# Term Structure, Interest Volatility, and the Failure of the UIP Condition

*Non-technical Summary*

Jeff K.W. Cheung (UC Davis)

This version: March 12, 2026

Imagine you have $100 to invest, and two opportunities are available: a U.S. bank offers a deposit rate of 2%, while a European bank offers a deposit rate of 3%. At first glance, the choice seems straightforward: simply choose the bank that offers the highest interest rate. The complication, however, is that the European bank only accepts euro deposits. To invest there, you must first convert the $100 into euros.

When the euro deposit matures next year, you must convert the principal plus interest back into dollars. This conversion introduces uncertainty because the future exchange rate is unknown. Depending on whether the euro appreciates or depreciates relative to the dollar, you may experience either a capital gain or a capital loss.

From the perspective of economists, the exchange rate—the conversion ratio between dollar and euro—should move in a direction that equalizes expected returns across currencies. In this example, depositing in the higher interest euro should be associated with an expected capital loss arising from euro depreciation in the future (that is, each euro would convert into fewer dollars next period).

However, empirical evidence consistently rejects this prediction, known as the uncovered interest parity (UIP) condition. Many studies find that high interest currencies often appreciate rather than depreciate. This creates a puzzling empirical pattern. In principle, investors could borrow in low-interest currencies and invest in high-interest currencies, earning returns from both the interest rate differential and the appreciation of the high-interest currency. Such strategies are commonly known as "carry trades." Although currency trades are risky and can generate large losses during financial crises, they have historically produced positive average returns. Given that the foreign exchange market has the largest trading volume in the world—even larger than global equity markets—the persistent failure of the UIP condition suggests that profitable opportunities may systematically exist in currency markets.

The literature generally offers two broad explanations. One possibility is that investors respond slowly to monetary shocks because information spreads gradually through financial markets. In this view, exchange rates initially move in ways that appear inconsistent with UIP but eventually adjust over time. A second explanation comes from finance: high-interest currencies may carry additional risk. Countries offering higher interest rates may face greater macroeconomic uncertainty or financial instability, so investors require higher expected returns as compensation. Each of these perspectives explains some—but not all—features of the data. Understanding the sources of UIP deviations therefore remains an important question at the intersection of macroeconomics and finance.

In this paper, I examine the UIP puzzle from a term structure perspective—that is, the relationship between interest rates and maturity (for example, 1-, 3-, 6-, and 12-month deposits). Under normal conditions, longer-maturity deposits typically offer higher interest rates because investors demand compensation for delaying consumption for longer periods. Exchange rates, however, behave differently: their fluctuations tend to be more volatile at short horizons than at longer horizons, a phenomenon often associated with exchange rate "overshooting." This observation suggests a natural hypothesis. During normal times, short-horizon currency trades may generate larger excess returns because the risk associated with short-run exchange rate volatility dominates the compensation for delaying consumption.

This relationship may change during periods of financial distress. During the 2008 Global Financial Crisis, central banks around the world pushed short-term interest rates (such as the federal funds rate—the overnight interbank borrowing rate) close to zero. This environment is often referred to as the "zero lower bound," reflecting the fact that nominal interest rates cannot fall below zero. At the same time, longer-term interest rates remained relatively elevated because of heightened uncertainty about future economic conditions. In response, central banks worldwide introduced unconventional monetary policies, such as quantitative easing (QE), in which they purchased longer-maturity government securities (e.g., 10-year U.S. Treasury bonds) and other financial assets. These policies were designed in part to influence longer-term interest rates and hence the slope of the yield curve. When short-term interest rates are compressed toward zero, the risk loadings in currency markets may shift toward longer-maturity deposits. Figure 1 provides evidence consistent with this hypothesis.

This discussion also highlights the importance of the shape of the yield curve in determining the risk exposure of currency trades. Under normal conditions, yield curves are typically upward-sloping, meaning that long-term interest rates exceed short-term rates. During periods of economic stress, however, yield curves often become inverted, with short-term interest rates exceeding long-term rates. Such inversions are commonly interpreted as signals of financial stress or expectations of future economic slowdown. Because the U.S. dollar plays a dominant role in global financial markets, financial distress in the United States may wield disproportionately stronger influence on global currency risk premia.

Figure 2 illustrates this idea. The UIP condition aligns more closely with theoretical predictions when both the U.S. and U.K. yield curves are upward-sloping. In contrast, large UIP deviations tend to occur during episodes in which the U.S. yield curve becomes inverted. The slope of the U.K. yield curve appears to play a relatively smaller role. This pattern holds consistently across different maturities.

Taken together, these findings suggest that the UIP condition should not be interpreted as a single static regression relationship. Instead, currency excess returns are inherently horizon-specific and regime-dependent, reflecting the interaction between interest-rate maturity, exchange-rate volatility, and global financial conditions.

**Figure** 1: Term structure of excess return coefficients before and after the 2008 Global Financial Crisis.

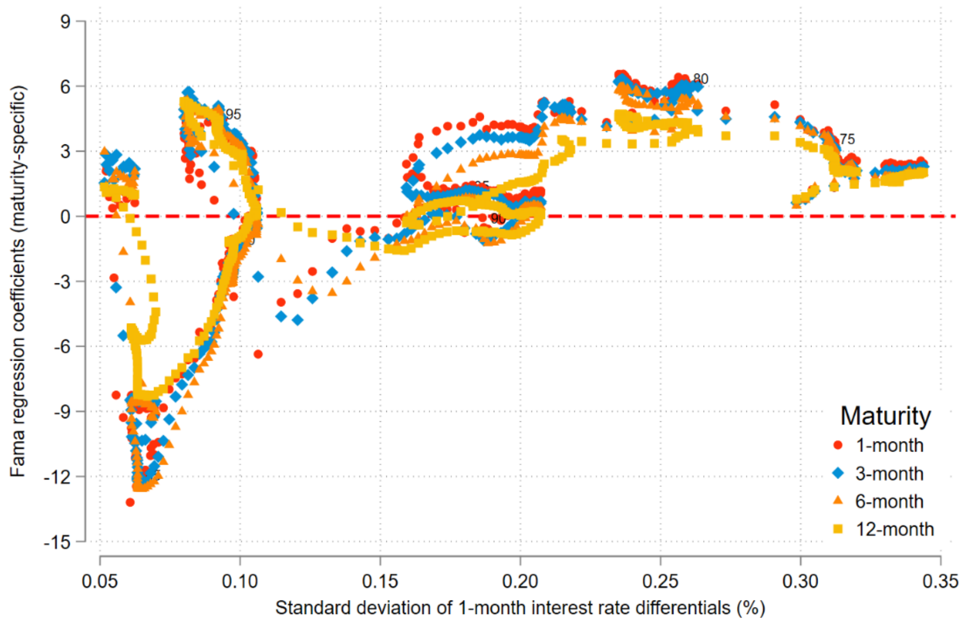


**Figure** 2: Excess return coefficients across yield curve sign combinations.