

## Uncovered Equity Parity in the G-7

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Using the intertemporal consumption model, we develop the uncovered equity parity (UEP) condition. Our model is motivated by Solnik's (1974) equilibrium model of the international capital market where investors are unwilling to take foreign exchange risk, and thus require the risk premium to invest in foreign securities. Assuming that international asset decisions are based on the maximization of the expected utility of discounted intertemporal consumption as in Capiello and De Santis (2005, 2007), we derive the model's first-order conditions for optimal values of domestic and foreign equity holdings. In addition, assuming validity of the Fisher effect in which inflation does not covary with consumption state, we derive an uncovered equity parity condition within the risk premium framework.

To test the UEP, we use an instrumental variable approach since the conditional covariances are unobservable. We assume that the conditional expectations and conditional covariances are based on the same information about the news of real domestic and foreign activities, that domestic and foreign industrial production (IP) news affects the forecast errors of not only the domestic and foreign stock returns but also the real exchange rate appreciation, and that domestic IP news affects the forecast error of the domestic inflation rate. We also assume that lagged news about IP is used by investors to better predict for the following period relative movements in aggregate production, the availability of consumption, and thus not only relative changes in the domestic and foreign stock returns, but changes in the real exchange rate appreciation. For example, if domestic IP has declined unexpectedly with its negative news, it will lower domestic consumption and real domestic stock returns given the assumed positive covariance between the consumption and the returns.

Given these assumptions, the premium of foreign real stock returns relative to domestic real stock return depends on the real return on risk-free bonds, both domestic and foreign IP growth, and their first lags and interactions of these variables. This empirical model is applied to the G-7 countries over the sample period from January 1977 to December 2021. We first use a seemingly unrelated regression (SUR) model to delve into the optimal behavior of a representative investor holding assets from each of the G-7. We suspect an autocorrelation problem in the error term of the model, given the presence of the lagged values of domestic and foreign IP growth, and considering the long sample period and a relatively volatile G-7 economy in recent years that include the period after the launch of the euro, technology innovations and the financial crisis of 2007-2008. It leads us to recalibrate the error term by an autoregressive moving-average (ARMA) process. We also run cross-section time-series (panel) regressions with different error term structures to estimate the model in the broad context.

Results of the SUR and ARMA regressions show that the UEP overall hold for Italy, Japan, and the U.K. before the official launch of the euro and for Japan, France, Germany, and Italy after the

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launch, supporting Hau and Rey's (2004, 2006) studies. In contrast, the panel regressions provide evidence that the UEP may not hold during the sample period.

### References

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