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Debt Sustainability Analysis, perhaps needless to say, is of crucial importance to countries going through severe debt crisis. And it is so because of primarily two reasons: first, to ensure what would be a viable, sustainable fiscal framework for the country, post crisis; second, to determine the size of the haircut when restructuring the foreign debt, so as to make it compatible with debt sustainability and the ability to service the foreign debt.

In this contest, this note has two aims. The first is to derive a simple, straightforward formula for debt sustainability. And the second is to apply it using actual, reasonable numbers to the case of Lebanon.

Let B be public debt; Y be GDP; and b be the debt to GDP ratio. Hence $b = B/Y$; taking the log and first difference of b , we get:

$$(1) \Delta \log b = \Delta \log B - \Delta \log Y$$

$$(2) \Delta b/b = \Delta B/B - \Delta Y/Y$$

Equation (2) simply says that the rate of change in the debt ratio, $\Delta b/b$, is equal to the rate of change of debt, $\Delta B/B$, minus the rate of change in GDP, $\Delta Y/Y$. Note that the change in debt, ΔB , is equal to the budget deficit. In turn, the budget deficit is equal to:

$$(3) G + rB - T$$

Where G is government expenditures on goods and services, r is interest on the debt so rB is interest payments on the debt, and T is tax revenues. Replacing (3) in (2), we get:

$$(4) \Delta b/b = (G + rB - T)/B - \Delta Y/Y$$

$$(5) \Delta b/b = (G - T)/B + r - \Delta Y/Y$$

Note that $G - T$ is the primary deficit, equal to government expenditures minus taxes but excluding interest payments on the debt. Let the primary deficit, $G - T$, be P and let the rate of change in GDP, $\Delta Y/Y$, be equal to g . Hence (5) becomes:

$$(6) \Delta b/b = P/B + r - g$$

As important, if the debt is sustainable then the rate of change in the debt ratio, $\Delta b/b$, is equal to zero. And from equation (6), the level of debt B that will ensure that will be equal to:

$$(7) B = P/(g - r)$$

Dividing equation (7) by GDP or Y , and letting the primary deficit ratio P/Y be equal to d , we get:

$$(8) B/Y = (P/Y)/(g - r)$$

$$(9) b^* = d/(g - r)$$

Equation (9) is most interesting and important: *it states that the optimal, sustainable debt ratio b^* is equal to the primary deficit ratio, d , divided by the difference between the growth rate in GDP, g , and the interest rate, r ¹. In other words, b^* gets smaller, the smaller is d and the larger is $(g - r)$.*

In applying the above analysis, especially equation (9), to the Lebanese case, we need to keep in mind some crucial facts about Lebanon:

- i) Most of the debt is now foreign, as the domestic debt is around \$1 billion only; whereas foreign debt (outstanding Eurobonds) including arrears and interest on the arrears is around \$47.3 billion².
- ii) Post crisis, and for the foreseeable future, budget deficit will no longer be financed by either banks (not enough liquidity) or BDL (not its job). It will be financed by foreign debt from official and multilateral loans on concessional basis. So when we refer to debt we mean, for all intents and purposes, foreign debt.

¹ In fact, the sufficient condition for a sustainable debt ratio is that g is larger than r .

² Goldman Sachs, *Revisiting Lebanon Debt Recovery Values*, December 2024.

iii) Primary surpluses are usually obtained when the country's servicing of the debt is substantial, such that once interest payments are eliminated, the budget actually turns into surplus. More important, if we recall that the purpose of debt restructuring is to reduce the debt servicing burden, *then it is not unreasonable for the country to incur primary deficits, especially in a country like Lebanon where government expenditures are going to be extensive, given the cost of reconstruction and infrastructural renewal.* Unlike notable reports on Lebanese debt sustainability that assumed the latter would require primary surpluses³ – quite surprising actually, given that debt restructuring would obviate that need – we will assume, more reasonably, a primary deficit.

That said, what would be the sustainable debt ratio for Lebanon? And how big is the corresponding haircut on the foreign debt? To answer, going forward, we assume that the restructured foreign debt will fetch a coupon rate of 7%; in addition, we have shown elsewhere that a potential growth rate of nominal GDP is 9.5%, split into 6.5% as real growth rate and 3% as growth in the GDP deflator⁴; also, we propose a valid primary deficit to GDP ratio of 1.5%. As such, from equation (9) we can obtain:

$$(10) b^* = 1.5 / (9.5 - 7) = 1.5 / 2.5 = 0.6 = 60\%$$

Therefore, *the sustainable foreign debt ratio b^* is at the reasonable and reachable level of 60%*⁵. Moreover, assuming that GDP is estimated at \$28 billion⁶, then the resulting sustainable foreign debt B^* is:

$$(11) B^* = b^* \times \text{GDP} = 0.6 \times 28 = \$16.8 \text{ billion}$$

Hence, the sustainable level of foreign debt is \$16.8 billion. But given that the actual foreign debt is t \$47.3 billion, *then resulting haircut would be around 65%*⁷.

³ See: Goldman Sachs, *ibid*; and, JP Morgan, *Lebanon: Political Stability before Economics*, February 2025.

⁴ "Lebanon: If and When Financial Assistance is Received and Spent, Beware Accelerating Inflation", *Blominvest Bank Blog, Economic Digest*, March 6, 2025.

⁵ Note that we are abstracting here from any additional debt that the country might transact, like paying customers' deposits for example.

⁶ There is no consensus on what would be an accurate estimate of Lebanese GDP. This figure is roughly a midpoint estimate between those of the IIF and World Bank.

⁷ *Goldman Sachs, ibid*, obtains an optimal debt ratio and haircut of 80% and 75% respectively. But that is because it adopts a smaller (but perhaps inaccurate) estimate for Lebanese GDP that magnifies the results.

In summing up, we have derived, rather simply and in a ‘back of the envelope type of manner’, what would be a sustainable debt ratio for Lebanon and the optimal haircut on the restructured Lebanese Eurobonds. We are aware that a more rigorous treatment involving dynamic analysis is ultimately needed to make the results more formal and official. But, as an informal first run, we believe that our results are reasonable, especially what we have assumed regarding primary deficits. However, in the final analysis, what really matters is to get the process rolling, and to start tackling seriously and purposively the issues of economic reform and bank and debt restructuring – regardless of why and how!

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