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Effective Corporate Taxation in EU Countries

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Abstract

The effective corporate taxation expresses the real rate of corporate tax, and therefore it is essential information for a foreign investor. The presented contribution deals with the effective corporate tax in the European countries. The aim of this contribution is to analyse and compare the development of statutory and effective corporate tax rates in the EU Member States in 1998-2017. Through the regression analysis we found a correlation between statutory corporate tax rate, as a dependent variable, and effective corporate tax rate, foreign direct investment, gross domestic product, inflation rate, unemployment rate, government debt and budget revenues, all as independent variables. Our analysis has confirmed that there is only one statistically significant input independent variable, i.e. the effective corporate tax rate. If the effective corporate tax rate increases by one percent and the other explanatory variables remain unchanged, then the statutory corporate tax rate will increase by 1.0175% in the EU countries.

Key words: *corporate taxation, tax rates, regression analysis, macroeconomic indicators*

JEL Classification: H20, H21

1. Introduction

In the recent times, the effective corporate tax is a much discussed topic within the national countries, as well as at the international level. This discussion is focused on tax harmonization, an effect of multinational companies, or on legitimacy of corporate tax in tax legislative of the EU Member States. In the relevant literature, most authors claim that it is necessary to make a tax reform which will secure effective Single European market. The crucial role of every tax is to guarantee stable income into state budget and self-government budget, and so to ensure effective fulfilment of budget functions. Direct tax revenues, to which belongs corporate tax too, represent a significant item in the coverage of state expenditures for the daily running of the country.

2. Literature review

Historically, effective tax is one of the most recent taxes and applies to the accounting profit/loss of an accounting entity. The profit/loss is then adjusted for taxable profit based on the applicable tax legislation. Due to the different legislative laws and tax rules in the individual EU States or world's countries, the issue of creating uniform conditions for determining the corporate tax rate

and effective taxation is often discussed at the present. Regarding the corporate tax, Medveď et al. [2011] states that economically this issue does not have any justification, since all corporate profits will ultimately become personal individual incomes, and thus the subject of their income tax. Similarly, Sørensen [1995] mentioned several approaches to corporate taxation. The first one is a traditional approach, according to which effective corporate tax distorts the financing and real investment decisions of corporations. On the other hand, critics of the traditional approach tend to degrade the importance of non-taxation factors in corporate financial decision-making [Cozmei, 2015]. To our knowledge, the first critics of this approach was Arnold [2008] according to which shareholders are indifferent to corporate financial policy in a tax-free world, as investors would always be able to neutralize the effect of corporate dividend and debt policies on their personal portfolios through selling or borrowing own portfolio [Dias, Reis, 2018]. However, the question remains how companies evaluate and compare the tax burden. The statutory tax is the fastest way to get a concept of the amount of taxation in given country. This tax rate applies to tax liability of tax base that we incur after adjusting accounting profit/loss for attributable and deductible items. But from the stated above, using a statutory tax rate as an indicator of the magnitude of the tax burden may be distorted and inaccurate. A solution to the problem of determining the actual level of taxation as well as the international comparison of tax systems, become effective tax rates which is defined as indicators of the actual level of taxation and represents an alternative to international comparison [Blechová, 2008]. Therefore, effective tax rates can explain the large variations in nominal rates and serve businesses to make investment decisions related to the allocation of capital to individual countries.

3. Material and methods

Our contribution is focused on analysing recent problems of corporate taxation in the EU Member States. Through the selected macroeconomic indicators, we point out evaluating the development of corporate taxation and identifying the correlation between corporate tax rate and the economy. The main aim of this contribution is to analyse the statutory and effective tax rate in the EU in period 1998-2017. Then, through the regression analysis we found a correlation between statutory corporate tax rate, as a dependent variable, and effective corporate tax rate, foreign direct investment, gross domestic product, inflation rate, unemployment rate, government debt and budget revenues, in period 1998-2016. Values of selected indicators for EU-28 were retrieved from the *Eurostat Database* as well as from the *World Bank Database* and several documents published by the *European Commission* (2012, 2017).

We set our regression function in the following form:

$$y = 2,9296 + 1,0175x_1 - 0,0045x_2 + 0,4856x_3 - 0,0864x_4 - 0,2501x_5 + 0,0302x_6 - 0,3438x_7 \qquad (1)$$

In the analysis, there are the following input independent variables:
- statutory (nominal) corporate tax rate (NTR) – expressed in percentage (%);
- effective average corporate tax rate (EATR) – expressed in percentage (%);
- foreign direct investment (FDI) – expressed in percentage (%) as a proportion of net inflow of FDI to GDP;
- gross domestic product per capita (GDP/capita) – expressed in percentage (%) as the annual growth rate based on local currency;
- inflation rate (Inflation) – expressed in percentage (%) as the annual growth rate of implicit GDP deflator;
- total unemployment (Unemployment) – expressed in percentage (%) as a proportion of available unemployed workforce to total workforce;
- government debt (Government debt) – expressed in percentage (%) as a proportion of total consolidated gross government debt to GDP;
- corporate tax revenue in the state budget (Corporate tax revenue) – expressed in percentage (%) as a proportion of corporate tax revenue to GDP.

Our result of the regression analysis includes several parts. The first part, *Regression statistics*, includes the results of correlation analysis. In this part, *Multiple R* represents the correlation coefficient that explains how strong the dependency between the selected variables is. The nearer value of *Multiple R* to value 1, the stronger dependency between variables. The determinant coefficient, marked as *R Square*, plays a significant role in the regression model because it explains the variability of the dependent variable Y. *Adjusted R Square* represents adjusted determinant coefficient and includes the amount of analysed variables as well as the amount of variables observation. *Standard error* represents standard mean and is measured as dependent variable. *Observations* explains amount of total observations in the regression model. The next part of regression analysis represents the analysis of variance (ANOVA) where the most significant indicator is coefficient *Significance F*.

4. Results and discussion

4.1 The development of statutory and effective corporate tax rate

In the EU, the global trend which has influenced the development in tax rate is transfer of tax burden from direct taxation to indirect taxation. In most EU countries, it can be observed that tax base of corporate tax is broaden, as well as there is increasing trend in regulation of transfer pricing.
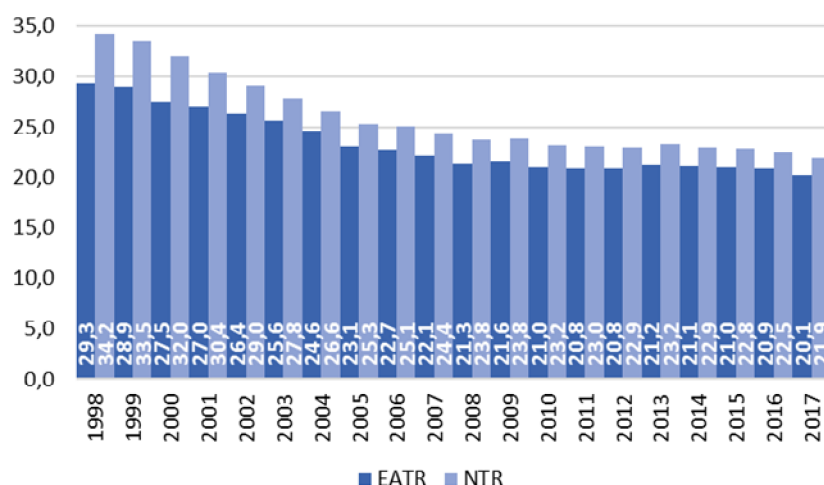
Figure 1. The development of statutory nominal (NTR) and effective average corporate tax (EATR) rate in EU in a period of 1998-2017; source: processed by authors based on European Commission [2012, 2017]

The average upper level of corporate tax rate in the EU countries has dropped slightly from the level 34.2% in 1998 to 21.9% in 2017. It was a result of dropping trend within the whole analysed period. Although we can consider this fall in tax rate as general, within the EU Member States there are very different corporate tax rates even without this change. For international comparing, adjusted statutory tax rate has ranged from 10% (in Bulgaria) and 10.8% (in Hungary) to level higher than 30% (in France, Malta, Belgium, or Germany). It is crucial to state that in these EU countries could be applied lower effective corporate tax due to the tax measures and rules. In six EU countries, we can see lower tax rates in 2017 in comparison with 2016, thus the largest difference is recorded in Hungary (a drop from 20.6% to 10.8%), as well as in Italy (a drop from 31.3% to 27.8%). To other countries where statutory tax rate dropped belong Croatia, Luxemburg, Norway and Slovakia. The only one country where corporate rate rose in 2016 and 2017 was Slovenia (from 17% to 19%). The differences in national tax systems can partially be adjusted by comparing with effective corporate rate. There are two basic types of ETR: (1) effective average tax rate EATR, and (2) effective marginal tax rate EMTR. EATR represents a proportion to present value of tax and present value of profit. EMTR

represents a special case in which an investment project reaches the breaking point, thus EMTR brings zero economic rent after tax. A figure Fig.1 shows average values of EATR.

The methodology for calculating EATR is set by the methodology established by authors [Devereux & Griffith, 1999, 2003]. As in the statutory tax rate over the last decade, values of individual EATR have decreased significantly, but the latest data show some stabilization at 21% since 2010 in the EU-28. However, EATR values differentiate considerably from one Member State to another. The lowest EATR value is in Bulgaria (9%), in Cyprus (13%), in Latvia (13.6%) and in Ireland (14.1%). On the contrary, the highest EATR value is monitored in France (33.4%), in Malta (32.2%) and in Spain (30.1%), while the average rate within the EU is 20.1%. The most significant change in the selected period was in Bulgaria, where the effective average tax rate reached its highest level in 1998 at 32% and the lowest level in 2007 at 8.8%. The second most significant change in the period was reached in Slovakia at 20.2 percentage points. In Slovakia, effective tax rate reached at 36.7% in 1998, but in 2004 reached its lowest value at 16.5%. In 2017 was Slovak effective tax rate was at 18.7%.

4.2 Regression analysis

To test effective tax rates, we created a model in which we chose statutory tax rate as a dependent explanatory variable, and as independent variable we chose remaining seven indicators, as shows Table 1.

Tab. 1. The regression analysis output: An impact of the selected indicators on statutory corporate tax rate; source: processed by authors

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2,9296	5,1155	0,5727	0,5732	-7,7411	13,6002
EATR	1,0175	0,1085	9,3764	0,00000001	0,7912	1,2439
FDI	-0,0045	0,0386	-0,1177	0,9075	-0,0851	0,0760
GDP/capita	0,4856	0,7599	0,6391	0,5300	-1,0995	2,0708
Inflation	-0,0864	0,1594	-0,5422	0,5936	-0,4190	0,2461
Unemployment	-0,2501	0,1702	-1,4692	0,1573	-0,6052	0,1050
Government debt	0,0302	0,0246	1,2295	0,2332	-0,0211	0,0815
Corporate tax revenue	-0,3438	0,6441	-0,5337	0,5994	-1,6874	0,9998

A coefficient of dependent variable explains that if independent variables were zero, value of statutory corporate tax rate would be at level 2.9296. Other coefficients can be interpreted as follows: if effective tax rate increases by 1% and other explanatory variables are constant, statutory tax rate increases by 1.0175%in the EU countries. If foreign direct investment increases by 1% of GDP, statutory tax rate decreases by 0.0045%. Similarly, if GDP per capita increases by 1 unit (annual growth rate) and all other variables are constant, statutory tax rate increases by 0.4856%. A positive impact on statutory tax rate has also inflation rate which an increment by1 unit (annual growth rate in %) causes a drop by 0.0864%. The similar influence as inflation is observed in total unemployment rate, where an increase by 1 unit (%) causes a fall in statutory tax rate by 0.2501%. If government debt increases by 1% of GDP, it will rise statutory corporate tax rate by 0.0302%. And the last indicator we have chosen is corporate budget revenues which an increase by 1% of GDP causes a drop in the statutory tax rate by 0.3438%.

5. Conclusion

In the area of taxation, the government is a decisive authority which approves a transfer of necessary resources from the ownership of households and companies as economic entities in favour

of securing public goods. When analysing the development of the statutory corporate tax rate, we can see a decrease in the average value of corporate rate in the EU countries from 34.2% to 21.9% in 2017. It corresponds to the previous downward trend. In 2017, the lowest tax rate within selected EU states is in Bulgaria (10%) and in Hungary (10.8%), and the highest values of corporate tax rate are in France, Malta, Belgium or Germany where tax rate is above 30%. Regarding to values of effective corporate tax rate, similarly to statutory rate EATR decreases significantly in recent times. However, the actual data shows that there is stabilization at average level 21% since 2010. In 2017, the value of EATR is the lowest in Bulgaria (9%), in Cyprus (13%), in Latvia (13.6%) and in Ireland (14.1%), and the highest values are in France (33.4%), Malta (32.2%) and Spain (30.1%). Within the EU the average tax rate is at 20.1%. We evaluate our regression analysis model as statistically significant and it describes variability of dependent variable at 92.47%. The correlation coefficient is at level of 0.961 what means that between the analysed statutory rate and other variables is strong positive correlation. From the independent variables, only the effective corporate tax rate appears statistically significant, and its increase by 1%, other variables are constant; the statutory corporate tax rate will increase by 1.0175%.

References

[1] Arnold, J. (2008). Do Tax Structures Affect Aggregate Economic Growth?. ECO/Working papers 51, pp. 1-24

[2] Blechová, B. (2008). Charakteristika přístupů používaných v EU pro hodnocení efektivního daňového zatížení příjmů korporací. Teoretické a praktické aspekty veřejných financí. Prague, pp. 1-11

[3] Cozmei, C. (2015). Is it Any EU Corporate Income Tax Rate-Revenue Paradox?. Procedia economics and finance, 23, pp. 818-827

[4] Devereux, M.P., Griffith, R. (1999). The Taxation of Discrete Investment choices. Working Paper Series no. 98/16. Institute for Fiscal Studies, London

[5] Devereux, M.P., Griffith, R. (2003). Evaluating tax policy for location decisions. International tax and public finance, 10(2), pp. 107-126

[6] Dias, P.J.V.L., Reis, P.M.G. (2018). The relationship between the effective tax rate and the nominal rate. Contaduría y administración, 63 (3), pp. 1-21

[7] European Commission - Directorate General Taxation and Customs Union and Eurostat. (2018). Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway. Publications Office of the European Union

[8] Martinez-Vazquez, J., Vulovic, V., Liu, Y. (2011). Direct versus indirect taxation: Trends, theory and economic significance. The Elgar Guide to Tax Systems, Edward Elgar Publishing, pp. 37-92

[9] Medveď, J., Nemec, J. (2011). Verejné financie. Bratislava: Sprint dva, 2011. 640 p. ISBN978-80-89393-46-6

[10] Sørensen, P.B. (1995). Changing views of the corporate income tax. National Tax Journal, 48(2), 279-294

Analysis of Determinants of Effective Corporate Taxation - a Brief Overview

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Abstract

The effective tax rate is undoubtedly one of the important input values of financial decision-making. The real tax rate is an important evaluation criterion for selecting or rejecting an investment project. This paper provides an overview of the understanding of effective taxation from the point of view of taxation at the corporate level. The diversity of the definition of the effective rate from the point of view of publications from different authors is defined. The benefit is an overview of determinants in a way, we will at least briefly define the conceptual apparatus and look at the publications of various authors who define and analyse the determinants of effective taxation.

Key words: *effective tax rate, effective taxation, corporate tax rate, financial decision making.*

JEL Classification: H25

1. Introduction

Business taxation significantly affects investment appraisal and the choice of investment projects or investment project options. Different tax systems and different forms of corporate income taxation exist across countries. Taxation is one of the basic instruments of fiscal policy, and it affects the way of competition between countries. In this sense, it is often referred to the real amount of tax, which is a diametrically different concept from the tax base and the tax, respectively nominal tax rates. In addition, individual countries apply various benefits in the form of tax waivers, tax holidays, tax discounts, etc. These may change over the expected life of the investment. The effective tax rate is also one of the important input values of financial decision-making. The real tax rate is an important evaluation criterion for selecting or rejecting an investment project. In this paper, we will define the effective tax rate in terms of effective corporate taxation. Due to the fact that individual institutions define the effective tax rate in different ways, we will at least briefly define the conceptual apparatus and look at the publications of various authors who define and analyse the determinants of effective taxation.

From the point of view of definition, it can be stated that there is no officially recognized definition at the international level. However, it is possible to distinguish between macroeconomic and microeconomic views and subsequent breakdown into ex-post, respectively reverse and ex-ante access, also called predictive access, and the related types of effective tax rate.

2. Definition, measurement and types of effective tax rate - literature review

The OECD [2011] characterizes the effective tax rate (hereinafter also referred to as the effective tax rate) as the rate at which a taxpayer would be taxed if his tax liability were taxed at a constant rate as a whole, not progressively. This rate is calculated by determining the percentage of the taxpayer's tax liability in his total taxable income.

The standardized international dictionary of economic terms and organizations defines the ETR as: "a tax rate calculated as the ratio of the amount of tax paid to the tax base. [...] The effective rate differs from the nominal tax rate set by legislation and used to calculate taxes due to tax exemptions and reductions and tax evasion." According to the Cambridge Business English Dictionary, the ETR is the actual amount of tax paid as a percentage of taxable income or profit.

The Institute of Economic and Social Analysis, known by the acronym INESS [undated], defines ETR similarly as: "the tax rate calculated by comparing the tax paid and the tax base. For example, the effective income tax rate is calculated as the ratio between the real income to the state budget from the collection of the tax and the total taxable income."

As far as the European Union (EU) is concerned, the ETR describes as the average tax rate at which an individual or company is taxed, but apart from this generally accepted definition, there is no legally recognized definition of the effective tax rate in European or international legislation, states Bux [2016], Member of the Civil Rights and Constitutional Affairs Unit of the European Parliament.

ETR can be calculated for three different categories, namely consumption, wages and capital income, which makes it possible to assess how the tax burden is divided between different factors. Tecl [2018] states that when measuring ETR for individuals, this rate is influenced by many factors that are specific to each person and therefore cannot be determined in research for each individual, but uses a model person approach under well-defined assumptions, which is one of the microeconomic methods of research. It also includes an examination of the individual financial statements of a selected sample of companies or individuals.

Macroeconomic methods use aggregated data from international organizations in their calculations. Subsequently, a distinction is made between the ex-ante and ex-post approaches, i.e. both macroeconomic and microeconomic methods are further subdivided into methods using an ex-post or ex-ante approach. As Tecl [2018] further states, ex-ante methods are relevant for investors planning to locate their investments, but the calculation itself is quite complicated. On the other hand, the ex-post analysis calculates the tax rate from real data, but the disadvantage is the time delay.

The development of ex-ante methods was due to King and Fullerton [1983], who analysed the effects of the tax on capital costs, introduced a methodology for calculating the ex-ante marginal ETR and applied this concept in an analysis comparing four OECD countries. Devereux and Griffith [1999, 2003] subsequently studied the effects of the tax on inframarginal investments whose returns reached a level higher than the cost of capital. They extended the analysis of previous authors by presenting the concept of average ETR and presenting the relationships between marginal ETR, average ETR and statutory tax rates.

Two basic concepts of ETR are mostly used, namely the marginal, ie also called the marginal effective tax rate, and the average effective tax rate, which the OECD [2018] defines as follows:

o   The Effective Marginal Tax Rate (EMTR) measures the extent to which taxation increases an investor's required pre-tax rate of return.

The OECD [2018] further states that this indicator is used in analyses of investment decisions to assess how taxes affect the incentive to extend investment to other units. EMTR is a tax component of the cost of capital. As stated by Široky et al. [2012], they can be calculated according to formula 1:

$$EMTR = \frac{(gross\ rate\ of\ return - net\ actual\ return\ on\ investment)}{gross\ rate\ of\ return\ before\ tax}$$

Further according to OECD [2018]:

o The Effective Average Tax Rate (EATR) measures the effect of taxing profits from investment projects that generate economic rents.

However, as further defined by the OECD [2018], it is based on a comparison of the net present value of cash flows before and after tax. This indicator is used in the analysis of investment decisions on a wide scale, i.e. placement decisions, such as when a multinational company decides to locate a plant in one of many jurisdictions or to make one of many technological decisions.

Regarding the calculation, according to the OECD [2018], the EATR is a weighted sum of the EMTR and the statutory rate, where the weight is determined by the pre-tax rate of return. According to Široký et al. [2012], the average effective tax rate can be measured as follows:

$$EATR = \frac{net\ present\ value\ of\ the\ tax}{net\ present\ value\ of\ the\ investment}$$

3. Definition, measurement and types of effective tax rate - literature review

The determinants of corporate taxation have been addressed by many authors, testing different samples of companies at different intervals and countries. They used the effective tax rate (ETR) to analyse the tax burden on companies, as the statutory tax rate does not take into account temporary differences, tax breaks and other fiscal incentives. The determinants themselves were the same in several studies, although the results were often conflicting, especially with regard to the determinant of firm size.

Table 1. Selection of authors dealing with the determinants of corporate effective tax
[source: processed by author]

Author	Year	Country	Time period	Number of firms	Number of observations
Aksoy Hazir	2019	Turkey	2007 - 2016		2 640
Salaudeen and Eze	2018	Nigéria	2010 - 2014	59	
Salaudeen and Akano	2018	Nigéria	2012 - 2015	122	
Parisi	2016	Italy	1998 - 2006	5 134	46 206
Degado et al.	2014	EU - 15	1992 - 2009		28 416
Degado et al.	2012	USA	1992 - 2009	2 500	
Liu a Cao	2007	China	1998 - 2004	425	2 975
Janssen and Buijink	2000	Holland	1994 - 1998	879	4 395
Gupta and Newberry	1997	USA	1982 – 1985	823	3 292
			1987 - 1990	915	3 660

Degado et al. In their 2012 study, they examined companies listed on the US stock exchanges for the period 1992-2009, with a sample of 2,500 companies for each year. Their model contained five explanatory variables in both common and exaggerated forms to capture nonlinear dependencies, namely company size, level of indebtedness, capital level, stock size, return on assets (ROA). Two other dummy variables have also been inserted to capture the time and industry effects.

Company size was a significant explanatory variable in all six estimated models, showing non-linear behaviour characterized by a positive coefficient for small companies and a negative one for large companies. As a result, smaller companies were subject to a higher tax burden and the effect of tax planning after a certain level of company size exceeded the effect of government control, so that such companies were able to reduce their ETR.

In terms of debt and capital levels, the variables were statistically significant only in some models where they showed non-linear relationships with ETR, indicating that companies reduced their

tax burden after reaching higher levels of indebtedness and capital size. This is due to the fact that interest on loans (debt) and write-offs increase costs and thus reduce the tax base. Such a reduction in corporate tax may lead to external financing being more advantageous than raising own resources.

Subsequently, Degado et al. conducted another study in 2014, this time focusing on listed companies in the EU-15, but again on a time sample from 1992-2009 with a total of 28,416 records. In the study, the authors used quantile regression, which allows the detection of possible nonlinear relationships.

The degree of indebtedness was also significant and positive, with a visible difference in individual deciles. The effects increased for the first and last part of the distribution, while it was constant on Wednesday. The last decile coefficient was eight times higher than the first decile coefficient, which indicated a much more intense effect of debt in the companies with the highest ETR. These results were not in line with theoretical arguments that support the negative relationship between ETR and debt for companies with high levels of fiscal pressure in the sense that they may have a greater incentive to finance through debt to reduce the effective rate.

As for the capital level, the coefficients are mostly positive and significant, except for the first and last decile, when the sign is negative but not significant. Therefore, in most cases, Degado et al. [2014] observed a positive effect of asset composition on ETR, with the relationship being more intense in the central part of the distribution.

The results corresponding to the size of inventories and return on assets were very similar, as both variables had a positive effect and were significant with an upward trend, which then reversed and decreased, practically falling to zero at the last decile. In the case of the companies with the highest ETR, the effect of stocks was thus eliminated and profitability was significantly reduced.

The study concluded that for companies with lower ETRs, the most influential variables are company size, inventory size and return on assets, while for companies that are exposed to the highest fiscal pressure, i.e. state control, indebtedness appears to be the strongest determinant.

A study examining the effective corporate tax rates of only one European country was carried out by Parisi [2016], focusing on Italy between 1998 and 2006. The reason was that the Italian corporate tax regime has been evolving since its inception in the early 1970s. It changed only slightly in the 19th century, but it was during the period under review that the system of this tax underwent up to two main reforms, the declared aim of which was to simplify the system and reduce the tax burden on companies. From the point of view of tax policy, this is why the author considered Italy to be an interesting case study.

The empirical analysis was based on a panel of 5,134 companies that combined company accounts as well as company survey data, for a total of 46,206 observations. The author used a panel regression of fixed effects to examine the role of size, debt ratio, profitability rate, labour productivity, asset composition and internationalization in explaining heterogeneity between companies, and thus their effective tax rate. Furthermore, Parisi [2016] used quantile regression to analyse the impact of changes in the effect of independent variables on ER at different quantile distributions, providing information on the degree of heterogeneity in corporate behaviour to capture nonlinear effects of explanatory variables on the tax rate.

The result of the testing was that the size of the company had a statistically significant and positive relationship with ETR, which also confirmed the authors' assumption that the Italian business tax system does not provide any advantage to large companies. The debt ratio also reached the predicted negative relationship, with a one percent increase in the debt ratio leading to a reduction in the tax rate by 0.09 percentage points. Higher capitalization companies faced lower ETR and R&D also had a negative relationship with the effective tax rate. Also, profitability and labour productivity were statistically significant with negative dependence.

Interestingly, according to this study, the age of the company was a statistically significant factor influencing the ETR positively. Regarding internationalization, the variable with exporting

companies was not statistically significant, but the second category with a strategy of relocation or the application of foreign direct investment made it possible to reduce the tax burden.

Back in 2007, Liu and Cao examined what determines corporate effective tax rates using panel data on 425 companies listed in China's two largest stock markets over a seven-year period, 1998-2004. In total, the sample included 2,975 observations. The authors, like many others, used ETR in the study due to the complexity of measuring and calculating the nominal legal rate, as there are two accounting systems in China. The first is reported in accordance with the approved financial accounting standard, while the second is based on the provisions of the Income Tax Act, while some items are considered income for tax purposes but are not included in the income statement.

ETR has thus enabled authors to show the real tax burden, as there are several types of tax incentives provided by local and central government in China, such as tax cuts, tax exemptions, special deductions, low rates, popular taxes and more. The main objective of such tax policies is to support economic development by adapting the structure of industry, improving its efficiency and protecting the environment. However, according to Liu and Cao [2007], the effects of stimulus policies lead to tax preferences and the consequent economic distortions tend to be greater than expected. As a result of quantitative analysis and panel estimates using a random effects model, the size of the company and the capital level had no statistically significant effect on the ETR. Indebtedness showed a negative relationship and ETR tended to be lower for overemployed firms, which may have been related to government incentive policies to support employment. Return on assets and ownership structure depended on the external tax environment, with data indicating a positive relationship with ETR due to the use of tax incentives.

In the examination, Salaudeen and Eze [2018] applied a double calculation of ETR in the models, namely ETR 1 measured as current tax expenditure divided by pre-tax profit and ETR 2 expressed as total tax expenditure (current tax expenditure plus deferred tax expenditure) divided by profit before tax. According to the results of this study, there was a statistically significant positive relationship between company size and ETR, meaning that larger companies faced a higher tax burden. There is a negative relationship between indebtedness, capital level and type of auditor, i.e. companies with high values of these variables achieved lower ETR. There was no statistically significant relationship between employment levels and the effective rate. At the same time, the results pointed to the existing differences between the taxation of individual sectors of the economy. Subsequently, the author Salaudeen collaborated with a colleague from the same university from the Faculty of Statistics Akan [2018] on a study entitled Non-Linearity in Determinants of Corporate Effective Tax Rate: Further Evidence from Nigeria, where they used quantile regression similar to the aforementioned authors Degado et al. [2014]. This time, the sample included 122 companies listed on the Nigeria Stock Exchange after excluding 55 companies belonging to the financial sector and followed the data for a period of four years (2012 to 2015). The starting year was set for 2012 due to the adoption of International Financial Reporting Standards known as IFRS in Nigeria in that year.

The determinants were left by the authors Salaudeen and Akano [2018] the same as in the previous article Salaudeen and Eze [2018], the only difference was the definition of the explanatory variable ETR, where no two calculation variants were distinguished, but the effective tax rate was measured as the sum of current tax expenditures and provisions for deferred tax in the current year, which was divided by profit before tax. The results indicated the existence of a certain degree of nonlinearity in the relationships. The most influential factors for the distribution of ETR were the size of the company, indebtedness and the size of inventories, while the profitability measured by the ROA indicator and the capital level had a smaller effect. At the same time, the models showed that large companies were able to reduce their tax burden, i.e. there was a negative relationship between the size of the company and ETR, which the results confirmed with the variables of stock size, type of auditor and indebtedness.

4. Conclusion

As we have seen from previous studies, the determinants of the effective corporate tax rate have been largely repetitive in most cases. The difference in some cases was only the method of calculating the variable. According to the results of studies, there was a statistically significant positive relationship between company size and ETR in selected countries, meaning that larger companies faced a higher tax burden. There is a negative relationship between indebtedness, capital level and type of auditor. The benefit of the overview is better understanding of the particular determinants from the point of effective taxation.

References

[1]   Aksoy Hazir, C. 2019: Determinants of effective tax rates in Turkey. J. Research in Business, Vol. 4, No. 1, p. 35 – 45

[2]   Bux, U. 2016: "Effective Corporate Tax Rate" and "Digital Business Establishment" in the Corporate Tax Base Proposals, European Parliament. ISBN: 978-92-846-1013-6

[3]   Delgado, F.J., Fernández-Rodríguez, E., Martínez-Arias, A., 2012: Size and other determinants of corporate effective tax rates in US listed companies. Int. Res. J. Finance and Economics. p. 160-165

[4]   Delgado, F.J., Fernández-Rodríguez, E., Martínez-Arias, A., 2014: Effective tax rates in corporate taxation: A quantile regression for the EU [online]. Engineering Economics, 25(5), p. 487-496

[5]   Devereux, M.P., Griffith, R., 1999: The Taxation of Discrete Investment Choices, Institute for Fiscal Studies, Working Paper Series No. W98/16

[6]   Devereux, M.P., Griffith, R., 2003: Evaluating Tax Policy for Location Decisions, Int. Tax and Public Finance, Vol. 10, p. 107–126

[7]   Gupta, S., Newberry, K., 1997: Determinants of the Variability in Corporate Effective Tax Rates: Evidence from Longitudinal Data. J. Accounting and Public Policy, Vol. 16, No. 1, p. 1-34

[8]   Janssen, B., Buijink, W., 2000: Determinants of the Variability of Corporate Effective Tax Rates (ETRs): Evidence for the Netherlands. Maastricht: METEOR, Maastricht Research School of Economics of Technology and Organization, Research Memoranda

[9]   Liu, X., Cao, S., 2007. Determinants of Corporate Effective Tax Rates: Evidence from Listed Companies in China, The Chinese Economy, Vol. 40, No. 6, p. 49-67

[10] OECD, 2018: Corporate Effective Tax Rates: Model Description and Results from 36 OECD and Non-OECD Countries. OECD Taxation Working Papers, No. 38, Paris: OECD Publishing. ISSN: 22235558

[11] OECD, 2011: Taxation and Employment. OECD Tax Policy Studies, No. 21, Paris: OECD Publishing. ISBN 978-92-64-12080-8

[12] Parisi, V., 2016: The determinants of Italy's corporate tax rates: an empirical investigation. Public and Municipal Finance, Vol. 5, No. 4, p. 7-14

[13] Salaudeen, M.Y., Eze, U.C., 2018: Firm specific determinants of corporate effective tax rate of listed firms in Nigeria. J. Accounting and Taxation, Vol. 10, No. 2, p. 19-28

[14] Salaudeen, M.Y., Akano, R.O., 2018: Non-Linearity in Determinants of Corporate Effective Tax Rate: Further Evidence from Nigeria. Int. J. Economics and Financial Research, Vol. 4, No. 3, p. 56 -63

[15] Široký, J., Kvíčalová, J., Valentová, I., 2012: Identification of causes of differences in statutory and effective rates of corporate taxes. Acta univ. agric. et silvic. Mendel. Brun., Vol. 60, No. 2, p. 391 –398

[16] Tecl, J., 2018: Measurement of labour taxation. Prague: European Financial and Accounting Journal, Vol. 13, No. 1, p. 5-1. ISSN: 1805-4846

Effective Corporate Taxation in the Sector of Agriculture – The Case of Slovakia

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Abstract

Investors, managers and shareholders benefit from the study of what influences and determines corporate effective tax rates (ETRs) as this analysis may contribute to potential tax savings. Moreover, standard setters, regulators and policy makers have a crucial interest in identifying the main factors driving corporate taxes. The aim of this article is to define the role and function of taxation system and differences between Slovakia statutory tax rate and effective tax rate, with comparison to ROA indicators of analyzed enterprises. In this article are used data from the database of Slovakia Farm Accountancy Data Network (FADN), the accounting year 2016. Determinants which could possibly affect the ETR are identified based on theories established as well as firm characteristics, such as size, leverage, capital intensity and examined through correlation coefficients.

Key words: *effective tax rate, statutory tax rate, agriculture sector, correlation coefficient*

JEL Classification: H20, H25, Q14

1. Introduction

Taxation influences people's decisions as will also be the case in agriculture. Especially income taxation influences production and investment decisions and consequently farm structure. Farmers will try to get maximal rent on their productions factors.

The competitive position of the agricultural sector in a country is improved if:

- The tax burden is lower, as this directly reduces cost price and cash outflows and leaves more possibilities for investment and farm enlargement (and hence lower cost prices). This is especially important if credit markets are not developed very well and profitability is rather low in relation to capital invested.
- Innovation and investments are supported.
- Larger farms, that have in general lower cost prices than smaller farms, are discriminated positively. This lead to structural development and efficiency of scale.
- Successors have to pay lower prices for a farm as this leaves capital for enlargement. However, too much support for potential successors might lead to a situation where not economically viable farms are taken over, slowing down the process of scale optimalisation.
- In the context of a high mobility of capital and/or labor, countries compete for business, tax receipts, and jobs.

Tax competition, the process of uncooperative setting of tax rates (especially by undercutting them) in order to attract mobile tax bases and boost investment.

The corporate income tax is the subject of competition for mobile bases because corporations represent a valuable tax base for every economy. Tax competition has as the main consequences the inefficiency in the international capital allocation.

2. Literature review

Empirical studies provide evidence on the tax competition subject, basically concluded that the evolution of the statutory corporate tax rates and effective corporate tax rates seems to be driven by tax competition. The Ruding Committee [1992] explored the trends in the statutory corporate tax rates and tax revenues and asserted that tax competition leads to lower tax rates because statutory tax rates have declined in Europe while bases have become broader. For the 1990s, effective average corporate tax rates marked a clear downward pattern while marginal tax rates remained almost unchanged [Devereux et al., 2002].

Effective tax rates are determined by multiple major firms' characteristics. Firms' size is one of the characteristics expected to influence ETRs. This indicator is largely studied in the literature and almost all the investigations about effective tax rates include it as an indicator with a prediction power over ETRs. However, the direction of the relationship between firms' size and ETRs can be ambiguous Zimmerman [1983].

Effective tax rates are also a proxy for firms' success; therefore, if larger firms are more successful than smaller firms those will be exposed to more political scrutiny. As larger firms are subject to higher scrutiny from tax authorities they have reluctance to reduce effective tax rates. Consequently, larger firms are expected to have a higher taxation burden when compared with firms which have a smaller dimension since taxes paid represent political costs which shall be borne by firms. Another competing theory argues that since larger firms have more power and more resources to manage taxes it is expected that they have lower ETRs [Siegfried, 1972].

However, other studies report that firms' size has a positive impact on effective tax rates [Rego, 2003; Vieira, 2013; Kraft, 2014]. These studies confirm the political cost theory of Zimmerman [1983]. In addition, Gupta and Newberry [1997] show that firms' size and ETR are not associated when we look to this relationship over time.

Along with firms' financing decisions, investment decisions are also a characteristic that can influence effective tax rates. As pointed out by Hanlon et al. [2010], managers' investment decisions can be to some extent constrained by corporate taxes due to the uncertainty of tax payments and deductions that have to be incorporated in the calculation of an investment's present value.

2.1 Characteristics of agricultural taxation

In the literature on the subject, agricultural taxation is treated in two ways. Agricultural economists raise the specificity of the agricultural sector (e.g. seasonality, spatiality, conditioning by biological and natural factors) as a distinguishing feature of this segment of the economy. Increasingly, the contemporary theories treat agriculture as an integral part of the process of economic growth. In most developed countries, tax reforms have been pursued to adapt their legislation to the today's economic realities. The assumed effect was to simplify and reduce the number of taxes, reduce a level of their rates and broaden the tax base. However, preferential treatment of agriculture in tax terms is justified by the dependence of agricultural production on natural and climatic factors [Gruziel, 2008].

Taxation of agriculture is a relevant aspect of the taxation policy being a method for the state to influence subordinate food business entities so as to ensure that budget revenues are sufficient to fulfil its economic and social objectives.

Tax systems play an important role in economic processes influencing the condition of entities participating in the management process and stimulating the competitiveness of a given country through, among others: supporting the development of its selected economic sectors, supporting savings of resources and household savings [Rosiński, 2008].

The specific conditions of agricultural activity are conducive to the formulation of numerous theories on the manner and scope of taxation of this segment of the economy. The applied range of tax constructions seems to depend to the furthest on: the relevance of agricultural production in a given country's economy, climatic and natural conditions, degree of technological advancement and structure of a given tax system.

3. Material and methods

The database of Slovakia Farm Accountancy Data Network (FADN), the accounting year 2016 was examined. According the farmland area were created three groups of companies- small (0 - 99 hectares), medium (100 - 999 hectares) and large (above 1000 hectares). Companies, which reached losses were removed in the process of analysis and 3 groups were defined – small with 19 members, medium with 146 members and large, which consisted of 123 members.

In the analysis were used these indicators:
STR - statutory tax rate is the percentage imposed by law;
ETR - effective tax rate is the percentage of income actually paid by an individual or a company after taking into account tax breaks (including loopholes, deductions, exemptions, credits, and preferential rates);
LEV - financial leverage defined as the ratio of total debt to total assets;
CAPINT - the company's capital intensity is defined as the ratio of tangible assets to total assets;
ROA- Return on Assets, an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. Return on assets is displayed as a percentage.

$$ROA = \frac{Net\ income}{Total\ assets} \times 100 \tag{1}$$

Businesses are ultimately about efficiency: squeezing the most out of limited resources. Comparing profits to revenue is a useful operational metric, but comparing them to the resources a company used to earn them cuts to the very feasibility of that company's' existence. Return on assets is the simplest of such corporate bang-for-the-buck measures. The ROA figure gives investors an idea of how effective the company is in converting the money it invests into net income. The higher the ROA number, the better, because the company is earning more money on less investment.

The next part of the analysis was correlation analysis. The correlation coefficient is a statistical measure that calculates the strength of the relationship between the relative movements of two variables. The values range between -1.0 and 1.0. A calculated number greater than 1.0 or less than -1.0 means that there was an error in the correlation measurement. A correlation of -1.0 shows a perfect negative correlation, while a correlation of 1.0 shows a perfect positive correlation. A correlation of 0.0 shows no relationship between the movements of the two variables.

4. Results and discussion

The results of the analysis are summed up in next figures and tables according 3 defined groups of enterprises. Slovakia statutory tax rate of corporate income tax was 22 %, in 2016. Figures present the values of ETRs in agricultural enterprises, and for the contrary there are the values of ROA indicator, which presents the profitability. According the correlation analysis, the most significant relationship of ETR determinants was discovered in the first group, which consisted of 19 small agricultural enterprises. The effective average tax rate was 26 %.

Fig. 1. Small agricultural enterprises characteristics [Source: processed by author]

Table 1. Correlation analysis of small agricultural enterprises [Source: processed by author]

	ETR	ROA	STR	CAPINT	LEV
ETR	1				
ROA	-0,33428	1			
STR	-2,7E-17	6,68E-18	1		
CAPINT	0,132724	-0,66667	-2,1E-16	1	
LEV	0,352479	-0,32009	-9,3E-17	0,072876	1

Next two groups of agricultural enterprises reached similar results. The effective average tax rate in the group of medium enterprises was 25 % and group of large companies had 27 %. The correlation analysis discovered small dependence of variables. The lowest values of correlation coefficient was in the group of large agricultural enterprises.
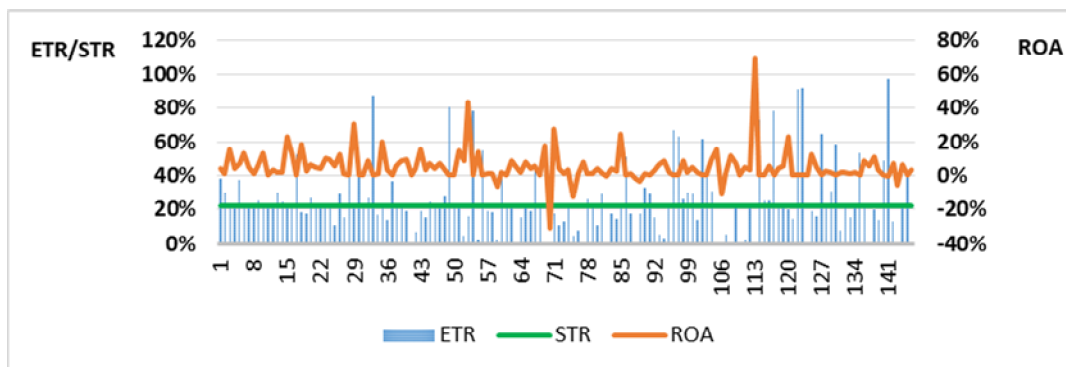
Fig. 2. Medium agricultural enterprises characteristics [Source: processed by author]

Table 2. Correlation analysis of medium agricultural enterprises [Source: processed by author]

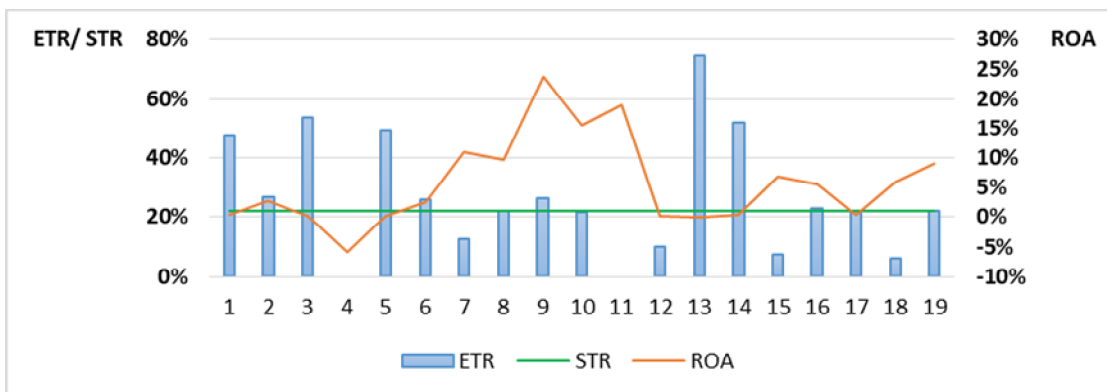|	ETR	ROA	STR	CAPINT	LEV
ETR	1				
ROA	-0,17691	1			
STR	6,1E-17	-2,4E-18	1		
CAPINT	-0,02676	-0,41306	-4,6E-16	1	
LEV	-0,05509	-0,0433	6,84E-17	0,14363	1
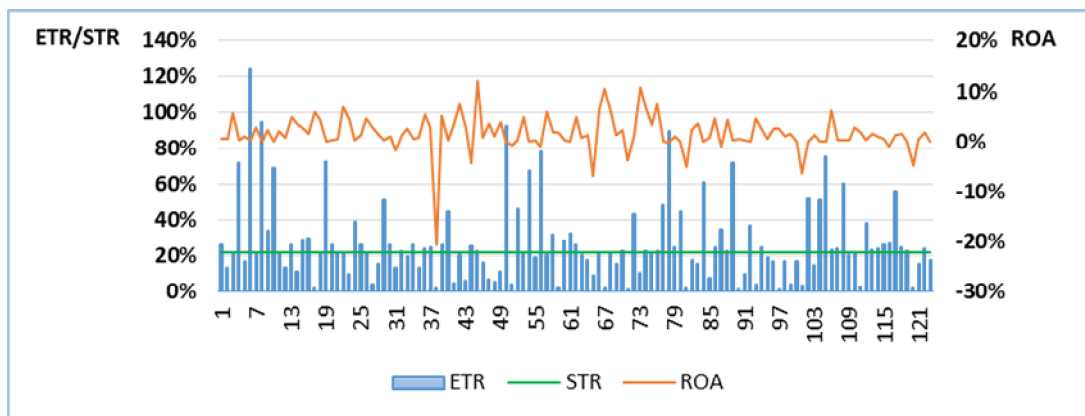
Fig. 3. Large agricultural enterprises characteristics [Source: processed by author]

Table 3. Correlation analysis of large agricultural enterprises [Source: processed by author]

	ETR	ROA	STR	CAPINT	LEV
ETR	1				
ROA	-0,04084	1			
STR	1,9E-17	1,05E-16	1		
CAPINT	0,039084	0,015049	-2,8E-15	1	
LEV	0,083891	-0,06712	2,92E-16	-0,04104	1

ETRs were higher then STR in the case of small, medium and large groups of enterprises. The correlation coefficients between ETR and ROA affirmed low correlation. The decisions of investors were influenced by others determinants, which were not analyzed. The special position of Slovakia agricultural sector was confirmed according the results of analysis. In the literature review, were identified the main determinants of ETR as size, financial leverage, company's capital intensity but in the sector of agriculture weren't confirmed the dependence between these determinants and ETR.

5. Conclusion

The paper deals with the issue of corporate income tax in the case of Slovakia agriculture. Informations about the taxation influence production and investor's decisions. The main research question of the article was to identify the ETRs in three defined groups of enterprises according farmland area and determine the relationship between ETR and ROA indicator.

From a theoretical point of view article defines what are the basic determinants of ETR. Firms' size is one of the characteristics expected to influence ETRs. This indicator is largely studied in the literature. Financial decisions represent 2 indicators - financial leverage and company's capital intensity. Agricultural economists raise the specificity of the agricultural sector as a distinguishing feature of this segment of the economy.

The database of Slovakia Farm Accountancy Data Network, the accounting year 2016 was examined. Slovakia STR of corporate income tax was 22 %. According the correlation analysis, the most significant relationship of ETR determinants was discovered in the group of small enterprises. The effective average tax rate in the group of medium enterprises was 25 % and group of large companies reached 27 %. The correlation analysis discovered small dependence of variables. The lowest values of correlation coefficient was in the group of large agricultural enterprises.

A future research on agricultural income taxation should identify ETR determinants with more significant impact on ETR levels.

References

[1]   Cozmel, C. (2015). Is it any EU Corporate Income Tax Rate-Revenue Paradox? Procedia economics and finance, 23, 818-827

[2]   Czyżewski, A., Grzelak, A., Kryszak, Ł. (2019, January). Determinants of income of agricultural holdings in EU countries. In: Conference Proceedings Determinants Of Regional Development (No. 1)

[3]   Delgado, F.J., Fernández-Rodríguez, E., Martínez-Arias, A. (2018). Corporation effective tax rates and company size: evidence from Germany. Economic research - Ekonomska istraživanja, 31(1), 2081-2099

[4]   Dyreng, S.D., Hanlon, M., Maydew, E.L., Thornock, J.R. (2017). Changes in corporate effective tax rates over the past 25 years. J. Financial Economics, 124(3), 441-463

[5]   Elschner, C., Vanborren, W. (2009). Corporate effective tax rates in an enlarged European Union (No. 14). Directorate General Taxation and Customs Union, European Commission

[6]   Gruziel, K., Raczkowska, M. (2018). The Taxation of Agriculture in the European Union Countries. Problems of World Agriculture/Problemy Rolnictwa Światowego, 18 (1827-2019-103), 162-174

[7]   Hsieh, Y C. (2012). New evidence on determinants of corporate effective tax rates. African J. Business Management, 6(3), 1177

[8]   Janssen, B. (2005). Corporate effective tax rates in the Netherlands. De Economist, 153(1), 47-66

[9]   Lyon, A.B. (2013). Another Look at Corporate Effective Tax Rates, 2004-2010. Tax Notes, 141, 313-318

[10]   Poli, S. (2019). The determinants of the corporate effective tax rate of Italian private companies

[11]   Schaffer, M.E., Turley, G. (2000). Effective versus statutory taxation: measuring effective tax administration in transition economies

[12]   Stamatopoulos, I., Hadjidema, S., Eleftheriou, K. (2019). Explaining corporate effective tax rates: Evidence from Greece. Economic Analysis and Policy, 62, 236-254

[13]   Van der Veen, H.B., Van der Meulen, H.A.B., Van Bommel, K.H.M., Doorneweert, R.B. (2007). Exploring agricultural taxation in Europe. LEI

Effective Corporate Tax Rate, its Indicators and Methods of Computing

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Abstract

Effective corporate tax rate (ETR) is an indicator which helps investors decide, where and to what extent to realize their investments. We know two types of effective corporate tax rate indicators: fictitious and factual. Fictitious indicators offer a prognosis of ETR development, while factual indicators point to the past. There are several methods to calculate ETR. These are methods of micro forward-looking approach, macro backward-looking approach and micro backward-looking approach. The ETR calculation involves a large number of indicators, among which the statutory tax rate, which is given by national governments, plays an important role. ETR serves not only investors but also politicians who are able to create favorable tax systems for businessmans and attract as many investors into the country as possible.

Key words: *effective tax corporate rate, statutory tax rate*

JEL Classification: H20, H21

1. Introduction

In the 1960s, Jorgenson and Hall pointed out an effective tax rate that includes several indicators, not just the statutory tax rate. The effective tax rate is simply the ratio of the tax burden to the tax base. Effective corporate tax rates takes into account not only the statutory tax rate, but also aspects of tax systems that determine the total amount of effectively paid taxes The differences between the statutory and the effective tax rates can in some cases be large. Situations when countries with a high statutory tax rate reduce the size of the tax base or reduce the tax enforceability may happened. Corporate tax analysis thus shows how tax competition works [Blechová, 2008]. The effective tax rate can be expressed as a tax wedge. The tax wedge represents the difference between the pre-tax and post-tax profit rates. Neutrality of the country's tax system can be measured this way. [Kubátová, 2011].

Effective tax rates in decision-making not only serve investors, but also politicians, economists and other entities seeking to create favorable conditions for foreign capital flow into the economy. If a high effective tax rate discourages investors from choosing specific country as their destination, it is up to politicians to make their country more attractive by effective measures.

Effective average tax rates depend more strongly on the legal rate of the host country than on the effective marginal tax rate. A country with a high statutory tax rate may have a very low or even negative effective marginal tax rate, but the effective average tax rate will increase rapidly with profit

if the statutory rate is high. By focusing on ETR, tax competition between EU countries seems to be realized through a reduction in STR. Countries with a lower legal rate (instead of lower capital costs) are likely to attract the largest share of foreign investment, especially from outside the EU [Giannini, Maggiulli, 2002].

Empirical studies deal with the effective tax rate from different perspectives. They deal with influence of effective corporate tax rates on the economic behavior of companies, including their allocation, investment choice and profit reduction strategies, or address tax competition between jurisdictions [Barrios et al., 2014].

Many authors address the issue of the US tax system. Dyreng et al. [2017] were monitoring changes in effective corporate tax over a 25-year period. Statutory tax rates remained relatively constant in the period under review, while effective tax rates changed. The reason was that some companies were able to reduce their effective tax rates through tax planning strategies and used the advantages of the tax system. In the US tax system occurs a high statutory rate with low effective rates. These differences lead to an unfair taxation system and inefficient incentives or undesirable consequences.

2. Effective corporate tax rate indicators

According to Kubátova [2011] we divide the effective corporate tax rate indicators into fictitious and real ones. Fictitious indicators look ahead, into the future, and simulate the impact of tax on selected entities. Real indicators look to the past and thus determine the amount of tax burden in the period that has already passed on the basis of measured real data.

Fictitious indicators are:
- ▪ *Statutory tax rate* - is the easiest way to compare countries with each other. Statutory rate includes several information, e.g. nominal tax rate, various supplementary rates, tax breaks and subsidies. The composition of the statutory rate varies due to the diversity of countries' tax systems. Therefore, it is not an objective indicator for comparison purposes [Szarowská, 2011]. Even though the statutory tax rate is an inaccurate indicator, it can be a landmark in the country's tax system for a foreigner businessman when deciding where to place his investment [Morávková, 2013].
- ▪ *Tax laws* - represent a qualitative indicator. However, the amount of legislation does not allow this indicator to be used effectively, as it cannot provide quantitative effects information. [Szarowská, 2011].
- ▪ *Microeconomic effective tax rates* - are divided into effective average and effective marginal tax rate [Morávková, 2013]. Effective average tax rate (EATR) is the ratio of the present value of taxes to the present value of profits. This can be calculated for each discrete investment project, including one in which a positive ex ante economic rent is expected. Effective marginal tax rate (EMTR) is a special case of EATR, where the project is simply divided evenly into phases until the last additional unit represents zero annuity for the investor after the taxation [Abbas et al., 2012]. Effective marginal tax rates (EMTR) talks about the tax burden for marginal investment projects by comparing the pre-tax and post-tax costs of such projects [Auerbach, 1979; King and Fullerton, 1984]. The EMTR represents a marginal investment for which we can assume a rate of return before taxation that is sufficient for the investor to realize the project. This rate of return must be at least at the level of the real interest rate. If the calculation result is positive, that is, if the investment is more profitable than marginal, we expect that in the future after-tax profit is positive. It is important to compare the result with the effective average tax rate, which also includes the influence of the marginal personal effective tax rate [Morávková, 2013].

Factual indicators are divided into:
- ▪ *Microeconomic indicators* – this includes the actual effective tax rate and EATR. EATR can be both a fictitious and a factual indicator; it depends on the input data we use for the calculation,

whether we have used hypothetical data or actual data measured in previous periods [Morávková, 2013]. Microeconomic effective tax rates are used in studies to theoretically compare the tax burden of a planned investment in different countries. The capital taxation rate has a decisive influence on the placement of the investment [Szarowská, 2011].

▪ *Macroeconomic indicators* are divided into implicit tax rates and tax percentages. Implicit rates reflect the real tax burden. They are mainly surveyed for labor, consumption and capital. It is calculated as the ratio of total tax revenue to the potential taxable base. The tax percentage can be calculated in three ways:

- share of corporate tax in total tax revenues,
- corporate tax as a share of GDP,
- share of corporate tax revenue in the company's profit [Morávková, 2013].

Macroeconomic tax rates are based on information from national accounts. Microeconomic tax rates use information from the financial statements of individual companies.
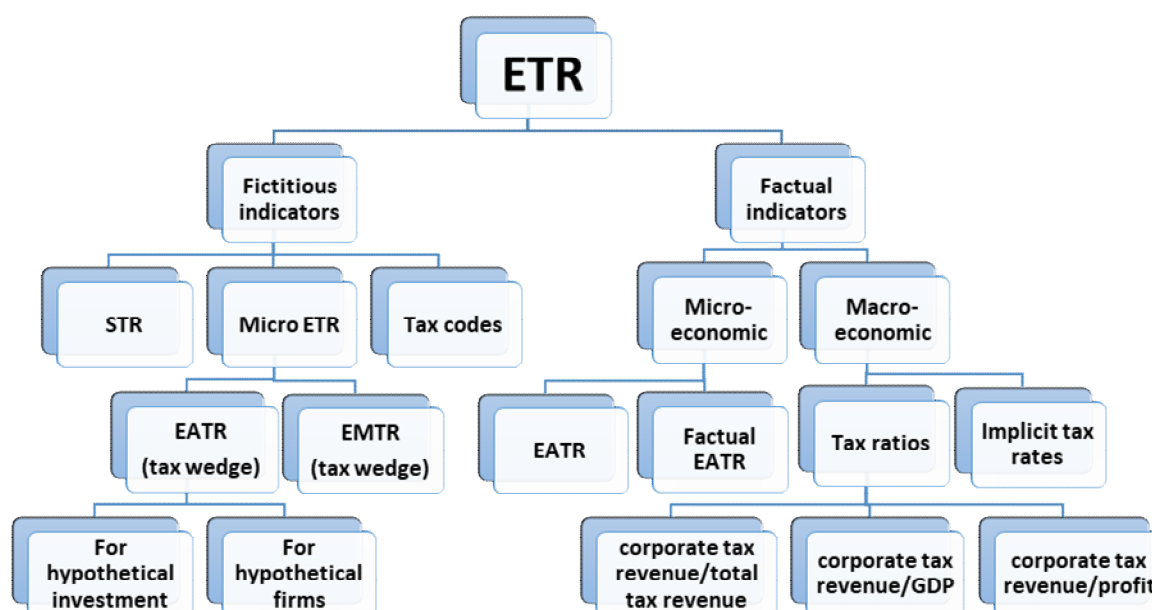
Source: own processing according to Kubátová [2011], Schratzenstaller [2005]

3. Methods of calculating the effective tax rate

Micro forward-looking approach

Micro forward-looking approach use theoretical data. They are therefore based on theoretical knowledge and try to estimate future taxation. This is a simplified way of calculating the effective tax rate. It does not take into account tax and non-tax reserves, taxation of inventories or tax administration's behavior in tax collection. A country where tax administration is careless in collecting taxes is more attractive to an investor than a country where tax administration is strict [Morávková, 2013].

The premise for these methods is that all markets are competitive and the production function has the usual characteristics. In such conditions, the question where to invest is only at the rate of capital taxation. Taxes or contributions from other factors are not considered relevant [Blechová, 2008]. The advantage of this type of calculation is the possibility to compare specific features of a particular tax system and the effect of their changes on the effective tax rate [Nicodéme, 2001]. This method can be used in deciding of politicians regarding the change the structure or the power of tax

instruments. For micro forward-looking approach is important which tax legislation is based for calculation [Morávková, 2013].

Macro backward-looking approach

Macro backward-looking approach is based on real measured data. They can compare total taxation at national level. The disadvantage of these methods is that they also include the impact of foreign tax systems. Another disadvantage is that they are unable to compare the effective rates if the parameters change or that is completely absent [Nicodéme, 2001]. One example is tax loss. By means of retrospective methods, it is not possible to determine how the effective tax rate would change if the amount of the loss claimed were to be changed or if the tax loss could not be applied. Macro backward-looking approach is important where the company is from [Morávková, 2013].

According to Blechová [2008] it is not appropriate to compare corporate tax rates, since methods of macro backward-looking approach are using aggregated data. National accounting methods may vary; the data are not sufficiently disaggregated to distinguish the source of taxation. Also, macroeconomic data tends to capture the impact of the business cycle.

Micro backward-looking approach

Micro backward-looking approach draws data from the financial statements of individual companies. The effective tax rate is calculated as the ratio of the income tax or profit of the company to the tax base. The tax base can be determined in three ways, as:
   a) total profit before taxation,
   b) net turnover,
   c) gross operating profit.

These methods are not suitable for comparison between countries. Ex-post data methods do not take into account the interaction between personal and corporate taxation. This interaction is important when considering that the investor is domestic. However, they allow the actual effective tax burden to be determined according to the size of the companies or the sector [Blechová, 2008].

All these methods have advantages and disadvantages. It is important to realize what we observe by the given calculation and what the method takes into account. Here are some significant differences:
- national taxation or the tax burden on different investments,
- use of real data or theoretical characteristics of tax systems,
- calculating the implicit tax rate,
- inability to isolate the national tax system from other tax systems,
- aggregated data,
- calculation of the effective tax rate for industry, group of companies,
- inapplicability in the absence or change of elements of the tax system,
- the isolated influence of a combination of several elements of the tax system on effective taxation,
- nationality of the tax system or the nationality of the corporation.

Currently, the most widely used methodology is to calculate the effective corporate tax rate, compiled by Devereux and Griffith [2003]. Effective average tax rate (EATR) is defined as the ratio of the current discounted value of taxes over the current discounted value of the project profit (investment) before taxation. The methodology also includes the calculation of the marginal tax rate (EMTR) as a special case where the economic rent after tax equals zero. The original calculation looked at the investment of one capital unit, which is realized within one year and is subsequently sold at its remaining value $(1 - \delta)(1 + \pi)$, where δ is real economic depreciation and π is inflation. To be able to study tax holidays and other special regimes, which usually last longer than one period, changed the calculation so to look at a sustained increase of equity by one unit, which degrades over time. Return on capital is exempt from tax during the tax holiday. Taxation takes place only after their completion.

4. Conclusion

Effective corporate tax rates take into account many aspects of tax systems that determine the total amount of effectively paid taxes. Fictitious indicators of ETR include the statutory tax rate, tax laws and microeconomic effective tax rates. Another type of indicators are factual indicators, which includes microeconomic indicators (ETR) and macroeconomic indicators (implicit tax rates and tax percentage). Calculation of ETR is possible by several methods. Micro forward-looking approach use theoretical data, it is based on theoretical knowledge and estimate future taxation. Backward-looking approach methods are based on real measured data. That can compare total taxation at national level. Micro backward-looking approach methods draw data from the financial statements of individual companies. The effective tax rate is calculated as the ratio of tax paid on income or profits of the company and the tax base. For several years, the European Union has been supporting a project that carries out the calculation of ETR according to the methodology developed by Devereux and Griffith in 2003. They differentiate the effective average tax rate and the effective marginal tax rate. All methods have the advantages and disadvantages. The calculation must be made according to the type of investor and his preferences.

References

[1]   Hall, R.E., Jorgenson, D.W. (1966). The Role of Taxation in Stabilizing Private Investment. Institute of Business and Economic Research, Center for Research in Management Science, University of California

[2]   Blechová, B. (2008). Charakteristika přístupů používaných v EU pro hodnocení efektivního daňového zatížení příjmů korporací. Teoretické a praktické aspekty veřejných financí

[3]   Kubátová, K., Jareš, M. (2011). Identifikace a kvantifikace daňových úlev v ČR v roce 2008. Politická ekonomie, 59(4), 475-489

[4]   Giannini, S., Maggiulli, C. (2002). The effective tax rates in the EU Commission study on corporate taxation: Methodological aspects, main results and policy implications (No. 666). CESifo Working Paper

[5]   Barrios, S., Nicodème, G., Sanchez Fuentes, A.J. (2014). Effective Corporate Taxation, Tax Incidence and Tax Reforms: Evidence from OECD Countries

[6]   Dyreng, S.D., Hanlon, M., Maydew, E.L., Thornock, J.R. (2017). Changes in corporate effective tax rates over the past 25 years. Journal of Financial Economics, 124(3), 441-463

[7]   Szarowská, I. (2011). Jak vysoké je korporátní daňové zatížení. Acta Academia Karvinesia, 13(2), 196-207

[8]   Morávková, J. Efektivní sazba korporátní daně

[9]   Abbas, S.M.A., Klemm, A., Bedi, S., Park, J. (2012). A Partial Race to the Bottom: Corporate Tax Developments in Emerging and Developing

[10]   Auerbach, A. (1979). Wealth maximization and the cost of capital. The Quarterly Journal of Economics, 93(3), 433-446

[11]   King, M.A., Fullerton, D. (1984). The Taxation of Income from Capital-A Comparative Study of the United States, the United Kingdom. Sweden and West Germany, Chicago

[12]   Schratzenstaller, M., Objekt, A. (2005, May). Company tax co-ordination in an Enlarged EU. In paper submitted for the Second Euroframe Conference on Economic Policy Issues in the European Union "Trade, FDI and Relocation: Challenges for the EU (p. 36)

[13]   Nicodème, G. (2001). Computing effective corporate tax rates: comparisons and results

[14]   Devereux, M.P., Griffith, R. (2003). The impact of corporate taxation on the location of capital: A review. Economic Analysis and Policy, 33(2), 275-292

The Impact of the Micro-Taxpayer Institute on the Corporate Sector and Corporate Tax

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Abstract

Aim of the article is to point out the impact of the introduction of the micro-taxpayer in corporate sector as well as the impact on corporate tax. The micro-taxpayer institute has been implemented since 2020, which aims to help small businesses by reducing the tax burden as well as the micro-taxpayer institute includes several new benefits. One of the goals of the paper is to characterize the micro-taxpayer institute and to show the possible benefits of the small corporate business in a case model.

Keywords: *micro-taxpayer, corporate tax, corporate sector, tax benefits*

JEL Classification: H20, H21

Introduction

Since January 2020, an amendment to the Income Tax Act has been applied, which introduces a new institute known as the micro-taxpayer. Aim of this new amendment of the Income Tax Act serves mainly to help and simplify the business of small entrepreneurs and small corporate firms.

A micro-taxpayer is a natural or legal person which annual turnover is less than EUR 49.790 and carries on a business activity. The main benefits of the micro-taxpayer institute are reduced rate of income tax, introduced new depreciation group, methods of depreciation and little bit fewer administration needs. Therefore, the first part of the paper is devoted to characterizing the benefits of micro-taxpayer institute.

In order fully understand how micro-taxpayer institute works practically, the second part of the article is dedicated to the example of a Slovak small corporate firm where a comparison is made between the previous state of the Income Tax Act and current state, which includes benefits of micro-taxpayer.

1. Micro-taxpayer institute

With validity from January 1st 2020, the Income Tax Act introduced a new institute – the micro-taxpayer. A micro-taxpayer can be an individual or legal person that is authorized to perform any business activity with annual turnover is less than EUR 49.790 that is a threshold of value-added tax

registration. In other words, a small corporate firm cannot be a VAT payer in order to obtain the benefits of the micro-taxpayer.

The Income Tax Act introduced a new corporate tax rate since January 2020, which is 15%. Thus, since January 2020 there have been two corporate tax rates, one at 21% and the second at a reduced rate of 15%. The first corporate tax rate is a general rate that applies to every legal person in Slovak republic. The second corporate tax rate is applied to firms whose annual turnover does not exceed EUR 100.000. Since the micro-taxpayer has an annual turnover of up to EUR 49.790, it can be stated that each micro-taxpayer applies a reduced 15% corporate tax rate. The saving of 6% on the corporate tax can be considered as a significant benefit that is interesting to all firms with an annual turnover of up to EUR 100.000. This can lead to the speculations that a firm with an annual turnover that lightly exceeded the EUR 100.000 threshold would be trying to reduce the annual turnover or it could lead to the division of the firms in order to redistribute the turnover of the original firm in order to apply the reduced corporate tax rate. However, this speculation could be verified after 2020, therefore, this is not our research goal.

The institute of micro-taxpayer obtains more benefits, not just the reduced corporate tax. On the most significant benefits of micro-taxpayer are the newly introduced depreciation group and the methods of depreciation.

A micro-taxpayer is able to apply tax depreciation for movable assets classified in depreciation groups 0 to 4 for the longest to which the property is classified. This means that the amount of tax depreciation, in this case, will be at the discretion of the micro-taxpayer. The depreciation is not applicable to passenger cars with an entry price of EUR 48.000 or more. The proposed method of depreciation can be applied to tangible assets included in business assets in the taxable period in which a firm is considered a micro-taxpayer and the above method of tax depreciation also applies in subsequent taxation periods regardless of whether or not the taxpayer has the status of micro-taxpayer. Also, as a firm as a micro-taxpayer leases assets classified in depreciation groups 0 to 4, the firm will be able to include depreciation in tax depreciation without limiting the amount of income generated from the leased assets.

There is also a change in the creation of adjusting entries for non-statute-barred receivables included in the taxable income of a micro-taxpayer accounting in the double-entry bookkeeping system. It will be possible to a firm to include in the tax expense the amount of the allowance for the receivable in which it was included in taxable income.

The uniformity of deduction of tax loss is canceled and the period for its deduction is prolonged from the current 4 to 5 immediately following tax periods starting from the tax period following the tax period in which this tax loss was calculated. The micro-taxpayer will be able to claim a tax loss up to the amount of the quantified tax base in the tax period in which he wishes to deduct it. Other taxpayers (those who do not consider themselves micro-taxpayers) will be able to claim a tax loss of up to 50% of the quantified tax base from which the tax loss can be deducted.

Contractual penalties, interest on late payments, late payment fees and flat-rate compensation of claims related to the claim will be considered as tax expense for the debtor, but only after their payment.

Another important change is the change the threshold for paying quarterly advances, from EUR 2.500 to EUR 5.000. A taxpayer whose tax for the previous taxation period is equal to or less than EUR 5.000 will not be required to pay income tax advances for the relevant taxation period. This change is not applicable just for micro-taxpayers. The last important novelty is the introduction of a separate depreciation group 0 with a depreciation period of 2 years, which includes passenger cars which bear the abbreviation BEV (battery electric vehicles) in the type of fuel / energy source under Part II of the registration certificate; PHEV (plug-in hybrid electric vehicles).

To sum it up, there are several new benefits that are designed for the micro-taxpayers only and for the taxpayers in general. In order to make it more clear the following Figure 1 serves as a guide of the introduced benefits.

Benefit	Regular taxpayer	Micro-taxpayer
Standard corporate tax rate – 21%	✓	✗
Reduced corporate tax rate – 15%	✓ / ✗	✓
Depreciation group 0	✓ / ✗	✓ / ✗
New methods of depreciation for depreciation groups 0 to 4	✗	✓
Adjusting entries for non-statute-barred receivables	✗	✓
Prolonged deduction of tax loss	✓	✓
Tax loss claim up to the amount of the quantified tax base	✗	✓
Threshold changement for paying quarterly advances	✓	✓
Contractual penalties, interest on late payments, late payment fees as tax expense	✗	✓

Figure 1. Benefits mechanism of regular taxpayer and micro-taxpayer
[Source: Authors´ own elaboration based on relevant Acts]

2. Case model

As already mentioned in the introduction, second aim is to reflect every theoretical part above into the practice. The case model consists of a not VAT payer corporate firm A from Slovakia where the comparison is made in order to show the change of the firm's situation of the year 2019 and 2020. Let's say that annual turnover is constant at a sum of EUR 45.000 that gives the firm A status of a micro-taxpayer in 2020. The annual business costs of firm A are equal to the sum of EUR 25.000. The firm A owns the long-term tangible property – a car whose purchase price is EUR 20.000. The firm records a tax loss from previous accounting periods totaling EUR 10.000.

The model of a firm mentioned above could be described as a general model with the usual practical situation of a small Slovak corporate firm. The next part of the model is to simulate the final corporate tax and net profit of the firm A for the year 2019 and 2020 and to point out the change.

For the year 2019, the firm A does not possess a status micro-taxpayer. Furthermore, for the year of 2019, there is only one corporate tax rate – 21%. The long-term tangible property – the car, is classed in the first depreciation group. For all assets classed in the first depreciation group, the law sets the annual write-offs in a sum of one-quarter of the asset's purchase price. Due to this fact, the annual write-offs of the car are at a sum of EUR 5.000. The recorded tax loss from previous accounting periods is equal to EUR 2.500 of the total sum EUR 10.000 (§30 Income Tax Act valid for 2019).To sum it up, the tax base of a Firm A is EUR 12.500. The following figure summarizes the calculation of the tax base.

Item	Impact on the tax base	Sum (EUR)
Annual turnover	+	45.000
Annual business costs	-	25.000
Annual write-offs	-	5.000
Recorded tax loss	-	2.500

Figure 2. Calculation of the tax base for the year 2019
[Source: Authors' own elaboration based on relevant Acts]

The final tax base of Firm A for the year 2019 is equal to the sum of EUR 12.500. Due to the fact that the corporate tax rate is 21%, the Firm's A corporate tax is equal to EUR 2.625. As the last tax effect is that the company is obliged to pay quarterly advances on the corporate tax at the sum of EUR 656,25.

The situation changes significantly in 2020 for Firm A due to the fact of the corporate tax rate at 15% and the new tax benefits. The annual turnover and business costs is constant. The annual write-offs of the long-term tangible assets – car are up to the Firm A. As a micro-taxpayer, the Firm A can chose its own depreciation plan. This means that the Firm A can decide to continue in write-offs as before or it can make disposable write-offs in the year 2020 in a total sum of EUR 15.000 (EUR 5.000 was written-off in 2019). Because of the fact that the Firm A records tax loss from the previous year at the sum of EUR 7.500, Firm A can optimize its tax situation followingly. The partial tax base is equal to the difference among the annual turnover and annual business costs. Therefore, the partial tax base is EUR 20.000. Firm A can choose to set the depreciation plan as it wants. Firm A knows that from the 2020 the recorded tax loss (EUR 7.500) is deductible in 1/5 of the total recorded tax loss or it can be disposable deductible in one year. The exploit the tax benefit at its maximum, Firm A should disposable deduct the tax loss in 2020 at the sum of EUR 7.500, otherwise the company would lose 1/5 of the total recorded tax loss if it decides not use the recorded tax loss in 2020 at all. The new partial tax base using the recorded tax loss from previous years is EUR 12.500. Firm A can choose the car's write-offs in the year 2020 in the total sum of EUR 12.500 and still in 2021 there left EUR 2.500 in car's write-offs. This means that Firm's A final tax base is equal to EUR 0 with corporate tax liability at the sum EUR 0. However, in 2021 the situation will be different due to the fact that the write-offs are at the sum of EUR 2.500 and there is no recorded tax loss from previous years. In 2021 Firm's A final tax base should be EUR 22.500 and corporate tax should be EUR 3.375 if the annual turnover and annual business costs rest the same. Following figure summarizes the calculation of the tax base for the year 2020.

Item	Impact on the tax base	Sum (EUR)
Annual turnover	+	45.000
Annual business costs	-	25.000
Annual write-offs	-	12.500
Recorded tax loss	-	7.500

Figure 3. Calculation of the tax base for the year 2020
[Source: Authors´ own elaboration based on relevant Acts]

Conclusion

To conclude, the changes in the Income Tax Law allow the corporate sector especially small corporate firms to use newly established tax benefits and the micro-taxpayer institute in order to maximize tax optimization. As the case model has shown, the situation has significantly changed for small corporate firms. In 2019, the firm should have paid corporate tax at the sum of EUR 2.625, but in 2020, the firm can use new tax benefits in order to optimize the corporate tax that leads to the situation that the firm has no corporate tax liability at all.

These newly established tax benefits can be evaluated as very helpful for all small businesses in the condition of the Slovak republic.

References

[1]   Bánociová, A. et al. Dane podnikateľských subjektov v podmienkach slovenskej praxe. Košice: ELFA s.r.o., 2018, p. 234. ISBN 978-80-8086-267-1

[2]   European Commission. Where to tax? [online]. Available: https://ec.europa.eu/taxation_customs/business/vat/eu-vat-rules-topic/where-tax_en

[3]   European Commission. Taxation policy in the European Union – Report on the Development of Tax Systems. COM(96) 546 final

[4]   SLOV-LEX.SK. The Income Tax Act 595/2003. [online]. Available: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2003/595/20200101

[5]   Široký, J. Daně v Evropské unii. Prague: Linde, 2013

[6]   Kubátová, K. Daňová teorie a politika. Prague: ASPI, 2006, 279 p. ISBN 80-7357-205-2

[7]   Schellekens, M. (Ed.) European Tax Handbook 2013. Amsterdam: IBFD, 2013. 988 p. ISBN 978-90-8722-193-5

[8]   Salanié, B. Economics of Taxation. Cambridge: MIT Press, 2003. ISBN 978-0262-19486-0

[9]   Schultzová, A. et al. Daňovníctvo. Daňová teória a politika I. Bratislava: Iura Edition, 2011, 260 p. ISBN 978-80-8078-407-2

[10]   Nerudová, D. Harmonizace daňových systémů zemí Evropské unie. 4. ed., Prague: Wolters Kluwer, 2014

The Effect of the Effective Bank Taxation on Investment Decision and Total Tax Revenues

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Abstract

The research in taxation of financial operations in the EU Member States is relatively new and focused on analyses of bank taxes as a fiscal instrument to mitigate the effects of the economic recession, as well as a regulatory instrument to prevent market risks. The financial transaction tax is primarily intended to provide an additional resource to cover recession losses. VAT on financial services would allow banks to deduct input tax, and so reducing the tax burden on final consumers. This contribution analyses the tax burden of banks in the selected Member States. We want to discuss about the recent problems in financial accounting and taxation of financial instruments. The aim of the paper is to examine how taxation, together with the bank capital regulation, affects strategic decisions of banks, and the amount of total tax revenues. The results of the contribution can help to understand more closely the speculative tax strategies and their impact on the level of revenue in the public budget.

Key words: *financial sector, effective taxation, bank taxation, VAT of financial services, financial transaction tax*

JEL Classification: H21, G15, G21

Introduction

Banks are an important systematic institution in the economy within a single country, region or world economy. The global financial crisis has opened a discussion about the use of fiscal taxes in regulating speculative tax strategies, ensuring financial stability and stimulating the efficiency of the capital market. In the financial sector, there is a discussion about proposals of financial transaction tax, net turnover tax and value added tax on financial services within the EU countries. In terms of taxation, the financial and banking sector has a specific position comparing with non-financial entities in the economy.

Banks are important economic entities whose activities are affected by regulatory measures. Bank regulation sets minimum capital requirements and provides protection against the risk of financial and market failures. Regulatory measures aim primarily to improve market discipline, increase the transparency of financial intermediation and protect consumers´ interests. Fiscal taxes serve as a corrective and stabilization tool, whose effect in the financial sector needs to be examined in more detail in order to better understand the consequences of taxation in this sector. In the context of the financial and debt crisis, the introduction of bank taxes and charges is mentioned in terms of covering the costs of the crisis.

Banking and financial transactions are exempt from value added tax, mainly because of their complexity and uncertainties in determining the tax base. The difficulty in determining the value-added of financial services is that it is not entirely clear for which services the bank obtains for the provision of financial services (especially on the issue of securities). The determination of the fair value-added is also linked to the hidden tax, which is reflected in the increased margin for the financial services provided and therefore the tax burden is ultimately passed on to the client. Therefore, most world economies apply a tax exemption for these services. Opinions on the VAT on financial services are based on that banks would cover their costs of purchased inputs, alleviate the difficulties of international competition in financial markets or does not create inequalities with non-financial market participants.

The topic of financial transaction tax (FTT) is currently actual in the EU countries because of identification of the impact on harmonization and integration process, as well as to analyse relationship between FTT and Single capital market. The introduction of FTT in the EU environment represents an economic policy instrument for regulating financial markets. The main objective is to limit speculative market transactions, prevent risky trades and financial fraud and secure additional resources for the EU budget. Corporate taxation is also a highly discussed topic among experts in terms of obtaining information for foreign investors, comparing the corporate taxation rate within the EU Member States, or in terms of adopting a tax reform that would harmonize tax rules in the EU and ensure the functioning of an effective common capital market. Corporate bank tax is not in principle different from the corporate tax of non-financial corporations; however, it is different in structure of taxable income.

The contribution assesses the tax burden in the EU banking sector, focusing on the analysis of effective corporate tax in the period 2007-2018. The primary objective of this paper is to provide information on the effective corporate tax rate of banks, and how it affects strategic decisions and the amount of total tax revenues in the state budget. Besides the abstract and general introduction, the content of this paper is divided into three parts. The first part is focused on current problems and new challenges in the field of bank accounting and taxation. The second part describes the methodology used in the paper and explains in more detail the assumed research hypotheses. The third part presents results of realized analyses. The final part proposes further research and presents the main benefits of the contribution for the bank's management as well as for economic policy makers and tax administrators.

2. Literature review

Research of bank accounting and taxation can be divided into theoretical-descriptive and empirical. Descriptive studies in banking accounting pay attention to the identification of specific financial transactions from a tax perspective (for example, setting the tax base for value added tax, or analysing the benefits and weaknesses of financial transaction taxes in the EU). Using the general equilibrium model, empirical studies mostly investigate an effect of micro- and macroeconomic indicators on total tax revenues, bank´s indebtedness, capital ratio and profitability. The issue and research on financial transaction tax and value added tax on financial services is increasingly emerging in the context of addressing the cost of the financial crisis. Because of the complexity of financial services, it is often difficult to determine what value-added they create. Therefore, in the case of VAT on financial services, it is necessary to assess the origin of the financial service. The problem of financial VAT is that the legal definition of financial services is defined differently among the Member States. Moreover, it is only taxed the import of services of financial institutions, and financial institution cannot deduct the output. Therefore, consequently, there are tax distortions and a different economic effect of VAT on financial services and VAT on non-financial products and services. VAT on non-financial products and services is easier to determine than for financial services because it is explicitly given. The VAT of financial services is determined implicitly, i.e. through various financial methods (such as credit-invoice method, cash-flow method, or subtraction method).

As study by European Commission (2010) states, identifying the origin of financial services will help segregate the created value-added and clean up the financial cash-flows that include the elements of value-added. In many cases, assessing the origin of financial services is not easy, mainly because of the structure and characteristics of financial services, which include several products. It is ambiguous to determine the tax base of those financial services that contain more than one service (for example, protection of financial flows in risk management, mutual funds with different portfolio composition, or financial intermediaries trading). In general, because of the difficulties mentioned above, most countries in the world opt for exemption from value added tax on financial services. However, it means that the financial institution will pay VAT only on the volume of purchased inputs. To ensure bank´s competitive position in foreign financial markets, unused output VAT will result in an increased price margin for financial services. At higher prices, however, there is a problem, because the determination of the VAT of financial services is related to the so-called *"hidden tax"*, which represents a difference between deposit interest rates and loan interest rates.

With the trend of globalization of world economies, it can be observed that the principle of exempting financial services from taxation is not properly coordinated and methodologically set. Therefore, new alternative methods for determining the value-added of financial services, which would determine the fair added value of financial services, are becoming a challenge for economic policymakers and tax administrators. EU countries that do not apply an exemption from VAT on financial services (such as Germany, Belgium, or France) have a well-designed control system that oversees the complexity in determining value-added. In addition, bank regulation will ensure that financial and non-financial products are separated from each other and supply-side competitiveness is under the same rules.

The second option to tax financial operations on the market is financial transaction tax (FTT) and financial activities tax (FAT). At the EU level, FTT would help to harmonize the fiscal area. Arguments advocating the idea of introducing FTT [such as Baltagi et al., 2006; Rühl & Stein, 2014; Dávila, 2014] are of the opinion that these taxes help to maintain financial stability. To main advantages of financial transaction tax belong the following: (1) a reduction in the volume of speculative transactions in the financial markets; (2) strengthening the efficiency of the capital market; (3) trading transparency in line with the real economy; (4) lower fluctuations in the price of financial assets; (5) an additional source of public revenue; and (6) preventing fragmentation of financial markets. On the other hand, opposite opinions argue that a different tax rate across countries promotes speculative capital transfers, increases financial fraud and makes it more likely to adopt more aggressive strategies of optimising taxable income. Finally, the taxation of financial transactions can lead to a weakening of the financial position, increased market volatility and increased uncertainty. [Dell´Era, 2018].

An interesting area of bank tax research is analysing the dependence between bank profitability and corporate tax. Under applicable national legislation, a strategy to reduce accounting income and tax liability has a positive effect on bank profitability. As Slemrod [2004] and Hanlon & Heitzman [2010] state, an increase in operating costs does not necessarily mean a deterioration in profitability if the bank manages (at least partially or fully) to pass on the tax burden to the final consumer in the form of higher prices for financial products. Dietrich & Wanzenried [2011] show that there is a slight negative correlation between the effective tax rate and the profitability of banks, what could mean that a higher price margin will result in a decline in the bank's profitability.

In general, there is in principle no difference between the taxation of non-financial business entities and the corporate taxation of financial institutions. Differences can be seen if we look at corporate taxation of banks in terms of the composition and structure of the bank´s total taxable income. Huizinga [2004] analyses differences in bank income before tax and taxable income, pointing out that some banks may report a zero-income tax base even though the reported accounting income is non-zero. It is a manipulating tax strategy to maximize pre-tax income while minimizing taxable income. When using a tax strategy to optimize tax liability, banks can use either debt financial instruments or their subsidiaries in other Member States. With debt instruments (i.e. hybrid derivatives, which are a combination of equity and debt derivatives), banks change the ratio of equity

and liabilities. Banks can deduct from pre-tax income the cost of financing interest on a debt instrument, thereby reducing taxable income, and to ensure significant savings. However, using hybrid derivatives for tax strategies is a speculative management tool, and because of the complexity of hybrid derivatives, tax legislation regulates their use only slightly. Another option for reducing taxable income, which is mainly used by large multinational financial institutions, is to provide a financial loan to its subsidiary in a country with a lower tax burden. In this case, it is an international transfer of capital from a country where the corporate tax is higher to a country with a lower tax rate.

3. Material and methods

The paper analyses and compares the tax burden of banks in the selected EU Member States. We will focus on effective average corporate tax and statutory nominal corporate tax in EU countries in 2007-2018. The aim of this paper is to examine how tax legislation together with the regulation of bank capital influence on the strategic decisions of banks, as well as on the total tax revenues. By comparing the corporate burden in the EU countries, the contribution identifies the Member States with the highest and lowest tax rates. Based on the regression analysis method, we will investigate correlation between dependent variables (statutory nominal corporate tax rate and ROA) and independent explanatory variables (effective average corporate tax rate, cost-income ratio, real interest rates on 10-year states bonds, annual inflation rate, total financial assets, capital ratio) in two models. The values of dependent variables are expressed as a percentage. We only adjusted the value for the total financial assets with natural logarithm, as this value was expressed in millions of EUR, which would distort the result in the regression analysis. The data were obtained from the macroeconomic database of National Bank of Slovakia, Statistical Data Warehouse and Eurostat, for the period 2007-2018.

In this paper, we will set out two research hypotheses, through which we will follow the main goal, i.e. to determine the impact of tax legislation and banking regulation on strategic decisions in the bank´s internal environment. The assumed null hypotheses are in the following form:

H₁: The effective corporate tax is statistically significantly lower than the statutory corporate tax.

H₂: There is a statistically significant relationship between an effective corporate tax and bank profitability.

In the first hypothesis, the following variables enter the analysis:

$$Y = \beta_0 + \beta_1 EATR + \beta_2 ROA + \beta_3 CIR + \beta_5 IR + \beta_6 GDP + \beta_6 Infl. \tag{1}$$

where Y represents the statutory (nominal) corporate tax rate (NTR).

Table 1. Description of input independent variable in hypothesis H1 [Source: processed by author]

Independent variable Xn	Description
EATR – effective average corporate tax rate	Expressed in %
ROA – return on assets	Explains bank profitability (in %)
CIR – Cost-income ratio	Explains a proportion of operating cost to net interest income and non-interest income (in %)
Infl - Inflation	Explains annual inflation rate (in %)
IR - Interest rates	Explains real interest rates on 10-year state government bonds (in %)
GDP – Gross domestic product	Explained real economic activities of output (in %)

In the second part of the research hypothesis, we consider these independent variables:

$$Y = \beta_0 + \beta_1 CIR + \beta_2 IR + \beta_3 GDP + \beta_5 Infl. + \beta_6 Log\, TA + \beta_6 CR \tag{2}$$

where Y represents the profitability of bank, measured by ROA indicator.

Table 2. Description of input independent variable in hypothesis H2 [Source: processed by author]

Independent variable X	Description
Log **TA** - Total financial assets	Explains bank size
CR - Capital ratio	Measured risked weight capital ratio (in %)
CIR – Cost-income ratio	Explains a proportion of operating cost to net interest income and non-interest income (in %)
Infl - Inflation	Explains annual inflation rate (in %)
IR - Interest rates	Explains real interest rates on 10-year state government bonds (in %)
GDP – Gross domestic product	Explained real economic activities of output (in %)

We consider the main benefit of the contribution in banking practice that the analysis of effective corporate taxation can help better understand the use of tax strategies. We also see a positive opportunity in analysing effective corporate taxation in terms of identifying an influence on optimal tax management, profitability and indebtedness.

4. Results and discussion

When comparing the development of the effective and statutory corporate rates in the analysed period (Fig. 1), we found that the highest statutory corporate tax rate is in France, Belgium, Germany, Spain and Malta. Otherwise, the lowest corporate tax rate is Bulgaria, Lithuania, Hungary, Ireland, Romania and Cyprus. The analysis shows that the tax rates of these two taxes differ only to a very slight extent in most EU countries. The biggest difference in statutory tax rate and effective tax rate is in Malta (10.6% in 2018), Portugal (10.1% in 2018) and Belgium (4.8% in 2018); and on the contrary in Spain the effective tax is higher than the statutory tax (5.1% in 2018). Based on this comparison we can state e.g. the conclusion that an effective corporate tax has an impact on investment and tax decisions, especially by multinational banks. Placing capital and accounting profits in countries with lower tax rates eliminates costs, but excessive capital outflows may cause significant constraints on production activity for the domestic economy. This hypothesis is confirmed also by several studies, such as Devereux & Griffith [2003] or Richardson & Lanis [2007]. In the comparison between the EU, Japan and the United States, Nicodème [2002] proves that in strategic decision-making, companies prefer to place investment in countries with lower tax burden. Furthermore, in the analysis we will focus on the identification and understanding of the relationship between effective corporate taxation and selected macroeconomic (real GDP growth, annual inflation rate, real interest rate) and bank indicators (cost-income ratio, capital ratio, total financial assets).
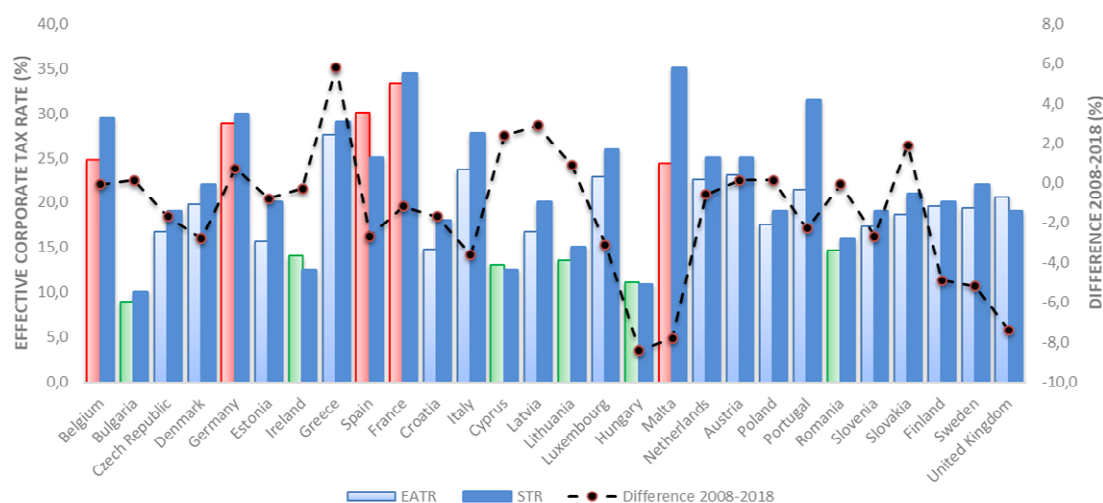

Figure 1. Development of statutory and effective corporate rates in the EU Member States
[Source: processed by author based on European Commission (2020)]

Using regression analysis, we have tested whether the effective corporate tax (EATR) in banks was statistically significantly lower than the statutory nominal corporate tax (NTR). The *"Adjusted R Square"* has a value of 93.62%, which means that the regression model reflects the variability of all variables. The results show that if all the independent variables were zero, the statutory rate would be at the level 5.4317. Other variables can be interpreted as follows: if the EATR were changed by 1% and the other variables were constant, the NTR would increase by 0.8281%. At a 1% increase in ROA, the NTR would increase by 0.4617%. If the cost-income ratio, respectively real interest rates change by 1%, an increase in NTR would be small (by 0.0046%, resp. 0.0856%). GDP has a negative impact on NTR, with a 1% change causing a 0.0266% reduction in NTR. The regression function has the following form:

$$NTR = 5,43 + \beta_1 . 0,8281 + \beta_2 . 0,4617 + \beta_3 . 0,0046 + \beta_5 . 0,0856 - \beta_6 . 0,0266 + \beta_6 . 0,1415$$

Table 3. Regression analysis output: An impact of statutory tax rate (NTR) on selected variables
[Source: processed by author]

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	5,4317	8,7465	0,6210	0,5682	-18,8524	29,7157
EATR	0,8281	0,7134	1,1609	0,3102	-1,1525	2,8088
ROA	0,4617	0,4831	0,9558	0,3933	-0,8795	1,8030
CoIR	0,0046	0,0883	0,0519	0,9611	-0,24069	0,2499
IR	0,0856	0,5728	0,1494	0,8884	-1,5048	1,6761
GDP	-0,0266	0,0270	-0,9845	0,3806	-0,1017	0,0484
Infl	0,1415	0,5394	0,2622	0,8061	-1,3563	1,6392

Table 4. Regression analysis output: An impact of bank profitability (ROA) on selected variables
[Source: processed by author]

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	15,6515	7,7560	2,0180	0,0996	-4,2861	35,5890
CoIR	0,0498	0,0226	2,2011	0,0790	-0,0084	0,1079
IR	-0,4292	0,1839	-2,3341	0,0669	-0,9020	0,0435
GDP	-0,0289	0,0203	-1,4205	0,2147	-0,0812	0,0234
Infl	0,3130	0,1553	2,0152	0,1000	-0,0863	0,7124
Log TA	-1,6770	1,0264	-1,6339	0,1632	-4,3154	0,9614
CR	-0,0199	0,0076	-2,6212	0,0470	-0,0395	-0,0004

Tab. 4 shows the results of the second hypothesis in which we tested whether there is correlation between effective corporate tax rate and bank profitability. The aim is to determine whether these indicators have an impact on the bank´s internal decisions and fiscal policy measures. *"Adjusted R Square"* coefficient has a value of 58.73%. The results showed that a significant impact on profitability has cost-income ratio, capital ratio, total financial assets and real interest rates. Real economic growth and inflation rates have a slightly lower impact. If the independent variables were zero, the ROA would be 15.65. A slight positive influence on ROA has cost-income ratio (an increase by 0.0498%) and annual inflation (an increase by 0.3130%). If total assets increase by 1%, ROA will drop in 1.6770%, and if real interest rates increase by 1%, ROA decrease by 0.4291%. Similar results can be found in some tax studies, such as Richardson & Lanis [2007] and Constantin [2014]. Based on research in Australian banking sector, Richardson & Lanis [2007] found out a significant correlation between effective tax rate and capital structure, total assets and bank indebtedness. Constantin [2014] assumes that there is an inverse correlation between total financial assets and effective tax rate. It can be explained by deductible items, which reduce taxable income. Our regression function is expressed as:

$$ROA = \beta_0 + \beta_1 . 0,0498 - \beta_2 . 0,04292 - \beta_3 . 0,0289 + \beta_4 . 0,3130 - \beta_5 1,6770 - \beta_6 . 0,0199$$

Based on Shapiro-Wilcoxon t-test and significance level α=0.05, we have tested normality of distribution (Tab. 5). We chose this normality test because it is a small sample. From the observations we obtained an average EATR of 20.96% and a ROA of 0.18%. We do not reject the null hypothesis that there is a normal distribution in the sample. The correlation coefficient (-0.2331) shows that there is a slight negative correlation, i.e. if it decreases the effective corporate rate, the ROA will increase.

Table 5. Shapiro-Wilcoxon test [Source: processed by author]

t-Test: Paired Two Sample for Means	EATR	ROA
Mean	20,96905	0,181517
Variance	0,412707	0,040427
Observations	12	12
Pearson Correlation	-0,23316	
Hypothesized Mean Difference	0	
df	11	
t Stat	100,503	
P(T<=t) one-tail	5,91E-18	
t Critical one-tail	1,795885	
P(T<=t) two-tail	1,18E-17	
t Critical two-tail	2,200985	

5. Conclusion

The tax system and fiscal taxes serve as a stabilization tool and a correction tool to offset losses due to crises. In the financial sector, taxes are a risk-reducing instrument, a source for securing funds in the event of a bank failure and, finally, a source of public revenue for the state budget. In this paper, we dealt with the issue of bank taxation, especially with the analysis of effective corporate tax. The aim was to determine the correlation between corporate tax and banks' profitability and examine how tax legislation with banking capital regulation has an impact on strategic decisions. By comparing the corporate burden in the EU, we have identified that the highest corporate rate is in France, Belgium, Germany, Spain and Malta. Conversely, the lowest corporate rates are Bulgaria, Lithuania, Hungary, Ireland, Romania and Cyprus.

Based on the regression analysis, we can conclude that there is a statistically significant relationship between effective corporate tax and bank profitability. The results showed that a significant impact on profitability have cost-income ratio, capital ratio and real interest rates, while real economic growth and inflation rates have a lower impact.

The limiting aspect of this paper is the size of the analysed sample that may have influenced the results. Future research should focus on more detailed identification of profitability and corporate taxation in relation to investment decisions. Especially desired is the extension of the analysis of the effective corporate tax and profitability measured by ROE indicator. ROE compares net profit to equity, which makes it possible to know the relationship between profitability, the indebtedness and the investment costs. Research on taxation in banks can help better understand the stability of the financial system and internal bank decisions to optimize taxable income.

References

[1]   Baltagi, B.H., Li, D., Li, Q. 2006. Transaction tax and stock market behaviour: evidence from an emerging market. In: Empirical Economics, Vol. 31(2), pp. 393-408

[2]   Constantin, A.A. 2014. The Analysis of Correlation between Profit Tax and Corporate Financial Performance. In: Applied Financial Research, Bucharest University of Economic Studies, no. 8

[3]   Dávila, E. 2014. Optimal financial transaction taxes. Preprint, Harvard University

[4]   Dell´Era, M. 2018. Financial Transaction Taxes and Expert Advice. No. WP 10/2018, Research Department, National Bank of Slovakia

[5]   Devereux, M.P., Griffith, R. 2003. Evaluating tax policy for location decisions. In: International tax and public finance, Vol.10 (2), pp. 107-126

[6]   Dietrich, A., Wanzenried, G. 2011. Determinants of bank profitability before and during the crisis: Evidence from Switzerland. In: J. Int. Financial Markets. Institutions and Money, Vol.21 (3), pp.307-327

[7]   EUROPAEN COMMISSION. 2010. Financial Sector Taxation. Working Paper No. 25, Luxembourg: Office for Official Publications of the European Communities. doi:10.2778/1549

[8]   EUROPAEN COMMISSION: Value added tax: A study of methods and taxing financial and insurance services. [online]. [cit. 2020–02-02]. Available at: <https://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/taxation/vat/key_documents/reports_published/methods_taxing.pdf>

[9]   EUROPEAN CENTRAL BANK: Statistical Data Warehouse. [online]. [cit. 2020–02-02]. Available at: <https://sdw.ecb.europa.eu/>

[10]   EUROSTAT: Database. [online]. [cit. 2020–02-02]. Available at: <https://ec.europa.eu/eurostat/data/database>

[11]   Gawehn, V. 2019. Banks and corporate income taxation: A review. Discussion Paper, No. 247, Arbeitskreis Quantitative Steuerlehre (arqus), Berlin. Available at SSRN 3498843

[12]   Graham, J.R., Raedy, J.S., Shackelford, D.A. 2012. Research in accounting for income taxes. In: J. Accounting and Economics, Vol.53 (1-2), pp. 412-434

[13]   Hanlon, M., Heitzman, S. 2010. A review of tax research. In: J. Accounting and Economics, Vol.50 (2-3), pp. 127-178

[14]   Hanlon, M., Slemrod, J. 2009. What does tax aggressiveness signal? Evidence from stock price reactions to news about tax shelter involvement. In: J. Public Economics, Vol.93 (1-2), pp. 126-141

[15]   Huizinga, H. 2004. The Taxation of Banking in an Integrating Europe. In: Int. Tax and Public Finance, Springer, Vol. 11(4), pp. 551-568

[16]   NBS: Makroekonomická databáza. [online]. [cit. 2020–02-02]. Available at: <https://www.nbs.sk/sk/menova-politika/makroekonomicka-databaza/makroekonomicke-ukazovatele-graf>

[17]   Nicodème, G. 2002. Sector and size effects on effective corporate taxation. European Commission, Directorate General for Economic and Financial Affairs, No. 175

[18]   Richardson, G., Lanis, R. 2007. Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. In: Journal of accounting and public policy, Vol. 26 (6), pp. 689-704

[19]   Rühl, T., Stein, M. 2014. Discovering and disentangling effects of US macro-announcements in European stock markets. Available at SSRN 2462515

Reporting on Financial Instruments According to IAS/IFRS in Slovak Banking Sector

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Abstract

Financial reporting represents the public disclosure of financial and non-financial information about the entity's economic activities. The information disclosed in the financial statements should be of enough quality to provide reliable data to the users of the financial statements. The banking sector, as an important field in every economy, realizes on daily basis financial operations that significantly affect the financial markets and economic cycle. This contribution presents a discussion on the complex issue of international accounting of operations associated with financial instruments and analyses the international standards IAS/IFRS for financial instruments in the Slovak banking sector. Based on the comparison of the financial statements of the Slovak bank for 2017 and 2019, this paper focused on changes in accounting standards IAS 39 and IFRS 9. The aim is to bring a closer view on financial instruments reporting and to show the impact of the change on bank's reported profit or loss.

Key words: *financial instruments, international framework reporting standards, bank accounting, financial statements, Slovak banking sector*

JEL Classification: G21, M41

1. Introduction

Financial accounting is an essential component in ensuring banking transparency. The primary function of accounting standards and financial reporting is to ensure comparable, readable, high quality and transparent accounting information. The financial statements of banks represent a global presentation of financial performance and provide high-quality sources of information. From a regulatory perspective, the role of financial reporting is important in reducing information asymmetry and for ensuring quality information for investors in capital markets. Appropriate accounting regulation requires that the published financial statements reflect the corresponding economic reality and thereby bring transparency to capital markets. Thus, economic entities and investors have a greater sense of security and truthful, non-misleading information on the financial situation of a company. Also, clearly formulated accounting standards with well-defined principles can ensure confidence in the capital markets.

The important influence of accounting is not only on financial operations and strategic decisions in the companies but also on the global, political and economic environment. Any significant change in international standards may occur significant changes in national economies in individual countries. For example, the evidence was the global financial crisis, which has occurred changes in fair value of financial assets in bank financial statements. Thus, accounting provides evidence of the real depth of

economic problems. To identify the real crisis impact on economic sectors, accounting standards must give a true and fair view of economic reality [Jílek & Svobodová, 2012].

The contribution assesses the bank accounting, focusing on the comparison of reporting on financial instruments according to IAS/IFRS and Slovak bank accounting principles. The primary objective of this paper is to provide information on the change in the international accounting standards for financial instruments, and how it affects profit or loss in bank financial statements. Besides the abstract and general introduction, the content of this paper is divided into three parts. The first part deals with the importance of the international accounting standards and compares differences between Slovak accounting principles and IAS/IFRS for financial instruments. The second part describes the methodology used in the paper, and the third part presents an application of IAS 39 and IFRS 9 in a Slovak bank's financial statements. The final part proposes further research.

2. Literature review

The necessity for high-quality financial statements, containing relevant, true and comprehensive information, is increasing among investors, managers at all levels, auditors, analysts and individual users. Financial statements according to international accounting standards represent a valuable resource for entities to prepare and interpret different financial analyses. Studies such as Elliott et al. [2015], Rennekamp [2012], or Tan et al. [2011] show that when financial statements are written in an internationally common and comprehensible language they provide higher quality information, support the development of capital markets and help to eliminate uncertainty and market risks, compared to national accounting principles. The common language helps to compare individual financial statements among the world countries, and thus create new opportunities for foreign investments activities in foreign financial markets. The importance of international accounting standards lies in mitigating information asymmetry, bringing a higher level of transparency than national accounting principles and in bringing potential global benefits, such as lower capital costs, or a common form of audited financial statements. To sum up, we can state that international comparability, relevance and true and fair view are the key characteristics that ensure high-quality financial statements [Palea, 2013].

Recently, accounting research focuses on the effects of accounting standards on managing revenues and costs, decision making processes and operations at the end of the accounting period. Many studies deal with a theoretical explanation of accounting principles and their impact on companies or overall economic environment [such as Beatty & Liao, 2014; Bushman, 2014; Gebhardt et al., 2003; Donohoe, 2015]. However, there is very limited research in bank and insurance accounting and analysis of the taxation of financial derivatives. The bank accounting research is predominantly focused on capital regulation [e.g. Chaundry et al., 2015; Haldane et al., 2010; Bushman & Williams, 2012] and the analysis of the recent economic situation compared to the financial crisis period [e.g. Graham & Smith, 1999]. Also, an important field of financial accounting is fair value accounting and the research of valuation financial assets. However, the critics of fair value accounting claim that due to procyclical development in the economic cycle, fair value is not relevant and reliable method and it is potentially misleading for held-to-maturity assets.

Also, an interesting field, particularly within the EU Member States, represents fiscal taxes on financial instruments (i.e. financial transaction tax and financial activities tax). This issue is especially important due to the integration process and development of common European capital market. Studies such as Hvozdyk & Rustanov [2016], Schandlbauer [2017] and Colliard & Hoffmann [2017], analyse the impact of financial transaction tax on the economic growth or market volatility within EU countries, compared to those countries that have already introduced such taxes in their legislation systems.

As Ramirez [2015] states, international accounting standards IAS/IFRS deal with the presentation of financial instruments under IAS 21, IAS 32, IAS 39, IFRS 7, IFRS 9, IFRS 13 and IAS 37. In addition to these standards, in certain circumstances operations with financial instruments also

affect some other principles, such as IAS 12, IFRS 10, IFRS 11, IFRS 15 and IFRS 16. We will briefly describe only basic principles for financial instruments.

IAS 32: Financial instruments – Presentation divides financial instruments into three categories, i.e. financial assets, financial liabilities and equity. It applies for all types of financial instruments and is focused on accounting rules for derivatives instruments and disclosure of equity, dividends interest income and financial position. **IAS 39: Financial instruments – Recognition and measurement,** effective until December 31st, 2017, characterizes definitions of individual financial instruments and the way of their accounting, reporting and valuation in the financial statements. **IFRS 7: Financial instruments – disclosure** deals with disclosure of financial instruments required by IAS 32, in respect of the origin and extent of financial risks associated with these instruments. It enables to understand the managerial attitude towards risks, while it is not describing the exact form of disclosure; individual groups of financial instruments are disclosed according to risk categories and materiality. **IFRS 9: Financial instruments**, effective from January 1st, 2018, sets requirements for classification of financial assets and liabilities, as well as for accounting of derivative instruments, and adjusts requirements for hedge documentation. IFRS 9 introduces new requirements for the measurement of available-for-sale assets, for impaired financial instruments as well as for provisions for cyclical fluctuations under Basel III rules. The main aim of IFRS 9 is to provide higher transparency and protection against expected market risks. **IFRS 13: Fair value measurement** defines principles for valuation assets and liabilities through fair value. It is applied in conjunction with other accounting standards. **IFRS 37: Provisions, contingent liabilities and contingent assets** sets out requirements for uncertain financial liabilities in the future and their transparent presentation in the financial statements to ensure fair view [KPMG, 2018; Ramirez, 2015].

Under the Slovak accounting and tax principles, commercial banks maintain their accounting based on the double-entry bookkeeping from the beginning of their establishment to the date of their termination. Slovak accounting principle for banks is issued by the Ministry of Finance of Slovak Republic. The accounting rules for Slovak banks have taken several principles from international standards for financial instruments, and so it differs only very minimally. Details of accounting and the chart of accounts for banks provide the Measurement of MF SR 20359/2002-92, which requires commercial banks to report financial operations, instruments in the following nine accounting classes:
class 0: Clearing relations with the central bank
class 1: Cash accounts, bank and interbank accounts
class 2: Clients' accounts
class 3: Securities, derivatives, other receivables and other liabilities
class 4: Financial investments, tangible assets, intangible assets, contingent financial assets and inventories
class 5: Equity and debt liabilities and closing accounts
class 6: Operational costs
class 7: Revenues
class 8: Internal accounting
class 9: Off-balance sheet accounts [Schwarzová, 2017]

As a part of the European monetary union, banks should also comply with various directives by the European Commission (EC) and regulations by the European Parliament (e.g. Regulation 1606/2002 on financial accounting regulations). Generally, the accounting directives issued by EC for the capital market are aimed at harmonising financial information to achieve a high degree of transparency and comparability of financial statements.

3. Material and methods

The paper presents a descriptive study and compares changes in international standards for financial instruments in the bank's financial statements. We conducted a practical illustration of this change on the Slovak bank (Slovenská sporiteľňa, a.s.) for the years 2017, 2018 and 2019, i.e. before

and after the change in accounting standards. The paper aims to examine how accounting principles for financial instruments affected reported profit or loss. The data were retrieved from the bank's website. In the comparison of IAS 39 and IFRS 9, we focused on the classification of financial assets, realized profit or loss and income tax. We assume that the change in reporting of financial instruments represents a simplification and brings more practical accounting principles that eliminate the risk of incorrect reporting of financial operation at the bank. The main benefit of this contribution in banking practice is to help better understand the complex issue of financial instruments reporting.

4. Results and discussion

Until 2017, commercial banks presented financial instruments under IAS 39 standard. However, as a result of the new IFRS 9 standard, there have been several changes in the classification of financial instruments in the financial statements. Under IAS 39, financial instruments are classified into available-for-sale assets, held-to-maturity instruments, held-for-trading instruments, financial assets measured through profit or loss, and derivative instruments as receivables and payables for hedging transactions. Under IFRS 9, classification is more general, and the new standard has specified financial instruments in individual portfolios (i.e. equity instruments, debt instruments, loans and receivables and derivatives). After the change, financial instruments are classified into financial assets measured through profit or loss, financial assets measured through other comprehensive income, non-trading assets measured through profit or loss, financial assets held for trading, financial assets measured through amortized costs and derivatives as instruments for trading and hedging. The comparison of the change in financial assets classification is described in the following table (Tab. 1).

Table 2. Classification of financial assets according to IAS 39 and IFRS 9
[Source: processed by authors based on KPMG (2018)]

	IAS 39	**IFRS 9**
EQUITY INSTRUMENTS	Financial assets available-for-sale	Non-trading assets measured through profit or loss Financial assets measured through other comprehensive income
DEBT INSTRUMETNS	Loans and receivables	Non-trading assets measured through profit or loss Financial assets measured at amortised costs
	Financial assets available-for-sale	Non-trading assets measured through profit or loss Financial assets measured at amortised costs Financial assets held-for-trading
	Financial assets measured through profit and loss	Non-trading assets measured through profit or loss
	Held-to-maturity instruments	Financial assets measured at amortised costs
LOANS AND RECEIVABLES	Loans and receivables	Financial assets through profit and loss Non-trading assets measured through profit or loss Financial assets measured through other comprehensive income
	Held-for-trading instruments	-
	Financial assets measured through profit and loss	Financial assets measured at amortised costs
DERIVATIVE INSTRUMENTS	Hedging instruments	Hedging derivatives Derivatives for trading

After defining the financial instruments under IFRS 9, we can compile the basic structure of balance sheet. In the structure of the bank's balance, a change occurred in the reclassification of financial assets items. Under the new standard, financial assets are measured at fair value either through profit or loss (i.e. purchase and trading securities), through other comprehensive income (i.e. loans to credit institutions, other banks and customers) or at amortised costs (issued bonds, mortgage bonds, repo and collateral).

Table 2. The asset side of balance sheet of bank Slovenská sporiteľňa, a.s. (in thousand EUR)
[Source: processed by author based on Slovenská sporiteľňa, a.s. (2020)]

Asset side of the balance sheet	2017	2018	2019
Cash and cash equivalents	454 229	416 093	501 441
Financial assets held-for-trading	36 484	42 941	41 423
Financial assets measured through profit or loss	5 602	x	x
Non-trading financial assets measured through profit or loss	x	29 242	19 633
Financial assets available-for-sale	1 020 620	x	x
Financial assets measured through other comprehensive income (equity instruments)	x	56 395	89 262
Financial assets held-to-maturity	2 644 402	x	x
Loans and receivables against customers	11 897 349	x	x
Financial assets at amortised costs	x	16 380 498	17 329 196
Financial lease	x	129 516	213 191
Hedging derivatives	6 761	9 905	23 020
Long-term tangible assets	149 564	141 963	156 097
Investment properties	2 031	1 879	1 828
Long-term intangible assets	55 457	39 041	23 755
Subsidiaries investments	31 123	31 662	33 455
Tax assets			
- *current tax asset*	10 634	4 639	786
- *deferred tax asset*	33 711	44 968	44 727
Other assets	25 145	18 212	34 070
TOTAL ASSETS	**16 343 112**	**17 442 906**	**18 619 023**

Table 3. The statement of profit and loss of bank Slovenská sporiteľňa, a.s. (in thousand EUR)
[Source: processed by author based on Slovenská sporiteľňa, a.s. (2020)]

Accounting item	2017	2018	2019
Net interest income	439 290	437 828	430 653
- *Financial assets through other comprehensive income*	x	8 291	11 695
- *Financial assets at amortised costs*	471 999	471 042	458 395
- *Interest costs*	(32 709)	(29 596)	(29 148)
Fees and commissions	112 708	128 821	145 166
Dividend income	1 086	1 044	951
Income from companies accounted for using the equity method	2 123	1 673	1 823
Net profit/loss of financial instruments not measured through profit or loss	301	x	x
Net profit/loss of financial assets held for trading	13 773	9 669	20 721
Other profit/loss of financial instruments not measured through profit or loss	x	(93)	(475)
Net profit/loss of financial instruments measured at fair value through profit or loss	(514)	2 145	(3 732)
Administrative expenses	237 899	238 314	241 638
Depreciation and amortisation	44 766	42 787	46 868
Impairment of financial assets not measured at fair value through profit or loss	(30 074)	x	x
Net profit of financial assets impairment	x	(23 522)	(42 656)
Other operational profit/loss	(39 794)	(40 158)	(38 668)
Profit before income tax	216 559	236 616	226 524
Income tax	(52 660)	(52 932)	(46 565)
NET PROFIT AFTER INCOME TAX	**163 899**	**183 684**	**179 940**

Originally, under IAS 39 loans and receivables with longer maturity than one year were recognized under "Financial assets measured through other comprehensive income", otherwise they were recognised at amortised costs. Held-to-maturity instruments were reported under "Financial assets at amortised costs" and held-for-trading instruments, which include all assets and liabilities acquired for future sale, remain unchanged. Table 2 shows the asset side of bank's balance sheet and the above-mentioned changes in financial assets.

Comparing the statement of profit and loss in the analysed bank, we found out differences in the recognition of the net realized profit or loss measured through fair value that effects on the income tax. Under IAS 39, incomes end expenses were reported as separate items (e.g. interest income/expense from operations with debt instruments, options). Now under IFRS 9, accounting items are classified together through fair value, amortised costs and other comprehensive income. Therefore, we can state that IFRS 9 simplifies accounting principles for financial assets reporting. Tab. 3 represents a comparison of reporting in 2017 and 2018/2019, while we highlighted the changes in red colour.

5. Conclusion

The paper presents the discussion on complex issue of the international accounting of operations with financial instruments, which is currently very little processed within the literature of banking sector in the Slovak republic. In this paper, we dealt with classification of financial instruments according to international accounting standards IAS 39 and IFRS 9. In our opinion, the changes in reporting on financial instruments in asset side of the balance sheet and in the statement of profit and loss were effective and they simplified financial asset classification.

Research in bank accounting opens new possibilities and opportunities for future studies, especially on the analysis of the correlation between financial instruments, profitability, transaction taxes or managers' behaviour on the changes in accounting standards.

References

[1]   Beatty, A., Liao, S. 2014. Financial accounting in the banking industry: A review of the empirical literature. J. Accounting and Economics, Vol. 58(2-3), pp. 339-383

[2]   Bushman, R.M. 2014. Thoughts on financial accounting and the banking industry. J. Accounting and Economics, Vol. 58(2-3), pp. 384-395

[3]   Bushman, R.M., Williams, C.D. 2012. Accounting discretion, loan loss provisioning, and discipline of banks' risk-taking. J. Accounting and Economics, Vol. 54(1), pp. 1-18

[4]   Chaudhry, S.M., Mullineux, A., Agarwal, N. 2015. Balancing the regulation and taxation of banking. Int. Review of Financial Analysis, Vol. 42, pp. 38-52

[5]   Colliard, J.E.; Hoffmann, P. 2017. Financial transaction taxes, market composition, and liquidity, ECB Working Paper, No. 2030, ISBN 978-92-899-2752-9, European Central Bank (ECB), Frankfurt a. M., http://dx.doi.org/10.2866/820552

[6]   Donohoe, M.P. 2015. The economic effects of financial derivatives on corporate tax avoidance. J. Accounting and Economics, Vol. 59(1), pp. 1-24

[7]   Elliott, W.B., Rennekamp, K.M., White, B.J. 2015. Does concrete language in disclosures increase willingness to invest? Review of Accounting Studies, Vol. 20(2), pp. 839-865

[8]   Gebhardt, G., Reichardt, R., Wittenbrink, C. 2004. Accounting for financial instruments in the banking industry: Conclusions from a simulation model. European accounting review, Vol. 13(2), pp. 341-371

[9]   Graham, J.R., Smith, C.W. 1999. Tax incentives to hedge. The Journal of Finance, Vol. 54(6), pp. 2241-2262

[10]   Haldane, A., Brennan, S., Madouros, V. 2010. What is the contribution of the financial sector: Miracle or mirage? In: Turner, A. et al., The Future of Finance: The LSE Report, pp. 87-120

[11]   Hvozdyk, L., Rustanov, S. 2016. The effect of financial transaction tax on market liquidity and volatility: An Italian perspective. Int. Review of Financial Analysis, Vol. 45, pp. 62-78

[12]   Jílek – Svobodová. 2012. Účetnictví podle mezinárodních standardů účetního výkaznictví 2012. Prague : Edice Účetnictví a daně, Grada Publishing a.s., 2012. 448 p. ISBN 978-80-4255-7

[13]   KPMG. 2018. Insight into IFRS: KPMG´s practical guide to IFRS Standards. 15th Edition 2018/19. London : Sweet & Maxwell. 2018. 2933 p. ISBN 978-0-414-06957-2

[14]   Palea, V. 2013. Financial Reporting Under IAS/IFRS : Theoretical Background and Capital Market Evidence – A European Perspective. Bern : Peter Lang AG. 167 p. ISBN 978-3-0343-14039

[15]   Ramirez, J. 2015. Accounting for derivatives: Advanced hedging under IFRS 9. 2. ed. West Sussex : John Wiley & Sons, Ltd, 2015. 770 p. ISBN 978-1-118-81797-1

[16]   Rennekamp, K. 2012. Processing fluency and investors' reactions to disclosure readability. J. Accounting Research, Vol. 50(5), pp. 1319-1354

[17]   Schandlbauer, A. 2017. How do financial institutions react to a tax increase?. J. Financial Intermediation, Vol. 30, pp. 86-106

[18]   Schwarzová, M. 2017. Medzinárodné štandardy finančného vykazovania bánk v praxi. 1. ed. Bratislava : Ed. EKONÓMIA, Wolters Kluwer, s.r.o, 2017. 188 p. ISBN 978-80-8168-611-5

[19]   SLOVENSKÁ SPORITEĽŇA, a.s.: Informácie a finančné ukazovatele Slovenskej sporiteľne, a.s. [online]. [cit. 2020-04-20]. Available at: <https://www.slsp.sk/sk/informacie-o-banke/investori/financne-ukazovatele>

[20]   Tan, Y., Floros, C. 2013. Risk, capital and efficiency in Chinese banking. J. Int. Financial Markets, Institutions and Money, Vol. 26, pp. 378-393

Effective Average Tax Rate and their Determinants in the Context of Investment Decision-Making: Literature Review

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Abstract

Investment decision-making is considered to be one of the most important tasks of financial managers. There are several important factors that influence successful decision-making. So far, research has considered an effective tax rate as one of the main design elements determining the amount of tax paid, because it takes into account all the elements mentioned in the legislation. This important factor influences investors' tax planning and decision-making. The aim of this paper is based on a synthesis of theoretical knowledge and empirical research on the effective average tax rate, to present determinants that influence the composition of this tax rate and thus indirectly influence the decision-making of the company. The paper emphasizes the need to monitor effective taxation and its need for decision-making of investors.

Introduction

In terms of an economic efficiency any tax system should ideally be 'neutral' and should not affect economic decisions or decisions of companies. Reality shows that there are significant differences between countries in tax systems, whether individuals or companies, which affect the behaviour of these economic entities. Can a statutory tax rate, an economic aspect aggregating the tax burden, be considered as a sufficient factor affecting tax planning and decision-making of companies?

From a historical point of view, statutory tax rate ("STR") is considered to be a factor affecting companies' decision-making. From 1965 to the present, its dramatic decline and at the same time, a constantly expanding tax base has been observed. Determining a level of tax rates represents to seek a compromise between what is beneficial for a country in order to create an optimal tax competitive environment and maximise tax revenues to the state budget, and what companies prefer to minimise the paid taxes. Legislative tax measures, in the form of reduction in STRs, the possibility of accelerated depreciation or the granting of tax reliefs, can influence the decision-making of companies, for example on the location of their mobile capital [Hanlon and Heitzman, 2010]. However, it is essential for companies to look for new ways to measure their tax burden. Most researchers consider effective tax rate ("ETR") as one of the indicators modelling the amount of tax paid, as it takes into account all the information elements laid down in legislation [Baker and McKenzie, 1999; Devereux, Griffith and Klemm, 2004; Delgado, Fernandez-Rodriguez and Martinez-Arias, 2014].

The aim of the paper is to present a literary overview of theoretical and empirical foundations about effective average tax rate ("EATR"). The assumption is that the determinants of this tax rate indirectly influence the decision-making of companies. The paper is divided into the following sections: (1) to theoretically characterise the EATR in the context of corporate decision-making, (2) to present a literary overview of determinants of EATR, and (3) to compare the results of previous research.

1. Literature review of current state of knowledge

From theoretical point of view, ETR is an indicator that reflects the ratio of the current value of taxes paid and the net present value of the revenue flows, excluding the initial investment costs. This rate already takes into account all the elements that determine the calculation of the tax base. Its amount depends on the height and width of the border tax zones, the types of assets and the design of the tax base [Hanlon and Heitzman, 2010].

The beginnings of ETRs research date back to the 1960s, when the impact of ETRs on mobile capital and on the return on investment of the last and expected investment was monitored [Jorgenson, 1963]. Studies often focused on its comparison with STRs and its determination for individual asset types. This direction of development of this rate examination also affected the methodology for calculating the basic parameters needed to decide on the location of mobile capital and the scale of investments. King and Fullerton [1984] first introduced the methodology for calculating EATR. The EATR indicator was determined as the ratio of the actual rate of return before tax, required to reach a zero economic rent after tax (where the cost of capital is an initial investment), and the actual rate of return after tax for the shareholder. Subsequently, the methodology was extended by Devereux and Griffith [1998], who included into its calculation the impact of marginal tax rates on investors' capital gains, the location of the investment used take into account the economic conditions associated with the cost of the capital, the amount of accounting and tax depreciations, the rate of inflation, and the nominal interest rate. Currently, the level of this indicator is published by the Centre for European Economic Research [ZEW, 2018] for European countries classified according to the asset types and sources of their funding. These rates will take into account the most optimal and the most effective conditions for investors to decide. Effective average tax rate ("EATR") is average ETR by the different types of assets and the ways of financing.

The direction of empirical studies examining the impact of ETRs can be divided into two lines. The first group of studies focuses on the impact of the ETR in the context of the used tax policy in the country's economy [Devereux and Griffith, 2003; Devereux, Griffith and Klemm, 2004; Kubátová, 2011]. The second group of studies focuses on investors and companies and their economic decision-making in terms of tax competition, decision to place mobile capital, return on planned investments and depreciation policy [Gordon and Slemrod, 1998; Vegh and Vuletin, 2015]. There is a negative correlation between the evolution of tax rates and the amount of investments. Countries with almost zero ETR can attract the most foreign capital. Zodrow and Mieskowski [1986] report that optimum behaviour of small countries has a significant impact on minimizing resource returns, which represents a theoretical model of tax competition. On the other hand, bigger countries can maintain relatively high ETR due to asymmetric tax competition, high capital revenues, or sufficient tax relief [Mendoza, Razin and Tesar, 1994; Dyreng et al., 2014].

2. Research objective, methodology and methods

The analytical-synthetic part of this paper is based on the current theoretical overview and empirical research of EATR and their determinants in the context of decision-making of the company. The main research question was as follows: *What factors affect the effective average tax rate in the context of investors' decision-making?*

The aim of the literature review is to find and select such research that at least partially answers the question we have chosen. Search strategy in the databases Scopus and Web of Science was only focused on (I) disciplines in the field of Economics, Business Finance, and Political Science, (II.) Document types and Articles, and (III.) Studies in English, Slovak, or Czech. To identify eligible articles, we use the keywords "corporate tax rate", "effective average tax rate", "corporate taxation", "investment decisions" and "decision-making" in various combinations, included in the title, abstract or keyword in the article, with searches limited to full-text articles published from 2010 up to today. Subsequently, any duplicates were removed. Based on the search strategy 40 results were found. Under the conditions and chosen criteria, 10 studies were selected within which we focus on the opinions of authors on the determinants of the EATRs, whether they use the quantitative or qualitative methods and what results they achieved.

3. Literature research: Determinants of the EATRs

Tax efficiency and determinants of EATR may be related to the corporate environment and design of tax legislative regulations. *What factors affect the effective average tax rate in the context of investors' decisions?*

Corporate aspect is reflected in EATR, measured by quantitative methods, most commonly by using panel data econometric techniques, in the short and long term, comprised in the form of measurable indicators, like company's capital structure, its size and profitability. The specific variables that are observed in the relation to the research questions are e.g. determinants of investment (new investment, fixed asset ratio, lagged investment-to-capital ratio, investment on capital stock), auditor type (as control variable), foreign direct investment, depreciation policy or inventory intensity, and geographic complexity. In case of GMM models, there are determinants of investment or cash flow on total assets. In case of logit models, there are agglomeration distance and former colony, infrastructure, or common language. *Tax legislative regulations* is reflected in the EATR by adjusting the statutory or marginal tax rate, the amount of non-taxable and taxable revenues of the company.

Present empirical studies are most often complemented by *macroeconomic variables* such as economic growth of GDP, unemployment, inflation, openness, political stability, and labour market (market potential, labour cost, and labour education). A summary of the study results provide a step towards a better understanding of the interactions between EATR and the determinants that influence it from empirical research (Table 1).

Table 1. Overview of the current state of knowledge [Source: Own processing]

Authors	Period	Geographical Area/Scope	Empirical Strategy	Main Outcome
Armstrong, Blouin and Larcker [2012]	2002-2006	423 unique firms and 1,162 firm-year observations	panel data econometric techniques sensitivity analyses	GAAP ETR, cash ETR, CEO incentives, tax director incentives, return on assets, market capitalization, leverage, change in goodwill, new investment, foreign assets, geographic complexity, industry complexity, proportion tax fees, tax fees
Key findings: incentive compensation of the tax director exhibits a strong negative relationship with the GAAP effective tax rate, but little relationship with the other tax attributes				
Ilaboya, Obasi and Izevbekhai [2013]	2008-2014	87 firms on the Nigerian Stock Exchange	panel data econometric techniques	EATR, firm size, return on assets, leverage, ownership concentration, capital intensity
Key findings: positive relationship between profitability, firm size, moderating variable of ownership concentration and EATR, debt financing is more investment in non-current assets - companies can take advantage of the incentives, allowances to cut down on their tax liabilities				

Authors	Period	Geographical Area/Scope	Empirical Strategy	Main Outcome
Janíčková and Baranová [2013]	1998-2011	EU10, EU15	panel data econometric techniques	EATR on industrial buildings, on intangible assets, on financial assets, on R&D, on machinery, distributed profits, foreign direct investment, real GDP per capita, labour cost, openness, political stability
Key findings: indicators of EATR are not the best option for foreign direct investment explanation in the investigated model, the best indicator for evaluating dependencies between explanatory variables and foreign direct investment are the ETR and MTR from industrial buildings				
Federici and Parisi [2015]	1994-2006	880 firms accounts and firm survey data	GMM dynamic panel econometric techniques	EATR, firm size, investment to fixed asset ratio, lagged investment-to-capital ratio, short- and long-term debt-to-equity ratio, investment on capital stock, cash flow on total assets, sales on total assets
Key findings: long-term debt limits firms from exploiting new investment opportunities, level of debt and its maturity affect firms' investment policy, firm's market share is relevant and this implies higher investments, negative relation between leverage and investment, taxes distort firm-level investment, positive cash flow effect in the case of EATR reflects the presence of imperfections in credit markets that prevents firms from being able to undertake an efficient amount of investment, corporate taxes distort investment decisions, firm age is not significant for investment				
Šimková [2016]	1998-2014	SR	construction of EATR in SR conditions	EATR, depreciation of fixed assets, treatment of foreign source income, property taxes paid by firms, treatment of dividends, taxes on wealth, capital gains at the level of individual
Key findings: using this methodology is possible to predict a change in STR, as well as other factors, will affect the change in the EATR, development and changes by the different types of assets, the ways of financing, as well as forecasting its level based on the change in the STR				
Lawless et al. [2017]	2005-2012	3,238 newly established firms across 26 EU countries	logit model for multinational location choice sensitivity analysis	STR, EATR, location, market potential, GDP growth, labour education, relative labour cost, agglomeration distance, infrastructure, common language, share border, former colony, natural resources, relative population, relative GDP per capita
Key findings: negative effect of rate on the probability of choosing a location, positive effect of GDP on the probability of locating in a particular country, positive effect of market potential, negative effect of labour cost on the location decision, negative effect of taxation on the likelihood of a destination being chosen, sharing a common official language, common border or historical colonial links all pick up the extent of linkages between the foreign direct investment source and potential host countries and have a positive effects on the probability of being chosen as the preferred location by the multinational				
Graham et al. [2017]	2011-2012	500 firms in U.S. such as S corporations and other flow-through entities	probit model panel data econometric techniques	STR, EATR, jurisdiction-specific STR, jurisdiction-specific EATR, EMTR, mergers and acquisitions, capital intensity, investment decisions, weighted average cost of capital, new facility location, compensation
Key findings: firms using the ETR are likely to make better decisions when their ETR is close to their MTR, using the EATR for capital structure decisions leads to suboptimal leverage choices and using the EATR in investment decisions makes firms less responsive to investment opportunities, companies more focused on external reporting are significantly more likely to use the GAAP EATR as tax rate input				
Dias and Reis [2018]		1,530 firms in 5 countries of EU	panel data econometric techniques	ETR, nominal tax rate, firm size, capital structure, capital intensity, return on assets
Key findings: when the nominal tax rate increases, the effective rate increases equally but with a slower growth, positive relationship between the effective tax rate and the nominal rate, even if there was a coefficient inferior to one, which demonstrates that the companies have the ability to manage their results in order to be able to pay less tax				

Authors	Period	Geographical Area/Scope	Empirical Strategy	Main Outcome
Salaudeen and Eze [2018]	2010-2014	123 non-financial firms on the Nigerian Stock Exchange	fixed effect, random effect and pooled OLS models	EATR, firm size, return on assets, leverage, capital intensity, inventory intensity, labour intensity, auditor type
Key findings: positive relationship between firm size and ETR, positive relationship between labour intensive and ETR (employment costs are tax deductible and will negatively influence the tax burden of firms), large capital investment face lower tax burden because of the deductibility of capital allowance which also reduces the amount of taxable income, negative relationship between auditor type and corporate ETRs implies that hiring any of the Big 4 audit firms pays off as it lowers the corporate ETR a firm faces, positive relationship between high inventory and ETR suggests that firms with high inventory are faced high tax burden				
Aksoy Hazir [2019]	2007-2016	2,640 public listed firms from Turkey	panel data econometric techniques	EATR, natural logarithm of firm's total assets, ratio of total debt to total assets, capital intensity, inventory intensity, return on assets
Key findings: larger firms face higher income tax burdens, higher levels of debt lead to lower EATRs, capital intensive firms benefit more from other tax policies than deducting the depreciation expenses, between leverage and EATRs is insignificant character and the relation between EATRs and inventory intensity turns significantly positive				

4. Discussion

Nowadays there is a growing interest of economists in addressing the issue of effective corporate taxation. Resulting from empirical research several factors have an impact on EATR, including, in particular, *business* and *tax determinants*.

The nature of companies and their capital structure are among the determinants on which the previous researches are mostly based on. The capital structure shows the management of the financial resources available in companies in the form of debt financing or capital financing. In the studies leverage is observed in the form of a negative correlation relationship to EATR. Increase dependent on debt capital reduces tax liability [Ilaboya, Obasi and Izevbekhai, 2013; Salaudeen and Eze, 2018]. There are studies that talk about an unconvincing finding between leverage and tax planning [Mills, Erickson and Edward, 1998; Kim and Limpaphayom, 1998]. The indicator of capital intensity of the company represents the ratio of non-current assets to total assets of the company. An increase in capital intensity of company leads to a decrease in EATR [Derashid and Zhang, 2003; Hong and Smart, 2010; Hanlon and Heitzman, 2010; Ilaboya, Obasi and Izevbekhai, 2013; Graham *et al.,* 2017; Salaudeen and Eze, 2018; Dias and Reis, 2018; Aksoy Hazir, 2019]. Ribeiro, Cerqueira and Brandão [2015] claim that the decrease in EATR will be greater than the increase in capital intensity. This is due to the fact that capital structure and its complexity are considered a cheaper alternative and the remuneration paid to the investors is not a tax-deductible item. Capital structures are also affected by the depreciation method in the form of reduction in the tax base through accelerated depreciation or the possibility to postpone tax costs [Richardson and Lanis, 2007].

There are several studies that are devoted to the relationship between a size of a company and EATR. However, the relationship is not clear. The positive relationship is based on the assumption that bigger companies are making bigger profits, implying that they have a broader tax base and more investments [Minnick and Noga, 2010; Belz Hagen and Steffens, 2015; Dias and Reis, 2018; Aksoy Hazir, 2019]. The negative relationship is based on the assumption that bigger companies have better knowledge of managing their tax burden and better opportunities to receive tax incentives [Richardson and Lanis, 2007]. There are also studies that do not confirm the correlation between these variables [Gupta and Newberry, 1997]. The overall correlation between several variables has been described by Kraft [2014]. Author examines the determinants of effective tax burden of German firms and find out the changes in tax burden and its determinants following the 2008 Germany's corporate tax reform. The results confirm the political cost theory of firm size relationship with tax burden and high leverage

and capital intensity firms were found to enjoy lower amount of tax burden. EATR is affected by the profitability of companies [Tatu, Dragota and Vintila, 2011; Ilaboya, Obasi and Izevbekhai, 2013; Janickova and Baranova, 2013; Salaudeen and Eze, 2018; Aksoy Hazir, 2019]. If profitability is determined by profit before taxation, higher profit can be expected to result in higher tax paid. A positive relationship exists if there are such tax incentives prevailed in the country which affect the foreign direct investment of big companies in the form of tax exemptions and deductions [Armstrong, Blouin and Larcker, 2012; Lawless *et al*., 2017]. Some authors confirm a negative relationship between variables. More appropriate and professional use of tax planning affects the relationship between variables [Dunbar *et al*., 2010]. So far, the above mentioned determinants are influenced by the decision of investors or the management of companies.

STR level is determined by the *legislative impact of the applied tax policy* in country. In the case of multinational companies, countries reduce STRs to attract foreign companies and thus increase tax competiveness. A positive correlation between STR and EATR was observed for example by Dias and Reis [2018]. According to the authors, the EATR is on average lower than STR. If there are no significant differences between the two rates, the economy shows signs of a neutral tax system [Gupta and Newberry, 1997; Richardson and Lanis, 2007; Dias and Reis, 2018]. Part of the literature reports that the use of STR in EATR assessment is misleading [De Mooij and Ederveen, 2003].

In globalised economies, the motivation for shifting the mobile tax bases is becoming increasingly relevant. Aggressive tax competition between countries for foreign direct investments is supported by the pursuit of rising tax revenues, rising economic growth, falling unemployment rates and the development of international trade. However, such behaviour of countries may result in an increase in inflation. Increasing inflation reduces the value of tax revenues. Changes in tax legislation are linked to *other macroeconomic indicators*, too.

Conclusion

The main aim of this paper is to examine the literary overview of existing corporate indicators as well as tax and macroeconomics indicators that significantly influence the composition of EATR and thus indirectly influence the decision-making of companies. To gain the aim a selection of empirical studies from Scopus and Web of Science was observed, especially those that observe factors that are likely to influence EATR, either by using quantitative or qualitative methods. In the studies, several factors were considered to influence EATR, namely the capital structure of the company and its size, profit, determinants of investment, depreciation policy, ownership concentration, inventory intensity, geographic complexity, and economic growth of GDP, unemployment, inflation, openness, or political stability. Authors of the studies emphasize that this rate in the decision-making of investors leads to a more objective assessment of tax planning. The compiled literature review provides the basis for further research in the area of effective taxation.

References

[1]   Aksoy Hazir, C. 2019: Determinants of Effective Tax Rates in Turkey. J. Research in Business, Vol. 4, No. 1, pp. 35-45

[2]   Armstrong, C., Blouin, J.L., Larcker, D.F. 2012: The Incentives for Tax Planning. J. Accounting and Economics, Vol. 53, No. 1, pp. 391-411

[3]   Baker, G.B., McKenzie, N. 1999: Survey of the Effective Tax Burden in the European Union. Report commissioned by the Ministry of Finance in the Netherlands, Hague. 300 p.

[4]   Belz, T., Hagen, D., Steffens, C. 2015: Taxes and firm size: Political cost or political power?. J. Accounting Literature, Vol. 42(C), pp. 1-28

[5]   De Mooij, R.A., Ederveen, S. 2003: Taxation and Foreign Direct Investment: A Synthesis of Empirical Research. International Tax and Public Finance, Vol. 10, pp. 673-693

[6]   Delgado, F.J., Fernandez-Rodriguez, E., Martinez-Arias, A. 2014: Effective Tax Rates in Corporate Taxation: A Quantile Regression for the EU. Engineering Economics, Vol. 25, No. 5, pp. 487-496

[7]   Derashid, C., Zhang, H. 2003: Effective tax rates and the industrial policy hypothesis: evidence from Malaysia. J. Int. Account. Audit. Tax., Vol. 12, No. 1, pp. 45-62

[8]   Devereux, M.P., Griffith, R. 2003: The Impact of Corporate Taxation on the Location of Capital: A Review. Economic Analysis and Policy, Vol. 33, No .2, pp. 275-292

[9]   Devereux, M.P., Griffith, R. 1998: The Taxation of Discrete Investment Choices. Revision 2. Institute for Fiscal Studies, WP Series No. W98/16. 57 p.

[10]   Devereux, M.P., Griffith, R., Klemm, A. 2004: How Has the UK Corporation Tax Raised so Much Revenue?. Institute for Fiscal Studies, WP No. WP04/04. 27 p.

[11]   Dias, P.J.V.L., Reis, P.M.G. 2018: The relationship between the effective tax rate and the nominal tax rate. Contaduría y Administración, Vol. 63, No. 5, pp. 125-148

[12]   Dunbar, A., Higgins, D., Phillips, J.D., Plesko, G.A. 2010: What do measures of tax aggressiveness measure?. NTA tax proceedings from the 103 Annual Tax Con. on Taxation, November 18, 2010, Chicago

[13]   Dyreng, S., Hanlon, M., Maydew, E.L., Thornock, J.R. 2014: Changes in Corporate Effective Tax Rates Over the Past Twenty-Five Years. J. Financial Economics, Vol. 124, No. 3, pp. 441-463

[14]   Federici, D., Parisi, V. 2015: Do corporate taxes reduce investments? Evidence from Italian firm-level panel data. Cogent Economics & Finance, Vol. 3, No. 1, pp. 1012435

[15]   Gordon, R.H., Slemrod, J. 1998: Are "Real" Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Bases?. National Bureau of Economic Research. NBER WP No. 6576. 75 p.

[16]   Graham, J.R., Hanlon, M., Shevlin, T., Shroff, N. 2017: Tax Rates and Corporate Decision Making. The Review of Financial Studies, Vol. 30, No. 9, pp. 3128–3175

[17]   Gupta, S., Newberry, K. 1997: Determinants of the variability in corporate effective tax rates: Evidence from longitudinal data. J. Accounting and Public Policy, Vol. 16, No. 1, pp.1-34

[18]   Hanlon, M., Heitzman, S. 2010: A Review of Tax Research. J. Accounting & Economics, Vol. 50, No. 2-3, pp. 127-178

[19]   Hong, Q., Smart, M. 2010:.In praise of tax havens: International tax planning and foreign direct investment. European Economic Review, Vol. 54, No. 1, pp. 82-95

[20]   Ilaboya, O.J., Obasi, R., Izevbekhai, M.O. 2013: Firm level characteristics and effective tax rate. ICAN, J. accounting & finance, Vol. 2, No. 1, pp.47-63

[21]   Janíčková, L., Baranová, V. 2013: Vliv efektivních daňových sazeb a jejich komponent na přímé zahraniční investice – případ členských zemí EU. Politická ekonomie, Vol. 61, No. 2, pp. 209-228

[22]   Jorgenson, D.W. 1963: Capital theory and Investment Behavior. The American Economic Review, Vol. 53, No. 2, pp.247-259

[23]   Kim, K.A., Limpaphayom, P. 1998: Taxes and firm size in Pacific-Basin emerging economies. J. Int. Accounting, Auditing and Taxation, Vol. 7, No. 1, pp. 47-68

[24]   King, M.A., Fullerton, D. 1984: Introduction to the Taxation of Income from Capital: A Comparative Study of the United States, the United Kingdom, Sweden, and Germany. National Bureau of Economic Research. NBER WP No. 1058. 48 p.

[25]   Kraft, A. 2014: What really affects German firms' effective tax rate?. Int. J. Financial Research, Vol. 5, No. 3, pp. 1-19

[26]   Kubátová, K. 2011: Komparativní analýza specifických efektivních průměrných sazeb daní korporací v zemích EU v letech 1998-2007. Český finanční a účetní časopis, No. 4, pp. 79-91

[27] Lawless, M., McCoy, D., Morgenroth, E.L.W., Conor, M., O´Toole, C.M. 2018. Corporate tax and location choice for multinational firms. Applied Economics, Vol. 50, No. 26, pp.2920-2931

[28] Mendoza, E.G., Razin, A., Tesar, L.L. 1994: Effective Tax Rates in Macroeconomics: Cross-Country Estimates of Tax Rates on Factor Incomes and Consumption. J. Monetary Economics, Vol. 34, No. 3, pp. 297-323

[29] Mills, L.M., Erickson, M.M., Edward, M. 1998. Investment in tax planning. J. American Taxation Association, Vol. 20, pp. 1-20

[30] Minnick, K., Noga, T. 2010: Do Corporate Governance Characteristics Influence Tax Management?. J. Corporate Finance, Vol. 16, No. 5, pp. 703-718

[31] Ribeiro, A.I.M., Cerqueira, A., Brandão, E. 2015: The Determinants of Effective Tax Rates: Firms' Characteristics and Corporate Governance. FEP WP No. 567, pp. 1-54

[32] Richardson, G., Lanis, R. 2007: Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. J. Accounting and Public Policy, Vol. 26, No. 6, pp. 689-704

[33] Salaudeen, M.Y., Eze, U.C. 2018: Firm specific determinants of corporate effective tax rate of listed firms in Nigeria. J. Accounting and Taxation, Vol. 10, No. 2, pp. 19-28

[34] Šimková, N. 2016: Effective Average Tax Rate of Capital Applied to the Slovak Conditions. Politická ekonomie, Vol. 64, No. 1, pp. 51-64. DOI: 10.18267/j.polek.1054

[35] Tâtu, L., Dragota, V., Vintila, N. 2011: Economic computation and economic cybernetics studies and research. Academy of Economic Studies, March 2011. Available at: http://www.ecocyb.ase.ro/12011%20pdf/Tatu.pdf [Accessed 01 March 2020]

[36] Vegh, C.A., Vuletin, G. 2015. How is Tax Policy Conducted over the Business Cycle?. American Economic Journal-Economic Policy, Vol. 7, No. 3, pp. 327-370

[37] ZEW. 2018: Effective Tax Levels Using Devereux/Griffith Methodology. Project for the EU Commission. TAXUD/2013/CC/120. 3601p. Available at: https://ec.europa.eu/taxation_customs/sites/taxation/files/final_report_2017_effective_tax_levels_revised_en.pdf [Accessed 01 March 2020]

[38] Zodrow, G., Mieszkowski, P. 1986: Pigou, Tibout, Property Taxation and the Under-Provision of Local Public Goods. J. Urban Economics, Vol. 19, No. 3, pp. 356-370

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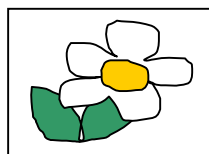
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[1] Author B.A.von, Writer J.K.L.: **Article name**. *Our J Transactions, 1999,* **127***, 122-136*
[2] Van Loon J.C.: *Selected methods of trace metals analysis*. J. Wiley, New York, 1991
[3] * **note:** *The citations and notes are numbered in the same fashion and may be mutually mixed. Also you can add all notes collected at the end of the citation list, continuing it's numbering.*