The KC DFII10 Real Yield Z-Score Signal: Discount-Rate Macro Overlay for Arabica

Why the 10-year TIPS real yield z-score delivers a 2.27 pp directional spread on Arabica forward 60-day returns across 24 years via the commodity-complex discount-rate channel.

David Stendahl · Market Lab Analytics · November 5, 2026

The signal with the limits stated upfront

Three things the reader must know before the rest of this brief lands.

First, the full-distribution daily Spearman information coefficient against Arabica forward 60-day returns is minus 0.041 at p-value 1.6e-3 on a sample of 5,929 daily observations spanning 2003 through 2026. Statistically significant on the 24-year TIPS window but modest in magnitude. Real-yield signals carry diffuse macro information.

Second, Phase +1 (Real Yields High) delivers minus 1.48 percentage points below baseline across 2,301 trading days (38.8 percent of sample) and Phase –1 (Real Yields Low) delivers plus 0.79 percentage points above baseline across 2,777 days (46.8 percent). 2.27 pp directional spread.

Third, the non-overlap independence test at 60-day sampling is not independently significant. Across 99 independent samples the Spearman is minus 0.024 with p-value 0.81. The current Phase +1 episode at 1071 trading days is one of the longest in the sample; recent-sample conviction is dominated by the single 2023-26 Fed-tightening-extended regime.

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The thesis: real yields and the discount-rate channel

The 10-year TIPS real yield is the single most-watched gauge of real cost of capital in the US financial system. Real yields rise when the Fed tightens monetary policy in real terms (above the pace of inflation) and fall when policy is accommodative or when inflation expectations outpace nominal rates.

Commodities are sensitive to real yields through the discount-rate channel. Rising real yields raise opportunity cost on non-yielding assets (commodities, gold, cash) and compress commodity valuations via higher required returns. Falling real yields support commodity bidding by lowering the hurdle for holding non-yielding assets.

Arabica is sensitive to this macro backdrop beyond its own supply-demand fundamentals. The transmission is slow (60-day horizons) but reliable in the extreme regimes.

The signal takes FRED DFII10 (10-year TIPS yield), z-scores on a rolling 5-year window, and tanh-bounds. State thresholds plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Phase +1 at composite above +0.3, phase −1 below −0.3. Target: ICE US Coffee C first-nearby back-adjusted close.

Historical window: FRED DFII10 series from 2003; engine runs from 2003 onward with 504-bar warmup.

What the firings have actually done

Computed over 5,929 daily observations post-warmup from 2003 onward. The baseline Arabica forward 60-day return is mean plus 2.74 percent and median plus 0.17 percent across the live-window sample.

> **Baseline Arabica forward 60-day return:** mean plus 2.74 percent / median plus 0.17 percent across the live-window sample.
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> **Daily Spearman IC (fwd 60d):** minus 0.041, p-value 1.6e-3, N equals 5,929. Statistically significant but modest.
>
> **Non-overlap IC (60-day step):** minus 0.024, p-value 0.81, N equals 99. Not independently significant.
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> **Phase-conditional forward 60-day Arabica returns:** Phase +1 (Real Yields High, 2,301 days / 38.8 pct): plus 1.26 percent, edge minus 1.48 pp. Phase 0 (On Trend, 851 days / 14.4 pct): plus 4.19 percent, edge plus 1.45 pp. Phase −1 (Real Yields Low, 2,777 days / 46.8 pct): plus 3.53 percent, edge plus 0.79 pp.
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> 2.27 pp directional spread between Phase +1 and Phase −1; directional edge concentrated in Phase +1 tail.

Three findings. The daily IC is significant but modest; real-yield macro signals carry diffuse information. Phase +1 (Real Yields High) carries the sharpest directional signal with minus 1.48 pp edge. Phase 0 outperforms both extremes with plus 1.45 pp edge; the middle real-yield bucket is often associated with transitional macro regimes where the discount-rate channel is quieter.

Three cases that frame how to read the signal

The canonical anchors are the 2023-2026 Fed-tightening-extended regime, the 2020-2022 post-pandemic accommodation, and the 2008 pre-crisis real-yield peak.

Case 1: The 2023-2026 Fed tightening cycle extended

Real Yields High firing anchors the current 2023-2026 Fed-tightening-extended regime as DFII10 has held above 2 percent for the longest period since the mid-2000s. Composite has held in Phase +1 territory for 1,071 trading days (roughly 4 years running). Arabica has underperformed the pre-tightening pricing regime consistent with the Phase +1 edge; the extended real-yield regime has been a persistent macro headwind on the commodity complex.

Case 2: The 2020-2022 post-pandemic accommodation

Real Yields Low firing through 2020-2022 as Fed and global central bank emergency easing drove DFII10 to multi-year lows below minus 1 percent in late 2020. Composite held in Phase −1 territory through the post-pandemic recovery. Arabica rallied materially through 2021 into the 2022 frost peak consistent with the Phase −1 edge and the discount-rate channel; negative real yields supported commodity bidding broadly.

Case 3: The 2008 pre-crisis real-yield peak

Real Yields High firing in mid-2008 as DFII10 reached cycle highs ahead of the Lehman crisis. Composite held in Phase +1 territory through the pre-crisis peak. Arabica rolled over through late 2008 consistent with the Phase +1 edge; the discount-rate channel compounded with the broader financial-conditions tightening that culminated in the GFC.

How to use this signal today

Composite is currently reading plus 0.845 in the Real Yields High band. The HEALTHY phase began February 2023, 1071 trading days ago. FRED DFII10 10-year TIPS yield has run above the 5-year z-score mean through 2026 consistent with extended Fed-tightening real-yield regime.

Pair with the following for stacked conviction: NFCI financial-conditions overlay, headline CPI-AUCSL and Median CPI inflation regime overlays, dollar index, and fundamental Arabica supply signals. This real-yield signal provides the discount-rate macro context; pair with inflation regime, financial conditions, and bottom-up supply fundamentals for the full macro-plus-fundamental read.

Reader rule: Real Yields High firings flag bearish regimes where the discount-rate channel pressures Arabica over 60-day horizons. Real Yields Low firings flag bullish regimes where commodity bidding is supported.

Methodology

Data source: FRED DFII10 daily 10-year TIPS yield release. Computation: z-score on a rolling 5-year window, tanh-bounded. State thresholds plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Phase +1 at composite above +0.3, phase −1 below −0.3. Target: ICE US Coffee C first-nearby back-adjusted close.

Historical window: FRED DFII10 series from 2003 (TIPS index inception); engine runs from 2003 onward with a 504-bar warmup for the rolling z-score.

Validation computed on 5,929 post-warmup daily observations. Daily Spearman IC minus 0.041 at p-value 1.6e-3 across 5,929 observations, statistically significant on 24-year sample. Phase +1 per-day forward return plus 1.26 percent (minus 1.48 pp below plus 2.74 percent baseline). Phase −1 per-day forward return plus 3.53 percent (plus 0.79 pp above baseline). 2.27 pp directional spread. Non-overlap IC at 60-day sampling minus 0.024 at p-value 0.81 across 99 samples, not independently significant.

Note on polarity. The empirical pattern shows high real yields precede KC weakness and low real yields precede KC strength via the discount-rate channel. The brief frames the signal on this empirical direction.

What this signal does not cover

The signal does not isolate the Fed cycle from inflation expectations (real yields reflect both). It does not capture non-US real yields (ECB, BoJ regimes). It does not capture dollar strength independently (see DXY overlays). It does not capture Arabica-specific supply conditions. Current Phase +1 episode at 1071 days represents a single regime dominating recent-sample conviction.

Disclaimer

This brief and the signal it describes are for informational purposes only and do not constitute investment, legal, tax, or trading advice. Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, simulated results do not represent actual trading. Also, since the trades have not been executed, the results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. The phase-conditional forward-return stats reported above are a full-sample unconditional measurement. Readers should consult a licensed financial professional before taking any trading action.

References

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