FORWARD RATE BIAS

Educational Piece

EMBASSY

FORWARD RATE BIAS: UNLOCKING VALUE IN SHORT-TERM INTEREST RATES

Forward Rate Bias (FRB) is a persistent phenomenon where implied forward rates tend to overestimate future spot rates. FRB creates opportunities to harvest or "roll yield" through short-dated futures, delivering steady gains that are uncorrelated to those from traditional fixed income exposure, which primarily focuses on credit risk.

WHY FORWARD RATE BIAS EXISTS

The Overprediction Trap

Markets price in risk premiums, liquidity, and expectations, but forwards often embed a directional bias, assuming rates will change more than they do. This stems from term premiums and uncertainty where investors demand higher yields for longer maturities.

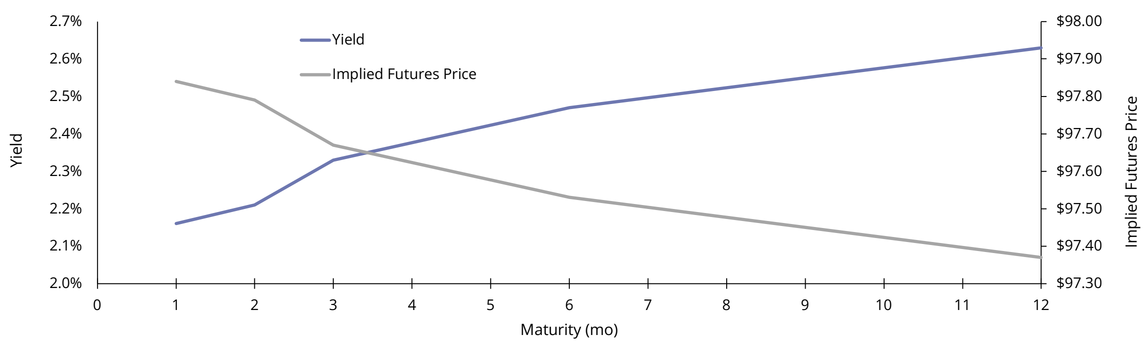
No-Arbitrage Insight

In a normal (upward-sloping) curve, forwards imply rising rates to balance spot yields. But history shows actual future spot rates rarely catch up, creating a harvestable edge.

Benefits for Strategies

Professional investors can exploit FRB by using interest rate futures contracts. When the yield curve is normally shaped (i.e., upward sloping) as it was on October 26, 2018 in the chart below, the corresponding interest rate futures curve is downward sloping. The pricing convention for short term rates futures contracts is P = (1 – R) x 100. Thus the higher the yield (R), the lower the price (P).

TREASURY PAR CURVE AND IMPLIED FUTURES CURVE[1]



By going long a relatively short-dated interest rate futures contract (let's say 9mo) and holding it for a period of time (let's say 3mo), investors may earn a positive return as the contract "rolls up the curve."

When the yield curve is inverted (i.e., downward sloping), the corresponding futures curve is thus upward sloping. In this case, by going short a relatively short-dated futures contract and holding it for a period of time, investors may earn a positive return as the contract "rolls down the curve."

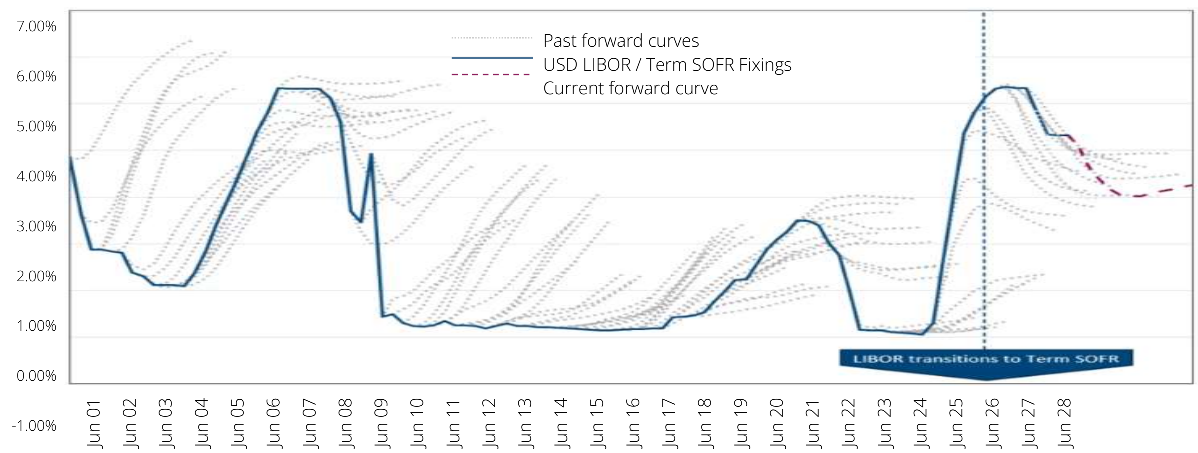
When the Fed hikes or cuts aggressively, this can amplify returns. FRB is persistent and observable across many yield curves such as those in the U.S., the U.K. and the European Union.

[1] Source: U.S. Department of the Treasury, Embassy calculations. Treasury Par Yield curve for the date October 26, 2018.

THE HAIRY CHART

The "Hairy Chart" plots historical 1-month US LIBOR/SOFR forward curves (thin lines from various start dates) against actual rate paths (bold line). It looks "hairy" from the tangle of forwards, which appear to consistently overestimate rises and falls.

1-MONTH USD LIBOR / TERM SOFR VS. HISTORICAL FORWARD CURVES[2]



THE MATH BEHIND IT

For the no arbitrage condition to be met, the return from a 2-year risk-free investment must equal a 1-year risk-free investment compounded with a 1-year risk-free investment that starts one year forward.

Formula $(1 + y_1) \cdot (1 + f_{1,1}) = (1 + y_2)^2$

Where y_1 is the 1-year zero-coupon rate, y_2 is the 2-year zero-coupon rate, and $f_{1,1}$ is the 1-year rate that starts one year forward.

Rearranged $f_{1,1} = \frac{(1 + y_2)^2}{(1 + y_1)} - 1$

Example y_1 = 2% and y_2 = 3%

$f_{1,1} = (1 + 0.03)^2 / (1 + 0.02) - 1 = 0.0401$

But will the 1-year rate actually increase from 2% to 4% in just one year? Rarely.

In futures, a normal yield curve implies backwardated futures. As spot prices rise as expiry nears, biased high forwards fall toward actual lower spots, yielding positive roll for long positions.

KEY TAKEAWAYS

Implement Simply

Roll quarterly futures for passive FRB capture as a low-cost, scalable overlay strategy, that can specifically benefit from Fed activity.

[2] Source: Chatham Financial, June 30, 2025.

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