The role of net foreign assets in a New Keynesian small open economy model

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Abstract

This paper develops a small open economy, sticky-price model that determines a unique, stable long-run asset position for households as function of their incentive to anticipate or postpone consumption and labor effort across periods. This is accomplished by adopting an overlapping-generations structure in which new households with no assets enter the economy in each period. The same characteristics of household behavior that determine long-run assets are also important determinants of the model's responses to shocks. Stabilizing producer prices results in a milder recession following a drop in world demand than stabilizing consumer prices because it prevents the markup in the pricing of goods from increasing. In addition, given an initial foreign debt, allowing consumer prices to rise causes a decrease in the *ex post* real interest rate on impact, lowering the interest burden of the initial debt. The differences across policy rules generated by the initial asset position are robust to changes in the latter as long as these are brought about by changes in parameter values that do not alter the fundamental characteristics of household (and firm) behavior that are also the key determinants of long-run assets.
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1. Introduction

What determines long-run net foreign asset positions? How does asset accumulation affect the propagation of shocks under alternative specifications of monetary policy? This paper develops a small open economy, sticky-price model that addresses these questions.

The determination of long-run net foreign asset positions is an important question in international macroeconomics for empirical and theoretical reasons. Lane and Milesi-Ferretti (2001, 2002a, b) provide evidence of non-zero, long-run net foreign assets for a number of countries. Therefore, it is important to understand the determinants of such positions, and how these persistent imbalances and their determinants may influence dynamics in response to shocks. From a theoretical standpoint, it is common practice in international macroeconomics to solve models by log-linearizing them around the deterministic steady state – of which net asset holdings are a central component. However, absent appropriate modifications, familiar representative agent models fail to pin down a unique steady-state level of net foreign assets. Once log-linearized around an initial position that is usually chosen as a matter of convenience, these models result in non-stationary dynamics following temporary shocks, with unfavorable consequences for the reliability of the log-linearization and the feasibility of stochastic analysis.[1]

This paper develops a small open economy, sticky-price model that determines a unique, stable long-run asset position for the economy by changing the demographic structure relative to the familiar representative agent framework. The model follows Weil (1989a, b) in assuming that the world economy is populated by distinct, infinitely lived households that come into being on different dates and are born owning no assets. This demographic structure, combined with the assumption that newly born agents have no financial wealth, generates a unique, endogenously determined steady state to which the world economy returns over time following non-permanent shocks. The model, which extends the Weil setup to allow for endogenous labor supply and differences in income across agents of different generations at each point in time, makes it possible to provide a structural interpretation of the determination of long-run asset positions based on the incentives of individual households to anticipate or postpone consumption and labor effort across periods. If the world real interest rate, the subjective discount factor of home households, and other characteristics of the period utility function are such that the steady-state consumption and labor supply profiles of individual home

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[1]The best known example of this issue is perhaps Obstfeld and Rogoff's (1995) model of macroeconomic interdependence. The current account plays a crucial role in the transmission of shocks in that model. But the failure to pin down a unique steady state causes the consumption differential between countries implied by the model to follow a random walk. So do net foreign assets. The level of asset holdings that materializes in the period immediately following a shock becomes the new long-run position. In Obstfeld and Rogoff's sticky-price model, this results in long-run non-neutrality of money. As Schmitt-Grohé and Uribe (2003) point out, in stochastic models, the unconditional variances of endogenous variables are infinite, even if exogenous shocks are bounded.