Source: Author, Orbis

Table B.16: Full regression results for Germany and Great Britian. Dependend varable: Long term debt ratio

	Germany				Great Britian			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0381***	-0.0408***	-0.0315***	-0.0301***	0.000106	-0.00294	-0.00252	-0.00262
	(0.00182)	(0.00181)	(0.00175)	(0.00175)	(0.00390)	(0.00389)	(0.00376)	(0.00371)
MNC	0.0389***	0.0293***	0.0243***	0.00701***	0.0343***	0.0246***	0.0207***	0.00355***
	(0.000851)	(0.000884)	(0.000862)	(0.000853)	(0.000796)	(0.000834)	(0.000815)	(0.000807)
Assets	No	No	No	0.0116***	No	No	No	0.0116***
				(0.000138)				(0.000138)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0608***	0.0244***	0.0461	-0.0165	0.0608***	0.0245***	0.0461	-0.0165
	(0.000193)	(0.000344)	(0.0659)	(0.0810)	(0.000193)	(0.000344)	(0.0659)	(0.0810)
Observations	2,989,530	2,989,530	2,987,150	2,987,150	2,989,530	2,989,530	2,987,150	2,987,150
Firms	602,230	602,230	601,608	601,608	602,230	602,230	601,608	601,608

Source: Author, Orbis

Appendix C: Basic results using winsorized data

*Note: Throughout all appendix C we will be using following designation: Robust standard errors are reported in parentheses.Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

Table C.1:Regression results from winsorized data: Tax havens as homogenous group

Dependent variable: pre tax per assets profitability				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.0236***	-0.0430***	-0.0342***	-0.0304***
	(0.00150)	(0.00152)	(0.00152)	(0.00153)
MNC	-0.0455***	-0.0256***	-0.0244***	-0.0160***
	(0.000818)	(0.000840)	(0.000844)	(0.000867)
Assets	No	No	No	0.0222***
				(0.000245)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0875***	0.0377***	-0.0471***	-0.0140*
	(0.000248)	(0.000656)	(0.0156)	(0.00773)
Observations	3,564,445	3,564,445	3,542,094	3,542,094
Number of firms	661,598	661,598	656,423	656,423
Dependent variable: Tax payement per asset				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.00404***	-0.00556***	-0.00432***	-0.00303***
	(0.000207)	(0.000208)	(0.000202)	(0.000202)
MNC	-0.000808***	0.000520***	-4.43e-05	0.00286***
	(0.000114)	(0.000117)	(0.000115)	(0.000116)
Assets	No	No	No	-0.00201***
				(2.75e-05)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0176***	0.0174***	0.00235	0.0144***
	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00185)
Observations	3,282,313	3,282,313	3,280,060	3,280,060
Number of firms	622,243	622,243	621,631	621,631

Source: Author, Orbis

Table C.2: Regression results from winsorized data: Tax havens as homogenous group

Dependent variable: Tax payement per profit				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	-0.0117***	-0.00228	0.00305**	0.000738
	(0.00141)	(0.00216)	(0.00139)	(0.00139)
MNC	0.00764***	0.00733***	-0.0105***	-0.0156***
	(0.000693)	(0.00094)	(0.000706)	(0.000715)
Assets	No	No	No	0.00554***
				(0.000188)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.126***	0.0277***	0.124***	0.110***
	(0.000198)	(0.000409)	(0.0131)	(0.0155)
Observations	3,223,645	3,014,753	3,220,432	3,199,081
Number of firms	623,617	603,865	622,792	617,568
Dependent variable: Long term debt ratio				
Explanatory varables	(1)	(2)	(3)	(4)
Tax Haven link	0.0725***	0.0840***	0.0678***	0.0610***
	(0.00218)	(0.00216)	(0.00211)	(0.00208)
MNC	0.0208***	0.00733***	0.00806***	-0.00639***
	(0.000898)	(0.000940)	(0.000922)	(0.000924)
Assets	No	No	No	0.0103***
				(0.000160)
Country dummies	No	Yes	Yes	Yes
NACE dummies	No	No	Yes	Yes
Constant	0.0663***	0.0277***	0.0431	-0.0173
	(0.000212)	(0.000409)	(0.0658)	(0.0803)
Observations	3,014,753	3,014,753	3,012,367	3,012,367
Number of firms	603,865	603,865	603,242	603,242

Source: Author, Orbis

Table C.3: Summary of regression results for individual countries of winsorized data

Country	pre tax per assets profitability		Tax payement per asset		Tax payement per profit		Long term debt ratio	
	TH	MNE	TH	MNE	TH	MNE	TH	MNE
all	-0.0304***	-0.0160***	-0.00303***	0.00286***	0.000738	-0.0156***	0.0610***	-0.00639***
	(0.00153)	(0.000867)	(0.000202)	(0.000116)	(0.00139)	(0.000715)	(0.00208)	(0.000924)
Cyprus	-0.0311***	-0.0206***	-0.00270***	0.00235***	0.00441**	-0.0160***	0.0769***	0.00123
	(0.00216)	(0.000798)	(0.000287)	(0.000105)	(0.00201)	(0.000670)	(0.00313)	(0.000904)
Netherlands	-0.00313	-0.0242***	0.00217***	0.00191***	-0.00331	-0.0153***	-0.00487	0.0114***
	(0.00351)	(0.000771)	(0.000446)	(0.000102)	(0.00282)	(0.000657)	(0.00382)	(0.000915)
Switzerland	0.0104**	-0.0520***	0.00226***	0.00193***	0.00509	-0.0156***	0.00288	0.0111***
	(0.00414)	(0.000721)	(0.000551)	(0.000101)	(0.00326)	(0.000654)	(0.00491)	(0.000908)
Louxembourg	-0.0178***	-0.0239***	-0.00172***	0.00205***	-0.0236***	-0.0148***	0.0264***	0.0105***
	(0.00406)	(0.000768)	(0.000494)	(0.000101)	(0.00357)	(0.000652)	(0.00550)	(0.000905)
Virgin Islands	-0.0465***	-0.0225***	-0.00563***	0.00224***	0.0158***	-0.0160***	0.0604***	0.00858***
	(0.00325)	(0.000775)	(0.000407)	(0.000102)	(0.00346)	(0.000655)	(0.00547)	(0.000901)
United States	0.0250***	-0.0257***	0.00666***	0.00165***	0.0121***	-0.0161***	-0.0364***	0.0132***
	(0.00328)	(0.000772)	(0.000487)	(0.000101)	(0.00257)	(0.000659)	(0.00299)	(0.000923)
Germany	0.0320***	-0.0282***	0.00460***	0.00146***	0.00830***	-0.0164***	-0.0348***	-0.00204
	(0.00204)	(0.000799)	(0.000290)	(0.000104)	(0.00160)	(0.000686)	(0.00197)	(0.00423)
Great Britain	0.00570	-0.0246***	0.00229***	0.00191***	0.00102	-0.0155***	0.0153***	0.0113***
	(0.00361)	(0.000771)	(0.000501)	(0.000101)	(0.00300)	(0.000656)	(0.000963)	(0.000912)

Source: Author, Orbis

Appendix D: Full regression results for examined countries using winsorized data

*Note: Throughout all appendix D we will be using following designation: Robust standard errors are reported in parentheses.Statistical significance levels are as follows: *** p<0.01, ** p<0.05, * p<0.1.*

Table D.1: Full regression results for Cyprus and Netherlands (winsorized data). Dependend varable: pre tax profit per asset

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0243***	-0.0448***	-0.0352***	-0.0311***	-0.00573	-0.00602*	-0.00444	-0.00313
	(0.00213)	(0.00213)	(0.00214)	(0.00216)	(0.00352)	(0.00350)	(0.00348)	(0.00351)
MNC	-0.0489***	-0.0320***	-0.0295***	-0.0206***	-0.0515***	-0.0373***	-0.0337***	-0.0242***
	(0.000750)	(0.000768)	(0.000773)	(0.000798)	(0.000724)	(0.000740)	(0.000744)	(0.000771)
Assets	No	No	No	0.0222***	No	No	No	0.0222***
				(0.000245)				(0.000245)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0875***	0.0377***	-0.0469***	-0.0137*	0.0875***	0.0374***	-0.0468***	-0.0134*
	(0.000248)	(0.000656)	(0.0156)	(0.00770)	(0.000248)	(0.000655)	(0.0156)	(0.00767)
Observations	3,564,445	3,564,445	3,542,094	3,542,094	3,564,445	3,564,445	3,542,094	3,542,094
Firms	661,598	661,598	656,423	656,423	661,598	661,598	656,423	656,423

Source: Author, Orbis

Table D.2: Full regression results for Switzerland and Luxembourg (winsorized data). Dependend varable: pre tax profit per asset

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0104**	0.0125***	0.0111***	0.0113***	-0.0330***	-0.0296***	-0.0192***	-0.0178***
	(0.00414)	(0.00411)	(0.00408)	(0.00413)	(0.00405)	(0.00408)	(0.00401)	(0.00406)
MNC	-0.0520***	-0.0380***	-0.0343***	-0.0247***	-0.0508***	-0.0368***	-0.0334***	-0.0239***
	(0.000721)	(0.000736)	(0.000741)	(0.000768)	(0.000721)	(0.000736)	(0.000741)	(0.000768)
Assets	No	No	No	0.0222***	No	No	No	0.0222***
				(0.000245)				(0.000245)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0875***	0.0374***	-0.0468***	-0.0134*	0.0875***	0.0374***	-0.0468***	-0.0134*
	(0.000248)	(0.000655)	(0.0156)	(0.00766)	(0.000248)	(0.000655)	(0.0156)	(0.00767)
Observations	3,564,445	3,564,445	3,542,094	3,542,094	3,564,445	3,564,445	3,542,094	3,542,094
Firms	661,598	661,598	656,423	656,423	661,598	661,598	656,423	656,423

Source: Author, Orbis

Table D.3: Full regression results for Virgin Islands and United States (winsorized data). Dependend varable: pre tax profit per asset

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0241***	-0.0576***	-0.0505***	-0.0465***	0.0324***	0.0324***	0.0232***	0.0250***
	(0.00322)	(0.00322)	(0.00323)	(0.00325)	(0.00329)	(0.00327)	(0.00324)	(0.00328)
MNC	-0.0508***	-0.0353***	-0.0319***	-0.0225***	-0.0535***	-0.0393***	-0.0352***	-0.0257***
	(0.000726)	(0.000743)	(0.000748)	(0.000775)	(0.000725)	(0.000740)	(0.000745)	(0.000772)
Assets	No	No	No	0.0222***	No	No	No	0.0222***
				(0.000245)				(0.000245)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0875***	0.0374***	-0.0470***	-0.0137*	0.0875***	0.0374***	-0.0469***	-0.0134*
	(0.000248)	(0.000655)	(0.0156)	(0.00768)	(0.000248)	(0.000655)	(0.0156)	(0.00766)
Observations	3,564,445	3,564,445	3,542,094	3,542,094	3,564,445	3,564,445	3,542,094	3,542,094
Firms	661,598	661,598	656,423	656,423	661,598	661,598	656,423	656,423

Source: Author, Orbis

Table D.4: Full regression results for Germany and Great Britain (winsorized data). Dependend varable: pre tax profit per asset

	Germany				Great Britain			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0336214***	0.0380***	0.0328***	0.0320***	0.0123***	0.00926**	0.00532	0.00570
	.0020171	(0.00203)	(0.00202)	(0.00204)	(0.00366)	(0.00364)	(0.00359)	(0.00361)
MNC	-0.0557942***	-0.0421***	-0.0379***	-0.0282***	-0.0522***	-0.0380***	-0.0341***	-0.0246***
	.0007544	(0.000768)	(0.000772)	(0.000799)	(0.000723)	(0.000739)	(0.000743)	(0.000771)
Assets	No	No	No	0.0222***	No	No	No	0.0222***
				(0.000245)				(0.000245)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0874649***	0.0375***	-0.0469***	-0.0135*	0.0875***	0.0374***	-0.0468***	-0.0134*
	0.0002484	(0.000655)	(0.0156)	(0.00767)	(0.000248)	(0.000655)	(0.0156)	(0.00766)
Observations	3,564,445	3,564,445	3,542,094	3,542,094	3,564,445	3,564,445	3,542,094	3,542,094
Firms	661,598	661,598	656,423	656,423	661,598	661,598	656,423	656,423

Source: Author, Orbis

Table D.5: Full regression results for Cyprus and Netherlands (winsorized data). Dependend varable: tax payments per asset

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00364***	-0.00536***	-0.00409***	-0.00270***	0.00217***	0.00146***	0.00164***	0.00217***
	(0.000296)	(0.000296)	(0.000287)	(0.000287)	(0.000477)	(0.000470)	(0.000449)	(0.000446)
MNC	-0.00146***	-0.000378***	-0.000749***	0.00235***	-0.00200***	-0.00114***	-0.00135***	0.00191***
	(0.000104)	(0.000107)	(0.000105)	(0.000105)	(0.000101)	(0.000103)	(0.000101)	(0.000102)
Assets	No	No	No	-0.00201***	No	No	No	-0.00201***
				(2.75e-05)				(2.75e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0176***	0.0174***	0.00237	0.0144***	0.0176***	0.0174***	0.00238	0.0144***
	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00185)	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00186)
Observations	3,282,313	3,282,313	3,280,060	3,280,060	3,282,313	3,282,313	3,280,060	3,280,060
Firms	622,243	622,243	621,631	621,631	622,243	622,243	621,631	621,631

Source: Author, Orbis

Table D.6: Full regression results for Switzerland and Luxembourg (winsorized data). Dependend varable: tax payments per asset

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00207***	0.00246***	0.00223***	0.00226***	-0.00367***	-0.00424***	-0.00235***	-0.00172***
	(0.000563)	(0.000554)	(0.000547)	(0.000551)	(0.000526)	(0.000527)	(0.000499)	(0.000494)
MNC	-0.00197***	-0.00115***	-0.00135***	0.00193***	-0.00180***	-0.000962***	-0.00122***	0.00205***
	(0.000100)	(0.000102)	(0.000100)	(0.000101)	(0.000100)	(0.000103)	(0.000100)	(0.000101)
Assets	No	No	No	-0.00201***	No	No	No	-0.00201***
				(2.75e-05)				(2.75e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0176***	0.0174***	0.00238	0.0144***	0.0176***	0.0174***	0.00238	0.0144***
	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00186)	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00186)
Observations	3,282,313	3,282,313	3,280,060	3,280,060	3,282,313	3,282,313	3,280,060	3,280,060
Firms	622,243	622,243	621,631	621,631	622,243	622,243	621,631	621,631

Source: Author, Orbis

Table D.7: Full regression results for Virgin Islands and United States (winsorized data). Dependend varable: tax payments per asset

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00585***	-0.00785***	-0.00686***	-0.00563***	0.00842***	0.00812***	0.00612***	0.00666***
	(0.000416)	(0.000417)	(0.000407)	(0.000407)	(0.000508)	(0.000498)	(0.000484)	(0.000487)
MNC	-0.00168***	-0.000743***	-0.000989***	0.00224***	-0.00236***	-0.00152***	-0.00161***	0.00165***
	(0.000101)	(0.000104)	(0.000101)	(0.000102)	(9.97e-05)	(0.000102)	(9.98e-05)	(0.000101)
Assets	No	No	No	-0.00201***	No	No	No	-0.00201***
				(2.75e-05)				(2.75e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0176***	0.0174***	0.00235	0.0144***	0.0176***	0.0174***	0.00237	0.0144***
	(3.34e-05)	(9.54e-05)	(0.00234)	(0.00185)	(3.34e-05)	(9.54e-05)	(0.00234)	(0.00186)
Observations	3,282,313	3,282,313	3,280,060	3,280,060	3,282,313	3,282,313	3,280,060	3,280,060
Firms	622,243	622,243	621,631	621,631	622,243	622,243	621,631	621,631

Source: Author, Orbis

Table D.8: Full regression results for Germany and Great Britian (winsorized data). Dependend varable: tax payments per asset

	Germany				Great Britian			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00598***	0.00561***	0.00490***	0.00460***	0.00390***	0.00319***	0.00222***	0.00229***
	(0.000300)	(0.000296)	(0.000290)	(0.000290)	(0.000533)	(0.000525)	(0.000506)	(0.000501)
MNC	-0.00262***	-0.00174***	-0.00186***	0.00146***	-0.00207***	-0.00121***	-0.00137***	0.00191***
	(0.000104)	(0.000106)	(0.000103)	(0.000104)	(0.000100)	(0.000102)	(0.000100)	(0.000101)
Assets	No	No	No	-0.00201***	No	No	No	-0.00201***
				(2.75e-05)				(2.75e-05)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0176***	0.0174***	0.124***	0.0144***	0.0176***	0.0174***	0.00238	0.0144***
	(3.34e-05)	(9.54e-05)	(0.0131)	(0.00185)	(3.34e-05)	(9.55e-05)	(0.00234)	(0.00186)
Observations	3,282,313	3,282,313	3,220,432	3,280,060	3,282,313	3,282,313	3,280,060	3,280,060
Firms	622,243	622,243	622,792	621,631	622,243	622,243	621,631	621,631

Source: Author, Orbis

Table D.9: Full regression results for Cyprus and Netherlands (winsorized data). Dependend varable: tax payments per profit

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0106***	0.00109	0.00688***	0.00441**	0.00275	-0.00418	-0.00261	-0.00331
	(0.00203)	(0.00204)	(0.00201)	(0.00201)	(0.00291)	(0.00287)	(0.00284)	(0.00282)
MNC	0.00579***	-0.00573***	-0.0105***	-0.0160***	0.00443***	-0.00541***	-0.00954***	-0.0153***
	(0.000646)	(0.000658)	(0.000660)	(0.000670)	(0.000633)	(0.000644)	(0.000645)	(0.000657)
Assets	No	No	No	0.00553***	No	No	No	0.00554***
				(0.000188)				(0.000188)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.126***	0.113***	0.124***	0.110***	0.126***	0.113***	0.124***	0.110***
	(0.000198)	(0.000653)	(0.0131)	(0.0155)	(0.000198)	(0.000653)	(0.0131)	(0.0155)
Observations	3,223,645	3,223,645	3,220,432	3,199,081	3,223,645	3,223,645	3,220,432	3,199,081
Firms	623,617	623,617	622,792	617,568	623,617	623,617	622,792	617,568

Source: Author, Orbis

Table D.10: Full regression results for Switzerland and Luxembourg (winsorized data). Dependend varable: tax payments per profit

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.00611*	0.00615*	0.00499	0.00509	-0.0185***	-0.0294***	-0.0224***	-0.0236***
	(0.00338)	(0.00331)	(0.00326)	(0.00326)	(0.00368)	(0.00363)	(0.00358)	(0.00357)
MNC	0.00436***	-0.00578***	-0.00981***	-0.0156***	0.00507***	-0.00479***	-0.00904***	-0.0148***
	(0.000630)	(0.000641)	(0.000643)	(0.000654)	(0.000628)	(0.000639)	(0.000641)	(0.000652)
Assets	No	No	No	0.00554***	No	No	No	0.00554***
				(0.000188)				(0.000188)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.126***	0.113***	0.124***	0.110***	0.126***	0.113***	0.124***	0.110***
	(0.000198)	(0.000653)	(0.0131)	(0.0155)	(0.000198)	(0.000653)	(0.0131)	(0.0155)
Observations	3,223,645	3,223,645	3,220,432	3,199,081	3,223,645	3,223,645	3,220,432	3,199,081
Firms	623,617	623,617	622,792	617,568	623,617	623,617	622,792	617,568

Source: Author, Orbis

Table D.11: Full regression results for Virgin Islands and United States (winsorized data). Dependend varable: tax payments per profit

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.00160	0.0142***	0.0182***	0.0158***	0.0229***	0.0176***	0.0128***	0.0121***
	(0.00349)	(0.00350)	(0.00346)	(0.00346)	(0.00266)	(0.00261)	(0.00258)	(0.00257)
MNC	0.00461***	-0.00616***	-0.0104***	-0.0160***	0.00330***	-0.00656***	-0.0103***	-0.0161***
	(0.000629)	(0.000642)	(0.000643)	(0.000655)	(0.000636)	(0.000647)	(0.000648)	(0.000659)
Assets	No	No	No	0.00553***	No	No	No	0.00554***
				(0.000188)				(0.000188)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.126***	0.112***	0.124***	0.110***	0.126***	0.113***	0.124***	0.110***
	(0.000198)	(0.000653)	(0.0131)	(0.0155)	(0.000198)	(0.000653)	(0.0131)	(0.0155)
Observations	3,223,645	3,223,645	3,220,432	3,199,081	3,223,645	3,223,645	3,220,432	3,199,081
Firms	623,617	623,617	622,792	617,568	623,617	623,617	622,792	617,568

Source: Author, Orbis

Table D.12: Full regression results for German and Great Britain (winsorized data). Dependend varable: tax payments per profit

	German				Great Britain			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0244***	0.0116***	0.00757***	0.00830***	0.00515*	0.00164	0.00118	0.00102
	(0.00164)	(0.00162)	(0.00161)	(0.00160)	(0.00311)	(0.00304)	(0.00300)	(0.00300)
MNC	0.00150**	-0.00700***	-0.0106***	-0.0164***	0.00434***	-0.00566***	-0.00970***	-0.0155***
	(0.000666)	(0.000675)	(0.000675)	(0.000686)	(0.000632)	(0.000643)	(0.000644)	(0.000656)
Assets	No	No	No	0.00554***	No	No	No	0.00554***
				(0.000188)				(0.000188)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.126***	0.113***	0.124***	0.110***	0.126***	0.113***	0.124***	0.110***
	(0.000198)	(0.000653)	(0.0131)	(0.0155)	(0.000198)	(0.000653)	(0.0131)	(0.0155)
Observations	3,223,645	3,223,645	3,220,432	3,199,081	3,223,645	3,223,645	3,220,432	3,199,081
Firms	623,617	623,617	622,792	617,568	623,617	623,617	622,792	617,568

Source: Author, Orbis

Table D.13: Full regression results for Cyprus and Netherlands (winsorized data). Dependend varable: Long term debt ratio

	Cyprus				Netherlands			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0863***	0.102***	0.0844***	0.0769***	-0.00210	0.000797	-0.00249	-0.00487
	(0.00329)	(0.00326)	(0.00318)	(0.00313)	(0.00409)	(0.00404)	(0.00387)	(0.00382)
MNC	0.0303***	0.0185***	0.0167***	0.00123	0.0410***	0.0320***	0.0280***	0.0114***
	(0.000876)	(0.000920)	(0.000902)	(0.000904)	(0.000894)	(0.000938)	(0.000916)	(0.000915)
Assets	No	No	No	0.0103***	No	No	No	0.0103***
				(0.000160)				(0.000160)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0663***	0.0277***	0.0428	-0.0177	0.0663***	0.0283***	0.0426	-0.0186
	(0.000212)	(0.000410)	(0.0658)	(0.0804)	(0.000212)	(0.000409)	(0.0658)	(0.0805)
Observations	3,014,753	3,014,753	3,012,367	3,012,367	3,014,753	3,014,753	3,012,367	3,012,367
Firms	603,865	603,865	603,242	603,242	603,865	603,865	603,242	603,242

Source: Author, Orbis

Table D.14: Full regression results for Switzerland and Luxembourg (winsorized data). Dependend varable: Long term debt ratio

	Switzerland				Luxembourg			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.000818	0.000211	0.00280	0.00288	0.0496***	0.0475***	0.0287***	0.0264***
	(0.00510)	(0.00505)	(0.00493)	(0.00491)	(0.00590)	(0.00576)	(0.00554)	(0.00550)
MNC	0.0408***	0.0320***	0.0278***	0.0111***	0.0394***	0.0307***	0.0271***	0.0105***
	(0.000887)	(0.000931)	(0.000909)	(0.000908)	(0.000882)	(0.000926)	(0.000906)	(0.000905)
Assets	No	No	No	0.0103***	No	No	No	0.0103***
				(0.000160)				(0.000160)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0663***	0.0283***	0.0426	-0.0186	0.0663***	0.0283***	0.0425	-0.0186
	(0.000212)	(0.000409)	(0.0658)	(0.0805)	(0.000212)	(0.000409)	(0.0658)	(0.0805)
Observations	3,014,753	3,014,753	3,012,367	3,012,367	3,014,753	3,014,753	3,012,367	3,012,367
Firms	603,865	603,865	603,242	603,242	603,865	603,865	603,242	603,242

Source: Author, Orbis

Table D.15: Full regression results for Virgin Islands and United States (winsorized data). Dependend varable: Long term debt ratio

	Virgin Islands				United States			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	0.0693***	0.0796***	0.0671***	0.0604***	-0.0424***	-0.0422***	-0.0337***	-0.0364***
	(0.00563)	(0.00563)	(0.00554)	(0.00547)	(0.00308)	(0.00308)	(0.00300)	(0.00299)
MNC	0.0381***	0.0285***	0.0249***	0.00858***	0.0432***	0.0343***	0.0297***	0.0132***
	(0.000877)	(0.000923)	(0.000901)	(0.000901)	(0.000906)	(0.000948)	(0.000925)	(0.000923)
Assets	No	No	No	0.0103***	No	No	No	0.0103***
				(0.000160)				(0.000160)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0663***	0.0282***	0.0428	-0.0182	0.0663***	0.0283***	0.0426	-0.0186
	(0.000212)	(0.000408)	(0.0658)	(0.0805)	(0.000212)	(0.000409)	(0.0658)	(0.0806)
Observations	3,014,753	3,014,753	3,012,367	3,012,367	3,014,753	3,014,753	3,012,367	3,012,367
Firms	603,865	603,865	603,242	603,242	603,865	603,865	603,242	603,242

Source: Author, Orbis

Table D.16: Full regression results for German and Great Britain (winsorized data). Dependend varable: Long term debt ratio

	German				Great Britain			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Country link	-0.0444***	-0.0471***	-0.0362***	-0.0348***	0.00188	-0.00184	-0.00202	-0.00204
	(0.00204)	(0.00204)	(0.00197)	(0.00197)	(0.00442)	(0.00440)	(0.00426)	(0.00423)
MNC	0.0462***	0.0375***	0.0322***	0.0153***	0.0408***	0.0321***	0.0280***	0.0113***
	(0.000954)	(0.000990)	(0.000966)	(0.000963)	(0.000891)	(0.000935)	(0.000913)	(0.000912)
Assets	No	No	No	0.0103***	No	No	No	0.0103***
				(0.000160)				(0.000160)
Sector dummies	No	No	Yes	Yes	No	No	Yes	Yes
Country dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Constant	0.0663***	0.0282***	0.0426	-0.0185	0.0663***	0.0283***	0.0426	-0.0186
	(0.000212)	(0.000408)	(0.0658)	(0.0805)	(0.000212)	(0.000409)	(0.0658)	(0.0805)
Observations	3,014,753	3,014,753	3,012,367	3,012,367	3,014,753	3,014,753	3,012,367	3,012,367
Firms	603,865	603,865	603,242	603,242	603,865	603,865	603,242	603,242

Source: Author, Orbis