DETERMINANTS OF THE TREND AND SUSTAINABILITY OF FOREIGN DEBT

Camelia MILEA[35]

Abstract

In the article[36]*, the author aims to highlight the factors that influence the evolution of foreign debt starting from macroeconomic equations. Thus, the external debt depends directly on the interest rate and the trade deficit, on the difference between domestic investment needs and domestic savings, and on the gap between budget expenditures and revenues. Also, the article shows the determining factors of the evolution of the external debt to GDP ratio, considered one of the most important indicators of debt sustainability, as well as of the external debt in exports ratio.*

A correct management of the external debt, accompanied by a rational economic policy, can change a debtor country into a net creditor, in a certain period of time, provided that exports grow faster than imports.

In the article, analytical and descriptive methods are used.

Keywords*: external debt, factors of influence, interest rate, trade deficit, net expenses*

Jel classification*: F21, F34, F43*

Introduction

The external debt represents a way to supplement the internal savings, offering the country that receives the loan, the possibility to finance a volume of investments larger than what it would be possible to achieve only based on internal resources.

It is good for a country to increase its volume of foreign loans as long as the marginal product of the borrowed capital is higher than or equal to the cost of the loans. Foreign loans do not concur to economic growth, if they are used inefficiently (e.g. with lower returns than the interest rate paid for them), but, on the contrary, they perpetuate the contracting of loans. A healthy economic growth, to which the increase in exports has also contributed, even if it may cause temporary problems related to high levels of indebtedness or high rates of external debt service, allows the return of loans in a certain period of time.

Perhaps the most important aspect about debt, in general, is ensuring its sustainability.

From a pragmatic point of view, the debt is sustainable if the forecasted debt-to-GDP ratios are stable or decreasing, reaching a low enough level not to lead to debt default. Practically, the debt should not increase faster than national income, at the same time the repayment capacity should be ensured. In the case of association with a series of macroeconomic risks, if the indebtedness rate is still high, despite its reduction, it may lead to the unsustainability of the debt.

[35] *PhD.* ,scientific researcher III, Centre for Financial and Monetary Research of the Romanian Academy "Victor Slăvescu", 13 Calea 13 Septembrie, Romania, email: camelia.milea@icfm.ro, © Camelia Milea https://orcid.org/0000-0002-6810-2164

[36] The article is based on the research project **" Romania's external indebtedness in current and perspective conditions"**, elaborated in CFMR "Victor Slăvescu" in 2022, under the coordination of Camelia Milea, Ph.D.

Dinga E. (2018) defines *sustainability* as a characteristic of a process (phenomenon, system) to maintain itself on the desirable trajectory, in a preset or acceptable interval for an indefinite period of time and on a global space of accessibility[37].

Milea (2019) defines *debt sustainability* as a property that assumes that the evolution of the debt ensures the payment of the debt service in the medium, and possibly long term, without the need for significant changes in economic policies, without producing shocks or/and tensions on the domestic market, without inducing major fluctuations of some macroeconomic variables of the national economy. Sustainability allows for fluctuations in the debt, being important to achieve the intended, positive effect in the medium and long term.

From the existing definitions in the economic literature on debt sustainability, *a criterion of debt sustainability* emerges, namely the borrowed capitals must be used for investments with a return at least equal to the interest rate paid on the contracted debt, or for the implementation of economic reforms.

From a qualitative point of view, the sustainability of the debt depends on the effects/consequences of the debt in the economy: yield, destinations (economic activities - consumption or production -, sectors of activity, development regions), contribution to the economic development by financing some objectives/projects of national and/or regional interest, removal of regional and social discrepancies.

Factors influencing the evolution and sustainability of foreign debt

Next, we shall present some equations that define the external debt in relationship with other macroeconomic indicators in order to highlight the factors that influence the external debt.

We start from the equation of the flows of an economy to and from the rest of the world in order to capture the evolution over time of the foreign debt. So,

$ED_t - ED_{t-1} + X_t = iED_{t-1} + M_t$, where(1)

ED_t represents net external debt at the end of the year t;

ED_{t-1} represents net external debt at the end of the year t-1;

$ED_t - ED_{t-1}$ is the net growth of external debt stock in year t

X are annual exports;

M are annual imports;

i is the average interest rate for the total external debt.

If we divide the previous equation by ED_{t-1}, we get:

$d = i + (M_t - X_t)/ ED_{t-1}$, where(2)

$d = (ED_t - ED_{t-1})/ ED_{t-1}$, represents the growth rate of foreign debt.

Equation (2) highlights the factors that influence the level of external debt. First of all, the growth rate of the external debt will be the greater, the higher the interest rate, in which case the debt service will also increase. Then, the growth of the trade deficit (M-X) will cause the debt to rise. Moreover, the growth rate of the external debt will be the more dependent on the interest rate, the larger ED_{t-1} will be. A restricted access to foreign capital requires, from the government, measures meant to support the growth of exports, in order to reduce the trade deficit, or the imposition of restrictions on imports.

We also use the equation that defines the trade deficit:

$S+(T-G) –I = X-M$(3)

[37] Not only a stationary process can be sustainable, but also an increasing or a decreasing one.

S are private savings,

I are private investments,

T is government income,

G are government spending.

Equation (3) means that the net financing capacity of an economy is equal to the net financing capacity of the private sector (S-I) from which the financing needs of the public sector (G-T) are subtracted and is equal to the balance of current operations.

Inserting equation (3) into equation (2), the latter can also be written:

$d = i + [(I-S) + (G-T)]/ED_{t-1}$(4)

From the above equation, it results that *if domestic private savings do not cover domestic private investment requirements, then the demand for external financing increases, causing a rise in external debt*. Overall, *the need for loans from abroad can be considered the consequence of an insufficient internal financing capacity of the national economy*. *In order to avoid a fast increase in external debt, private domestic savings should be at least equal to the need for private investments, and budget expenditures (investments and public consumption) should not be higher than budget revenues.* On the other hand, if an economy faces a limited access to external loans (for example, due to a high level of debt or for other reasons related to the country rating), it will have, on the one hand, to reduce the budget deficit (by cutting public expenditures and/or investments or by increasing budget revenues through a rise in taxes), and, on the other hand, to increase private domestic savings by reducing private domestic consumption and/or investments.

If we aggregate private savings with government revenues in domestic savings, and private investments with government expenditures in domestic investments, we have:

I_D-S_D = M-X = CA, where (5)

CA is the current account deficit

I_D are domestic investments;

S_D are domestic savings.

Next, we show the determining factors of the evolution of the ratio external debt to GDP, considered one of the most important indicators of debt sustainability. Thus, based on equations (1) and (5), we can express the growth rate of the external debt depending on GDP:

$$(ED_t\text{-}ED_{t-1})/ED_{t-1} = (I_D - S_D)/ED_{t-1} + i = \left[\left(\frac{I}{GDP_{t-1}} - \frac{S}{GDP_{t-1}}\right) / \frac{ED_{t-1}}{GDP_{t-1}}\right] + + i \quad (6)$$

The growth rate of the ED/GDP ratio is equal to the difference between the growth rate of external debt and the growth rate of GDP:

$$\frac{(ED/GDP)_t - (ED/GDP)_{t-1}}{(ED/GDP)_{t-1}} = (ED_t\text{-}ED_{t-1})/ED_{t-1} - (GDP_t\text{-}GDP_{t-1})/GDP_{t-1} \quad (7)$$

Starting from equations (6) and (7), the growth rate of the ED/GDP ratio can be expressed as follows:

$$\frac{(ED/GDP)_t - (ED/GDP)_{t-1}}{(ED/GDP)_{t-1}} = \left[\left(\frac{I}{GDP_{t-1}} - \frac{S}{GDP_{t-1}}\right) / \frac{ED_{t-1}}{GDP_{t-1}}\right] + i - g = \left(\frac{gk-s}{ED_{t-1}/GDP_{t-1}} + i\right) - g, \quad (8)$$

where g is the growth rate of GDP;

k is i/GDPt, i.e. the marginal coefficient of capital (or the marginal ratio of capital/production); and

s is the ratio between domestic savings and GDP (S/GDP_{t-1}).

The growth rate of the ED/GDP ratio depends directly proportional on the growth rate of external debt, on the trade deficit and on the insufficiency/lack of domestic savings compared to domestic investments, and on the interest rate, and inversely proportional on the growth rate of GDP, as it can be seen from equations (2), (7) and (8).

Another indicator for evaluating the external debt sustainability is the ratio between external debt and exports. The growth rate of the ratio (ED/X) can be expressed as follows:

$\frac{(ED/X)_t-(ED/X)_{t-1}}{(ED/X)_{t-1}} = \left(\frac{gk-s}{x(ED_{t-1}/X_{t-1})}+i\right)-h$, where(9)

h is the growth rate of exports

x is the ratio X/GDP

From equation (9) it can be concluded *that the growth rate of the ED/X ratio depends directly proportional on the interest rate, and inversely proportional on the ratio between domestic savings and GDP, and on the growth rate of exports.*

It is possible to calculate the maximum values that the share of external debt in GDP, respectively the share of external debt in exports (ED/GDP and ED/X) can reach, starting from the following expressions, derived from equations (8) and (9):

$\left(\frac{gk-s}{ED_{t-1}/GDP_{t-1}}+i\right)$= g , and $\left(\frac{gk-s}{x(ED_{t-1}/X_{t-1})}+i\right)$ = h

ED/GDP = (gk-s)/(g-i), for g>i and (10)

ED/X = (gk-s)/x(h-i), for h>i (11)

From the relationships above, it can be concluded that *a correct management of the external debt, together with a rational economic policy, can, in a certain period of time, transform a debtor country into a net creditor, provided that exports increase faster than imports.*

For example, suppose that in an initial phase, there is an accumulation of external debt. As a result, the ratios ED/X and ED/GDP increase. The volume of external debt continues to grow, as it does the external debt service, during which exports are assumed to be augmenting rapidly, so that the ED/X ratio could reach an acceptable level before the trade balance counterbalances. If the contracted debt leads to the development of the economy, and the trade balance continues to improve progressively, the ratios ED/X and ED/GDP will decrease. It is possible, on the other hand, that the ratio between external debt service and exports continues to increase, even after the trade balance has balanced, due to the maturing of contracted external loans, and/or to the high level of interest rates. A correct management of the external debt must keep the ratio between the external debt service and the GDP within reasonable limits, over the years.

If spending financed by external debt concurs only to the increase in the demand for loans, but not to the improvement of the production capacity, exports will not be able to grow enough. New borrowing may even be needed to prevent a decline in certain imports necessary for the exports, which ensure the payment of the foreign debt service. Therefore, external debt will continue to grow faster than exports, so the ED/X ratio will continue to rise. The set of problems generated by the increase in external debt will lead to an accrual in the risk associated with arrears and/or with renegotiations of the external debt, and to tougher credit conditions (namely, the reduction of the periods for which loans can be obtained, the boost of interest rates, which causes further increase in the ratio between external debt service and exports).

There is also an intermediate situation between the two cases presented previously. Namely, the ratios ED/X and ED/GDP increase, but at decreasing rates, so that they tend to appear stable. A country in this situation could be able to maintain its liquidity and solvency.

Conclusions

The need for foreign loans can be considered the consequence of an insufficient domestic financing capacity of the national economy, i.e. a level of necessary private investments higher than that of private domestic savings, respectively a level of budget expenditures (public investments and consumption) higher than budget revenues.

External debt grows in direct proportion with the interest rate and the trade deficit, with the difference between domestic investment needs and savings, and with the difference between budget expenditures and revenues.

The growth rate of the ED/GDP ratio, considered the most important indicator of sustainability, depends directly proportional on the growth rate of external debt, on the trade deficit, on the interest rate, and on the insufficiency/lack of domestic savings compared to domestic investments, and inversely proportional on GDP growth rate.

The growth rate of the ED/X ratio depends directly proportional on the interest rate, and inversely proportional on the ratio between domestic savings and GDP, and on the growth rate of exports.

If the contracted debt concurs to the development of the economy, the debt is sustainable, and the ED/X and ED/GDP ratios will decrease.

If the spending financed through external debt does not lead to the improvement of the production capacity, exports will fail to grow enough, and external debt will continue to expand faster than exports, with the ED/X ratio augmenting further, which brings about the increase in the risk associated to arrears and the tightening of credit conditions.

In conclusion, the faster growth of exports compared to imports, together with a rational economic policy and a good management of external debt can change a debtor country into a net creditor.

References

Baron T., Biji E. (coordinators) (1996), Statistică teoretică şi economică, Didactică şi Pedagogică Publishing House, Bucharest;

Băcescu M., Băcescu A. (1998), Macroeconomie şi politici macroeconomice, All Publishing House; Bucharest

Caner M., Grennes T., Koehler-Geib F. (2010), Finding the Tipping Point—When Sovereign Debt Turns Bad, Policy Research Working Paper 5391, http://documents.worldbank.org/curated/en/509771468337915456/pdf/WPS5391.pdf

Dinga, E. (2018), Studii de teorie și modelare economică - Elemente metodologice generale, Academia Româna Publishing House, Bucharest

D'Erasmo, P., Mendoza E. G., Zhang J. (2015), What is a Sustainable Public Debt?, https://bfi.uchicago.edu/sites/default/files/research/DErasmo-Zhang-Mendoza_HandbookDraft_0413.pdf

Demaj, A. (2017), Macroeconomic Determinants of Sovereign Risk: A Debt Sustainability Analysis, https://thesis.eur.nl/pub/38583

Guzman, M. (2016), Definitional Issues in the IMF Debt Sustainability Analysis Framework - a Proposal, Centre for International Governance Innovation, Policy Brief No. 77, May

Hussein, K., Mello, L. (2001), Is Foreign Debt Portfolio Management Efficient in Emerging Economies? Journal of Development Economics, 66, 317-335, https://doi.org/10.1016/S0304-3878(01)00165-1

International Monetary Fund (2011), Modernizing the Framework for Fiscal Policy and Public Debt Sustainability Analysis, august, Washington, http://www.imf.org/external/np/pp/ eng/2011/080511.pdf;

International Monetary Fund (2013), Staff Guidance Note For Public Debt Sustainability Analysis In Market-Access Countries, http://www.imf.org/external/np/pp/eng/2013/050913.pdf.

International Monetary Fund (2017), Debt Sustainability Analysis for Market-Access Countries, https://www.imf.org/external/pubs/ft/dsa/mac.html

International Monetary Fund (2017), Debt Sustainability Analysis, www.imf.org/external/pubs/ft/dsa/index.html

Milea C. (2009), Balanța de plăți a României. Factori de influență. Restricții și oportunități., PhD thesis, Romanian Academy, National Institute for Economic Research, Bucharest

Milea C. (2019), The Assessment of the Public Debt Sustainability, Journal of Financial and Monetary Economics, vol. 7/2019, pages 111-121, ISSN 2537-3269, ISSNL 2392-9685,

Milea C. (2021), Reflections on the consequences and risks of an economy's indebtedness, Financial Studies nr. 2/2021, CCFM „Victor Slăvescu", Academia Română, ISSN 2066 – 6071, ISSN-L 2066 - 6071, http://icfm.ro/fs.icfm.ro/index.html

Milea C. (2019), Sustenabilitatea datoriei. Concepte şi definiţii, second volume of the International Conference on Theoretical and Applied Economic Practices „Economic Growth in Conditions of Globalization: welfare and social inclusion, The 14th Edition", Chişinău: NIER, 2019, ISBN 978-9975-3305-7-2.

Milea C. et al (2022), Îndatorarea externă a României în condițiile actuale și de perspectivă, research project CFMR "Victor Slăvescu", Romanian Academy, Bucharest

Pelinescu E., Albu L. (2000), Sustenabilitatea datoriei externe, CEROPE review „Modificări structurale şi performanţa economică în România";

Reinhart, C., Sturm, J.E. (2008), Sustainability of Public Debt, The MIT Press Cambridge, Massachusetts London, England, ISBN 978-0-262-14098-0