Charles University in Prague

Faculty of Social Sciences
Institute of Economic Studies

BACHELOR THESIS

Estimating the Misalignment between the Locations of Profits and Economic Activities of EU's Banks

Author: **Eliška Jelínková**

Supervisor: **Petr Janský, Ph.D.**

Academic Year: **2015/2016**

Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

The author grants to Charles University permission to reproduce and to distribute copies of this thesis document in whole or in part.

Prague, July 29, 2016

Signature

Acknowledgements

At this point I would like to thank Petr Janský, Ph.D., for his valuable advices and ideas, which were always useful and beneficial to me. I am very grateful for his supervision.

Abstract

In this thesis we focus on the misalignment of European multinational banks' profits and the role of tax havens in banks' taxation. We use the existing literature and our newly collected data to estimate the difference between the location of banks' declared profit and the real economic activity in a given country. We estimate the impact of unitary taxation using an apportionment formula on banks' redistributed tax base as well as on overall tax base in a given country. We find that banks report their profits disproportionally to their economic activities in given countries. If profit were apportioned across countries on the basis of employees and turnover, approximately 60% of the profits would be redistributed on average each year. Then we focus on where the main part of a banks' profit goes and compare the results with an existing list of tax havens. We conclude that the low–tax countries play a significant role in profit redistribution of banks and that the related risk of base erosion and profit shifting is higher for large banks.

JEL Classification	H20, H21, H25, H26,
Keywords	Country-by-country reporting, Unitary taxation, Base Erosion and Profit Shifting, Tax Avoidance

Author's e-mail	elajelinkova@gmail.com
Supervisor's e-mail	jasnky@fsv.cuni.cz

Abstrakt

V práci se zaměřujeme na umístění zisku mezinárodních evropských bank v porovnání s umístěním jejich ekonomických aktivit a zkoumáme roli daňových rájů v danění těchto bank. K odhadnutí rozdílu mezi umístěním zisku a ekonomické aktivity v dané zemi používáme existující literaturu a nově získaná data na jejichž základě můžeme říct, které banky vykazují svůj zisk neproporčně vzhledem k jejich ekonomickým aktivitám. Použitím přerozdělovacího vzorce simulujeme dopad jednotného zdanění na daňový základ bank a na celkový daňový základ nahlášený v jednotlivých zemích. Pokud by zisk byl přerozdělen na základě obratu a počtu zaměstnanců banky, došlo by k průměrnému přerozdělení přibližně 60% zisků ročně. Dále se zaměřujeme na to, kam míří největší část bankovních zisků a výsledek porovnáme s existujícím seznamem daňových rájů. Závěrem práce je, že země s nízkou daňovou sazbou hrají důležitou roli v přerozdělování zisků bank a riziko eroze daňových základů a přesouvání zisků je vyšší u větších bank.

Klasifikace JEL	H20, H21, H25, H26,
Klíčová slova	Podávání zpráv po jednotlivých zemích, Jednotné zdanění, Eroze daňových základů a přesouvání zisků, Daňové úniky

E-mail autora	`elajelinkova@gmail.com`
E-mail vedoucího práce	`jasnky@fsv.cuni.cz`

Contents

List of Tables

Acronyms

CCCTB Common Consolidated Corporate Tax Base

CRD IV Capital Requirements Directive IV

BEPS Base Erosion and Profit Shifting

MNE Multinational Enterprises

OECD Organization for Economic Co-operation and Development

SME Small and Medium Enterprices

Bachelor Thesis Proposal

Author	Eliška Jelínková
Supervisor	Petr Janský, Ph.D.
Proposed topic	Estimating the Misalignment between the Locations of Profits and Economic Activities of EU's Banks

Topic characteristics In the thesis we will focus on the misalignment of profit of financial institutions, namely, banks. Base Erosion and Profit Shifting are one of the main issues of current taxation; we would like to uncover the potential role of financial institutions in this matter. We will analyse existing literature and then introduce our own analysis.

Research questions In our analysis we would like to answer the following questions:

- Is there an inconsistency between reported profit and real economic activity among banks
- How would the resulted tax basis either of countries as a whole or each subsidiary of the bank group differ from the current ones?
- How would the resulted tax income of countries and tax burden of banks differ from current ones?
- Which countries have the largest share of a banks' profit?

Methodology We will use newly available data, which have to be disclosed annually by banks on country-by-country basis. We will simulate the impact of unitary taxation on the tax base on the bank—country level using the employees apportionment factor combined with turnover apportionment factor, which is a similar approach as Murphy (2015) introduced in his research and it

is actually a simplified model as the European Union proposed called Common Consolidated Corporate Tax Base (CCCTB). From this computation we will estimate the impact of the unitary taxation on overall income of given country and on the overall tax burden of given bank. We will locate the maximum profit per employee per bank and we will compare the results with the existing list of tax haven.

Outline

1. Introduction
2. Literature review
3. Empirical analysis
4. Discussion
5. Conclusion

Core bibliography

1. Cobham, A. & P. Janský (2015): "Working Paper 42 Measuring misalignment: The location of US multinationals' economic activity versus the location of their profits."
2. Cobham, A. & S. Loretz (2014): "Working Paper 27 International Distribution of the Corporate Tax Base : Implications of Different Apportionment Factors under Unitary."
3. Devereux, M. P & S. Loretz (2008): "The Effects of EU Formula Apportionment on Corporate Tax Revenues." *Institute for Fiscal Studies* **29(1)**): pp. 1–33.
4. Johannesen, N. & D. T. Larsen (2016): "The Power of Financial Transparency: An Event Study of Country-by-Country Reporting Standards Highlights." *Economics Letters.* http://dx.doi.org/10.1016/j.econlet.2016.05.029
5. Murphy, R. (2015): "European Banks' Country-by-Country Reporting A review of CRD IV." *ax Research LLP Greens / EFA MEPs European Parliament*
6. Dyreng, S. D. D. (2014): "Public pressure and corporate tax behaviour WP 14/16."

Author

Supervisor

Chapter 1

Introduction

Many countries, and especially the developing ones, suffer from tax avoidance. That is why the Organization for Economic Co-Operation and Development (OECD) developed the Action Plan, which is supposed to deal with Base Erosion and Profit Shifting (BEPS). Action 13 of this Action plan introduced a tool called country-by-country reporting. Beside other think, this action required financial institution to be founded in the European Union (EU) to report their performances on the country–by–country basis. This requirement should uncover possible under–reporting or over–reporting of profit and make the abusing of offshore financial centres more difficult.

The objective of the thesis is to find evidence about an inconsistency between economic activities and declared profit in the financial sector using newly available data provided by banks in their Country–by–country reports. We try to compare the share of economic activity in any country where the banks operate with the profit declared in that country. Another objective of the thesis might be the simulation of a banks tax base under unitary taxation using the apportionment factors. We simulate the possible impact of the unitary taxation on countries tax incomes as well as on banks tax burdens. As the EU proposed the Common Consolidated Corporate Tax Base, the unitary taxation might be used by all member states in the future.

The thesis follows recent research as analysis by Murphy (2015), Cobham & Loretz (2014) or Aubry *et al.* (2016). The focus of these analysis was also measuring the misalignment between the declared profit and the real economic activity and the last two mentioned used also the similar data as we use in our analysis.

An important issue appeared a short time ago when the UK approved the

intention of leaving the EU. This is the first time in history of the EU this has happened. On the basis of this recent activity we decided to cover the short analysis related to Brexit in the thesis.

The thesis is structured in the following way: We overview existing literature related to the misalignment of profit and tax evasion and the theoretical background, which describes the Country–by–country reporting and the system of unitary taxation proposed by the EU called CCCTB in Chapter 2 of the thesis. Chapter 3 informs how the data was collected and its limitations and we state the key research question and describe the methodology we are going to use. In Chapter 4 the analysis of the data will be done, trying to uncover the evidence about the profit redistribution, estimate the economic activity in each country and estimate the impact of Brexit on the EU and UK market. Finally in Chapter 5 we provide a discussion with existing literature and conclusion of our research. At the very end of the thesis the list of literature used and appendixes will be seen.

Chapter 2

Teoretical background

2.1 Literature Review

The tax avoidance and misalignment of profit of multinational enterprises is a current issue discussed by governments as well as researchers. Devereux & Loretz (2008) analyzed the impact of CCCTB on tax revenue of the EUs' member state as well as the impact of various apportionment factors on the overall tax base. They also used the Orbis data for years 2000 untill 2004 for recognizing members of multinational groups and data for tax revenue were taken from the OECD database. They come to the results, that the choice of an apportionment factor is important in giving different results of the final tax base. Depending on the apportionment factor, tax income of Hungary or Slovakia would significantly increase at the expense of Germany, Finland or Luxemburg.

Cobham & Janský (2015) deals with a similar issue. They examined possible misalignment of profits of US multinational enterprises using data provided by the U.S. Bureau of Economic Analysis (BEA), which were available in 2012. The data available in this year were aggregated to country and industry–level. In their analysis they tried to find evidences about the differences between a company's share of profit in a given country and the share of other economic indicators, such as number of employees or sales in the same country, which is one of the aims of this thesis. They used a similar approach as we will use in our analysis. They compared the results, using the Common Consolidated Corporate Tax Base (CCCTB) formula and Canadian formula with a share of the economic activity in a given country. They had more detailed data thus, they were able to us the full formula for CCCTB. They used two different ap-

proaches to measure the misalignment. First, the relative intensity of distortion using the correlation of profits reported and true economic activity for a given country. Second, the absolute scale of what is misaligned. The analysis showed the majority of profits from countries, where the real economic activity takes place, is shifted to just a couple of countries, which have very low effective tax rate, if none at all. However, countries on every income level are harmed due to Base Erosion and Profit Shifting.

Cobham & Loretz (2014) also analyzed the difference between the reported profit and the real economic activity in a given country in their paper. Firstly they analyzed the difference between separate accounting and unitary taxation and the impact on the tax revenue of a given country. Their analysis showed the country would receive higher tax revenue if the apportionment factor of all groups operating in the country, which we use in our analysis as an index of economic activity, was bigger than the share of reported profit before tax in the same country. In our analysis we will use the apportionment factor as an index of economic activity.

They used the Orbis data for their analysis provided by Bureau van Dijk, which were available on firm-level, on the consolidated and unconsolidated basis and included information about turnover, profit/loss before tax, tax, number of employees, payroll, tangible and total assets. Thus, it is more detailed than the data available from country–by–country reports, which we use in our analysis.

The analysis itself compares results using different apportionment factors. The profit of given country under unitary taxation is then equal to an overall group profit times apportionment factor. It is not surprising that using various apportionment factors leads to different results as Devereux & Loretz (2008) proved. For example the assets: An apportionment factor causes minimum difference between unitary taxation and separate accounting, whereas the number of employees leads to a larege redistribution of the profit. There is a considerable difference between the number of employees and the payroll apportionment factors. Naturally, the payroll factor harms low-income countries due to low wages, while on the other hand the number of employees factor makes them better off. Generally the number of employees factor causes a large redistribution of profits, making industrialized countries worse off and low–income countries better off. This fact is interesting to our analysis, because we do not have the information about wages, we can only use the information about the number of employees, if available. The differences between using different apportionment factors should not affect our analysis since we use a combination of all possible

factors. This should give us plausible information about the economic activity in each country.

Using unitary taxation causes significant decrease in the tax base due to consolidation of losses. However, the fact that low–tax countries end up with a lower tax base, is not influenced by the choice of the apportionment factor and we therefore expect similar results in our analysis redistribution of profit according to the real economic activity would make many countries better off except for a few countries where there is a large disproportion between economic activity and declared profits.

One of the most related articles to our analysis is by Murphy (2015), which used similar data and similar approaches as we do. He based his research on country–by–country reports of 26 multinational european banks available in the first half of the year 2015, which means his dataset may have consisted of data for 2014 or possibly for 2013. In that time many reports were incomplete, which made his analysis less accurate. The aim of his report was testing the hypothesis that same banks shifted profit to low tax jurisdictions from countries where the main economic activity arose. In our thesis we would like to reach similar results on newly available data.

To find evidence about the presence of BEPS, he used a similar approach as Cobham & Loretz (2014), which is based on unitary taxation. As the apportionment factor he used a combination of the number of employees and turnover weighted equally.

The outcome of his analysis showed that the redistribution of tax base according to unitary taxation would result in lower tax base for example in the USA, Luxemburg, Hong Kong, Jersey, Singapore or even in the Czech Republic. On the contrary countries such as Russia, Brazil or Germany could expect their tax base to lower significantly. The largest share of profits flows in low tax jurisdictions such as Luxemburg, the Netherlands or Malta, which might be rated as tax havens. This is the same conclusion, that Cobham & Loretz (2014) came to.

According to his analysis the biggest inconsistency between the economic activity and declared profits might be seen in bigger banks, which means there is a higher risk of BEPS. For example the Royal Bank of Scotland, Deutschebank and Rebobank Group are on the top of the list. As we use the similar data broadened about the year 2015, we expect a similar outcome of our analysis. Differences might occur, since his dataset for 2014 consists of fewer banks and the data was sometimes only available in incomplete form.

Aubry *et al.* (2016) used the data collected from country–by–country reports and they also applied a similar approach as Murphy (2015) and as we use in our analysis.. They analysed only banks established in France, so their dataset consisted of 5 biggest french banks. According to their analysis, there is a significant shift of profits to the low–tax jurisdictions, such as Luxemburg, Belgium, Hong Kong or Singapore and the highest profit per head was detected in Ireland, which are results almost identical to Murphy (2015). This should not be surprising since they used a similar data.

Huizinga & Laeven (2008) introduced the theory of profit shifting of multinational enterprises, depending on the international tax rate of each country. More precisely, the intensity of said profit shifting depends on the weighted average of international tax rate differences. They used data about european multinational manufacturing companies available from the Amadeus database, provided by the Bureau Van Dijk. They used an econometrical approach, applying a standard OLS regression estimated profit before tax. According to their analysis Germany experiences the largest outward shifting of the profit, which is in contradiction with Devereux & Loretz (2008) as well as with Murphy (2015), who come to the opposite conclusion.

One of the latest studies by Johannesen & Larsen (2016) used the country-by-country data for oil, gas and mining companies, whose disclosure is required by the European Parliament (2013), adopted in June 2013. In his study he dealt with the theory, that country-by-country reporting significantly decreases firm value. He described four events preceding the time country–by–country reporting came into force. His dataset consisted of firms listed on at least one european stock exchange. Afterwards he tried to estimate the difference between realized stock returns and expected stock return in these four dates and his analysis showed, that there is a significant negative difference between realized and expected stock return, which was accumulated over the 4 events stated.

2.2 Country-by-country reporting

In June 2013 the European parliament adopted the Capital Requirements Directive IV (CRD IV), which came in fact in 2014. According to this directive Article 89, every financial institution established in an EU member state, which operates in more than one country has the duty to annually disclose informa-

tion about its performance on the country–by–country basis; Information such as

- Name, activities, geographic location
- Turnover
- Profit/loss before tax
- Tax on profit or loss
- Public subsidies received
- Number of full time equivalent (FTE)

These are required and must be reported every year for each EU or non-EU country in which the financial institution has its establishment. Action 13 Country–by–country reporting is the next step in the Base Erosion and Profit Shifting action plan (BEPS action plan) which was adopted by Organization for Economic Co–Operation and Development (OECD) and the G20 countries in 2013 (OECD, 2015) and is influenced also by Action 11 (OECD, 2015).

The country–by–country reporting has been compulsory for European banks and financial institutions which operate in more than one country since 2015. Some of the banks disclosed their data before it was required, but others still do not do so, even after it became compulsory, and their reports are impossible to find.

In April 2016 the European Commission broadened the obligation of country-by-country reporting to all Multinational enterprises which have a subsidiary in at least one member state of the EU. This obligation covers companies and financial institutions which have consolidated turnover over EUR 750 million. This means that the policy covers the most relevant companies and does not impose unnecessary administrative burdens on small and medium enterprises. The rules for country-by-country reporting for MNEs are different than they are for financial institutions. Only information about the turnover and employees have to be published, and the rest of the information has to be reported to the local governments (European Commission, 2016b).

MNEs should starting report their performance for the fiscal year starting in January of year 2016 or later this year. Since the report should be elaborated and submitted no longer than 12 months after the end of the fiscal year, the reports should be submitted by the end of 2017 (European Commission, 2016a).

The motive for country–by–country reporting is to reduce the BEPS and tax avoidance. More detailed reporting might help the tax authority to detect possible tax avoidance and companies with low effective tax rate might be under public pressure (Dyreng, 2014).

A similar concept to country–by–country reporting in the EU was introduced in the USA. It is called the Dodd-Frank Wall Street Reform and Consumer Protection Act and it was signed by President Obama in July 2010. This Act requires all extractive industries listed by the Securities and Exchange Commission (SEC) to report all payments made to US government (PWC, 2013).

2.3 Unitary taxation

The BEPS is a current issue of today's economy and many global organizations such as International Monetary Fund (2014) or OECD (2013) discuss this imperfection of taxation and try to find a solution. Country–by–country reporting may be the first step forward, but the concept of unitary taxation might be an optimal solution of these misalignments. In 2011 European Union proposed a new system of taxation called the Common Consolidated Corporate Tax Base (CCCTB) (European Commission, 2016b). This system should allow any company, which operates in the EU, to calculate its tax base jointly for all countries where it operates and has its subsidiary. The tax would then be calculated on the national level from the tax base which would be a relative part of the consolidated base considering the economic activity in given country.

Equation 2.1 serves for redistributing profit and it includes sales, capital, and labor, which consists of employees and payrolls.

$$ShareA = \frac{1}{3} \cdot \left(\frac{Sales^{A}}{Sales^{Group}} + Employeesfactor + \frac{Assets^{A}}{Assets^{Group}} \right) \cdot CTB \quad (2.1)$$

$$Employeesfactor = \left(\frac{1}{2} \cdot \frac{Payroll^{A}}{Payroll^{Group}} + \frac{1}{2} \cdot \frac{Employees^{A}}{Employees^{Group}} \right) \quad (2.2)$$

This way, we get the proportional tax base of a given country and the corresponding tax is calculated simply by multiplying the result by the statutory tax rate. Equation 2.1 uses the economic activity as the indicator of where the bigger share of profit should go. As analyzed by Cobham & Loretz (2014) there

are many apportionment factors and the results differ, depending on which ones were used. Equation 2.1 combines several of these apportionment factors thus the result should be credible.

As the profit of each subsidiary is counted from its economic activity the unitary taxation should make tax avoidance more difficult. Nevertheless it seems there is still a long way to successfully adopt this CCCTB directive.

Cobham & Loretz (2014) pointed out, that losses will be treated differently under unitary taxation. Currently, they can be either offset against the profit of another subsidiary of the group in the same country or they are carried forward and will be offset against future profits. Currently it is not possible to offset losses against profit of the subsidiary in another country. This does not apply for unitary taxation where in contrast to current system losses would be offset against profit generated in any country by the group. The advantage of this procedure is that it would reduce the differences between treatments of domestic and foreigner losses, which is one of the main arguments of the EU in favor of the Common Consolidated Corporate Tax Base (CCCTB). Furthermore, it would reduce the overall losses carried forward and the overall tax base would be lowered by these losses, if applied immediately.

However, the offsetting of losses against profits on an international level might cause the overall tax base to appear negative, although it would be positive under separated accounting. Thus, the tax base would be negative in each country after redistribution of tax base according to apportionment factors even though sometimes it might be positive under separate accounting. These differences can be seen in our analysis as well.

Chapter 3

Methodology

In the following section we will focus on the description of our analysis. In the first part, we will depict the aim of the analysis. In the second part, we will describe our dataset including information about limitation and transformation of the data. In the final part, we will give the reader an idea about the method we used to analyze the data.

In our analysis we would like to focus on the following tasks. The main one is aimed at the misalignment of reported profits concidering the economic activity of financial institutions, namely, banks. We would like to show the difference between the countries where banks report their profits or generate the turnover, and countries where real economic activities take place and we use various approaches.

The first approach compares different ratios, which measure the inconsistency between reported profit or turnover and economic activity. It can be a sign of the BEPS but not necessarily. The inconsistency might be caused because of differences between developing and developed countries. In developing countries there are lower wages therefore more employees might be employed. But profiat in developed countries might be generated more easily than in developing ones, even though in developed countries there might be fewer employees than in developing ones. In other word, each country has a different profitability and this may cause the inconsistency between reported profit and economic activity in the we recognised it.

The second approach to find misalignment is simulation of the impact of unitary taxation. The unitary taxation and the misalignment of location of the profit and the economic activity is actually the same issue which yields the same results. Our focus is to answer following questions: How would the

resulting tax bases differ from the current ones? How would the tax income of countries and the tax burden of banks differ from the current one? We would also like to estimate where the largest share of a bank's profit goes. Are tax havens among these countries, where the largest share of profit ended up?

We provide a brief estimation related to recent Brexit. We will show the share of UK banks on the EU market and the share of EU banks — UK banks excluded — on the UK's market.

In the following paragraphs we are going to explain the way we collected data. The country–by–country reporting gives us a new source of information, which has not been studied much because the regulation came in fact in year 2015. For our analysis we use data for years 2014 and 2015 if available at the end of June 2016. Banks either published country–by–country reports separately or the data were part of the annual or sustainable reports. Our intention was to collect data for the biggest multinational European banks according to SNL Finance (2016) which, we suppose, can influence the results the most. The dataset consists of 32 banks alltogether. These are banks from 11 European countries and they operate in 135 countries around the world and their overall performance can be seen in appendix in Table 6.1.

We were able to obtain data for year 2014 for all 32 banks and data for year 2015 for only 28 banks. The rest of the banks may disclose their data for the year 2015 later this year. Although the regulation has been in effect for two years, many banks do not publish their country–by–country reports yet, including Allied Irish Banks plc, Credit Suisse, UBS AG and Lloyds Banking Group plc. Country-by-country report of Santander Group, the 8th largest European bank, cannot be found anywhere so we assume they did not disclose their data yet. Nordea Bank AB, the 15th largest bank, disclosed data only for the year 2013, which we do not cover in the analysis. Cassa depositi e prestiti SpA, the 25th largest European bank according to SNL Financial, operates only on the Italian market, therefore has no obligation to disclose its data on country–by–country bases. Thus, except for these banks, we have a full dataset of the 25 largest European banks and 7 smaller European banks.

In our analysis we use information about turnover, profit/loss before tax, tax on profit/loss, and a number of full time equivalent. Some banks do not disclose full information. LBBW did not publish information about tax and profit before tax in year 2014. Standard Chartered plc did not publish information about tax and FTE in both of the years. Erste Group did not disclose information about their employees in 2014 and Skandinavska Enskilda Banken

AB in both of the years. The analysis is done without this information and is sometimes impossible.

Even though the data are quite detailed and what should be reported and how according to the CRD IV seems clear, small differences appear among the banks' reports which may bring inaccuracy into our estimates. Firstly, HSBC holdings plc in its report includes intra-group transactions while no other bank does the same. To maintain the overall performance of the bank, we cover this information in the "Other" category. Secondly, in the directive it is clearly stated that the report should be done country–by–country. Despite the fact that quite a large number of banks — 13 alltogether — do not do so. They disclose information about the countries where they have a large share of economic activity and the countries with smaller economic activity are summed together as other. This category covers many smaller countries for example Cayman Islands, Curacao or even the Netherlands which might be considered as tax havens. This makes it impossible to uncover possible abuse of tax havens, which is supposed to be one of the main aims of country–by–country reporting. Namely Commerzbank grouped a few countries into one category as well as some other banks did, but this bank also reported China and Hong Kong together as a country which really should not be done so because Hong Kong is an autonomous district. Data for China including Hong Kong are useless because they do not even have the same tax rate. But Hong Kong and China are not he only ones reported together. Banks quite commonly report Jersey, Guernsey and Isle of Man together. It was impossible to divide the information for each island separately from existing data. Thus, we have in our dataset these three countries separately for some banks and for other banks we have information grouped together as Channel Islands. Even thought these are different tax jurisdictions they have at least the same corporate tax rate equal to zero. In contrast to China plus Hong Kong, the analysis of this group of countries makes better sense.

Another problem with data is that some of the banks report in a different currency than euro. No regulation says which currency should be used in the reports. Some banks report in millions, others in thousands. The data are adjusted to be consistent. As a majority of banks report in millions of euro the rest was rearranged the same way. Numbers in thousands are divided by a thousand and different currencies are converted using the average exchange rate in the given year. As a source of exchange rates we use the European Central Bank (2016). Therefore, information about turnover, profit, and tax is

in EUR millions in all tables of our analysis.

Furthermore, Murphy (2015) pointed out a few imperfection of the country–by–country reporting directive, which we come across in our analysis, too.

- Banks do not report for each jurisdiction in which they operate
- There is inconsistency among interpretations of the directive. Each country interprets it differently. Thus, there should be a unit interpretation common for the whole EU
- There is inconsistency in reporting of corporate tax per country. It is not clear, whether it includes deferred tax or not, which relates to the previous point.

The inconsistency in declared corporate tax sometimes appeares in banks' reports. Some banks stated whether the information about the income tax is related to the current tax or the deferred tax combined with the current tax. Some other declared information about the corporate tax, but it is unclear whether this information includes only the current tax or the deferred tax as well. For example Commerzbank stated in a footnote the following:

"The difference between the tax ratios and nominal tax rates in the different countries largely derive from effects relating to the retrospective recognition and impairment of deferred taxes and from prior-year taxes (e.g. recognition and release of tax provisions)."(Commerzbank, 2014, page 298)

Thus, Commerzbank clearly displayed that its corporate tax includes the deferred tax, which means, its tax is influenced by previous years. But the Commerzbank is the exception, because other banks do not provide the commentary for their reports at all.

We find that one of the biggest imperfections of the directive in the way it deals with penalties. There is no penalty system, which could affect violation of the directive as skipping some jurisdiction where the bank operates or grouping more jurisdictions in on category. The EU intended that each country would produce its method of punishment (OECD, 2015). Some of the countries Switzerland (PWC, 2016), France (KPMG, 2016a) or the United Kingdom (Commission of her Majesty's Treasury, 2016) already introduced the punishment system for those, who do not report properly.

Some curiosities appear in the extracted data. For example, it is not rare that in some low–tax countries banks usually generate turnover and profit but

there are zero employees. It happens quite often in Cayman Island and sometimes in Mauritius, Bahamas, Jersey, or Isle of Man. These countries are classified as low-tax jurisdiction and they appear on the top of the list in the Financial Secrecy Index (FSI). FSI values the tax jurisdictions according to their secrecy and their offshore activities and provides the rank of countries according to the probability they are an offshore jurisdiction(Cobham *et al.*, 2015). We will not analyze this in our thesis, but it might be an interesting topic for further studies.

In the final part of the methodology section we will focus on describing methods we are going to use.

Firstly, we would like to estimate the economic activity for each country where the bank has its establishment and show that higher economic activity does not have to mean higher declared profit, compared to the consolidated profit of the whole group.

For our analysis we use a similar approach as Murphy (2015). To estimate economic activity we consider the following three approaches using turnover, profit, corporate tax, and employee weighting:

- First, the difference between profit weighting and the average of turnover weighting and employee weighting. This may show us the possible profit shifting from jurisdictions with higher economic activity to other jurisdictions, possibly with lower tax rate, where the economic activity might be lower.

- Second, the difference between the profit weighting and the tax weighting. This shows us the corporate tax paid proportional to the declared profit. This approach may expose where higher or lower corporate tax is paid, contrary to our expectations.

- Third, difference between the turnover weighting and the employee weighting. This may show a reallocation of turnover since we presume that employees create a turnover.

Each of these three approaches is calculated separately for each bank in each country as well as the average of the approaches. The average of the differences should indicate how likely it is that teh economic activity and the reported activity do not overlap. For each approach and for the average we take the minimum and maximum value which gives us the range of profit and activity reallocation. The range indicates how much of the transactions is reallocated

from the locations with higher economic activity to locations with lower economic activity. All the calculations are done for two years and the results are then averaged.

Secondly, we will focus on the estimation of the possible impact in the case where unitary taxation is used. Since banks do not have the duty to disclose information about their capital on the country-by-country basis we have to adjust the formula and use its simplified version, which includes turnover weighting and employee weighting. Thus, the final formula we use is as follows:

$$newTB = \frac{1}{2} \cdot \left(\frac{Employees^{A}}{Employees^{Group}} + \frac{Turnover^{A}}{Turnover^{Group}} \right) \tag{3.1}$$

Using this formula, we will calculate profit or loss before tax for each country where the bank has its establishment. The sum of newly obtained tax base will equal to the same overall tax base as the one reported by each bank. Afterwards results are summed up for each country to obtain consolidated table. The difference between reported tax base and the newly obtained one shows whether the country will be better off or worse off in the case of unitary taxation.

As a next step in this analysis, we estimate the difference between the current tax income of the country and possible tax income under the unitary taxation. The result naturally depends on the choice of the tax rate. We could either use statutory or effective tax rate. In case of the effective tax rate there are several possible ways how to obtain possible income tax. The first one is calculated the effective tax rate for each bank and each country separately as a ratio of declared tax and declared profit. However, this way offers the following limitations: The calculation of effective tax rate might be impossible because either profit before tax or tax are negative or equal to zero. Thus, the tax rate might be equal to zero, less than zero, or it is not possible to calculate because the profit is equal to zero. The second way is to use the consolidated tax rate. To calculate it we use the average of all banks' effective tax rates for each country. These results might be used for the calculation of the tax income for each country but they are inclined to extreme values, not rarely above one hundred. Both of these two possibilities have another drawback. As noted by Murphy (2015) there is an inconsistency in the income taxes. Reported taxes might include declared taxes which makes the calculation of the effective tax rate meaningless. The third way how to obtain the effective averafe tax rate is from a different source for example another analysis which deals with effective

corporate tax rate. But reliable sources which include all our countries are hard to find. Considering all these limitations of effective tax rate, we have decided to use the statutory tax rate, even thought, without the limitations it would provide more accurate results. Unfortunately, even this choice is not perfect since some countries may introduce special tax for financial institutions. But it should be sufficient for the rough estimate of the tax income. As a source of the statutory corporate tax rates we use KPMG (2016b) which is commonly used. This source does not cover all countries which we have in our dataset so we obtain the rest from Trading Economics (2016).

We will use a similar approach for each bank to calculate its tax burden if the unitary taxation was used. We will use the statutory corporate tax rate due to the same reasons as mentioned above.

Finally, we will show to which country goes a higher share of profit and turnover of the bank. For our estimate we need the average profit, the average turnover, the maximum turnover per head, and maximum profit per head of the bank for both years. Then we make the maximum profit/turnover into the average profit/turnover ratio to see how these two differ. This approach should show us where the most of the profit flows, disproportionate to the economic activity considering the employee factor.

As the last analysis, we try to use the available data to estimate the possible impact of the recent Brexit on the EU market as well as on the British market. We will estimate the share of British banks on the EU market and share of EU banks on the British market and try to deduct the consequences of the UK's exit from the EU.

Chapter 4

Results

4.1 Ratio analysis

As mentioned in the methodology section, we start our analysis with differences in ratios. Table 4.1 shows the results comparing data from the two years. As was already noted the two year data were available only for 28 banks. The remaining 4 banks published data only for year 2014. This is the case of Allied Irish Banks plc, Lloyds Bank, UBS Group and Credit Suisse. That is why we have 0,00% in the column 2015 for these banks and instead of an average of weighted differences in the last column we use only the information from the year 2014 — not the averaged one.

Table 4.1 indicates how probable it is that the bank reallocates its profits from one country to another. Columns weighted differences indicate the probability for a given year and the column average of weighted differences averages these 2 years' probabilities, which should give us a generalized idea about the reallocation. The higher the ratio of given year is, the higher the risk of BEPS and vice versa.

As described in Chapter 3 the three differences are supposed to indicate the inconsistency between reported profit or turnover and the economic activity in each country. In case of teh first column high numbers indicate there is a common disproportion between reported profit and the turnover combined with employed people. In other words, there is small proportion of employees and turnover in comparison to declared profit.

We can see there are huge differences between the weighted differences. For example, Rebobank Group has the highest ratio of weighted differences in year 2014, nevertheless, its ratio in 2015 is among the smallest ones or at least in

the second half of rating. We can see the main difference is caused of the large difference between the years' ratios of difference in profit, and tax rating and the difference between the years' ratios of difference in profit weighting and employee plus the turnover weighting is also significant. The range is created by the USAs' ratio, which is always the minimum of the ranking, and the Netherlands' ratio, which is always the maximum of the ranking. On one hand, the profit before tax of the USA is around 600 in 2014 but -100 in 2015 and the tax paid is always the same. Because of the negative profit and positive tax the difference is a quite high positive number which is the maximum in the overall ranking. On the other hand, the Netherlands have the lowest difference in this year and it is caused by high profit before tax equaling 75% of the consolidated profit of the whole bank and low tax paid, around 33% of the total tax paid by the whole group in 2015. In 2014 the profit is not even 10% of the overall group profit and the tax paid from this positive profit was negative and equals to almost 400% of the total tax of the whole group, which was also negative.

We can see from Table 4.1 that there are huge differences between the two years. The results might be more useful if more years were available and thus the analysis could be more accurate. We can see the performance of banks changed from one year to another, therefore the data also provides different results. The reason could be for example that one year could be either extremely profitable for the bank or extremely loss–making. Therefore it is difficult to draw any specific conclusion from our dataset. Generally, we can say that the BEPS is less likely to occur for banks at the bottom of the table. This includes 3 German banks plus the Commerzbank although it has quite a high rate in 2014. Then there are 4 French banks — all except for BNP Paribas — one Italian, Dutch and Spanish bank.

In contrast, the risk of BEPS is higher among the banks on the top of the list. Specifically, the first three banks show the highest potential of BEPS, as their weighted differences do not decline under 30 for any of the investigated years. According to Murphy (2015) banks with weighted difference under 20% have low potential of BEPS. Banks in the middle of the table have usually one of the indexes relatively higher than the other one, which tells us that in one year the risk of BEPS for the bank was higher then in the other year, and that is why we need information for more than 2 years to estimate the risk more precisely.

Bank:	Difference profit weighting and turnover +employees weighting 2014	Difference profit weighting and turnover + employees weighting 2015	Difference profit and tax weighting 2014	Difference profit and tax weighting 2015	Difference turnover and employees weighting 2014	Difference turnover and employees weighting 2015	Weighted differences 2014	Weighted differences 2015	Average of weighted differences
	Range	Range	Range	Range	Range	Range	Range	Range	Range
Royal Bank of Scotland	111,38%	165,00%	92,02%	758,62%	20,59%	30,03%	58,12%	302,96%	180,54%
Standard Chartered plc	84,84%	314,34%	95,82%	296,72%	17,92%	18,35%	63,88%	197,81%	130,85%
Rabobank Group	87,90%	17,23%	513,75%	71,79%	6,10%	9,18%	201,97%	26,07%	114,02%
Erste Group	265,71%	38,76%	310,48%	28,64%	37,75%	55,10%	189,11%	15,74%	102,42%
Allied Irish Banks plc	33,60%	0,00%	209,83%	0,00%	10,27%	0,00%	84,57%	0,00%	84,57%
UBS Group	81,06%	0,00%	79,37%	0,00%	44,11%	0,00%	68,18%	0,00%	68,18%
Credit Suisse	14,09%	0,00%	168,63%	0,00%	14,66%	0,00%	65,31%	0,00%	65,31%
Unicredit Group	48,17%	93,53%	49,07%	289,05%	11,74%	11,50%	33,07%	94,09%	63,58%
Deutschebank	80,59%	73,10%	69,55%	179,50%	22,90%	25,78%	49,01%	77,91%	63,46%
Bayerische Landesbank	213,90%	17,78%	246,70%	15,17%	54,95%	10,45%	107,19%	11,83%	59,51%
BNP Paribas	147,24%	19,94%	157,31%	25,61%	7,00%	5,49%	102,24%	15,23%	58,74%
Danske Bank	93,87%	37,44%	104,13%	32,82%	12,00%	22,83%	69,52%	27,42%	48,47%
BBVA	98,08%	91,53%	59,92%	15,45%	6,59%	12,93%	50,47%	32,66%	41,57%
LBBW	96,31%	23,48%	0,00%	40,41%	4,56%	5,21%	47,89%	20,23%	34,06%
NIBC	23,75%	36,29%	46,67%	104,21%	12,76%	3,10%	18,20%	47,50%	32,85%
Dekabank	36,27%	17,66%	46,61%	20,28%	52,22%	6,72%	45,03%	14,89%	29,96%
HSBC	49,35%	57,23%	26,73%	25,74%	20,59%	24,33%	23,54%	29,87%	26,70%
Lloyds Bank	19,15%	0,00%	98,79%	0,00%	2,62%	0,00%	25,67%	0,00%	25,67%
ING Group	72,75%	23,60%	24,84%	16,10%	14,38%	15,57%	29,12%	11,79%	20,46%
Skandinavska Enskilda Banken AB	9,98%	7,31%	6,83%	7,71%	61,18%	58,28%	20,32%	19,19%	19,76%
Barclays	32,97%	21,20%	25,83%	31,90%	29,81%	29,55%	22,95%	15,44%	19,20%
Commerzbank	56,74%	25,67%	35,72%	38,20%	12,36%	11,92%	34,93%	2,46%	18,70%
Société Général	45,36%	23,47%	27,20%	13,39%	17,02%	17,25%	22,77%	12,65%	17,71%
Intesa Sanpaolo Spa	17,93%	7,67%	17,15%	7,36%	17,94%	16,43%	13,28%	8,32%	10,80%
BPCE SA	15,23%	16,58%	4,21%	3,89%	12,42%	16,52%	8,91%	10,99%	9,95%
DZ Bank AG	7,34%	15,59%	6,83%	14,12%	10,42%	18,58%	5,57%	14,01%	9,79%
Credit Agricole	8,26%	8,99%	22,04%	10,55%	4,97%	5,19%	9,90%	7,14%	8,52%
Helaba Landesbank Hessen-Thüringen	2,89%	17,03%	22,26%	21,23%	5,65%	9,80%	5,83%	7,41%	6,62%
BFCM	16,43%	9,85%	4,58%	3,82%	4,50%	3,01%	6,16%	4,68%	5,42%
ABN AMRO	14,32%	4,02%	6,65%	4,44%	1,71%	2,27%	5,69%	2,97%	4,33%
Bankia	9,73%	5,74%	5,37%	1,36%	0,66%	6,77%	4,81%	3,72%	4,27%
KfW	7,15%	4,43%	3,49%	5,59%	0,84%	0,06%	3,83%	3,36%	3,59%

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.1: Ratio analysis restults

4.2 Unitary taxation approach

In this part of the analysis, we will focus on simulating the impact of unitary taxation on the current data. Table 4.2 summarizes the results. We calculate the new tax base using the adjusted CCCTB Equation 2.1 and the results for each year are noted in Table 4.2. Columns Income before tax refer to

declared profit/loss in given year. The difference denotes whether the overall tax base in a given country would be higher or lower under unitary taxation. In other words, this indicates two matters. Firstly, countries with positive difference between CCCTB and the current tax base would be better off in case of unitary taxation. Analogically, countries with a negative difference would be worse off under unitary taxation. Secondly, Equation 2.1 is based on a real economic activity indicator therefore a positive number from the difference between CCCTB and the current tax base indicates the profit reallocation from the jurisdictions where the real economic activity takes place — possibly high tax jurisdictions — to other ones — possible low tax jurisdictions.

From Table 4.2 it follows that countries as the United Kingdom, Spain or France would be significantly better off under unitary taxation. In case of the UK, this means more than EUR 9 billions for both years. On the other hand, Hong Kong would lower its tax base by almost 13 billions. This indicates the profit is mostly shifted from the UK to Hong Kong. The rest of the bottom of the list looks interesting. It covers many countries, which might be considered, such as tax havens as Ireland, Singapore, or Luxemburg (Cobham & Janský, 2015).

The Netherlands unexpectedly appear on the top of the ranking and we can see that there is a significant difference between the reported profit in 2014 and 2015. This is caused by the Rebobank group, which generated one tenth of the 2015 profit in 2014 although the turnover is quite similar in both years, and similarly for ABN AMRO. ING Group and HSBC Holdings plc generated negative profit in 2014 and a positive one in year 2015. A similar inequality appears in the case of Switzerland where BNP Paribas declared a loss of almost EUR 3 billions in 2014, therefore, the information for year 2015 might be more plausible.

Countries with the difference between EUR -200 millions and EUR 200 millions are skipped in the table so the results are well arranged. Countries, such as Tunisia, Ecuador, or Lichtenstein have zero average of the two years difference between CCCTB and the current tax base. Even the Bahamas have almost no difference between CCCTB and current tax base which may be surprising because the Bahamas might be considered a tax haven (Cobham & Janský, 2015).

One of the most interesting facts which follows from this table is that the category “other”, covering countries whose banks are grouped together in their reports, denotes a significant difference between CCCTB and the current tax

base in both years. This means a significant economic activity takes place in these states and despite this fact, the banks do not report these countries separately. The difference is negative which indicates the profit is shifted to these countries covered in "other".

Unitary taxation would cause the redistribution of about 67,5% and 57,7% of the total profit/loss before tax for years 2014 and 2015 respectively. In absolute terms it means the redistribution of almost EUR 62 billions for year 2014 and EUR 54 billions for year 2015.

Country:	Income before tax 2014	CCCTB 2014		Income before tax 2015	CCCTB 2015	Ratio of income before tax and CCCTB 2015	Difference between CCCTB and current TB 2014	Difference between CCCTB and current TB 2015	Average difference
	Mil. EUR	Mil. EUR	%	Mil. EUR	Mil. EUR	%	Mil. EUR	Mil. EUR	Mil. EUR
UK	6 029	12 048	50	795	3 917	20	6 019	3 122	4 570
France	14 728	19 054	77	20 706	23 592	88	4 326	2 886	3 606
Spain	-924	2 582	-36	760	3 174	24	3 506	2 414	2 960
The Netherlands	33	3 723	1	5 315	6 227	85	3 690	912	2 301
Switzerland	-2 648	503	-526	-296	492	-60	3 151	788	1 970
Italy	5 140	6 778	76	6 594	8 771	75	1 638	2 176	1 907
Germany	9 633	10 119	95	6 069	9 067	67	486	2 998	1 742
Brazil	52	1 247	4	358	1 380	26	1 195	1 022	1 108
USA	7 732	4 476	173	-1 274	4 193	-30	-3 257	5 467	1 105
Ukraine	-424	324	-131	-457	415	-110	749	872	811
Romania	-1 302	309	-421	596	591	101	1 611	-5	803
Hungary	-996	206	-483	117	366	32	1 202	249	725
South Korea	-522	503	-104	-254	7	-3 629	1 025	261	643
India	1 813	2 478	73	659	1 189	55	665	530	597
Finland	-228	189	-121	-184	298	-62	417	481	449
Austria	124	2	6 200	906	609	149	-122	-297	-209
Jersey	446	92	485	197	58	340	-354	-139	-247
Canada	765	413	185	729	441	165	-352	-287	-320
Mauritius	324	101	321	543	122	445	-223	-421	-322
Peru	508	209	243	565	206	274	-299	-359	-329
UAE	1 145	539	212	337	284	119	-606	-53	-329
Norway	758	336	226	663	413	161	-422	-249	-336
Sweden	2 003	1 698	118	1 874	1 488	126	-305	-386	-345
Argentina	853	450	190	908	528	172	-404	-380	-392
Denmark	1 347	786	171	1 806	1 574	115	-561	-233	-397
Japan	513	230	223	807	194	416	-283	-613	-448
Channel islands	630	163	387	475	34	1 397	-467	-440	-454
Saudi Arabia	509	14	3 636	624	-19	-3 284	-495	-642	-569
Other	657	-206	-319	-138	-459	30	-864	-320	-592
Mexico	2 622	2 084	126	2 875	2 164	133	-538	-711	-625
Australia	975	355	275	1 121	393	285	-619	-728	-674
Czech Republic	1 576	218	723	1 670	884	189	-1 358	-785	-1 072
Singapore	2 491	1 277	195	1 683	661	255	-1 214	-1 022	-1 118
Belgium	2 896	1 169	248	3 013	2 233	135	-1 728	-780	-1 254
China	3 047	1 230	248	3 128	1 085	288	-1 817	-2 042	-1 930
Ireland	4 011	1 339	300	2 408	190	1 267	-2 672	-2 218	-2 445
Luxembourg	4 382	1 141	384	5 481	1 427	384	-3 241	-4 053	-3 647
Hong Kong	8 683	3 460	251	10 731	3 298	325	-5 223	-7 433	-6 328

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.2: Redistribution of profit according to economic activity

The following analysis is related to the previous one. We try to estimate the possible impact of unitary taxation on the tax income of each country. Table 4.3 summarizes the results of this estimation. The last column is the weighted average of the differences between the current and adjusted CCCTB, using the CCCTB as the weighting factor.

We can see that Germany and France would benefit from unitary taxation the most in terms of government revenue. Hong Kong and Luxemburg are at the bottom of the list, which makes unitary taxation less favorable for them.

What is unexpected is the negative result of the UK. Its tax revenue decreases even though it has the biggest positive difference between adjusted CCCTB and the current tax rate. According to the analysis, it seems like UK would have higher reported overall tax base but the income tax would be lower. The inconsistency of these two results might be caused by inaccurate information about the income tax in our data. Some banks did not report the tax generated in a given year but their reported income tax also included the deferred tax, which has nothing do to with the current year but it was generated in the previous years or it might be caused by using the statutory tax rate instead of the effective one.

Another unexpected information follows from Table 4.2 and Table 4.3. The Netherlands are commonly considered a tax haven, even Cobham & Janský (2015) in their study found evidence about a possible misaligned profit in the Netherlands. Despite this fact, the Netherlands appears at the top of our ratings, meaning, according to our analysis the profit is shifted out of the Netherlands rather then into the Netherlands.

Again, the category of "other" ends up at the bottom of the list with a significant difference between the current tax and the tax under unitary taxation. This should be a signal for policymakers to demand the following of the rules of country–by–country reporting and to carefully report each country separately.

It should be mentioned that the Czech Republic would also be worse off under unitary taxation. This means that the tax income would decrease which would cause a smaller tax burden for the company (in our case a bank, but the unitary taxation does not have to be applied only for financial institutions, it could be applied to any multinational company). The lower tax burden might attract foreign investors so they would start their businesses on the Czech market. Thus, even though the tax income of the Czech government would be smaller, the Czech Republic could still actually benefit from this policy.

Country:	Income tax 2014	Estimated tax 2014	Ratio of income tax and estimated tax 2014	difference between estimated and current tax 2014	Income tax 2015	Estimated tax 2015	Ratio of income tax and estimate d tax 2015	difference between estimated and current tax 2015	weighted average of differences
	EUR	mil. EUR	%	mil. EUR	EUR	mil. EUR	%	mil. EUR	mil. EUR
Germany	2 399	3158	75,9658	759,68	1 828	3249	56,2635	1421,21	1072
France	5 685	6351	89,51346	665,97	6 845	7872	86,9538	1027,31	866
The Netherlands	-316	937	-33,72465	1252,6	1 376	1571	87,5875	195,09	591
Italy	2 362	2129	110,9441	-233,35	1 759	2809	62,6201	1050,24	491
Spain	798	779	102,439	-19,3	367	917	40,0218	550,14	295
Belgium	429	397	108,0605	-32,01	472	770	61,2987	297,96	185
India	575	842	68,28979	267,44	689	672	102,53	-16,15	175
UAE	84	297	28,28283	212,51	114	200	57	85,97	169
Brazil	298	424	70,28302	126,59	323	475	68	151,07	139
China	230	308	74,67532	77,13	132	304	43,4211	172,25	122
USA	1 589	1837	86,49973	248,5	2 051	2024	101,334	-26,4	116
Turkey	163	135	120,7407	-28,62	198	349	56,7335	151,13	101
Switzerland	227	90	252,2222	-136,86	176	100	176	-76,16	-107
Other	225	0	-	-225,13	59	0	-	-58,68	-110
Mexico	819	625	131,04	-193,84	709	652	108,742	-57,35	-124
South Africa	407	327	124,4648	-80,12	457	254	179,921	-203,36	-134
Japan	265	82	323,1707	-182,77	167	86	194,186	-80,66	-136
Czech Republic	304	73	416,4384	-230,33	318	169	188,166	-148,9	-165
Australia	319	107	298,1308	-212,55	342	136	251,471	-205,67	-209
Luxembourg	705	342	206,1404	-363,17	937	456	205,482	-480,68	-428
UK	2 588	2591	99,88421	2,97	3 344	1509	221,604	-1834,72	-448
Hong Kong	1 027	571	179,8599	-456,56	1 114	602	185,05	-511,72	-483

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.3: Change in Tax Income of Countries

Table 4.4 shows the results from the bank's perspective. The last column averages the difference between the current tax burden and the tax burden derived from the adjusted CCCTB. For those banks where there was information only about year 2014, the number is not averaged since there is a not value for 2015.

We may note some inconsistency in the tax declared. For example, the Rebobank Group has a negative tax in year 2014, which means the amount of tax paid was smaller than the amount of tax received. In contrast, they have a positive tax in year 2015. This discrepancy is caused by the negative tax income from the Netherlands of total a amount of EUR -595 millions in the year 2014, whereas in 2015 the income tax was EUR 224 millions. Standard Charter did not declare information about the income tax; that is why we cannot compare

the current tax and the new tax under unitary taxation and therefore it ended up in second place.

The difference between the current tax and the new tax obtained from the adjusted CCCTB is largest for HSBC Holdings plc in both years. Results for this bank are not even close to the results of the rest of the sample. HSBC Holdings plc is the biggest bank according to SNL Financial and has subsidiaries in 61 countries. Thus, there is a room for large redistribution of profit among these countries.

On the other hand, of the rank there is another British bank, whose tax burden would be significantly lower under unitary taxation in both of the years. There is couple of banks, which would have a higher tax burden in one year and lower in the other one. This is the case of Unicredit Group, Intesa Sanpaolo Spa or BBVA. This can again be caused by the inaccuracy of the reported tax, which can be either current or the sum of current and deferred tax.

Some zeros may occur and their origin is unclear. For example, LBBW has no values in 2014. This is caused by not reporting the complete the data and values of profit before tax and the income tax are missing. Thus, it is not possible to calculate the tax base under unitary taxation and, potentially, the tax itself. Also, the Deutschebank or Erste Group have newly obtained tax equal to zero. This is caused by consolidated profit being negative and we do not calculate the tax from losses.

Bank:	2014				2015			
	Income tax 2014	Estimated tax 2014	Raio of income tax and estimated tax 2014	Difference between estimated and current tax 2014	Income tax 2015	Estimated tax 2015	Raio of income tax and estimated tax 2015	Difference between estimated and current tax 2015
	mil. EUR	mil. EUR	%	mil. EUR	mil. EUR	mil. EUR	%	mil. EUR
HSBC Holdings plc	2 697	3 790	71	1 093	3 034	4 527	67	1 493
Standard Chartered plc	0	636	0	636	0	0	-	0
DZ Bank AG	686	1 259	54,48769	573	666	1 181	56,39289	515
BFCM	1 125	1 750	64,28571	625	1 521	1 893	80,34865	372
Lloyds Banking Group plc	41	458	8,951965	417	0	0	-	0
Rabobank Group	-161	446	-36,09865	607	656	768	85,41667	112
Intesa Sanpaolo Spa	1 624	1 465	110,8532	-159	1 405	2 262	62,11317	858
Société Général	1 192	1 209	98,59388	17	1 064	1 707	62,33158	643
Royal Bank of Scotland	222	734	30,24523	512	77	3	2566,667	-74
Commerzbank AG	435	581	74,87091	146	612	847	72,25502	235
Allied Irish Banks plc	-25	154	-16,23377	179	0	0	-	0
Credit Agricole	1 883	2 588	72,75889	705	3 171	2 798	113,331	-373
Unicredit Group	1 167	921	126,7101	-247	84	554	15,16245	471
Skandinavska Enskilda Banken AB	454	587	77,34242	132	458	491	93,27902	33
Bayerische Landesbank	-6	1	-600	7	192	250	76,8	58
LBBW	0	0	-	0	109	118	92,37288	9
NIBC Bank NV	6	8	75	2	7	20	35	13
Dekabank	220	222	99,0991	2	216	228	94,73684	11
Credit suisse	2	0	-	-2	0	0	-	0
UBS Group	73	62	117,7419	-10	0	0	-	0
KfW	61	59	103,3898	-2	93	69	134,7826	-24
ING Bank	1 033	1 025	100,7805	-8	1 635	1 616	101,1757	-19
Helaba Landesbank Hessen-Thüringen	209	179	116,7598	-30	188	187	100,5348	-1
BBVA	1 479	1 206	122,6368	-273	1 122	1 317	85,19362	195
Bankia SA	392	276	142,029	-115	391	409	95,59902	18
BPCE SA	1 913	1 953	97,95187	40	2 324	2 179	106,6544	-145
ABN AMRO	413	396	104,2929	-17	798	700	114	-98
Danske Bank	539	251	214,741	-288	622	547	113,7112	-75
Erste Group	509	0	-	-509	363	347	104,611	-16
Deutschebank	1 409	1 147	122,8422	-262	843	0	-	-843
BNP Paribas	2 634	823	320,0486	-1 811	2 428	2 937	82,66939	509
Barclays	3 672	1 753	209,4695	-1 919	4 242	1 284	330,3738	-2 958
Total:	25 898	25 940		42	28 321	29 240		919

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.4: Change in Tax Burden of Banks

As the calculation of our tax base under unitary taxation is based on economic activity of those banks which provide significantly higher tax burden under unitary taxation, there is a higher risk of BEPS. Again, we have to note the imperfection of the data. Therefore we produce the following Table 4.5 which shows how much of the profit was redistributed. This approach might be more accurate because we do not use the information about tax.

HSBC Holdings plc is in the first spot again. This might be caused by its' being a global bank operating in more then 60 countries, therefore, there is a higher potential for reallocation. In contrast, KfW operates only in 2 countries and we can see there is just a little reallocation of the profit.

What is unexpected is the difference between the two–years information of Royal bank of Scotland, the Deutschebank and BNP Paribas. In case of Deutschebank the difference might be caused by the consolidated profit in 2015 to be negative, so just negative values are divided among countries although the current tax base is positive somewhere else. The same might be applied to the Royal bank of Scotland, which also has a negative consolidated profit in 2015, but it cannot be applied for BNP Paribas, which has a positive profit in both years. However, the profit generated in 2015 is significantly higher then the profit in 2014 which might be causing the difference in our Table 4.5.

For completeness, zero values appearing in 2015 are the missing data for this year in case of 4 banks and the average for these bank is calculated only from one year which is available.

Bank:	Difference between CCCTB and current tax base 2014 Mil. EUR	Difference between CCCTB and current tax base 2015 Mil. EUR	Average Mil. EUR
HSBC Holdings plc	15 661	19 177	17 419
Royal Bank of Scotland	5 953	10 552	8 252
Deutschebank	5 900	10 542	8 221
BNP Paribas	10 691	5 574	8 132
BBVA	5 617	5 804	5 711
ING Bank	5 251	3 893	4 572
Société Général	4 580	4 289	4 435
Barclays	5 277	3 401	4 339
Unicredit Group	3 734	4 369	4 051
Standard Chartered plc	3 449	4 424	3 937
Credit Agricole	2 255	2 290	2 272
Intesa Sanpaolo Spa	2 220	2 254	2 237
Erste Group	3 095	1 120	2 107
Danske Bank	2 227	1 465	1 846
Rabobank Group	2 351	1 151	1 751
BPCE SA	1 499	1 761	1 630
Commerzbank AG	1 926	1 195	1 561
BFCM	1 229	882	1 055
DZ Bank AG	872	1 229	1 051
Bayerische Landesbank	1 908	181	1 045
Lloyds Banking Group plc	693	0	693
Skandinavska Enskilda Banken AB	589	477	533
Allied Irish Banks plc	387	0	387
ABN AMRO	447	311	379
UBS Group	301	0	301
Dekabank	266	139	203
LBBW	0	165	165
Bankia SA	93	88	90
Helaba Landesbank Hessen-Thüringen	37	137	87
Credit suisse	50	0	50
NIBC Bank NV	8	30	19
KfW	14	10	12
Total:	88 583	86 909	87 746

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.5: Amount of redistributed profit

As the last analysis related to the reallocation of profit, we would like to show to which country a higher amount of turnover and profit per head flows. We produced Table 4.6 for year 2014 and Table 4.7 for year 2016.

The tables show the maximum turnover/profit per head in EUR million and the country where it was generated. The last two columns show the maximum turnover/profit to average turnover/profit per head ration in percent. Banks where the calculations are impossible due to missing data are skipped from the final tables.

We arrange the table according to the ratio of maximum profit per head and we can see that the Deutschebank is the winner, with highest profit and turnover per head in Malta. Only 4 employees generated the turnover and profit both over EUR 80millions in both years and in case of Barclays the profit over EUR 750millions is generated by 30 employees in 2014. Not surprisingly, Ireland dominates the table, also the UK, Germany, the Netherlands, or Luxemburg repeat quite often.

Also, the category of "Other" appears in the table tree times in 2014 as the country where maximum profit per head was generated, and a couple of times it appears in "other" columns. This indicates that the banks did not fulfill the requirement to declare all their activity as demanded by CRD IV.

Results from these tables can be compared with the Financial Secrecy index ranking. We can see the countries appearing in Table 4.6 and Table 4.7 occupy the top of the Financial Secrecy index ranking, which is in favor of our theory that a significant part of profit is reallocated in these countries.

	Turnover per head Mil. EUR	Country	Profit per head Mil. EUR	Country	Ratio of maximum and average turnover per head	Ratio of maximum and average profit per head
Deutschebank	21	Malta	20,75	Malta	62,70	527,28
Barclays	25,19	Luxemburg	24,53	Luxemburg	88,73	484,10
Rabobank Group	7,62	Curaçao	5,62	Curaçao	31,13	175,58
Royal Bank of Scotland	6	Finland	5,58	Finland	30,19	161,14
BBVA	3,75	Other	3,69	Other	19,18	98,19
Lloyds Bank	1,56	The Netherlands	1,42	The Netherlands	6,83	57,77
BNP Paribas	1,03	Ireland	0,84	Ireland	4,72	55,36
Intesa Sanpaolo Spa	4,98	Ireland	3,04	Ireland	20,33	53,83
Unicredit Group	4,4	Luxemburg	1,07	Luxemburg	25,86	37,99
HSBC	0,66	Maledives	1,96	Other	3,64	35,67
BPCE SA	2,22	Ireland	1,78	Ireland	9,86	30,96
Credit Agricole	1,97	Austalia	1,52	Austalia	9,00	25,72
ABN AMRO	2,27	Norway	1,77	Norway	6,26	25,40
BFCM	1,52	USA	2,01	USA	7,81	22,96
Société Général	1,08	Japan	0,68	Taiwan	6,23	21,09
Commerzbank	0,95	The Netherlands	0,73	The Netherlands	4,50	16,77
ING Group	1,56	Ireland	1,13	Hong Kong	5,55	16,40
DZ Bank AG	4,86	Curaçao	2	Curaçao	17,99	13,23
Helaba	1,73	Ireland	0,91	Ireland	4,94	8,66
Danske Bank	1,09	Luxemburg	0,46	Germany	1,75	8,02
UBS Group	2,05	UK	0,31	UK	3,64	4,28
Bankia	0,28	Spain	0,26	Other	1,00	4,11
KfW	1,05	UK	0,75	UK	1,12	2,12
NIBC	0,52	The Netherlands	0,08	Germany	1,10	1,67
Dekabank	0,57	Germany	0,3	Germany	1,29	1,35
Allied Irish Banks plc	0,24	Ireland	0,12	Ireland	1,06	1,23
Credit Suisse	1,26	UK	0,19	Sweden	1,11	-0,47
Bayerische Landesbank	6,96	USA	7,17	USA	18,08	-65,44
LBBW	1,3	USA	0	-	4,45	-

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.6: Overview of the highest turnover/profit per employee in 2014

	Turnover per head Mil. EUR	Country	Profit per head Mil. EUR	Country	Ratio of maximum and average turnover per head	Ratio of maximum and average profit per head
Deutschebank	22,25	Malta	22	Malta	64,87	-445,04
DZ Bank AG	6,75	Japan	6,5	Japan	25,53	45,43
Commerzbank	0,84	UK	0,45	Luxemburg	3,30	6,29
LBBW	1,36	USA	0,9	USA	4,89	22,57
KfW	1	UK	0,65	UK	1,01	1,59
Helaba	3	Ireland	1,03	UK	8,16	9,32
Dekabank	0,69	Luxemburg	0,47	Luxemburg	1,33	2,04
Rabobank Group	8,31	Curaçao	4,08	Curaçao	29,98	66,75
Royal Bank of Scotland	5,79	Finland	5,24	Finland	29,85	-129,11
Barclays	13,85	Luxemburg	13,26	Luxemburg	44,89	347,83
BBVA	4	Luxemburg	6,75	Ireland	23,62	202,32
BNP Paribas	0,65	Japan	0,36	Quatar	2,76	6,62
ING Group	1,64	Ireland	1,5	Portugal	5,14	12,81
Credit Agricole	2,43	Austalia	2,03	Austalia	10,37	31,78
BPCE SA	0,91	USA	0,5	Luxemburg	3,93	7,76
Société Général	1,02	South Korea	0,85	Ireland	5,26	18,27
ABN AMRO	2,11	Norway	1,46	Norway	5,52	11,91
NIBC	0,86	Belgium	0,29	Belgium	1,57	2,36
HSBC	1,09	The Netherlands	0,71	The Netherlands	5,23	10,87
BFCM	1,62	USA	0,89	USA	7,84	9,49
Bankia	0,34	Other	0,33	Other	1,20	3,09
Erste Group	85,67	Other	25,92	Romania	2,38	5,62
Unicredit Group	5,44	Luxemburg	1,13	Luxemburg	30,81	64,09
Intesa Sanpaolo Spa	5,87	Ireland	3,29	Ireland	21,93	36,98
Danske Bank	1,26	Ireland	2,23	Ireland	2,23	17,81
Bayerische Landesbank	1,44	USA	0,99	USA	4,08	7,62

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.7: Overview of the highest turnover/profit per employee in 2015

4.3 Brexit analysis

Recently the EU experienced the crisis, which resulted in the exit of the UK from the union. This arose many questions related to the further running of the European market. There seemd to be only two possibilities for the UK now: It can either join the Norway in European Economic Area (EEA), which will ensure full access to the EU market, which in return would mean high payments to the EU budget or it could make the free-trade deal similar to one the EU has with Canada but it would includes limitations as tariff barriers (The Economist, 2016).

We do not want to discuss all possible scenarios how the EU and the UK

will resolve this issue, but what we would like to show is which bank of our dataset might be affected the most. Table 4.8 and Table 4.9 estimate the share of profit, either of UK banks on the EU market or European banks on the British market.

For the purpose of this analysis we cover only the positive profit, losses are recognized as zeroes, so there cannot appear any negative shares of the bank on any given market, which would not make sense.

Table 4.8 shows profits for two years in the UK, EU (without UK) and in the rest of the world of non–british banks. The last two columns estimate the share of declared profits in the UK and the profits in the EU and rest of the world using the following Equation 4.1:

$$Share\ on\ the\ EU's\ market = \frac{Profit\ in\ the\ UK}{Overall\ bank's\ profit} \tag{4.1}$$

Dashes stand for a missing data from the year 2015 or the impossibility to calculate. Zero value means the bank does not operate on the UK market, which is the case of Bankia or Erste Group and for the rest it means the negative income before tax. The share of Credit Suisse is impossible to calculate, because the combined profit from the EU and the rest of the world equals zero. The higher the number is, the higher the share of profits is generated in the UK. In other words, for lower share of the profits in the UK market, we estimate the lower impact of Brexit for a given bank.

In absolute terms for 2014, BNP Paribas and Commerzbank generated high profits in the UK as well as for the year 2015 also as well as the ING Group, Credit Agricole and Société Général. But generally we can say that those banks, whose two years average of share is close to zero, have the lower risk of a huge impact on their performance. The impact might be high for the UBS Group, Commerzebank and BNP Paribas.

Bank:	Profit in UK 2014 Mil. EUR	Profit in EU 2014 Mil. EUR	Profit in rest of the world 2014 Mil. EUR	Profit in UK 2015 Mil. EUR	Profit in EU 2015 Mil. EUR	Profit in rest of the world 2015 Mil. EUR	Share of UK and non-UK profit 2014	Share of UK and non-UK profit 2015
UBS Group	122	179	8	-	-	-	39,45%	-
Commerzbank	385	1410	360	443	2461	266	17,87%	13,97%
KfW	14	186	0	14	222	0	7,16%	6,04%
BNP Paribas	717	3775	2590	248	6486	3107	10,12%	2,52%
ING Group	310	3014	1669	362	3965	1936	6,21%	5,78%
Société Général	243	2474	1862	392	3993	1896	5,31%	6,24%
Helaba Landesbank Hessen-Thüringen	1	588	21	72	534	33	0,16%	11,27%
LBBW	0	0	0	24	350	75	-	5,35%
Danske Bank	0	1628	346	208	2253	296	0,00%	7,55%
BPCE SA	126	4916	997	257	5339	1062	2,09%	3,86%
Skandinavska Enskilda Banken AB	53	2157	412	76	1870	294	2,01%	3,41%
Credit Agricole	291	6832	1074	137	8029	1092	3,55%	1,48%
Intesa Sanpaolo Spa	160	5039	461	137	7302	651	2,82%	1,70%
DZ Bank AG	32	3865	430	134	3609	433	0,74%	3,21%
NIBC	0	32	0	3	75	0	0,00%	3,85%
ABN AMRO	0	1280	292	44	2427	336	0,00%	1,57%
BFCM	38	5179	209	32	5617	193	0,70%	0,55%
BBVA	43	190	5424	7	269	5936	0,76%	0,11%
Rabobank Group	0	486	1248	26	2412	616	0,00%	0,85%
Unicredit Group	6	2917	953	0	2496	818	0,16%	0,00%
Bayerische Landesbank	0	76	753	0	824	88	0,00%	0,00%
Bankia	0	837	76	0	1383	70	0,00%	0,00%
Credit Suisse	0	8	0	-	-	-	0,00%	-
Erste Group	0	998	24		1618	76	0,00%	0,00%
Dekabank	0	884	1	0	772	0	0,00%	0,00%
Allied Irish Banks plc	0	1196	6	-	-	-	0,00%	-
Deutschebank	0	2876	3298	0	1517	2143	0,00%	0,00%

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.8: Share of EU's Banks on UK's Market

Table 4.9 shows the opposite perspective. It estimates how large is the share of UK banks on the EU market. Again, the dashes denote a missing data for year 2015 in case of the Lloyds Banking Group plc. The last two columns estimate the share of EU profits and the profits from the rest of the world plus the UK. We use the Equation 4.2

$$Share\ on\ the\ EU's\ market = \frac{Profit\ in\ the\ EU}{Overall\ bank's\ profit} \tag{4.2}$$

We can see the Standard Chartered plc does not operate at the EU market at all therefore it does not have to worry about how the split of the UK from the EU will be solved. Lloyds Banking Group plc and HSBC Holdings plc have a really small share of their profits on the EU market. The impact on the

Barclays might be bigger because its absolute share on the EU market is the highest from UK' banks in 2014 and even the relative share on the EU market is large but not as large as share of Royal Bank of Scotland, which share on EU market is 72% in 2014.

	Profit in UK 2014	Profit in EU 2014	Profit in non-EU 2014	Profit in UK 2015	Profit in EU 2015	Profit in non-EU 2015	Share of EU and World profit 2014	Share of EU and World profit 2015
	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR
HSBC Holdings plc	0	507	13 575	0	922	16992	3,60%	5,15%
Lloyds Banking Group plc	1 808	149	230	-	-	-	6,81%	-
Standard Chartered plc	0	0	2 578	0	0	1770	0,00%	0,00%
Royal Bank of Scotland	666	2371	243	0	1358	783	72,27%	63,43%
Barclays	4 269	859	1 730	1 781	809	3104	12,52%	14,21%

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 4.9: Share of UK's Banks on EU's Market

4.4 Discussion

The first analysis was similar to the one made by Murphy (2015). Although we have a large dataset, some of the data for year 2014 are the same for some banks. Despite this fact, our results sometimes differ from the results of Murphy although the differences are negligible. They are caused by not all reports being complete at the time Murphy collected the data. The data might have been added during the rest of the year 2014 and, thus, we have more complete information about year 2014.

In some cases, the data differ only in one category. For example, the information of the Rabobank Group about all of its employees for year 2014 differ in our and Murphy's dataset. This might be because the source Murphy used did not provide complete information.

Our results of the simulation of unitary taxation are consistent with the results of Cobham & Loretz (2014), who used the Orbis data for their analysis although there are a few differences.

According to their analysis the low tax jurisdictions, such as Luxemburg, Ireland, or the Netherlands, would record a significant decrease of the overall tax base under unitary taxation using any of the considered apportionment factors. In our analysis we obtain the same results for Luxemburg and Ireland using employees and turnover weighting but what is surprising, the Netherlands are among the jurisdiction on the top of the list in Table 4.2. This means their

tax base would increase according to our analysis. The difference might be caused by conducting the analysis only with data for financial institutions and Cobham & Loretz (2014) used data from various industries. The difference might be caused by issue discussed earlier. Many large banks reported negative or significantly lower profit in 2014 comparing to year 2015.

Cobham & Janský (2015) reached comparable results to Cobham & Loretz (2014) on their BEA data. According to their analysis, the low–tax countries, such as Luxemburg, the Netherlands, and Ireland, or Singapore tend to benefit from over-reported profit the most.

Murphy (2015) carries out a similar simulation and that also provides different results although he uses partially the same dataset of banks for 2014. For example, banks over-reported profit in the USA, which is in contrast with our results for year 2014. Our dataset contains 32 more banks, including 6 large banks he did not analyze, which causes the differences in our and his analysis.

There can be seen similarities also between our comclusion and Aubry *et al.* (2016). They used a similar data as we have, which are restricted only on french banks. They found out that the profit per head is highest in Ireland and this country appears in our analysis as well. Also the finding about countries, namely Luxemburg, Hong Kong, or Singapore, where is the largest proportion of declared profit are same in both analysis — in our and in Aubry *et al.* (2016).

According to Cobham & Loretz (2014), the employees' apportionment factor causes a large redistribution of profit, mainly in favor of the low–income countries. In our analysis we used the weighted employees and turnover apportionment, but still the employees factor might be too dominant. Thus, Equation 2.1 proposed by the European Commission might be a better indicator than the adjusted formula we used. It combines many various apportionment factors which should ensure a plausible reallocation of profit according to real economic activity.

Chapter 5

Conclusion

In our thesis we provided the overview of existing literature related to the misalignment of profit or literature related to country-by-country reporting. On the basis of the overview there seem to be considerable evidences about the inconsistency between reported profits and economic activity of the entity. Our entire findings were discussed with the outcome of analyzed literature and we find our results consistent with results provided by the literature.

In the theoretical part of the thesis we described the background of country-by-country reporting, what it offers to us, and which entities does it involves.

In the first part of our empirical analysis we showed which banks have the largest diversity of economic activity and profit or turnover among the countries. According to the analysis KfW, Bankia or ABN AMRO evinced the lowest diversity and therefore the lowest risk of BEPS. On the other side, Erste Group, Rebobank Group or the Royal Bank of Scotland evince the widest diversity and thus the risk od BEPS is higher for these banks.

In our simulation of impact of unitary taxation the analysis provides, that the total redistribution would be equal to 67,5% in the year 2014 and 57,7% in 2015 or, in absolute terms, it is almost EUR 62 billions in 2014 and around EUR 54 billions in 2015. On one hand, the largest part of redistributed profits would flow to UK, France or Spain. The Netherlands and Switzerland were surprisingly also on the top of the table. On the other hand, the largest amount of redistributed profit would come from Hong Kong, Luxemburg or Ireland, which are all identified as tax havens.

At the same time we analyzed the change in tax income of the countries under unitary taxation. Germany, France or the Netherlands benefited the most, on the contrary, Hong Kong, Luxemburg and unexpectedly UK registered

the largest deficits.

Similar analysis we did from the banks point of view. Where HSBC Holding plc or DZ Bank AG would notice the highest increase of their tax burden whereas Barclays or BNP Paribas the highest decrease in their tax burden.

The overall analysis of redistribution of profits of each bank shows, that the largest redistribution may be seen in case of HSBC Holdings plc or Royal Bank of Scotland and the lowest one in cases of KfW, Credit Suisse or NIBC Bank NV.

The last analysis, related to the misalignment of profit, was locating of the highest profit or turnover per head. Countries as Ireland, Luxemburg or the Netherlands appeared many times in our tables, which might not be surprising since these countries might be identified as tax havens.

On the basis of our analysis, we can say that the evidence shows a high potential of misalignment, recognizeable for example in the case of HSBC Holdings, Royal Bank of Scotland or Rebobank Group, whereas on the other hand the lowest risk might be recognized in the case of KfW or Bankia. We showed that there is evidence of profit reallocation into low-tax or no-tax jurisdictions, such as Ireland, Luxemburg or Hong Kong.

As was already mentioned, our dataset offer many opportunities for further studies, but in some analysis we were missing some useful information, such as any information about the asset, capital or wages. Having these information we would be able to present more accurate estimate of CCCTB or search the dependence of the size of the bank on the size of the reallocated profit, for example. Thus, it might be interesting to interface our data with other sources of data such as the Bankscope, which will open the door for new possibilities of profound analysis.

Bibliography

Aubry, M., T. Dauphin, & L. Watrinet (2016): "French Banks' Activities in Tax Havens." *Technical report*. Available from: https://www.oxfam.org/sites/www.oxfam.org/files/following_the_money_ final_english.pdf.

Cobham, A. & P. Janský (2015): "Working Paper 42 Measuring misalignment : The location of US multinationals ' economic activity versus the location of their profits."

Cobham, A., P. Janský, & M. Meinzer (2015): "The Financial Secrecy Index : Shedding New Light on the Geography of Secrecy abstract." *Economic Geography* **91(3)**: pp. 281–303.

Cobham, A. & S. Loretz (2014): "Working Paper 27 International Distribution of the Corporate Tax Base : Implications of Different Apportionment Factors under Unitary."

Commerzbank (2014): "Annual Report." *Technical report*. Page 298.

Commission of her Majesty's Treasury (2016): "The Taxes (Base Erosion and Profit Shifting)(Country-by-Country Reporting) Regulations 2016." **2002(237)**.

Devereux, M. P. & S. Loretz (2008): "The Effects of EU Formula Apportionment on Corporate Tax Revenues." *Institute for Fiscal Studies* **29(1)**: pp. 1–33.

Dyreng, S. D. (2014): "Public pressure and corporate tax behaviour WP 14/16."

European Central Bank (2016): "Euro exchange rate." `https://www.ecb.europa.eu/stats/exchange/eurofxref/html/eurofxref-graph-gbp.en.html`. Accessed 20.07.2016.

European Commission (2016a): "Country-by-country reporting." http://timmurphy.org/2009/07/22/line-spacing-in-latex-documents/. Accessed 26.07.2016.

European Commission (2016b): "Economic consequences of country-by-country reporting requirements." http://europa.eu/rapid/press-release_IP-14-1229_en.htm. Accessed 26.07.2016.

European Parliament (2013): "Directive 2013/36/EU of the European Parliament and of the Councile." *Official Journal of the European Union* .

Huizinga, H. & L. Laeven (2008): "International Profit Shifting within Multinationals: A multi–Country perspective." **92**: pp. 1164–1182.

International Monetary Fund (2014): "Spillovers in International Corporate Taxation."

Johannesen, N. & D. T. Larsen (2016): "The Power of Financial Transparency: An Event Study of Country-by-Country Reporting Standards Highlights." *Economics Letters*. http://dx.doi.org/10.1016/j.econlet.2016.05.029.

KPMG (2016a): "Common consolidated corporate tax base." https://home.kpmg.com/xx/en/home/insights/2016/01/tnf-france-country-by-country-reporting-transfer-pricing-declaration.html. Accessed 24.07.2016.

KPMG (2016b): "Corporate tax rates table." https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html. Accessed 15.07.2016.

Murphy, R. (2015): "European Banks ' Country-by-Country Reporting A review of CRD IV." *Tax Research LLP Greens / EFA MEPs European Parliament* .

OECD (2013): "Action Plan on Base Erosion and Profit Shifting." *OECD Publishing* pp. 1–44. http://dx.doi.org/10.1787/9789264202719-en.

OECD (2015): "Action 13: Country-by-Country Reporting Implementation Package." *OECD Publishing* .

OECD (2015): *Measuring and Monitoring BEPS. Action 11: 2015 Final Report*. http://dx.doi.org/10.1787/9789264241343-en.

PWC (2013): "Tax Transparency and country-by-country reporting. An ever changing landscape." *Technical report*. [Online].

PWC (2016): "Switzerland releases draft law for country-by-country reporting." *Technical report*. Available from: https://www.pwc.com/gx/en/tax/newsletters/pricing-knowledge-network/assets/pwc-Switzerland-cbcr-draft-law.pdf.

SNL Finance (2016): "Largest banks in europe by total assets." Available from: `http://www.hitc.com/en-gb/2015/07/06/top-50-european-banks-by-total-assets/`. Accessed 15.07.2016.

The Economist (2016): "Britain and the european union: After the vote, chaos." Available from: `http://www.economist.com/Brexit`. Accessed 24.07.2016.

Trading Economics (2016): "List of countries by corporate tax rate." `http://www.tradingeconomics.com/country-list/corporate-tax-rate`. Accessed 15.07.2016.

Chapter 6

Banks' overview

Bank:	Country of residence	2014				2015				Size of the bank:
		Turnover	PBT	Income tax	No. of employees	Turnover	PBT	Income tax	No. of employees	
		Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	Mil. EUR	
HSBC Holdings plc	UK	46 179	14 083	2 697	256 281	53 916	17 010	3 034	258 954	1
BNP Paribas	France	39 168	2 741	2 634	179 603	42 938	9 790	2 428	181 551	2
Barclays	UK	38 427	6 858	3 672	135 336	40 377	4 989	4 242	130 900	3
Deutschebank	Germany	32 870	3 862	1 409	98 137	34 677	-4 998	843	101 105	4
Credit Agricole	France	30 243	8 173	1 883	138 523	32 426	8 842	3 171	138 204	5
Royal Bank of Scotland	UK	18 803	3 280	222	94 640	17 810	-3 725	77	91 839	6
Société Général	France	23 563	4 376	1 192	136 224	25 643	6 111	1 064	131 716	7
BPCE SA	France	23 257	5 925	1 913	103 199	23 864	6 604	2 324	102 887	9
Lloyds Banking Group plc	UK	20 352	2 187	41	89 074	0	0	0	0	10
ING Group	The Netherlands	15 679	3 856	1 033	55 950	16 845	6 173	1 635	52 720	11
UBS Group	Switzerland	1 753	225	73	3 102	0	0	0	0	12
Unicredit Group	Italy	21 320	3 534	1 167	125 356	21 327	2 130	84	120 735	13
Credit suisse	Switzerland	862	-307	2	758	0	0	0	0	14
BBVA	Spain	20 726	3 980	1 479	105 961	23 362	4 603	1 122	137 968	16
Intesa Sanpaolo Spa	Italy	22 138	5 100	1 624	90 417	23 654	7 875	1 405	88 401	17
Rabobank Group	The Netherlands	12 857	1 681	-161	52 562	13 014	2 868	656	46 956	18
BFCM	France	11 973	5 380	1 125	61 396	12 817	5 839	1 521	62 068	19
Commerzbank AG	Germany	10 531	2 155	435	49 860	11 256	3 138	612	44 060	20
Standard Chartered plc	UK	6 686	2 578	0	0	5 070	-806	0	0	21
Danske Bank	Denmark	11 547	1 069	539	18 603	10 794	2 382	622	19 049	22
ABN AMRO	The Netherlands	8 053	1 548	413	22 180	8 454	2 723	798	22 142	23
DZ Bank AG	Germany	7 526	4 206	686	27 831	7 486	4 051	666	28 312	24
LBBW	Germany	2 957	0	0	10 134	2 780	397	109	10 006	31
Skandinavska Enskilda Banken AB	Belgium	9 217	2 568	454	0	8 116	2 230	458	0	34
Bayerische Landesbank	Germany	2 410	-686	-6	6 260	2 273	838	192	6 456	36
Bankia SA	Spain	4 009	912	392	14 413	3 806	1 462	391	13 571	37
Erste Group	Austria	6 877	-804	509	0	12 772	1 638	363	355	40
Dekabank	Germany	1 438	734	220	3 266	1 716	769	216	3 309	>50
KfW	Germany	525	200	61	563	573	237	93	578	>50
Helaba Landesbank Hessen-Thüringen	Germany	2 033	610	209	5 812	2 110	633	188	5 736	>50
Allied Irish Banks plc	Ireland	2 532	1 145	-25	11 384	0	0	0	0	>50
NIBC Bank NV	The Netherlands	300	30	6	637	352	78	7	644	>50
Total:		456 811	91 200	25 898	1 897 462	460 229	93 870	28 321	1 800 222	

Source: Author on the basis of banks' data published online under EU's Capital Requirements Directive IV

Table 6.1: Ratio analysis restults