Charles University in Prague

Faculty of Social Sciences
Institute of Economic Studies

BACHELOR THESIS

Effective and Nominal Corporate Tax Rates

Author: **Jana Kučerová**

Supervisor: **Petr Janský, M. Sc.**

Academic Year: **2012/2013**

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, May 16, 2013

_____
Signature

Acknowledgments

Bibliographic entry: KUČEROVÁ, J. (2013): *"Effective and Nominal Corporate Tax Rates."* p. 51. Bachelor Thesis. Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies. Supervisor: Petr Janský M.Sc.

Abstract

The main objective of this thesis is to provide the reader a basic knowledge about the issue of effective and nominal corporate tax rates. The theoretical part is concerned with the different approaches to the effective tax rates and with the corresponding methods of their calculation. The main contribution of the thesis presents the empirical part, which tries to assess the real corporate tax burden of Czech companies. The data required for the computation were collected according to PX stock-index and we applied the methods of backward-looking micro approach. The obtained results were subjected to a thorough analysis. In fact, the companies taking part in the research pay on average the income tax 17,07% in the period 2008-2012, which is significantly lower than the nominal tax rate 19%. Although the current academic literature reports about steadily declining effective tax rates, it does not correspond to our results. The reason for this might be caused by the nature of micro method used, that reflects the sensitivity of the economic cycle's development. The observed period in the research coincides with the time of the world economic crisis, that may inflict an undesirable bias.

Abstrakt

Cílem této práce je uvést čtenáře do problematiky korporátních efektivních a nominálních sazeb daně. Teoretická část se zabývá různými přístupy k efektivním sazbám daně a od nich se odvíjejícími metodami výpočtu. Avšak hlavní přínos této práce spočívá především v empirické části, která vyhodnocuje reálné korporátní zatížení českých společnosti. Data potřebná k výpočtu jsme shromáždili podle indexu Pražské burzy cenných papírů a aplikovali na ně metody zpětného mikro pohledu. Získané výsledky jsme podrobili důkladnému rozboru. Společnosti, zahrnuté do výzkumu, ve skutečnosti platí průměrně 17,07% daň z příjmu v letech 2008-2012, tedy daň nižší než je současná nominální sazba 19%. Dalším důležitým poznatkem práce je, že ačkoliv současná akademická literatura poukazuje na stále klesající efektivní daně, naše výpočty tomuto tvrzení neodpovídají. Příčina tohoto nesouladu může být dána povahou použité mikro metody, která reflektuje citlivost na vývoj ekonomické aktivity. Námi pozorované období se prolíná s obdobím světové ekonomické krize, což může způsobit nežádoucí zkreslení.

Klasifikace JEL	F15, F23, F43 H25
Klíčová slova	statutární korporátní daňová sazba, efektivní korporátní daňová sazba, mikro pokled, makro pohled
Délka práce	57 553 znaků
E-mail autora	kj.kucerova@gmail.com
E-mail vedoucího práce	jansky@fsv.cuni.cz

Contents

List of Tables

List of Figures

Acronyms

EATR Effective Average Tax Rate

EBT Earnings Before Tax

EC Extraordinary Charges

EI Extraordinary Income

EMTR Effective Marginal Tax Rate

ETR Effective Tax Rate

EU European Union

FTSE 100 London Stock Exchange index

GOP Gross Operating Profit

OECD Organisation for Economic Co-operation and Development

SP 500 Standard & Poor's Stock Index

TPBT Total Profit Before Tax

Chapter 1

Introduction

At the time of deepening economic integration, when the mobility of goods, services, and capital becomes more important than in the past, the tax systems are still under full control of individual governments. In this context, the question arises, whether the European market is efficient in the presence of powerful multinational companies and at the same time in the absence of tax harmonization. The majority of authors publishing in this area coincises that the current situation is unsustainable and in the near future it will be essential to adopt required reforms to enable equal conditions to all companies, thus, to ensure a well-functioning common market.

The fundamental tool of the tax policy is particularly the statutory tax rate. During the last two decades we observed the radical decrease in statutory corporate tax rates within Europe. Nevertheless, the statutory tax rate does not say much about the real tax burden in particular countries, which is one of the main decisive factors for tax designers and for companies choosing a location for its investment. For this reason, we use effective corporate tax rate to obtain a comprehensive overview, how much the companies actually pay in a particular country. The value of the effective tax rate includes, per se, different treatments to determine the tax base, which is crucial for computation of the real tax burden for corporations.

The empirical contribution of this thesis is a research aimed at the real tax burden of Czech companies. We examine, how much the companies actually pay for income taxes under the Czech tax legislation. We will be concerned with the comparison between the current statutory level of corporate tax 19% and the effective tax rates of observed companies during the period 2008-2012. The research tries to show, to what extent the real tax burden has been influenced

by the economic crisis.

The thesis is structured as follows. Chapter 2 gives the reader a basic view of different theories to corporate taxation and it reports the evolving of statutory corporate tax rates in Europe over time. Chapter 3 presents different approaches of methods how to compute the effective corporate tax rates. The empirical part of the thesis is contained in Chapter 4. And Chapter 5 briefly summarizes the results obtained from the empirical part of the thesis.

Chapter 2

Corporate taxation

Let's begin with a framework of corporate taxation. Corporate tax belongs to the group of direct taxes, in other words, it cannot be shifted onto others, compared to indirect taxes. Corporate taxation is considered to be the youngest form of taxation ever within the construction of different tax systems. Nowadays, the corporate tax is levied on profits generated by a company, which is based on accounting profit. Consequently, the accounting profit has to be adjusted according to particular tax legislation to obtain the tax base. The corporate tax base as mentioned in Mirrlees Review (2011) is, in almost all OECD countries calculated, as profits generated by a company net of allowances for interest payments and depreciation costs. Two important questions occur with this definition: How this corporate tax base influences the expected investment and what is the difference in tax base when we consider different types of financing of this investment?

In essence, we distinguish two types of financing of the investment - financing through debt or equity. Financing through equity can be either internal (retained earnings) or external (issuing new shares). Both types of financing are treated differently, when we want to obtain the corporate tax base. We will discuss it in detail in the next sections.

2.1 Integral vs. absolute theory

Szarowská (2011) mentions two main approaches to corporate taxation, which are broadly discussed at present. The integral approach acquires the fact, that all taxes are paid by individuals at the end and the measurement of real economic welfare is thus very complicated to obtain. This approach criticizes the

presence of corporate taxation, because ultimately, concerning the profit of the company, it becomes the profit of the individuals. From this perspective, the profit is hence taxed twice, firstly in the form of income tax imposed on corporate profit, and secondly at the level of personal income, when the tax is imposed on dividends transferred to shareholders. The followers of this approach deal in their analyses with the issue, how to incorporate this tax rate into the personal income taxation. These analyses indicate that the presence of this tax causes higher production costs, resulting in higher product prices. Another problem arises with transforming the accounting profit into the tax base. The removal of the corporate tax would simplify the tax administration and decrease compliance costs. A disproportionate complexity of different tax regimes induces the multinational companies to manipulate with their tax base and thus decrease their taxes paid. The construction of the corporate tax is recognized, therefore, as inefficient as well as unfair, because it does not comply with the principle of justice. The tax rate increases usually linearly, which is in contradiction with the neutrality of introducing taxes.

The absolute approach approves the existence of corporate taxation. Furthermore, its followers claim that, notably, multinational companies are independent decision making individuals that have a big impact on the economic processes. This taxation can be understood as a compensation for limited liability of companies. Nevertheless, this is also in contradiction with the principle of tax neutrality. This approach also emphasizes the importance of this tax, because while some special types of profits may, either in legal or illegal way, escape from the personal tax base, this cannot happen on the corporate taxation level.

2.2   Current situation of corporate taxation in Europe

The tax systems within the European Union are created and administered by national governments, and can be considered as widely distinct. The member states keep in possession of full control over the formulation and implementation of corporate tax policy. A corporate tax is imposed on a taxable profit of the company, in essence, on a difference between revenues and expenses. There is, however, significant evidence that the computations of a taxable profit differ across countries as well as a level of corporate taxation. The cooperation among

member states is based, in particular, on the bilateral treaties, although according to Djurović-Todorović (2002) they are attempts for tax harmonization on a higher level within the European Union or OECD countries. Nowadays, in the time of deepening economic integration, when the mobility of goods, services, and capital became more important than in the past, current tax systems turn out to be ineffective and call for reform.

Generally speaking, some international companies suffer from double taxation of the same profits, thus domestic companies can benefit from that on the particular market. Such multiple taxation results also in higher *compliance costs*. On the other hand, governments may complain about tax avoidance of multinational corporations that are shifting their profit out of high tax countries to low tax countries called tax havens. (Mirrlees Review 2011).

In this context, we often hear about two terms: *tax avoidance* and *tax evasion*. We should be very cautious when and how we use these terms because we have to clearly distinguish between them. It might seem that these acts are similar, however in practice, the difference is crucial. Wargo (2012) defines *tax avoidance* as a legal way to minimize taxes paid while *tax evasion* is considered as a willful attempt to defraud the goverment by not paying taxes. *Tax avoidance* as well as *tax evasion* represent a big issue for national authorities.

2.3 Development of statutory corporate tax rates in EU over time

During the last two decades, we observe a radical decrease in nominal[1] corporate tax rates, particularly, in developed countries. The growth of powerful multinational companies, relocating their real activities and taxable profits to countries with more favorable tax regimes, inevitably, initiated a constraint on reforming the tax systems. These *tax-cuttings* have often been accompanied by the reduction of allowances or broadening of the tax base. The expansion of international capital mobility has resulted in downward pressure on the statutory corporate tax rate. The European countries, where the tax rates were steadily very high, have experienced the most dramatic change in taxation during the last three decades, similarly, the declining trend has been observed all over the world. The changes of corporate taxes in Europe were accompanied by reduc-

---

[1]Nominal = statutory

tion of tax rates in U. S. and Japan. Identically, a moderate decrease of tax
rates was recorded also in other continents (see Figure 2.1).

Figure 2.1: Statutory Corporate Income Tax Rate
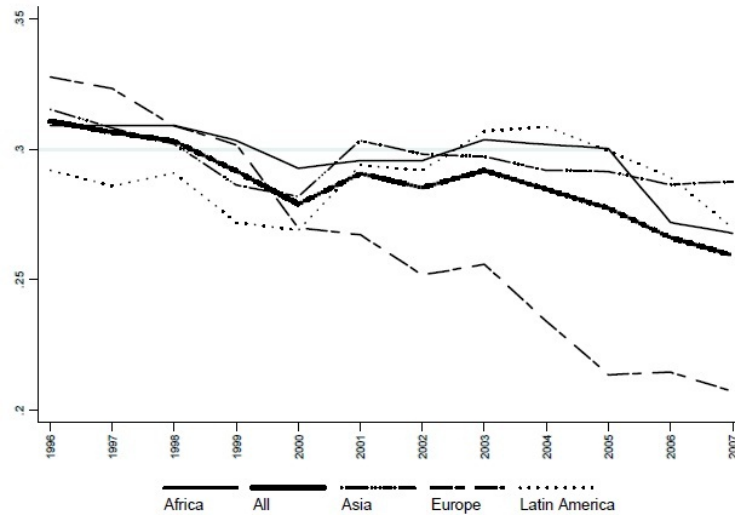
Source: Abbas *et al.* (2012, p. 8).

Figure 2.2: Average corporate taxation in the EU (1980-2007)
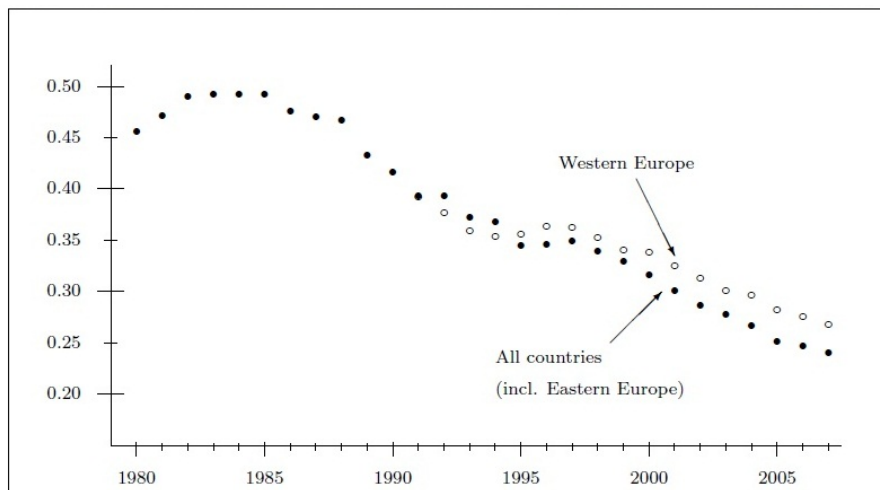
Source: Heinemann *et al.* (2010, p. 503).

Figure 2.2 operates with data from 32 European countries - 28 EU's member
states and above that Iceland, Norway, Switzerland, and Turkey. The graph
ilustrates the average corporate tax rates from 1980 until 2007.

In the beginning of the 1980's, we observe a slight increase in statutory
corporate tax rates, which shows, in particular, the trend of Western Europe.
The data for Eastern European countries were collected principally from the

beginning of the 1990's. In 1980, the average tax burden in Europe depicts 45,6 %. The top average rates reached between 1982 and 1985 approached the 50 % level. Since then, the corporate tax rates have sunstainably declined except a negligible growth in the period between the years 1995 and 1997. By 2007, the average statutory mean in Europe had reached 24,1 %, nearly half of the level in 1980.

The remarkable thing about the graph is the difference in the development of statutory tax rates among Eastern and Western European countries since 1996. Eastern Europe seemed to be more ambitious in reducing the tax rates. For instance, the Czech Republic has reformed its tax system nine times since 1992. Bulgaria and Poland adopted eight and seven reforms, respectively. On average, the 11 Eastern European countries, presented in this research, have decreased their statutory tax rates from 31,5 % in 1996 to 18,9 % in 2007, while the rest of the European countries lowered their tax rates from 36,3 % to 26,8 % during the same time. The downward trend is also expected in the future. (Heinemann *et al.* 2010).

The tax burden of the companies operating in European countries appears to be half of the tax burden that was imposed thirty years ago. However, this information might be misleading. Per se, the statutory corporate tax rates do not include the information about a variety of different tax regimes and different treatment of computing the tax base. Several studies have been published on this issue, why the states are step by step adopting lower statutory tax rates. Among them the study Devereux *et al.* (2008), which tries to explain the decline as a result of tax competition between countries.

In this context, there is a significant fear from *the race to bottom*. The possible consequence of the decline of tax rates on corporate profit would cause the decrease in tax revenues and difficulties for national governments to provide their public service. Boss (2005) and Piotrowska & Vanborren (2008) analyze what happened to tax revenues complying with the evolving of statutory corporate tax rates in European countries over time. It turns out that taxes on corporate income correspond to the financing of public expenditures to a more or less unchanged extent (see Table 2.1). In addition, there are no significant changes of the level and the structure of total tax revenues. Soerensen (2006) points out that this paradox between the decline of tax rates and increase in tax-to-GDP ratio may be caused by increasing corporatization on one hand, and base broadening on the other hand. Recently, we have observed beginning attenuation of sectors, where non-corporate organizational form used to dom-

inate. Mooij & Nicodéme (2007) argue that the paradox in Europe may, to a large extent, be explained by growing the corporatization and shifting from personal income to corporate income. According to their outcomes, since the beginning of the 1990s income shifting may have raised the share of corporate tax revenue in GDP by 0.25 percentage points.

Table 2.1: Taxes on Corporate Income in Relation to GDP in Selected Countries (percent)

Year	1980	1990	1995	2000	2001	2002	2003
Austria	1.4	1.4	1.5	2.0	3.1	2.3	2.0
Belgium	2.2	2.4	2.8	3.6	3.6	3.5	3.4
Czech Republic	.	.	4.9	3.8	4.4	4.6	4.8
Denmark	1.4	1.5	2.0	2.4	3.1	2.9	2.8
Finland	1.2	2.0	2.3	6.0	4.3	4.3	3.5
France	2.1	2.3	2.1	3.1	3.4	2.9	2.6
Germany	2.0	1.7	1.1	1.8	0.6	1.0	1.3
Greece	0.9	1.6	2.0	4.6	3.8	3.8	.
Hungary	.	.	1.9	2.2	2.4	2.4	.
Ireland	1.4	1.7	2.8	3.8	3.6	3.7	3.9
Italy	2.4	3.9	3.6	2.9	3.6	3.2	2.8
Luxembourg	6.6	6.5	7.5	7.2	7.5	8.6	7.9
Netherlands	2.9	3.2	3.1	4.2	4.1	3.5	3.0
Poland	.	.	2.8	2.5	1.9	2.0	.
Portugal	.	2.3	2.5	4.1	3.6	.	.
Slovak Republic	.	.	.	2.8	2.2	2.7	.
Spain	1.2	2.9	1.8	3.0	2.8	3.2	3.1
Sweden	1.2	1.7	2.8	4.0	2.9	2.4	2.0
UK	2.9	3.6	2.8	3.6	3.5	2.9	2.8
EU 15	2.1	2.6	2.7	3.8	3.6	3.4	.

Source: Boss (2005)[p. 3].

While the statutory corporate tax rates were declining, the EU 15 average tax revenues increased slightly since 1980.

2.4 Statutory corporate tax rates in 2012

The tax conditions create an important factor for investors to take decisions about locating a new investment. The statutory corporate taxes perform a simple comparison between states. This approach is used because of its simplicity and availability of data. Despite the fact, that the pressure on tax harmoniza-

tion from the EU and OECD has recently intensified, the statutory corporate
tax rates still differ a lot across the European Union. Among the lowest tax
- countries we range Ireland with the corporate tax rate reaching 12,5 % and
Cyprus with 10 %. Conversely, on the other side of tax ranking we may find
France with 33 % or Belgium with almost 34 %.

Figure 2.3: Statutory corporate tax rates in 2013
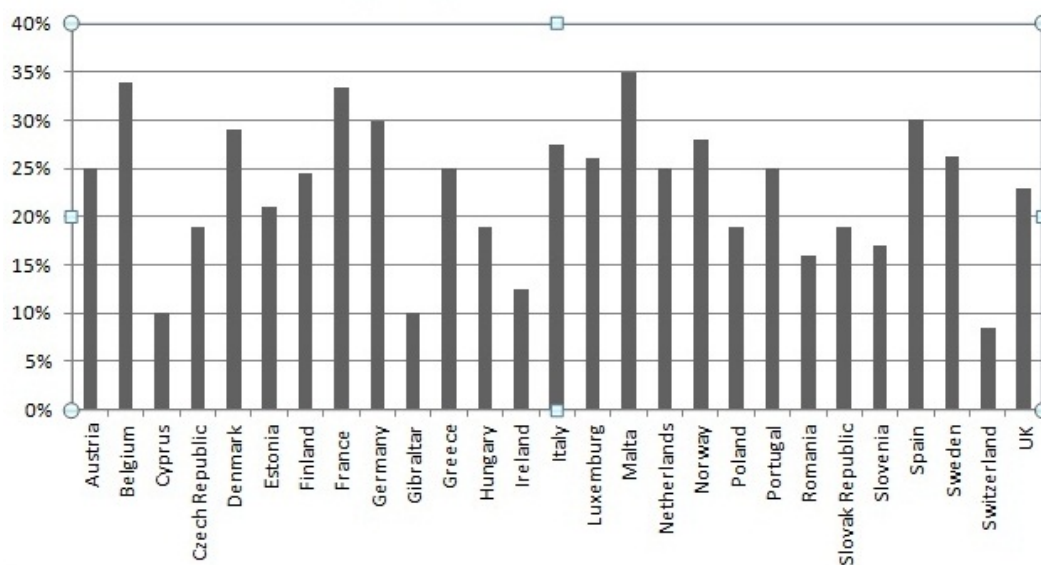
Source: Author's computation using data from Nexia International (2013).

The remarkable exception is the Isle of Man, where no corporate income
taxes are charged irrespective of domestic or foreign country - apart from rental
profits from Isle of Man property, and local banking services, both are taxed
at the rate of 10 %.

Switzerland, a country which worth mentioning in detail, provides very
special tax treatment for foreign investors, it offers a 'tax bargaining' with
tax authorities to multinational companies choosing their headquarters in the
Swiss Confederation. As discussed in Fuentes (2013),the country consists of 26
sovereign cantons. The tax policy does not exclusively belong to the federal
goverment, however, it also proceeds on the cantonal level. The federal corpo-
rate income tax is levied at a flat rate of 8.5 % from the tax base. Although
the federal government induces tax harmonization within cantons, they still
remain in control of different tax areas such as the setting of the applicable tax
rate KPMG (2011). Several cantons levy progressive taxes with rates rising
in line with either profits or the return on equity, alternatively, some cantons
have remoted linear structures recently. Despite the lower tax rates in inter-

national comparison, the tax revenues from corporate taxation are comparable with other OECD economies, which indicates a broader tax base. Nevertheless, Switzerland widely attracts high attention of investors due to its friendly tax conditions.

In general, Western European countries still hold standardly higher statutory tax rates compared to Eastern European countries. The mean statutory corporate tax rate is 22,78 %. The Czech Republic with 19 % is significantly below the European average.

Chapter 3

Effective corporate tax rates

The EU's member states apply diversified methods to calculate a taxable profit in respect of domestic or foreign income. In other words, the accounting profit has to be adjusted to generate the taxable profit. Discrepancies among countries may be inflicted by different accounting systems, different treatment of dividends received from subsidiaries, different treatment of capital gains or losses, and different treatment of depreciation. This can be partly reduced by comparing effective corporate tax rates (ETR). (Djurović-Todorović 2002).

When we want to compare real corporate taxes levied on companies in different countries and understand their usefulness, we need to focus on detailed analysis of effective tax burdens. Although the level of statutory taxes gives some information, it is very limited. From this perspective, the real influence of taxation on economic activity is determined by statutory tax rates supplemented by the elements composing the tax base. (Elschner & Vanborren 2009).

3.1 Definition of effective corporate tax rate (ETR)

According to the comprehensive study made for International Monetary Fund (Abbas *et al.* 2012)[p. 5], we derive definitions of the effective average tax rate and the effective marginal tax rates.

(i) "The *effective average tax rate* (EATR) is the ratio of the present value of taxes to the present value of profit. This can be calculated for any discrete investment project, including one where a positive economic rent is expected ex ante."

(ii) "The *effective marginal tax rate* (EMTR) is a special case of the EATR,

where a project just breaks even, i.e. yields a post - tax economic rent of nil. This is the relevant rate for companies operating at the margin."

3.2   Different approaches for computing ETR

As discussed in the previous section, the ETR is a measure that facilitates the way to tax policy makers to examine the real tax burden on companies in a particular country. Furthermore, it provides the reasonable comparing of the tax burden between different countries. We distinguish two different approaches of calculation. One approach uses the data collected either from aggregate accounts on macroeconomic level or from existing firm's accounts on microeconomic level. In accordance to these ex-post data, the methodology is called *backward-looking* macro or micro approach. Similarly, we derive *forward-looking* method based on utilization of ex-ante data. This approach deals with future prospects of current investment. This approach can be also calculated using either macro or micro data. Computations are made considering, notably, the rate of return during the life of investment and other endogenous factors. Giannini & Maggiulli (2002).

The described methods above, evidently, cannot reflect the same values. There is no generally accepted effective tax rate applicable to all tax policy questions. The subject of study is fundamental for selection of the appropriate approach. For instance, we are interested in transfers of tax burden from corporate profits to the labor force. Thus, we will be more concerned with the *backward-looking* data. Generally speaking, these data are useful when we want to examine the allocation of tax burden in the society or impact of tax law on cash flow in the companies. In addition, they better explain the correlation of tax revenues to the economic cycle. They may provide a sufficient view of taxes in the company, but they cannot assess tax policy driven by tax policy makers. (Giannini & Maggiulli 2002).

We favor the *forward-looking* indicators in case we measure the effectiveness and the competitiveness of the tax regimes in terms of future investment decisions of companies. Moreover, the *forward-looking* approach is able to absorb relations between different tax systems and take them into account. From this perspective, it is a very useful tool to distinguish the important drivers of ETR and to compare differences in tax burden across countries. Nevertheless, the approach suffers from many shortcomings caused mainly by its hypothetical nature.

In the next section, I am going to describe two models using the *forward-looking* approach for the computation of ETR.

(i) King and Fullerton method (K&F method)

(ii) Devereux and Griffith method (D&G method)

These models enable comparisons of the tax wedge[1] between countries because they include the information of different tax regimes and international tax treaties. The latter was used for the purposes of the European Commission. Simultaneously, we will briefly emphasize their advantages and disadvantages.

3.2.1 King and Fullerton method

K&F method firstly published in King & Fullerton (1984) is used for comparison of the taxation of income from capital for four countries. The original purpose of this comparative study was to explore the inducements to invest and safe in the private nonfinancial corporate sector taking into account tax regimes in each country. The influence of the tax imposed on the investment is measured by computing the *effective marginal tax rates*, where King & Fullerton (1984) describe margin as "a small increase in the level of real investment in the domestic nonfinancial corporate sector, financed by an increase in the savings of domestic households".

At first, we derive the tax wedge w which is a difference between the rate of return on investment and the rate of return on savings provided to finance the investment. Let p denote the pre-tax real rate of return on marginal investment project, net of depreciation and s denote the post-tax real rate of saving used to finance the project.

$$w = p - s \tag{3.1}$$

The effective tax rate t we define to be the tax wedge divided by the pre-tax rate of return on investment.

$$t = \frac{p - s}{p} \tag{3.2}$$

Alternatively, we can define the effective tax rate that excludes the information about tax rate. We simply divide tax wedge by post-tax real rate of return on savings.

---

[1]According to Investopedia (2013), tax wedge is a measure of market inefficiency caused by imposing a tax on production or service. Equilibrium between supply and demand curve is shifted while creating a wedge of death weight loss.

$$t_s = \frac{p - s}{s} \tag{3.3}$$

We consider also the real interest rate denoted by r, which has an important impact on decision making for investment or savings. The real interest rate is a difference between the nominal interest rate i and the inflation π.

$$r = i - \pi \tag{3.4}$$

We may be interested in the minimum rate of return on the investment before taxes are paid. This minimum pre-tax rate of return is a measure when the saver is indifferent between taking a project and lending money at market interest rate. We call it the cost of capital. It depends upon different factors considering the nature of assets and industry, the form of financing used and the type of the saver, who provides the financial support. For a given combination of indicators mentioned above, we derive the function expressing the relation between cost of capital and real interest rate.

$$p = c(r) \tag{3.5}$$

The relationship between the market interest rate and the return on savings depends on the tax treatment of personal income. Let m denote the marginal personal tax rate on interest income and w_p is the marginal personal tax rate on wealth. Hence, we derive the post-tax real return on saving as follows.

$$s = (1 - m)(r + \pi) - \pi - w_p \tag{3.6}$$

For each project we compute (3.5) and (3.6) and subsequently we obtain the tax wedge and the EMTR.

In the following paragraph, we are going to briefly recapitulate the main pros and cons of this applied method, which were summarized in Giannini & Maggiulli (2002). King and Fullerton performed a simple model, which enables reasonable comparison of countries using different tax systems across the time. That was the reason why this method has been several times applied for the purposes of the European Commission and OECD. The model emphasizes the specific features in different tax regimes that create the real corporate tax burden. While using the K&F method, it is very crucial to take into consideration all shortcomings that may occur.

- The model assumes cost of capital being lower or at least equal to rate of return on the particular investment and it does not include a possible loss. Some tax regimes also permit an option to carry losses from adverse period to periods when the company reaches profit. Moreover, they may provide different kinds of tax provision, for instance, in the form of tax credit. None of these factors are involved in the original model.

- The information about the type of financing, either through equity or debt, is strictly exogenous in the model. Thus, the company does not minimize its costs in the model, this factor is considered as given. In practice, the situation is rather opposite.

- The K&F method is constructed to compute tax wedge under current tax legislation. In other words, the computations are valid if only the conditions are not changed in the future. In other words, risk and uncertainty are excluded from the model.

- The K&F method examines the impact on a marginal investment. However, the real economic market is often imperfect which can cause that the investment generates economic rent. Thus, investors may face a choice between two or more exclusive projects which are expected to earn more money than the minimum required rate of return.

- The K&F method assumes, that the decision where to invest exclusively depends on the capital taxation. Under real circumstances, other taxes not related to corporate profit may play their roles as well as compliance costs. For instance, investors would take into consideration trade taxes, payroll taxes, and energy taxes.

3.2.2 Devereux and Griffith method

The D&G method firstly published in Devereux & Griffith (1998) follows and works up the methods developed by King & Fullerton (1984) and OECD (1991). The original model is applied to a dataset of US multinational companies operating on the European market. The D&G method examines the inducements why companies decide to undertake their investments across the borders, which is, per se, considered to be costly nevertheless still advantageous. The model provides an evidence that the effective average tax rate (EATR) has an impact on the choice where to locate the investment. Unlike the K&F method, this

model derives except the effective marginal tax rate (EMTR) also the effective average tax rate (EATR). In the next two paragraphs, we are going to implement the computations at first for domestic investment and secondly for international investment. To understand the model fully, we are going to perform the situation firstly in the absence of tax and subsequently, in the presence of tax. To derive the model, we use the study made for European Commission (Commission Staff Working Paper - SEC(2001) 1681 2001). As it was already discussed above, generally, we distinguish between three types of financing an investment: debt, retained earnings or new equity. From the perspective of an investor, the cost of the new investment is one unit in case of financing through retained earnings as well as in case of new equity, however, debt financing costs zero unit.

Domestic investment in the absence of tax   Assume that δ denotes the rate of depreciation and π the rate of inflation in the period $t+1$, hence, we derive the unit of capital as $(1-\delta)(1-\pi)$. In addition, we suppose that the return generated by the unit of capital in the period $t+1$ equals $(p+\delta)(1+\pi)$, where p is the real rate of return on the investment. We take into account that no uncertainty or risk is present. Thus, the real rate of interest r can be expressed as

$$(1+r)(1+\pi) = (1+i). \tag{3.7}$$

In case of equity finance, the net present value to the investor denoted R^* is

$$R^* = -1 + \frac{(1-\delta)(1-\pi)+(p+\delta)(1+\pi)}{1+i} = -1 + \frac{1+p}{1+r} = \frac{p-r}{1+r}. \tag{3.8}$$

The net present value of the investment transferred to a shareholder may be seen as a net present value of the economic rent generated by the investment. In case of marginal investment $p = r$, the net present value of the investment R^* equals zero. However, more frequently we obtain $p > r$.

In case of debt finance, we acquire the equation for net present value of the investment as

$$R^* = 0 + \frac{(1-\delta)(1-\pi)+(p+\delta)(1+\pi)-(1+i)}{1+i} = \frac{p-r}{1+r}. \tag{3.9}$$

Clearly, we can see that from (3.8) and (3.9) we obtain the same values. Thus, in the absence of tax, investor would be indifferent between equity and debt finance.

Domestic investment in the presence of tax Suppose that the corporate taxation has been introduced, then the nominal return on the investment, net of interest payments[2], is taxed at the rate τ. Consequently, we take into account the shareholder's nominal discount rate denoted by ρ.

$$\rho = i \left(\frac{1 - m^i}{1 + z} \right) \tag{3.10}$$

where
m^i reflects the value of the shareholder's marginal personal income tax rate on the interest income, and
z reflects the value of the shareholder's marginal personal effective capital gains tax rate (for detailed information about this rate see King & Fullerton (1984)). Considering three different types of financing, we apply outcomes derived above on the situation determined by taxes to obtain the value of the hypothetical investment.

a) **Investment financed by retained earnings**

Initially, we compute the investment financed by retained earnings—in other words, by deferred dividends. The shareholder's decision is on one hand influenced by the corporate tax rate and on the other hand by different allowances and personal taxes imposed on dividends.

(i) The shareholder, taking the investment, reduces dividends in the period t. Conversely, he will expect the return from the investment through dividends in the period $t + 1$. From this perspective, we need to multiply the money flowing from the shareholder in the period t by a rate γ, corresponding to the various indicators of personal taxation.

(ii) Given a present value of allowances A, then the net present value of the cost of the investment reflects $(1 - A)$.

(iii) The nominal return of the investment in the period $t + 1$ is derived as $(p + \delta)(1 + \pi)$ is taxed at the rate τ.

(iv) The net present value of the reduced cost of the investment in period $t + 1$ is $(1 - \delta)(1 + \pi)(1 - A)$.

---

[2]In case of deducting the interest from the tax base, which is applied in most of the countries of the EU.

Combining these elements we obtain post-tax net present value (economic rent) of the hypothetical investment

$$R^{RE} = \gamma \left[-(1-A) + \frac{(1-\delta)(1-\pi)(1-A) + (p+\delta)(1+\pi)(1-\tau)}{1+\rho} \right].$$
(3.11)

After adjustment, we acquire

$$R^{RE} = \frac{\gamma}{1+\rho} \left\{ (p+\delta)(1+\pi)(1-\tau) - [(1+p) - (1-\delta)(1-\pi)](1-A) \right\}.$$
(3.12)

b) **Investment financed by new equity**

By new equity we mean issuing new shares. In the period t, we introduce the rate of tax allowances denoted by $\tau\o$. Unlike the case of retained earnings, the shareholder inserts $1 - \tau\o$ in new equity in the period t and in the period $t+1$, the shareholder's income will decrease at the same rate to repurchase the shares issued, thus $\gamma(1 - \tau\o)$. We derive the post-tax net present value of the investment financed by new equity as a summary of two elements: post-tax net present value of the investment financed by retained earnings and net present value of the additional cash flows arising through the use of new equity finance.

$$R^{NE} = R^{RE} + F^{NE},$$
(3.13)

where

$$F^{NE} = -(1-\gamma)(1-\tau\o) + \frac{(1-\gamma)(1-\tau\o)}{(1+\rho)} = -\frac{\rho(1-\gamma)(1-\tau\o)}{1+\rho}.$$
(3.14)

c) **Investment financed by debt**

Consider the difference from financing by equity, the shareholder does not give up dividends in the first period t, instead of this he borrows a required amount. In the period $t+1$, he is supposed to pay the amount back increased by interest $(1 - \tau\o)(1 + i)$. We assume that the interest is deductible, which reduces the net cost by $(1 - \tau\o)i\tau$. Logically, the dividends paid in the period $t+1$ are used to pay back the debt. Thus, the decrease of the net income to the shareholder may be expressed by $\gamma(1 - \tau\o)(1 + i(1 - \tau))$.

Again, we derive post-tax net present of the hypothetical investment financed by debt as a summary of post-tax net present value of the investment financed by retained earnings and net present value of the additional cash flows

arising through the use of debt finance.

$$R^D = R^{RE} + F^D, \tag{3.15}$$

where

$$F^D = \gamma)(1 - \tau\text{ø}) - \frac{\gamma(1 - \tau\text{ø})(1 + i(1 - \tau))}{(1 + \rho)} = \frac{\gamma(1 - \tau\text{ø})(\rho - i(1 - \tau))}{1 + \rho}. \tag{3.16}$$

d) Summarization of different types of finance

The post-tax net present value of the hypothetical investment, so called economic rent, can be overwritten into a general form

$$R = R^{RE} + F, \tag{3.17}$$

where

$$F = \begin{cases} 0 & \text{if financed by retained earnings} \\ F^{NE} & \text{if financed by new equity} \\ F^D & \text{if financed by debt} \end{cases} \tag{3.18}$$

Definition of ETR

(a) Effective marginal tax rate (EMTR)

Initially, we aim at marginal investment—such project that generates no economic rent. The shareholder is indifferent between undertaking and not undertaking the investment. Using the analysis so far, we derive the cost of capital denoted by p, in other words the pre-tax rate of return on the investment, combining (3.12) and (3.17) determined by $R = 0$

$$\widetilde{p} = \frac{(1 - A)}{(1 + \pi)(1 - \tau)}\{\rho + \delta(1 + \pi) - \pi\} - \frac{F(1 + \rho)}{\gamma(1 + \pi)(1 - \tau)} - \delta. \tag{3.19}$$

The EMTR is defined as the proportionate difference between $\widetilde{p}$ and the real post-tax rate flowing to the shareholder s, where

$$s = \frac{i(1 - m^i) - \pi}{1 + \pi} \tag{3.20}$$

Thus, in the absence of personal taxation, s equals r. The EMTR is

$$EMTR = \frac{\widetilde{p} - s}{s}, \qquad (3.21)$$

(b) Effective average tax rate (EATR)

Devereux & Griffith (1998) considers the case, when shareholder chooses among two or more projects. Assume, that the shareholder due to limited amount of capital can select only one project. Then he will compare these investments through EATR.

Intuitive computation EATR would be derived as the proportionate difference between net present value of the investment in the absence of tax and the net present value of the investment generated in the presence of tax:

$$EATR = \frac{R^* - R}{R^*}. \qquad (3.22)$$

However, this rate suffers from the fact, that investments which are marginal in the absence of tax ($R^* = 0$) cannot be included in the equation. Therefore, Devereux and Griffith come up with new approach. They replace R^* in the denominator by the net present value of the income stream in the absence of tax, $p/(1+r)$. Subsequently, we obtain

$$EATR = \frac{R^* - (1-z)R}{p/(1+r)}, \qquad (3.23)$$

where R^* is defined in (3.8) or in (3.9), z in (3.10) and R in (3.17).

To perform EATR, it is necessary to choose a level of profitability, pre-tax rate of return on the investment p. For comparison of taxation within countries, it is required to set the value of pre-tax rate of return on the investment as constant. We may compute the EATR and EMTR at different levels of p.

International investment D&G method has been extended to report also the treatment of international investment, using similar approach as was published in OECD (1991). The principals of governing the international investments are exactly the same as in case of domestic investment, therefore, we are not going to perform them in detail again. The model considers a parent company located in country j. This company undertakes an investment in country i through a fully owned subsidiary. The model assumes for the simplification

that shareholders resident in country j as well, so that the equilibrium condition defining the value of the firm does not change with respect to the domestic investment. Similarly, the international investment may be financed by retained earnings, issuing new shares to parent company or borrowing the money from the parent company.

Chapter 4

Empirical research

4.1 Description

The objective of this empirical research is to examine the difference between effective corporate tax rates and statutory corporate tax rates by Czech companies and to assess the evolving of effective tax burden in the Czech Republic. In essence, we do work with two hypotheses:

(i) The average effective corporate tax rate is significantly lower than the statutory corporate tax rate.

(ii) The effective corporate tax burden follows the European decreasing trend.

Table 4.1: Corporate tax rate in Czech Republic

Year	2008	2009	2010	2011	2012
Tax rate	21 %	20 %	19%	19%	19%

Source: Author's computations.

The statutory tax rates evolving across the time are shown in the Table 4.1. Despite the fact, that the country has adopted a relatively low flat rate, which complies with the case of the Czech Republic, it is often accompanied by broadening the tax base. One of the main tasks of this paper will be the assessment to what extent the tax base has been adjusted. Therefore, we aim at capturing the effective tax burden for Prague Stock Exchange traded companies which represent a diversity of sectors.

The empirical part is organized as follows. Section 2 provides a concise survey through literature review. Section 3 and 4 describe the data and methodology used. And finally, section 5 summarizes the results.

4.2 Literature review

Our empirical research is consistent with studies applied to US companies in Yin (2003). Yin (2003) examines the effective tax burden of public companies included in S&P 500 stock-index and reports the development of the ETR during the period 1995-2000. This paper points out that the level of the ETR has been historically the lowest in the year 2000, the levels have decreased from 30.11% in 1995 to 27.98% in 2000.

Our computations are based on corporate income tax as the main decisive factor of the tax burden. To a certain extent, the calculations follow Sebastian (2011), which main objective is to present a complex study of the tax burden of companies traded on the Bucharest Stock Exchange. Sebastian (2011) argues that other factors, for instance payroll taxes, royalties, real estate taxes or social contributions, play an important role concerning the tax burden, nevertheless, we do not take these factors into consideration.

Such researches are not only a subject for academic literature, however, they have been several surveys made exclusively for media purposes. The study commissioned by Bloomberg Businessweek (2009) shows that effective tax rate varies a lot for U.S. companies. In 2009, the statutory tax rate in the USA was set out at the level of 35%. For the list of companies taken from S&P 500 stock-index, they obtained very different values of the ETR ranged from essentially zero to almost 400 %. None of the companies taking part in this study paid exactly 35% of the pre-tax income. Bloomberg Businessweek (2009) alerts the paradox that troubled sectors such as car industry, banks and real estate business, are taxed at the highest ETR.

Similar research has been published in the UK. Mail Online (2013) reports that "almost one in four of Britain's biggest companies paid no corporation tax in 2012". The analysis contains data of companies traded in FTSE 100 stock-index and it shows that there is also a significant number of companies that utilize the advantages provided by government in the form of tax credits, while paying no corporate taxes in the UK.

A few studies were published for the Czech Republic as well. Janíčková (2013) reports the declining trend of the effective tax burden for Moravian-

Silesian region that corresponds to trends occurring in Europe. The paper compares the effective tax burden obtained on the basis of backward-looking micro approach with the results of other two measurements. It considers firstly the backward-looking macro approach and secondly the corporate tax quota—a share of corporate tax paid on GDP of Czech republic.

4.3 Data

For our research, we chose the list of companies registered in the PX stock-index that offers a portfolio of 13 listed companies (see the Table 4.2 below). They are publicly traded and, therefore, often well-known in the Czech Republic. Another reason why we picked up this sample is that the companies are in varying areas of industry. Among them, we may find industrial sectors which were severely harmed during the economic crises. We are going to determine how does this influence their real tax burden.

Six of the performed companies are located in other countries within Europe, evidently, such companies do not correspond to the Czech legislation. Nevertheless, these companies operate on the Czech market through a number of subsidiaries, which are a subject for Czech tax law. Therefore, we include the appropriate subsidiary into our research, instead of the parent company (for detailed structure see the Appendix A). With the help of MagnusWeb database operated by Čekia web, we captured the financial reports and collected the data from last four years—thus, 2009-2012. The financial reports are primarily based on the IFRS accounting method, which differs from Czech accounting standards. Standardly, the IRFS requires that a public traded company has to report consolidated financial statements. Mládek (2009)[p. 238-239] describes the consolidation as follows. "Consolidation involves summing all the asset, liabilities, income and expense of the parent and its subsidiaries, eliminating inter-company profits and creating a financial report as if no individual entities existed." It is necessary to admit that for several companies 2012 data were not available, therefore, we were forced to work with data from the year 2008 till 2011.[1]

Regarding the limited number of observed companies, we deal also with companies generating a loss for more than two years, which were usually taken out of the research. In our portfolio, we have two companies providing banking

---

[1]This exception concerns VIG, ORCO, PEGAS NONWOVENS, FORTUNA, and AAA Auto. CETV provides data only in 2011 and 2012.

Table 4.2: PX index companies

Name	Branch
ČEZ	Energetics
KOMERČNÍ BANKA	Banking
TELEFÓNICA O2 C.R.	Telecommunication
OKK KOKSOVNY	Mining industry
UNIPETROL	Chemical,pharmaceutical,rubber industry
VIG	Insurance industry
CETV	Media and entertainment industry
PHILIP MORRIS ČR	Beverages and tobacco industry
PEGAS NONWOVENS	Textile, leather industry
ORCO	Real estate business
ČESKÁ SPOŘITELNA	Banking
AAA AUTO	Car industry
FORTUNA	Media and entertainment industry

Source: Author's computations using Official Prague Stock Exchange website (2013) available from http://www.bcpp.cz/ .

services and one insurance company. Generally speaking, financial companies may be taxed at the lower statutory tax rate, however, in our case they are taxed at the standard corporate tax rate (for detailed specification which companies can obtain the status of being taxed at lower tax rate see České účetní standardy 2013 (2013)).

4.4 Methodology

To minimize the effect of one-time anomalies, we average the outcomes of the ETR obtained in last four years (Bloomberg Businessweek 2009). This research will coincide to existing literature in applying the backward-looking approach using microeconomic data. Szarowská (2011) points out that this approach may not be accurate when we want to examine the impact of tax policy on tax incentives. On the other hand, it enables to measure the real effective tax burden according to the size or sector. Nicodéme (2007) shows summarization of the most common methods in order to assess the effective tax burden. According to Široký *et al.* (2012), that follows Nicodéme (2007), we are going to apply two different methods how to compute the ETR. In the framework of using micro approach, the ETR is always a ratio between income tax denoted by t and the tax base.

(a) Initially, we compute the tax base as a total profit before tax paid (TPBT), in other words, the summary of earnings before tax (EBT) and difference of extraordinary items (extraordinary income EI and extraordinary charges EC):

$$ETR_a = \frac{t}{EBT + EI - EC}.$$ (4.1)

This method is expected to be the most advantageous in case we want to compare the ETR with statutory tax rates.

(b) Secondly, we compute the tax base as gross operating profit (GOP), thus, the difference between total operating revenues and cost of good sold reduced of other operating charges and taxes and private expenses:

$$ETR_b = \frac{t}{GOP}.$$ (4.2)

4.5 Results

This part of the empirical research is focused on the comments to our measurements. We aim at acquiring the corporate effective tax rates according to backward-looking micro approach for all 13 companies included in PX stock-index. It is essential to mention that six companies reported their income taxes as a positive value during particular years—in other words, in a form of tax credit. This status would cause a bias in our outcomes. For this reason, we took the problematic years out of the research. As already discussed above, in the two following subsections we report the average outcomes obtained in four consecutive years. In the third subsection, we aim at obtaining the outcomes for particular years.

Concerning corporations, the Czech law does not permit to pay out the tax credit. However, the state may provide tax allowances in the form of tax holidays or other tax incentives. The positive value of income tax paid on the balance sheet shows the accounting value, which can be carried onto the following years. The Czech law coincides to other European countries in carrying the loss up to five years.

4.5.1 The ETR based on total profit before taxes paid

Initially, we present the outcomes based on the methodology, where the tax base is computed as a total profit (or possible loss) before taxes are paid (i.e.

profit on ordinary activities + extraordinary income - extraordinary charges). As we can see on the Table 4.3 below, the outcomes vary across the companies, as well as across the sectors.

Table 4.3: Effective tax rates - total profit before taxes paid

Name	ETR (TPBT)	Min	Max	St. deviation
ČEZ	20,73%	20,00%	21,56%	0,006641747
KOMERČNÍ BANKA	16,46%	15,17%	18,12%	0,010780266
TELEFÓNICA O2 C.R.	18,44%	13,23%	21,58%	0,031386838
OKK KOKSOVNY	4,37%	0,00%	13,10%	0,061772928
UNIPETROL	21,00%	21,00%	21,00%	0
VIG	15,54%	0,00%	21,51%	0,089882579
CETV	-2,19%	-2,19%	-2,19%	0
PHILIP MORRIS ČR	20,15%	19,66%	21,24%	0,006413292
PEGAS NONWOVENS	12,35%	8,53%	19,90%	0,053371552
ORCO	38,34%	-27,04%	103,72%	0,653813678
ČESKÁ SPOŘITELNA	20,28%	17,81%	22,15%	0,015777618
AAA AUTO	30,02%	19,81%	39,97%	0,094743032
FORTUNA	6,36%	0,90%	16,63%	0,072661188

Source: Author's computations.

None of the companies pays exactly 19% tax. This may be explained in following manner, the accounting profit that we consider in our computations is not identical to a taxable profit, that creates the tax base. In fact, five companies pay on average more than 19%. The rest of the companies pays standardly a lower rate than the statutory level is. The high tax company is ORCO with the effective rate 38,34%. ORCO shows significantly higher standard deviation, this has been caused by big jump from the year 2008 to 2009. This large ETR may be explained by deferring and carrying the tax liability onto following years. In the time when the deferred tax became payable, the real estate business experienced negative demand shock corresponding to a world economic crisis (during the period 2008-2009) and after a moderate recover, the business plunged into next recession.

The lowest effective tax rate shows the company CETV. However, this outcome is obtained only from the year 2011. The data available from other years reported positive income taxes, which did not meet our criteria and they were taken out of the research. Therefore, we could not ensure the objective average and the outcome might be misleading. The mean value of all companies taking a part in this research is 17,07%, which is almost two percentage points

below the statutory corporate tax rate. As we can see on the Table 4.3, two companies (OKK KOKSOVNY and VIG) paid at least in one year the tax rate equal to zero and another company (FURTUNA) was very close to zero with 0,90%.

4.5.2 The ETR based on gross operating profit

Table 4.4: Effective tax rates - gross operating profit

Name	ETR (GOP)	Min	Max	St. deviation
ČEZ	20,51%	20,14%	21,54%	0,00593484
TELEFÓNICA O2 C.R.	24,35%	15,78%	40,85%	0,100271829
OKK KOKSOVNY a.s.	-1,05%	-3,15%	0,00%	0,01484096
UNIPETROL	19,59%	19,59%	19,88%	0
VIG	10,67%	0,00%	17,55%	0,064918953
CETV	0,90%	0,90%	0,90%	0
PHILIP MORRIS ČR	21,27%	20,50%	22,88%	0,009413422
PEGAS NONWOVENS	-45,58%	-57,04%	-37,13%	0,084001883
ORCO PRAGUE	-1,15%	-1,27%	-1,03%	0,001195971
AAA AUTO	4,35%	-45,73%	91,87%	0,524765161

Source: Author's computations.

In the following paragraph, we are going to summarize the outcomes based on the method using gross operating profit as a tax base. Unfortunately, in this survey we excluded three companies (KOMERČNÍ BANKA, ČESKÁ SPOŘITELNA and FORTUNA) because of the accessibility of required data.

The obtained average values differ from -45,58% by PEGAS NONWOVENS to 24,35% by TELEFÓNICA O2 C.R. Similarly, the outcomes differ across the years by individual companies as we can see when we look at standard deviations. The mean value is 5,38%. By PEGAS NONWOVENS, the ETR is negative because of higher cost of good sold in comparison to total revenues. By OKK KOKSOVNY the negative value has occurred only in 2010 and in the following years 2011 and 2012 the tax reached zero. In ORCO case, the negative value is caused by disproportionately high private expenses.

According to Szarowská (2011), the usage of gross operating profit in denominator counted profit before being net of depreciation. This is essential in case we want to acquire a tax base, which does not vary too much under different tax legislation. It enables unbiased and reasonable comparison of dif-

ferent countries. In the next paragraph, we look at the companies from the perspective of consecutive time periods in our case years 2008-2011.

4.5.3 Development of the ETR in 2008-2011

Unfortunately, the year 2012 does not include all PX index companies, because few of them do still not provide the 2012 data.[2] Therefore, we decided to interpret the values obtained just for individual years 2008 - 2011. Figure 4.1 shows the evolving of the ETR computed according to backward-looking micro approach for PX stock-index companies.

The results in the Figure 4.1 show that the ETR based on TPBT have increased in the period 2008-2010. Conversely, in 2011, we can see a slight decrease. Unlike these results, we observe the rapid decline by the ETR based on GOP which reached the top level in 2008 with the value 32,98% and the bottom in 2011 with negative value -1,17%.

Figure 4.1: ETR[3] (micro approach) 2008 - 2011
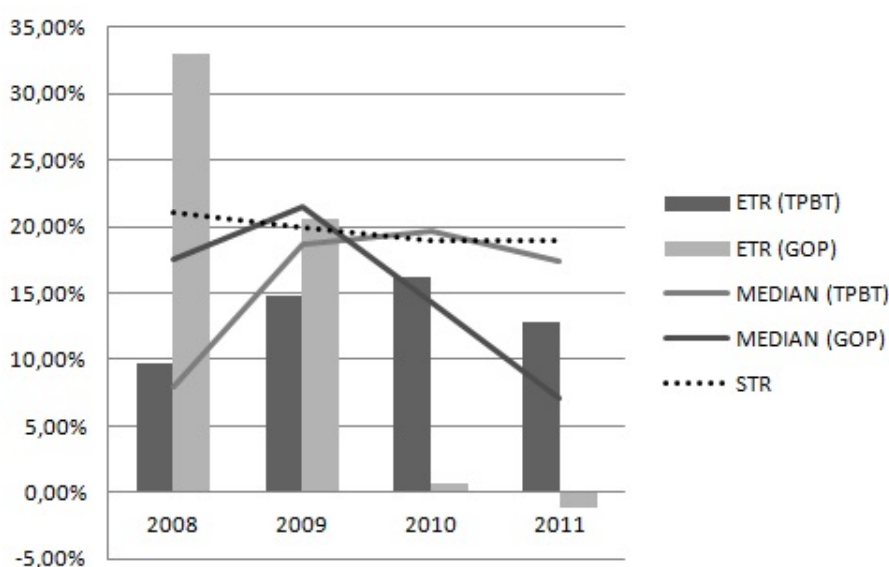
Source: Author's computations using pattern[4] in Janíčková (2013, p. 86).

---

[2]for detailed structure see the Appendix A

[3]ETR (TPBT) - effective tax rate based on the method using total profits before taxes; ETR (GOP) - effective tax rate based on the method using gross operating profits; MEDIAN (TPBT) - median based on the method using total profits before taxes; MEDIAN (GOP) - based on the method using gross operating profits; STR - statutory tax rate

[4]Janíčková (2013) shows almost an identical research aimed at companies located in Moravian-Silesian region, that uses the backward-looking micro approach which has been applied also in our empirical part in order to obtain the ETR values.

The objective of this paragraph was to examine, if the companies follow the European trend in decreasing the effective tax burden. When we look at the ETR based on GOP, the values have progressively decreased. Nevertheless, in case of the ETR based on TPBT we observe rather an opposite trend. With the help of statistical one-way ANOVA test, we test, whether there is a significant difference, in our case significant decrease in the values obtained during 2008-2011. We define the null hypothesis in the way that the mean values obtained for different years are equal. The alternative hypothesis is that at least one year is different from the others.

Table 4.5: ANOVA - ETR (TPBT)

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0,0253	3	0,0084	1,1432	0,3444	2,8588
Within Groups	0,2731	37	0,0074			
Total	0,2984	40				

Source: Author's computations.

Table 4.6: ANOVA - ETR (GOP)

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0,5997	3	0,1999	0,8630	0,47	2,9752
Within Groups	6,0161	26	0,2314			
Total	6,6158	29				

Source: Author's computations.

The p-value for the ETR based on TPBT is 0,34 (see the Table 4.5). Therefore, we cannot reject the hypothesis at the 5% significance level nor at the 10% significance level. Similarly, we derive the p-value for the ETR based on GOP, which approaches the value 0,47 (see the Table 4.6). That is even higher than in case of the ETR based on TPBT. That implies the same result, we cannot reject the hypothesis at the 5% significance level nor at the 10% significance level.

This is mainly due to the limited number of observations and another reason for this may be that, unlike the macro approach, the micro approach is very sensitive to the fluctuations of an economic cycle and markedly absorbs them.

The observed period in our research mingles with the time of the world economic crises. This recession touched almost all industrial sectors. Therefore, the obtained outcomes reflect the development of the economic growth and might cause a bias to our calculations. In the beginning of 2008, we observed the first signs of incoming crisis. In 2009, the Czech economy as well as whole European has been still fully in recession. In 2010, the economic activity experienced a slight recovery. However, in 2011 the economy plunged into another attenuation.

Other important indicators are the medians, which were obtained for the individual companies. While the effective tax burden based on GOP for individual years was declining throughout the observed time, the GOP median shows a slight increase in the period 2008-2009, which is also not consistent with decreasing trend. Fundamentally, an interesting thing about the graph is that the TPBT median is almost all the time above the average ETR levels based on TPBT.

Chapter 5

Conclusion

Within the theoretical framework of this thesis, we try to point out about the complexity of current corporate taxation in Europe accompanied by associated costs. We summarize the fundamental problems related to corporate taxation and, ultimately, agree on the necessity of adopting new reforms on the multinational level. We outline the important distinction between statutory and effective tax rates and present different forms of the effective corporate tax rates obtained through different methods of calculation.

In the empirical part, we aim at the situation in the Czech Republic. Two hypotheses arise as a main objective of our research. Whether the effective corporate tax rates are below the statutory tax level and whether the effective corporate tax rates follow the European decreasing trend. For our computations, we collected the data of all listed companies in PX stock-index and we applied two different methods. The companies are publicly traded and, therefore, often well-known. In addition, this sample contains companies operating in varying areas of industry. Among them, we may find industrial sectors which were severely harmed during the economic crises. Due to an interest of the real tax burden of Czech companies, we chose the methods based on backward-looking micro approach.

And it turns out, that companies doing business within sectors in extensive decline have shown higher effective tax rates. Moreover, the results indicate that the companies pay on average from zero to almost double value of the statutory level. The mean value of all companies taking a part in this research is 17,07%, which is almost two percentage points below the statutory corporate tax rate. On the other hand, we did not find significant evidence that the effective corporate tax rates have declined recently. The results show that the

effective tax rates have increased in the period 2008-2010. Conversely, in 2011, we observe a slight decrease.

As a possible extension of this paper, we would suggest to extend the number of observed companies in order to ensure more objective outcomes. The results obtained through backward-looking method using micro approach might be compared to computations using a macro approach, which uses the data collected from aggregate accounts on macronomic level in the Czech Republic. This approach better analyzes selected parts of tax legislation and also comprises different types of financing. It would be beneficial to find out, whether the different sources of financing have an impact on effective tax rates and if so, to what extent they differ.

Bibliography

ABBAS, S. M. A., A. KLEMM, S. BEDI, & J. PARK (2012): "A Partial Race to the Bottom: Corporate Tax Developments in Emerging and Developing Economies." IMF Working Papers: 12/28.

BLOOMBERG BUSINESSWEEK (2009): "What U.S. Companies Really Pay in Taxes." By Nanette Byrnes, Ellen Gibson and Brian Burnsed. [online].

BOSS, A. (2005): "Tax Competition and Tax Revenues." *Kiel Working Papers* **(1256)**: pp. 1–19.

ČESKÉ ÚČETNÍ STANDARDY 2013 (2013): č. 945. Nakladatelství Sagit.

COMMISSION STAFF WORKING PAPER - SEC(2001) 1681 (2001): "Summary of "Devereux and Griffith" Economic Model and Measures of Effective Tax Rates."

DEVEREUX, M. P. & R. GRIFFITH (1998): "Taxes and the location of production: evidence from a panel of US multinationals ." *Journal of Public Economics* **68**: pp. 335–367.

DEVEREUX, M. P., B. LOCKWOOD, & M. REDOANO (2008): "Do Countries Compete over their Tax Rates?" *Journal of Public Economics* **92**: pp. 1210–1235.

DJUROVIĆ-TODOROVIĆ, J. (2002): "Corporate Income Tax in EU Countries: Comparative Analasis." *Facta Universitatis, Series: Economics and Organization* **1**: pp. 57–66.

ELSCHNER, C. & W. VANBORREN (2009): "Corporate Effective Tax Rates in an Enlarged European Union." European Commission: Taxation papers.

FUENTES, A. (2013): "Making the Tax System Less Distortive in Switzerland." OECD Working Papers.

GIANNINI, S. & C. MAGGIULLI (2002): "The Effective Tax Rates in the EU Commission Study on Corporate Taxation: Methodological Aspects, Main Results and Policy Implications." CESifo, Munich.

HEINEMANN, F., M. OVERESCH, & J. RINCKE (2010): "Rate-cutting Tax Reforms and Corporate Tax Competition in Europe." *Economics and Politics* **22**: pp. 498–518.

INVESTOPEDIA (2013): "Database of Economic Terms." Http://investopedia.com. [online].

ŠIROKÝ, J., J. KVÍČALOVÁ, & I. VALENTOVÁ (2012): "Identification of Causes of Differences in Statutory and Effective Rates of Corporate Taxes." *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* **52**: pp. 391–397.

JANÍČKOVÁ, L. (2013): "Effective Tax Rates in the Moravian-Silesian Region." *Law and Economics Review* **4**: pp. 83–92.

KING, M. A. & D. FULLERTON (1984): *The Taxation of Income From Capital: A Comparative Study of the U.S., U.K., Sweden and West Germany.* National Bureau of Economic Research, Inc.

KPMG (2011): "Swiss Corporate Income Tax System." [online].

MAIL ONLINE (2013): "Revealed: One in four of the UK's top companies pay no tax while we give THEM millions in credits." By Alex Hawkes and Simon Watkins. [online].

MIRRLEES REVIEW (2011): "Tax design - Corporate Taxation in an International Context." Pp. 412-418. Available from http://www.ifs.org.uk/mirrleesReview.

MLÁDEK, R. (2009): *Postupy účtování podle IRFS; IRFS Policies and Procedures.* Leges, 1 edition. Pp. 238-239.

MOOIJ, R. A. D. & G. NICODÉME (2007): "Corporate tax policy and incorporation in the EU." Oxford University Centre for Business Taxation: Working Papers 0716. Available from http://www.investopedia.com/.

NEXIA INTERNATIONAL (2013): *International Tax Handbook.* Bloomsbury Professional, 4th edition. [online].

Nicodéme, G. J. (2007): "Comparing Effective Corporate Tax Rates." *Frontiers in Finance and Economics* **4**: pp. 102–131.

OECD (1991): *Taxing Profits in a Global Economy.* OECD Publishing.

Official Prague Stock Exchange website (2013): Available from http://www.bcpp.cz/.

Piotrowska, J. & W. Vanborren (2008): "The Corporate Income Tax Rate-revenue Paradox: Evidence in the EU."

Sebastian, L. (2011): "Effective Corporate Income Tax Rate in Romania: a Microbackward Looking Approach." University Al. I. Cuza of Iasi, Romania. Pp. 133-144.

Soerensen, P. B. (2006): "Can Capital Income Taxes Survive? And Should They?" *CESifo Economic Studies* pp. 172–228.

Szarowská, I. (2011): "Jak Vysové Je Korporátní Daňové Zatížení?" *Acta academica karviniensia* **2**: pp. 196–207. Pp. 196 - 207.

Wargo, K. (2012): *Tax Avoidance vs. Tax Evasion.* Taxation I: ACCT 401 [record in MP3 format].

Yin, G. (2003): "How Much Tax Do Large Public Corporations Pay? Estimating the Effective Tax Rates of the S&P 500." *Virginal Economic Review* **89**: p. 1793–1856.

Appendix A

The structure of Czech subsidiaries

Table A.1: The structure of Czech PX index subsidiaries

Subsidiary	Parent company	Country
OKK KOKSOVNY	New World Resources Plc	UK
VIG	Vienna Insurance Group	Austria
PEGAS NONWOVENS	Pegas Nonwovens S.A.	Luxembourg
ORCO	Orco Property Group S.A.	Luxembourg
ČESKÁ SPOŘITELNA	Erste Group Bank AG	Austria
AAA AUTO	AAA Auto Group N.V.	Netherlands

Source: Author's computations using Official Prague Stock Exchange website (2013) available from http://www.bcpp.cz/ .

Bachelor Thesis Proposal

Author	Jana Kučerová
Supervisor	Petr Janský, M. Sc.
Proposed topic	Effective and Nominal Corporate Tax Rates

Topic characteristics   In my thesis I want to focus on low tax countries in the European Union, such as Cyprus, Gibraltar, Malta, Luxembourg, Netherlands and United Kingdom and how their presence influences the tax competition among countries. Briefly I would like to perform the purpose of establishing tax havens and recent development with reference to an article Tax Havens and Commercialization of State Sovereignty (Ronen, 2002).

I´m going to describe, what kinds of tax optimizations do exist moreover which are suitable for tax payers. I will cover corporate taxes, withholding taxes and I will attempt to analyze them from a legal point of view. Subsequently I will deal with differences between statutory and effective corporate taxes. According to the survey Corporate Effective Tax Rates in an enlarged European Union (Vanborren, Elschner, 2009) for the European Commission, the reduction in the corporate effective average tax rates (EATR) of investments are lower than for the corporate statutory tax rates and the figures suggest that simple corporate tax base broadening by means of less generous capital allowances is not a sufficient explanation for this phenomenon.

In the practical part of my thesis, I will compute taxes and costs for a fictive company, in case it opens up an offshore company in each country mentioned above. The main task will be to compare their advantages and disadvantages and effectiveness of such structures.

Motivation   Tax havens belong to very popular topics. There are very often discussed in broadsheets or TV news, mostly connected to topics on the edge of the law such as tax evasion or tax fraud. People usually think about them

as islands in Caribbean Sea but we have them also around us in the EU. Using such countries is not just a question of income tax, but also about structuring of holdings, security of investments and the flow of cash from countries which are involved.

Hypotheses

- The jurisdiction in tax havens provides higher protection of investments than in the original country.

- Differences between nominal and effective tax rates are substantial.

- The presence of the tax havens reduces the effective marginal tax rate for any given statutory tax rate.

- Reducing income tax rates are often accompanied by reducing tax allowances or extensions to the corporate tax base.

Methodology   I´m going to review conclusions about nominal and effective tax rates performed at analysis Corporate Effective Tax Rates in an enlarged European Union (Vanborren, Elschner, 2009). Then I will attempt to prove the negative impact of tax havens on effective marginal tax rate using working paper Tax Competition with Parasitic Tax Havens (Joel Slemrod, 2006). I´m going to establish a fictive company with a fictive turnover, which operates in a few countries on the European market. The company will have different options, how to build its structure. I´m going to use data about taxes from The International Tax Handbook (2009) to compute corporate taxes and corresponding costs for the individual structures.

Outline

1. Introduction
    (a) History of offshore centers
    (b) Utilization of offshore companies
    (c) Change of offshore statues after joining to EU
    (d) Countries with low taxes
2. Theoretical Background
3. Effective average and marginal tax rates

     (a) Comparison to statutory tax rates

4. Computation of costs on offshore company

     (a) Legal aspects/ Legal costs (establishing etc.)

     (b) Economic aspects/ maintenance, due diligence, corporate governance

5. Discussion on results – Comparison with taxes in Czech Republic and other type of structures

6. Conclusion

Core bibliography

1. ELSCHNER, C. & W. VANBORREN (2009): "Corporate Effective Tax Rates in an Enlarged European Union." European Commission: Taxation papers.

2. Desai, M. A. & C. F. FOLEY & J. R. HINES JR. (2006): "The Demand for Tax Haven Operations." *Journal of Public Economics*, textbf90(3): pp. 513-531.

3. PWC (2011): "Global effective tax rates."

4. MARTINEZ-SERRANO, A. & B. PATTERSON (2003): "Taxation in Europe: recent developments." *Economic Affairs Series*, ECON 131 EN. Directorate-General for Research.

5. "Database of Taxes in European Union." European Commission.

6. SLEMROD, J. & J. D. WILSON (2009): "Tax Competition with Parasitic Tax Havens." *Journal of Public Economics* **93(11-12)**: pp. 1261-1270.

7. HINES JR., J. R. (2010): "Treasury Islands." *Journal of Economic Perspectives* **24(4)**: pp. 103-125.

8. MIRRLEES REVIEW (2011): *"Tax Design - Corporate Taxes."*

9. PALAN, R. (2002): "Tax Havens and the Commercialization of State Sovereignty." *International Organization* **56(1)**: pp. 151-176.

10. " The International Tax Handbook." (2009): Tottel Publishing Ltd. 978 1 84766 294 1.

11. VELO, L. (2006): "Daňové ráje světa." REBO Production. 80-85815-93-1.

_____   _____
        Author   Supervisor