Dynamics of Market Anomalies and Measurement Errors of Risk-free Interest Rates

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Summary

Two-market anomalies since the 2008 global financial crisis the widespread failure of covered interest parity (CIP) in foreign exchange swaps and negative 30-year US dollar interest rate swap-Treasury spreads have been challenging for conventional asset pricing models. Using a three-factor, non-Gaussian term structure model for the US Treasuries, an estimated short-rate premium tends to move in tandem with the CIP deviations and negative swap spread. The dynamics between the premium and two-market anomalies are found to be cointegrated, suggesting a long-run equilibrium between them. As the premium is found to be empirically related to demand for Treasuries, including the Fed's quantitative easing program and demand for safe assets, it may reflect a convenience yield embedded in the yield curve such that the observed Treasury interest rate is lower than the true risk-free interest rate. The anomalies manifest such measurement error as additional spreads on the observed US dollar interest rates for pricing the corresponding instruments, consistent with recent studies that the US dollar and its interest rates play an important role in determining the CIP deviations.