Mr. Guzmán's impossible plan

Finance Minister Guzmán spoke at the Peterson Institute for International Economics (PIIE) before Christmas when he was able to provide some indication of Argentina's macroeconomic strategy from here.

What can be discerned of Mr. Guzmán's plan from his remarks on that occasion? The macroeconomic plan he divided into four parts: (i) the accumulation of international reserves to facilitate exchange rate and macroeconomic stability; (ii) no up-front fiscal consolidation, but rather policy walking the "thin corridor" that will adjust towards a primary surplus consistent with stabilization of debt to GDP; (iii) a continuous decrease in central bank financing of the government; and (iv) capital account regulations that are no longer defensive but macro-prudential.

We are also told there will be a multi-year program submitted to Congress for approval to achieve consensus at the social level, as occurred during the debt sustainability debate. Guzmán insisted the IMF played a useful role in their debt sustainability analysis in support of Argentina's position—despite the fact that their analysis was woefully inadequate. In addition, perhaps most interesting of all, Mr. Guzmán tells us the official exchange rate is guided by a policy of keeping the same real exchange rate as when his term started on December 10, 2019.

It's a great pity that the PIIE moderator, Adam Posen, didn't have a grasp on monetary macroeconomics to match his sycophantism towards his guest. If he had, he could have challenged Mr. Guzman's plan. For while Guzmán can claim to be an expert on debt sustainability, he has yet to grasp the need for fiscal support to achieve monetary sustainability—and his plan for a constant real exchange rate is inconsistent with the sustainability of the central bank's balance sheet.

A toy model

We are interested in the simplest central bank balance sheet structure that will allow us to analyse the sustainability challenge in cases such as Argentina. Let $\xi_t R_t^*$ represent international reserves measured in local currency, due to the price of a unit of dollars given by ξ_t; B_t is claims on domestic assets; K_t represents some measure of capital; M_t is all central bank liabilities, including base money; NW_t represents the net worth of the central bank:

$$\xi_t R_t^* + B_t + K_t = M_t + NW_t$$

The change in net worth can be written in two ways, first due to income from the government, Z_t, plus the change in capital, ΔK_t, plus valuation adjustment, $\Delta \xi_t R_{t-1}^*$, and net interest income:

$$\Delta NW_t = Z_t + \Delta \xi_t R_{t-1}^* + \Delta K_t + i_t^* \xi_t R_{t-1}^* + i_t B_{t-1} + i_t^K K_{t-1} - i_t^M M_{t-1}$$

Here, i_t^M represents the average interest on central bank liabilities. The second expression for the change in net worth comes from the balance sheet above:

$$\Delta NW_t = \xi_t \Delta R_t^* + \Delta \xi_t R_{t-1}^* + \Delta B_t + \Delta K_t - \Delta M_t$$

Combining these two expressions for the change in net worth (ΔNW_t) and rearranging gives the flow budget constraint for the central bank, as:

$$\xi_t \Delta R_t^* + \Delta B_t - \Delta M_t = Z_t + i_t^* \xi_t R_{t-1}^* + i_t B_{t-1} + i_t^K K_{t-1} - i_t^M M_{t-1}$$

Let $\Omega_{t-1} = M_{t-1} - (\xi_{t-1} R_{t-1}^* + B_{t-1} + K_{t-1}) = -NW_{t-1}$, then the flow constraint can be rewritten, after a little work, as follows:

$$\begin{aligned}(1 + i_t^M)\Omega_{t-1} = Z_t + \Delta K_t + \left[(1 + i_t^*)\frac{\xi_t}{\xi_{t-1}} - (1 + i_t^M)\right]\xi_{t-1} R_{t-1}^* + (i_t - i_t^M)B_{t-1} \\ + (i_t^K - i_t^M)K_{t-1} + \Omega_t\end{aligned}$$

Divide by nominal GDP and rearrange as:

$$\begin{aligned}\omega_{t-1} = \left(\frac{1 + g_t}{1 + i_t^M}\right) z_t + \left(\frac{1 + g_t}{1 + i_t^M}\right) \Delta k_t + \left(\frac{1 + g_t}{1 + i_t^M}\right) \frac{g_t}{1 + g_t} k_{t-1} \\ + \left(\frac{1 + g_t}{1 + i_t^M}\right) \left[\frac{(1 + i_t^*)(1 + \varepsilon_t) - (1 + i_t^M)}{1 + g_t}\right] r_{t-1}^* + \left(\frac{1 + g_t}{1 + i_t^M}\right) \left(\frac{i_t - i_t^M}{1 + g_t}\right) b_{t-1} \\ + \left(\frac{1 + g_t}{1 + i_t^M}\right) \left(\frac{i_t^K - i_t^M}{1 + g_t}\right) k_{t-1} + \left(\frac{1 + g_t}{1 + i_t^M}\right) \omega_t\end{aligned}$$

where lower case variables represent ratios to GDP, with $r_{t-1}^* = R_{t-1}^*/Y_{t-1}^*$.
Let $\Delta k_t = 0$. For the case where the average interest on central bank liabilities exceeds the nominal growth rate of GDP, $i_t^M > g_t$, in a steady state for balance sheet variables, dropping *t* subscripts, we can iterate forward and impose the no Ponzi condition:

$$\begin{aligned}\omega_{t-1} = \left(\frac{1 + g}{i^M - g}\right) z + \left(\frac{1 + g}{i^M - g}\right) \left[\frac{(1 + i^*)(1 + \varepsilon) - (1 + i^M)}{1 + g}\right] r_{t-1}^* \\ + \left(\frac{1 + g}{i^M - g}\right) \left(\frac{i - i^M}{1 + g}\right) b_{t-1} + \left(\frac{1 + g}{i^M - g}\right) \left(\frac{i^K + g - i^M}{1 + g}\right) k_{t-1}\end{aligned}$$

Thus, we have derived the intertemporal budget constraint for the central bank. Multiply throughout by $(i^M - g)$ and recall that $\omega_{t-1} = m_{t-1} - (r_{t-1}^* + b_{t-1} + k_{t-1})$ we can simplify for intertemporal sustainability of the central bank as:

$$(1 + g)z + i^K k_{t-1} = (i^M - g)m_{t-1} - (i - g)b_{t-1} + [(1 + g) - (1 + i^*)(1 + \varepsilon)]r_{t-1}^*$$

One final set of manipulations allows to assess Mr. Guzman's plan for a constant real exchange rate. Notably, in the steady state the real exchange rate is given by:

$$(1 + \gamma) = \frac{\text{RER}_t}{\text{RER}_{t-1}} = \frac{\xi_t P_t^*}{P_t} \frac{P_{t-1}}{\xi_{t-1} P_{t-1}^*} = \frac{(1 + \varepsilon)(1 + \pi^*)}{(1 + \pi)}$$

while nominal growth rate can be decomposed as: $(1 + g) = (1 + \pi)(1 + \rho)$, so that the above relation for intertemporal sustainability becomes:

$$\begin{aligned}(1 + g)z + i^K k_{t-1} \\ = (i^M - g)m_{t-1} - (i - g)b_{t-1} + (1 + \pi)[(1 + \rho) - (1 + \sigma^*)(1 + \gamma)]r_{t-1}^*\end{aligned}$$

Where $\sigma^* = 1 + i^*/1 + \pi^*$ is the real interest rate on foreign exchange reserves. We now have an expression for the interest on central bank capital ($i^K k_{t-1}$) or transfers from the government in a steady state ($(1+g)z$) needed for central bank balance sheet sustainability.

Analysis

Mr. Guzmán tells us that there will be net fiscal financing by the central bank for a number of years ($z < 0$) before this eventually ends ($z = 0$). But there are no plans for making transfers to the central bank in Argentina in some future steady state. In addition, Mr. Guzmán failed to mention any plan to recapitalize BCRA, where in effect at the moment $i^K k_{t-1} = 0$. In addition, BCRA claims on the government are meaningless accounting entries, so we can set $b_{t-1} = 0$. In which case, given Mr. Guzman's plan at the moment, BCRA sustainability can only be achieved if:

$$0 = (i^M - g)m_{t-1} + (1+\pi)[(1+\rho) - (1+\sigma^*)(1+\gamma)]r^*_{t-1}$$

There is only one variable in the steady state that can give way to ensure the central bank intertemporal budget constraint is met, and that's the real exchange rate. Rearranging, we can solve for the real exchange rate depreciation that delivers central bank sustainability as:

$$\gamma = \left(\frac{\rho - \sigma^*}{1+\sigma^*}\right) + \left(\frac{i^M - g}{(1+\pi)(1+\sigma^*)}\right)\frac{M_{t-1}}{\xi_{t-1}R^*_{t-1}}$$

which is increasing in the differential between real GDP growth and the real interest rate on international reserves ($\rho - \sigma^* > 0$) as well as the differential between the average interest on central bank liabilities and nominal growth of the economy ($i^M - g$). Notice, the smaller are reserves relative to total base money the larger the necessary real exchange rate depreciation.

In other words, absent the fiscal resources to deliver on central bank sustainability, Argentina needs secular real exchange rate depreciation. But this contradicts Mr. Guzman's plan to keep the real exchange rate constant. Moreover, such real exchange rate adjustment will reveal the unsustainability of fiscal policy by pushing ever higher the stock of fx-denominated debt-to-GDP.

Alternatively, if Mr. Guzmán is genuine in his determination to achieve real exchange rate stability, he can recapitalize the BCRA in a manner sufficient to achieve sustainability without relying on real exchange rate depreciation. This simplifies as:

$$i^K k_{t-1} = (i^M - g)m_{t-1} + (1+\pi)(\rho - \sigma^*)r^*_{t-1}$$

which tells us that the larger are central bank liabilities (m_{t-1}) as well as the excess of average interest on liabilities over the nominal growth rate of the economy ($i^M - g > 0$) the larger the income on capital needed in steady-state.

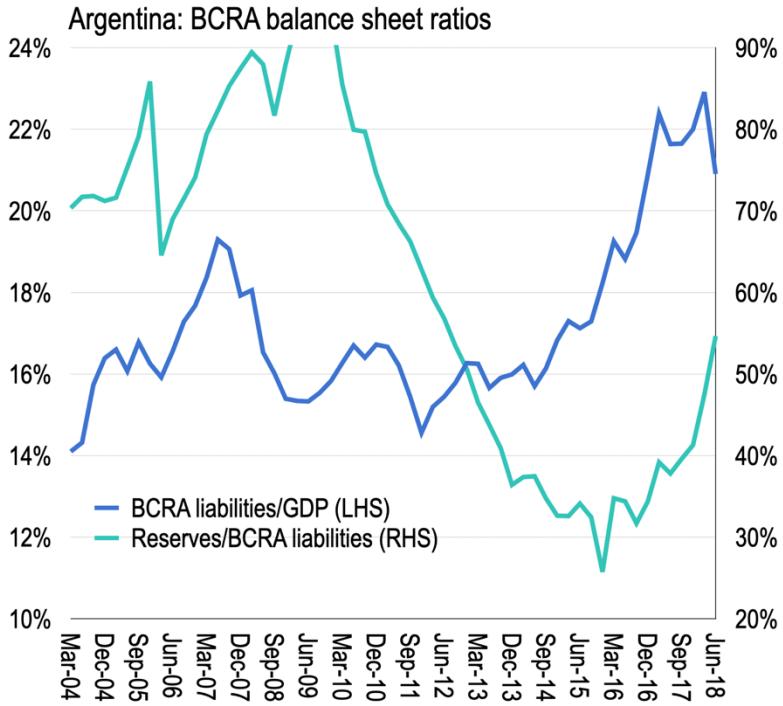
But this also confirms that the higher are international reserve assets (r^*_{t-1}) the larger is the needed income on capital when the real growth of the economy is greater than the real interest on these reserve assets ($\rho - \sigma^* > 0$)—a condition that likely holds.

So, when Mr. Guzmán claims his plan involves accumulating international reserves to achieve exchange rate and macroeconomic stability, but at the same time fails to provide the central bank with the quasi-fiscal support to pay for the cost of carrying such a higher stock, he is promulgating an incoherent plan.

As a back-of-the-envelope, let steady rate real GDP growth at 5% ($\rho = 0.05$) and the real interest on international reserves be 0% ($\sigma^* = 0$) while steady state domestic inflation is 5% ($1 + \pi = 1.05$). Every 10% of GDP increase in international reserves in the steady state costs 0.5% of GDP in steady-state central bank income due to recapitalization. Or, the government needs to adjust fiscal policy to pay the interest on central bank liabilities associated with international reserve accumulation.

Central bank liabilities in percent of GDP (here simplified as base money plus securities, which is incomplete) is shown in the figure below, and averaged about 16% of GDP pre-2017 ($m_{t-1} = 0.16$). If the average interest on these liabilities is about 20% ($i^M = 0.2$) while nominal GDP growth is 10% ($g = 0.1$) such that $i^M - g = 0.1$, then sustainability requires 1.6% of GDP steady-state income from central bank capital to assure sustainability. While gross international reserves should be, say, USD50BN or about 12.5% of GDP, requiring additional quasi-fiscal support of 0.7% of GDP.

This suggests 2.3% of GDP interest on central bank capital is needed in a steady-state to assure BCRA sustainability. But Guzmán, as with his predecessors and the IMF, refuses to recap the central bank. Why? Because this also implies that the headline fiscal balance in Argentina is worse by this amount, and that necessary future fiscal adjustment that much greater. Any macroeconomic program needs to take into account this hidden fiscal policy.



So, Guzmán's macroeconomic plan is doomed to fail. And his framework for understanding and attaining fiscal sustainability is woefully inadequate. This is bad news for the people of Argentina, for creditors, and, presumably, students at Columbia University.

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