Oanea, Dumitru Cristian; Apostoaie, Marius Constantin

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ANALYSIS ON THE RELATIONSHIP BETWEEN THE PROFIT TAX AND INVESTMENTS IN THE CONTEXT OF A GLOBALISED WORLD. CASE STUDY – ROMANIA

Dumitru-Cristian Oanea
"Alexandru Ioan Cuza" University, Iasi
Marius Constantin Apostoaie[6]
"Alexandru Ioan Cuza" University, Iasi

Abstract: *Although it is a relative old concept, having ruts in the writings of the late '60s, globalization has become in current times a cliché, being used in many parts of the world and in many languages but not having a specific definition. Financial globalization is considered to be the core element of the process of globalization and consists in a complex integration of financial markets through exchange and financial flows.*

In this context, the economic agents are considered to be important players, given the fact that for their investments they appeal to financial recourses wherever they may be. However there investment behavior is greatly influenced by the state, through the fiscal policy, especially through a very important instrument at its disposal, the profit tax rate.

The aim of this paper is to emphasize the evolution of the relationship between the profit tax and investments, in the case of Romania from 1990 until 2008, trying to show particular developments of each of this two variables studied and the relations between them, the amplitude of influence exercised by them. The paper also focuses upon a better understanding of how the variables analyzed influence the real economy in this globalized environment.

Key words: globalization, economic policy, investment, profit tax rate, FDI
JEL Classification: C01, E22, F21, H32

1. Introduction

The performance of the economic activity in any country is directly dependent on the development capacity, on the profitability and return on economic activities of the enterprises, the basic economic links.

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The "survival" of an enterprise in a marked based economy depends very much on the decisions and strategies adopted by the management with the purpose of enhancing the profitability and long term return rate.

However, the enterprises don't act in a chaotic manner because they have to play by some defined rules where the "referee" is the state. The state is the one that can sometimes help, but it also can constrain the sphere of an economic entity using various instruments at its disposal.

Thereby, the public authority has at its disposal a range of different instruments like the intervention of the political regime (the form of government), monetary policy, fiscal policy etc. As the practice has shown the ***monetary*** and ***fiscal policy*** are two very important means through which the state can influence the economy. In particular, the fiscal policy through a very specific tool (the Profit Tax) can exert an important influence upon the investment process of an economic agent.

These two elements in particular: the profit tax and investments – the first one being at the disposal of the state and the second one at the hand of the economic agents – present a particular and special relationship of mutual determination in the way that the size and the importance of one of them has repercussions on the other one, and vice versa.

2. Financial literature regarding the concept of *investment*

A special place in the decisions of a company is occupied by the investments decision, which is considered the most important financial decision. The importance of those decisions is evidenced by the direct influence they have on the degree of liquidity of the company, because investment decisions influence the way how available cash resources are allocated efficiently by a company to replace old equipment, technical modernization and improvement etc. to perform the better manner of functioning of the company to ensure the highest optimum parameters. The decision to invest, is an important decision, with which company is facing throughout the period of its existence, usually this kind of decision is irreversible (Gudji, 2001, p.273).

Seen through the prism of its complexity, the notion of investment has been defined in the literature in several ways, namely:

- ***Financial*** **–** investment is seen as an immediate payment in view of future earnings or capital immobilization, order to achieve a capital gain over several periods (Brezeanu, 2009, p.36);
- ***Accountant*** **–** represents the amounts allocated for investment of fixed assets such as land, buildings, industrial machinery, patents, licenses, equity and others, including all three categories of property: intangible, tangible and financial;

- ***Legal*** **–** the investments are reprezented of any acquisitions or investments cover the elements that constitute the subject of a property as a heritage elements: rural and urban households, productive equipment, vehicles, securities, money (Onofrei, 2003, p. 194);
- ***Monetary*** **–** investments are regarded as "all expenses incurred to obtain monetary income in the future" (Teodorescu and Vasile, 2005, p.208). Under this approach, all expenditure incurred within a business are included in investment, without taking account of their object, in this case the concept of investment is overlap over the notion of cost.
- ***Psychological*** **–** focuses on the ability of an individual or company to give up at money or goods in exchange for future assets, which will reward time period in which the person has gave up his resources , expected inflation and the risk (uncertainty of achieving future earnings).

By linking all meanings attributed to the concept of investment, we can define its scope, as *all action of long-term immobilization of all current resources: money, material and human resources in order to obtain in the future higher incomes than those which could be obtained today*.

3. Investment in Romania after the '90

In post-revolutionary Romania, where private property rights revert to its natural, people have been concerned with the development of activities generating tangible or intangible benefits. This has led to strong growth in the number of private economic entities, which have always been interested in increasing the profitability of their activities, goal they wanted to achieve by investing.

This trend of commercial activities development, which was undertaken in Romania, can be seen from the value and volume increase of investments from 1990 to 2008, how we can see from the following table:

Table 1 Evolution of net investment (million current prices), on structural elements during 1990 to 2008 in Romania

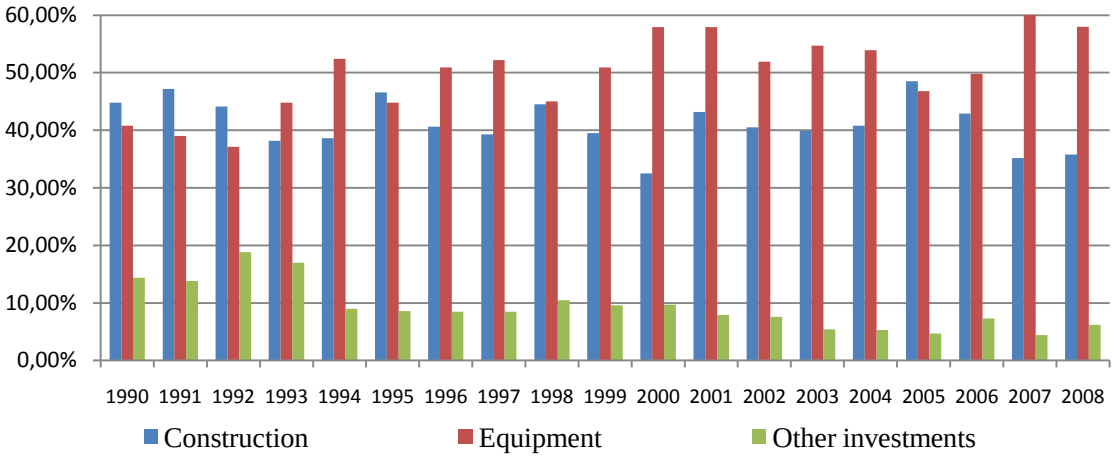
Year	Net investment -total-	Structural elements		
		Construction	Equipment	Other investments
1990	16,8 (100%)	7,5 (44,8%)	6,9 (40,8%)	2,4 (14,4%)
1991	31,4 (100%)	14,8 (47,2%)	12,2 (39,0%)	4,4 (13,8%)
1992	88,9 (100%)	39,2 (44,1%)	32,9 (37,1%)	16,8 (18,8%)
1993	282,2 (100%)	107,7 (38,2%)	126,4 (44,8%)	48,1 (17,0%)

1994	800,5 (100%)	308,7 (38,6%)	419,9 (52,4%)	71,9 (9,0%)
1995	1 299,6 (100%)	605,5 (46,6%)	581,8 (44,8%)	112,3 (8,6%)
1996	2 094,5 (100%)	850,7 (40,6%)	1065,8 (50,9)	178,0 (8,5%)
1997	4 413,5 (100%)	1 735,3 (39,3%)	2 304,2 (52,2)	374,0 (8,5%)
1998	6 051,5 (100%)	2 695,9 (44,5%)	2 722,9 (45,0%)	632,7 (10,5%)
1999	8 394,8 (100%)	3 313,3 (39,5%)	4 274,1 (50,9%)	807,4 (9,6%)
2000	12 498,7 (100%)	4 047,1 (50,9%)	7 237,2 (57,9%)	1 214,4 (9,7%)
2001	20 419,5 (100%)	6 979,6 (43,2%)	11 828,3 (57,9%)	1 611,6 (7,9%)
2002	27 173,5 (100%)	11 005,3 (40,5%)	14 092,6 (51,9%)	2 075,6 (7,6%)
2003	35 651,2 (100%)	14 220,0 (39,9%)	19 513,3 (54,7%)	1 881,9 (5,4%)
2004	44 869,9 (100%)	18 314,1 (40,8%)	24 176,0 (53,9%)	2 379,8 (5,3%)
2005	54 566,0 (100%)	26 482,3 (48,5%)	25 555,9 (46,8%)	2 527,8 (4,7%)
2006	73 891,0 (100%)	31 239,5 (42,9%)	36 287,6 (49,8%)	6 363,9 (7,3%)
2007	98 417,7 (100%)	34 666,2 (35,2%)	59 446,0 (60,4%)	4 305,5 (4,4%)
2008	123 022,1 (100%)	44 026,1 (35,8%)	71 335,2 (58,0%)	7 660,8 (6,2%)

Source: processed data accesed on 15.10.2010 at http://www.insse.ro/cms/files/pdf/ro/cap12.pdf and http://www.insse.ro/cms/ files/arhiva_buletine2009/bsl_12.pdf

What is noteworthy is that in the early '90s, the biggest share of the investment was owned by construction, while the share of investments in various technological equipment, although not a very big difference, have a lower value. This would later change, because since 1993 the share of investment in construction and the share of investment in equipment has been reversed, as in Romania of that time showed a continuous increase in the share of investment in equipment, namely the productive capital, while the investment in construction was dropping, but there are two exceptions represented by the years 1995 and 2005, when the construction component had a high value than technological equipment.

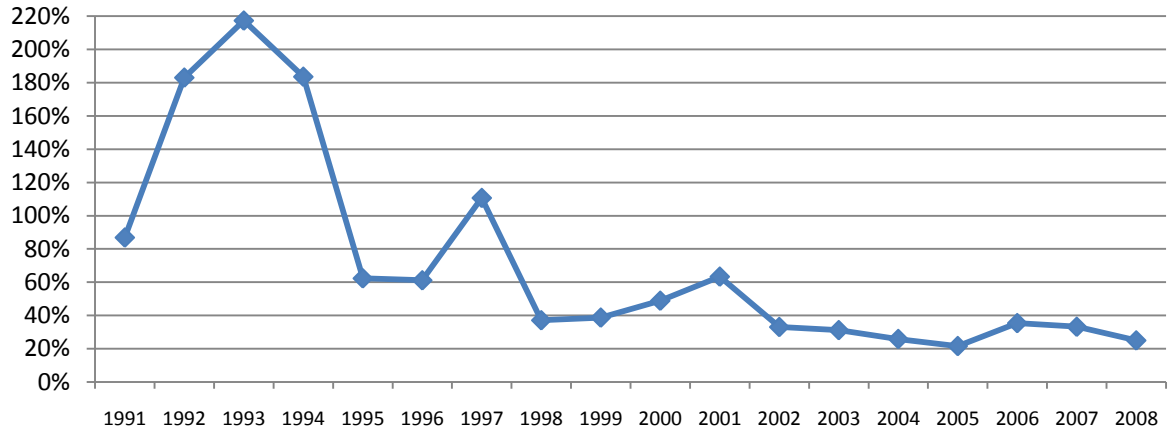
Graphic 1 An evolution of the share of investment components



Source: processed data from Table 1

Another important aspect that emerges from analysis of data from Table 1 is related to the dynamic performance of investments made in Romania. This element is highlighted in the following graphic:

Graphic 2 Evolution of the investment value from 1990 to 2008, from year to year



Source: processed data from Table 1

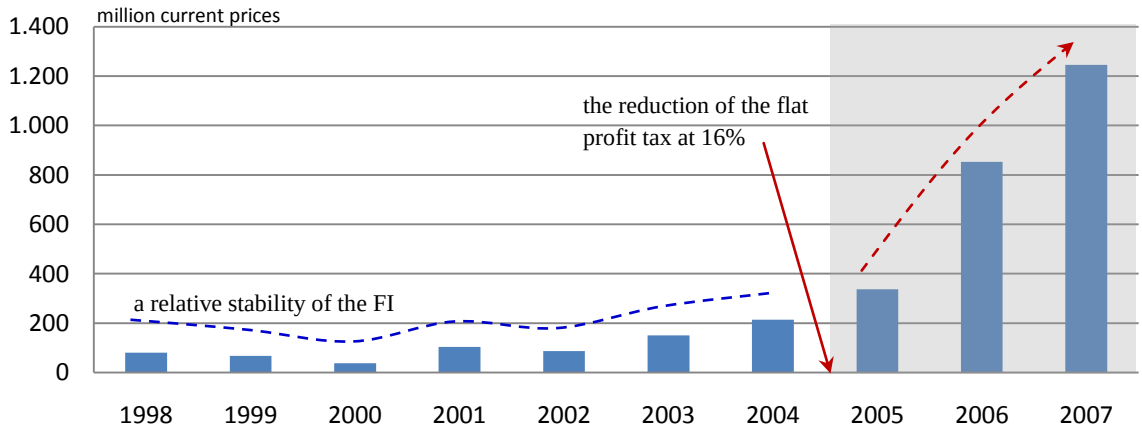
It can be seen, that investments have developed very quickly, especially in the period 1990 - 1994, a stage in which the investments made in Romania have increased from one year to another in the following way: the value of investments in 1991 were 80% higher than in 1990, while the next three years were characterized by an approximate tripling of the value of investments from one year to another. However, this growth seems to be considered taking into account the dramatic economic situation it was in Romania in the early 90s, a period characterized by an acute inflation which reached an average of over 256 percent in the period 1990 to 1994, according to the Report Inflation

issued by National Bank of Romania in the first half of 2001. Therefore, this massive increase in the amount of investment in Romania in the early years of the last decade, not due to an increase in real value but rather an artificial increase due to rampant inflation that characterized Romania from that time.

Concerning the last time, from 2000 until 2008, the value of investments increased from one year to another with an average of about 30%. This growth was sustained by the steady economic environment, characterized by an inflation rate reduced by an amount which has not exceeded 20 percent since early 2002.

Another element that should not be overlooked in the analysis of investment development in Romania is represented by the sources from which those investments were made, with emphasis on the evolution of foreign capital sources.

Graphic 3 Evolution of foreign investments value in Romania between 1998 and 2007



Source: processed data accesed on 15.10.2010 at http://www.insse.ro/cms/files/pdf/ro/cap12.pdf

As can be seen in the previous graphic, investments that have foreign capital as a source of funding, have increased since 2005, a trend which can be partially explained by the profit tax system, because from January 1, 2005 the current flat profit tax was reduced at 16% by the Government Emergency Ordinance no. 138/2004, amending the Tax Code, a development that was also anticipated in the economic literature (Martin, 2006, p.144).

4. Changes of the profit tax rate and their implications

The revolution from 1989 brought major changes at all levels of political, economical and social from Romania. This shift from a socialist state in which the central element was represented

by state property, to a democratic state, based on market economy, which gives people freedom to initiate profitable business, required significant changes in the Romanian legislation concerning the tax system.

The fact that, until 1990 was only one owner – the state, determined "subjective and automatically transfer of the benefits to the state budget" (Corduneanu, 1998, p.549), but once with the transition to a democratic society by redefining property rights and the establishment of economic agents who had private or mixed capital (public and private), the state had to create a legislative framework to govern the enterprises obligations on their profit.

No. 12/1991 Profit Tax Law, is one that opens the long and hard road of rules relating to taxable profit, these rules were constantly evolving in light of the real businesses life. All laws, ordinances and resolutions that have followed, tried to explain and to fill gaps in previous legislation or were made in order to facilitate the private sector in economic development and meet the requirements for Romania's accession to the European Union.

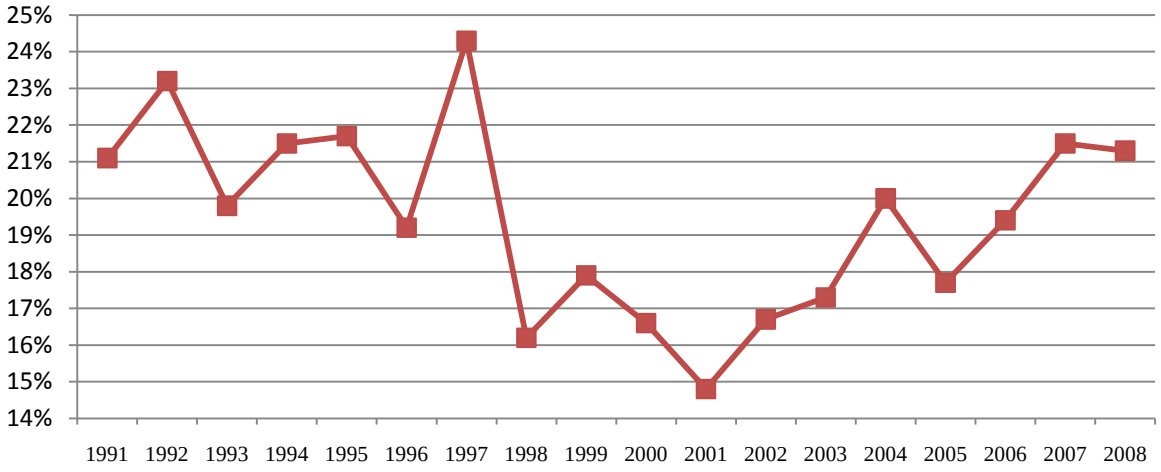
Initially, in 1991, Law no. 12 established progressive tax rates which ranged between 0% and 77%, who was applied only to fiscal year 1991, because at the end of the year, the Government Decision no. 804 imposed the use of progressive tax rates from 1st January 1992. But neither the adoption of this quota system has failed to achieve a legislative stability, because in 1994 a further amendment was decided by the Government Ordinance no. 70, which established transition to the flat tax system, at that time was of 38%.

Although, until present, the tax legislation remained constant, but about the tax system and profit tax rate we can't say the same thing. The flat tax level has varied in the sense of diminishing, leading now to a share 16%, effective from 1 January 2005.

Profit tax is one of the major revenue of the state budget, which has a relatively high share in total budgetary revenues.

By analyzing data obtained from the site of the National Institute of Statistics, we can observe the variation of participation the profit tax at forming the fiscal revenues from stat budget, so between 1991-1997 the participation in the state budget is an average rate of 21.5%, ranging from a minimum rate of 19.2%, in 1996, to a maximum rate of 24.3% recorded in 1997. In 1998 is recorded a fall in share of revenues from profit tax owned in the state budget revenues by 8 percentage points, which is shown in the graphic below.

Graphic 4 The evolution, in percentage points, of the profit tax in forming the budget revenues in Romania between 1991 and 2008



Source: processed data accesed on 15.10.2010 at http://www.insse.ro/cms/files/pdf/ro/cap21.pdf

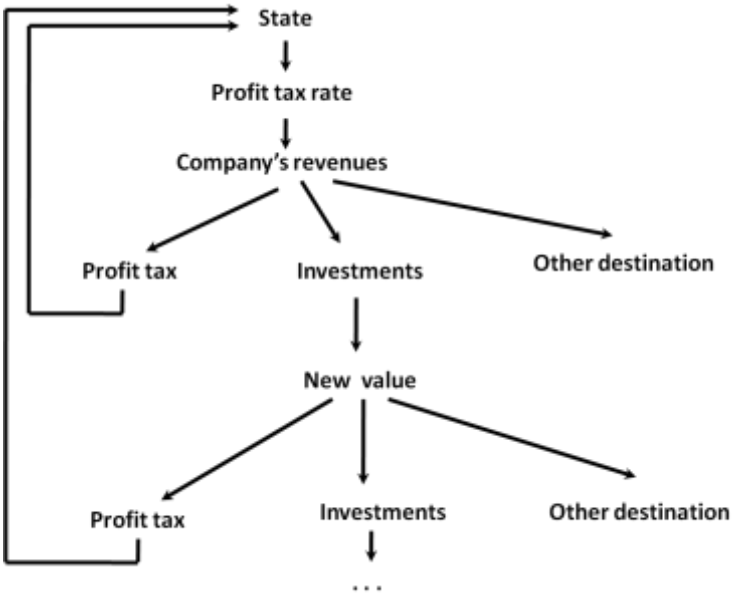
Since 1998, the share of revenues from profit tax in budget state revenues is relatively low, maintaining a downward trend between 1999 to 2001, when the share of profit tax reaches the minimum value recorded so far in post-revolutionary Romania namely 14.8% of total revenues. Thereafter, the rate of participation in forming the profit tax revenues has an upward trend, reaching 20% in 2004, and in the following year, 2005, to a further decrease, reaching 17.7 %.

Share declining of revenues from profit tax in budget state revenues in 2005, can be partially explained by approving the flat income tax of 16%, event which caused on short-term this decline, but had a long-term effect positive, whereas stimulated reinvestment of profits obtained by economic entities, increasing the productive activities, which in subsequent years was reflected in an increase in revenues generated by the economic agents and finally the taxable profit, resulting in an upward trend of revenues from profit tax in budget state revenues.

5. Statistical analysis of the correlation between investments and profit tax in Romania

The two variables, investments and profit tax, whose evolution has been previously analyzed, are not independent, because each exercise some influence over the other one.

Figure 1 The correlation between investments and profit tax

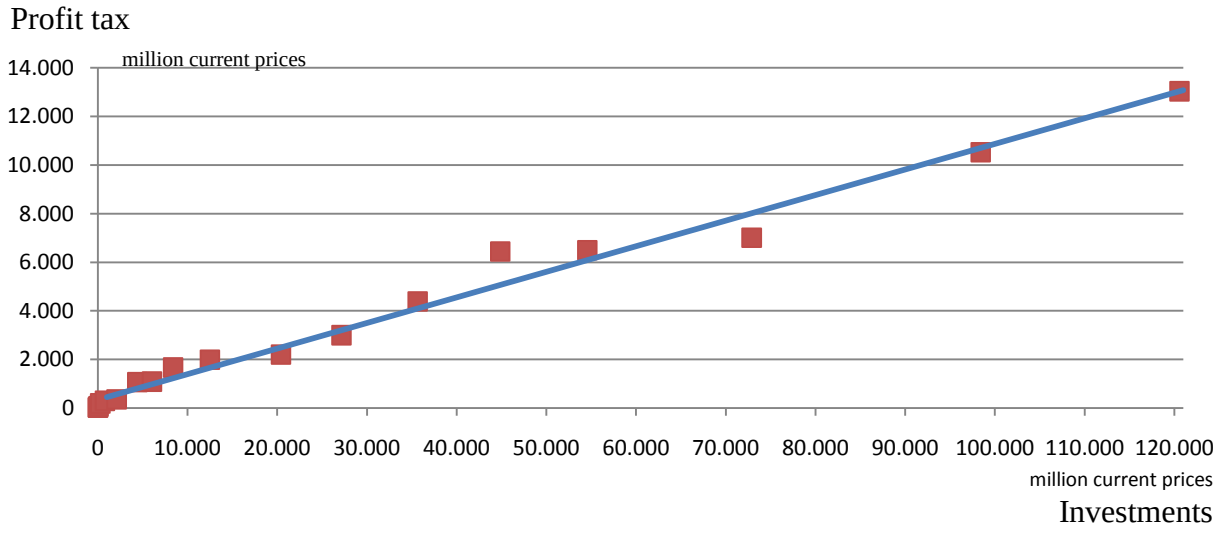


The state is one who, in different stages of economic development, acting through legislative acts issued in fiscal perspective it would follow, on this case the main instrument of action is represented by the profit tax rate, which directly affects the volume size of profit tax and the remaining amount to the company which can be used for different purposes, most important being represented by the investment.

The profit tax size influences the size of investment, investment which in turn leads to the creation of new value, which again is divided in several destinations, the two most important being represented by investments and profit tax. As a result, it is clear the multiplier effect of investments, which is closely related to the correlation with profit tax.

In trying to determine the correlation between investment and profit tax in Romania, I used as a sample, the value of investments and profit tax (million current prices) between 1995 and 2008, a period which includes a number of 14 years. In selecting this sample we left from premise of the existence in time of invariant features for the two variables, so we have chosen 1995 as base year because starting 1st January 1995 was introduced in Romania the rate proportional tax system, a system that remained until now, although the tax rate has varied over time and reduced the value of 38% to 16% (from 1 January 2005).

Graphic 5 The relationship between investments and the profit tax in Romania between 1995 and 2008



Source: processed data from Table 1 and data accesed on 15.10.2010 at http://www.insse.ro/cms/files/pdf/ro/cap21.pdf

As it can be seen in the previous graphic, between profit tax and investment made in Romania during 1995 - 2008, there is a relationship of proportionality between changes in profit tax and changes in investment.

Based on the stated sample, the relationship between variables can be estimated by simple linear regression model equation of the form Y = a + bX, where Y will be variable profit tax, which I will note **Pt,** X will be variable *Investment*, noted by **I**, *a* and *b* are the values of model parameters of the regression estimators.

The two model parameters, *a* and *b*, are determined based on the following relationships, given the statistical literature (Jaba, 2002, pp.381-382), namely:

(1) $$a = \frac{\sum_{i=1}^{n} y_i \cdot \sum_{i=1}^{n} x_i^2 - \sum_{i=1}^{n} x_i \cdot \sum_{i=1}^{n} x_i y_i}{n \cdot \sum_{i=1}^{n} x_i^2 - \left(\sum_{i=1}^{n} x_i\right)^2}$$

(2) $$b = \frac{n \cdot \sum_{i=1}^{n} x_i y_i - \sum_{i=1}^{n} x_i \cdot \sum_{i=1}^{n} y_i}{n \cdot \sum_{i=1}^{n} x_i^2 - \left(\sum_{i=1}^{n} x_i\right)^2}$$

where: n - sample size (14 years);

x_i - the value of investments for the year *i*;

y_i - Amount of income tax for the year *i*.

Using the program EViews program we calculated the estimated equation, which is synthesized in the following table:

Tabel 2. Regression model results

Dependent Variable: PROFIT_TAX
Method: Least Squares
Date: 10/27/10 Time: 21:55
Sample: 1995 2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
C	507.9921	205.4861	2.472148	0.0294
INVESTMENTS	0.103055	0.003984	25.86604	0.0000

R-squared	0.982380	Mean dependent var	4253.450
Adjusted R-squared	0.980912	S.D. dependent var	3948.503
S.E. of regression	545.5241	Akaike info criterion	15.57293
Sum squared resid	3571159.	Schwarz criterion	15.66423
Log likelihood	-107.0105	F-statistic	669.0522
Durbin-Watson stat	1.649182	Prob(F-statistic)	0.000000

Note: *Prob. Value<0,05 indicates a statistically significant coefficient for the level of 95% confidence

From this table we can express the regression equation as:

(3) $$\boldsymbol{Pt} = 507{,}9921 + 0{,}103 \cdot \boldsymbol{I}$$

Equation (3) is plotted in Graphic 5 by the blue line, indicating that the evolution of the relationship between income and investments in Romania during 1995-2008 does not fluctuate very much from this landmark.

Along with defining the regression line, which showing the link between profit tax and investments, it should be measured and the intensity of this relationship, highlighting the degree of concentration or dispersion of the values on which profit tax has had in reality around the regression line, which consists of theoretical values.

Intensity relationship can be measured using the correlation coefficient (Jaba, 2002, pp.390-391), which may take a value between -1 and +1, if the correlation coefficient has a value closer to -1 or +1, the relationship between those two variables is closer, while its value is more close to 0, this indicates the absence of a link between the two variables.

The correlation coefficient value is determined using the following formula:

$$\rho(X,Y) = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{n \cdot \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1} \cdot \frac{\sum_{i=1}^{n}(y_i - \bar{y})^2}{n-1}} \quad (4)$$

According to calculations made in EViews we obtained correlation coefficient value of 0.991151, between investments and profit tax, which shows that the two variables are directly linked very closely.

Tabel 3. Correlation matrix

Variable	Profit_tax	Investments
Profit_tax	1,000000	0,991151
Investments	0,991151	1,000000

Besides the foregoing, we can ask a question, namely: "In what proportion are influenced profit tax by investments?", To this questions, we can respond by estimating the ratio determination, which expresses the factor X influence the changes in variable Y and is calculated in case of a linear regression, as is the case at hand, the following formula:

$$\eta^2 = \frac{a \cdot \sum_{i=1}^{n} y_i + b \cdot \sum_{i=1}^{n} x_i y_i - \frac{1}{n} \cdot (\sum_{i=1}^{n} y_i)^2}{\sum_{i=1}^{n} y_i^2 - \frac{1}{n} \cdot (\sum_{i=1}^{n} y_i)^2} \quad (5)$$

Following the calculations for the regression model of investments and profit tax, we obtained a value η^2 = 0.98238, which shows that 98.238% of profit tax variation can be explained by of investments value made in Romania during 1995-2008.

6. Conclusions

Investments and profit tax are two macroeconomic variables that influence in a strongly way a country's economic life, how happened in Romania in the last 15 years. But these two variables do

not act in a haphazard and independent way, because the influence of one variable is conditionated by the other one, thing which was highlighted in this paper.

Following what we said above, we can see that after the transition to a market economy, the occurrence of private economic entities, there was a continued increase in investment in Romania, since 1990 until now.

An item that is noted in the study of the investments evolution in Romania is the accelerated development of foreign capital investments since 2005, when we can see that the value of foreign investments was 4 times higher in two years. This development can partly be explained in conjunction with the tax system, since the entry into force on 1 January 2005 a flat profit tax reduced at 16%. This has determinate increasing the value of foreign investments and the fact that foreign investors were attracted by the reduced rate of profit tax, which allowed them to obtain a high profit. At the same time it should be noted that foreign investments could be greater if the public authority would issued the laws that would ensure greater stability of the tax system.

The amount of profit tax collected at the state budget took an upward trend, each year recorded a higher value than that obtained in the previous year, although the proportion with increased amount of profit tax varied widely in last 15 years . Noteworthy is the maximum amount of growth, namely 24.3% in 1997 compared to 1996, the minimum value recorded in 2001, namely an increase in profit tax of only 14.8% compared with 2000.

The statistical analysis carried out previously shows us that the two variables analyzed are interconditioned and the values recorded in Romania from 1995 to 2008, forming a simple linear regression of the form $\boldsymbol{Pt} = 507{,}9921 + 0{,}103 \cdot \boldsymbol{I}$

Based on statistical calculations performed to determine the regression model of investment and profit tax, we obtained that the two variables are directly linked very closely, indicating that a change in a certain sense of the investments size will determine changes of profit tax in the same direction.

The close relationship between profit tax and investments, it's shown by determination's ratio calculation, whereby 98,238% of profit tax changes can be explained due to the influence of size of investments.

References

Anghel, I. E. (2002), *Investiţiile străine directe in România,* Expert Publishing House, Bucureşti.

Brezeanu, P. (2009), *Finanţe Corporative vol II*, C.H. Beck Publishing House, Bucureşti.

Corduneanu, C. (1998), *Sistemul fiscal şi ştiinţa finanţelor*, Codecs Publishing House, Bucuresti.

Dragotă, V., *et al.* (2003), *Management financiar*, Vol I and II, Editura Economică, Bucureşti.

Gghiţă, R. (2006), *Globalizarea firmei*, Editura Economică, Bucureşti.

Goran, C. (2003), *Investitiile străine de portofoliu în lumea a treia*, Tribuna economică, vol. 14, n. 22, p. 68-70, may 2003

Guedji, N. (2001), *Finance d'entreprise – Les règles du jeu, douxième édition*, Éditions d'Organisation, Paris.

Jaba, E., Jemna D. (2006), *Econometrie*, SedcomLibris Publishing House, Iaşi.

Jaba, E. (2002), *Statistică ediţia a 3-a*, Editura Economică, Bucureşti.

Onofrei, M. (2003), *Finanţele întreprinderii vol I*, Editura Universităţii ,,Al. I. Cuza", Iaşi.

Stephen, D.C. (2007), *Multinational corporations and foreign direct investment*, Oxford University Press, US.

Teodorescu, M., V. I. (2005), *Finanţele întreprinderii,* Meteor Press Publishing House, Bucureşti.

Theodore, H.M. (2002), *Beyond Sweatshops: Foreign Direct Investment and Globalization in Developing Countries*, Brookings Institution Press.

*** BNR – Inflation reports for the 2001 – 2009, accesed on 15.10.2010 at www.bnro.ro/Publication Documents.aspx?icid=3922

*** INSSE – Romanian Statistical Yearbook 21, accesed on 15.10.2010 at http://www.insse.ro/cms/files/pdf/ro/cap21.pdf