Testing for long horizon UIP using PPP-based exchange rate expectations

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Abstract

This paper revisits the uncovered interest parity relation. It supplements existing work in two ways: It focuses on long instead of short-term interest rates, and, related to that, employs exchange rate expectations derived from purchasing power parity (PPP) instead of actual outcomes. Among the major floating currencies over the period 1975–1997, the paper cannot support the notion of further increases in UIP-validation beyond that associated with the wave of financial market liberalization and deregulation in the early 1980s. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

Notwithstanding the greater importance of long-term interest rates for the business cycle in most countries, the empirical literature on international interest rate linkages focusing on short-term assets generally outnumbers the studies using long-term rates. ¹ This reflects the fact that financial instruments
traded at the long end of the market generally lack a well-developed forward market. While it is true that forward markets are most developed at the three-month maturity and hardly exist at maturities greater than two years, even among well-traded currencies, in the 1980s the currency swap market became sufficiently developed to hedge exchange rate risk for long-term investments as well (Popper, 1990, 1993; Fletcher and Taylor, 1996). In addition to the gradual worldwide abolition of capital controls, this financial innovation may have increased the linkage of international long-term interest rates.

Financial innovations contribute to international capital market integration by increasing capital mobility. This paper investigates whether this increased capital mobility has also resulted in a greater validation of the uncovered interest rate parity (UIP) relationship, as, under these circumstances, the scope for interest rate arbitrage increases and the impact on interest rate differentials of factors other than (expected) exchange rate movements and time-varying risk premia should steadily diminish. The focus on long-term interest rates is by itself an important contribution to the existing literature, which, as mentioned earlier, mainly concentrates on short-term instruments. A second but related novelty is the use of exchange rate expectations based on long-run purchasing power parity (PPP) instead of the more common form of rational expectations where actual exchange rate movements proxy for expected ones.

The bulk of the evidence on UIP thus far indicates not just that (actual) exchange rates fail to move one-for-one with interest rate differentials, but rather that their changes are substantial and in the opposite direction to that implied by UIP. Froot (1990) has calculated an average regression coefficient across some 75 published estimates of $-0.88$. A few estimates are positive, but all of them are distinctly smaller than the null hypothesis of a coefficient of +1. McCallum (1994) and Meredith and Chinn (1998) have argued that for relatively short horizons, failure of UIP results from risk-premium shocks in the face of endogenous monetary policy. In the longer term, in contrast, exchange rates are driven by ‘fundamentals’, leading to a relation between interest rates and exchange rates that should be more consistent with UIP.

The remainder of the paper is organized as follows: Section 2 presents some stylized facts. UIP and PPP are briefly discussed in Section 3, followed by a description of the data and the methodology used. Section 4 puts the theoretical predictions to an empirical test. Section 5 concludes the paper.

2. Recent developments in international bond markets

In the aftermath of two oil crises during the second half of the 1970s many industrialized countries experienced strong upward pressure on long-term interest rates, when inflation pressures rose and, around the turn of the decade, monetary policy was tightened quite aggressively. After reaching record heights
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