Platinum-To-Gold 1-Day-Lagged Variance Spillover As A Cross-Metal Stress Signal

Why asymmetric volatility transmission from platinum to gold on a 1-day lag captures cross-metal stress; the 2020 COVID panic as archetype.

David Stendahl · Market Lab Analytics · November 5, 2026

What this signal is

Platinum and gold both trade in the precious-metals complex but respond to different fundamentals. Platinum carries autocatalyst-demand exposure; gold carries safe-haven and monetary exposure. When cross-metal stress episodes hit, platinum volatility leads gold volatility with a one-day lag.

This signal measures the transmission. The engine computes a rolling-window regression of gold returns on one-day-lagged platinum squared returns. The regression coefficient is the variance spillover from platinum to gold with one-day lag. Elevated spillover coefficient means platinum volatility is actively leading gold volatility; near-zero spillover means the two series are decoupled at the daily lag.

On March 19, 2020 the composite reached its series maximum plus 0.9036 during the COVID liquidity-shock window. Platinum variance was spilling massively into gold as the broader precious-metals complex absorbed the panic. Gold rallied through the subsequent window on Fed intervention and safe-haven flows.

Today the composite reads near minus 0.12, in Normal territory. The signal is a filter on cross-metal stress regimes.

Spearman IC is plus 0.11 across 4,171 live-window trading days. State-conditional means: spillover-stress plus 2.34 percent; Normal plus 1.30 percent; spillover-calm minus 0.57 percent. The 291-basis-point spread between phase plus one and phase minus one is the signal's edge.

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How the inputs compose

The engine pulls daily platinum (PL) and gold (GC) futures closing prices, computes log returns, and sets up a rolling-window regression where gold returns at time t are regressed on the constant plus the coefficient times the lagged platinum squared returns at time t minus one plus an error term. The regression runs on a 60-day rolling window. The beta_1 coefficient at each day is the lagged variance

spillover from platinum to gold. Beta_1 is z-scored on a longer baseline and passed through tanh with scale 1.5. The polarity is as-is positive.

The engine computes four confirming features: five-day composite velocity, 60-day volatility regime, 60-day correlation with gold daily returns, and 63-day lag-1 autocorrelation.

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What the state-conditional returns have actually done

The gold forward-60-day return baseline (unconditional) is mean plus 1.30 percent, median plus 1.08 percent. Standard deviation 5.84 percent. Percent negative 42.2 percent.

> **Reference baseline (4,171 gold-aligned forward-60-day windows from January 2010 through October 2026)**
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> Gold forward-60-day return baseline: mean plus 1.30 percent, median plus 1.08 percent.

Spillover-stress (Phase +1), 621 trading days, delivered mean plus 2.34 percent. Plus 104 basis points above baseline.

Normal (Phase 0), 3,254 trading days, delivered mean plus 1.30 percent. Essentially at baseline.

Spillover-calm (Phase −1), 356 trading days, delivered mean minus 0.57 percent. Minus 187 basis points below baseline.

The spread of plus 291 basis points between phases is substantial.

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Three cases that frame how to read the signal

Case 1: March 2020 COVID panic series maximum

Composite plus 0.9036 on March 19 2020 as massive platinum variance spilled into gold through the COVID liquidity shock. Both metals spiked and crashed together; the one-day-lag spillover coefficient captured the transmission.

Case 2: July 2023 calm cross-metal regime series minimum

Composite minus 0.5677 on July 26 2023 as platinum and gold decoupled on the daily-lag basis. A quiet-regime reading.

Case 3: 2025 through 2026 oscillating moderate regime

Composite oscillated in moderate ranges across the two years as cross-metal volatility transmission shifted through specific risk-off events. No single extreme defined the period.

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How to use the signal today

This is a cross-metal volatility-transmission filter on a 60-day forward horizon.

Three best uses. First, as a cross-metal stress regime filter. Second, as a cross-check against direction signals. Third, as a complacency warning when spillover-calm readings sustain.

Methodology notes

The composite is tanh of z-scored 60-day rolling regression coefficient of gold returns on 1-day-lagged platinum squared returns. The 60-day window balances responsiveness against noise. The 1-day lag captures transmission timing.

Spearman IC plus 0.11 across 4,171 days.

The 2010 start reflects reliable daily platinum futures history coverage.

What this signal does not cover

Variance spillover captures stress but not direction. The signal is bilateral platinum-to-gold only. Other cross-metal pairs (silver-to-gold, palladium-to-platinum) are separate signals.

Not investment advice. Signal readings and empirical statistics are derived from publicly available data (COMEX platinum and gold futures daily closes). (c) 2026 David Stendahl.