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Discussion of Faruqee, Laxton, Muir, and Pesenti, "Smooth Landing or Crash? Model-based Scenarios of Global Current Account Rebalancing"*

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I enjoyed reading this fine paper, Faruqee, Laxton, Muir, and Pesenti [2] (FLMP). I believe it is worthwile to see the paper in the context of the lively debate in the recent literature on current-account developments, especially given the the large US current-account deficit.

The recent literature includes much-noted contributions of Gourinchas and Rey [3] and of Lane and Milesi-Feretti [4] on the role of the currency composition of gross assets and liabilities, revaluation effects, and return differences on home and foreign debt and assets.

Obstfeld and Rogoff [6] and [7] have recently presented a more formal model of the relation between the current account and the real exchange rate for the US economy, available in 2-country and 3-country versions. They emphasize the role of home bias in consumption and develop a static relation between the current account and the real exchange rate. The following ratios are defined:

$$\mathrm{ca} \equiv \frac{\mathrm{CA}}{P_H Y_H},\ f \equiv \frac{F}{P_H Y_H},\ \tau \equiv \frac{P_F}{P_H},\ x \equiv \frac{P_N}{P_T},\ x^* \equiv \frac{P_N^*}{P_T^*},\ \sigma_T \equiv \frac{Y_H}{Y_F},\ \sigma_N \equiv \frac{Y_N}{Y_H},\ \sigma_N^* \equiv \frac{Y_N^*}{Y_F}.$$

Here, CA denotes the US current account measured in dollars; P_H and Y_H are the dollar price and output of US-produced tradable goods; $F < 0$ is US net foreign assets (NFA) measured in dollars; P_F is the dollar price of foreign-produced tradable goods, so τ is the terms of trade; P_N is the dollar price of US-produced nontradable goods; P_T is the tradable-goods US consumption price

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index; P_N^* and P_T^* are the foreign-currency price of foreign-produced nontradable goods and the tradeable-goods foreign consumption price index, respectively; Y_N is the output of US-produced nontradable goods; and Y_N^* and Y_F are the outputs of foreign-produced nontradable and tradable goods, respectively. They derive three independent equations:

$$\begin{aligned} 1 &= \frac{\alpha}{(1-\alpha)\tau^{1-\eta}+\alpha}(1+rf-\text{ca})+\frac{1-\alpha}{\alpha\tau^{1-\eta}+(1-\alpha)}\left(\frac{\tau}{\sigma_T}-rf+\text{ca}\right), \\ \sigma_N &= \left(\frac{1-\gamma}{\gamma}\right)x^{-\theta}\left[\alpha+(1-\alpha)\tau^{1-\eta}\right]^{-\frac{1}{1-\eta}}(1+rf-\text{ca}), \\ \sigma_N^* &= \left(\frac{1-\gamma}{\gamma}\right)(x^*)^{-\theta}\left[\alpha+(1-\alpha)\tau^{-(1-\eta)}\right]^{-\frac{1}{1-\eta}}\left(1-r\frac{\sigma_T}{\tau}f+\frac{\sigma_T}{\tau}\text{ca}\right). \end{aligned}$$

Here, α is the consumption share of own-produced tradable goods in tradable goods consumption, so home bias in consumption is indicated by $\alpha > \frac{1}{2}$; η is the elasticity of substitution in consumption between home- and foreign-produced tradable goods; r is the dollar rate of return on US net foreign assets; γ is the consumption share of tradable goods in total consumption; and θ is the elasticity of substitution in consumption between tradable and nontradable goods. Given this, they solve for τ, x, x^* for given $\text{ca} < 0$ (the US current account surplus as a fraction of US tradable-goods output), f, σ_T, σ_N, and σ_N^*. Denote this solution as a function of ca by $\tau(\text{ca})$, $x(\text{ca})$, and $x^*(\text{ca})$. They then derive the real exchange rate, ε, as a function of ca as

$$\varepsilon(\text{ca}) \equiv \left[\frac{\alpha\tau(\text{ca})^{1-\eta}+(1-\alpha)}{(1-\alpha)\tau(\text{ca})^{1-\eta}+\alpha}\right]^{\frac{1}{1-\eta}}\left[\frac{\gamma+(1-\gamma)x^*(\text{ca})^{1-\theta}}{\gamma+(1-\gamma)x(\text{ca})^{1-\theta}}\right]^{\frac{1}{1-\theta}}.$$

Finally, they compute $\varepsilon(0)-\varepsilon(\text{ca})$, the change in the real exchange rate from reducing the US current-account deficit to zero (that is, reducing ca from negative to zero).

The main result is that such a reduction of the US current-account deficit is associated with a relatively large real depreciation of the dollar. However, a problem with Obstfeld and Rogoff's analysis is that it is completely static. There is no dynamics, and there is no explicit saving and investment. Furthermore, the dollar-value of US net foreign assets is mostly taken as given, although there are some cases where revaluation effects are discussed.

Blanchard, Giavazzi, and Sa [1] have recently presented a more dynamic model than the Obstfeld-Rogoff one. They emphasize the importance of imperfect substitutability of US- and foreign-based assets and of home bias in asset holdings. They derive a portfolio-balance relation,

$$X = \alpha(\underset{+}{R^e})(X+F) + [1-\alpha^*(\underset{-}{R^e})](\varepsilon X^* - F).$$

Here, X and X^* are given stocks of US- and foreign-based assets (measured in home and foreign goods, respectively); $\alpha(R^e)$ denotes the share of US wealth held as US-based assets and is increasing in the expected (real) rate-of-return difference between US- and foreign-based assets,

$$R^e \equiv 1 + r - r^* - \frac{\dot{\varepsilon}^e}{\varepsilon},$$

where r and r^* now denote US and foreign *real* interest rates; F now denotes US net foreign assets *measured in US goods*; $\alpha^*(R^e)$ is the share of foreign wealth held as foreign based assets and is decreasing in the expected rate-of-return difference. The current-account dynamics is given by

$$\dot{F} = rF + [1 - \alpha(R^e)](r^* + \frac{\dot{\varepsilon}}{\varepsilon} - r)(X + F) + \mathrm{TB}(\underset{+}{\varepsilon}),$$

where $\mathrm{TB}(\varepsilon)$ denotes the US trade-balance surplus and is increasing in the real exchange rates (it increases with a real dollar depreciation). The steady state is characterized by $\dot{\varepsilon} = \dot{F} = 0$ and determines a steady-state relation between net foreign assets and the real exchange rate,

$$0 = rF - [1 - \alpha(1 + r - r^*)](r - r^*)(X + F) + \mathrm{TB}(\varepsilon).$$

A jump in the real exchange rate at date t, $\varepsilon(t) - \varepsilon(t-)$, results in a revaluation of net foreign assets according to

$$F(t) - F(t-) = [1 - \alpha(t-)][X + F(t-)]\left(\frac{\varepsilon(t)}{\varepsilon(t-)} - 1\right).$$

Blanchard, Giavazzi, and Sa examine the dynamic adjustment of the US net foreign assets and the real exchange rate from current levels towards a steady state for a number of different shocks. The main result is that the steady state is characterized by a larger US net foreign debt and a weaker real dollar than the current situation. However, a problem with the analysis is that it is only partial equilibrium: the home and foreign real interest rates, r and r^*, are simply given, and there is no explicit saving and investment. The trade-balance equation is too simple, especially in comparison with the trade-balance equation resulting from the Obstfeld-Rogoff model.

The paper by Faruqee, Laxton, Muir, and Pesenti allows a potential synthesis of and considerable improvement on the above-mentioned literature. They have an impressive multi-country dynamic general-equilibrium model, a very sophisticated relation between the current account and the real exchange rate, endogenous saving and investment, and endogenous home and foreign interest rates. They can provide a sophisticated analysis of the dynamics of the current account.

But, the authors do not seem to utilize their model's potential fully. Regarding revaluation effects, their model is too simple: Net foreign assets are only denominated in US currency (or a currency basket). It would be worthwhile to incorporate gross assets and liabilities and to allow different currency compositions of these for different countries.

What about the portfolio choice between home- and foreign-based assets? What about the degree of substitutability and home bias? Again, their impressive model is still too simple: Home- and foreign-based assets are perfect substitutes. Furthermore, there is a given target NFA/GDP ratio, independent of relative returns. (There are some intermediation fees incurred when actual NFA/GDP deviates from the target NFA/GDP ratio.) The portfolio-choice modeling could be improved considerably.

The FLMP paper would benefit from discussing the previous literature in more detail and comparing its findings. In addition to the papers mentioned, there is also the dramatic crisis scenario presented by Roubini and Setser [8] that the authors may want to comment on and compare with. This is so, in particular, since the simulations conducted in the FLMP paper result in relatively benign outcomes. Are these really realistic?

There is a general problem with how monetary policy is modeled in the paper. The paper relies on so-called inflation-forecast based instrument rules (IFB rules), where the instrument rate fulfills a specified (equilibrium) relation with inflation projections. There are many problems with this approach, which I have emphasized in several different papers (for instance, Svensson [9] and Svensson and Woodford [10]). Probably anticipating my reaction, the authors state in footnote 17: "... It is important to note that IFB rules are ad hoc. Svensson (1999) and Svensson and Woodford (2005) have proposed Inflation-Forecast-Targeting (IFT) rules based on optimizing loss functions and *it is only a question of time* before IFT rules are used extensively on linearized versions of the size and type of models considered here." (Emphasis added.) If it is only a question of time, why not now? Why continue to use ad hoc instrument rules but not ad hoc consumption and investment rules? An ad hoc IFB rule is arguably even more ad hoc than an explicit (outcome-based) instrument rule (Svensson [9], Levin, Wieland, and Williams [5]). There are better alternatives, namely optimizing monetary policy, first-order conditions or targeting rules, and so forth.

In summary, this is a very impressive and interesting model, with considerable flexibility for examining a number of different issues. The model has great potential, and this potential is far from exhausted in the current version. In particular, the points I make above do not seem difficult to incorporate, should the authors wish to do so.

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