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Home bias, exchange rate disconnect, and optimal exchange rate policy☆

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A B S T R A C T

This paper examines how much the central bank should adjust the interest rate in response to real exchange rate fluctuations. The paper first demonstrates, in a two-country Dynamic Stochastic General Equilibrium (DSGE) model, that home bias in consumption is important to replicate the exchange rate volatility and exchange rate disconnect documented in the data. When home bias is high, the shock to Uncovered Interest rate Parity (UIP) can substantially drive up exchange rate volatility while leaving the volatility of real macroeconomic variables, such as GDP, almost untouched. The model predicts that the volatility of the real exchange rate relative to that of GDP increases with the extent of home bias. This relation is supported by the data. A second-order accurate solution method is employed to find the optimal operational monetary policy rule. Our model suggests that the monetary authority should not seek to vigorously stabilize exchange rate fluctuations. In particular, when the central bank does not take a strong stance against the inflation rate, exchange rate stabilization may induce substantial welfare loss. The model does not detect welfare gain from international monetary cooperation, which extends Obstfeld and Rogoff's [Obstfeld, M., Rogoff, K.,2002. Global implications of self-oriented national monetary rules, Quarterly Journal of Economics May, 503–535] findings to a DSGE model.

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1. Introduction

Many countries adopted a monetary policy regime defined by John Taylor as a trinity: (1) a flexible exchange rate, (2) an inflation target, and (3) a monetary policy rule. John Taylor (2001) argues that the role of the exchange rate in the monetary policy rule is an important issue for this new policy regime. In this paper we first show that home bias in consumption can help to replicate two findings in the data: 1. Exchange rates are much more volatile than other macroeconomic variables such as GDP (exchange rate volatility); 2. The volatility of output does not respond to the volatility of exchange rates (exchange rate disconnect). Under this explanation of exchange rate volatility and disconnect, our model suggests that the central bank should not vigorously stabilize the real exchange rate in its monetary policy rule.

There are two different strands of literature focusing upon exchange rate stabilization. The first one studies the tradeoff between exchange rate stabilization and the stability of the whole economy. Ball (1999) and Svensson (2000) find that the inclusion of the exchange rate into a monetary policy rule can stabilize output or inflation, or both. In contrast, Obstfeld and Rogoff (1995) warn policymakers that the required interest rate changes for exchange rate stabilization can aggravate instability elsewhere in the economy. In an empirical study on New Zealand, West (2004) finds that exchange rate stabilization would increase the volatility of output, inflation, and the interest rate. Another strand of literature uses welfare-based New Open-Economy Macroeconomic (NOEM) models to study the tradeoff between real exchange rate stabilization and the expenditure-switching effect.[1] Though elegant in allowing for analytical solutions, these NOEM models are usually static with no price persistence, and are therefore unable to address the tradeoff considered in the first strand of literature.

Kollmann (2004) incorporates the tradeoffs in both strands of literature into a two-country Dynamic Stochastic General Equilibrium (DSGE) model. He compares the welfare effects of the exchange rate policy in a sticky-price dynamic model. Our paper is closely related, but we emphasize the connection between home bias in consumption and the exchange rate disconnect puzzle. Several authors have recently used pricing in the importer's currency (Local Currency Pricing, or LCP) to model the low exchange rate pass-through documented in the data.[2] The short-run exchange rate pass-through into import prices is close to zero in those models. In industrial countries, although the pass-through into consumer prices is low, there is still a sizable short-run exchange rate pass-through into import prices.[3] In addition, the LCP in import prices is also criticized by Obstfeld and Rogoff (2000b) on the grounds that it generates counterfactual correlation between the exchange rate and the terms of trade. Therefore, in this paper, we follow Devereux and Engel (2007) by assuming that the imports and exports are priced in the producer's currency (Producer Currency Pricing, or PCP), but final goods are priced in the consumer's currency.

We further assume that both import prices and consumer prices are sticky. When those prices are fixed in the short-run, the import prices in the importer's currency vary with the exchange rate, but the consumer prices do not fluctuate with the exchange rate. In this way, our model allows a low exchange rate pass-through into consumer prices and a relatively high pass-through to import prices. Under this setup, we find that home bias in consumption is critical for our model to replicate the well-documented disconnect between exchange rates and real macroeconomic variables.[4] We follow Devereux and Engel (2002) and Kollmann (2004) by using the Uncovered Interest rate Parity (UIP) shock to generate fluctuations in the nominal exchange rate. However, Devereux and Engel (2002) use the LCP for import prices to insulate the economy from exchange rate fluctuations. After we allow the exchange rate movements to pass through into the import prices, we find that only when the foreign market is a small portion of total output could the UIP shock in the financial market substantially increase the

[1] For example, see Devereux and Engel (2003, 2007), Obstfeld (2001, 2002) and the references cited therein. An exception is Obstfeld (2004). He defends the flexible exchange rate regime in light of its function that allows the central bank to pursue an independent interest rate policy in a world of international capital mobility.

[2] For instance, see Devereux and Engel (2002, 2003), Chari, Kehoe, and McGrattan (2002), Duarte and Stockman (2005), and Kollmann (2004).

[3] For instance, see Campa and Goldberg (2005), Mumtaz, Oomen and Wang (2006).

[4] For empirical studies on the exchange rate disconnect, see Flood and Rose (1995) and Baxter and Stockman (1989).