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ACCOUNTING AND FINANCIAL ASPECTS OF FACTORS INFLUENCE OF TAX COMPETITION ON THE TAX POLICY OF EUROPEAN COUNTRIES

In particular, the sharpening of tax competition in Europe in recent years, which is connected with EU enlargement, have prompted countries to reform their national tax systems in the direction of the tax burden decrease on labor and capital. After analyzing the functional relationship between factors of tax competition and the probability of rates of corporate taxes decrease, and calculating the significance of each of the selected factors ascertained that under the pressure of tax competition the country with higher level of taxation (in particular Ukraine) needs to implement the reform in the context of income taxation reducing by lowering corporate income tax rates. Also it was demonstrated that individual country is able to reduce the income tax rate under the pressure of neighboring countries with lower corporate taxation

Key words: tax policy, corporate income tax, tax competition

Topicality of the issue. Processes of globalization spreading have changed the relationship between the tax systems of countries on the international level. The development of international trade, the elimination of fiscal barriers, foreign investment has increased the impact of domestic tax policy on individual country economies of other countries. At the same time, globalization of world economy, the deepening of economic integration among European countries led to the emergence of such external event as tax competition. Tax competition causes the necessity of tax systems transformation in most European countries, to which Ukraine also belongs. In particular, the intensification of tax competition in recent years in Europe which is connected with EU enlargement has prompted countries to reform their national tax systems in the direction of lowering of the tax burden on mobile factors, namely labor and capital.

Analysis of recent foreign researches. Considerable contribution into the study of problem of tax competition were made by the following foreign scientists: J. Wilson, R. Davies, M.P. Devereux, B. Lockwood, M. Redoano, C. Fuest, V. Tanzi, J.M. Weiner, H.J. Ault.

But today the influence of factors of the tax competition on the reduction of corporate income tax in Ukraine is not sufficiently investigated.

Objective of the research – the identification of key factors of tax competition, which cause the reduction of rates of corporate taxes in European countries and Ukraine.

Basic material presentment of the research. Over the last decade in most European countries, rates of corporate income taxes were significantly reduced (Fig. 1).

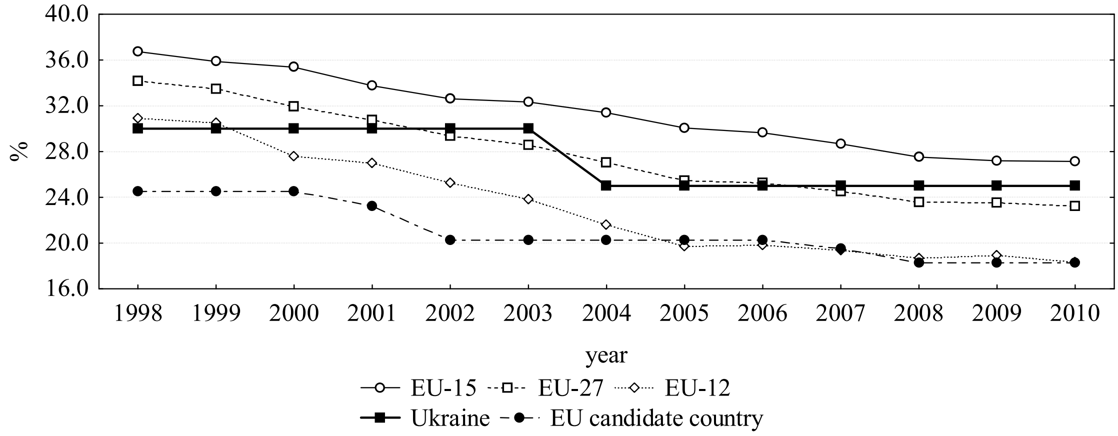

***Fig. 1**. Dynamics of the tax rates of income tax (corporate tax) in European countries during 1998-2010*

In the “old” EU member states, the average tax rate decreased from 36,7 % in 1998 to 27,3 % in 2010 and in comparison with other European countries are higher. In the “new” EU member states, the average rate of corporate income tax decreased from 25,3 % in 1998 to about 18,3 % in 2010, in whole the decrease rate in the EU was 8.7 %, and most likely, to continue in the near future. In addition, income tax rates were reduced also in candidate countries. Ukraine adheres to the European trends also. Thus, while from 1995 profits of enterprises were taxed at a rate of 30 %, from 2004 rate was reduced to 25 %. Since 2011 in connection with the Tax Code [12] rate was also reduced.

Income tax rates in most countries changed under the influence of the general state of national economies, the needs of public production development. Particularly rapidly, such influence was in the second half of the 80's of XX century when in many EU member states the reform of income taxation were implemented. The main purpose of these reforms was the liberalization of the tax regime, limit of government intervention in economic processes by reducing tax rates. In addition, reform of taxation in most European countries, to which Ukraine belongs is under the influence of international tax competition. The intensification of tax competition in late XX – early XXI century in Europe which is connected with EU enlargement has prompted most countries to reduce the tax burden on mobile factors, including capital.

Ukrainian scientist I. Ped said that tax competition is a rivalry with the use of instruments for tax mobile factors of production and mobile tax base caused by the interdependence of tax systems in the international mobility of factors of production and actions of noncooperative countries in establishing tax [10]. In the condition of the open economy and the emergence of interstate competition country's economic situation may change not only by certain actions of the national government, but also under the influence of measures governments of other countries. International tax competition as a phenomenon caused by noncooperative fiscal policy actions of national governments, changes the structure of the allocation of resources between countries, creating a tangible impact on their economic well-being. Therefore, determining the effects of tax competition, particularly from the standpoint of public welfare is an important aspect of understanding the essence of this phenomenon [11].

In recent years the consequences of tax competition for European countries discussed also by international organizations. OECD, IMF and EU institutions had a number of investigations [5, 6, 7], which is made according to a joint conclusion that one of the key strategic issues in the EU today – the issue of tax competition. It is shown that in most European countries there is a clear trend towards decrease of rates of corporate income taxes, because of the struggle for the mobile factor of capital and investment. Deputy Director of the IMF M. Portugal confirmed this trend and said, "there is no doubt that globalization can make a significant impact on the ability of European countries to keep their tax revenues... These problems appeared in connection with EU enlargement, with the belief that eliminate trade barriers between member states may have led to increased competition in the field of taxation." This opinion was supported by French President Sarkozy, who has repeatedly suppressed interest in "new" EU member states to reduce rates after the EU accession and the threat of them follows the common market [1].

The scientists who investigate tax competition focus their attention on the investigation of the factors that influence on the degree of tax rates reduction in European countries by the existence of tax competition between them. Results show that while openness leads to increased intensity of competition in the field of taxation, capital mobility, the size of countries and similarities between them have a mixed impact on the tax level [2, 3, 4].

The proposed model also aims to identify key factors of tax competition, which cause lower rates of corporate taxes in European countries and Ukraine. If this assertion be true, it will allow ground discrete solution for Ukraine to reduce the tax rate on profits as a result of distributing tax competition in Europe.

On the basis of available data we expected to prove the two main hypotheses: 1) a country with high rates of corporate income tax (more than average in the EU) are more likely to reduce rates than countries with low rates of this tax, 2) a country that bordering countries with low rates of income tax more likely to reduce rates than countries that are affected by high rates of neighboring countries. To check the hypothesis proposed by us above all the factors, which simulate the behavior of the country in corporate taxation under the pressure of other countries under the influence of tax competition (Table 1).

Table 1. *Factors of influence on the tendency of reducing of corporate income tax, which are stipulated by tax competition*

Factor	Indicators which characterize the impact of factor
1	2
Size of country	Population (*p*), pers.; area of the country (*a*), sq. km.
	GDP (*GDP*) billion. U.S.
Participation in regional associations	Score country's participation in the regional association (*cp*)
Mobility of capital	Foreign direct investment (*FDI*),% of GDP
Openness of the country	Exports of goods and services (*E*),% of GDP
	Imports of goods and services (*I*),% of GDP
Domestic tax policy on direct taxation of companies	Total tax burden (*TB*),%
	The share of corporate income tax in its tax burden (*SKIT*),%
	The rate of corporate income tax (*RKT*),%
	Taxable income (profit) (*P*),% of GDP
	The presence of offshore zones (*OZ*)
Tax policy in other countries in the field of direct taxation	Weight ratio of rates of corporate income taxes in other countries (*WKIT*)
Political factor	Value of elections in the country (*E*)
Other factors of socio-economic development	Capital investments (*CI*),% of GDP
	Deficit (surplus) of the consolidated budget (*D*),% of GDP
	Unemployment rate (*U*),%
	Inflation (*Iinf*),%

Considering the above given factors the system in general solution for any country to reduce the national rate for income tax under the conditions of tax competition is modeled as a discrete choice and solve the problem described in the econometrics models with qualitative dependent variables. In the binary model included the dependent variable Y, that takes two values (0 or 1) and the regressors X, which contain parameters that determine this choice. The purpose of this model is to maximize the quality of predictions by the different distribution of variable Y by calculating the nondescript functions that depend on the predictors that "connected" with Y via a connection [9].

Assuming that the propensity to lower the tax rate on profits of enterprises under the influence of various tax competition and country and period t (rit) is a function of the vector of endogenous and exogenous characteristics (Table 1) and the residual effect (boit), then the model will look like this:

$$g^*(r_{it}) = b_1 \cdot RKT_{i,t-1} + b_2 \cdot W_{KITi,t-1} + b_3 \cdot p_{i,t-1} + b_4 \cdot GDP_{i,t-1} + b_5 \cdot cp_{i,t-1} +$$

$$+ b_6 \cdot FDI_{i,t-1} + b_7 \cdot E_{i,t-1} + b_8 \cdot I_{i,t-1} + b_9 \cdot TB_{i,t-1} + b_{10} \cdot S_{KITi,t-1} + b_{11} \cdot P_{i,t-1} + b_{12} \cdot OZ_{i,t-1} + b_{13} \cdot E_{i,t-1} +$$

$$+ b_{14} \cdot CI_{i,t-1} + b_{15} \cdot D_{i,t-1} + b_{16} \cdot U_{i,t-1} + b_{17} \cdot I_{inf_{i,t-1}} + b_{0i,t-1}$$

b0, ..., *b17* – factors which should be evaluated.

From a formal point of view you want to find a model that gave rise to a discrete distribution, which depends on X, which could well describe the data. As for the binary distribution is variable depending binary, it is completely determined by the probability of receiving units (as a function of X), which coincides with the expectation if the variable takes the value 0 and 1. Geometrically task is to find the hyperplane that best shared by two groups of observations (corresponding 0 and 1) in the space of regressors. It may be that this plane is not the only, it is in an ideal distribution [8].

In this model would be used logit model. In general, density of the logistic distribution is $\frac{e^{Xb}}{(1+e^{z(X)})^2}$ and distribution function is $\frac{1}{1+e^{-z(X)}}$.

To simplify the statistical calculations and identify the general trend of influence of selected factors on tax competition dependent change (r) the proposed model is constructed by using logit model for 10 European countries, namely to Austria, Bulgaria, Cyprus, France, Hungary, Latvia, Poland, Slovakia , Croatia and Ukraine. The election for the modeling of these countries is subject to an expert study of empirical data. Input data cover the period 1998-2010 years. Valuation of adequacy of the developed model is carried out using STATA 9.1 and based on analysis of test characteristics and statistical hypothesis testing.

Results of assessments of logit models for Ukraine are presented in the Table 2.

Table 2 *The evaluation results of logit model of probabilities of income tax rates decrease for Ukraine*

Dependent variable: *r*				
Generalized linear model (GLM) – Logit Optimization method: NL – Newton-Rafson Variance function : V(u) = u*(1-u) [Bernoulli] Link function : g(u) = ln(u/(1-u)) [Logit]				
Variable	Coefficient	Standard error	*z*- statistic	*p*-probability
1	2	3	*4*	*5*
Constant (*b0*)	-21,85016	28,59633	-1,87665	0,23222

Table 2

1	2	3	4	5
RKT	-13,63948	0,21927	-0,37963	0,01377
WKIT	-6,24003	0,34305	-1,86033	0,12301
p	1,11259	1,05462	0,16743	0,35102
GDP	3,10323	0,77854	-0,80887	0,08039
cp	-0,00499	2,26788	-1,13862	0,31334
FDI	1,83068	0,05125	-0,75605	0,17482
E	-2,87008	1,98047	-0,74743	0,21178
I	3,59278	0,74005	0,74020	0,14523
TB	-1,92037	0,07206	-0,20618	0,13262
SKIT	-2,35633	0,27355	-0,24212	0,09993
P	2,07137	0,41606	-0,73755	0,09326
OZ	-0,00284	0,78847	-1,40684	0,58192
E	0,84012	1,54222	0,29711	0,38654
CI	5,71438	0,58072	-2,82888	0,24922
D	6,59282	0,16535	0,63821	0,42009
U	-1,40294	1,72656	-0,10105	0,19385
Iinf	2,36391	0,66166	-0,04340	0,61045

Mean dependent variable	0,07692		*SD*- dependent variable	0,56011
SE- regression	0,37321		Akaike Criterion	1,30239
The sum of squares of residues	3,41933		Schwarz Criterion	1,43323
LR- statistic (6)	27,15112		Hanan-Quinn Criterion	1,36055
p- value (LR statistic)	0,23104		Pseudo-R2	0,60112

So, using the generalized linear model we tried to estimate the probability of lowering of income tax rates in the European countries under the influence of factors of tax competition. The results indicate that under conditions of competition between countries for mobile factors of production countries with high taxes (to which Ukraine belongs) are trying to implement domestic tax reforms in the context of reducing the taxation of business profits through lower tax rates. It is proved that under the pressure of tax policy in neighboring countries with lower taxation of capital the countries can reduce the rate of corporate income tax.

Considering the development in Ukraine economy of open type, intensification of economic contacts between countries, the strategic aspirations of Ukraine in the future to join the European community, stipulate the necessity to take into account the effects of tax competition in the EU and their impact on domestic tax policy. We believe that one of the areas of tax reform of corporate income tax in Ukraine is a gradual decline in rates of income tax. The starting reference point in the realization of this goal should be the corporate tax rate in neighboring countries, particularly “new” EU member states (Fig.’2).

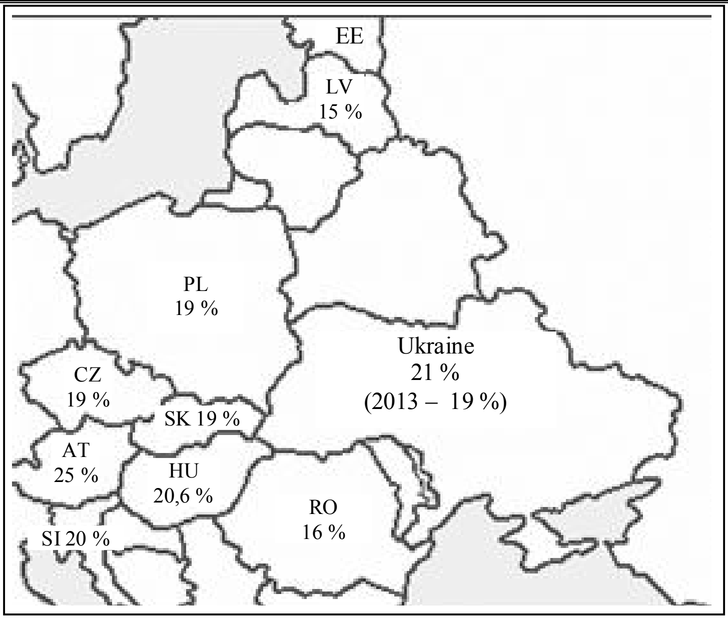

Fig. 2. *Income tax rates (corporate tax) in Eastern Europe, Baltic States and Ukraine in 2010*

Taking into consideration the average rate of corporate income taxes in neighboring countries, the basic rate of income tax in Ukraine should be lowered to 17 %. In addition, through the introduction of this tax rate differentiation (eg, lower rates 5 % to businesses that use energy-saving measures and energy efficiency projects) may influence the process of capital accumulation and to stimulate innovation activities of domestic enterprises. In the future it would be reasonable to try to equalize the basic rate income tax at the rate of tax on personal income. To our opinion, this would reduce the incentive to minimize and avoid paying taxes to stimulate enterprise development, simplify the tax system.

Conclusion. The model, proposed in the article, aims to identify key factors of tax competition, which cause lowering rates of corporate taxes in European countries and Ukraine. After analyzing the functional relationship between tax competition and the factors likely to reduce rates of corporate taxes, and calculating the significance of each of the selected factors and found that in terms of tax competition, countries with high taxation (particularly Ukraine) are likely able to implement the reform in the context of reducing level of income taxation by lowering income tax rates. It was also proved that a state is able to reduce the tax rate on profits under pressure from neighboring countries with lower corporate taxation.

The rates of neighboring countries, as well as the consequences of tax competition in the EU prove the necessity of reducing the basic rate of corporate income tax in Ukraine.

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