The HO HO LPPLS Bubble Risk Signal: Overlay for Heating Oil

Why HO LPPLS Bubble Risk delivers a 2.38 pp spread on Heating Oil forward 60-day returns via the LPPLS bubble-risk exceedance channel.

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What this signal is

Elevated LPPLS bubble-risk exceedance signals late-stage speculative acceleration in Heating Oil that historically precedes bearish mean-reversion; low exceedance signals anti-bubble downside-exhaustion preceding bullish recovery.

The composite is bounded between minus one and plus one through tanh. Positive readings reflect the bullish channel state; negative readings reflect the bearish channel state.

Today the composite reads −0.955 in the Moderate NEG band after 33 trading days in the current phase. See the state-conditional returns panel below for the empirical phase-conditional edges.

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How the inputs compose

Elevated LPPLS bubble-risk exceedance signals late-stage speculative acceleration in Heating Oil that historically precedes bearish mean-reversion; low exceedance signals anti-bubble downside-exhaustion preceding bullish recovery. LPPLS (Log-Periodic Power Law Singularity) from econophysics (Sornette et al.) detects super-exponential acceleration followed by log-periodic oscillations that characterize bubble regimes on Heating Oil front-month continuous.

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 Heating Oil front-month continuous.

What the state-conditional returns have actually done

Computed over 9,022 daily observations from the live-window sample. The baseline Heating Oil forward 60-day return is mean plus 2.71 percent and median plus 1.69 percent across the live-window sample.

Baseline Heating Oil forward 60-day return: mean plus 2.71 percent / median plus 1.69 percent across the live-window sample.

Phase-conditional pattern on Heating Oil forward 60-day returns: Phase +1 (Bubble risk, 3,364 days / 37 percent): plus 1.46 percent fwd60d, edge −1.24 pp above baseline. Phase 0 (Neutral, 2,126 days / 24 percent): plus 2.80 percent fwd60d, edge +0.09 pp. Phase −1 (Anti-bubble, 3,532 days / 39 percent): plus 3.85 percent fwd60d, edge +1.14 pp.

2.38 pp Phase +1 minus Phase −1 spread via the LPPLS bubble-risk exceedance channel.

Three cases that frame how to read the signal

Case 1: Bubble risk, 2008 supercycle peak

LPPLS bubble-risk exceedance peaked in July 2008 at the Heating Oil supercycle top. Subsequent reversion through Q3-Q4 2008 confirmed the bubble-signal mechanism.

Case 2: Anti-bubble, 2020 COVID crude crash bottom

LPPLS anti-bubble exceedance triggered in March-April 2020 as Heating Oil crashed to historic lows. Subsequent Q2-Q4 2020 recovery confirmed the anti-bubble bottom-signal.

Case 3: Bubble risk, 2022 Russia-invasion diesel shock

LPPLS bubble-risk exceedance triggered during Q1 2022 Russia-invasion acceleration as Heating Oil spiked on diesel scarcity. Reversion through 2022 H2 confirmed.

How to use the signal today

Composite is currently reading −0.955 in the Moderate NEG band. Phase Stress firing for 33 trading days.

Pair with companion HO signals listed in the Related section for stacked conviction.

Reader rule: Phase +1 firings reflect bubble risk regime via the LPPLS bubble-risk exceedance channel. Phase −1 firings reflect anti-bubble regime. The 2.38 pp spread demonstrates the signal has directional edge via the stated channel.

Methodology notes

LPPLS (Log-Periodic Power Law Singularity) from econophysics (Sornette et al.) detects super-exponential acceleration followed by log-periodic oscillations that characterize bubble regimes on Heating Oil front-month continuous. 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 Heating Oil front-month continuous.

Validation computed on 9,022 post-warmup daily observations. Phase +1 (Bubble risk) Heating Oil fwd60d plus 1.46 percent, edge −1.24 pp on 37 percent sample. Phase 0 (Neutral) Heating Oil fwd60d plus 2.80 percent, edge +0.09 pp on 24 percent sample. Phase −1 (Anti-bubble) Heating Oil fwd60d plus 3.85 percent, edge +1.14 pp on 39 percent sample. 2.38 pp spread via LPPLS bubble-risk exceedance channel. Daily IC not individually significant on all sampling windows.

What this signal does not cover

Three limitations. LPPLS detects pattern but cannot time the reversal exactly. Bubble-risk signal can fire without immediate reversal. Anti-bubble downside-exhaustion harder to detect than upside bubbles.

The signal does not capture mechanisms outside its stated transmission channel. It does not substitute for broader Heating Oil supply + demand + inventory + crude overlays; pair with companion signals in the Related section 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

NYMEX Heating Oil futures daily settlement, CME Group.

CSI Data Corporation, Heating Oil front-month continuous (HO21120RD) series.