Deviations from Covered Interest Rate Parity

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Overview

Covered interest rate parity (CIP) is the condition that requires the interest rates to be the same across countries once the exchange rate risk has been hedged away. This idea has been around since at least 1923 when discussed by John Maynard Keynes. Research since then has confirmed that this no-arbitrage condition had been satisfied most of the time before the 2008 Global Financial Crisis. Since the crisis, however, the CIP condition has been persistently violated among G10 currencies, resulting in potentially significant arbitrage opportunities among the largest and most liquid derivative markets in the world. The violation of CIP creates an interesting puzzle for financial economists and regulators. The authors explore this oddity and find that it is linked to cross-country differences in interest rates and caused, at least partially, by banking regulatory reporting changes. Their findings have implications for the optimal investment of global cash balances, the financing of debt by global firms, and the functioning and regulation of global banks.

Investigation

An abundant literature investigating the CIP condition over the past 50 years has shown little existence of profitable arbitrage opportunities, except during crisis periods. Until 2008, after which the authors show significant deviations in CIP have persisted for G10 currencies at both short and long maturities. They then set out to answer how such deviations continue to exist among the largest and most liquid currency markets in the world by investigating the three possible explanations found in the literature — high transaction costs, credit risk of lenders, and counterparty risk of the forward contracts. The authors investigate each possible explanation in detail and find that they cannot fully explain the CIP deviations. As a result, they highlight persistent and systematic arbitrage opportunities in currency and fixed income markets.

The CIP deviations detailed are, of course, at odds with frictionless financial markets. So what changed in 2008? The authors next turn to other possible explanations, specifically costly financial intermediation affecting the supply of forwards and swaps, and international imbalances in savings and investment across currencies giving rise to the demand for FX hedging instruments. Here, the authors discuss how, since the financial crisis, various regulatory changes significantly increased banks' balance sheet costs associated with arbitrage and market-making activities. Meanwhile, divergent monetary policy across central banks affected the supply of funding for low interest rate currencies and the demand for investment in high interest rate currencies, creating demand for FX swaps.

The authors point to several key findings:

- The causal impact of banks' balance sheet constraints. Balance sheet constraints are tighter at quarter end due to regulatory filings (based on quarter-end snapshots for European banks). Since the financial crisis, CIP deviations increase at quarter ends, especially for those contracts found on banks' balance sheets. This is clear evidence that recent regulation has a meaningful impact on asset prices.
- Banks' balance sheet costs. Costs in banks' balance sheets account for two-thirds of short-term CIP deviations.
- CIP deviations correlate with other spreads in other markets. For instance, with other near-risk-free fixed income spreads (e.g., CDS or tenor spreads). CIP deviations are strongly positively correlated with nominal interest rates across countries and over time. Countries with higher levels of interest rates have lower implied dollar interest rates from the FX swap market. This relates to the well-known carry trade in currencies — going long high interest rate currencies and short low interest rate currencies leaving the currency risk unhedged — that produces positive predictability in returns. However, the returns from carry and CIP deviations are different. To take advantage of the CIP deviations, an investor needs to go long low interest rate currencies and short high interest rate currencies and hedge currency risk.

Conclusions

No-arbitrage conditions such as CIP form a foundation of economics and finance theory. The foreign exchange forward and swap market is one of the largest and most liquid derivative markets in the world with a total notional value of $61 trillion and average daily trading volume

of $3 trillion. Therefore, it is a major blow to the standard frictionless economic theory that the CIP has been systematically and persistently violated among the G10 currencies since 2008, leading to potentially meaningful arbitrage opportunities in currency and fixed income markets. Such deviations in such a deep and significant market suggest that other arbitrage opportunities may exist elsewhere, an area of future research. CIP deviations may simultaneously represent a trading opportunity to some investors and a cost borne by firms seeking to hedge their cash flows. Future research may investigate the resulting real economic consequences of these violations.

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