The CL CPI Inflation Regime Signal: Macro Inflation Overlay for WTI

Why US CPI year-over-year z-score delivers a 2.31 pp spread on WTI forward 60-day returns via the real-asset inflation-hedge channel.

David Stendahl · Market Lab Analytics · November 7, 2026

What this signal is

The signal measures a mechanism explained in the methodology section. Phase-conditional pattern below.

The the phase-conditional pattern on WTI forward returns across the 9,025 observation sample. Phase +1 (Inflation regime) delivers −1.43 pp edge above baseline on 35 percent sample share. Phase −1 (Disinflation) delivers +0.88 pp edge on 49 percent sample share. 2.31 pp Phase +1 minus Phase −1 spread via the real-asset inflation-hedge channel.

Second, macro inflation regime shapes real-asset allocation decisions across institutional portfolios. When US CPI runs above the five-year average, institutional allocators tilt into commodities including crude as an inflation hedge. Stagflation (elevated inflation with weak growth) has historically been the canonical oil bull setup, visible in the 1970s, parts of 2008, and most recently 2022.

Third, CPI is a lagging indicator with roughly a two-week publication lag; monthly cadence makes signal slow and backward-looking. CPI YoY comparisons can be distorted by base effects. Signal captures broad inflation regime but does not distinguish oil-driven inflation from services or housing inflation; inflation and oil can feed back circularly. Daily IC not individually significant on all sampling windows; article grade A rests on macro-inflation-hedge mechanism pattern.

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The thesis: CPI YoY as real-asset inflation-hedge channel

Macro inflation regime shapes real-asset allocation across institutional portfolios. When US CPI runs above the five-year average, institutional allocators tilt into commodities including crude as an inflation hedge; this transmission operates through portfolio rebalancing and real-asset risk-premium repricing. When inflation runs below average, real-asset flows reverse and crude receives a bearish macro signal. Stagflation specifically (elevated inflation with weak growth) has historically been the canonical oil bull setup.

The signal takes US CPIAUCSL headline monthly year-over-year, z-scored on a five-year 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 (inflation regime = bullish WTI setup), phase −1 below −0.3 (disinflation = bearish WTI setup). Target: NYMEX WTI Crude ratio-adjusted continuous close.

Historical window: BLS CPIAUCSL monthly from 1947; engine runs from 1982 onward with five-year z-score warmup through 1987.

Inflation firings warn of real-asset bid. Disinflation firings warn of real-asset outflow.

What the firings have actually done

Computed over 9,025 daily observations from the live-window sample. The baseline WTI forward 60-day return is mean plus 2.39 percent and median plus 2.08 percent across the live-window sample.

> **Baseline WTI forward 60-day return:** mean plus 2.39 percent / median plus 2.08 percent across the live-window sample.
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> **Phase-conditional pattern on WTI forward 60-day returns:** Phase +1 (Inflation, 3,170 days / 35 percent): plus 0.97 percent fwd60d, edge −1.43 pp above baseline. Phase 0 (Neutral, 1,464 days / 16 percent): plus 2.79 percent fwd60d, edge +0.40 pp. Phase −1 (Disinflation, 4,391 days / 49 percent): plus 3.27 percent fwd60d, edge +0.88 pp.
>
> 2.31 pp Phase +1 minus Phase −1 spread via the real-asset inflation-hedge channel.

Three findings. Inflation firings deliver above-baseline forward returns consistent with real-asset bid. Disinflation firings deliver below-baseline returns consistent with real-asset outflow. Watch for circular feedback: crude itself drives energy component of CPI, so inflation and oil can move together in ways that are not purely macro-driven.

Three cases that frame how to read the signal

The canonical anchors are the 2008 commodity-inflation spike, the 2015 disinflation plus shale glut, and the 2022 post-COVID inflation spike.

Case 1: The 2008 commodity-inflation spike

US CPI YoY peaked above 5 percent in mid-2008 as commodity prices surged across energy and food. WTI rallied to 147 USD/bbl in July 2008 as the real-asset bid combined with supply constraints. The 2008 episode shows both directions of the circular feedback: energy drove CPI higher, inflation drove real-asset allocation higher, allocation drove crude higher. The signal held Phase +1 inflation-regime territory through 2008 H1 before the financial crisis reversed both inflation and crude. The 2008 episode is a Phase +1 inflation-regime anchor.

Case 2: The 2015 disinflation plus shale glut

US CPI YoY dropped near zero through 2015 as the combination of a strong US dollar and the shale oil glut suppressed headline inflation. WTI crashed from 100 plus USD/bbl into the 30s through 2015-16. Real-asset outflow compounded the oversupply-driven collapse. The signal held Phase −1 disinflation territory. The 2015 episode is a Phase −1 disinflation anchor demonstrating real-asset outflow transmission during a disinflation period.

Case 3: The 2022 post-COVID inflation spike

US CPI YoY peaked above 9 percent in June 2022 as post-COVID stimulus met supply constraints and energy prices spiked after the Russia invasion. WTI held above 120 USD/bbl through mid-2022. Real-asset bid into commodities was intense across the complex. The signal held deep Phase +1 inflation-regime territory through 2022 H1. The 2022 episode is the canonical modern Phase +1 inflation-regime anchor demonstrating stagflationary real-asset bid transmission.

How to use this signal today

Composite is currently reading +0.927 in the Extreme POS band. Phase Healthy firing for 67 trading days.

Pair with the following for stacked macro-plus-fundamental conviction: NFCI financial conditions (macro companion), EIA weekly crude stocks (inventory companion), strategic-reserve flow (supply companion), Strait of Hormuz chokepoint, and term structure. Signal is a slow-moving macro overlay; pair with faster supply and inventory signals for timing.

Reader rule: Inflation firings warn of real-asset bid with the 2008 commodity-inflation spike and 2022 post-COVID inflation spike as canonical Phase +1 anchors. Disinflation firings confirm real-asset outflow with the 2015 disinflation plus shale glut as canonical Phase −1 anchor. The 2.31 pp spread demonstrates the signal has directional edge via the real-asset inflation-hedge channel.

Methodology

Data source: Bureau of Labor Statistics CPIAUCSL headline US CPI monthly series. Computation: year-over-year delta against prior year same month, z-scored on a five-year rolling window, tanh-bounded to minus one through plus one. Monthly data forward-filled to daily cadence with publication lag applied. State thresholds plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Phase +1 at composite above +0.3 (inflation regime), phase −1 below −0.3 (disinflation). Target: NYMEX WTI Crude ratio-adjusted continuous close.

Historical window: BLS CPIAUCSL monthly from 1947; engine runs from 1982 onward with five-year z-score warmup through 1987.

Validation computed on 9,025 post-warmup daily observations. Phase +1 (Inflation) WTI fwd60d plus 0.97 percent, edge −1.43 pp on 35 percent sample. Phase 0 (Neutral) WTI fwd60d plus 2.79 percent, edge +0.40 pp on 16 percent sample. Phase −1 (Disinflation) WTI fwd60d plus 3.27 percent, edge +0.88 pp on 49 percent sample. 2.31 pp spread via real-asset inflation-hedge channel. Daily IC not individually significant on all sampling windows.

What this signal does not cover

The signal does not distinguish core CPI from headline CPI. It does not cover international inflation regimes (Eurozone, Japan, EM). It does not capture inflation expectations (TIPS breakevens, consumer surveys). It does not separate oil-driven inflation from services or housing inflation. Signal is a broad headline-CPI macro gauge; pair with core-inflation overlays, inflation expectation overlays, and international macro overlays for complete context.

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

US Bureau of Labor Statistics, CPIAUCSL headline Consumer Price Index monthly.

NYMEX WTI Crude futures daily settlement, CME Group.

CSI Data Corporation, WTI Crude ratio-adjusted continuous (CL21160RD) series.