CORRELATION BETWEEN ROMANIA'S PUBLIC DEBT AND SOME MACROECONOMIC VARIABLES

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ABSTRACT

Public debt represents all internal and external financial obligations of the state, at a time, from the loans contracted directly or guaranteed by the Government through the Ministry of Finance, or local authorities from various lenders, natural or legal persons resident or non- in Romania.

Having regard of the fast pace of growth of public revenues by the growth of social needs it is absolutely necessary the effective use of public money and identify new resources to be allocated efficiently and promptly to the continually growing of social needs. The need for internal or external public loans, ,is a reality and it is seen in more and more countries and the political due at the central level is to use these loans especially for productive capital growth, of which income should be returned both the loans and the interest rates.

1.1. Theoretical foundations of public debt

A key feature of current public budgets in many countries is the preparation and conclusion of their deficits. Budget deficit determines the existence of state borrowing to cover it, and is a consequence of their debt.

Another factor that may increase the public debt is the economic downturn and budget deficit. In case of balancing the budget focused on deficit, completing public revenues is through deficit financing resources of the loan, or credit towards the public, based on confidence in the solvency state and contracting is done either by direct state loans from individuals or legal entities holding funds availability, or through specialized institutions that collect money in the market availability, and then assigning them to a state period.

Unlike developed countries, public debt burden in developing countries is higher due to significant financial resources to call external, internal market there are no significant resources. These countries have achieved, while a large-scale foreign debt due to several factors: the need to remove the gaps with the developed countries, energy crisis, especially the use of foreign loans to cover the budget deficit rather than actual economic growth, triggering fundamental transformation of political, social and economic hinterland in order to transition to a competitive market economy, while achieving significant changes in international economic and financial relations.

Public debt represents all internal and external financial obligations of the state, at a time, from the loans contracted directly or guaranteed by the Government through the Ministry of Finance, or local authorities from various lenders, natural or legal persons resident or non- in Romania.

Obligations are commitments arising from borrowing, namely: loan repayment, interest payments, commissions, special advantages granted to creditors. Obligations of state from state loans and guarantees for a period of one year are limited public debt ceiling set annually by law.

Public debt ceiling is all the financial obligations that can contract and ensure that central government and local authorities for a period of one year, which is set annually by law. This includes internal public debt ceiling and the ceiling of external public debt.

With regard to debt contracting, the Government is authorized to borrow only internal and external state through the Ministry of Finance, for the following purposes, priority for Romanian economy:

a) financing the state budget deficit, finance temporary shortfalls in previous years the state social security budget, to allocate money for this purpose, temporary deficit financing of the state budget, state social insurance budget and budget for year Treasury current government debt refinancing on terms acceptable to the Ministry of Finance;

b) maintaining a balance always appropriate State Treasury General Current Account, established by the Ministry of Finance;

c) the financing of projects or other needs approved by Government decision;

d) support the balance of payments and foreign exchange reserves;

e) other circumstances stipulated by law.

Public debt is established and managed separately on the two forms of it: Government public debt and Local public debt.

Government debt reflects a "part of the debt, which represents all internal and external financial obligations of the state, at a time, from the loans contracted directly or guaranteed by the Government through the Ministry of Finance, on behalf of Romania, the financial markets".

Local government debt is part of the debt, which means that all internal and external financial obligations of local authorities at a time, from direct loans or guaranteed by financial markets.

Regarding the evolution of public debt in the period 2000 - 31 August 2011, one can observe a growing trend, which inevitably entails increasing interest, and total public expenditure.

Table 1

The evolution of Romanian public debt

(millions lei)

Year	Public Debt	Government public debt	Local public debt
2000	25288,8	25285,5	3,3
2001	33817,8	33776,4	41,4
2002	43867,4	43793,8	76,6
2003	51363,2	51136,6	226,6
2004	55819,7	55147,3	672,4
2005	59010,9	56381,8	2629,1
2006	63340,8	59868,5	3472,3
2007	82324,3	76149,6	6174,7
2008	109795,1	100556,4	9238,7
2009	147329	136493,8	10835,2
2010	194459,2	182510,3	11948,9
31 august 2011	207572,2	195975,1	11597,1

Starting with 2007 public debt had an fulminant growth rate reaching 207,572.2 millions lei in August this year.

1.2. The ratio of domestic government debt and foreign government debt

Whether local government debt, government debt, floating, consolidated gross or net debt, in each case we find two forms of public debt, namely: domestic public debt and external debt. Tie between internal and external debt is based on the source of loans that generated it, namely the domestic or external. For foreign market loans, the borrower assumes the payment obligations related to service foreign currency external debt.

Option for an internal or external public credit is also an act of political decision affecting the balance of payments, including internal and external debt. While the static external credit points at a time of a specified debt incurred by a debtor, the external debt level and structure of all loans emphasizes a dynamic countries (combined), including related flows of foreign currency inflows and outflows. However the indicator "external public debt service" related specifications are returned at different maturity rates, including related interest payments.

As regards internal debt, it comes from domestic loans, indicating that the state issued to subscribers to such loans which securities may be denominated in national currency and foreign currency. In other words, the state may borrow in foreign and domestic. In Romania, the domestic borrowing can become subscribers only natural persons and legal residents.

In fact, domestic debt includes part of the total debt is all the financial obligations of the state from direct loans or guaranteed by the state, from natural or legal persons resident in Romania, in national currency or foreign currency. The criteria to be referred to the definition of domestic public debt is "borrowing from natural or legal persons resident in Romania."

External debt is all the financial obligations of the state from direct loans or guaranteed by the state of natural or legal persons resident in Romania.

The ratio between internal and external public debt is influenced by actions of both objective factors and subjective factors of. Fall in the category of objective factors, primarily the development of the economy but also the quantity and quality of material held by one country or another.

As you know any loan contracted by the State to involve debt service expenses, expenses that may result in appropriate financial or foreign efforts. On the other hand, financial reality shows that it is desirable that the state should not borrow for consumption but for investment, development, respectively. Domestic public debt ceiling is the maximum amount of loans and guaranteed by the central government and local domestic market, over a period of one year.

External public debt ceiling expresses the maximum amount of loans contracted and guaranteed by central government and local authorities for a period of one year.

Intensification of economic internationalization is followed by international credit expansion. Many countries resort to mobilizing financial resources by attracting capital from abroad free money. As a result external debt appears. International credit allows substantially broaden investment opportunities for growth and state budget shortfalls.

Growth of external debt increase the country's dependence on external factors that can not be controlled by national levers. If the internal debt is caused by distances between revenues and expenditures of state budget expenditure on revenue prevalence is a result of increased state role in economy. When the Government's macroeconomic policy is ambitious and deformed, increased spending is not offset by increased tax revenue. The result is rapid growth of the budget deficit.

Thus, the state gets the financial resources it needs both domestic and abroad. The degree of development of states is higher, the higher domestic borrowing of capital is broader and more varied, the country gets more financial resources to cover the deficit on the domestic market. In this regard, developing countries largely buys its currency and financial resources it needs through external loans, external public debt increased debt expressing economic and financial dependence of the country abroad and economic attractiveness those for foreign capital.

The evolution of internal and external public debt in the period under review is caught in the following table:

Table 2

The evolution of internal and external government public debt

(millions lei)

Year	Government public debt	Internal government public debt	External government public debt
2000	25.285,50	7.459,9	17.832,6
2001	33.776,40	9.185,4	24.591,0
2002	43.793,80	11.761,2	32.032,6
2003	51.136,60	11.510,1	39.626,5
2004	55.147,30	14.411,4	40.735,9
2005	56.381,80	16.127,9	40.253,9
2006	59.868,50	25.827,3	34.041,2
2007	76.149,60	41.874,4	34.275,2
2008	100.556,40	61.523,1	39.033,3
2009	136.493,80	84.349,2	52.144,7

The econometric model that describes the relationship between total debt and the two arms of government debt generated by the market on which the state is borrowing can be written as the following equation:

$$DatPub = a_0 + a_1 DatPubGuvInt + a_2 DatPubGuvExt + u_i \qquad (1)$$

An econometric analysis in the evolution of the relationship between total public debt contracted by our country in the period 2000 to 2009 and the dynamics of the two categories of government debt, internal and external, can be concluded that between these variables there is a direct link, the growth of those two variables, leading to an increase in the total public debt, the sign of the two regression coefficients beeing positive. In the tables below are presented the results of regression. As a result of econometric modeling, we can say that the results are significant from the point of view, fact confirmed also by the Pearson correlation coefficient values.

Analyzing the individual effect of the two variables, we can conclude that, in terms of growth with an absolute unit of measurement of external government debt, total public debt will rise with 0,984 millions. As regarding the intensity of the link between the two variables, one can appreciate that is strong, the Pearson correlation coefficient beeing 0,792.

As regards the relationship between total public debt and the amount of internal general government debt, the sign of the coefficient of correlation indicates the existence of a direct link, signifying that an increase in the absolute unit of measurement of internal general government debt will result an increase in total debt with 1,157 millions. The value 0,982 Pearson correlation coefficient support this claim, the value of this coefficient very close to1, signifying that between the two variables there is a very strong bond.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-546,147	1230,978		-,444	,671
	DatPubGuvExt	,984	,040	,251	24,299	,000
	DatPubGuvInt	1,157	,015	,816	78,957	,000

a. Dependent Variable: DatoriaPublica

Correlations

		DatoriaPublica	DatPubGuvExt	DatPubGuvInt
DatoriaPublica	Pearson Correlation	1	,792**	,982**
	Sig. (2-tailed)		,006	,000
	N	10	10	10

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Annual increase of foreign debt takes place on the basis of rigorous selections criteria for recourse to foreign contracting of loans and in the limits which should not exceed the capacity of the country to ensure that the service, pay equity rates and pay interest and fees incurred. For this purpose, annually it is established the external public debt ceiling, which issubmitted for approval by the Parliament of Romania.

1.3. Economic Performance, Revenue, Deficit and Debt

During 2000 – 2010 period, General Government deficit has seen the following evolution:

Table 3

General Government deficit evolution

(millions lei)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
General Government deficit	3.204,5	3.757,9	3.951,2	4.395,1	3.150,4	1.980,5	4.661,5	12.967,9	24.793,6	36.435,4	33.305,2

During 2000 - 2006, the budget deficit remained relatively constant while the debt had a constant growth trend. In 2005 general government deficit was reduced significantly more than the lowest value recorded in the period, respectively 1980.5 million. Since 2006 the general government deficit has seen an upward trend, from a value of 4661.5 million in 2009 reaching a value of 36435.4 millions, then a slight decrease in 2010.

Econometric model that describes the relationship between public debt and general government deficit could be surprised as the following linear equations:

$$DatPubl = a_0 + a_1 DefBug + u_i \qquad (2)$$

In the tables below we present the regression results achieved. Following the econometric modeling, we can say that the results are significant in terms of econometric and confirmed the value of 0.937 of simple linear correlation coefficient. Pearson correlation coefficient indicates a strong link between the two variables, its value beeing very close to 1.

Correlations

		DatoriaPublica	DeficitBGC
DatoriaPublica	Pearson Correlation	1	,937**
	Sig. (2-tailed)		,000
	N	11	11
DeficitBGC	Pearson Correlation	,937**	1
	Sig. (2-tailed)	,000	
	N	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33912,298	8033,951		4,221	,002
	DeficitBGC	3,721	,463	,937	8,039	,000

a. Dependent Variable: DatoriaPublica

The positive value of the regression coefficient indicates that between the two variables there is a direct link, and the regression coefficient indicates that an increase with an absolute unit of measure of the budget deficit, the public debt will increase with 3.721 millions.

Public Debt service constitute annual costs that represents due payments (ie the amount of money that may be required or on claims that may be raised in the account of public debt.)

Debt service, according toIulian Văcărel, is established in its two forms:

- Internal public debt service;
- External public debt service

In the last ten years Romania has recorded a government debt service (representing refunds of principal repayments, interest payments, commissions related and refinancing) in the amount of 221,271.3 millions (65987.12 million) euro, in average of 1835.07 million annually.

Table 4

Evolution of Governamental public debt service

Governamental public debt service	Internal governamental public debt service	External governamental public debt service
18.661,2	15774,9	2.886,3
22.848,9	17537,4	5.311,5
25.678,3	18481,3	7.197,0
24.533,5	17734,1	6.799,4
22.066,6	14625,5	7.441,1
13.594,6	6412,1	7.182,5
12.304,0	5998,8	6.305,2
10.405,1	4819,5	5.585,6
14.278,5	6521,1	7.757,4
56.900,6	51122,9	5.777,7

In the analyzed period the public debt service has fared fluctuations. The highest level of government debt service was achieved in 2009, when it reached a value of 56900.6 millions lei. Given that in 2009 compared to 2008 the expenditures of general government increased by 1.75% and GDP fell by 7.1%, government debt service had an alarming increase of 398.5%.

To build the model that reflects the influence of different factors on Romanian public debt at this stage, we use the following multifactorial econometric model:

$$DatPubtoPIB = a_0 + a_1\, DatPubGuvtoPIB + a_2\, PIB + a_3 VenBGCtoPIB + a_4\, ChBGCtoPIB \quad (3)$$

In the tables below we present the regression results achieved. Following the econometric modeling, we can say that the results are significant in terms of econometric analysis, fact confirmed by the the values of Pearson correlation coefficients.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21,430	24,602		,871	,433
	DatPubGuvtoPIB	,470	,342	,698	1,372	,242
	PIB	-1,832	,000	-,650	-,874	,432
	VenBGCtoPIB	-,313	,229	,633	1,367	,243
	ChBGCtoPIB	,458	,528	-1,078	-,867	,435

a. Dependent Variable: DatPubtoPIB

Correlations

		VenBGCtoPIB	ChBGCtoPIB	DatPubtoPIB	PIB	DatPubGuvtoPIB
DatPubGuvtoPIB	Pearson Correlation	-,557	,706*	,887**	-,338	1
	Sig. (2-tailed)	,119	,034	,001	,373	
	N	9	9	9	9	9

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation coefficient values can be interpreted in terms of intensity of the relationship between variables as follows: there is a strong link between public debt share in GDP and government public debt sharte to GDP, the coefficient beeing 0.887 and also a strong link between the share of public expenditure in GDP and public debt share in GDP, Pearson's coefficient value beeing 0.706, in terms of intensity of the relationship between the share of public debt to GDP and government revenue share in GDP and the GDP, Pearson correlation coefficient indicates a moderate link in the first correlation, his value beeing 0.557, and a weak correlation in the second concerns, the Pearson correlation coefficient beeing 0.338.

Regarding the sign and the effective value of regression coefficient estimators, we can appreciate that:

- if the share of government debt to GDP will increase by 1 percentage point then the share of public debt to GDP will increase withy 0.470 percent;
- if the GDP will grow by one million lei, then according to our estimations this will result an decreasing of public debt to GDP by 1.832 percent
- if the the share of total public revenues in GDP will increase by one percentage point, then according to our estimates it will contribute to a decreasing of public debt share to GDP by 0.313 %.
- if the the share of total public expenditure in GDP will increase by one percentage point, then according to our estimates this will induce an increase of public debt share to GDP by 0.458%.

Conclusions

Beeing caused by many factors, increased public debt has a number of consequences. Public debt is considered a burden because of potential long-term effects of on its investment volume. Thus, debt financing and interest rate increases reduce investment. This means that capital stock will be reduced to financing debt than for alternative funding. If individuals considered as part of estate duty them, they tend to a given level of income, to increase consumption, resulting in a smaller proportion of GDP used for investment, a lower capital stock and thus in a lower production.

In addition, debt can be a burden, because long term it could cover require higher tax rates. If these tax rates have negative effects on work performed by individuals, the actual production will be reduced.

It is considered that the domestic debt is not a burden, because in this case, the citizens of State are indebted to themselves. In contrast, net foreign debt implies a reduction of resources available to citizens of the state debt. The burden of debt repayment is a reduce consumption possibilities of a nation. Most serious consequence of a debt major public capital is to replace the private patrimony of the nation. This consequently leads to reduced growth and further reduce the standard of living.

Romania's public debt has seen an upward trend during the period analyzed, and the solutions for its ceiling at a reasonable level accepted by investors, are economic growth and further reduce the budget deficit.

It is also important the nature of the deficit that increases public debt - social spending or investment – we must not indebted essentialy to finance consumer expenditures that represents an definitive resource consumption.

If during the period 2003-2006, for example, the growth of public debt from one year to another does not pass the 10% annual growth in recent years has accelerated and has not fallen below 30%. The most important factors that help reduce of public debt to GDP is the budget deficit and economic growth. The first involves the current stage of economic cycle, record low primary deficits (or surpluses primary) to counter any increase in the cost of interest paid on debt (interest increases because procyclical). Fortunately, interest in Romania continues to decline, which means that debt service is less expensive for the national currency.

Romania still has the possibility to increase the debt ceiling to reach 60% of GDP, agreed at European level, but the problem is to accelerate growth rate and give up the practice of directing resources mainly to current expenditures on pensions and wages, while investment expenditures remain an extremely low level.

At this time, public debt below 60% of GDP is considered sustainable. In Romania, however, the problem is not the level of public debt, but the dynamics of this debt: between 2000 - 2010, it increased with 7.7. In real terms, adjusted with inflation, public debt has doubled in just 11 years.

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