PUBLIC DEBT ANALYSIS IN THE EUROPEAN UNION

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Abstract: *The global financial crisis of 2007-2008 has led to a rapid build-up of public debt in some euro area countries, highlighting the vulnerabilities of indebted economies - this accumulation being perceived as a problem for the European Union as a whole. In an environment of financial instability, the rapid rise in public debt and low economic growth have determined the increase of the concerns about the need for debt sustainability assessment in many EU countries since the crisis. There has been a significant increase in government debt rates in the EU Member States, reaching in 2017 over 87% of GDP. In Romania, the public debt trend, over the period 2006-2017, the period under review, has been steadily rising, reaching in 2017 EUR 66647.10 million, compared to EUR 12585.6 million in 2007, indicating financing needs with an ascending trajectory and inevitably leading to increased interest rates. Reducing public debt is essential for restoring market confidence and generating room for maneuver for the state so that in the event of a future crisis, macroeconomic stabilization measures can be promoted.*

Keywords: *Sustainability, public debt, analysis, indicators, indebtedness.*
JEL Classification: *H63.*

1. Introduction

The 2007-2008 global financial crisis has led to a rapid build-up of public debt in some Eurozone countries, and despite the fact that debt has only increased in a few countries, it is beginning to be perceived as a problem for the European Union as a whole. In a financially unstable environment, the rapid rise in public debt and low economic growth have prompted intensified concerns about the need for debt sustainability assessment in many European Union countries, especially in the Eurozone, starting in the years following the crisis. The financial and economic crisis has fully highlighted the vulnerabilities of indebted economies. Both the difficulties in the financial system and the rise in real interest rates as well as economic recession are conditions that make the level of public debt extremely difficult to control.

2. Public debt in the Member States of the European Union

As a result of this financial and economic crisis, there is a strong increase in the level of public debt in the countries of the European Union, with the Eurozone being hit hardest by the impact of the global crisis. The years that followed the crisis required huge budget allocations that caused a serious deterioration in public finances, especially in the periphery of the euro area. Public debt in the Eurozone reached an average of 68,5% of GDP in 2007.

When the crisis began to impact the euro area, its Member States reacted with massive packages of incentives and injections of public money into their banking systems, with debt and deficits far exceeding the Maastricht benchmarks.

At Eurozone level, a public debt of 65% of GDP was released, and in 2014 we had the highest value in the area of 91,8% of GDP and by the end of 2017 the value was slightly improved, of 86,8% of GDP. Thus, public debt has far exceeded the reference value of the Treaty of the European Union of 60% of GDP in 2007 (Table no.1).

Table no.1. General gross debt is public in the EU Member States - Annual data – Percentage of gross domestic product (GDP)

Country \ Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Euro area (19 countries)	67.40	65.00	68.70	79.20	84.60	86.60	89.70	91.60	91.80	89.90	89.10	86.80
Euro area (18 countries)	67.50	65.20	68.90	79.40	84.70	86.80	89.80	91.70	92.00	90.00	89.20	87.00
EU (28 countries)	60.10	57.50	60.70	73.30	78.80	81.40	83.80	85.70	86.40	84.40	83.30	81.60
EU (27 countries)	60.20	57.60	60.80	73.40	78.90	81.50	83.80	85.70	86.40	84.40	83.30	81.70
Belgium	91.10	87.00	92.50	99.50	99.70	102.60	104.30	105.50	107.60	106.50	106.10	103.40
Bulgaria	21.00	16.30	13.00	13.70	15.30	15.20	16.70	17.10	27.10	26.20	29.60	25.60
Czechia	27.70	27.50	28.30	33.60	37.40	39.80	44.50	44.90	42.20	40.00	36.80	34.70
Denmark	31.50	27.30	33.30	40.20	42.60	46.10	44.90	44.00	44.30	39.90	37.90	36.10
Germany	66.50	63.70	65.20	72.60	81.00	78.60	79.90	77.40	74.50	70.80	67.90	63.90
Estonia	4.40	3.70	4.50	7.00	6.60	6.10	9.70	10.20	10.50	9.90	9.20	8.70
Ireland	23.60	23.90	42.40	61.50	86.00	110.90	119.90	119.70	104.10	76.80	73.40	68.40
Greece	103.60	103.10	109.40	126.70	146.20	172.10	159.60	177.40	178.90	175.90	178.50	176.10
Spain	38.90	35.60	39.50	52.80	60.10	69.50	85.70	95.50	100.40	99.30	99.00	98.10
France	64.60	64.50	68.80	83.00	85.30	87.80	90.60	93.40	94.90	95.60	98.20	98.50
Croatia	38.60	37.20	39.00	48.30	57.30	63.80	69.40	80.40	84.00	83.70	80.20	77.50
Italy	102.60	99.80	102.40	112.50	115.40	116.50	123.40	129.00	131.80	131.60	131.40	131.20
Cyprus	59.30	54.00	45.60	54.30	56.80	66.20	80.10	103.10	108.00	108.00	105.50	96.10
Latvia	9.60	8.00	18.20	35.80	46.80	42.70	41.20	39.00	40.90	36.80	40.30	40.00
Lithuania	17.20	15.90	14.60	28.00	36.20	37.20	39.80	38.80	40.50	42.60	39.90	39.40
Luxembourg	7.80	7.70	14.90	15.70	19.80	18.70	22.00	23.70	22.70	22.20	20.70	23.00
Hungary	64.50	65.50	71.60	77.80	80.20	80.50	78.40	77.10	76.60	76.60	75.90	73.30
Malta	64.50	62.30	62.60	67.60	67.50	70.10	67.70	68.40	63.70	58.60	56.30	50.90
Netherlands	45.20	43.00	54.70	56.80	59.30	61.70	66.20	67.70	67.90	64.60	61.90	57.00
Austria	67.30	65.00	68.70	79.90	82.70	82.40	81.90	81.30	84.00	84.80	83.00	78.30
Poland	46.90	44.20	46.30	49.40	53.10	54.10	53.70	55.70	50.40	51.30	54.20	50.60
Portugal	69.20	68.40	71.70	83.60	96.20	111.40	126.20	129.00	130.60	128.80	129.20	124.80
Romania	12.30	11.90	12.40	22.10	29.70	34.00	36.90	37.60	39.20	37.80	37.30	35.10
Slovenia	26.00	22.80	21.80	34.60	38.40	46.60	53.80	70.40	80.40	82.60	78.70	74.10
Slovakia	31.00	30.10	28.50	36.30	41.20	43.70	52.20	54.70	53.50	52.20	51.80	50.90
Finland	38.20	34.00	32.70	41.70	47.10	48.50	53.90	56.50	60.20	63.60	63.00	61.30
Sweden	43.90	39.20	37.70	41.30	38.60	37.80	38.10	40.70	45.50	44.20	42.40	40.80
United Kingdom	40.70	41.70	49.70	63.70	75.20	80.80	84.10	85.20	87.00	87.90	87.90	87.40

Source: Eurostat.

At EU level (EU 28), government debt rose from 57.5% of GDP in 2007 to 86.4% in 2014 (Eurostat 2018), followed by a slight recovery, reaching 2017 , 6% of GDP. Extending debt sustainability to meet payments, Greece, Ireland and Portugal have received emergency financial packages from both the IMF and the European Union.

Generally, there has been a significant increase in public debt rates in the EU Member States, reaching 20% in 2017 at over 87% of GDP. At the start of the crisis, in 2007, there were nine EU Member States whose share of public debt in GDP exceeded 60%: Belgium, Germany, Greece, France, Italy, Hungary, Malta, Austria and Portugal (Figure no.1).

Source: Eurostat, authoring data processing

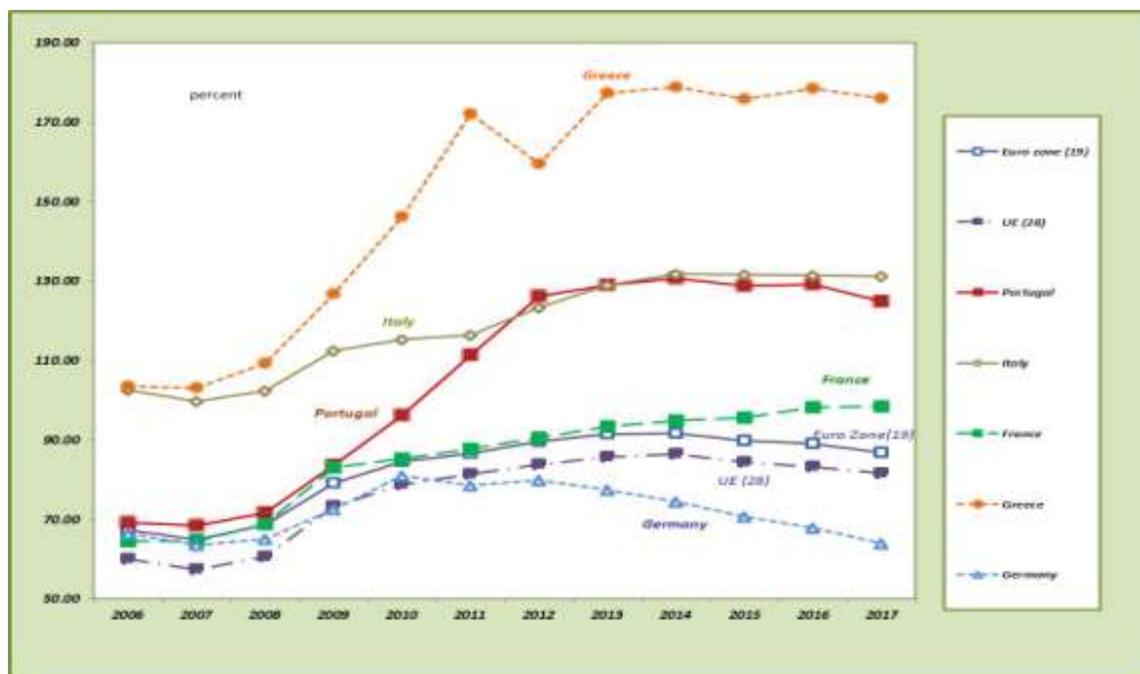
Figure no.1 Gross general government debt in EU member states in 2007 and 2017 - Percentage of gross domestic product (GDP)

Over time, the number of these countries has increased (Figure no.2), reaching 16 in 2016, reaching unprecedented levels since World War II (Figure no.3).

Source: Eurostat, authoring data processing

Figure no.2 The number of European Union countries whose share of public debt in GDP was more than 60%

Such a value well above the 60% of GDP reference value of the Treaty of the European Union is that recorded by Greece, whose public debt-to-GDP ratio was over 170% of GDP during the 6th none of the 12 analyzed. Italy also has debt ratios of over 130% of GDP over 4 years (Figure no.3).

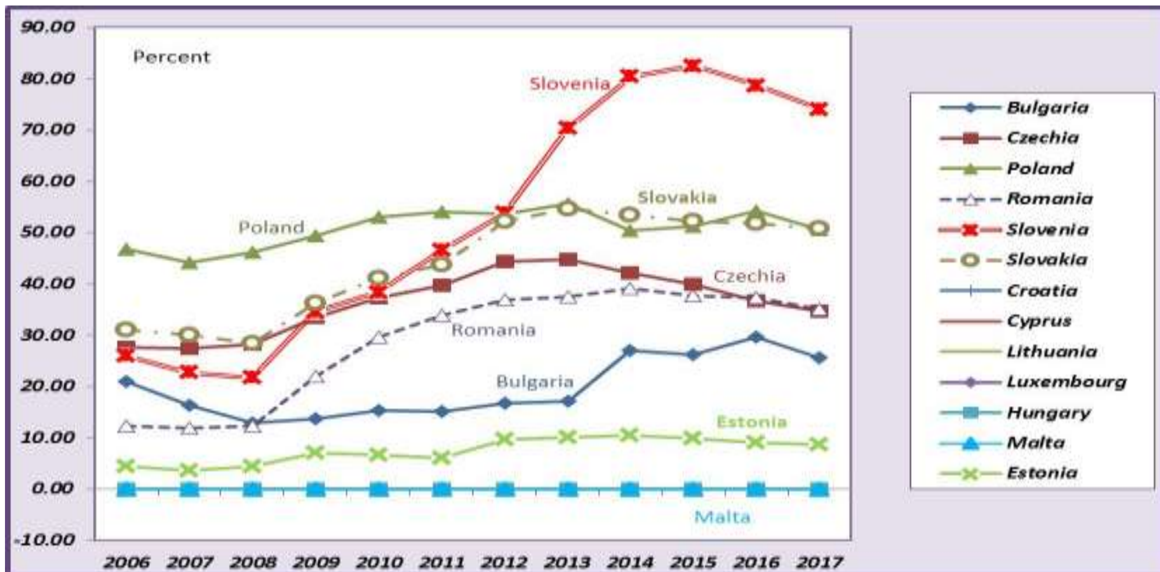


Source: Eurostat, authoring data processing

Figure no. 3. EU countries with the highest levels of government debt, share in GDP, 2006-2017

However, compared to the United States and Japan, budget imbalances were overall more limited in the euro area and fiscal consolidation was better prepared and more comprehensive.

Among the new Member States of the European Union, two states (Hungary and Malta) had, over the whole period considered, public debt values, percent of GDP, more than 60%; then Cyprus and Croatia have exceeded their value from 2011 and continued until 2017 inclusive, and from 2013 until the end of the analyzed period Slovenia. The other states, New Member States, were in the public debt percent in GDP lower than 60% (Figure no.4).



Source: Eurostat, authoring data processing

Figure no. 4. General Gross Debt in the New EU Member States, Percent of GDP

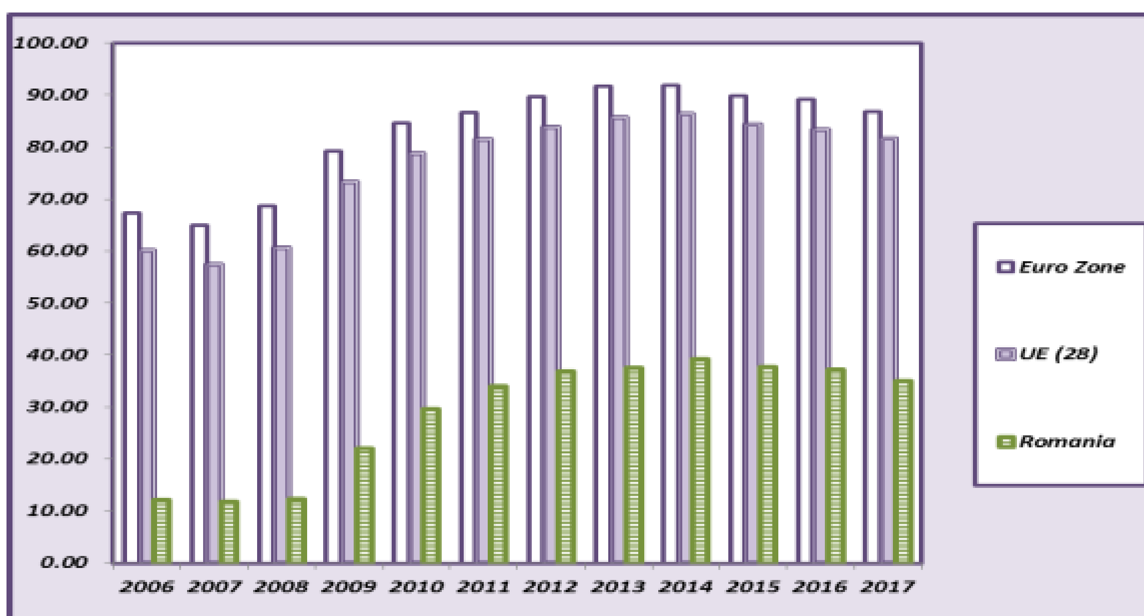
In response to this rapid rise in public debt and financial market pressure, in order to prevent future sovereign debt crises and stronger oversight across the European Union, most Member States underwent a considerable fiscal consolidation between 2011 and 2013. Also, through the reform of the Stability and Growth Pact, but also by introducing the Macroeconomic Imbalances Procedure in 2012, the European Union has significantly improved its macro-fiscal surveillance framework.

From a methodological point of view, the focus on debt sustainability analysis (DSA), in the context of the financial and economic crisis, has led to the improvement of DSA frameworks used by international organizations. Thus, both the European Commission in 2014-2016 and the IMF in 2013 have strengthened their DSA frameworks.

The challenges raised by the high level of debt in the public and private sector in a number of European Union countries after the peak of the crisis have prompted the European Commission and the IMF to place a particular emphasis on the importance of contingent commitments by governments, especially in the banking sector, on the structure of public debt financing, and on the design of enriched sensitivity scenarios, including the additional use of stochastic debt projections as a complementary tool to standard deterministic projections.

3. Public debt in Romania

In the period under review (2006-2017), Romania's government debt ratio (in GDP) was almost parallel to the trajectories of the Eurozone public debt and debt in the European Union from 2009 to 2017 (Figure no.5). In Romania, the increase in public debt (in GDP) started in the year following the global crisis, ie in 2009, in exchange for the Eurozone but also for the EU this growth trend started already in 2008. Until 2014, followed by a slight downward trend until the end of the analyzed period for all three situations.



Source: Eurostat, authoring data processing

Figure no. 5. Government Debt Developments (% of GDP) in Romania, in the Eurozone and in the European Union in the period 2006-2017

Concerning the public debt - EUR millions, (Table no. 2), the trend for the period 2006-2017 in Romania was steadily increasing, reaching 2017 at EUR 66,647.10 million compared to the level recorded in 2007 by 12585,6 EUR millions, reflecting financing needs with an ascending trajectory and inevitably leading to increased interest rates.

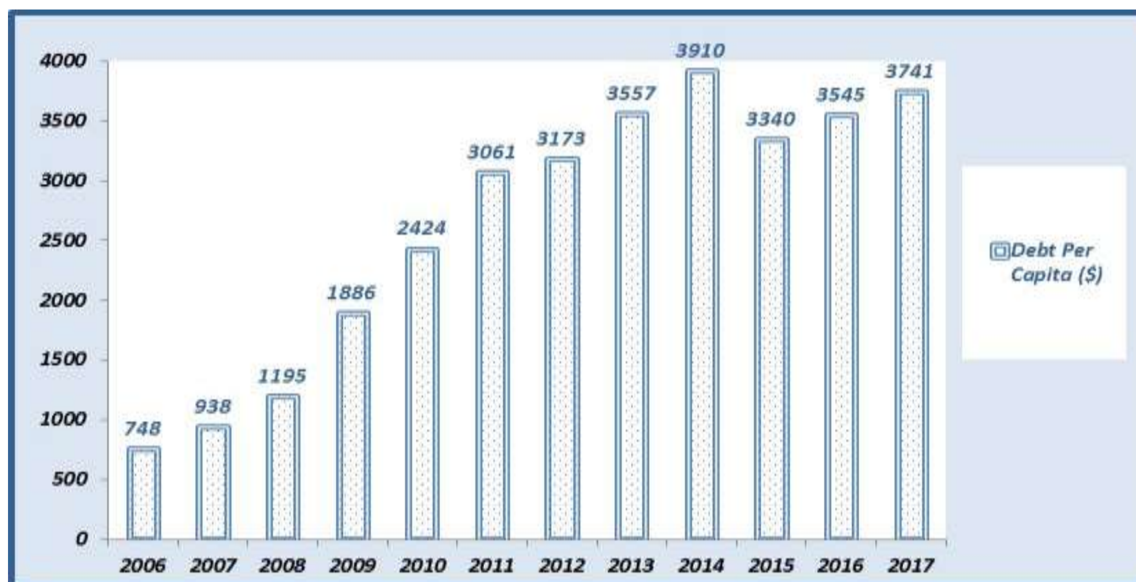
Table no. 2. General gross debt is public in the member countries of the European Union,(million euro) 2006-2017

Country \ Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Euro area (19 cou	67,4	65,00	68,7	79,2	84,6	86,6	89,7	91,6	91,8	89,9	89,1	86,8
Euro area (18 cou	67,5	65,2	68,9	79,4	84,7	86,8	89,8	91,7	92,0	90,0	89,2	87,1
EU (27 countries)	60,2	57,6	60,8	73,4	78,9	81,5	83,8	85,7	86,4	84,4	83,3	81,7
Belgium	91,1	87,0	92,5	99,5	99,7	102,6	104,3	105,5	107,6	106,5	106,1	103,4
Bulgaria	21,0	16,3	13,0	13,7	15,3	15,2	16,7	17,1	27,1	26,2	29,6	25,6
Czechia	27,7	27,5	28,3	33,6	37,4	39,8	44,5	44,9	42,2	40,0	36,8	34,7
Germany	66,5	63,7	65,2	72,6	81,0	78,6	79,9	77,4	74,5	70,8	67,9	63,9
Estonia	4,4	3,7	4,5	7,0	6,6	6,1	9,7	10,2	10,5	9,9	9,2	8,7
Ireland	23,6	23,9	42,4	61,5	86,0	110,9	119,9	119,7	104,1	76,8	73,4	68,4
Greece	103,6	103,1	109,4	126,7	146,2	172,1	159,6	177,4	178,9	175,9	178,5	176,1
Spain	38,9	35,6	39,5	52,8	60,1	69,5	85,7	95,5	100,4	99,3	99,0	98,1
France	64,6	64,5	68,8	83,0	85,3	87,8	90,6	93,4	94,9	95,6	98,2	98,5
Croatia	38,6	37,2	39,0	48,3	57,3	63,8	69,4	80,4	84,0	83,7	80,2	77,5
Italy	102,6	99,8	102,4	112,5	115,4	116,5	123,4	129,0	131,8	131,6	131,4	131,2
Cyprus	59,3	54,0	45,6	54,3	56,8	66,2	80,1	103,1	108,0	108,0	105,5	96,1
Latvia	9,6	8,0	18,2	35,8	46,8	42,7	41,2	39,0	40,9	36,8	40,3	40,0
Lithuania	17,2	15,9	14,6	28,0	36,2	37,2	39,8	38,8	40,5	42,6	39,9	39,4
Luxembourg	7,8	7,7	14,9	15,7	19,8	18,7	22,0	23,7	22,7	22,2	20,7	23,0
Hungary	64,5	65,5	71,6	77,8	80,2	80,5	78,4	77,1	76,6	76,6	75,9	73,3
Malta	64,5	62,3	62,6	67,6	67,5	70,1	67,7	68,4	63,7	58,6	56,3	50,9
Netherlands	45,2	43,0	54,7	56,8	59,3	61,7	66,2	67,7	67,9	64,6	61,9	57,0
Austria	67,3	65,0	68,7	79,9	82,7	82,4	81,9	81,3	84,0	84,8	83,0	78,3
Poland	46,9	44,2	46,3	49,4	53,1	54,1	53,7	55,7	50,4	51,3	54,2	50,6
Portugal	69,2	68,4	71,7	83,6	96,2	111,4	126,2	129,0	130,6	128,8	129,2	124,8
Romania	12,3	11,9	12,4	22,1	29,7	34,0	36,9	37,6	39,2	37,8	37,3	35,1
Slovenia	26,0	22,8	21,8	34,6	38,4	46,6	53,8	70,4	80,4	82,6	78,7	74,1
Slovakia	31,0	30,1	28,5	36,3	41,2	43,7	52,2	54,7	53,5	52,2	51,8	50,9
Finland	38,2	34.0	32,7	41,7	47,1	48,5	53,9	56,5	60,2	63,6	63,0	61,3
Sweden	43,9	39,2	37,7	41,3	38,6	37,8	38,1	40,7	45,5	44,2	42,4	40,8
United Kingdom	40,7	41,7	49,7	63,7	75,2	80,8	84,1	85,2	87,0	87,9	87,9	87,4

Source: Eurostat

The increase in the volume of related costs, respectively the volume of total public expenditures, is the main consequence of this increase in public debt.

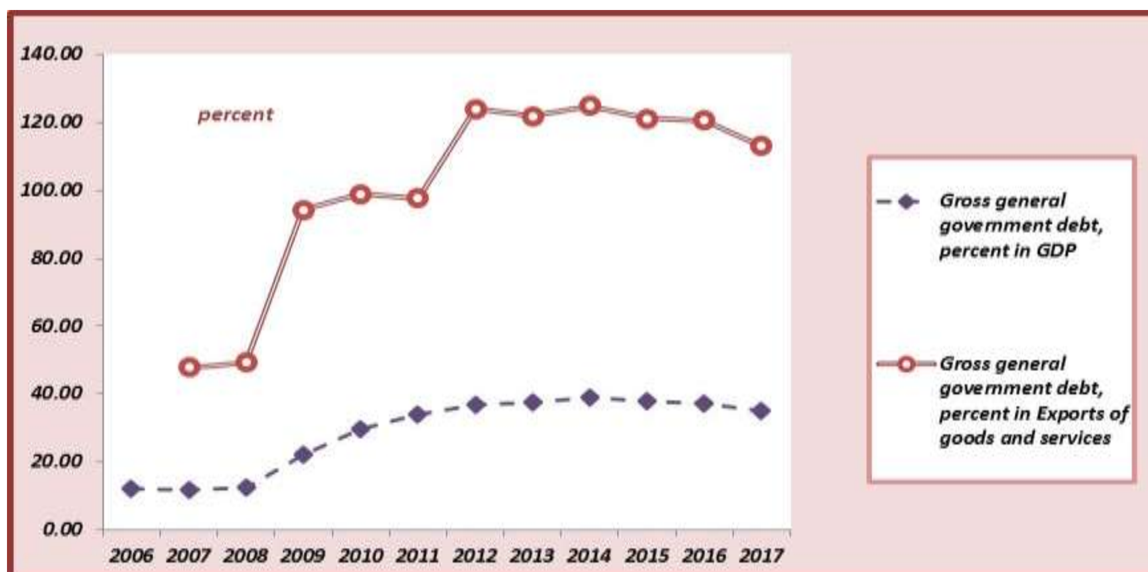
The effects of these public debt developments are also reflected in its per capita growth. Thus, we can observe the trajectory of public debt per capita in dollars (figure no.6). with an upward trend throughout 2006-2014; there is a fall in 2015, after which the upward trend, reaching 2017, is significantly higher than the figure recorded in 2006 at the beginning of the analysis (the increase being fivefold, from $ 748 in 2006 to 3741 $ 2017).



Source: Countryeconomy.com, 2019. *Romania National Debt*. [online] Available at: <https://countryeconomy.com/national-debt/romania> [Accessed 3 March 2019].

Figure no. 6. Public debt per capita, Romania, in dollars, 2006-2017

The most commonly used indicator that measures the level of indebtedness relative to a country's economic activity is the Public Debt/GDP Indicator. In Figure no. 7, we have seen this indicator, being recognized as the most important in the measurement of the indebtedness rate, being the one that emphasizes the country's solvency, together with another indicator of the analysis of the sustainability of the public debt, useful in analyzing the country's reimbursement capacity: Government Debt / Exports of Goods and Services Indicator.



Source: Eurostat, authoring data processing

Figure no. 7. Evolution of public debt versus GDP and exports of goods and services in Romania, 2006-2017

As can be seen from the graphical representation, during 2006-2017 the analyzed indicator representing the share of public debt in exports of goods and services had a

strong increase in 2009, almost double compared to 2007. The trajectory continues upward until 2010 when a slight declines continued in 2011, 2013 and 2015-2017, with a fall due to the increase in export volumes, while government debt-to-GDP had a smooth upward trend until 2014, when the slope of the downhill started slightly.

Figure 8 shows that the growth rate of public debt exceeded that of GDP growth over the period 2006-2014, assuming that the level of indebtedness in relation to Romania's economic activity in this period increased from year to year. Between 2015 and 2017, the growth rate of government debt is lower than GDP growth.

It should be emphasized that, given the sustained growth rate of public debt outstripping the growth rate of the economy, the solvency risk will increase.

Source: Eurostat, authoring data processing

Figure no. 8. Evolution of the growth rate of public debt, exports of goods and services and GDP in Romania between 2007 and 2017

4. Conclusions

The years that followed the crisis required huge budget allocations that caused a serious deterioration in public finances, especially in the periphery of the euro area. When the crisis began to impact the euro area, its Member States reacted with massive packages of incentives and injections of public money into their banking systems, with debt and deficits far exceeding the Maastricht benchmarks.

At EU level (EU 28), government debt rose from 57.5% of GDP in 2007 to 86,4% in 2014 (Eurostat 2018), followed by a slight recovery, reaching 20.1% to 81.6% of GDP. At Eurozone level, a public debt of 65% of GDP was released, and in 2014 we had the highest value in the area of 91,8% of GDP and by the end of 2017 the value was slightly improved, of 86,8% of GDP. Thus, public debt has far exceeded the EU Treaty's 60% of GDP reference value since 2007.

Extending debt sustainability to meet payments, Greece, Ireland and Portugal have received emergency financial packages from both the IMF and the European Union.

According to the analysis, it was noted that the public debt - EUR millions - in the period 2006-2017, in Romania, was constantly increasing, reaching 206,700 euro in 2017

compared to the level of 12585,6 in 2007, EUR millions, reflecting financing needs with an ascending trajectory and inevitably leading to increased interest rates.

Another observation is that the level of growth of public debt (in Romania) exceeded that of GDP growth, during 2006-2014, this implies that the level of indebtedness in relation to Romania's economic activity in this period increased year on year. Between 2015 and 2017, the growth rate of government debt was lower than GDP growth.

It should be emphasized that, given the sustained growth rate of public debt outstripping the growth rate of the economy, the solvency risk will increase.

Levels, previously considered to be sustainable for debt, are now perceived as excessive and generate serious solvency problems. The level of tolerance for public debt in emerging countries is significantly lower, probably below the Maastricht Treaty and also difficult to estimate. In this context, the reduction of public debt is essential to restore market confidence and create sufficient room for the state, so that in the event of a future crisis, macroeconomic stabilization measures can be promoted.

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