# ECONOMETRIC MODELS, METHODOLOGY AND TRENDS REGARDING PUBLIC DEBT AND EXTERNAL DEBT

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**Abstract**

Statistically-mathematically describing few econometric models as variables, this article approaches the impact and trends regarding public debt and external debt. Conceptually and practically analyzing the evolution of indicators, there are identified specific trends in the economy of Romania, some characteristic models are being parametrised and tested.

**Key words:** econometric model, correlation matrix, public debt, gross or net external debt, debt (in percentage) of GDP.

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Based on the concepts and data describing certain trends in the evolution of public debt and external debt in Romania, a number of simple econometric models of public debt and external debt in Romania, as endogenous variables have been drawn.

After identifying a set of exogenous variables selected according to previous analyzes, the uniformity, asymmetry (skewness), flatness (kurtosis) and normalcy of the data distributions were evaluated for the last 16 years, by descriptive statistics

By its complexity, external debt becomes a more important barometer, especially when it covers, in significant proportions, both public or government debt, and the liabilities of companies and private firms, and to the extent that it is compared with the major macroeconomic the result, i.e. the gross domestic product of an economy, it turns into a major signal of exceeding the sustainability threshold admitted in macroeconomic theory.

A basic principle of business indebtedness remains related to the fact that it makes sense to turn to debt as financial resources only to the extent where the increased revenues generated by their use is greater than the cost of debt as such. Things get complicated when the principles of some public debt are theorized, as expectations cover a lot of other issues beyond standard economic efficiency of the utilization of financial resources, related to specific promises of the government, and the implementation of policies of a number of parties that make it up, objectives that are diversifying and targets that multiply, from minimal infrastructure (highways, railways, airports, sewage, etc.) to the specific public services (national defence, education, health, etc.), services that are absolutely necessary and that the private sector cannot achieve in certain historical periods, not being profitable, or being inaccessible in point of investment or timeframe.

**Descriptive Statistics of some of the major national, EU and global variables**

| Sample: 1997 2012 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SER01 ED/GDP | SER02 PD/GDP | SER03 FDI/GDP | SER04 Economic Growth | SER05 Budget Deficit | SER06* World EG | SER07* EU EG | SER08 World FCF | SER09 EU FCF | SER10 World Savings | SER11 EU Savings | SER12 EU FDI |
| Mean | 44.71250 | 21.71875 | 4.225000 | 2.237500 | -3.662500 | 2.875000 | 1.693750 | 20.77500 | 19.50625 | 21.25000 | 20.09375 | 4.312500 |
| Median | 37.00000 | 21.60000 | 3.050000 | 3.200000 | -3.350000 | 3.450000 | 2.000000 | 21.20000 | 19.55000 | 21.45000 | 20.30000 | 3.500000 |
| Maximum | 75.30000 | 37.90000 | 9.300000 | 8.400000 | -1.200000 | 4.300000 | 3.800000 | 21.70000 | 20.70000 | 22.90000 | 22.00000 | 10.90000 |
| Minimum | 21.70000 | 12.40000 | 1.300000 | -6.600000 | -8.300000 | -2.300000 | -4.400000 | 19.10000 | 17.70000 | 18.50000 | 18.00000 | 1.800000 |
| Std. Dev. | 18.66197 | 7.712779 | 2.524150 | 4.968283 | 2.005617 | 1.665933 | 1.963490 | 0.954638 | 0.927699 | 1.229092 | 1.062368 | 2.394682 |
| Skewness | 0.699832 | 0.658567 | 0.750061 | -0.530301 | -0.641086 | -1.964414 | -1.961863 | -0.650429 | -0.498378 | -0.678723 | -0.445935 | 1.387180 |
| Kurtosis | 1.993553 | 2.542941 | 2.267764 | 2.057445 | 2.751905 | 6.821452 | 6.880049 | 1.843096 | 2.108168 | 2.774853 | 2.591296 | 4.551709 |
| Jarque-Bera | 1.981330 | 1.295829 | 1.857692 | 1.342190 | 1.137010 | 20.02612 | 20.30027 | 2.020439 | 1.192591 | 1.262233 | 0.641648 | 6.736585 |
| Probability | 0.371330 | 0.523136 | 0.395009 | 0.511149 | 0.566371 | 0.000045 | 0.000039 | 0.364139 | 0.550848 | 0.531997 | 0.725551 | 0.034448 |
| Sum | 715.4000 | 347.5000 | 67.60000 | 35.80000 | -58.60000 | 46.00000 | 27.10000 | 332.4000 | 312.1000 | 340.0000 | 321.5000 | 69.00000 |
| Sum Sq. Dev. | 5224.037 | 892.3044 | 95.57000 | 370.2575 | 60.33750 | 41.63000 | 57.82937 | 13.67000 | 12.90938 | 22.66000 | 16.92938 | 86.01750 |
| Observations | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |

Once the exogenous variables were analyzed, a correlation matrix was generated, which allowed the formulation of the first modelling assumptions, and led to parameterizing some simple econometric models exploiting the software package Eviews.

**Matrix of corelation between major and normal distributed variables**

| | SER01 | SER02 | SER03 | SER04 | SER05 | SER08* | SER09 | SER10 | SER11 | SER12 |
|---|---|---|---|---|---|---|---|---|---|---|
| SER01 | 1.000000 | 0.609308 | -0.306510 | -0.107680 | -0.457665 | -0.807708 | -0.731106 | -0.639163 | -0.691584 | -0.431530 |
| SER02 | 0.609308 | 1.000000 | -0.788559 | -0.208253 | -0.259666 | -0.855481 | -0.767392 | -0.656384 | -0.796277 | -0.223082 |
| SER03 | -0.306510 | -0.788559 | 1.000000 | 0.528493 | 0.438455 | 0.597874 | 0.511818 | 0.560639 | 0.660122 | 0.025974 |
| SER04 | -0.107680 | -0.208253 | 0.528493 | 1.000000 | 0.575428 | 0.202899 | 0.353452 | 0.260488 | 0.440101 | 0.179324 |
| SER05 | -0.457665 | -0.259666 | 0.438455 | 0.575428 | 1.000000 | 0.307282 | 0.222373 | 0.484905 | 0.524514 | 0.041955 |
| SER08* | -0.807708 | -0.855481 | 0.597874 | 0.202899 | 0.307282 | 1.000000 | 0.929108 | 0.862497 | 0.901717 | 0.525068 |
| SER09 | -0.731106 | -0.767392 | 0.511818 | 0.353452 | 0.222373 | 0.929108 | 1.000000 | 0.716524 | 0.861146 | 0.682671 |
| SER10 | -0.639163 | -0.656384 | 0.560639 | 0.260488 | 0.484905 | 0.862497 | 0.716524 | 1.000000 | 0.894252 | 0.378715 |
| SER11 | -0.691584 | -0.796277 | 0.660122 | 0.440101 | 0.524514 | 0.901717 | 0.861146 | 0.894252 | 1.000000 | 0.394682 |
| SER12 | -0.431530 | -0.223082 | 0.025974 | 0.179324 | 0.041955 | 0.525068 | 0.682671 | 0.378715 | 0.394682 | 1.000000 |

**Note: SER 07 and SER 07 have been not taken into account in the matrix of corelation because of thei abnormal distribution; Software used: Eviews*

Table below summarizes the specified econometric models, parameterized and validated for the Romanian economy, with public debt and external debt as endogenous variables.

**Some econometric models of public debt (PD) and external debt (ED), in Romania**

| Sample: 1997 - 2012 | Dependent Variable: ED or PD Method: Least Squares<br>Specified models for the 16– term series | R-squared | F-statistic |
|---|---|---|---|
| SER01 - ED | $ED_i = 372.74 + (-15.79) \times W\ FCF_i + \varepsilon_i$ | 0.652393 | 26.27535 |
| SER02 - PD | $PD_i = 31.90 + (-2.41) \times FDI/GDP_i + \varepsilon_i$ | 0.621825 | 23.01993 |
| SER01- ED | $ED_i = 499.92 + (-0.788) \times PD/GDP_i + (24.993) \times WFCF_i + (4.16) \times EUFCF_i + \varepsilon_i$ | 0.682996 | 8.618155 |
| SER02 - PD | $PD_i = 111.70 + (-1.55) \times FDI/GDP_i + (-3.56) \times EUFCF_i + (-0.669) \times \text{Savings in } EU_i + \varepsilon_i$ | 0.802784 | 16.28232 |

*Abbreviation note:* Foreign Direct Investment as % of GDP = $FDI/GDP_i$; World Fixed Capital Formation as % of World GDP = $W\ FCF_i$.

European Union Fixed Capital Formation as % of EU GDP = $EU\ FCF_i$. *Software used Eviews.*

The key conclusion of the whole endeavour in the present contribution shows that econometric models can be made to simulate and estimate or predict the dynamics of both public and external debt, as well as some aspects of the most important exogenous variables that contribute to an optimized and efficient debt service applied to various periods or horizons.

**Major statistical highlights captured in the methodological definitions**

| **Public debt-PD and Public (external) debt-P(E)D** | **(Gross) external debt - (G)ED** |
|---|---|
| Eurostat/OECD-PD are the external obligations of the government and public sector agencies.<br>Eurostat/OECD-P(E)D are the external debt obligations of the public sector.<br>(http://stats.oecd.org/glossary/search.asp) | Eurostat/OECD-(G)ED is the outstanding amount of those current, and not contingent liabilities owed to non-residents by residents of an economy that require payment(s) either of principal and/or interest by the debtor in the future. (http://stats.oecd.org/glossary/search.asp) |
| IMF-PD consists of all debt liabilities of resident public sector units to other residents and non-residents.<br>IMF-P(E)D consists of all debt liabilities of resident public sector units to nonresidents.<br>(http://www.tffs.org/edsguide.htm) | IMF -(G)ED is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of *interest* and/or *principal* by the *debtor* at some point(s) in the future and that are owed to nonresidents by residents of an economy.<br>(http://www.tffs.org/edsguide.htm) |

In terms of economic and financial any debt defines an obligation assumed by a natural or legal person (the debtor) to another person (the creditor), who has a counterpart claim a legally attested in a juridical relationship, concerning paying back, within a certain time, a sum of money or economic goods, according to a contractual relationship or a law (Săvoiu, 2010).

The dictionary definitions show that "public debt represents the obligations of governments, particularly those evidenced by securities, to pay certain sums to the holders at some future time, being distinguished from private debt, which consists of the obligations of individuals, business firms, and nongovernmental organizations" (*Encyclopaedia Britannica*), or circumscribe *all obligations assumed by the State when making internal and / or external loans to finance the economy when it is facing budget deficits, with insufficiency reserves and other phenomena of imbalance* (Dictionary of Economics).

The forms of public debt are varied, ranging from *internal* to *external* (or *foreign*) debt, according to its place in relation to the jurisdiction of the issuer of debt securities, from *short-term* (usually infra-annual) debt, to *medium term* debt, which generally includes debts with a maturity of less than five years, or unconsolidated (*floating debt*), and especially *long-term* debt, the extreme time horizon defining periods from five to 99 years, or more, being dominated by periods between two and three decades, and the debt is renamed funded or consolidated debt.

In relation to the issuer, public debt is *government* debt (through securities issued directly by the state government or the central government), and *local government debt*, (including other public organizations, which are in local government subordination, or even autonomous). New concepts or subclasses of public debt continue to emerge, which deepen its original meanings, i.e. *implicit* public debt, as the promise of a government to provide future social benefits from the State, including pensions, health and education spending, which is a revealing example in this context. A global public debt clock, compiled from data provided by the Economist Intelligence Units and available on *http://www.economist.com/content/global_debt_clock* evaluated, on 6 November 2013 at 2:39 p.m., an overall public debt of 51,935,518,937,774 U.S. dollars, and five minutes later the public debt grew to 51,935,543,228,397 U.S. dollars, i.e. 24,623,290 US dollars more, or an average of $ 4,858,000 per minute; for the Romanian economy, at the end of 2013, it estimates a level of public debt of 61,857 billion U.S. dollars (representing approximately 35.8 % of GDP, and per capita about U.S. $ 2,900). *Source: Economist Intelligence Unit şi http://debtclock.s3.amazonaws.com/index.html#debt+2013+o+ro+xx+xx*

External debt, through its recognized importance and its remarkable impact, is defined distinctly in dictionaries as "a loan that one country owes to another country or institutions within that country" (Investopedia Dictionary), or "the total amount of money that a country owes to other countries" (Cambridge Dictionary), including international institutions such as the International Monetary Fund (IMF), a loan delimited by taxes on goods and services taxes or outstanding loans, and caused by a negative balance trade. External debt, in a general sense, brings together, in a single amount, the debts payable on a short and average term and long-term debts, ensuring the risk of default by establishing a level of foreign exchange reserves in the debtor country as a limiting threshold, which can never be exceeded by the level of outstanding short-term external debt.

This causes the short-term external debt not to be usually aggregated in the pragmatic and methodological concept of *total external debt* or *gross external debt*, and when this concept covers all the types of loans incurred by residents of an economy in relation with the rest of the world, regardless of whether or not there is State guarantee, a special mention of the type „including short-term debt" is usually made [2], in the specific financial analysis papers, which also include short-term debt amounts. If *gross external debt* is reduced by loans given and not yet repaid in the relations between residents of an economy and the world, considering, as a rule, only the liquid and easily movable claims (claims for which there is a clear prospect of repayment by the external borrowers are not aggregated). *Net external debt* forms a concept specific to the vast majority of countries around the world, which appear in their relationship with the rest of the world in a double aspect, being simultaneously both a debtor for a foreign country, and offering loans to non-residents, which are repayable in the future.

Another, more pragmatic signification is that of a methodological type, specific to the main international institutions busy in assessing economic activities focused on significant statistical indicators.

The typology of debt is in a continuous expansion today, and includes – in addition to the concepts of public or private debts, arising from the form of ownership the debtor entity belongs to, and external and internal debt in relation to a well-defined economic space, through the concept of national economy – more and more new classes of debt, from sovereign debt in relation to the convertible nature of the currency, to the active and passive debt in relation to the presence or absence of interest, from repayable or perpetual debt in keeping with its cessation, and implicitly having recourse to a new loan, to sovereign debt, or more recently, in the delicate case of Greece: an „odious" debt, etc.

The term *external debt*, confronted with public debt, is and will remain the dominant concept in the context of current global, no less than GDP as compared to GNP (gross national product), both in the economic literature, and in the statistical analyses or econometric modelling for their expanded coverage level and ability to extensively illustrate NCC economies, thus characterizing the overwhelming majority of the world's nations.

Assessing the trends of public debt (PD) and external debt (ED) is done following a set of analyses focused on specific statistical indicators, aimed at assessing or accurately estimating, first of all, their level, drawing on absolute indicators of PD or ED volume, but also relative indicators in relation to the final results of the economy, expressed as GDP or GNP (ED/GDP or ED/ GNP, and PD/GDP or PD/ GDP) compared to the population (ED/capita and PD/capita), or export volume (ED/capita or PD/capita) in euros or U.S. dollars.

**Absolute and relative indicators of the level of public debt and of external debt of Romania**

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|
| External debt-ED-mil. € ** | 21504 | 30914 | 41196 | 58628 | **72354** | **81205** | **92458** | **98724** | 99 209 |
| Public debt - PD – U.S. mil. USD | 20094 | 15789 | 20845 | 30818 | 36904 | 43730 | 46244 | 52955 | 57668 |
| Gross domestic product-GDP-mil.€ | 61030 | 79747 | 97787 | 124654 | **139762** | **118269** | **124396** | **131364** | 131747 |
| Exports of goods/services, X-mil. € | 21838 | 26359 | 31438 | 36434 | 42479 | 36148 | 43982 | 52528 | 52 560 |
| ED/GDP (%) | 35.2 | 38.8 | 42.1 | 47.0 | 51.8 | 68.7 | 74.3 | 75.2 | 75.3 |
| PD/GDP (%) * | 24.8 | 17.3 | 16.3 | 18.7 | 20.5 | 25.4 | 28.2 | 30.8 | 33.3 |
| ED/Population - € / person * | 993.80 | 1427.91 | 1906.85 | 2722.35 | 3368.86 | 3778.14 | 4309.28 | 4605.49 | 4631.61 |
| PD/Population - USD / capita | 928.64 | 729.29 | 964.88 | 1431.01 | 1718.28 | 2034.58 | 2155.34 | 2470.36 | 2692.25 |
| ED/X (%) | 98.5 | 117.3 | 131.0 | 160.9 | 170.3 | 224.6 | 210.2 | 187.9 | 188.8 |

Source: *Balanţa de plăţi şi poziţia investiţională internaţională a României, Raport annual, 2012* [*Balance of payments and international investment position, Annual report 2012*] (http://www.bnr.ro/ PublicationDocuments .aspx?icid=6843) and *Economist Intelligence Unit* (http://www.economist.com/content/ global_debt_clock).

**Note:* The calculations were made by the authors for these indicators to ensure comparability of measurements either in dollars or in euros, in relation to the international evaluation indicators

***Note:* Also contains short-term debt (http://www.bnro.ro/page.aspx?prid=7436).

When the amount of external debt also appears as a relative indicator, then it shows *the intensity of external indebtedness* and thus serves to *nuancing* international comparisons concerning the external indebtedness of the various countries or the *severity of their external indebtedness rate* (the rate of external debt as a ratio of GDP to ED, or the external indebtedness of the state, established as *a ratio of GDP to PD*). The ED / GDP ratio's critical threshold is the value of „one" (1), already exceeded by the most heavily indebted countries in Europe, and the PD / GDP ratio is limited in the EU to 60% of GDP for all the member countries of the community. The indicator most frequently evoked in specialized statistical analyzes remains *ED/capita* or *PD/capita*, along with another relevant indicator in terms of the effort to repay the loans engaged by opening the economy towards exports, is the *ratio of external indebtedness*, calculated as *the ratio of external debt to exports of goods and services of the country analyzed* (ED/X).

The result can also be interpreted as the number of years-exports needed for repaying external debt / arrears (if analyzed as a simple multiplier, so as a coefficient). Obviously, the higher the result, the more consistent the risk for the resident entrepreneur, or in general the businessman who continues to transact in such an economy.

The ED/X ratio denotes (with the rare exceptions of the post-recession years) continued deterioration in the purchasing power of exports by the fact that their value flows and export receipts are affected (they are ever lower compared to the value of foreign ore external debt), for repayment of both the debt and the interest incurred on loans repaid.

A debt that approached a multiplier that exceeded even 200%, as shown by the indicator for Romania in 2009 and 2010, describes the galloping trend of export deterioration realtive to the indebtedness of the national economy, which requires over two years' export to cover the external debt.

Among the many possibilities for *structural analysis of external debt and public debt*, which comprise presentations and analyses focused on the distribution of foreign debt by the year of repayment in an economy, the distribution by the contracting currency, the interest rate, the form of repayment, the distribution by type of creditor (public / private sources), or by the institutional types of the creditors, the distribution of external debt in keeping with the purpose to which it was engaged: investment in the economy or infrastructure, to cover a temporary deficit in the supply of consumption goods, or to balance the current account of the balance of payments (BEP), or the distribution of foreign debt incurred by sector (private / public), in table below in the present contribution the value of the multilaterals in the external debt (multilateral / ED) is exemplified for its expressive structural dynamics, then the rate of the dynamics of interest per export (INT / X), and the structural dynamics of short-term debt out of the medium- and long-term debt (ST/MLT).

**Dynamic structural analysis of the relative level of themultilaterals in external debt, the interest rate in the export value, and the share of short-term debt in the medium- and long-term debt of Romania**

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|
| External debt-ED | 21504 | 30914 | 41196 | 58628 | **72354** | **81205** | **92458** | **98724** | 99 209 |
| - medium-and long-term debt-MLT | 18 298 | 24 642 | 28 622 | 38 711 | 51 762 | 65 616 | 72 909 | 75 929 | 78 742 |
| - short-term-ST | 3 206 | 6 272 | 12 574 | 19 917 | 20 592 | 15 589 | 19 549 | 22 795 | 20 467 |
| Exports of goods and services-X | 21838 | 26359 | 31438 | 36434 | 42479 | 36148 | 43982 | 52528 | 52 560 |
| Interest rates-INT | 855 | 1 163 | 1 610 | 2 298 | 3 237 | 2 786 | 3 014 | 3 601 | *** |
| Multilaterals/ED | 24.1 | 18.4 | 13.8 | 9.3 | 9.0 | 12.3 | 25.9 | 25.9 | *** |
| INT/X | 3.9 | 4.4 | 5.1 | 6.3 | 7.6 | 7.7 | 6.9 | 6.9 | *** |
| ST/MLT | 17.5 | 25.4 | 43.9 | 51.5 | 39.8 | 23.8 | 26.8 | 30.0 | 26.0 |

Source: *Balanţa de plăţi şi poziţia investiţională internaţională a României, Raport annual, 2012* [*Balance of payments and international investment position, Annual report 2012*] (http://www.bnr.ro/ PublicationDocuments. aspx?icid=6843) and *Economist Intelligence Unit* (http://www.economist.com/content/ global_debt_clock).

**Note:* The calculations were made by the authors for these indicators to ensure comparability of measurements only in euros, in relation to the international evaluation indicators ***Note:* Also contains short-term debt (http://www.bnro.ro/page.aspx?prid=7436). ****Note:* the data are not available.

Any of the static or dynamic analyses of the interest rate structure of public or foreign / external debt on a long or medium term shows that loans with variable interest rates have, and will continue to have, a majority for Romania (around ¾ of the total). Weight gain of multilaterals of ED can also describe some positive aspects, but certainly the dynamics of export interest rates and short-term debt ratio of the medium and long-term debt identify aggravating trends.

The dynamic analysis of *public and external indebtedness* is measured by the three indicators of statistical analysis of the variation of public and external debt : the absolute rate of public and external debt ($R_{ED}$ şi $R_{PD}$), deduced from the specific index ($I_{ED}$ and $I_{PD}$) points to an upward trend, with rare absolute, and especially relative involutions of the amount of public and external indebtedness.

**Dynamic absolute and relative confrontation of Romania's public and external foreign debt**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| External debt-ED - € mil. | 30914 | 41196 | 58628 | **72354** | **81205** | **92458** | **98724** | 99 209 |
| Public debt – PD – $ mil. | 15789 | 20845 | 30818 | 36904 | 43730 | 46244 | 52955 | 57668 |
| Index of external debt- $I_{ED}$ | 143.8 | 133.3 | 142.3 | 123.4 | 112.2 | 113.9 | 106.8 | 100.5 |
| Index of public debt – $I_{PD}$ | 78.6 | 132.0 | 147.8 | 119.7 | 118.5 | 105.7 | 114.5 | 108.9 |
| Rate of external debt- $R_{ED}$ | 43.8 | 33.3 | 42.3 | 23.4 | 12.2 | 13.9 | 6.8 | 0.5 |
| Rate of public debt - $R_{PD}$ | - 21.4 | 32.0 | 47.8 | 19.7 | 18.5 | 5.7 | 14.5 | 8.9 |

*The major economic and financial effects of public and external debt* emphasize, through the analysis of debt annuity, a quite aggravating reality in Romania: both types of debt engaged that must be repaid, both as principle amount borrowed (the *principal of the debt* delimiting the *annual installment due* - AID), and also combined with the *payment of the interest* on loans still outstanding (*annual interest mass* - AIM). The *annuity* or *external debt service* (EDS) practically defines this aggregate, or it is defined by the welknown relation: EDS = AID + AIM.

To the extent that the amounts borrowed are investing in economic objectives that have the capacity to produce, as profit, the amounts due publicly or abroad it is estimated that external indebtedness is a way of attracting foreign capital with beneficial effects on the expansion of the activity in the host economy, and annual payment of external debt service burdens more or less the purchasing power of the country, since a portion of the proceeds from exports of goods and services, and other currency inputs are to these payments. [2]

Table below emphasizes how great the payment effort is, in both economic and financial terms; we used four relatively significant indicators, i.e. the share of *external debt in GDP and exports* (EDS / GDP), along with the percentage quota of external debt service to the total value of exports (EDS /X), and the ratio of external debt service and the official reserves, along with the ratio of short-term debt and the official reserves, underlines severity of the failure of observing the theoretical limiting threshold for the future of an economy, implicitly of Romania.

**Qualitative indicators of the economic and financial external debt of Romania**

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|
| External debt service- EDS | 4972 | 13578 | 19801 | 29925 | 45575 | 49038 | 43759 | 46232 | 50538 |
| External debt on short term – ST | 3206 | 6272 | 12574 | 19917 | 20592 | 15589 | 19549 | 22795 | 20467 |
| Gross Domestic Product – GDP | 61030 | 79747 | 97787 | 124654 | **139762** | **118269** | **124396** | **131364** | 131747 |
| Exports of goods and services-X | 21838 | 26359 | 31438 | 36434 | 42479 | 36148 | 43982 | 52528 | 52560 |
| Official reserve-OR | 11933 | 18259 | 22935 | 27187 | 28270 | 30 858 | 35 951 | 37 252 | *** |
| EDS / GDP | 8.1 | 17.0 | 20.2 | 24.0 | 32.6 | 41.5 | 35.2 | 35.2 | 38.4 |
| EDS/X | 22.8 | 51.5 | 63.0 | 82.1 | 107.3 | 135.7 | 99.5 | 88.0 | 96.2 |
| EDS/OR | 41.7 | 74.4 | 86.3 | 110.1 | 161.2 | 158.9 | 121.7 | 124.1 | *** |
| ST/OR | 26.9 | 34.4 | 54.8 | 73.3 | 72.8 | 50.5 | 54.4 | 61.2 | *** |

Source: *Balanţa de plăţi şi poziţia investiţională internaţională a României, Raport annual, 2012* [*Balance of payments and international investment position, Annual report 2012*] (http://www.bnr.ro/ PublicationDocuments .aspx?icid=6843) and *Economist Intelligence Unit* (http://www.economist.com/content/ global_debt_clock).

**Note:* The calculations were made by the authors for these indicators to ensure comparability of measurements only in euros, in relation to the international evaluation indicators ***Note:* Also contains short-term debt (http://www.bnro.ro/page.aspx?prid=7436). ****Note:* the data are not available.

It is theoretically estimated that a share of EDS / X up to 15 % would not affect the purchasing power of a country on the international market and would not disrupt its economic balance, and the dramatic character contained in the values in the table requires the central bank's intervention to restore the purchasing power, and emphasizes the constant care for the relocation of its official reserves within the new parameters of short-term debt.

## Conclusions

This paper argues that emphasizing the importance of public debt, or the excessive detailing of the overall impact can be misleading or illusory aspects, external debt virtually remaining the keystone of the knowledge of turbulence and the medium- and long-term trends of developments in the Romanian economy, no less than in the European economies in general. The external debt problems always exceed, in point of importance, those of public debt, due to their effect on the foreign exchange reserves of the central bank (concerning the external debt service, both public and private), along with the ability to manage, in a consistent and sustainable manner, the rate along with inflation control. The aggravating prospects of both the external debt, which is likely to exceed 100 billion euros as soon as the end of the year, and the public debt, which at the end of 2013 will be around U.S.$ 62 billion, and in 2014 will tend to U.S.$ 66 billion, require analyses, solutions and policies focusing on new econometric modelling and simulations. During the last eight years, the external debt per capita has multiplied itself more then five times, and the public debt per capita more than three times.

The public and external debts have relevant advantages and disadvantages. In the first category one may include the help offered to National Bank monetary policy, the ability to avoid negative effects that taxes have on incentives and the higher government spending, eventually developing economy of any country, but leaving a legacy deyvoltare other generations. But if public and external debt control or exceed the allowable and theoretical threshold, then generate more and more long-term economic difficulties, and that really happens in the case of Romania.

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