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Analysis of Public Debt Sustainability in EU Countries

Anişoara Niculina APETRI[1]

Abstract

Public debt is a topical issue facing many countries. Public debt has been and continues to be the subject of discussions on the need to identify new instruments to finance the general needs of society and to diversify current instruments for the procurement of public financial resources in addition to those foreseen in the consolidated general budget. Rising public debt may be sustainable insofar as the direction in which that debt is going is somewhat productive and allows for the reimbursement of that extra burden.
The present study aims to present some considerations regarding the evolution of Romania's public debt, as this is a rather serious problem and a challenge facing our country at present. The research is based on a study on the public debt of Romania, a study that also follows the comparative approach of the evolution of public debt in Romania in relation to the public debt registered by other EU states.

Keywords:
Debt, public debt, debt sustainability.

Introduction

The deepening of the budget deficits of the world's states as a result of the effects of the last financial crisis has led to new loans and, inevitably, to rising world debt levels. Public debt continues to be the subject of discussions on the need to identify new tools to finance the general needs of

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society and to diversify current instruments for the procurement of additional public financial resources provided in the consolidated general budget. At present, the need for public or domestic loans is a reality in more and more countries around the world.

Under these circumstances, central public authorities have the task of using public loans in particular for measures to produce results, from which the sums borrowed and the related interest are redeemed. Against the backdrop of the reliance on a larger measure of public lending, increased attention is paid to prudent public debt management that can help countries reduce their borrowing costs, mitigate refinancing risks, exchange rate fluctuations, and avoid accumulating of new debts. Public debt management must be carried out through specialized staff with both financial and administrative competencies. This is particularly important if we want to mitigate operational risk.

The paper is structured in seven distinct chapters as follows: (i) in the second chapter I studied the literature on the public debt, (ii) in the third chapter I presented the research methodology in Romania, (iv) and the fifth chapter I conducted the analysis of the public debt structure in Romania, (v) and in the sixth chapter I carried out the analysis of the sustainability of the public debt, and (vi) and in the seventh chapter I made conclusions on the issue studied.

2. The state of knowledge

The current financial and economic crisis has had a tremendous effect on public finances, meaning that the decline in economic activity has led to increased budget deficits and increased public debt.

When the crisis manifested itself, states that were unsustainable from the points of view outlined above, have proven to be extremely vulnerable, with all the risks that flow from it. At the time of the global crisis, it shook even the strongest European economies, so that by the end of 2009, the euro area would enter the first stage of a strong public debt crisis [6].

Public debt is a topical issue facing many countries. Fiscal Council chairmen, Ionut Dumitru [1], argue that "a debt of over 40% of GDP may raise problems. Rising public debt can be sustainable as long as you invest or directions in which that debt goes are productive and allow you to reimburse that extra burden."

In the opinion of the authors Tatiana Mosteanu, Delia Florina Catarama, and Emilia Mioara Campeanu [4], the public debt represents "*the total financial obligations of the state at a certain moment to third parties is the public* *debt. More specifically, all direct and indirect financial obligations assumed by central and local government authorities towards the domestic and foreign capital market constitute the public debt.*"

Financial liabilities or debts of public authorities are grouped into two broad categories, namely government public debt and local public debt. These in turn can be internal or external and direct or guaranteed. (Văcarel I., Bistriceanu Gh., Anghelache G., Bodnar M., Bercea F., Mosteanu T., Georgescu F., 2007) consider that "internal public debt represents the total liabilities of the state, coming from loans contracted directly or guaranteed by the state, from individuals or legal persons, in lei or foreign currency, on the domestic market, including the amounts temporarily received from State Treasury sources", and "external public debt represents the total liabilities of the state, coming from external market loans, contracted directly or guaranteed by the state" [8].

(Zaman G., Georgescu G., 2010) notes that public debt management needs to develop policies aimed at reducing the vulnerability of volatile capital markets and a possible financial crisis. In the current economic context, the issue of sustainability of public debt is increasingly being discussed [9]. (Miricescu, Câmpeanu, 2008) considers that public debt is sustainable when state authorities have the ability to repay the public debt service to creditors without having to make future adjustments to budget revenues and expenditures [3]. The Maastricht Treaty, which states that a country adhering to the European Monetary Union, must also meet the financial policy criterion which presumes that the budget deficit is less than 3% and the share of public debt in GDP to be below 60% of GDP. (Loser, 2009) argues that the key issue of external debt management is its medium-term sustainability [2]. Considering that Romania, like most European states, is concerned about ensuring sustainability of efficient public debt management, we considered that a study on the evolution, structure and sustainability of public debt in Romania is opportune and important.

3. Research Questions/Aims of the research

Public debt management must be based on a computerized system containing and providing statistical information, ensuring the public debt payment, ensuring public transparency and improving the budget execution ratios [4].

Based on these considerations, the present study aims to present some considerations regarding the evolution of the public debt of Romania during the period 2000-2017, including some scenarios for the medium and long horizon.

4. Research Methods

In substantiating and carrying out the study on the analysis of public debt sustainability in Romania, we used data series available and offered by the Ministry of Public Finance, as well as opinions expressed by the Fiscal Council, the National Bank of Romania and data provided by Eurostat. After selecting and centralizing the data, we used as instruments of analysis statistical tools and indicators on the dynamics and structure of public debt over the 2000-2017 time horizon, as well as the graphical representation of the level and composition of public debt over the analysed timeframe. Based on the interpretation of the values in the centralized tables and the resulting graphical representations, we formulated some opinions and conclusions.

5. The analysis of public debt in Romania

As far as the analysis of the evolution of public debt in Romania is concerned, I have limited myself to analysing in particular the government debt, not considering the local debt. Chart no. 1 shows an evolution of the public debt expressed as a percentage of GDP and determined both according to national methodology and EU methodology. According to EC Regulation 479/2009, government debt is calculated as the consolidated government gross debt at nominal value at the end of the year, as amended. The national methodology provides for the full inclusion of state guarantees and territorial administrative units, according to the Government Emergency Ordinance no. 64/2007, as well as loans from the State Treasury's assets.

Considering the ratio of government debt to GDP in Chart no. 1 it can be seen that it varied between 18.3% in 2006 and 44.5% in 2016, due to the fact that our country has increasingly borrowed to cover the deficit budget, and GDP was very small, Romania being a consumer-based country, not production as it should be.

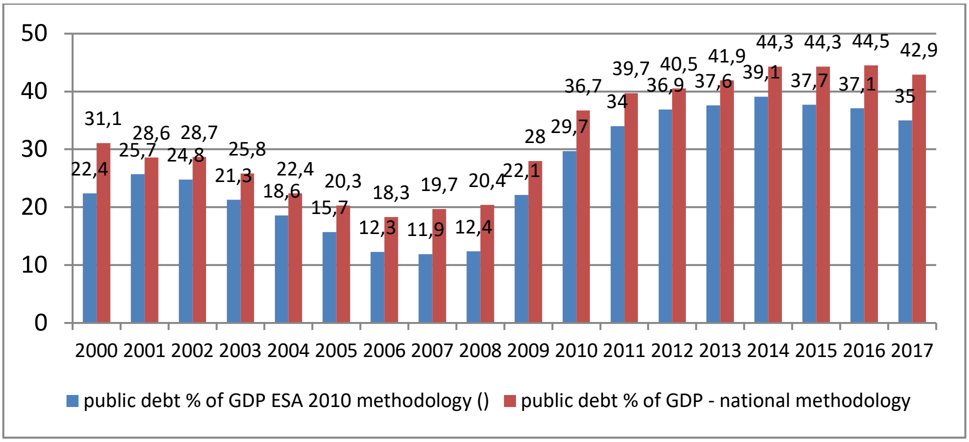

Chart no.1 Evolution of Romania's public debt in the period 2000-2017

The explanation for the reduction of the public debt in GDP ratio in the period 2000-2006 can be attributed to the fact that the gross domestic product had a faster growth, thus exceeding the growth rate of the public debt until 2006, after which there was a radical change when, since 2007, this report has started to grow at a rapid pace due to the fact that public debt has started to grow rather quickly, thus outpacing gross domestic product growth, a situation considered unfavourable. A special situation was registered in 2017. Thus, although the absolute public debt, measured according to the European methodology ESA 2010 advanced by 5.55% (+15.819 mil lei) in 2017 compared to the previous year, its weight in GDP there was a significant decrease, from 37.1% to 35%, against the backdrop of sustained economic growth. On the other hand, from the perspective of the national methodology, the public debt increased by over 29,369 mil lei (+ 8.6%) and its weight in GDP decreased from 44.5% in 2016 to 42.9% in 2017.

Regarding the analysis of government debt evolution in the period 2000-2017 we noticed the following:

- During the economic crisis, according to the EU methodology, Romania registered a total public debt of only 13.2% of GDP, which was among the countries with the lowest public debt, only overtaken by Estonia and Luxembourg. The difference between Romania's public debt and the EU average was significant, the latter being over 60% of GDP.

- Its level is registering an upward trend up to 2017 due to the budget deficits registered in particular in 2009-2011. This made the public debt, according to the national methodology, to double in 2011 compared to 2008.
- The significant increase in public debt as a percentage of GDP in 2009-2010 is mainly due to the economic recession.

Since 2010 within the government debt has been included, within the framework of direct public debt, the loans from IMF and the European Union, since it has led to an increase in public debt.

- Starting with 2011, amid the resumption of positive GDP evolution, it is noted that nominal government increases are not accompanied by a similar increase as a share of GDP, ie they are no longer found as such in the evolution of government debt, as a percentage in GDP.
- Starting with 2016, a downward trend in public debt may be observed both as a level and as a percentage of GDP.

The evolution of public debt in the coming years, from the perspective of its expression as a percentage of GDP, can be predicted from the following relationship, derived from the budget identity:

$$\frac{d_t}{y_t} = (1 + \lambda_t) \times \frac{d_{t-1}}{y_{t-1}} + \frac{pb_t}{y_t} + sfa_t$$

where dt is the stock of public debt at time t, yt denotes nominal GDP at time t, pbt - represents the primary deficit of the period t, $sfat$- stock-flow adjustments in period t, and

$$1 + \lambda_t = \frac{1 + i_t}{(1 + \pi_t) |* (1 + \gamma_t)}$$

where γt - the real GDP growth rate in the period t, it - the interest rate at time t, and πt - the inflation in the period t.

In essence, the relationship shows that the share of government debt in GDP at time t depends on the share of the previous period multiplied by the difference between the real interest rate and the economic growth, plus the primary deficit of the consolidated general government budget (GGB) expressed as a percentage of GDP. Given a higher economic growth rate than the real interest rate on government debt, the share of government debt expressed as a percentage of GDP will tend to decline even under a primary deficit of 0. Therefore, it is possible to reduce public debt as percentage of

GDP and if the GGB deficit balance has a primary surplus below the level of interest expense only if the economic growth rate is higher than the real interest rate on the public debt. The λt coefficient can be interpreted as a real interest rate adjusted with economic growth.

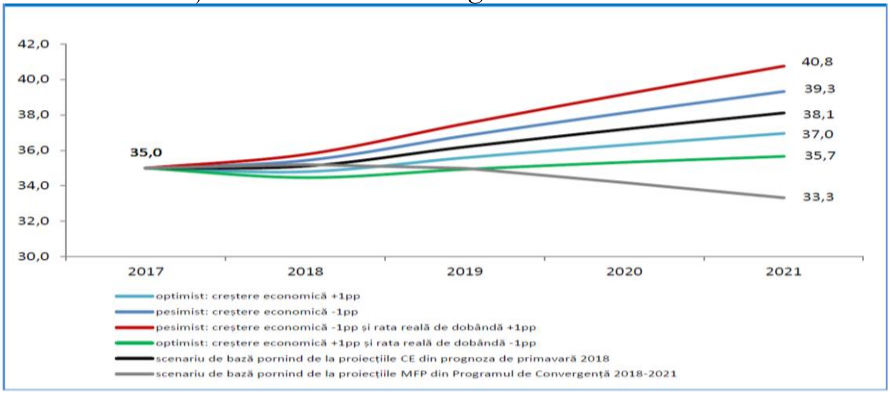

Chart no. 2. Scenarios of the evolution of public debt (% of GDP)
Source: Fiscal Council Annual Report 2017, p.104 [5]

Starting from the mentioned relations and taking into account the projections of the Ministry of Public Finance (MPF) from the Convergence Program and the European Commission's projections in the Report of the Fiscal Council for 2017, projections were made regarding the evolution of Romania's public debt in the period 2018-2021. Thus, the projections of the evolution of the government debt ratio in GDP for the specified horizon, based on the spring 2018 EC forecast, show a gradual increase in the indicator, especially since 2019 (see Chart no. 2). From the contribution of determinant factors, the rising trajectory is propelled by the high level of budget deficits, while sustained economic growth and real interest rates have a favourable impact. Several scenarios were set up, namely two optimistic scenarios and two pessimistic scenarios, with a trend of public debt growth over the time horizon analysed. A favourable result of the sensitivity analysis of public debt is that in the worst case scenario attention threshold is not exceeded 45%, defined by the Fiscal-Budgetary Responsibility Act no. 69/2010 (LRFB).

5.1. The structure of Romania's public debt between 2000 and 2017

In order to analyse the structure of Romania's public debt between 2000 and 2017, we selected a series of public debt structuring criteria from those used by the Ministry of Finance in its reports, namely, I chose to analyse the government public debt by type, by currency, by maturity and by the instruments used to contract it.

As regards the structure of government debt by contracting level (see Chart no. 3), it is noted that after a period in which the government debt accounted for about 99% of the total public debt, there was a downward trend in favour of the local debt, a trend that remained until 2008. During the crisis and post crisis, the slightly widening of the weight of the central public debt (from 91.59% to 95.81%) reappeared, due to the corresponding reduction of the share of local government debt (from 8.41% in 2008 to 4.19%).

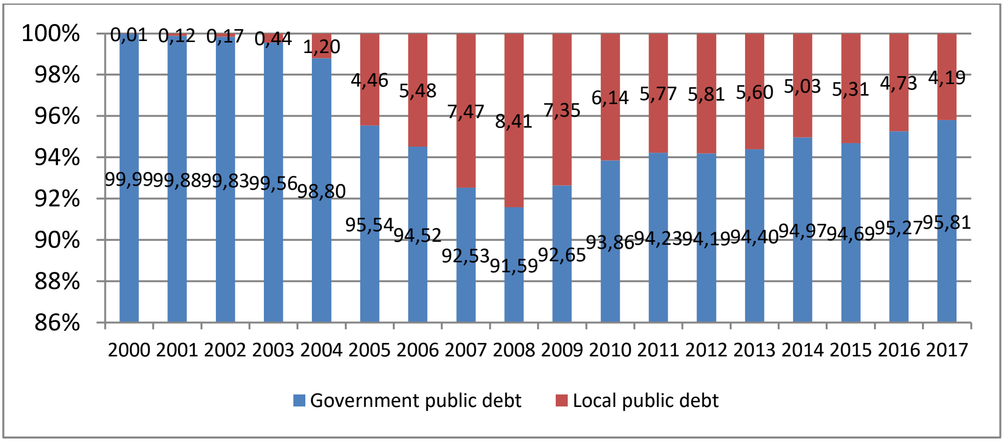

Chart no. 3. The evolution of Romania's public debt structure by contracting level

One criterion for delimiting government debt is its type. Thus, by type of debt, it is structured in direct and indirect debt. From Chart no. 4 it is also noticed that direct public debt is the one that contributes fully to increasing the share of public debt as a share of GDP. Both the guaranteed public debt (2.17% of GDP in 2015 versus 1.64% in 2008) and the local public debt (2.17% of GDP in 2015 compared to 1.76% in 2008) are found, throughout this period, on a stability level around 2% of GDP.

From Chart no. 4 it can be noticed that over the time horizon studied, the public guaranteed government debt holds a small share of total government debt compared to direct government public debt. Thus, public debt varies from one year to another, from 79.9% in 2000 to 95.5% in 2016, and the guaranteed public debt decreases from 20.1% in 2000 to 4.95% in 2016, finding that Romania has used more and more loans over the years to cover the budget deficit. Also, the highest values of the direct debt are recorded since 2008, the percentage being over 90%, the highest percentage being in 2017, respectively 95%, and the lowest value is recorded in the year 2005, respectively 76.6%. As far as the guaranteed debt is concerned until 2006, there are quite high values, the highest being 23.39% in 2005, after which the values begin to decrease in 2007, the lowest value being in the year 2017, of 4.95 %.

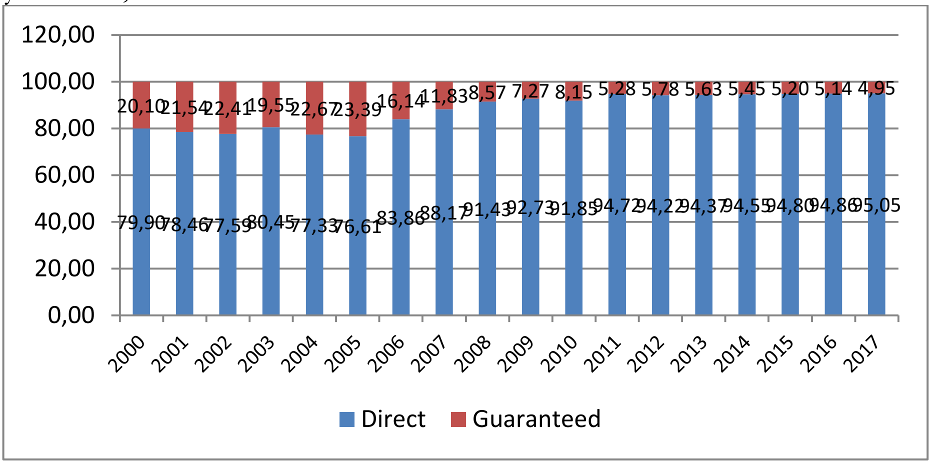

Chart no. 4. The evolution of Romania's public debt structure by its type

As can be seen in chart no. 5, the largest share of total government debt is held by loans, which have varied from year to year, thus declining since 2010 in favour of bond-based loans. In 2017, they recorded only 18.48%, compared to 40.45 in 2010. Loans in bonds registered a remarkable development, increasing as a share in total debt from only 5.24% before the crisis broke out at 37.21% in 2017.

It can also be noticed that cash-based loans that occur only in 2008 and 2011 and financial leasing loans occurring in 2007 to 2011 have insignificant weights. Treasury-based loans fluctuate from one year to the next, and after being used heavily in the post-crisis period, they are used on a very small scale, accounting for only 2% in 2017. The loans from the General Treasury Account of the State, it can be seen that the state has turned to these resources, especially in the years of intense crisis, so that these resources could be used in a more limited way later.

The analysis of the government debt structure (see Chart no. 5 – from Anexa), by type of instruments, shows that government bonds hold the largest share of total government debt, accounting for 37.2% of total in the year 2017, followed by Eurobonds of 27.1%, state loans of 18.4% and treasury bills of 2.4%.

As can be seen in Chart no. 6 (see Chart no. 6 – from Anexa), the share of debt by currency fluctuated during the period 2000-2017, in this respect it can be seen that between 2000 and 2005 the state preferred to contract external loans, which is not beneficial for any country preferring loans in dollars and euros compared to those in national currency. Since 2006, there is a growing access to financial resources in the domestic market, loans in lei rising from 22.89% in 2005 to 54.4% in 2017. The highest share of loans in lei can be seen in 2008, with a weight of 59.7%. It can also be seen that the dollar has been preferred by our country since 2000 to 2005, accounting for 43.3% in 2000. It is worth noting that the state has contracted euro-denominated loans to a fairly high rate since the year 2002, thus reaching 46.2% in 2013 compared to 2000 where it holds 10.7% of the total public debt.

The currency structure shows an increase in the share of national currency loans from 2012, from 43.84% in 2012 to 54.4% in 2017, while euro funding has decreased from 46.18% in 2013 to 38.29% in 2017. On the other hand, in the absence of loans on the US market, the share of dollar-denominated debt decreased from 43.29% in 2000 to 6.70% in 2017.

In Chart no. 7 we can observe the evolution of the public debt of our country by type of maturity. Analysing the debt structure according to this criterion, it is noted that long-term loans have the largest share over the entire time horizon analysed, as they are most often used to finance and refinance the public debt of a country. Thus, it can be noticed that in 2005 they have the highest share, namely of 68.8%. Short-term loans also have a significant weight in the total debt, which is most often used to cover temporary home gaps, so our country borrowed the most with such loans in 2008 with a share in the total debt of 49.3%, the lowest share being in 2013 of only 11.7%. Regarding the maturity structure of newly issued domestic securities, the trend of attracting longer-term resources initiated in previous years continued into 2017. Thus, treasury certificates with maturities of up to 1 year are 27.1% of the value of new loans contracted in 2017, down from 29.8% registered in 2016. The preference of the state funding on medium to long term terms in recent years was favoured by both falling yields, excess liquidity in the financial markets, as well as improving the perception of risk associated with Romania. However, it should be noted that, despite the trend of attracting resources for longer periods, the residual average maturity of government securities issued on the domestic market decreased from 4.02 years in 2016 to 3.72 years in 2017.

The comparative analysis of the level of public debt of Romania with other states in the European Union shows that Romania is the least indebted country and Greece is the most indebted country considering the public debt as a percentage of GDP. As can be seen in Chart no. 8, Romania is a country that does not have so many debts compared to the other studied countries. In a particular situation is Greece, which since 2010 has contracted a very large loan in Europe because it could not pay its debts to the Greek banks. We can see that the debt-to-GDP ratio has exceeded the 100% threshold for this country, reaching 180% in 2017, while Romania has a debt of 40% of GDP. The lowest value of public debt in GDP for Romania was registered in 2006 by 12.3%. Another country with an alarming level of public debt is Spain, which has grown from 35.6% in 2008 to around 100% in 2017. A country with a low public debt is Lithuania whose level has not registered significant developments oscillating between 22% and 35% in the analysed range.

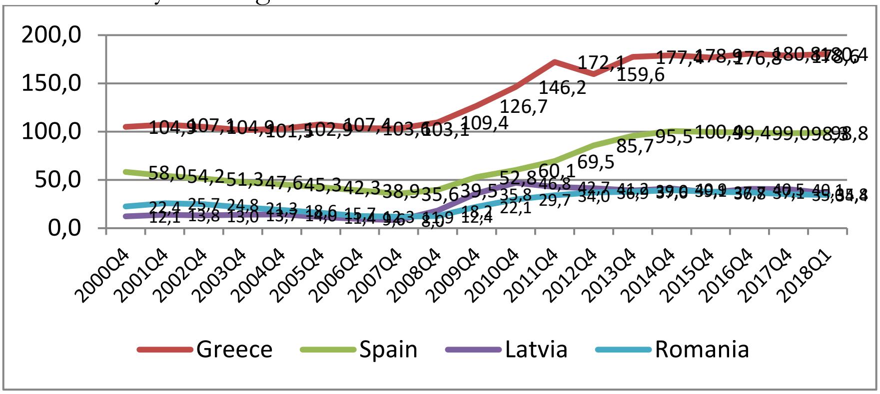

Chart no. 8. Evolution of Romania's public debt structure compared to other EU states

5.2. Sustainability of public debt in Romania

In analysing the sustainability of public debt, a particular attention should be paid to the analysis of the correlation between public debt and GDP, in addition to analysing the evolution of the nominal level of public debt. It is also interesting to analyse the correlation between the level of the public debt and the nominal value of the consolidated budget cash deficit, which can be seen in the following table:

Table no. 1. Evolution of Romania's public debt

Bil RON

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Public Debt (National Methodology)	109.8	157.6	219.7	254.8	272.5	294.6	318.8	292.4	339.08	368.23
Public Debt (National Methodology) -% of GDP	20.9	28.9	36.4	39.5	40.4	41.9	44.4	41.5	44.5	43.00
Public Debt (EU	66.81	116.25	157.4	191.03	219.7	238.8	261.4	268.5	284.9	300.7

Methodology)										
Public Debt (EU Methodology) -% of GDP	13.2	23.6	29.9	34.2	37.3	38.0	39.9	37.8	37.5	35.2
Consolidated budget deficit	28.9	48.23	36.7	30.54	21.8	13.66	8.94	5.63	22.67	25.01

Source: www.eurostat.ro, www.mfinnate.ro, Public Debt Reports

Analysing the data in Table no. 1 it can be observed that a large part of the public budget is due to the budget deficit, but the total level is well above the budget deficit which can be explained by the fact that the state includes on the calculation of the public debt also the guarantees assumed or by the fact that it is using a *buffer* to reduce the risks that would arise from public debt pressure. According to the methodologies used to calculate the budget deficits, guarantees are included in the budget deficit only when they become due. But they are taken into account in public debt from the moment they are born. One such example is the first house program, which added to the public debt, without adding to the budget deficit accordingly. In the same way, the considerable difference between the public debt expressed according to the EU methodology and that expressed according to the national methodology is explained.

Given that Romania aims to be part of the euro area, a risk analysis of Romania's public debt sustainability is more than necessary. Thus, a study by Socol on the public debt sustainability analysis of Romania, which was based on a procedure calibrated on the sustainability of public debt by World Bank experts, shows that the constantly necessary primary surplus to stabilize public debt at the 2011 level is considered to be sustainable for the economy (37% of GDP) was 0.3% of GDP (official scenario hypothesis) and 0.8% of GDP (assuming the pessimistic scenario). At the same time, the author proposes a series of solutions to improve debt sustainability and / or risk management such as [6]: annual review of the government debt management strategy; keeping control of the refinancing risk through *bond exchange* instruments (reverse repurchase of government securities with long-term outstanding securities in long-term securities) and *buyback* (repurchase of government securities in advance) - specific instruments for the secondary market of securities; extending the maturity of government securities by issuing a significant proportion of medium- and long-term financing needs; the active management of liquidity by placing term deposits at Romanian financial institutions, collateralized with government securities; performing repo and reverse repo transactions; an analysis of the opportunity for early repayment for certain loans previously contracted at very high interest rates; reducing the currency risk by increasing the weight of government debt denominated in lei in total debt; active asset management of foreign exchange and interest rate risk; increasing the share of public debt with fixed interest; steady exit to foreign markets to increase investors' confidence.

Ionut Dumitru [1], president of the fiscal council, argues that the sustainability of public finances is a precondition for sustainable economic growth. In the fiscal report of 2017, economist Ionut Dumitru states that "large budget deficits and pro-cyclical policies can lead to inflation, high interest rates and a deterioration in the balance of payments, with negative effects on economic growth" (Fatas and Mihov, 2012). He also argues that a high (above a certain threshold) level of public debt has a negative impact on economic growth (Krugman, 1988)". Thus, Ceccheti and all. (2011) determined this threshold at 85% of GDP for OECD countries, Rogoff and Reinhart (2010) determined a 90% GDP threshold for developed countries. For emerging countries, this threshold is much lower. Pattilo and all. (2011) determine these averages account for 35-40% of GDP, and Chudik and all. (2017) estimate the threshold between 30-60% of GDP [1]. The critical threshold estimated by the National Bank of Romania (2015) is between 40% and 45% of GDP (exceeding it leads to an increase in the probability of recession to over 50%).

According to the Ministry of Public Finance, in 2016 all-risk indicators (currency risk, interest rate risk and refinancing risk) fell within the limits set by the Government Debt Management Strategy for the period 2017-2019.

The revised strategy for the time horizon of 2017-2019 provides the direction in which the authorities intend to act to secure financing and to improve the structure of the debt portfolio in order to fulfil *the objectives of the Ministry of Public Finance for the management of government public debt*, meaning [7]:

- Ensuring the financing needs of the central public administration and of the payment obligations, amid the minimization of the medium and long-term costs;
- Limiting the risks associated with the government debt portfolio; and
- Developing the internal market for government securities.

6. Conclusions

The recent crisis has once again demonstrated that pro-cyclical fiscal policies, the lack of structural reforms and the lack of support for structural reforms to increase competitiveness have generated external imbalances, unsustainable public debt, and high-risk of default on debt service.

Regarding Romania's public debt analysis for the period 2000-2017, we found that: government public debt is much higher than the local public debt, most of the loans are contracted from private banks, most of the instruments used to attract loans are loans and Eurobonds, most of the loans are those contracted in euro, and in terms of the type of maturity, we have found that Romania has the bulk of long-term loans.

By comparing the degree of indebtedness of Romania with the EU Member States, we appreciate that our country is among the least indebted countries, well below the limit set by the Maastricht Treaty and below the EU-wide limit.

References

[1] Dumitru I. Aspecte privind relatia politica fiscal-bugetara - crestere economica. 2017. Retrieved from: www.bnr.ro

[2] Loser C. *External Debt Sustainability: Guidelines for Low and Middle Income Countries*, Research papers for the Intergovernmental Group of Twenty-Four on International Monetary Affairs, New York; 2009.

[3] Miricescu E., Câmpeanu E. *Incidența modificărilor legislative asupra sustenabilității datoriei publice în România*, Conferința internațională - Inovație financiară și competitivitate în Uniunea Europeană; 2008.

[4] Moşteanu, T., Cataramă, D.,F., Câmpeanu, E., M., *Gestiunea datoriei publice*, Editura Universitară, Bucureşti; 2005.

[5] ***. Raport anual al Consiliului fiscal pentru anul 2017. Retreieved from: http://www.consiliulfiscal.ro/raport_2017_final.pdf

[6] Socol, A., G. Sustenabilitatea datoriei publice în contextul crizei financiare Economie teoretică şi aplicată Vol. XX (2013), No. 3(580), 2014: 4-14.

[7] Strategia de administrare a datoriei publice guvernamentale 2017-2019, http://discutii.mfinante.ro/static/10/Mfp/buletin/executii/Strategiaadmindatpubguv2017_2019_09iunie_21062017.pdf

[8] Văcărel I. Bistriceanu Gh, Anghelache G, Bodnar M, Bercea F, Moşteanu T, Georgescu F. *Finanțe publice*. Bucureşti: Editura Didactică şi Pedagogică; 2007.

[9] Zaman G, Georgescu, G., Romania's External Debt Sustainability Under Crisis Circumstances, Romanian Journal of Economics; 2010.

[10] www.mfinante.ro

[11] www.eurostat.ro

Annex

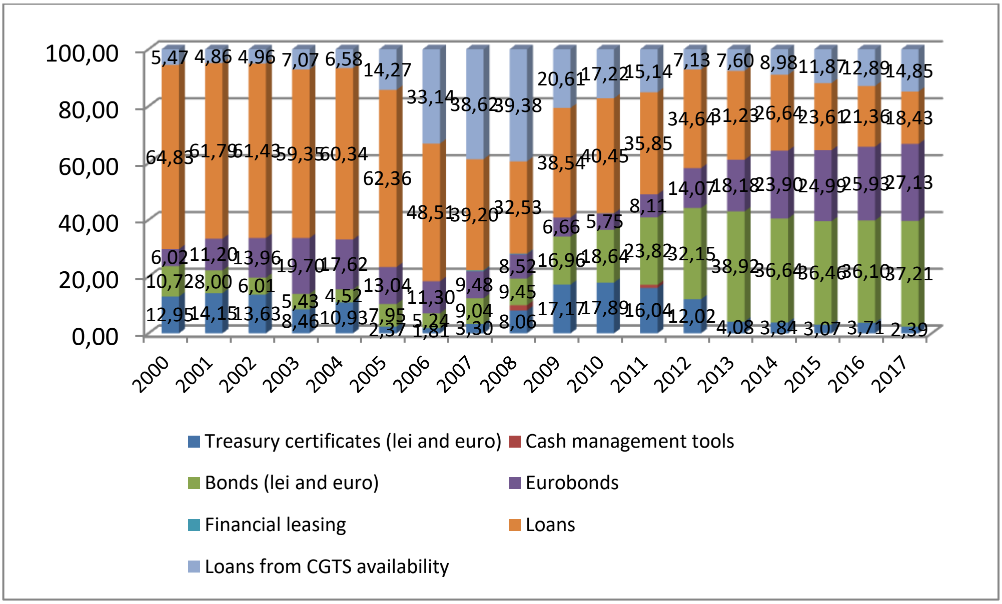

Chart no. 5. Evolution of Romania's public debt structure by instrument used

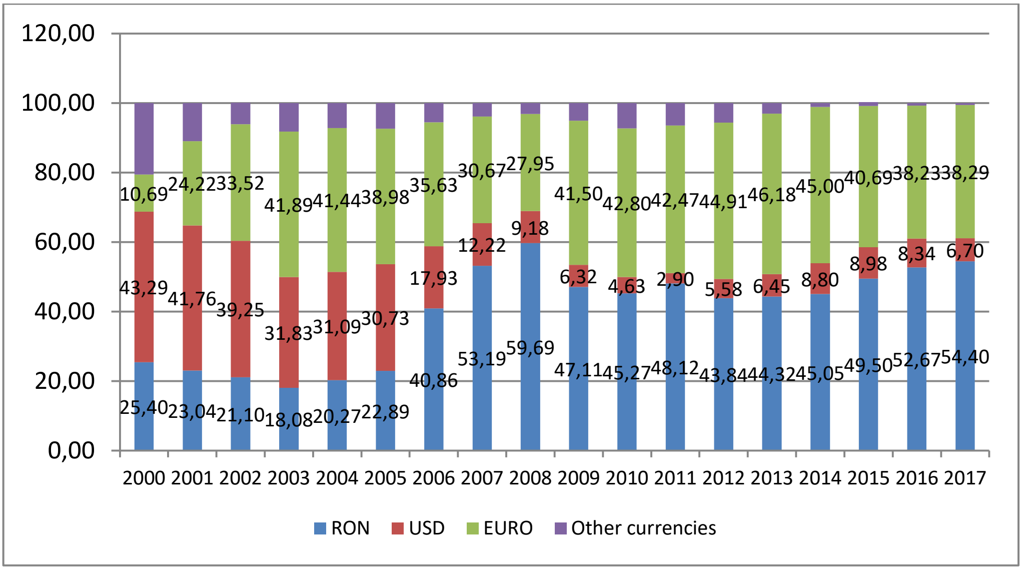

Chart no. 6. The evolution of the Romanian public debt structure by currency

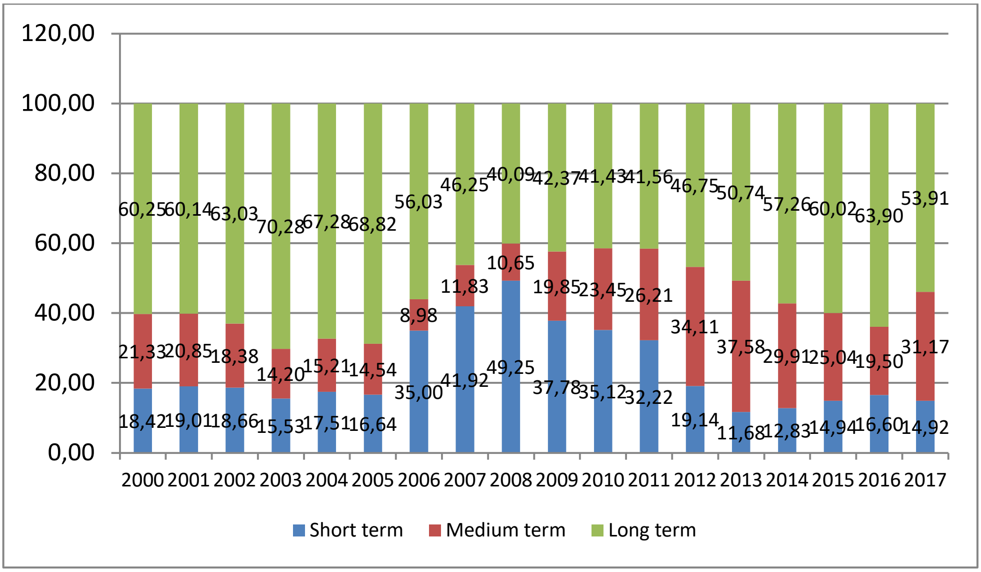

Chart no. 7 Evolution of Romania's public debt structure after maturity