

IMPACT OF THE GLOBAL FINANCIAL CRISIS ON SOVEREIGN DEBT IN THE EUROPEAN UNION

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Abstract: *At European Union level, the global financial crisis intensified the issue of sovereign debts and member states had to implement a series of fiscal measures in order to reduce the budgetary deficit and public debts, that have peaked in the last decades. These changes were also imposed in the Romanian fiscal system and the effects were felt in particular through increased tax rates or even the introduction of new taxes. 2008 was the year that marked a turning point in the fiscal policy of member states of the European Union from multiple perspectives. The impact of the economic crisis was felt mainly through the drastic decrease in tax revenues for all member states, which led to an accelerated growth of the budgetary deficit and implicitly of the indebtedness degree. In this context, EU member states were forced to adopt measures that would reduce the budgetary deficit (increases in some taxes and reduction of certain public expenditures). In 2010, the sovereign debt crisis in the euro area exposed the weaknesses of the EU economic governance. In response, the so-called "six pack" regulations were introduced in December 2011. Moreover, many countries have intensified their consolidation efforts in an attempt to regain the confidence of financial markets. The new architecture of fiscal policy in the European area has undergone many changes in recent years, market not only by the fiscal harmonization process, but mainly by the temptation of fiscal coordination that aims mainly to achieve fiscal stability and reduce medium and long-term public debt. The excessive growth of countries' indebtedness degree in recent years led to the need to study the sustainability of the indebtedness policy, considering that maintaining the budgetary deficit at a prudent level would also ensure the sustainability of fiscal policy. The study analyzes the effects in budgetary plan of economic recovery measures by highlighting the evolution of public debt in EU member states. In recent years was spoken increasingly about a sovereign debt crisis in PIIGS countries (Portugal, Italy, Ireland, Greece and Spain) as the level of public debt exceeded 100% of GDP.*

Keywords: public debt; budgetary deficit; sustainability; degree/level of indebtedness;

JEL classification: G01; H10; H11; H12; H60; H63

The issues regarding public debt sustainability were addressed by international organizations such as the International Monetary Fund, Economic Organization for Cooperation and Development, World Bank. These bodies have established methodologies for determining the sustainable level of public debt, including external debt, since early 1980s when most industrialized countries registered high indebtedness rates. Also, financial crisis and excessive debt accumulated by developing and especially least developed countries negatively influenced investments, country risk, public budgets and present and future generations.

In 1923, when France faced a high level of indebtedness, Keynes explained the need to respect government budgetary constraints in order to apply a sustainable fiscal and budgetary policy. This approach can be considered a definition of public debt sustainability and consists in the French state's obligations that were expressed by the volume of budgetary expenditures, constrained by the national income. If we transpose Keynes's conception to the current economic conditions, we can say that the issue of

sustainability occurs when the indebtedness degree reached a level appreciated as being excessive and when budgetary revenues should also allow the funding of associated costs associated with new loans contracted by the government to financially support budget deficit.

The excessive indebtedness degree is the result of accumulation of government debt. This will involve a cost represented by the public debt service, which can be honored only if there is a fiscal adjustment materialized by increasing taxation and reducing budgetary expenditures. These types of measures are taken through fiscal and budgetary policies. For these policies to be sustainable on medium or long term there must be a consistency and stability in time of fiscal and budgetary measures, so that the positive effects to be also reflected in microeconomic statistics.

According to the author Domar (1944) the indebtedness rate must converge to a finite value to avoid the continuous growth of the tax burden, or, as the authors Blanchard, et. al. (1990) said, it must converge to the original level. This level also confers stability to the fiscal and budgetary policies, including the one regarding public debt.

According to the author Zee, sustainability represents stability, as shown in his study regarding sustainability and the optimum public debt, respectively "the sustainability level of public debt is the one that allows the economy, in the absence of exogenous unanticipated shocks, to aim for balance" (H. Zee, 1987:603).

In addition, the authors Blanchard, et. al. (1990) impose a restriction that the present value of future primary surpluses must be equal with the current level of public debt. If these variables are expressed in nominal terms, and the discount rate is the interest rate on public debt, then the public debt must converge to zero. If new governmental debts are accumulated, there is the chance that the indebtedness policy is not sustainable. But here also intervenes the way in which, in each state, the other microeconomic variables react to the increase of the indebtedness degree, respectively the macroeconomic variables are not influenced by the problem of choosing between the accumulation of new debts or increasing taxation if citizens do not react, medium or long term, by increasing the consumption as a result of supplementing the available income; or macroeconomic variables are influenced by the increase of indebtedness as the next period there will be fiscal adjustments most likely materialized also through the increase of taxation that will affect consumption, or according to the last scenario, the macroeconomic variables are less influenced if, in that respective country, economic growth allows the collection of a higher volume of public resources that provides funding for continuously growing budgetary expenditures.

Indebtedness policy sustainability reduces ultimately to the necessity to ensure limited resources for unlimited needs of communities, which can be expressed based on inter-temporal budget constraint. However, in concrete terms, debt sustainability derives from this budgetary constraint, according to which total governmental debts must be covered by the updated value of future governmental revenues. (Blanchard, 1990)

The problem of correlating governmental obligations with public resources, respectively to consider the budgetary constraint, led to the association of the concept of sustainability of the indebtedness policy, or fiscal sustainability, with the term of government financial solvency or even liquidity. Thus, sustainable public debt represents that level of indebtedness that can be reimbursed by public authorities without making, in the future, adjustments to budgetary revenues and expenditures. In this respect, public debt sustainability is strongly influenced by the cost of funding and ability or willingness to honor the public debt service and includes state solvency and liquidity (International Monetary Fund, 2002).

Nevertheless, a simple analysis of the indebtedness degree of a country is not sufficient to determine if the public debt policy is sustainable. An increase of indebtedness doesn't necessarily imply the inexistence of sustainability if the economic growth is higher than

the real interest rate in state loans. So, state solvency is a necessary condition, but not a sufficient one for fiscal policy to be sustainable in a country considering its economic situation and funding sources.

Nickel, et al. (2010) in the paper entitled "Major Public Debt Reductions. Lessons from the Past, Lessons from the Future", capture the most substantial reductions in the public debt of some states, including the time periods in which these reductions have occurred and the factors that influenced them; they review the possible macroeconomic effects of very high public debts, as well as the composition of the public expenditures incurred by the Government, for a predetermined sample of countries in the European Union.

The factors that determine public debt are analyzed by Forslund, et al. (2011), in the paper entitled "The Determinants of the Composition of Public Debt in Developing and Emerging Market Countries". The authors classify these causes into five categories, from macroeconomic imbalances, to the exchange rate regime. Also, Antonio Afonso (2002), approaches the subject of agencies Standard & Poor's and Moody's, respectively of the system under which they give ratings to countries based on their public debt, as well as the factors that influence the allocation of a rating or another.

The presentation of public debt goes hand in hand with the presentation of the evolution of the public deficits that have determined its appearance. The wishes and suggestions of international bodies to organize the management of public debt policy in a manner independent from the monetary and budgetary policy derives from the necessity to ensure control and total transparency for the population regarding public funds. As a state registers rising budgetary deficits, the public debt will be higher and, consequently, the public debt service will be more difficult to bear. The long term stability of the ration public debt/ GDP implies bringing together two conditions (Călin, 2008:215):

- balanced economic growth;
- reducing budgetary deficit.

1. In an expanding economy, in which the state is indebted, applying a budgetary policy of maintaining constant in the long term the ratio between public debt and GDP requires that the volume of public debt to increase on average at the same rate as the nominal GDP. The budgetary deficit that ensures this ration between debt and GDP is equal with the product between the growth rate of nominal GDP and, respectively, the volume of public debt (Călin, 2006:216):

$$\text{Budgetary deficit} = z \times \text{Public debt}$$

Where:

z = growth rate of nominal GDP;

$z = g + d$;

g = growth rate of real GDP;

d = inflation rate.

2. The effect of the volume of public debt depends essentially on the difference between the nominal interest rate and the growth rate of nominal GDP. Covering the additional expenditures that exceed the level of resources is achieved by contracting loans internally or externally, thereby achieving the total deficit of the state, which is given by the formula (Călin, 2006:217):

$$\text{Total public deficit} = p_t G_t - p_t x_t Y_t + i_{t-1,t} B_{t-1}$$

Where:

p_t = price level;

G_t = public expenditures in t ;

x_t = tax rate in t ;

Y_t = national income in t ;

$i_{t-1,t}$ = nominal interest rate between $t-1$ and t ;

B_{t-1} = total debt in $t-1$.

The monetary policy of each state determines the inflation rate, thus influencing directly the growth rate of nominal GDP in the long term. To produce positive effects, monetary policy should seek a solution through which to obtain an inflation rate to determine a growth rate of nominal GDP higher than the nominal interest rate. (Călin, 2006:219)

The factors that influence public debt could be divided into five categories, namely (Forslund et al., 2011:6):

- macroeconomic imbalances: the most representative example is inflation;
- size of the country and its level of development: GDP, respectively GDP per capita;
- periods of crisis: a representative example is banking crisis;
- trade openness of the country;
- exchange rate regime.

The inflation rate can have two opposite effects on public debt. On the one hand, an increase in the inflation rate can enhance public debt dynamics by reducing the real value, actually reducing it. On the other hand, an increase in the inflation rate contributes negatively to public debt dynamic, through the fact that governments are forced to pay higher nominal interest rates. Also, the real economic growth registered by a state implies a decline of the indebtedness rate, which eases the burden of public debt. Also, a growing economy contributes to the absorption of excess labor force, to the reduction of unemployment, to the increase of the living standards and minimization of possible social conflicts and political instability. The degree of economic development is also taken into consideration through GDP expressed per capita. Nevertheless, rating agencies assign a greater possibility of reimbursement to countries labeled as being developed. The history of the states can also influence the opinion of rating agencies, a history that includes repeated reimbursements is automatically penalized with a low rating. (Afonso, 2002:9, 10)

Budgetary deficit represents a variable of flows, while public debt represents a variable of stocks. Whenever the state faces budgetary deficit, at the end of the year, it requires funding funds, thus affecting the public debt level. The classic school saw as main negative effects of deficit the low level of investments and the high level of the interest rate, which was later transposed by the specialized literature in the so-called crowding out effect. Crowding out occurs together with changes in interest rates. Because the deficit actually represents a negative public saving, the national savings level is decreased. When the government increases the demand for loans, the interest rate – the credit price – will increase. Along with this increase, private investments become more expensive, and the temptation to make them decreases. So we observe that the general assumption is that public debt mainly affects private investments. (Moldovan et al., 2010:56)

If public debt increases too fast, for a long period of time, there is the theoretical risk to reach the credit state limit – that level of debt that would make creditors doubt the possibility that the state would continue to pay interest. In this case, the state would be close to disaster. A small increase in the share of public debt in GDP could lead to a cessation of future loans or the imposition by creditors of prohibitive interest rates to compensate the increased risk. Without having at hand the possibility to borrow at reasonable interest rates, the budget must be balanced immediately. (Moldovan et al., 2010:58)

In the following we will perform an analysis of the evolution of indebtedness as a percentage of GDP for the EU member states to highlight the growth of public debt in the last decade, particularly the steep increase after the onset of the crisis. We will perform both a global analysis on aggregates EU 27, EU 15, EU 17, NMS 12, as well as a detailed analysis of the component states, respectively the old Member States and the new Member States, that adhered in 2004 and 2007 in NMS 12.

Table 1: Evolution of public debt as share in GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
UE 27	61.00	60.50	61.90	62.30	62.80	61.60	59.00	62.20	74.60	80.00	82.50	85.30
Zona euro (UE17)	68.20	68.00	69.20	69.60	70.30	68.60	66.40	70.20	80.00	85.40	87.30	90.60
UE 15	59.15	58.35	58.12	57.93	57.67	56.17	54.19	59.65	69.15	75.98	80.97	84.89
NMS 12	37.08	36.62	37.37	36.71	34.66	32.88	31.07	31.38	39.42	43.28	45.61	49.38
Romania	25.7	24.9	21.5	18.7	15.8	12.4	12.8	13.4	23.6	30.5	34.7	37.8

Source: Processing based on data from Eurostat

The lowest level of indebtedness is registered in the new EU states on average, and regarding old states, respectively states from the euro area, the average indebtedness degree is almost double compared with that from new member states. In the states from the euro area not even in 2001 the average indebtedness degree did not stay within the limit 60% of GDP.

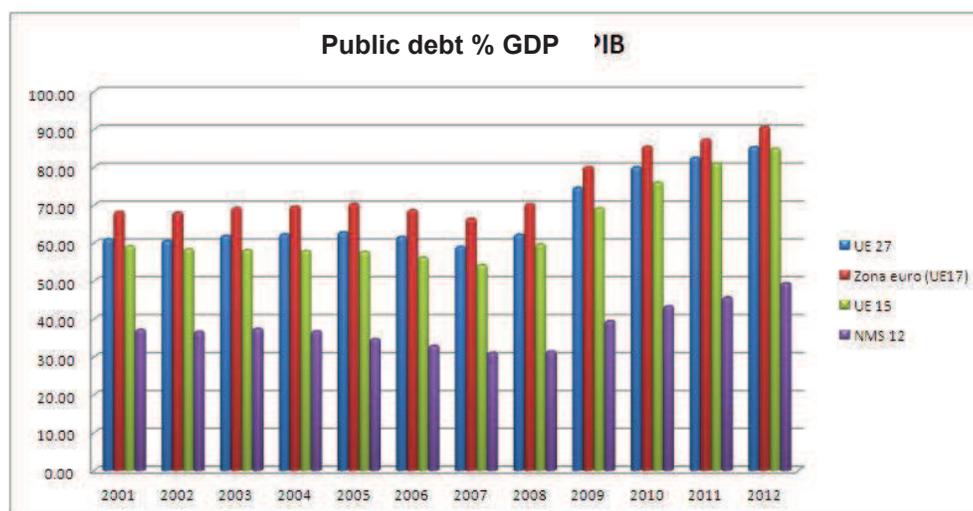


Figure 1: Evolution of public debt as share in GDP

Source: Processing based on data from Eurostat

The share of public debt in the euro area ranges between 66.40% and 90.60% of GDP. In the first year of analysis, the ranking of GDP as share in GDP is as follows. Euro Area with 68.20%, followed by EU 27 with 61%, EU 15 with 59.15%, and least NMS 12 with 37.08%. In the last year of analysis, 2012, the hierarchy is maintained, although the values are higher.

Table 2: Public debt % of GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
UE 15	59.15	58.35	58.12	57.93	57.67	56.17	54.19	59.65	69.15	75.98	80.97	84.89
Belgium	106.50	103.40	98.40	94.00	92.00	88.00	84.00	89.20	95.70	95.50	97.80	99.60
Denmark	49.60	49.50	47.20	45.10	37.80	32.10	27.10	33.40	40.60	42.90	46.60	45.80
Germany	59.10	60.70	64.40	66.20	68.50	68.00	65.20	66.80	74.50	82.50	80.50	81.90
Ireland	35.20	32.00	30.70	29.50	27.30	24.60	25.10	44.50	64.90	92.20	106.40	117.60
Greece	103.70	101.70	97.40	98.60	100.00	106.10	107.40	112.90	129.70	148.30	170.60	156.90
Spain	55.60	52.60	48.80	46.30	43.20	39.70	36.30	40.20	53.90	61.50	69.30	84.20
France	56.90	58.80	62.90	64.90	66.40	63.70	64.20	68.20	79.20	82.30	86.00	90.20
Italy	108.20	105.10	103.90	103.40	105.70	106.30	103.30	106.10	116.40	119.20	120.70	127.00
Luxembourg	6.30	6.30	6.10	6.30	6.10	6.70	6.70	14.40	15.30	19.20	18.30	20.80
Netherlands	50.70	50.50	52.00	52.40	51.80	47.40	45.30	58.50	60.80	63.10	65.50	71.20
Austria	66.80	66.20	65.30	64.70	64.20	62.30	60.20	63.80	69.20	72.00	72.40	73.40
Portugal	53.80	56.80	59.40	61.90	67.70	69.40	68.40	71.70	83.20	93.50	108.10	123.60
Finland	42.50	41.50	44.50	44.40	41.70	39.60	35.20	33.90	43.50	48.60	49.00	53.00
Sweden	54.70	52.50	51.70	50.30	50.40	45.30	40.20	38.80	42.60	39.50	38.40	38.20
United Kingdom	37.70	37.70	39.10	41.00	42.20	43.30	44.20	52.30	67.80	79.40	85.00	90.00

Source: Processing based on data from Eurostat

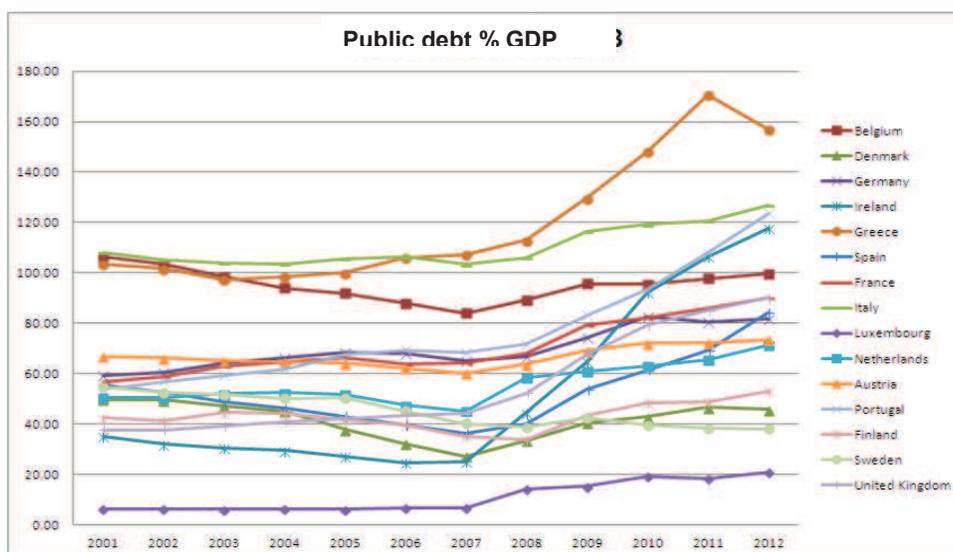


Figure 2: Evolution of public debt as share in GDP in EU 15

Source: Processing based on data from Eurostat

Countries that constantly exceed the public debt barriers in the EU 15, the limit being 60% of GDP imposed by the Stability and Growth Pact, are Belgium, Greece, Italy and Austria. Of these, Greece has the highest debt ratios in GDP, of 170.60% in 2011.

The remaining states slightly exceed the limit, other states are even below this limit. An eloquent example is Luxembourg, which has the public debt as share in GDP below 20%, in the first years of analysis registering values of 6% of GDP.

Table 3: Public debt % of GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
NMS 12	37.08	36.62	37.37	36.71	34.66	32.88	31.07	31.38	39.42	43.28	45.61	49.38
Bulgaria	66.00	52.40	44.40	37.00	27.50	21.60	17.20	13.70	14.60	16.20	16.30	18.5
Czech Republic	23.90	27.10	28.60	28.90	28.40	28.30	27.90	28.70	34.20	37.80	40.80	45.8
Estonia	4.80	5.70	5.60	5.00	4.60	4.40	3.70	4.50	7.20	6.70	6.10	10.1
Cyprus	61.20	65.10	69.70	70.90	69.40	64.70	58.80	48.90	58.50	61.30	71.10	85.8
Latvia	14.10	13.60	14.70	15.00	12.50	10.70	9.00	19.80	36.70	44.50	42.20	40.7
Lithuania	23.00	22.20	21.00	19.30	18.30	17.90	16.80	15.50	29.30	37.90	38.50	40.7
Hungary	52.70	55.90	58.60	59.50	61.70	65.90	67.00	73.00	79.80	81.80	81.40	79.2
Malta	60.50	59.10	67.60	71.70	69.70	64.00	61.90	62.00	67.60	68.30	70.90	72.1
Poland	37.60	42.20	47.10	45.70	47.10	47.70	45.00	47.10	50.90	54.80	56.40	55.6
Romania	25.70	24.90	21.50	18.70	15.80	12.40	12.80	13.40	23.60	30.50	33.40	37.8
Slovenia	26.50	27.80	27.20	27.30	26.70	26.40	23.10	22.00	35.00	38.60	46.90	54.1
Slovakia	48.90	43.40	42.40	41.50	34.20	30.50	29.60	27.90	35.60	41.00	43.30	52.1

Source: Processing based on data from Eurostat

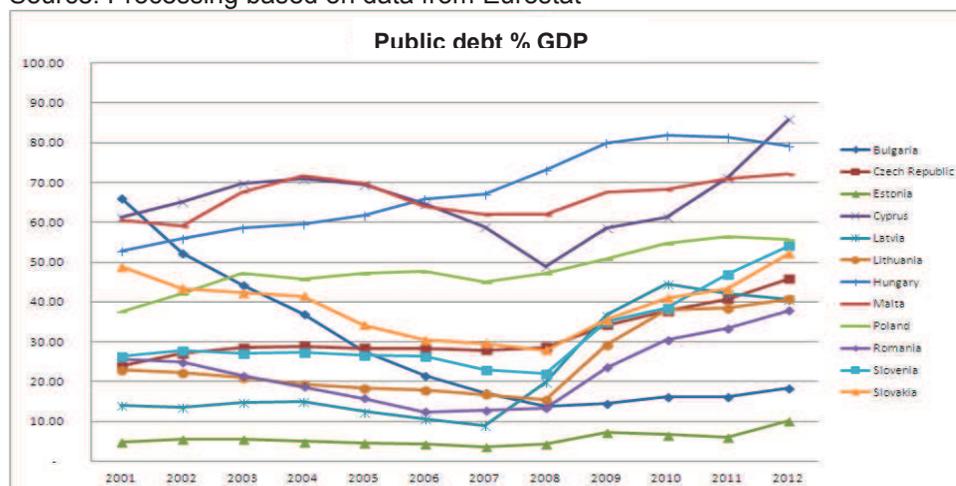


Figure 3: Evolution of public debt as share in GDP in NMS 12

Source: Processing based on data from Eurostat

In NMS 12, during the analyzed period, the share of public debt in GDP increased from the minimum value recorded in 2007 of 31.07% to the maximum value of 49.38% in 2012. The lowest share in GDP registered throughout the analyzed period is held by Estonia, with a value of 3.70% reached in 2007. The highest share in GDP is held by Cyprus in 2012, when public debt reaches 85.8%. The total of 12 member states reported an average level of debt of over 37% of GDP during the analyzed period.

We also analyzed the correlation between public debt and economic growth for three years: 2008, 2009, and 2012 to see the effect of indebtedness of member states. We plotted and calculated the regression equation between public debt of EU27 member states and the economic growth rate for EU27.

In 2008 we find an indirect link between public debt and economic increase, so that highly indebted countries register and economic decline, but the correlation is greatly reduced.

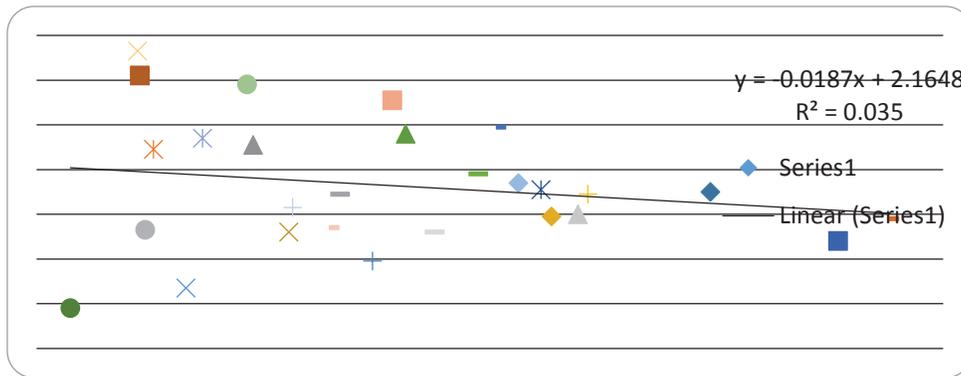


Figure 4: Correlation public debt - economic growth in EU27 in 2008

Source: Processing based on data from Eurostat

In 2009 the result is no longer conclusive because almost all EU countries record economic decline (except only Estonia), for which the link between public debt and economic growth is no longer conclusive.

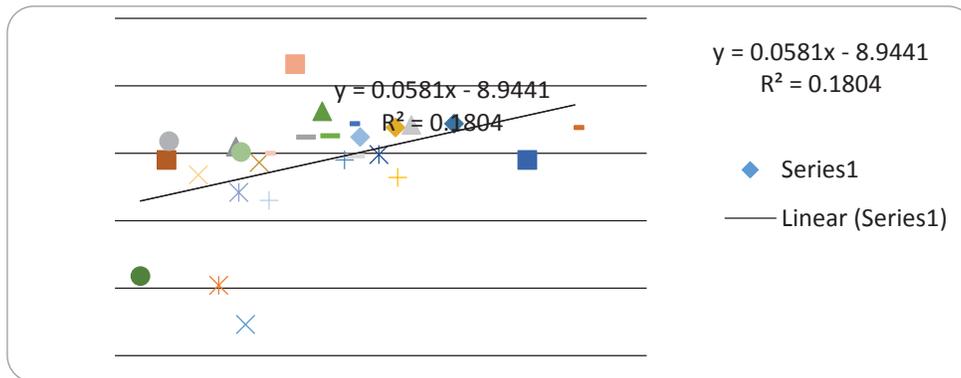


Figure 5: Correlation public debt - economic growth in EU27 in 2009

Source: Processing based on data from Eurostat

2012 already appears as a year in which member states' economies have recovered and we have economic growth especially in states that have a moderate level of indebtedness. In this case it is relevant the indirect link between indebtedness and economic growth, the correlation coefficient is approximately 42%.

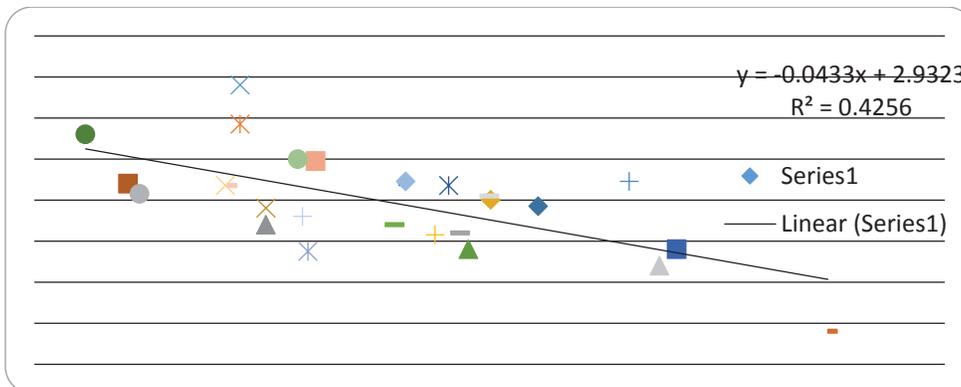


Figure 6: Correlation public debt - economic growth in EU27 in 2012

Source: Processing based on data from Eurostat

We can state that states with a moderate level of indebtedness stimulated much easier economic growth, not having budgetary constraints imposed by the indebtedness degree. But economic growth in member states remained modest based on a cautious fiscal policy.

REFERENCES

- Afonso, A., (2002), *Understanding the Determinants of Government Debt . Ratings: Evidence for the Two Leading Agencies*, Department of Economics and Research Center on the Portuguese Economy (CISEP), Instituto Superior de Economia e Gestão, Universidade Técnica de Lisboa.
- Aizenman, J., (2013), *Reflections on the euro crisis: prioritizing the road ahead*, paper presented at the seminar of the Economic Institute of the National Bank of Poland, June 21, http://www.nbp.pl/badania/seminaria_files/21vi2013.pdf.
- Altăr, M. (coord.), (2009), *Finanțe publice:introducerea unui cadru fiscal-bugetar pe termen mediu, Studii de strategie și politici nr.1*, Institutul European din România, București.
- Blanchard, O., Chouraqui J-C., Hagemann R. P., Sartor N., (1990), *The Sustainability of Fiscal Policy : New Answers to an Old Question*, OECD Economic Studies, no. 15.
- Călin, M., (2006), *Datoria publică*, Editura Didactică și Pedagogică, București.
- Condea, B.V., Cuc, L., (2010), *The coordination and influencing factors of european union tax policy*, Theoretical and Practical Approaches in Economics, „Aurel Vlaicu” University Publishing House, pag. 270 – 278.
- Condea B.V., Almasi R., *The impact of Fiscal Stability Pact on fiscal consolidation in Romania*, Journal of Economics and Business Research, Arad, Romania, nr. 1/2013, ISSN 2068-3537.
- Domar, E.D., (1944), *The burden of the debt and the national income*, published in “American Economic Review”, vol. 34.
- IMF, (2002), *Assessing Sustainability*, Working Paper, May.
- Forslund, K., Lima, L., Panizza, U., (2011), *The determinants of the composition of public debt in developing and emerging market countries*, Università del Piemonte Orientale „Amedeo Avogadro”, Alessandria.
- Horne, J., (1991), *Indicators of Fiscal Sustainability*, International Monetary Fund, Fiscal Aairs Department WP/91/5.
- Moldovan, B-A., Pavel, A., Hogye, M., (2010), *Budgetary deficits and public debt*, Transylvanian Review of Administrative Sciences.
- Nickel, C., Rother, P., Zimmermann, L., (2010), *Major public debt reductions. Lessons from the past, Lessons for the future*, European Central Bank.
- Socol C., Marinaș, M., Socol A.G., (2010), *Fiscal sustainability and social cohesion, Common and specific in European Union's sub-models*.
- Zee, H., (1987), *Government Debt, Capital Accumulation, and the Terms of Trade in a Model of Interdependent Economies*, *Economic Inquiry*, Western Economic Association International, vol. 25(4), pages 599-618, October.
- European Commission, (2013), *Tax reforms in EU Member States - Tax policy challenges for economic growth and fiscal sustainability*, Luxembourg.
- European Commission, (2013), *Taxation trends in the European Union*, Luxembourg.
- European Commission, (2014), *VAT Rates Applied in the Member States of the European Union*.

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