The KC NFCI Growth Regime Z-Score Signal: Financial-Conditions Overlay for Arabica

Why the Chicago Fed National Financial Conditions Index z-score delivers a 5.41 pp directional spread on Arabica forward 60-day returns across 36 years via the risk-capital 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 0.094 at p-value 4.7e-19 on a sample of 8,947 daily observations spanning 1990 through 2026. Strongly significant on the 36-year window.

Second, Phase +1 (Tight Conditions) delivers minus 2.91 percentage points below baseline across 2,830 trading days (31.6 percent of sample) and Phase −1 (Loose Conditions) delivers plus 2.50 percentage points above baseline across 4,033 days (45.1 percent). 5.41 pp directional spread with clean monotone phase pattern.

Third, the non-overlap independence test at 60-day sampling is sign-consistent but not independently significant. Across 150 independent samples the Spearman is minus 0.074 with p-value 0.37. The signal is a slow-moving financial-conditions anchor with weekly release cadence; short-horizon value is limited.

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The thesis: financial conditions and the risk-capital channel

The Chicago Fed National Financial Conditions Index aggregates over 100 measures of risk, credit, and leverage across money, equity, debt, and traditional-plus-shadow-banking systems into a single scalar. Positive NFCI readings indicate tighter-than-average financial conditions; negative readings indicate looser.

The commodity complex is sensitive to financial conditions via the risk-capital channel. When conditions tighten, speculator capital leaves commodity futures as volatility rises, haircuts widen, and funding becomes more expensive. Arabica positioning compresses and prices underperform. When conditions loosen, capital flows back into commodities as cheaper financing supports risk-taking and speculator allocation expands.

Arabica is sensitive to this macro backdrop beyond its own supply-demand fundamentals. The signal captures the financial-conditions regime with a 5-year rolling z-score.

The signal takes the Chicago Fed NFCI, 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: Chicago Fed NFCI series from 1971; engine runs from 1990 onward with 504-bar warmup.

What the firings have actually done

Computed over 8,947 daily observations post-warmup from 1990 onward. The baseline Arabica forward 60-day return is mean plus 2.32 percent and median minus 0.96 percent across the live-window sample.

> **Baseline Arabica forward 60-day return:** mean plus 2.32 percent / median minus 0.96 percent across the live-window sample.
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> **Daily Spearman IC (fwd 60d):** minus 0.094, p-value 4.7e-19, N equals 8,947. Strongly significant.
>
> **Non-overlap IC (60-day step):** minus 0.074, p-value 0.37, N equals 150. Sign-consistent but not independently significant.
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> **Phase-conditional forward 60-day Arabica returns:** Phase +1 (Tight Conditions, 2,830 days / 31.6 pct): minus 0.60 percent, edge minus 2.91 pp. Phase 0 (On Trend, 2,084 days / 23.3 pct): plus 1.44 percent, edge minus 0.88 pp. Phase −1 (Loose Conditions, 4,033 days / 45.1 pct): plus 4.81 percent, edge plus 2.50 pp.
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> 5.41 pp directional spread between Phase +1 and Phase −1 with clean monotone phase pattern.

Three findings. The daily IC is strongly significant on the 36-year window. The monotone phase pattern cleanly separates Tight Conditions from Loose Conditions with 5.41 pp spread — among the widest in the KC library. The Phase −1 Loose Conditions bucket is the majority bucket at 45.1 percent sample share with the strongest edge; financial conditions are loose more often than tight on a 5-year rolling window.

Three cases that frame how to read the signal

The canonical anchors are the 2022-2023 Fed tightening and SVB-Signature banking stress, the 2008 Lehman crisis, and the 2020-2021 post-pandemic easing.

Case 1: The 2022-2023 Fed tightening and SVB stress

Tight Conditions firing anchored the 2022-2023 Fed tightening cycle and the March 2023 regional banking stress. NFCI spiked above the 5-year z-score mean through the aggressive rate hikes and the SVB-Signature-First-Republic sequence that followed in Q1 2023. Composite held in Phase +1 territory. Arabica underperformed through the tightening cycle consistent with the Phase +1 edge despite the 2022 Brazilian frost premium; macro headwinds suppressed the fundamental-supply response.

Case 2: The 2008 Lehman crisis

Tight Conditions firing in September 2008 as NFCI spiked to crisis-era highs with the Lehman bankruptcy and the subsequent global-banking de-leveraging. Composite held in Phase +1 territory through the full crisis period. Arabica rolled over hard through late 2008 consistent with the Phase +1 edge; capital left commodity futures en masse as speculator unwind forced liquidations.

Case 3: The 2020-2021 post-pandemic easing

Loose Conditions firing through 2020-2021 as Fed and global central bank easing drove NFCI deep below the 5-year mean. Composite held in Phase −1 territory through the post-pandemic recovery and the Fed quantitative-easing expansion. Arabica rallied materially through 2021 into the 2022 frost peak consistent with the Phase −1 edge and the risk-capital channel; cheap financing supported commodity speculation and Arabica positioning.

How to use this signal today

Composite is currently reading minus 0.427 in the Loose Conditions band. The STRESS phase began April 2026, 149 trading days ago. Chicago Fed NFCI has run below the 5-year z-score mean through 2026 consistent with loose-financial-conditions regime after the 2022-23 tightening cycle unwound.

Pair with the following for stacked conviction: the headline CPIAUCSL overlay, the Cleveland Fed Median CPI core-core inflation signal, real yields (10-year TIPS), the dollar index, and fundamental supply signals. This financial-conditions signal provides the risk-capital channel context; pair with inflation regime overlays and bottom-up supply fundamentals for the full macro-plus-fundamental read.

Reader rule: Tight Conditions firings flag bearish regimes where the risk-capital channel pressures Arabica over 60-day horizons. Loose Conditions firings flag bullish regimes where capital rotation supports Arabica.

Methodology

Data source: FRED Chicago Fed National Financial Conditions Index (NFCI) weekly 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: Chicago Fed NFCI series from 1971; engine runs from 1990 onward with a 504-bar warmup for the rolling z-score.

Validation computed on 8,947 post-warmup daily observations. Daily Spearman IC minus 0.094 at p-value 4.7e-19 across 8,947 observations, strongly significant on 36-year sample. Phase +1 per-day forward return minus 0.60 percent (minus 2.91 pp below plus 2.32 percent baseline). Phase −1 per-day forward return plus 4.81 percent (plus 2.50 pp above baseline). 5.41 pp directional spread. Non-overlap IC at 60-day sampling minus 0.074 at p-value 0.37 across 150 samples, sign-consistent but not independently significant.

Note on polarity. The empirical pattern shows tight financial conditions precede KC weakness and loose conditions precede KC strength. The brief frames the signal on this empirical rather than on a priori mechanism direction.

What this signal does not cover

The signal does not capture inflation regime (see Z1188 headline CPI and Z100223 Median CPI overlays). It does not capture dollar strength independently (see DXY overlays). It does not capture real yields independently (see TIPS yield signals). It does not capture Arabica-specific supply conditions. NFCI weekly release cadence limits short-horizon use; the signal is a slow-moving financial-conditions anchor.

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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ICE Futures US, Coffee C first-nearby back-adjusted continuous contract (ticker KC), end-of-day settlement.