Public Debt Vulnerability Analysis,

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Abstract

Public debt vulnerability analysis means the analysis of indicators that measure and prevent any situation that could put the public debt service in difficulties. This analysis enables:

- → *to estimate the government capacity to fulfill its financial obligations, given the vulnerability of public debt indicators analyzed;*
- → *to identify the elements or phenomena that may affect the existing economic situation.*

"In the vulnerability and sustainability of public debt analysis we use the indicators assessing risk that might arise due to the impact of economic conditions on public debt and government's ability to properly manage public debt expected, considering certain circumstances."[1]

Key concepts: public debt, international reserves, grade liquidity, public debt vulnerability, forecasting external financial crises

JEL Classification: G31, G38, H6, H63

Introduction

"The vulnerability of public debt is the degree to which government becomes dependent on sources of funding outside its control or influence."

The vulnerability of public debt is influenced by both the public debt and the public debt profile.

Vulnerability indicators are statistical indicators used to assess the true financial situation of public debt.

No predicts vulnerability but reflects the situation at a time and do not allow outlining medium-term outlook.

They can identify changes in basic economic elements and impending shocks to the market and possible pressure on the market through monitoring changes.

1. Analysis of Debt Indicators Vulnerability

Conceptually, the vulnerability of public debt is governed by ISSAI 5410 "Guidelines for planning the scrutiny of internal public debt" whereby; Public debt vulnerability is the degree to which government becomes dependent on sources of funding outside its control or influence. "[2]

Vulnerability indicators have the following features:

[1]ISSAI 5411"*Public debt indicators".*

[2] ISSAI 5410 *„Guidelines for planning the scrutiny of internal public debt"*

→ are statistical indicators determined at the end of a period, usually at the end of the financial year;

→ are used to assess the true financial situation related to public debt;

→ do not predict vulnerability being used to identify liquidity problems but adjust public debt management strategy, so as to obtain assurance that sufficient liquidity absorbs financial shocks.

The vulnerability of public debt is influenced by both the public debt and the profile. Public debt structure features (depending on maturity, currency, credit) should be approached carefully to analyze critical situations that may occur in the administration and management of public debt.

In the period under review public debt vulnerability indicators showed the following increases:

The dynamics of public debt vulnerability analysis for the period 2012 - 2014

mil. euro

No.	Indicators of debt vulnerability analysis	2012	2013	2014
1	The balance of current account / GDP	-4,3	-0,8	-0,5
2	International reserves / external public debt	145,1	131,6	116,4
3	International reserves / Money supply M3	70,6	65,8	60,8
4	International reserves / short-term public debt	361,1	539,5	445,6
5	International reserves / Imports of goods and services	52,3	56,0	52,5
6	Public debt in foreign currency / foreign public debt	99,3	99,4	99,4

For the analysis of indicators of vulnerability of public debt for this period, data have been taken from the analysis published by the National Commission for Prognosis[3] and National Bank of Romania.[4]

2. The critical indicator for forecasting external financial crises.

The balance of current account/GDP indicator is a critical indicator for forecasting external financial crises.

The registration value of exports and imports --credit / debit balance of payments position reflects the situation of a country with the rest of the world.

The development of current account balance of payments in the period from 2012 to2014 is as follows:

[3] http://cnp.ro/ro/prognoze, *„Projection of main macroeconomic indicators for the period 2014-2018”,* Autum projection, November 2014, *Projection of main macroeconomic indicators for the period 2014-2018”,* Winter projection, February 2015

[4] http://www.bnr.ro , Press Release , 12/2/2014 , ”*Balance of payments and external debt* - December 2013 " “*Balance of payments and external debt* - in December 2014 " , Press Release , 02/13/2015

mil. euro [5]

Indicators	2012			2013			2014		
	Credit	Debit	Balance	Credit	Debit	Balance	Credit	Debit	Balance
0	1	2	3=1-2	4	5	6=4-5	7	8	9=7-8
Current account (A+B+C)	60.659	66.502	-5.843	65.158	66.326	-1.168	68.829	69.525	-696
A.goods -service	53.472	59.722	-6.250	57.306	58.049	-743	61.687	61.335	352
a. Goods	45.070	52.449	-7.379	43.879	49.322	-5.443	46.637	52.154	-5.517
b. Services	8.402	7.273	1.129	13.427	8.727	4.700	15.050	9.181	5.869
B. Primary incomes	1.380	4.405	-3.025	2.505	5.617	-3.112	2.481	5.351	-2.870
C. Second incomes	5.807	2.375	3.432	5.347	2.660	2.687	4.661	2.839	1.822

In the analyzed period, the evolution of the current account balance had a downward trend, registering a decrease in deficit by 88.1 % compared to 2012, due to:

→ reduce the trade deficit by 105.6 % ; the trade balance recorded a surplus , due mainly to higher surplus of the services balance recorded ;

→ primary income deficit reduction by 5.1 % , due to reduced interest payments of external financing ;

→ reduce the income balance registered surplus secondary (current transfers) with respectively 46.9 %.

Analyzing the data presented, the pace of GDP growth exceeded the pace of decline in the current account deficit, which means that the net negative balance of payments experienced a considerable decline both on lower trade deficit, and especially amid a sharp increase in the surplus recorded by services balance compared with 2012.

In this period, the growth/decline in GDP and the current account balance recorded the following evolution:

The evolution of increase/decrease rithm of GDP and current balance account

mil. euro

No.	Year	Current account balance	GDP	Rate of increase / decrease of balance current account (%)	Growth rhythm of GDP (%)	Current account balance / GDP (%)
0	1	2	3	4	5	6 = 2/3
1	2012	-5.843,0	134.734,8	-	-	-4,3
2	2013	-1.168,0	142.172,3	-80,0	5,5	-0,8
3	2014	-696,0	149.595,0	-40,4	5,2	-0,5

[5] Exchange of euro 31.12.2014 by the NBR , respectively 4.4821 RON/euro exchange rate of the euro 31.12.2013, announced by BNR, respectively 4.4847 RON/EUR exchange rate of the euro 31.12.2012 communicated by BNR, respectively 4.4287 RON/euro -

In the analyzed period the pace of GDP growth exceeded the pace of decline in the current account deficit, which means that the net negative balance of payments experienced a considerable decline both on lower trade deficit, and especially whilst increasing sharp surplus of the services balance recorded compared with 2012.

From 2012 to2014 Romania has registered significant economic growth since the low share of the current account deficit to GDP by 4.8%. This growth was due to the evolution of decreasing net flow ratio (costs of imports are still higher than income from exports) of Romania from transactions with other economies and GDP.

The indicator –International reserves / external public debt

International reserves/external public debt is a useful indicator of liquidity that can measure the ability of a country to cope with certain situations when foreign financing completely stopped.[6]

The evolution rate of increase/decrease in international reserves and foreign public debt in the period 2012-2014 are as follows:

mil. euro

No.	Years	International reserves[7]	External public debt	Growth rate international reserves (%)	Growth rate external public debt (%)	International reserves/external public debt (%)
0	1	2	3	4	5	6 = 2/3
1	2012	35.413,0	24.414,0	-	-	145,1
2	2013	35.434,0	26.935,6	0,1	10,3	131,6
3	2014	35.506,0	30.501,5	0,2	13,2	116,4

The share of international reserves to external debt:

→ 145.1% at 31.12.2012 secured the highest degree of liquidity of the economy, registered in 2012-2014;

→ 131.6% -increase by13.5% - led in 31.12.2013 to the reduction of liquidity of the economy and also the depreciation of Romania's ability to be independent from external financing;

→ 116.4% - down by 15.2% - at 31.12.2014 reached the lowest level during the period under review, the situation has reduced the increasing degree of liquidity of the economy and at the same time, the steady increase in depreciation Romania's ability to be independent from external financing.

Analyzing the presented data, the growth of external public debt (2.9 %) exceeded the growth rate of international reserves (0.1 %) and the value ratio between international reserves and foreign debt registered a decreasing trend. In maintaining a similar pace in terms of growth, Romania will increasingly become dependent on external financing.

[6] Guide " *Performance audit public debt management* " - Bucharest 2013 www.curteadeconturi.ro

[7]' *International Reserves - December 2012* " , Press Release , 01/03/2013 , National Bank of Romania (http://www.bnr.ro) , " *International Reserves - December 2013* " , Press Release , 01/03/2014 , Bank Romanian national (http://www.bnr.ro) and "*International Reserves - December 2014* " , press release , 05/01/2015 , National Bank of Romania (http://www.bnr.ro).

The indicator - International reserves /M3

The international reserves/M3 indicator is a useful tool to predict the potential impact of the withdrawal of capital, particularly in countries with a banking system weakly developed, where it is necessary to conduct further analyzes to identify other possible sources for raising capital (including instruments of short-term debt).[8]

In the analysis, M3 represents money supply in broad sense and consists of currency in circulation + overnight deposits + deposits with agreed maturity of up to two years including + other financial instruments.

In 2012-2014 periods, this indicator is as follows:

mil. euro

No.	Year	International reserves	M3 [9]	Growth rate international reserves (%)	Growth rate M3 (%)	International reserves/ M3 (%)
0	1	2	3	4	5	6 = 2/3
1	2012	156.833,6	222.017,7	-	-	70,6
2	2013	158.910,9	241.547,1	1,3	8,8	65,8
3	2014	159.141,4	261.831,2	0,1	8,4	60,8

The analysis of presented data from 2012 to 2014 period, the international reserves and the money supply broadly showed an increasing trend and an average growth rate of 0.7 % and 8.6 % respectively. The growth rate of broad money supply outpaced the growth of international reserves by 7.9%.

In the analyzed period, the steady decrease by 5%, the share of international reserves of Romania M3 means constant reduction of Romania's ability to raise capital using debt instruments in the short term.

Indicator - International reserves / short-term public debt

The international reserves/short-term public debt indicator is an indicator of liquidity and is the ratio of international reserves available to the monetary authority and the balance remaining short-term debt payable. This indicator measures how quickly the country will be forced to adjust these reserves in the event of restrictions on access to foreign loans. [10]

Liquidity risk is defined as a financial risk manifested as a result of the failure of a counterparty or a participant to meet its obligations fully matured, but she/he will still be able to meet their obligations in full in a later time.

In the period 2012-2014, the Romanian economy liquidity risk was minimal, as is clear from the data presented in the table below

mil. euro

No.	Year	International reserves	short-term public debt	Growth rate international reserves (%)	Growth/decrease rate short term public debt(%)	International reserves / short-term public debt
0	1	2	3	4	5	6 = 2/3
1	2012	35.413,0	9.806,1			361,1
2	2013	35.434,0	6.567,6	0,1	-33,0	539,5
3	2014	35.506,0	7.967,9	0,2	21,3	445,6

[8] Guide " *Performance audit public debt management* " - Bucharest 2013 .
[9] " *Money supply M3 and its counterpart* " Statistics , National Bank of Romania
[10] Guide " Performance audit public debt management " - Bucharest 2013 .

This indicator of liquidity risk analysis reflects a favorable situation. In the period 2012-2014, the balance of international reserves in absolute value was significantly higher compared to short term debt, which indicates a low liquidity risk.

Indicator - International Reserves / Imports

The international reserves/imports22[11] indicator is a useful indicator for assessing the need for foreign exchange reserves for countries that do not have access or have limited access to capital markets.With this indicator effectively analyzes the foreign exchange reserves to the size and openness of the economy.

Openness of the economy expresses the value of exports and imports relative to GDP size of the economy expressed by GDP.[12] Economies with greater openness to the outside are more sensitive to changes in international markets, with a greater degree of vulnerability. In good times, they take over and amplify the positive trends manifested in international markets.[13] - 2010 (ADRC).

The coverage of international reserve currency in imports reached a peak of 56.0% in 2013 due to cost reduction nationally imports which increased the international reserve currency of Romania

In 2013, in the reported period under review described the process :

→ openness of the economy has reached a minimum of 81.1 ; the value of imports to GDP ratio and the value of exports to GDP ratio recorded a minimum of 40.8 % and 40.3 % respectively .

→ international currency reserves reached a peak growth rate of 4.2%, while imports reached a minimum level , recording a rate of increase / decrease of -2.8%.

Thus, Romania's economy had a lower opening to the outside, which made it less sensitive to changes in international market.

In 2012-2014 period, this indicator present as is following:

mil. euro

No.	International Reserves / Imports			
	Indicators [14]	2012	2013	2014
1	International reserves (valutare)	31.206,0	32.525,0	32.216,0
2	Imports	59.722,0	58.049,0	61.335,0
3	International Reserves / Imports(%)	52,3	56,0	52,5
4	Increased/ decreased rate import (%)	-	-2,8	5,7
5	Increased/ decreased rate international reserves (%)	-	4,2	-1,0
6	Exports	53.472,0	57.306,0	61.687,0
7	Increased/ decreased rate exports (%)		7,2	7,6
8	GDP	134.734,8	142.172,3	149.595,0
9	Increased/ decreased rate GDP (%)		5,5	5,2
10	Openness of the economy (%)	84,0	81,1	82,2

[11] Guide " Performance audit public debt management " - Bucharest 2013 www.curteadeconturi.ro

[12] Guide " Performance audit public debt management " - Bucharest 2013 .

[13] "Central Region . Elements of the Regional Competitiveness " - Agency for Regional Development Center

[14] " Projection of main macroeconomic indicators for the period 2014-2018 " Autumn Forecast , November 2014, National Prognosis Commission (http://cnp.ro/ro/prognoze) and the " International Reserves - December 2012 " , Press Release , 03.01.2013 , NBR (http://www.bnr.ro) and for the years 2013 and 2014 of “Projection of main macroeconomic indicators for the period 2014-2018 " Weather winter , February 2015, the National Commission for Prognosis (http : //cnp.ro/ro/prognoze) and the " International Reserves - December 2013 " , press release , 03.01.2014 , NBR (http://www.bnr.ro) and the " International Reserves - December 2014 " press , 05.01.2015 , NBR

In conclusion, the Romanian economy should focus its efforts to increase gross domestic product - GDP so by developing industry [motor industry, transport industry, light industry, electronics and electrical (smart technology: semiconductors, photonics and nanotechnologies), the telecommunications industry, energy industry and environment industry] 26[15]and the agricultural sector (organic farming) and by development construction (civil) and services (health, education, tourism).

By reducing the tax burden on the productive sector especially of economy and from all sectors of the economy and increasing the collection of taxes and fees will generate financial resources. These resources aimed at investing in the manufacturing sector of the Romanian economy will cause GDP growth.

The evolution of the openness of the Romanian economy will be influenced by exports, depending on the variations in supply and demand in international markets and the dynamics of gross domestic product.

Openness of the economy is one of [16] real convergence criteria and real convergence is achieved by sustaining macroeconomic policies.

Country membership of a monetary union increases the openness of the economy by 10 to 26 percent, which in turn influences the dynamics of GDP.

However , GDP growth , increasing exports and reducing imports will lead to both increased international reserves (foreign) country and increasing repayment of external funds borrowed in capital markets and financial institutions banking and non- international (IMF, EIB IBRD , EBRD, Bank of Japan), and decrease the economy need to borrow.

Indicator - external public debt in foreign currency / external public debt

The public external debt in foreign currency / external public debt indicator reflects the need to obtain foreign currency to pay debt service and cover the needs for imports.[17]

Maintaining steady at 99.4 % in the share of external public debt in foreign currency in total external debt was due to a constant growth rate of the two indicators. In the analyzed period, these indicators registered the following evolution:

mil. euro

No.	Indicators	2012	2013	2014
1.	External public debt in foreign currency	107.354,8	120.021,8	135.905,8
2.	External public debt	108.122,3	120.798,1	136.710,8
3.	Increased/ decreased external public debt in foreign currency (%)	-	11,8	13,2
4.	Increased/ decreased external public debt	-	11,7	13,2
5.	External public debt in foreign currency / external public debt	99,3	99,4	99,4

The analysis of presented data in the above table notes that from 2012 to 2014 public external debt in foreign currency has experienced an upward trend, which is predominant in the total external public debt.

A high share of foreign currency denominated debt in total public debt may increase vulnerability to exchange rate risk and can put pressure on foreign exchange reserves.

[15] National Competitiveness Strategy (NAS) 2014-2020 " - Ministry of Economy - June 2010, www.minind.ro

[16] Theory " Areas Optimum currency (OCA) " - (McKinnon , 1963)

[17] Guide " Performance audit public debt management " - Bucharest 2013 www.curteadeconturi.ro

So, in the period under review to ensure both public debt service and costs of imports, the need for currency in Romanian economy was maintained at a high level.

Conclusions

The analysis of presented data in the analyzed period:

→ Romania has registered significant economic growth since the low share of GDP the current account deficit in current account balance. The evolution had a downtrend amid decrease in trade deficit by lower primary income deficit due to reduced interest payments external funding and reduce the income balance registered surplus secondary

→ share of international reserves in foreign debt has reduced the increasing degree of liquidity of the economy and at the same time, the steady increase in depreciation Romania's ability to be independent from external financing;

→ steady decrease in the share of international reserves of Romania M3 means constant reduction of Romania's ability to raise capital using debt instruments in the short term;

→ this indicator of liquidity risk analysis reflects a favorable situation, and is minimal in the period 2012-2014;

→ to ensure both public debt service and costs of imports, the need for currency Romanian economy was maintained at a high level;

→ Romanian economy had a lower opening outwards, the vulnerability decreased, which made it less sensitive to changes in international markets.

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