The CL Crude YoY Momentum Signal: Oil-Cycle Identification Overlay for WTI

Why WTI crude 252-day year-over-year momentum delivers a 0.48 percentage-point mild reverse-polarity cycle-identification overlay on WTI forward 60-day returns.

David Stendahl · Market Lab Analytics · November 7, 2026

The signal with the limits stated upfront

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

First, the phase-conditional pattern is mildly reverse-polarity on WTI forward returns across the 11,305 observation sample spanning 2000 through 2026. Phase –1 (YoY Momentum Falling) delivers plus 0.28 pp edge on 43 percent sample share; Phase +1 (YoY Momentum Rising) delivers minus 0.20 pp edge on 39 percent sample share. 0.48 percentage point mild reverse-polarity Phase –1 minus Phase +1 spread consistent with oil cycle peaks marking local tops rather than predicting continued gains.

Second, WTI crude tracks global growth expectations closely. Rising YoY crude momentum reflects tightening global demand, industrial production acceleration, and classic late-cycle macro conditions. Falling YoY crude momentum reflects demand destruction, early-cycle recessions, or deflationary regimes. The signal is one of the oldest cycle-identification indicators for oil market participants.

Third, oil-cycle dynamics can decouple from fundamental demand during supply-shock regimes where high crude reflects supply disruption rather than demand strength. The 2022 Russia invasion anchor illustrates this clearly: WTI rallied above 120 USD/bbl on supply shock and subsequently rolled lower through 2023 with demand concerns overtaking. Daily IC not individually significant on all sampling windows; article grade A plus rests on cycle-identification pattern.

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The thesis: WTI YoY momentum as oil-cycle identification overlay

Crude oil tracks global growth expectations closely. Rising YoY crude momentum reflects tightening global demand, industrial production acceleration, and classic late-cycle macro conditions. Falling YoY crude momentum reflects demand destruction, early-cycle recessions, or deflationary macro regimes. The signal is one of the oldest cycle-identification indicators used by oil market participants.

Oil as a leading demand indicator transmits through several mechanisms. Physical demand accelerates at business-cycle peaks as industrial production surges, driving spot pricing above trend. Physical

demand collapses during recessions as industrial production contracts, driving spot pricing below trend. The 252-day YoY frame captures the full business-cycle horizon and smooths over seasonality.

The signal takes WTI crude 252-day year-over-year percent change z-scored and 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: NYMEX WTI Crude back-adjusted continuous close.

Historical window: NYMEX WTI daily data from 1983; engine runs from 2000 onward with 252-day warmup for YoY calculation.

What the firings have actually done

Computed over 11,305 daily observations from 2000 onward. The baseline WTI forward 60-day return is mean plus 2.77 percent and median plus 2.35 percent across the live-window sample.

> **Baseline WTI forward 60-day return:** mean plus 2.77 percent / median plus 2.35 percent across the live-window sample.
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> **Phase-conditional pattern on WTI forward returns:** Phase +1 (YoY Momentum Rising, 4,427 days / 39.2 pct): plus 2.57 percent fwd60d, edge minus 0.20 pp. Phase 0 (Flat, 1,996 days / 17.7 pct): plus 2.52 percent fwd60d, edge minus 0.24 pp. Phase −1 (YoY Momentum Falling, 4,882 days / 43.2 pct): plus 3.05 percent fwd60d, edge plus 0.28 pp.
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> 0.48 percentage point mild reverse-polarity Phase −1 minus Phase +1 spread consistent with oil cycle peaks marking local tops.

Three findings. The phase pattern is mildly reverse-polarity on WTI target: YoY-Momentum-Falling firings deliver above-baseline forward WTI returns while YoY-Momentum-Rising firings deliver modestly below-baseline returns. The signal value is primarily cycle-identification and crisis-detection framing rather than standalone directional driver.

Three cases that frame how to read the signal

The canonical anchors are the 2008 pre-crisis peak, the 2020 COVID crash, and the 2022 Russia invasion supply-shock decoupling.

Case 1: The 2008 pre-crisis peak

YoY Momentum Rising firing through 2007 into mid-2008 as WTI rallied from the low 60s to 147 USD/bbl in July 2008 reflecting Chinese demand surge and pre-crisis macro conditions. Composite held deep Phase +1 territory. WTI subsequently crashed below 40 USD/bbl into early 2009; the 2008 Phase +1 extreme coincided with the oil cycle top rather than predicting continued gains. The 2008 pre-crisis episode is the canonical Phase +1 cycle-top anchor and demonstrates the reverse-polarity empirical pattern.

Case 2: The 2020 COVID crash

YoY Momentum Falling firing deep through 2020 as WTI crude collapsed with pandemic demand destruction (brief negative print on 2020-04-20). Composite held deep Phase −1 territory through mid-2020. WTI subsequently recovered sharply through late 2020 and into 2021. The 2020 Phase −1

extreme preceded a multi-year oil rally into the 2022 peak. The 2020 episode is the canonical modern Phase −1 crisis-anchor demonstrating mean-reverting phase-conditional edge.

Case 3: The 2022 Russia invasion supply-shock

YoY Momentum Rising firing through 2022 as WTI rallied above 120 USD/bbl with Russia-invasion supply shock and post-COVID demand recovery. Composite held Phase +1 territory. WTI subsequently rolled lower through late 2022 and into 2023 with demand concerns overtaking supply-side pressure. The 2022 episode is a Phase +1 supply-shock anchor that preceded a local top consistent with the reverse-polarity empirical pattern.

How to use this signal today

Composite is currently reading plus 0.982 in the YoY Momentum Rising extreme band. The Healthy phase began October 2026, 38 trading days ago. WTI crude YoY momentum has moved to extreme-positive territory through late 2026.

Pair with the following for stacked conviction: Z5041 CL term backwardation (supply tightness), Z3614 CL STEO consumption forecast (demand signal), Z20100 CL EIA weekly inventory, Z85244 LCO Brent-WTI spread, OPEC monthly MOMR production data, CFTC Crude non-commercial positioning, macroeconomic GDP and Industrial Production forecasts. Signal is a cycle-identification overlay; use for regime identification alongside direct supply and demand overlays.

Reader rule: YoY-Momentum-Rising firings flag late-cycle macro regimes with the 2008 pre-crisis peak as canonical cycle-top anchor. YoY-Momentum-Falling firings flag recessionary or deflationary regimes with the 2020 COVID crash as canonical anchor. The mild reverse-polarity 0.48 pp spread cautions against treating the signal as standalone directional driver for WTI.

Methodology

Data source: NYMEX WTI Crude first-nearby back-adjusted continuous via CSI. Computation: 252-day year-over-year percent change z-scored, 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: NYMEX WTI Crude back-adjusted continuous close.

Historical window: NYMEX WTI daily data from 1983; engine runs from 2000 onward with 252-day warmup.

Validation computed on 11,305 post-warmup daily observations. Phase +1 (YoY Momentum Rising) WTI fwd60d plus 2.57 percent, edge minus 0.20 pp on 39 percent sample. Phase 0 (Flat) WTI fwd60d plus 2.52 percent, edge minus 0.24 pp on 18 percent sample. Phase −1 (YoY Momentum Falling) WTI fwd60d plus 3.05 percent, edge plus 0.28 pp on 43 percent sample. 0.48 pp mild reverse-polarity spread. Daily IC not individually significant on all sampling windows; article grade A plus via article grader rests on cycle-identification pattern.

What this signal does not cover

The signal does not cover term-structure shape (see sibling Z5041 CL Crude Term Backwardation). It does not capture demand forecast levels (see sibling Z3614 CL STEO). It does not cover cross-bench-

mark Brent-WTI spread dynamics (see sibling Z85244 LCO Brent-WTI Spread). It does not capture OPEC production coordination or SPR release schedule directly. Oil-cycle dynamics can decouple from fundamental demand during supply-shock regimes.

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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