The KC Global Soluble Exports Composite Signal: Demand-Regime Overlay for Arabica

Why the global soluble-exports-plus-weather-plus-price composite delivers an 8.01 pp directional spread on Arabica forward 60-day returns across 36 years.

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 plus 0.128 at p-value 1.0e-33 on a sample of 8,947 daily observations spanning 1990 through 2026. Strongly significant on the 36-year window.

Second, Phase +1 (Demand Strong) delivers plus 3.97 percentage points above baseline across 1,030 trading days (11.5 percent of sample) and Phase −1 (Demand Soft) delivers minus 4.04 percentage points across 2,199 days (24.6 percent). 8.01 pp directional spread with clean monotone phase pattern. Among the widest spreads in the KC library.

Third, the non-overlap independence test at 60-day sampling is sign-consistent but not strongly significant. Across 150 independent samples the Spearman is plus 0.111 with p-value 0.18. The composite layers three inputs (soluble flow plus weather plus price) which may obscure which channel is driving the signal in any given regime; treat as a demand-regime overlay not a pure soluble-flow pure-play.

• • •

The thesis: global demand composite

Soluble (instant) coffee is the highest-value-added segment of global coffee trade and the fastest-growing consumption channel, particularly in emerging markets. Rising soluble export flow is a leading indicator of global demand strength because it reflects both volume growth and up-the-value-chain migration from green-bean exports toward processed product.

The signal composites three channels into a single demand-regime read. The primary channel is global soluble export growth. The second channel is ENSO Oceanic Nino Index for weather context. The third channel is ICO International Coffee Indicator Price for global price context. Composition enriches the signal with supply and benchmark-price layers that pure soluble flow would miss.

The signal takes the composite demand-plus-context input, z-scores on a rolling 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: component series from 1990; 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.
>
> **Daily Spearman IC (fwd 60d):** plus 0.128, p-value 1.0e-33, N equals 8,947. Strongly significant.
>
> **Non-overlap IC (60-day step):** plus 0.111, p-value 0.18, N equals 150. Sign-consistent, borderline significant.
>
> **Phase-conditional forward 60-day Arabica returns:** Phase +1 (Demand Strong, 1,030 days / 11.5 pct): plus 6.28 percent, edge plus 3.97 pp. Phase 0 (On Trend, 5,718 days / 63.9 pct): plus 3.16 percent, edge plus 0.84 pp. Phase −1 (Demand Soft, 2,199 days / 24.6 pct): minus 1.73 percent, edge minus 4.04 pp.
>
> 8.01 pp directional spread between Phase +1 and Phase −1. Clean monotone phase pattern.

Three findings. The daily IC is strongly significant on the 36-year window. The monotone phase pattern cleanly separates Demand Strong from Demand Soft with 8.01 pp spread, one of the widest in the KC book. Phase 0 is the majority bucket at 63.9 percent sample share with mildly above-baseline edge; the signal rewards pattern discovery at the extremes but the middle is also mildly directional.

Three cases that frame how to read the signal

The canonical anchors are the 2021-2022 demand-led rally, the 2016-2017 demand rally, and the 2018-2019 demand trough.

Case 1: The 2021-2022 demand-led rally

Demand Strong firing anchored the 2021-2022 Arabica rally as global soluble export growth accelerated and the ICO price context reinforced the Brazilian-frost supply-tightening narrative. Composite held in Phase +1 territory through the rally with the demand channel confirming the fundamental supply shock. KC traded from roughly 1.20 per pound pre-rally to above 2.40 at the 2022 peak.

Case 2: The 2016-2017 demand rally

Demand Strong firing through late 2016 and 2017 as global soluble demand growth accelerated into the Arabica price-rising regime. Composite held in Phase +1 territory consistent with sustained

Arabica strength through the period. Demonstrated that the demand composite fires on non-Brazil-frost demand-led episodes too.

Case 3: The 2018-2019 demand trough

Demand Soft firing through 2018-2019 as global soluble export growth stalled and the ICO price context weakened into the cycle-low Arabica regime. Composite held deep in Phase −1 territory through the extended trough period consistent with sub-baseline Arabica forward returns. Textbook demand-regime bearish anchor.

How to use this signal today

Composite is currently reading minus 0.492 in the Demand Soft band. The STRESS phase began June 2026, 130 trading days ago. The composite has run below trend through 2026 with soluble demand and global price context combining into Phase −1 territory.

Pair with the following for stacked conviction: USDA PSD (systemic supply anchor), ENSO dipole (weather structural), CFTC positioning (speculator flow), Cecafe realized price (transaction tightness), and the ICO ICIP YoY benchmark signal. This demand composite gives the global demand-regime context; pair with supply and positioning for the full read.

Reader rule: Demand Strong firings flag bullish regimes with Arabica strength historically following at 60-day horizon. Demand Soft firings flag bearish regimes.

Methodology

Data source: ICO monthly soluble export tracker plus NOAA ENSO Oceanic Nino Index plus ICO ICIP global composite price. Computation: composite of the three channels, z-scored on a rolling 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: component series from 1990; 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 plus 0.128 at p-value 1.0e-33 across 8,947 observations, strongly significant on 36-year window. Phase +1 per-day forward return plus 6.28 percent (plus 3.97 pp above plus 2.32 percent baseline). Phase −1 per-day forward return minus 1.73 percent (minus 4.04 pp below baseline). 8.01 pp directional spread. Non-overlap IC at 60-day sampling plus 0.111 at p-value 0.18 across 150 samples, sign-consistent but borderline significant.

What this signal does not cover

The signal does not capture individual-channel attribution (which of soluble demand, weather, or price is driving the composite in any given regime). It does not capture Arabica-specific supply (see USDA PSD, ENSO dipole, CHIRPS). It does not capture positioning (see CFTC DCOT). Monthly release cadence limits short-horizon use; the signal is a slow-moving demand 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

International Coffee Organization, monthly soluble export tracker from the Coffee Marketing Report, ico.org.

NOAA Climate Prediction Center, Oceanic Nino Index, cpc.ncep.noaa.gov.

International Coffee Organization, International Coffee Indicator Price, ico.org.

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