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THE SOVEREIGN DEBT CRISIS – DETERMINING FACTOR IN ENHANCING THE INSTABILITY DEGREE AT MACROECONOMIC LEVEL

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Abstract: *The sovereign debt crisis certainly affects macroeconomic evolution, with its strongest impact being upon economic instability. Thus, the current paper has several specific objectives: to present the theoretical aspects related to sovereign debt crisis; constructing a mathematical model regarding sovereign debt crisis impact and completing an empirical study regarding the impact of the sovereign debt crisis on economic instability in Romania; presenting several measures to decrease the impact of the sovereign debt crisis on economic instability.*

Keywords: *economic instability, sovereign debt crisis, EU, budgetary deficit*

1. INTRODUCTION

The factors that guide the macroeconomic mechanism are determined by both the international context and the dependency relationships between the countries of the world. Thus, shocks at national and international level can enhance the degree of instability at macroeconomic level, determining, in this way, disorders of the dynamic components of the economic unit. The sovereign debt crisis, determining factor in enhancing the degree of instability, is based on a debtor-creditor relationship between two countries that have constraints regarding the underlying credit payments, the creditor not being able to pay the obligation in time.

The current economic situation at global level is determined by the commercial relationships between the countries of the world. In order for each country to reach a balance at macroeconomic level it must finance itself or make a loan as to cover the budgetary deficit.

The sovereign debt crisis can be determined by several factors such as the effects of the monetary crisis, the effects of the financial crisis, the fluctuations at macroeconomic level etc. A first aspect is the one regarding the monetary crisis. This concept designates that short period of time when the exchange rate depreciates continuously, this phenomenon leading to the depreciation of the national currency and hence to an increase in the incapacity of payment as the GDP falls. The second aspect is the one related to the financial crisis. The financial crisis refers to "any deviation from the optimal saving-investment plan of an economy that is due to imperfections in the financial sector" (after Haldane, 2004) or to the fact that instability is characterized by an increased loss probability or decrease in the profit (after Goodhart, 2006).

The current crisis has been triggered in 2007 after the decline of the mortgage industry in the Unites States of America. This crisis has generated the following effects:

- the downfall of the stock exchanges;
- discrepancies of the banking system;
- credit downfall.

On the background of these changes, in order to diminish the crisis effects, the ailing countries have made loans, that afterwards could not honor, thus being triggered the sovereign debt crisis. The sovereign debt crisis is a concept with great implications at macroeconomic level, determining thus the evolutionary trajectory of the economy.

There have been numerous studies regarding short term and long term debts. Here can be remembered as short term debts, the debts of the countries affected by the tequila crisis. Related to these debts, Sachcs, Tornell and Velasco (1996) have verified the correlation between the short term debt ratio and the sensibility degree of the economies of these countries to shocks. Also, recent studies (Bordo, 2002) have shown that the government of a vulnerable country engages in a fiscal stabilization if only if a decline in the external financing is foreseen. In this situation the government has to make a short term loan.

According to the literature regarding the crisis, two aspects must be taken into account, namely:

1. the sovereign debt crisis spreading in the European Union is determined by the increased global economic risk;
2. in the crisis periods the markets emphasize the macroeconomic disequilibrium.

2. THE SOVEREIGN DEBT CRISIS – ECONOMIC FACTOR OF INSTABILITY

The sovereign debt crisis is common among countries where there is insolvency or lack of liquidity or macroeconomic disequilibrium. In other words, o country finds itself in the sovereign debt crisis if:

- there are consistent arrears regarding debt pays or external interest obligations of commercial creditors (banks or bondholders) that surpass 5% from the total remaining debts;
- there is a rescheduling or debt restructuring agreement with commercial creditors[1] which is found in the GDF (Global Development Finance).

Emphasizing the sovereign debt crisis (through its component factors) leads therefore to changes with negative effects on the economy. For example, in 2010, due to the financial crisis, the public European debt has increased significantly, causing an alarming wave of financial and monetary instability.

This economic context has led to a grim forecast of the economists regarding a collapse of the EURO currency, as evidenced in 2011 in the case of Greece. IMF has given Greece, a country forced to adopt and apply austerity measures, a loan of 110 billion EURO. Across Europe the countries most affected have been Spain, Germany and Italy. In these countries, in order to reduce the effects of the debt crisis and therefore the degree of economic instability, resorted to the Central European Bank, that has expressed its decision to buy almost half of the sovereign debt of Italy and Spain.

On the whole, the sovereign debt crisis was born in an economic conjuncture dominated by large budget deficits due to the illusion of “saving the euro” through the national markets. As a consequence of the financial crisis that hit the global economies and the effect of increased public spending and of reduced public income, the volume of the public deficits increased, preceding the great economic instability.

On the other hand, increased borrowing of the OECD in order to maintain the same level of social welfare was another cause of the sovereign debt crisis.

Although regulation is difficult regarding the decisions on government spending:

- issuing the money supply is slow;
- involving monetary funds leads to a higher external debt.

One of the countries mostly affected by the crisis, Germany, said it will reduce considerably the rescue guarantee in order for the public debts to be taken on by foreign

[1] Arrears or official debt restructuring are not considered crisis events.

investors, the latter having a very high loss probability starting with the second decade of 2013.

Very high public debts provoke a very high degree of instability because they assume discouraging the national economy affecting in this way drastically the macroeconomic interventions. A concrete example in this regard is Ireland. In Ireland in 2010 there has been registered a budgetary deficit of approximately 33% of the GDP and a foreign debt of 80% of the GDP, a situation resulted from the failure of the Irish government to support banks. In this context, in the Irish economy, has been produced macroeconomic instability, this situation leading to the discouragement of investments in this country.

The debt crisis, seen from the level of the European Union, has manifested through the following characteristics[2] in 2011:

- an average deficit of 4,2%;
- an average value of the public debt of 75%;
- the average borrowing was 16% of the GDP.

In the vision of Thomas Mirow, "The sharp rise in sovereign debt will impose large liabilities on taxpayers in the West for a generation" stating altogether that the Eastern European Countries and Central Asia where EBRD has intervened have been less affected by these problems.

3. A MATHEMATICAL MODEL OF THE SOVEREIGN DEBT CRISIS IMPACT OVER ECONOMIC INSTABILITY

Economic instability can be seen as a disturbance of the macroeconomic system, a cybernetic system, provoking a negative feedback for the national economy. In this context, economic instability includes, therefore, the most sensitive macroeconomic components, elements that can cause shocks in the national economy such as:

- the exchange rate;
- the inflation rate;
- the GDP rate;
- the volume of imports;
- the volume of exports.

The sovereign debt crisis, the factor influencing economic instability, can be quantitatively aggregated through government borrowing and public deficit.

Starting from these elements the following multidimensional model can be built:

$$\begin{aligned} GDP_t &= \alpha_0 + \alpha_1 \mathrm{L}_t + \alpha_2 Def_t + \\ &+ \alpha_3 \mathrm{Import}_t + \alpha_4 \mathrm{Export}_t \end{aligned} \tag{1}$$

$$\begin{aligned} C_{st} &= \beta_0 + \beta_1 \mathrm{L}_t + \beta_2 Def_t + \\ &+ \beta_3 \mathrm{Import}_t + \beta_4 \mathrm{Export}_t \end{aligned} \tag{2}$$

(multidimensional model)

where:

t - represents the moment in time of the analysis;

C_{st} - represents the exchange rate national currency/euro;

GDP_t - represents the GDP volume;

Import_t - represents the volume of the imports of the analyzed EU country;

Export_t - represents the volume of the exports of the analyzed EU country;

L_t - represents the value of the analyzed country loans;

Def_t - represents the public deficit of the analyzed country.

The multidimensional model given by the relations (1) and (2) shows precisely the

[2] (Prohnițchi, 2012)

impact of the components of the sovereign debt crisis, given by: the loans given and the public deficit of the analyzed country, the volume of the imports of the EU analyzed country, the volume of the exports of the EU analyzed country, over the dependent variables at the level of economic instability (the exchange rate national currency/euro, the GDP volume).

4. EMPIRICAL RESULTS

Starting from the econometric model given by the relations (1) and (2) an empirical study at the level of Romania has been done, using the Eviews7 software, taking into consideration the official data obtained from Eurostat[3](for the period 1999-2012).

Through this study we aimed to analyze the impact of the loans made by Romania, of the public deficit, of the Romanian imports and exports on the Romanian economy represented by the GDP volume and the exchange rate national currency/euro. So, the impact of the loans made by Romania will be found in their degree of influence over the Romanian GDP and exchange rate.

The Romanian econometric model from relations (1) and (2) is:

$$PIB_t = 48774.69 - 3896.994 \cdot \mathrm{L}_t - 4646.862 \cdot Def_t - 0.366 \cdot \mathrm{Import}_t + 36.821 \cdot \mathrm{Export}_t \quad (3)$$

$$C_{st} = 2.54 + 0.003 \cdot \mathrm{L}_t + 0.1272 \cdot Def_t - 0.0002 \cdot \mathrm{Import}_t + 0.0017 \cdot \mathrm{Export}_t \quad (4)$$

Based on relation (3) we can say that the infinitesimal change of the loans (when all the other factors remain constant) leads to a decrease of the Romanian GDP of 4646,862 million €. Therefore, loans, the base component of the sovereign debt crisis have a great impact on the Romanian GDP thus conducting the Romanian economy. Moreover, it is worth mentioning the fact that the variation of the independent macroeconomic variables affects the GDP variation rate with 97,39%.

Over the exchange rate (relation (4)) the sovereign debt crisis impact is moderate, the variation of the latter influencing 71,57% of the variation of the exchange rate. The significant amount of the sovereign debt crisis impact over the exchange rate shows that the international Romanian economic relations can be affected greatly by the exchange rate national currency/euro.

By plotting the trends of the dependent variables and the Romanian sovereign debt we can infer the oscillating evolution of the latter. Therefore, based on figure 1 we can say that the Romanian sovereign debt has known an abrupt increase because the latter took a 20 billion € loan from the International Monetary Fund and the European Commission in 2009 in order to cover the budgetary deficit. The GDP decreased significantly during the crisis, recovering to a low growth rate in 2010. Due to the impossibility to honor in time its obligations the national currency has known a continuously depreciation (see figure 3).

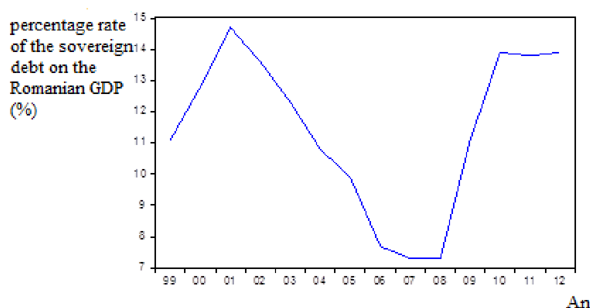

Figure 1. The evolution of the percentage rate of the sovereign debt on the Romanian GDP over the period 1999-2012

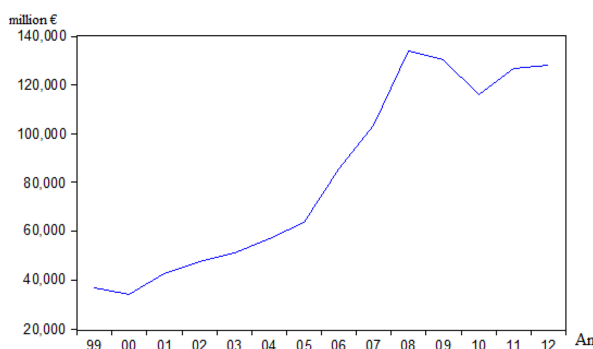

Figura 2. The evolution of the Romanian GDP over the period 1999-2012

[3] http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

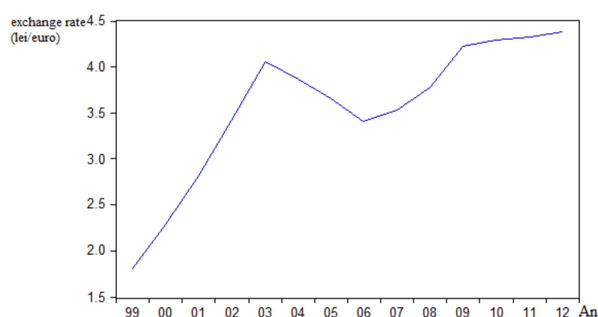

Figura 3. The evolution of the exchange rate (lei/euro) over the period 1999-2012

The sovereign debt crisis at the level of Romania will tend to stress if our country will continue to make foreign loans and not balance the national economy through adequate monetary and fiscal policies. Since the Romanian economy depends on its foreign relations it must step up the adaptation rhythm to the European economy through the growth of exports improving this way the macroeconomic indicators.

5. MEASURES TO MITIGATE THE IMPACT OF THE SOVEREIGN DEBT CRISIS ON THE ROMANIAN ECONOMIC INSTABILITY

The limitation of a phenomenon (economic, social and financial-monetary) means:

- first of all reducing the negative effects over other phenomenon or mechanisms of the systems where the studied phenomenon exists;
- on the other hand, stabilizing the system that directs the relationships between its components.

In order to adapt the concept of "mitigation" to the approached problem in this paper, namely the sovereign debt crisis (an economic phenomenon characterized through the impossibility of a country to honor the outstanding obligations), the factors that negatively affect the national economy must be taken into consideration. Thus, the government and the National Bank of Romania (NBR) must, through fiscal and monetary policies, diminish the impact degree of the negative factors such as: budgetary deficit, external debt, unemployment rate, exchange rate etc. over the functioning of the Romanian national economy.

The Romanian economy, that is in fact an unstable economy, must stabilize at optimal economic growth parameters so that through this process to ensure the timely refund of the sovereign debt. All through this process economic instability would diminish significantly and the economy would know an increasing development favoring the growth of the macroeconomic welfare.

The measures that could contribute to mitigate the impact of the sovereign debt crisis over economic instability could be:

- intensifying the exports;
- diminishing the imports;
- rigorous control:
  - of the transactions on the internal market;
  - of the transactions of Romanian investors with the exterior;
  - of the foreign investments in Romania;
  - of the debts of the foreign investors in Romania;
  - of the state apparatus (NBR, Government, parliament etc) by the European Commission and IMF;
  - of the inflows at macroeconomic level.
- the regulation and enforcement of the laws in order to mitigate corruption and

infrastructure at micro and macroeconomic level;
- the quantification with a greater precision of the economic reality applying advanced multidimensional analysis methods of the data over the macroeconomic indicators sensitive to the international economic conjuncture;
- creating the clearest and most accurate forecast regarding the future economic evolution.

6. CONCLUSIONS

On the one hand, the sovereign debt crisis is the determining factor in enhancing the degree of instability at macroeconomic level and therefore of the economic conjuncture. Of course, it can be said that this crisis will affect the global economy many years from now. So, it is necessary to quantify the value of the sovereign debt crisis impact on the dynamic components at macroeconomic level.

And last but not least, the economic instability in Romania tends to increase as our country will continue to borrow in order to cover the budgetary deficit, so the government must take measures to stabilize the national economy.

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