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Valuation effects and long-run real exchange rate dynamics[☆]



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ABSTRACT

This paper uses the Johansen test for cointegration to check the prediction of a portfolio balance model that predictable valuation effects are associated with a saddle-path dynamic relationship between the net foreign asset position and the real exchange rate. The analysis uses newly constructed quarterly series on the net foreign position as a percentage of the nominal gross domestic product, together with data on real effective exchange rate indices for a sample of developed countries which borrow in their own currency. The results indicate that the net foreign asset position and the real exchange rate are not cointegrated for all the countries in the sample. The rejection of saddle-path dynamics suggests that predictable valuation effects are quantitatively small in developed countries. The rejection of cointegration suggests that the net foreign asset position is not a determinant for long-run real exchange rates in developed countries.

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1. Introduction and literature review

Valuation effects are at the heart of recent discussions on external imbalances and long-run dynamics of real exchange rates. Recent data show that the traditional current account does not coincide with the change in the net foreign assets (NFA). The reason is that the change in the NFA also reflects changes in the market value of claims and liabilities underlying a country's net position while the

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current account only reflects changes in claims and liabilities at face value. Lane and Milesi-Ferretti (2001) show that these valuation changes in the market value of the NFA have become tremendously important for developed countries since the 1980s to the point where over a given period, their fluctuations outweigh the current account balance. However, valuation changes would not matter much for the underlying process of external adjustment if they were purely unexpected and random. It is the predictable component of valuation effects that affects the process of external adjustment and long-run dynamics of the real exchange rate.

Modeling predictable valuation effects is a challenge for standard international finance models that incorporate a parity condition in one form or the other because predictable valuation effects could only be important for the external adjustment process in models with large deviations from standard arbitrage conditions. Recent progress has been made with a revival of the portfolio balance literature associated with Masson (1981), Henderson and Rogoff (1982), and Kouri (1983). Blanchard et al. (2005a) build a model where domestic and foreign assets are assumed to be imperfect substitutes and in the long run predictable valuation effects are associated with a saddle-path dynamic relationship between the real exchange rate and the NFA. I exploit the special properties of this saddle-path dynamic relationship in order to test the importance of predictable valuation effects for the long-run behavior of the real exchange rate. I use a methodology developed by Cheung et al. (2005) who note that both cointegration and saddle-path dynamics depend on the roots of the system's characteristic polynomial. Such similarity suggests the adoption of the Johansen procedure to test for saddle-path dynamics because this test exploits the implications of cointegration for the rank of the coefficient matrix defined by the characteristic polynomial and uses the rank condition to infer system dynamics.

I linearize the equilibrium conditions of the Blanchard et al. (2005a) model around the steady state and put them in a vector error correction (VEC) form. Then, I use the Johansen test for cointegration to check whether the data supports the theoretical prediction of Blanchard et al. (2005a). I test for a saddle-path dynamic relationship between the NFA position as a percentage of the nominal gross domestic product (GDP) and the real effective exchange rate for five developed countries. The choice of countries was motivated by the model which assumes that the home country does not suffer from "original sin" and can borrow internationally in its own currency. According to Hausmann and Panizza (2003) these countries are the United States (US), the United Kingdom (UK), Switzerland, Japan and Germany. The results are remarkably robust for all countries over the sample period. The null hypothesis that the coefficient matrix has a zero rank cannot be rejected at the one percent level, neither by the maximum eigenvalue test, nor by the trace test.

The failure to reject the hypothesis of zero rank could be due to low power of the Johansen test when the substitutability of domestic and foreign assets is too low. When this is the case, the characteristic roots of the system are close to zero and the set of initial conditions that puts the system on a stable saddle path shrinks. Cheung et al. (2005) show that the Johansen test has lower power to reject the null hypothesis of zero rank if the characteristic roots are close to zero and the initial condition is far from the steady state. However, the analysis is performed on a relatively long sample of newly constructed quarterly data which increases the power of the test. In addition, the robustness of the result for different countries and specifications indicates that the result is not due to low power of the statistical test but to the fact that there is in fact no stable long-run link between the NFA and the real exchange rate.

The absence of saddle path dynamics is in line with recent empirical results that predictable valuation effects are too small to affect the long-run dynamic relationship between the NFA and the real exchange rate. The result contributes to an ongoing debate in the literature that concerns the size of predictable valuation effects on the US returns differential. The US returns differential means that there are predictable excess returns on some component of country's gross assets relative to the same component on its liabilities. Empirical estimates on the importance of predictable valuation effects range from exorbitant to quite small. One set of papers finds large differentials in favor of the US, differentials exceeding three percent per year, with most of the differential being attributed to predictable valuation effects (see Obstfeld and Rogoff (2005), Meissner and Taylor (2006), Lane and Milesi-Ferretti (2007a), Gourinchas and Rey (2007), Forbes (2010), Habib (2010) and Gourinchas et al. (2010)). Another set of papers finds much smaller returns differentials, barely exceeding one percent and attributes most of the differential to a difference in yields on foreign direct investment (FDI) assets and

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