The Caracas Signal: Forensic Analysis of Pre-Announcement Price Adjustment Ahead of Operation Stabilize

January 11, 2026

ABSTRACT

We present a forensic analysis of pre-announcement price adjustment ahead of the January 3, 2026, military intervention in Venezuela. Using a two-factor intraday model, we document a cumulative abnormal return (CAR) of +2.24% in energy equities (XLE). This move occurred in the absence of public news, and persists after controlling for market and oil price factors. A divergence between defense (+3.41%) and shipping (-5.68%) sectors, paired with a -2.78% decoupling of tanker equities from a freight proxy (BDRY) is consistent with informed trading ahead of the news pricing a limited, stabilizing strike rather than a protracted conflict, although the specific information channel cannot be identified.

Keywords: Forensic Finance; Pre-Announcement Trading; Geopolitical Risk; Political Intelligence; Market Microstructure; Conflict Economics.
JEL Classification: G14; G12; F51; D72.

1 Introduction

Financial markets are often theorized as efficient information processors, yet geopolitical events can produce price adjustments before public disclosure. Prior work documents pre-announcement price movements around political events and conflicts (Dube et al., 2011; Rigobon and Sack, 2005; Caldara and Iacoviello, 2022; Guidolin and La Ferrara, 2007; Bernile et al., 2016). We examine the January 2, 2026 session, where price movements anticipated the Venezuela intervention on January 3rd. This deviation from fundamental drivers signals the capitalization of private information, even as the specific transmission channel remains unobserved.

The sequence of events is clear: markets close at 16:00 on Friday, the operation begins early Saturday (Popli, 2026), and public acknowledgement follows several hours later around 4:21 EST (Kinnard, Meg and Lopez-Mills, Dario, 2026). Thus, the Friday signal occurs well before the kinetic event and public dissemination. President Trump claims to have discussed the action or related policy before the event with oil company

executives, but the claim is disputed, and we do not observe the flow of information to them or to other actors.

Our objective is to verify the anomaly and interpret its content. We measure unexplained alpha in energy equities relative to crude oil futures and also examine cross-sector dispersion, particularly the defense–shipping divergence. The contribution is a reproducible intraday decoupling analysis and a sectoral diagnostic that is consistent with pricing of a limited intervention rather than a protracted conflict, while allowing for alternative channels of information flow. A comparative historical context in Section 2 situates the pattern within a broader event universe.

This note contributes to the forensic finance literature in three ways. First, it provides a case study of pre-announcement price adjustment in an algorithmic trading era. Second, it distinguishes between a commodity-driven shock and an equity-cash-flow repricing by focusing on a spread metric rather than raw returns. Third, it shows how cross-sector dispersion (defense versus shipping) can help infer the anticipated *scope* of an event, not merely its occurrence, conditional on the unobserved particulars of information flows.

2 Data and Methodology

We use 5-minute intraday OHLCV (open, high, low, close, volume) data for the event window (January 2, 2026) and for the 45-day pre-event baseline (Nov 15–Dec 31, 2025), balancing recency with a stable baseline sample. The primary assets include the Energy Select Sector SPDR exchange-traded fund (ETF; XLE), West Texas Intermediate (WTI) crude futures (CL=F), and the SPDR S&P 500 ETF (SPY). Robustness checks utilize a shipping basket (FRO, NAT, STNG) and the Breakwave Dry Bulk Shipping ETF (BDRY) as a fundamental freight rate proxy. One-minute data are used only for visualization, not for inference.

Intraday and daily price data are sourced from Yahoo Finance via the `yfinance` API. Prices are auto-adjusted for splits/dividends where applicable. Time zones are normalized to America/New_York and duplicate timestamps removed.

2.1 Intraday Factor Model

To isolate the sector-specific signal from broad market and commodity movements, we estimate a two-factor intraday model:

$$r_{XLE,t} = \alpha + \beta_{SPY} r_{SPY,t} + \beta_{Oil} r_{Oil,t} + \epsilon_t \tag{1}$$

where r_t represents the logarithmic return at time t. We estimate the coefficients β_{SPY} and β_{Oil} using the 45-day pre-event baseline. Estimation at 5-minute frequency reduces microstructure noise.

2.2 Cumulative Abnormal Return (CAR)

The primary forensic metric is the Intraday Cumulative Abnormal Return (CAR), calculated as the cumulative sum of the residuals (ϵ_t) from the factor model during the event window:

$$CAR_t = \sum_{\tau=t_0}^{t} (r_{XLE,\tau} - \hat{r}_{XLE,\tau}) \tag{2}$$

Statistical significance is assessed using the empirical distribution of placebo daily CAR paths from the 45-day pre-event baseline window. This distribution defines the gray cone and avoids reliance on parametric Z-scores.

Our primary test statistic is the end-of-day CAR on Jan 2. We report an empirical p-value based on the proportion of baseline days with end-of-day CAR at least as large as the event-day value; effectively, it is the day's rank within the baseline distribution. The gray cone is a pointwise band (not a simultaneous confidence band).

Intraday volume z-scores are computed against the 45-day baseline by matching on time-of-day (5-minute bins). For each bin, we compute the mean and standard deviation of baseline volume and express event-day volume as a z-score relative to that bin's distribution.

As a complementary placebo, we compute the distribution of maximum intraday spreads between XLE and oil futures over the 45-day baseline (Nov–Dec 2025). The Jan 2 spread exceeds all baseline observations (Appendix 3).

3 Empirical Results

Our analysis of January 2, 2026, reveals a sizable pre-announcement price adjustment.

3.1 Intraday Abnormal Returns

The primary signal is a sharp decoupling of energy equities from their fundamental drivers. The intraday factor model, estimated on a 45-day baseline ($\beta_{Oil} = 0.38$, $\beta_{SPY} = 0.29$), reveals a Cumulative Abnormal Return (CAR) of +2.24% for XLE on the event day. We pre-specify the end-of-day CAR as the primary test statistic and compute its empirical p-value from the baseline distribution (31 trading days), yielding $p = 0.0312$; this is reported as a descriptive benchmark.

Table 1 summarizes key timestamps (all times Eastern Standard Time, EST). We define the signal window as the full trading session on Jan 2 and pre-specify the close-to-close CAR as the primary statistic; other diagnostics are treated as robustness checks.

Figure 1 illustrates the signal. The end-of-day CAR corresponds to a standardized residual of 2.75 for comparability, and inference relies on the empirical baseline distribution rather than normality. The placebo spread distribution and the prediction market control are reported in Appendix 3 and Appendix 4.

Table 1: Key Timestamps (Jan 2–3, 2026)

Time (EST)	Label	Notes
09:30	Market open	U.S. equities open.
16:00	Market close	End of the Jan 2 session.
Jan 3, 01:01	Operation start	Operation Stabilize begins (Popli, 2026).
Jan 3, 04:21	First public report	First public acknowledgement (Kinnard, Meg and Lopez-Mills, Dario, 2026).

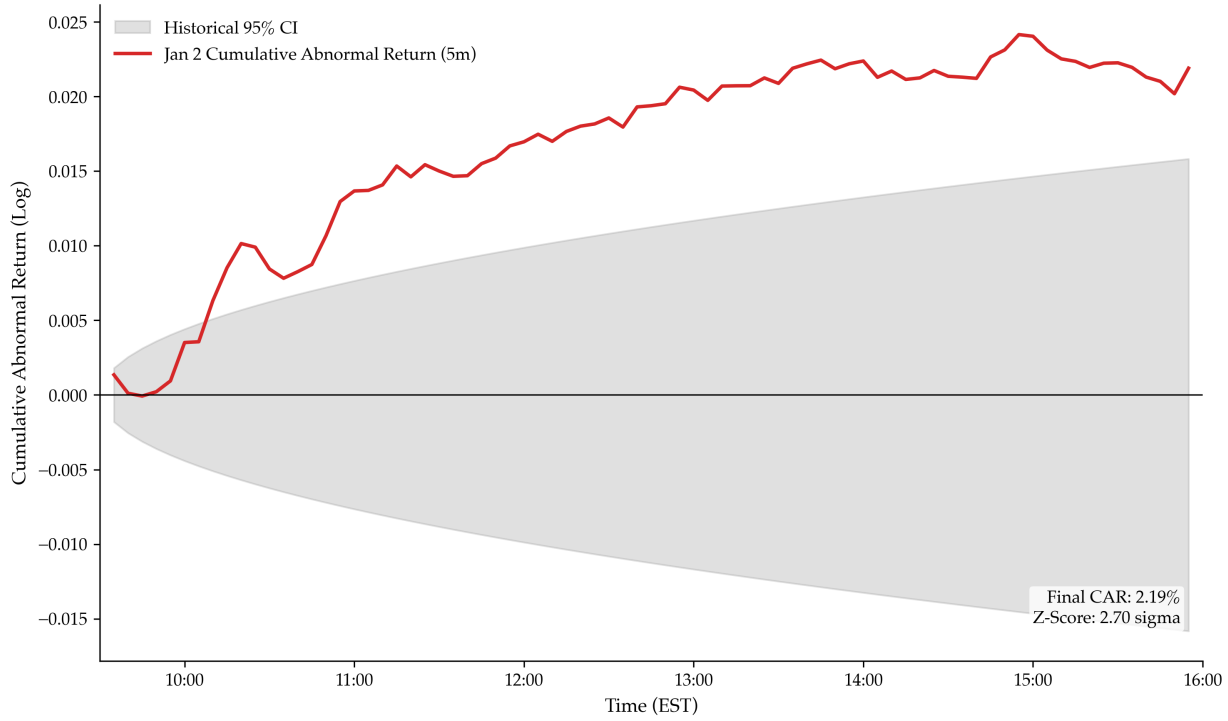

Figure 1: Intraday Cumulative Abnormal Return (CAR), 5-minute frequency. The red line tracks the accumulated residual returns of XLE on Jan 2, 2026, after controlling for SPY and Oil. The shaded gray region represents the empirical 2σ range derived from the prior 45 days

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The volume profile remains suggestive of low-visibility trading (Kyle, 1985). Volume z-scores remained below critical thresholds ($Z < 1$) for most of the session, consistent with low-footprint order execution during the session.

3.2 Cross-Sector Diagnostic: Geopolitical vs. Fundamental

The divergence between defense (+3.41%) and shipping (-5.68%) provides a cross-sector diagnostic of the signal's content. To address the concern that the shipping drop is firm-specific, Appendix A.2 tests a multi-name tanker basket and finds a broad decline. To address the concern that XLE is part of a sector-wide rotation, Appendix A.10 shows XLE in the upper tail of sector abnormal returns.

We further test whether the shipping move reflects contemporaneous freight rates by comparing tanker equities to BDRY in Appendix A.3; tankers fall more than the proxy. We also separate crude versus product

tanker reactions in the same appendix and report a three-factor robustness check (SPY + WTI + Brent) in Appendix A.4.

3.3 Robustness

We confirmed the results using alternative energy proxies (VDE, XOP) and Brent Crude (BZ=F), finding consistent positive alphas. A risk/FX robustness check (adding VIX and UUP) yields a similar end-of-day CAR (Appendix A.6), and using oil ETFs (USO, BNO) in place of CL=F yields similar CARs (Appendix A.7). As a public-information check, the related Polymarket contract (for "Maduro Out by Jan 31") remains flat during the session (Appendix 4), although this evidence should be treated cautiously given the dataset does not report liquidity metrics (volume or bid–ask). Additional placebo tests and public information checks are reported in Appendix 4 and Appendix 3. The sector SPDR cross-section in Appendix 5 shows XLE as the largest sector abnormal return, consistent with a sector-specific move rather than broad rotation.

4 Comparative Historical Analysis

We include a historical benchmark to contextualize whether the defense–shipping pattern observed on Jan 2 is typical or unusual among conflict onsets in major oil producers. To avoid discretionary case selection, we construct a full event universe using the Uppsala Conflict Data Program (UCDP) Georeferenced Event Dataset (GED) state-based conflict events, filtered to top-10 oil producers by year (U.S. Energy Information Administration, EIA annual production). We keep only onsets with ≥ 25 battle deaths and enforce a 30-day quiet period per country. Each event is evaluated with a single timing rule (previous close to the first US trading day close after the event date).

For each event, we compute a one-day defense and shipping alpha relative to SPY, with betas estimated over [-120, -20] trading days. Figure 2 plots the full distribution (2006–2024, where ETF coverage is reliable) and overlays the Caracas 2026 point derived from the event-session close-to-close move using the same method.

Most historical events cluster in the positive-comovement region (defense and shipping both up), consistent with a war-risk premium. The Caracas point falls in the defense-positive, shipping-negative quadrant, which is suggestive of a stabilization signal rather than broad conflict risk. We treat this comparison as pattern recognition and context rather than a causal test or definitive signal decoding.

5 Discussion

The evidence indicates a clear intraday signal window on January 2. The magnitude of the cumulative abnormal return (+2.24%) is unlikely to be random intraday noise and suggests that market-relevant information was incorporated into prices before public dissemination, potentially through soft or semi-private channels not captured in standard newswire feeds.

The contractor beta analysis points to a macro-sector signal rather than firm-specific trading. While public reporting has discussed possible information channels (Pilkington, Ed, 2026; Eaton and Leary, 2026), the data do not identify a mechanism. We interpret the results as consistent with early pricing of event scope

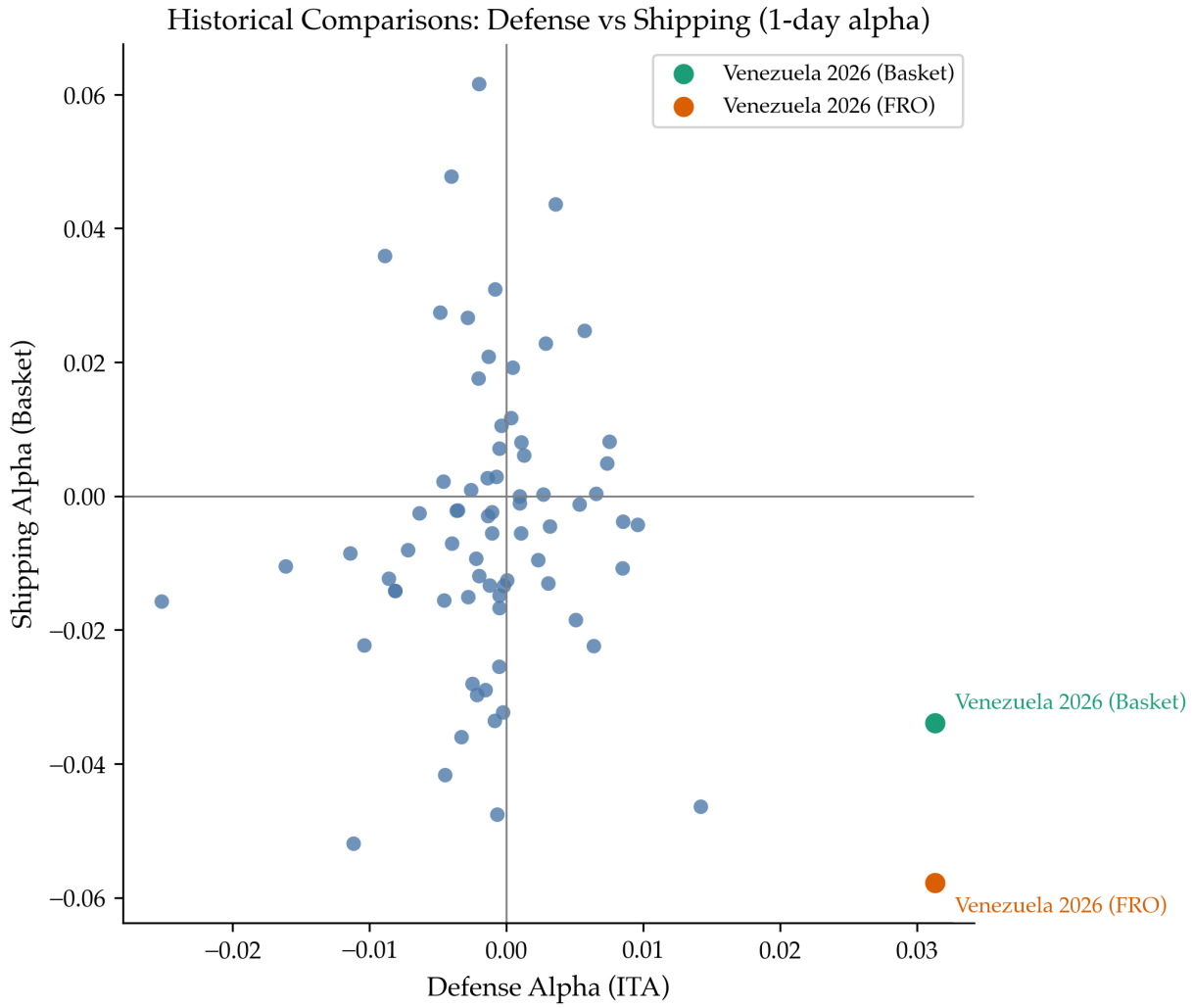

Figure 2: **Comparative historical analysis (objective event universe).** defense and shipping one-day alphas for all qualifying UCDP GED events in top-10 oil producers (2006–2024). The Venezuela 2026 basket and FRO points are overlaid using the same close-to-close rule and beta-adjusted returns.

rather than attribution to any specific source; the pattern is consistent with leakage or other semi-public channels but is not evidence of insider activity.

The defense–shipping divergence is the most informative qualitative signal. A generic war scare typically lifts both; the negative shipping response alongside a defense rally is consistent with pricing of a limited intervention with minimal disruption to trade routes, but other channels (sanctions enforcement, insurance/frictions, vessel seizures) can also affect shipping equities. We therefore treat the pattern as contextual evidence rather than a unique decoder of event scope. This interpretation is consistent with, but does not rely on, public statements about post-event energy policy (Janetsky, 2026).

Two limitations are worth noting. First, the analysis relies on publicly available price data and cannot identify the precise channel of information transmission. Second, the event is a single episode, so inference is necessarily descriptive rather than causal.

We therefore treat the appendix tests as corroborative rather than definitive, and focus on the consistency of signals across prices, sectors, and alternative benchmarks.

As post-event context, shipping stocks rebounded several days later on reports that the U.S. would seize shadow-fleet vessels and route volumes through U.S.-insured channels (Ballesteros, Angelica, 2026). This is consistent with the interpretation that the Jan 2 signal reflected both a reduction in conflict risk and an expected reallocation of shipping volume away from the shadow fleet and toward compliant carriers.

6 Conclusion

Our forensic examination of the January 2, 2026 session documents a significant pre-announcement price signal. Using intraday spread analysis and beta-adjusted abnormal returns, we isolate early price adjustment within the trading session preceding the public announcement. The pattern of long energy equities and short shipping risk is consistent with pricing of a limited, stabilizing intervention rather than a broad conflict. These findings align with forensic finance evidence that abnormal pre-announcement price moves can reflect early information processing, including the possibility of leakage or semi-public channels, without identifying a specific mechanism (Meulbroek, 1992).

Replication materials

Replication code is available at `https://github.com/aristotle-tek/caracas-signal`. Due to licensing restrictions, the replication archive does not include intraday data obtained from Yahoo! Finance; scripts to re-download the data, subject to Yahoo's availability windows, are provided instead.

AI disclosure statement

The authors used ChatGPT, a large language model developed by OpenAI, to assist with reviewing the manuscript for clarity and language. The authors reviewed, edited, and take full responsibility for the content of the manuscript.

Conflict of interest statement

The authors declare no conflicts of interest.

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A Appendix: Robustness Checks and Sensitivity Analysis

A.1 Data Quality and Assets

Intraday OHLCV data are sourced from Yahoo Finance and therefore may reflect vendor-specific stitching or filtering. We mitigate timing and microstructure concerns by normalizing all timestamps to America/New_York and removing duplicate timestamps. We do not claim a precise microstructure attribution; the primary result is interpreted as a descriptive decoupling that is robust to coarser sampling.

Table 2 lists the financial instruments included in the analysis.

Table 2: Analyzed Financial Instruments

Ticker	Sector/Type	Forensic Role
XLE	Energy (ETF)	Broad sector proxy; primary vehicle for sector-wide flows.
CL=F	Oil (Futures)	Primary benchmark for spot crude pricing (WTI).
BZ=F	Oil (Futures)	Brent benchmark for robustness checks.
SPY	Market (ETF)	Broad market benchmark for Beta adjustments.
VIX	Volatility Index	Risk sentiment control (robustness).
UUP	USD ETF	Dollar proxy for FX control (robustness).
USO	Oil (ETF)	WTI-linked ETF control (robustness).
BNO	Oil (ETF)	Brent-linked ETF control (robustness).
VDE/XOP	Energy (ETFs)	Alternative energy proxies.
ITA	Defense (ETF)	Proxy for "Kinetic Action" probability.
FRO	Shipping (Equity)	Crude Tanker proxy (High Beta).
NAT	Shipping (Equity)	Suezmax proxy (Basket Component).
STNG	Shipping (Equity)	Product Tanker proxy (Basket Component).
BDRY	Freight (ETF)	Proxy for fundamental spot freight rates.
HAL/SLB	Services	Test for contractor-specific signals.
XLB–XLY	Sector SPDRs	Cross-section benchmark for sector rotation.

A.2 Shipping Sector Proxy Validation

A potential concern is that using Frontline plc (FRO) as a single proxy for the shipping sector introduces idiosyncratic firm risk; the decline could be firm-specific rather than sectoral.

We validated the signal using an equal-weighted shipping basket spanning crude and product tanker segments.

- **Frontline (FRO):** VLCC/Crude. Close-to-close return: -5.68%.
- **Nordic American (NAT):** Suezmax. Close-to-close return: -2.03%.
- **Scorpio Tankers (STNG):** Product Tankers. Close-to-close return: -2.24%.

The basket average declined -3.32%, confirming that the "sell shipping" signal was systematic rather than firm-specific.

A.3 Freight Proxy Check (Intraday)

A related concern is that the shipping equity sell-off could reflect contemporaneous freight rate moves rather than a change in expectations about future maritime risk. We compare intraday close-to-open returns on Jan 2 for shipping equities and a freight proxy (BDRY). BDRY tracks dry-bulk freight rather than tanker-specific rates, so this check is suggestive rather than definitive.

- FRO: -2.83%
- NAT: -1.46%
- STNG: -0.54%
- BDRY: -0.41%

Shipping equities fell materially more than the freight proxy, suggesting the move was not driven by contemporaneous dry-bulk freight rates.

Crude vs. product split: The decline is larger in crude-tanker names (FRO/NAT) than in the product-tanker name (STNG), consistent with a crude-specific risk premium interpretation.

A.4 Alternative Explanations: Intraday Factor Model

A standard concern is that the XLE rally could be driven by "risk-on" flows (high SPY beta) or broad oil movements rather than a specific signal. In addition to the two-factor regression in the main text, we note the baseline fit here for reference: $\beta_{SPY} \approx 0.29$ and $\beta_{Oil} \approx 0.38$, implying a Jan 2 CAR of +2.24% (2.75σ). The magnitude of the residual implies that broad market and oil factors cannot explain the XLE move on Jan 2.

Three-factor robustness: Adding Brent futures (BZ=F) as a third factor yields a similar end-of-day CAR (+2.14%, $p = 0.0435$), confirming that the signal is not driven by a specific oil benchmark.

Break timing: A cumulative sum (CUSUM)-style diagnostic on intraday residuals indicates the maximal deviation occurs at 12:21 EST (Jan 2). This timing is reported descriptively rather than as a formal test.

A.5 Lagged-Factor Robustness (5-Minute)

A concern is that asynchronous trading can create lagged responses between ETF and futures returns. We re-estimated the 5-minute model including one lag of SPY and WTI returns to absorb short-horizon lead/lag effects. The event-day CAR remains +2.05% with an empirical p-value of 0.0312, indicating the signal is not driven by short-horizon asynchronous pricing.

A.6 Risk and FX Robustness (5-Minute)

A potential objection is that the XLE residual could reflect broader risk sentiment or dollar moves rather than event-relevant pricing. We extend the 5-minute model to include the CBOE Volatility Index (VIX) and a U.S. dollar proxy (UUP), alongside SPY and WTI. The event-day CAR remains +2.14% with an empirical p-value of 0.0435, indicating robustness to risk and FX controls.

A.7 ETF Oil Controls (5-Minute)

A concern is that using futures (CL=F) may introduce asynchronous pricing relative to equity ETFs. We re-estimated the 5-minute model using oil ETFs as the commodity control: USO (WTI-linked) and BNO (Brent-linked). The event-day CAR remains +2.17% (USO) and +2.19% (BNO), with empirical p-values of 0.0435 in both cases.

A.8 Spread Placebo Test (Distribution Analysis)

We calculated the maximum intraday spread (XLE - Oil Futures) for every trading session in the available pre-event baseline (Nov 15–Dec 31, 2025). We also report a volatility-matched subset of baseline days with similar SPY and oil realized volatility.

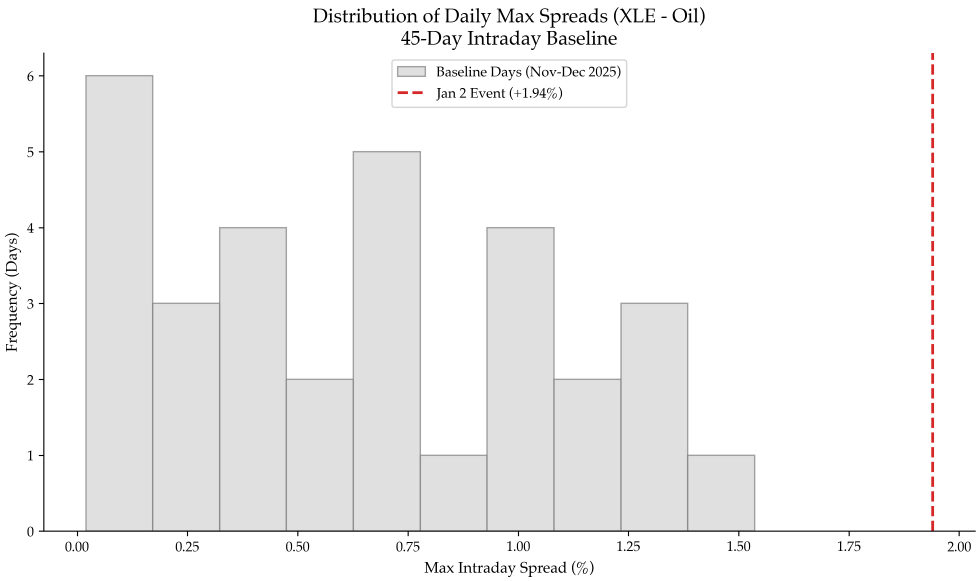

Figure 3: **Distribution of Daily Max Spreads.** The histogram shows baseline peak intraday decoupling. The Jan 2 event (+1.94%) exceeds all baseline observations.

The baseline daily max spreads averaged 0.64% (std 0.43%). The Jan 2 spread (+1.94%) exceeds all baseline observations. In the volatility-matched subset (6 days), the mean max spread is 0.36% (std 0.26%), and Jan 2 remains the largest value.

A.9 Public Information Control: Prediction Markets

This check addresses the possibility that the Jan 2 equity move reflected widely disseminated public rumor rather than early incorporation of event expectations. Polymarket data were downloaded from the contract page on January 7, 2026 (Polymarket, 2026). The series plotted is the "Maduro Out by Jan 31" market, filtered to Dec 25, 2025 through Jan 10, 2026, with timestamps from the "Date (UTC)" column converted to EST. While energy equities rallied on Jan 2, the prediction market probability remained near its baseline level throughout the session, as shown in Figure 4. We treat this as illustrative: the contract's liquidity and trader base may not map cleanly to institutional equity markets. The dataset does not include liquidity or bid–ask information, so a lack of movement is suggestive but not definitive.

The lack of reaction in prediction markets suggests the price action was not driven by broadly disseminated public information.

A.10 Sector SPDR Cross-Section

To address the possibility of a broad sector rotation, we estimate close-to-close abnormal returns for all Sector SPDRs relative to SPY using a pre-event beta window and rank the cross-section on Jan 2, 2026.

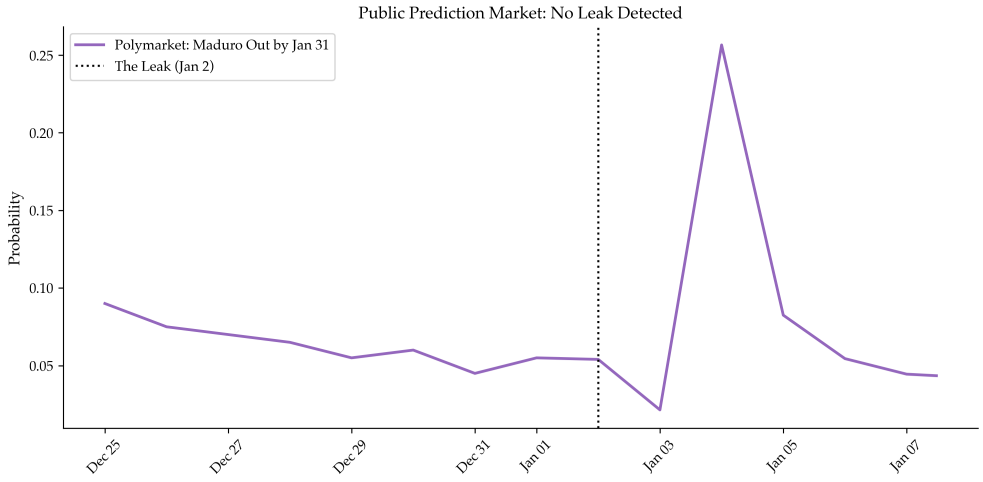

Figure 4: **Public vs. Private Signal.** Energy equities rallied while the prediction market probability remained flat, indicating the signal had not yet diffused into public markets.

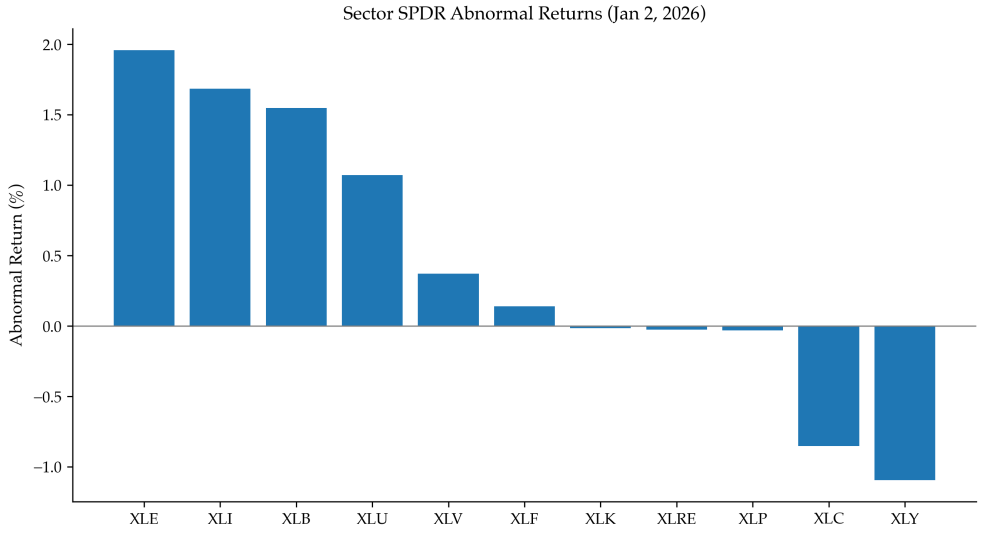

Figure 5: Sector SPDR Abnormal Returns (Jan 2, 2026). XLE has the largest sector abnormal return, consistent with a sector-specific signal rather than a broad rotation.