Uncovered Interest Parity in Crisis

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This paper tests for uncovered interest parity (UIP) using daily data for 23 developing and developed countries during the crisis-strewn 1990s. We find that UIP works better on average in the 1990s than in previous eras in the sense that the slope coefficient from a regression of exchange rate changes on interest differentials yields a positive coefficient (which is sometimes insignificantly different from unity). UIP works systematically worse for fixed and flexible exchange rate countries than for crisis countries, but we find no significant differences between rich and poor countries. [JEL F32, G15]

Uncovered interest parity (UIP) is a classic topic of international finance, a critical building block of most theoretical models, and a dismal empirical failure. UIP states that the interest differential is, on average, equal to the ex post exchange rate change. A strong consensus has developed in the literature that UIP works poorly; it predicts that countries with high interest rates should, on average, have depreciating currencies. Instead, such currencies have tended to appreciate. Surveys are provided by Hodrick (1987), Froot and Thaler (1990), and Lewis (1995). In this short paper, we use recent data for a wide variety of countries to reexamine the performance of UIP during the 1990s.

It is easy to make a case for taking another look at UIP. The vast majority of literature on UIP uses data drawn from low-inflation, floating exchange rate regimes (though our previous work also uses European fixed exchange rate observations;

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see Flood and Rose, 1996). UIP may work differently for countries in crisis, whose exchange and interest rates both display considerably more volatility. This volatility raises the stakes for financial markets and central banks; it also may provide a more statistically powerful test for the UIP hypothesis. UIP may also work differently over time as financial markets deepen; UIP deviations may also vary across countries for the same reason, as recently argued by Bansal and Dahlquist (2000). Finally, and as the proximate motivation for this paper, deviations from UIP are the basis for interest rate defenses of fixed exchange rates. Consider the actions of the monetary authority of a country under speculative pressure that is considering responding with an increase in interest rates—the classic interest rate defense. If UIP holds, the domestic interest rate increase is offset exactly by a larger expected currency depreciation. Investors see through the policy actions, so that no advantage is conferred to domestic securities. Policy-exploitable deviations from UIP are, therefore, a necessary condition for an interest rate defense.

In this short article, we test UIP using recent high-frequency data from a large number of countries. We use data from the 1990s and include all the major currency crises. We find that the old consensus needs updating. While UIP still does not work well, it works better than it used to, in the sense that countries with high interest rates at least tend to have depreciating currencies (though not equal to the interest rate differential). There is a considerable amount of heterogeneity in our results, which differ wildly by country. Some of this is systematic; we find that UIP works worse for fixed-rate countries. There is less heterogeneity by forecasting horizon, however, and almost none by country income.

I. Methodology

We use standard methods (summarized in Flood and Rose, 1996). The hypothesis of uncovered interest parity can be expressed as:

\[(1 + i_t) = (1 + i_t^*)E_t(S_{t+\Delta})/S_t,\] (1)

where \(i_t\) represents the return on a domestic asset at time \(t\) of maturity \(\Delta\), \(i_t^*\) is the return on a comparable foreign asset, \(S\) is the domestic-currency price of a unit of foreign exchange, and \(E_t(.)\) is the expectations operator conditional upon information available at time \(t\).

We follow the literature by taking natural logarithms and ignoring cross terms (most of the countries we consider have only low interest rates). Assuming rational expectations and rearranging, we derive

\[E_t(s_{t+\Delta} - s_t) = (i_t - i_t^*)\]

\[\Rightarrow (s_{t+\Delta} - s_t) = \alpha + \beta(i_t - i_t^*) + \epsilon_t,\] (2)

where \(s\) is the natural logarithm of \(S\), \(\epsilon_t\) is minus the forecasting error realized at \(t + \Delta\) from a forecast of the exchange rate made at time \(t\), and \(\alpha\) and \(\beta\) are regression coefficients. Equation (2) has been used as the workhorse for the UIP literature. The null hypothesis of UIP can be expressed as \(H_0: \alpha = 0, \beta = 1\), though in